IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

THE UNIVERSITY OF ILLINOIS FOUNDATION, Plaintiff and Counterclaim Defendant, - v - BLONDER-TONGUE LABORATORIES, INC., Defendant and Counterclaimant, - v - JFD ELECTRONICS CORPORATION, Counterclaim Defendant.	)	Civil Action No. 66 C 567

BRIEF OF DEFENDANT AND COUNTERCLAIMANT,
BLONDER-TONGUE LABORATORIES, INC.,
IN SUPPORT OF COUNTS I, II AND III
OF ITS COUNTERCLAIM

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March 24, 1969

Mr. Isaac S. Blonder
Blonder-Tongue Laboratories, Inc.
9 Alling Street
Newark, New Jersey 07102

Dear Ike:

Trust you received a copy of our reply brief in the University of Illinois-JFD appeal.

The hearing before the Court of Appeals in Chicago will be on April 10th. Do you wish to attend?

We hope to get to Newark next week and will call re a suitable day. Meantime, in answer to your letter of March 17, we might wish to consider a modification of the employee agreement, particularly in view of the relatively new New Jersey trade secret criminal statute which we have previously discussed, and which is one of many items we should review.

Cordially,

RINES AND RINES

By_____
Robert H. Rines

RHR/MN

cc: B.H.Tongue

BLONDER·TONGUE LABORATORIES INC.
9 ALLING STREET, NEWARK, NEW JERSEY 07102 · (201) 622-8151

March 17, 1969

Robert Rines, Esquire
Rines and Rines
10 Post Office Square
Boston, Mass. 02109

Dear Bob:

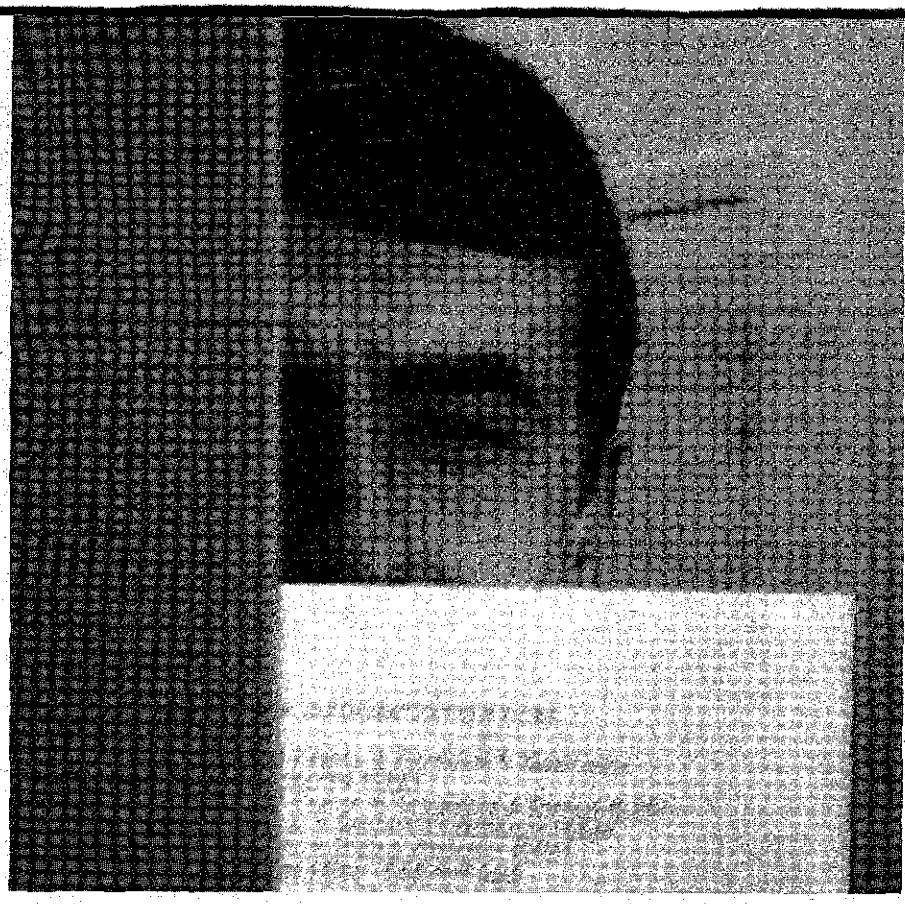
After you have read the enclosed article, please let me know if you think we should change our employee's employment agreement.

Sincerely,

Isaac S. Blonder

ISB/jg
Enc.

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Trade secrets and the technical man

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Increased legislative protection and favorable court judgments are not sufficient to keep trade secrets from being misappropriated. Corporate programs that include early legal consultation must also be instituted to prevent such transgressions

Charles M. Carter *Warwick Electronics Inc.*

The present scientific and technical world is one of complexity, magnitude, and rapid growth. In the face of such soaring progress, one subject has grown increasingly important and yet has remained somewhat of a mystery to people in the scientific and engineering community—that of "trade secrets." Although, as a general rule, these people have some working knowledge and familiarity with the patent laws, there is nevertheless an overall lack of understanding regarding the rights, obligations, and liabilities arising from the laws as applied to trade secrets. With the fluidity of the employment market and the rise in litigation concerning this area, it is therefore imperative that members of the community gain an understanding of these concepts. This article is intended to bridge some of the gap between trade secrets and the technical man.

What is a "trade secret"? Unfortunately, this is not a term that can be readily and explicitly defined. In broad terms, a trade secret has been defined by the courts as any business method, manufacturing process, formula, pattern, device, invention, improvement, design, or compilation of information that is used in a company's business and provides a competitive advantage. Novelty and invention—prerequisites for patent protection—are *not* necessary elements for a trade secret. On the other hand, a trade secret may be a patentable item. If it is patented, however, it can no longer be considered a trade secret, since secrecy is an essential element of this term. Moreover, ideas, processes, devices, etc., that are generally known to the public or within an industry cannot qualify as trade secrets. Thus, secrecy forms the dividing line between a trade secret and information or material in the public domain; and such a

division cannot be bridged by merely disclosing the secret to employees or others in confidence.

Although people in the scientific and technical community have some working knowledge or familiarity with the patent laws, it may be helpful to review briefly the purpose and scope of our patent system so that a clear understanding exists as to the differences between seeking patent protection and maintaining a trade secret. The Constitution of the United States gives Congress the power to enact laws relating to patents in article 1, section 8, which reads: "Congress shall have power . . . to promote the progress of science and useful arts, by securing, for limited times to authors and inventors, the exclusive right to their respective writings and discoveries."

A patent only grants the applicant the right to exclude others from making, using, or selling the patented invention. The rights granted by a patent are given by the government in exchange for public disclosure. Such public disclosure is intended to promote the progress of "science and useful arts."

On the other hand, the one purpose of a trade secret is secrecy, and thus nondisclosure. It follows that trade secrets are not intended to promote the progress of science and useful arts, and that the patent system evolved as a motivation for public disclosure as opposed to maintenance of a trade secret.

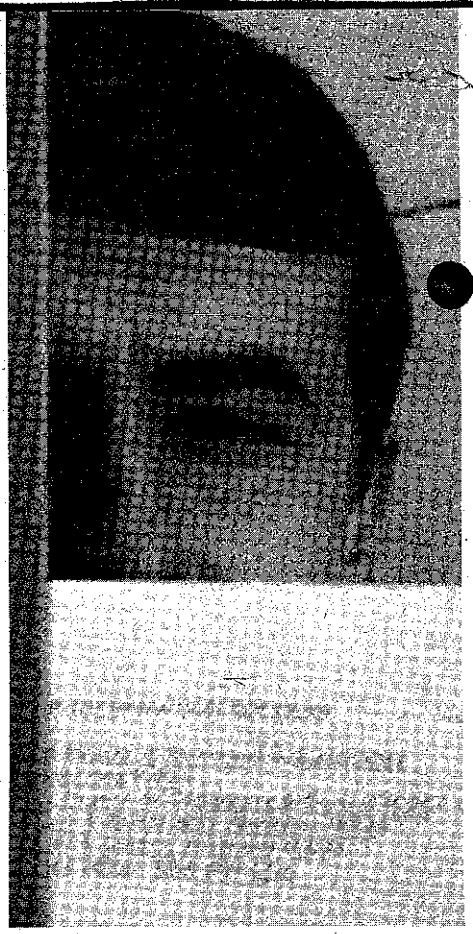
Because a trade secret may be a patentable item, a difficult decision must often be made as to whether an item should be maintained as a trade secret or should be patented. This is particularly true regarding manufacturing processes or formulas because of the difficulty of policing patents relative thereto. This policing problem must be balanced against the possibility that the trade secret will be broken legally. If another party should independently stumble upon a trade secret, such a party is free to use or disclose the secret. For example, a trade secret may relate to the ingredients used in a product, and another party may legally break the trade secret by ascertaining the ingredients through chemical analysis.

The period of protection must also be carefully weighed in such a decision. Under the patent laws, the recipient of a patent is granted the right to a monopoly for a period of 17 years. On the other hand, a trade secret is effective as long as it is maintained a secret. It is apparent that trade secrets are playing a greater and greater role in our present technological society.

A classic example of the importance of trade secrets may be found in the closely guarded formula and process for Coca-Cola. This is one of the most well-protected secrets in existence today and has undoubtedly played an important part in the prosperity of the Coca-Cola Company. Hundreds of thousands of dollars have been spent by others in an attempt to legally break this secret—with no success. If the formula and process for Coke had been patented, they would be in the public domain today. However, because they have been maintained as trade secrets, the Coca-Cola Company has continued to maintain its competitive advantage.

Laws

In general, the protection granted trade secrets has arisen out of common law and equity, not out of statutory provisions. The basis, apart from breach of contract when a contractual relationship exists, has been in the form of an abuse of confidence or an impropriety relating to procurement. In the technological area, a confidential or fiduciary



relationship that exists between the technical man and his employer parallels that, for example, of the attorney–client relationship. The development of the law of trade secrets has resulted from a balancing of two conflicting elements: (1) protecting the owner of information, which is obtained through ingenuity, employee effort, and the employer's expenditure of time and money, and (2) favoring free competition by allowing an employee to use skills learned during an employment for the benefit of himself and society in general. The trade secrets law seeks to enforce increasingly high standards of fairness and commercial morality.

In recent times, various laws relating to trade secrets have been enacted or proposed. A number of states have enacted or modified criminal statutes relating to the wrongful taking or appropriation of property so that such types of corporation property as trade secrets are included. These states now include Arkansas, California, Colorado, Illinois, Maine, Massachusetts, Nebraska, New Hampshire, New Jersey, Pennsylvania, and Tennessee.

An indication of the typical scope of protection granted under such laws may be seen by referring to the law in Illinois. The term "property" is defined in section 15-1, article 15, chapter 38 (Criminal Law and Procedure), of the Illinois Revised Statutes as follows:

> As used in this Part C, "property" means anything of value. Property includes real estate, money, commercial instruments, admission or transportation tickets, written instruments representing or embodying rights concerning anything of value, labor or services, or otherwise of value to the owner; things growing on, affixed to any building; electricity, gas and water; birds, animals and fish, which ordinarily are kept in a

state of confinement; food and drink; *samples, cultures, micro-organisms, specimens, records, recordings, documents, blueprints, drawings, maps, and whole or partial copies, descriptions, photographs, prototypes or models thereof, or any other articles, materials, devices, substances and whole or partial copies, descriptions, photographs, prototypes, or models thereof which constitute, represent, evidence, reflect or record a secret scientific, technical, merchandising, production or management information, design, process, procedure, formula, invention, or improvement.* [Italics mine.]

The penalty in Illinois for theft of such property is broken into several categories. If the value does not exceed $150, a convicted person (for his first conviction) can be fined up to $500 or imprisoned in a penal institution other than the penitentiary up to one year, or both. For subsequent convictions, he can be imprisoned in the penitentiary from one to five years.

If the property value exceeds $150, the convicted person can be imprisoned in the penitentiary from one to ten years. Whether this statute and other similar statutes will be limited in scope to "tangible property" is open to judicial interpretation. It is believed, however, that in most instances it has been the legislative intent to cover trade secrets per se. Moreover, it is apparent that the legislatures of various states have put teeth into the law regarding corporate property such as trade secrets in an effort to stop their ever-increasing misappropriation.

Since these statutes are relatively new, it is too early to determine their effectiveness and general desirability or undesirability. Strong interest has been expressed, however, in the protection of research and development through the implementation and enforcement of such criminal statutes. On the other hand, concern has also been expressed regarding the negative effects that might arise out of these statutes. These effects include, for example, the restraint of free flow of employment. Members of the legal profession are watching this area closely to permit the proper evaluation of the effectiveness of the statutes.

From time to time, attempts have also been made to promote federal legislation providing criminal sanctions for the interstate or foreign transportation of wrongfully appropriated trade secrets. One such attempt arose several years ago under the National Stolen Property Act after the indictment of seven people by a federal grand jury in a case involving a breach of a confidential relationship. As a result, a bill was introduced in the House of Representatives, but failed to pass. To date, there exists no such federal legislation.

In tbe case just cited (American Cyanamid Company vs. Fox, 1963), Fox, a former employee of Cyanamid, was convicted of masterminding a conspiracy to unlawfully appropriate pharmaceutical trade secrets of the Lederle Laboratories Division of American Cyanamid and sell them to companies in Italy and in other countries that do not provide pharmaceutical patent protection. The Act under wbicb the indictments were granted only covered theft of "tangible goods" and, interestingly enough, was primarily aimed at cattle rustling!

Rights and obligations

The rights and obligations of the technical man in relation to both his former and his present employer will now be explored.

The technical man is generally free to use all of his general skill, knowledge, and experience to successfully complete a job, even if this ability were acquired while working for a former employer. He cannot be denied this right. Conversely, the technical man is under a confidential-relationship obligation to his former employer not to use, disclose, or induce others to use his former employer's trade secrets. He may even be enjoined from using, disclosing, or inducing others to use such trade secrets. At the same time, the technical man is under a similar obligation to his present employer not to use, disclose, or induce others to use in any unauthorized manner the trade secrets of his present employer.

Additionally, there is an obligation to the technical man's present employer not to disclose trade secrets of former employers, nor to induce his present employer to use such trade secrets.

In many instances, a fine distinction exists between what constitutes a trade secret and what constitutes general skill, knowledge, and experience. Such situations can often lead to litigation. This problem is amplified by the fluidity of today's technical labor force, which has resulted in an interplay of technical employees between competitors. Even though the burden is on the employer to prove that a trade secret does, in fact, exist and that an employee has breached a confidential relationship, the employee should not toss caution to the winds. Rather, when changing positions, he should take care to fulfill his confidential-relationship obligations while working within his general skill, knowledge, and experience. When questions or doubt arise, corporate legal counsel should be sought regarding clarification and guidance.

It is clearly established in law that an injunction may be obtained to stop misappropriation of trade secrets. As a general rule, though, there is no way of obtaining an injunction against unauthorized disclosure of trade secrets before such a disclosure occurs. An exception does arise when the court is convinced by the evidence and surrounding circumstances that an intent to misappropriate exists. This generally occurs when one company has made a major breakthrough and another company hopes to exploit the breakthrough by hiring away key employees.

A landmark case, which took place in 1963, involved the B. F. Goodrich Company, International Latex Corporation, and a chemical engineer (B. F. Goodrich Company vs. Wohlgemuth). The engineer was employed by B. F. Goodrich and had progressed to the position of manager of the pressurized space-suit department. He possessed full knowledge of many of the secrets and confidential facts relating to the Goodrich-developed space suit. In 1962, Interuational Latex received a $1 500 000 contract for Apollo moon-flight space suits and hired the engineer away from Goodrich with a 30 percent pay increase. Goodrich then sought an injunction to prevent him from assisting in tbe development of space suits for International Latex. An injunction was granted on the basis that International Latex was attempting to gain his valuable experience in this highly specialized field, and that if he were permitted to work on space suits for International Latex, he would have an opportunity to disclose the confidential information of Goodrich.

Thus, the injunction was granted on the premise that it was the only way to prevent Goodrich from suffering irreparable injury. The court pointed out that the decision could have been based on the general rules of equity (implied



relationship), but an adequate basis was already provided by the fact that the engineer had signed a confidential information-nondisclosure agreement.

A similar case in 1964 involved the E. I. du Pont de Nemours & Company and American Potash and Chemical Corporation. In that instance, American Potash advertised for a chemical engineer with titanium-oxide experience and thereafter hired an engineer who had handled du Pont's titanium-oxide production for ten years. Du Pont succeeded in enjoining him from working for American Potash in its titanium-oxide facility on the basis that disclosure of du Pont's secrets was inevitable if he were allowed to work in this capacity.

One thing should be made clear regarding cases where injunctions are granted. Injunctions only preclude engineers involved from working in specific areas and disclosing confidential information. Such engineers are not prevented from working for the new companies, but merely required to be placed in areas where they are not associated with the product that has been associated with the injunction.

In an earlier landmark case, Carter Products, Inc., *et al.* vs. Colgate-Palmolive Company *et al.* (1955), the court extended the legal obligation of the new employer in trade-secret cases beyond the realm of simply inducing a breach of confidential relationship by an employee (for example, by hiring a key engineer as in the B. F. Goodrich and du Pont cases).

The court maintained that a third party (new employer) who used another's (former employer's) trade secrets, obtained through a breach of confidential relationship (by an employee), either with actual knowledge of such a breach or with knowledge of facts from which the breach can be reasonably inferred, is as liable as the party who makes the breach. Carter, with the aid of a consulting firm, had developed the first pressurized shaving cream—Rise. Subsequently, a chemist who had worked on Rise applied for and received a job with Colgate-Palmolive without actually being sought out. Although Colgate alleged that they advised him not to "spill" any secrets, they asked him to develop a product like Rise. He apparently recreated the Rise formula from memory and created a product that outsold Rise on the market. While Colgate's words complied with the trade-secret laws, their actions did not. The court held that Colgate knew or must have known by exercise of fair business principles that the precise character of the chemist's work for Carter was, in all likelihood, covered by an agreement not to disclose trade secrets. Carter received $5 104 000 in damages from Colgate. From this case, it is readily apparent that the new employer, as well as the employee, has a legal obligation to the former employer.

Precautions of the employer

To balance the scales of justice, the trade-secret laws do impose certain obligations on the employer regarding trade secrets.

The employer must take positive steps in an effort to protect his secrets and prevent their unauthorized disclosure or misappropriation. The employer has the obligation to apprise and somehow make technical personnel aware of the sensitive areas involving confidential information. This awareness may be created by the surrounding circumstances, e.g., posted notices and signs or appropriate security precautions.

As a further precaution, the employer would be wise to require employees to execute an appropriate nondisclosure or confidential-relationship agreement. When the employer has complied with these obligations, he then may be entitled to appropriate relief for unauthorized use or misappropriation in the form of an injunction or damages or both.

Although a confidential relationship between a technical man and his employer regarding trade secrets may arise by implication as well as contractually, more and more companies are covering this matter in an employee agreement. Quite often, this is incorporated with an invention assignment agreement to form a combined "Patent and Confidential Information Agreement." The need for an express contractual relationship in this area has been heightened by court decisions that have watered down the scope of protection granted under an implied relationship. For example, in 1960, the court in Pennsylvania (Wexler vs. Greenberg) held that, in the absence of an express written contract, an agreement not to disclose would only be implied (1) if it could be established that the employer had confided a trade secret to the employee, or (2) if the employee had developed a trade secret under the supervision of and with the assistance of the employer under an explicit research project.

In view of the present tenure of the law, the tendency in employee agreements is to cover the trade secrets of the employee's former employer as well as the trade secrets of the new employer. Typical clauses employed are as follows:

> (a) I agree not to use or reveal to any unauthorized person, either directly or indirectly unless authorized by (name of employer), any information of (name of employer) relating to its inventions, improvements, designs, processes, trade secrets, procedures, and, in general, any of its business affairs of a secret or confidential natnre.
>
> (b) I agree not to disclose to (name of employer), or to induce (name of employer) to use any information of others relating to their inventions, improvements, designs, processes, trade secrets, procedures, and, in general, any of their business affairs of a secret or confidential nature unless such information is in the public domain or unless authorized to disclose such information.

Additionally, various companies have supplemented the employee agreement with a "Trade Secret Policy," which

is designed to advise employees of the possible consequences of unauthorized disclosure or use of company trade secrets and to set forth precautions or steps aimed at preventing trade secrets from falling into the hands of unauthorized persons. Typical steps to be included are as follows:

1. Conduct a security check on all new employees.
2. Carefully control visitors.
3. Require clearance for all speeches and papers.
4. Place confidential markings on all documents considered to he confidential.
5. Limit access to confidential material.
6. Have waste paper generated by employees dealing with confidential material destroyed.
7. Require employees to secure confidential material in their absence.
8. Conduct an "exit" interview with employees who are leaving to remind them of their obligations regarding trade secrets.

Some companies have gone so far as to include in the employee agreement a restriction on employment with a competitor subsequent to termination. Such provisions have been upheld if they were reasonable in the length of time and geographic area covered by the restriction. Of course, great care is required in drafting such a provision, which requires sound legal advice and consideration.

Recovery for breach

Now that it has been established that the new employer as well as the employee may be liable for breach of a confidential relationship between the employee and a former employer, the recovery aspect for such breach will be explored.

Generally speaking, the scope of recovery for trade-secret cases is quite similar to the scope of recovery in patent-infringement actions. As previously mentioned, an injunction may be obtained to stop unauthorized use of a trade secret. Additionally, under the certain specialized circumstances just set forth, an individual can be enjoined from working in a specialized area for a new employer if it is apparent that unauthorized disclosure is imminent.

There are four possible types of general awards that may be granted to the prevailing party in actions relating to trade secrets:

1. Damages, profits, or a resonable royalty
2. Punitive damages
3. Costs
4. Attorney's fees

As a general rule, the wronged party may recover either the other party's profits or his own damages (e.g., his profits if he had made the lost sales), but not both. When willful acts of unauthorized use of a trade secret occur, the courts have also granted punitive damages, i.e., additional damages to punish the willful wrongdoer. The additional allowance of costs for litigation are normally limited to those permitted by statute and are usually granted only in extreme cases. When circumstances justify it (e.g., in cases involving willful and wanton breach of a confidential relationship regarding trade secrets), attorney's fees may also be granted.

As indicated by the Carter–Colgate case, an employer who knowingly misappropriates another's trade secret, or who must have known of the misappropriation by exercise of fair business principles, may be held liahle for damages. The former employee who breached the confidential relationship is jointly and severally liable for the damages. To seek retribution solely from the former employee is usually valueless because he rarely has sufficient property upon which to levy an execution.

Role of attorney

It should be apparent that the attorney can play au extremely important role in protecting both the employer and employees from misappropriation of the trade secrets of others. He is in a position to counsel both and to guide them away from the pitfalls of knowing or inadvertent misappropriation. Obviously, the implementation of both a trade-secret policy and a confidential-information employee agreement are helpful tools in this area. However, the attorney can only help if he is consulted.

Accordingly, if any doubt or question arises regarding a potential trade-secret prohlem, the legal staff should be consulted immediately.

Conclusion

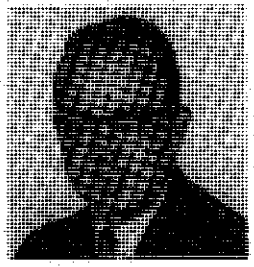
As a standing rule, the technical man should exercise due caution to insure that he does not disclose to unauthorized persons or in any other way misappropriate the trade secrets of his employer or former employers. If doubt or question exists regarding a potential trade-secret problem, he should consult the corporate legal people. In turn, each corporation should take the necessary steps to insure the safeguard of its own trade secrets and to prevent misappropriation of the trade secrets of others.

If a person is in a position to guide corporate policy, he should see that steps are taken to protect the company in these areas. The potential consequences of the technical man or corporation failing to take the necessary precautionary steps are too great to underestimate and care should constantly be exercised.

Consultation with the legal staff hefore a prohlem appears is advised. If you wait until the problem exists, it may be too late.

Based on a paper presented at the 1968 National Electronics Conference, Chicago, Ill., Dec. 9–11.

Charles M. Carter is currently general patent counsel and assistant secretary of Warwick Electronics Inc. in Chicago, Ill. Receiving the bachelor of electrical engineering degree from Rensselaer Polytechnic Institute in 1957, he was employed for 2½ years as a sales engineer before returning to school to study law. He was given the American Jurisprudence Award for excellence in criminal law while attending night law school, and received the Juris Doctor degree from DePaul University Law School in 1963. A licensed lawyer in the State of Illinois, he is also registered to practice law before the U.S. Patent Office. He has been associated with the patent profession for the past nine years, and his experience has included private law firm practice as well as corporate practice. Mr. Carter is a member of the Illinois State Bar Association, the American Bar Association, the Bar Association of the Seventh Federal Circuit, the American Patent Law Association, and the Patent Law Association of Chicago. At present, Mr. Carter is also serving as a member of the Committee on Unfair Competition of the American Patent Law Association.



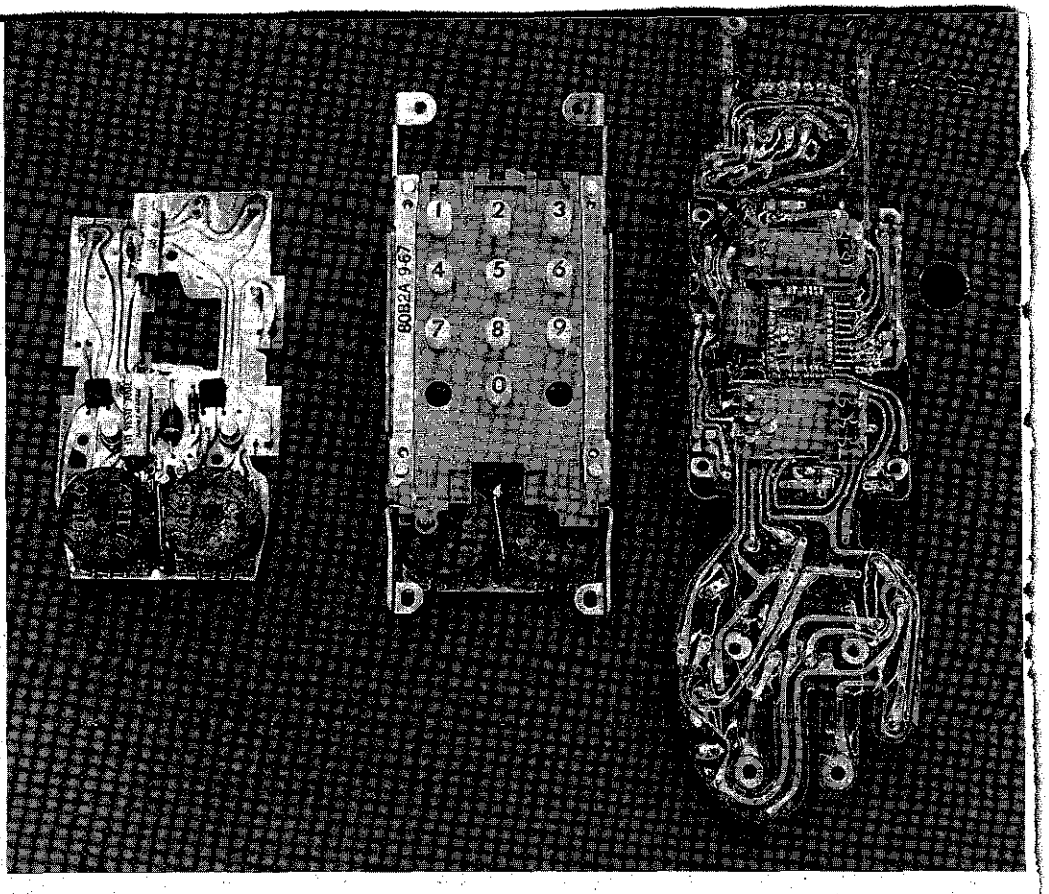


FIGURE 1. Contemporary LC device is shown on the left and newer RC audio oscillator, which will eventually replace the LC unit in Touch-Tone telephones, is shown in the small rectangular area in the center of the device at right.

Computer tuning of hybrid audio oscillators

The need for greater electronic sophistication in smaller packages is causing industry to develop new manufacturing and quality control techniques, including a computerized method of tuning a unique hybrid thin-film audio oscillator

Frederick H. Hintzman, Jr. *Western Electric Company*

A hybrid tantalum thin-film and beam-lead silicon device will be incorporated in the Bell System's Touch-Tone telephones of the future. This RC multifrequency audio oscillator will replace the LC device presently used in the Touch-Tone keyboards. The tuning process for the RC device requires that the tantalum thin-film resistors be custom adjusted to calculated values; and a tuning system driven by a small process-control computer has been designed to fulfill this function.

The dial incorporated in Bell System Touch-Tone telephones contains two audio oscillators to perform the dialing function. At present, the oscillators use *LC* circuits, as shown on the left in Fig. 1; however, the *LC* device is scheduled to be replaced by an *RC* device, which is the small rectangular area mounted near the center of the flexible printed circuit shown at right.

Both devices shown contain two multifrequency audio oscillators, each capable of generating four different frequencies. These oscillators, and the associated switching, are used to generate appropriate frequencies (a unique pair for each button on the dial) for dial-switching information.

Each *RC* oscillator contains a dc-coupled amplifier, a twin-*T* feedback network, and a buffer stage for connection to the telephone line[1] (Fig. 2). The tantalum thin-film portion of the device consists of two substrates, one containing thin-film capacitors and the other containing the resistors.

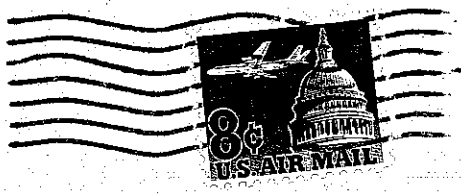
Your telephone conversation with Mr. Kandoian brought immediate results. He called me yesterday afternoon, and I am sending him copies of the patents in suit for preliminary consideration of the subject matter of the litigation. Barring unforeseeable complications or conflicts of interest, he indicated he would be most interested in having the experience of testifying as our expert witness, and we shall be most interested in exploring the possibility further with him. Many thanks.

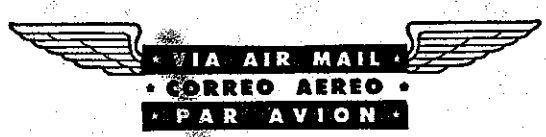
J.F.P.

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LLOYD W. MASON
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CHARLES L. ROWE
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J. R. STAPLETON

WILLIAM R. McNAIR
JOHN P. MILNAMOW
DILLIS V. ALLEN
W. A. VAN SANTEN, JR.
JOHN R. HOFFMAN

September 6, 1967 EW.

Mr. Robert H. Rines
Rines and Rines
No. Ten Post Office Square
Boston, Massachusetts 02109

RE: UIF v. BT v. JFD

Dear Bob:

* I enclose a copy of the motion by the Foundation to postpone the trial until after October 17. I will let you know what happens.

Very truly yours,

Richard S. Phillips

RSP:iag

* Enclosure

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SEP 8 1967
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NO. TEN POST OFFICE SQUARE, BOSTON

LAW OFFICES

HOFGREN, WEGNER, ALLEN, STELLMAN & McCORD

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TED E. KILLINGSWORTH
CHARLES L. ROWE
JAMES R. SWEENEY
W. E. RECKTENWALD
J. R. STAPLETON

WILLIAM R. McNAIR
JOHN P. MILNAMOW
DILLIS V. ALLEN
W. A. VAN SANTEN, JR.
JOHN R. HOFFMAN

August 17, 1967

VIA AIR MAIL

Mr. Robert H. Rines
Rines and Rines
No. Ten Post Office Square
Boston, Massachusetts 02109

RE: UIF v. BT v. JFD

Dear Bob:

We have a notice that your case will be called second on Judge Hoffman's civil calendar on Tuesday, September 12. The notice says, "Counsel are notified to be ready for trial in these cases:"

We are attempting to determine the nature of Judge Hoffman's criminal calendar and will then check with counsel in the first case on the list, which is another patent case, to find out whether there is a chance of their settling, and if not how long they expect the trial to be.

If you have other specific trial commitments in September and October, let me know what they are promptly.

Very truly yours,

Richard S. Phillips

RSP:iag

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AUG 18 1967
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AREA CODE 312

August 21, 1967

Mr. Robert H. Rines
Rines and Rines
No. Ten Post Office Square
Boston, Massachusetts 02109

RE: UIF v. BT v. JFD

Dear Bob:

* I enclose a copy of a recent decision by the 7th Circuit Court of Appeals dismissing an action by the Foundation against Channel Master for want of proper venue.

Very truly yours,

Richard S. Phillips

RSP:iag

* Enclosure

cc: Mr. John F. Pearne (*)

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AUG 22 1967
RINES AND RINES
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In the
United States Court of Appeals
For the Seventh Circuit

No. 15997 September Term, 1966 April Session, 1967

THE UNIVERSITY OF ILLINOIS FOUNDATION, an Illinois corporation,
Plaintiff-Appellant,
v.
CHANNEL MASTER CORPORATION, a New York corporation,
Defendant-Appellee,
and
ELECTRONIC DISTRIBUTORS, INC., an Illinois corporation,
Defendant.[1]

Appeal from the United States District Court for the Northern District of Illinois, Eastern Division.

AUGUST 9, 1967

Before SCHNACKENBERG, KILEY and FAIRCHILD, *Circuit Judges.*

SCHNACKENBERG, *Circuit Judge.* The University of Illinois Foundation, an Illinois corporation, plaintiff, has appealed herein from a final judgment of the district court dismissing Channel Master Corporation, a New York corporation, as a defendant in the above-entitled case, because of improper venue.

Plaintiff brought suit in the district court charging, *inter alia,* infringement of United States Letters Patent No. 3,210,767 by said defendant and Electronic Distributors, Inc., an Illinois corporation.

[1] This defendant has not appeared in this appeal.

RECEIVED
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Plaintiff is the owner of the patent in suit. Channel Master is a manufacturer of television antennas, with its plant and home offices in Ellenville, New York, where it was served with a summons.

The statute directly involved herein is 28 U.S.C.A. § 1400 (b), which reads:

> (b) Any civil action for patent infringement may be brought in the judicial district where the defendant resides, or where the defendant has committed acts of infringement and has a regular and established place of business.

Defendant has an employee, Joseph O. Nicolau, who resides in the Northern District of Illinois. It is a basic contention of plaintiff that venue was properly laid in that district because Channel Master has a regular and established place of business in that district. It specifically refers to Nicolau, who uses his home in that district as a base for his sales activities in promoting his employer's products. He regularly prepares reports at his home and transmits them to his employer's home office. He receives and initiates telephone calls at his home, the address and telephone number of which are listed on his employer's business card, and Channel Master reimburses him for car expenses, postage and telephone calls. He deducts on his income tax return a percentage of his own household expenses as business usage.

Plaintiff reasons that, as Nicolau "maintains control of a permanent establishment in the district for his employer, and systematically conducts a substantial portion of the employer's business in the district from this location, the employer has a regular and established place of business in the district."

Plaintiff relies on *Knapp-Monarch Co.* v. *Casco Products Corp.*, 7 Cir., 342 F.2d 622 (1965), at 625, where plaintiff sued in the same district court as in the case at bar, charging patent infringement by defendant Casco Products Corporation, and E. A. Langenfeld Associates, Ltd. Casco, a Connecticut corporation, had its principal place of business there. Langenfeld was a manufacturer's representative for Casco's products in the Chicago area. It had an office in Chicago for which it paid the rent and other

expenses and was not reimbursed by Casco. Langenfeld solicited orders for Casco's products for a commission and forwarded them to Casco in Connecticut, whereupon Casco shipped the goods directly to the purchaser, who made payments directly to Casco. Samples of the accused irons were displayed in Langenfeld's office but were never demonstrated or used by it.

We said, at 624:

> "* * * Therefore, the matter of venue depends upon whether the defendant had a regular and established place of business within the district."

And at 625, we added:

> "* * * we hold that Casco's maintaining a sales representative in Chicago does not meet the statutory test. * * *"

In affirming the orders of dismissal by the district court, we said at 626:

> "* * * The undisputed facts disclosed by these papers show that Langenfeld's activity was confined to solicitation of orders except for the sale of two irons to its employees; * * *"

Thus it appears that *Knapp-Monarch* fails to justify plaintiff's reliance upon it.

In the case at bar Channel Master's sole activities in the district are sales promotion and solicitation by a single employee. All orders from customers in the district are accepted in New York. All shipments to customers are made from New York. All payments for goods are made to New York.

Undoubtedly Nicolau's duties are to promote the sale of Channel Master's products. The record shows that he visits about a dozen distributors in his territory and at times holds sales meetings with their personnel. On these visits he speaks of new products, assists in checking a distributor's inventory and suggests reordering goods which seem to be needed. He helps in seeking to expedite delivery of goods from the plant by making calls to the New York office, although there is no evidence that these activities concerned the antennas involved in the infringement charges in this case.

In short, Nicolau functions as the usual sales representative who cultivates the trade by being incidentally helpful to customers. He has no office and no space set aside solely for business use. His office coincides with his family bedroom at home where he has a typewriter and an adding machine, but no company records or files, no stock in trade, no displays, no samples, and no showroom. It is agreed that he conducted no demonstrations of the products. He uses his home telephone number and address, since Channel Master does not provide him any business quarters or pay any of the costs of his home. He has no business phone listing in the telephone directory nor any sign display of "Channel Master". He receives no business visitors there. He has no staff nor even secretarial help. Although plaintiff repeatedly characterizes him in its brief as a "key" man, the record shows he is simply an ordinary salesman doing business at home by phone calls and mail, and going out at times to solicit sales. As we said in *Knapp-Monarch, supra*, at 625, "* * * solicitation of sales alone does not meet the * * * [requirements of 28 U.S.C. 1400 (b)]". We hold that we cannot by any stretch of the imagination characterize Nicolau's family bedroom or even his entire home as "a regular and established place of business" of Channel Master in the Northern District of Illinois.

Nothing in *Union Asbestos & Rubber Co.* v. *Evans Products Co.*, 7 Cir., 328 F.2d 949 (1964), cited by plaintiff, is inconsistent with the result which we now reach. Moreover, in *Union Asbestos*, we, at the outset, at page 950 called attention to these facts:

> "Since defendant concedes that it has a regular and established place of business within the district, venue will lie if defendant, a non-resident of the district, has infringed plaintiff's patent by selling or using the accused device within the district.
>
> * * *
>
> "* * * On one occasion Veague, defendant's Chicago sales manager, took * * * prospective *customers*, to a Southern Pacific freight car, located within the district, which was equipped with the accused device. There he demonstrated the operation of the device, with the car both loaded and empty."

We therefore stated, at 951:

> "* * * We think the true rule in the case at bar is that the systematic and continuous solicitation plus the two demonstrations is sufficient to establish venue on the basis of plaintiff's allegation of selling."

At 952, we concluded:

> "We hold that the two demonstrations of the accused device, added to the systematic and continuous solicitation of orders within the district, constitute, for venue purposes, a sufficient degree of selling to amount to 'infringing sales.'
>
> "We do not reach plaintiff's 'broader proposition' that mere solicitation as part of a systematic and continuous sales effort is sufficient for venue purposes. * * *"

Therefore, for want of proper venue in the Northern District of Illinois, because Channel Master has no regular and established place of business in that district, the judgment from which this appeal was taken is affirmed.

JUDGMENT AFFIRMED.

A true Copy:

Teste:

.....

Clerk of the United States Court of Appeals for the Seventh Circuit.

USCA 3616—The Scheffer Press, Inc., Chicago, Illinois—8-9-67—200

LAW OFFICES

HOFGREN, WEGNER, ALLEN, STELLMAN & McCORD

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WILLIAM R. McNAIR
JOHN P. MILNAMOW
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W. A. VAN SANTEN, JR.
JOHN R. HOFFMAN

August 28, 1967

Mr. Robert H. Rines
Rines and Rines
No. Ten Post Office Square
Boston, Massachusetts 02109

RE: UIF v. BT v. JFD

Dear Bob:

This confirms our telephone conversation regarding the above. Judge Hoffman's criminal calendar has one case set for call on September 11. The judge's clerk does not presently know whether it will go to trial, but we are advised third hand that both the Government and the defense attorneys are prepared to go ahead. They estimate the trial will take two weeks.

The civil case which will be called ahead of your case on September 12 will go to trial as far as the attorneys now know. It will also require approximately two weeks.

If both cases proceed on schedule, you will probably not be called until the middle of October. We will let you know if there is any change in this apparent schedule.

I plan to be gone from about September 12 to September 23. After that I will be happy to get together with you at any time you wish.

Very truly yours,

Dick

Richard S. Phillips

RSP:iag

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c/o The MX Group

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JOHN R. HOFFMAN

August 30, 1967

Mr. Robert H. Rines
Rines and Rines
No. Ten Post Office Square
Boston, Massachusetts 02109

RE: UIF v. BT v. JFD

Dear Bob:

I had a call from Pete Mann who advised me that Bill Marshall is scheduled to be involved in a lawsuit in Baltimore starting about September 12. The trial will probably last about a month. Mann plans to present a motion to Judge Hoffman, possibly on September 8 if the judge is sitting that day, asking that your case be held until completion of Marshall's trial in Baltimore. Based on our date discussion last week, this seemed to fit both your and my schedules. Accordingly, I told Pete I would be glad to advise Judge Hoffman that we had no objection to the postponement. If you should have anything in late October or early November which might conflict, give me a call. If not, I will assume that this is satisfactory with you.

Very truly yours,

Richard S. Phillips

RSP:iag

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BOSTON, MASSACHUSETTS

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JOHN R. HOFFMAN

September 11, 1967 Encl.

Mr. Robert H. Rines
Rines and Rines
No. Ten Post Office Square
Boston, Massachusetts 02109

RE: UIF v. BT v. JFD

Dear Bob:

The University Foundation presented their motion for postponement of the trial date today. The motion papers got mixed up on the clerk's desk and he failed to call it this morning. As a result, we were exposed to two hours of argument of pretrial motions in a criminal case. I think the hassle in the criminal case had a beneficial effect on the judge as he granted the motion without hesitation and reset the trial for October 23. This was rather unusual for Judge Hoffman as he is generally extremely reluctant to grant a postponement. I think he realizes that the criminal case he is starting will last for some time.

This rescheduling should move you behind the private antitrust case that was ahead of you last spring. If you stay behind them, I doubt that you will go to trial before November. I will keep track of things and be in touch with you. If you have any other trial commitments which come up, let me know promptly.

Very truly yours,

Dick

Richard S. Phillips

RSP:iag

cc: Mr. I. S. Blonder

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WILLIAM R. McNAIR
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DILLIS V. ALLEN
W. A. VAN SANTEN, JR.
JOHN R. HOFFMAN

September 11, 1967

Miss Marjorie A. Johnson
3405 Twenty-First Street
Rock Island, Illinois

RE: UIF v. BT v. JFD

Dear Miss Johnson:

The trial of the lawsuit against Blonder-Tongue has again been postponed. It is now tentatively scheduled for October 23. I rather doubt that it will get to trial before sometime in November. We will have a better idea about this the first week or so of October. I will let you know then what the anticipated schedule is.

Very truly yours,

Richard S. Phillips

RSP:iag

cc: Mr. Robert H. Rines

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SEP 13 1967
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McNENNY, FARRINGTON, PEARNE & GORDON

ATTORNEYS AT LAW

920 MIDLAND BUILDING

CLEVELAND, OHIO 44115

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CABLE ADDRESS
RICHEY

PATENT AND
TRADEMARK LAW

F. O. RICHEY (1878-1964)

HAROLD F. McNENNY
DONALD W. FARRINGTON
JOHN F. PEARNE
CHARLES B. GORDON
WILLIAM A. GAIL
RICHARD H. DICKINSON, JR.
THOMAS P. SCHILLER
LYNN L. AUGSPURGER

LLOYD L. EVANS
OF COUNSEL

September 12, 1967

Robert H. Rines, Esq.
10 Post Office Square
Boston 9, Massachusetts

RECEIVED
SEP 13 1967
RINES AND RINES
10 POST OFFICE SQUARE, BOSTON

Re: The Finney Company v. JFD et al.

Dear Bob:

Enclosed herewith are copies of the brief of the Foundation opposing our Motion for Summary Judgment in the above suit (including a Lawler affidavit as APPENDIX A) and a copy of our reply brief. The deposition I took of Finkel included about as great a volume of words as one can squeeze into a deposition lasting from 10:00 a.m. to 4:00 p.m. with time out for lunch. In some respects it was quite successful, and in other respects it was unproductive, but was quite worthwhile on the whole.

As to patent mismarking, Finkel's admissions as to facts and correspondence definitely established the fact of mismarking but probably fell short of establishing an intent to deceive the public, although it did establish a substantial delay in changing the original patent notices after the impropriety of those notices was brought to the attention of both JFD and the Foundation. Finkel's excuse for the mismarking was that he was responsible for the wording of the patent notices from the beginning and understood them to mean only that JFD was licensed by the Foundation under the enumerated patents and additional patents pending, not that the particular antennas with which such notices were used were covered by a particular patent or pending application.

I obtained admissions of the employment by JFD of the three former employees of Blonder-Tongue (with no objection from opposing counsel), but was unable to obtain an admission that JFD sought out those former Blonder-Tongue employees. Finkel stated that Blonder-Tongue's antenna department and sales program seemed to be falling apart, that the particular employees mentioned were unhappy with their futures with Blonder-Tongue for that reason, and that, in the case of Balash (the only one with which Finkel was directly involved), Balash asked for a job with JFD.

There is some interesting testimony on the ethics of the antenna business. Finkel stated flatly that there are no ethics in that business. Later he qualified his prior statement by saying that, at least, the ethics of JFD were higher than those of its competitors, including The Finney Company.

My efforts to obtain admissions from Finkel regarding violation of the Antitrust Laws were quite unproductive. Finkel simply denied specific acts of which I had other evidence and seemed sufficiently well coached on that subject to make much further examination appear futile. In retrospect, I think I stopped too quickly, however, I might have done better if I had had some additional time to prepare on that particular subject.

I ordered an extra copy of that deposition for your use for whatever value it may have and will send it to you as soon as it is received, probably in about three weeks.

As I believe I mentioned during dinner at the Newark Airport, I am working on a stipulation regarding the various patent notices used by JFD, the periods of time during which they were in use, and the authenticity of each of the very large number of pieces of JFD advertising I have collected. There seems to be no problem in obtaining agreement on such a stipulation, and I should be able to send you a copy of it within a week or so. I assume that you could obtain essentially the same stipulation from Jerry Berliner if it would be useful for your purposes.

Mr. Finneburgh and I were impressed with Mr. Kandoian's obvious qualifications to testify effectively as an expert witness. We both appreciate your having brought him to our attention and thoroughly enjoyed the opportunity to have dinner with both you and him.

Best regards.

Sincerely,



JFP:jh
Enclosures

cc: Richard S. Phillips, Esq.

BLONDER·TONGUE LABORATORIES INC.
9 ALLING STREET, NEWARK, NEW JERSEY 07102 • (201) 622-8151

August 7, 1967

Mr. Robert H. Rines
Rines & Rines
10 North Post Office Square
Boston, Massachusetts

Dear Mr. Rines:

Owing to my complete lack of knowledge as far as patent "lingo" is concerned and through no fault of yours, I am enclosing a draft of the dictation you gave to me this past Friday concerning the JFD charts.

I am very unsure of my translation; therefore, I thought it best to draft this material and send it to you for corrections before final typing.

Please accept my apologies - I hope this does not put you to any great bother or slow up the "wheels of progress."

Sincerely,

BLONDER-TONGUE LABORATORIES, INC.

Doreen Decker

P. S. I have enclosed a copy of the other memo you dictated - that didn't throw me for a loss.

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DRAFT

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MEETING BETWEEN I. S. BLONDER & R. H. RINES - AUGUST 4, 1967

RE: JFD CHARTS

Ike and I have reviewed the above and have concluded as follows:

With regard to the LPV-VU9, there are definitely several means near the rigid insullator at the free end of the antenna that are mechnically connected so as to be rigid with respect to the insullating means -- Item 4A. At the mast end there are clamp means that connect to the mast -- the mounting means, Item 5, and further insullating means that support the clamp means, namely Item 6. There is no strain relief involved at all.

The transmission line supporting means as in the B-T patent holds the transmission line in fixed position relative to the antenna in precisely the same way and for the same purpose that the B-T means 2' operates.

The same comments apply with regard to the LPV-TV40 - JFD Chart 2D and with regard to the LPV-VU30 - JFD Chart 2C.

In connection with the letter, the UHF section serves as transmission line feed means for the VHF section at its small end.

Similar comments apply to the VHF section of the LPV-CL300 - JFD Chart 2B.

In Charts 2B and 2C, moreover, the spacing between the plains of the VHF section is definitely within the limitation of Item 7 of the claim.

It would presently appear that perhaps the UCL series does not infringe; but this should be further checked.

With regard to the citation of Technical Report 52, the only antenna shown attached for coaxial feed. The description of some way of balancing a twin wire is not part of the antenna shown nor are any details given.

There is also no concept of keeping the relation between a small - end insullating separator and a transmission line supporting element near the small end in connected fixed relationship, as JFD Chart 1 seems to admit. The line-lok and zip antenna strain relief seem to have no pertinence since they do not attach a transmission line supporting element that is in connected relationship with a rigid insullator and serves the function of holding a parallel wire transmission line in fixed relation with two space apart conductors supported by that insullator.

We are also going to check whether our dates of invention precede technical report 52.

I. S. BLONDER
IRVING HOROWITZ

MEETING - August 4, 1967
(Abe Schenfeld & Ed Elizondo)

ROBERT H. RINES

August 7, 1967

Irv outlined for us the instances surrounding the departure of Ed Elizondo and Abe Schenfeld from B-T and their subsequent employment at JFD.

This event will now be recounted according to Irv's recollection:

Around the beginning of May Ed Elizondo gave notice that he was resigning from B-T to take the position of Chief Engineer at JFD. They had solicited him, and he felt it was an opportunity for advancement since this new position was at least one step above his position here. His last day of employment with B-T was 5/12/67.

About one week after he was working at JFD, he tendered his resignation to them for he felt the atmosphere and conditions of JFD were not satisfactory to him. We believe he is now at RCA in a non-competitive position.

This last bit of information was obtained from George Scherer who is a personal friend of Ed's.

Abe Schenfeld gave notice the week of May 19. During the time he gave notice and the time he left, I had several conversations with him. He told me he had been solicited for the job of Chief Engineer at JFD. He made it very clear to me that he did not apply to JFD for the position. He did not say who contacted him from JFD. He felt that the new position was a greater opportunity to him and definite advancement.

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NO. TEN POST OFFICE SQUARE, BOSTON

BLONDER·TONGUE LABORATORIES INC.
9 ALLING STREET, NEWARK, NEW JERSEY 07102 · (201) 622-8151

August 7, 1967

Mr. Robert Rines
10 P.O. Square
Boston, Massachusetts

Dear Bob,

I am sorry I missed being able to answer your questions on Friday. Irv Horowitz told me you were interested in knowing what Ed Elizondo and Abe Schenfeld said to me about their new jobs. Both of them mentioned to me that they "had been approached several times by JFD." Neither mentioned who approached them or when. I can only surmise from the course of the discussion that it was Tom Shea, a former B-T employee, who is Sales Manager of JFD's MATV Division.

Tell me what more information you need, and I shall endeavor to provide it.

Very truly yours,

Sheldon Williams

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NO. TEN POST OFFICE SQUARE, BOSTON

McNENNY, FARRINGTON, PEARNE & GORDON
920 MIDLAND BUILDING
CLEVELAND, OHIO 44115

September 18, 1967

Richard S. Phillips, Esq.
Hofgren, Wegner, Allen, Stellman & McCord
20 North Wacker Drive
Chicago, Illinois 60606

Re: UIF v. BT v. JFD

Dear Dick:

Enclosed herewith are the copies of the transcripts of the depositions of Gilbert, Helhoski, and Cohn which you sent to me with your letter of July 21, 1967, on the above subject. I assume the exhibit copies sent to me at that time are Xerox copies and need not be returned to you.

Many thanks for the loan of the depositions.

Sincerely,

John

JFP:jh
Enclosures

cc: Robert H. Rines, Esq.

COPY

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SEP 19 1967
RINES AND RINES
NO. TEN POST OFFICE SQUARE, BOSTON

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HOFGREN, WEGNER, ALLEN, STELLMAN & McCORD

20 NORTH WACKER DRIVE

CHICAGO 60606

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AREA CODE 312

July 21, 1967

Mr. John P. Pearne
McNenny, Farrington, Pearne & Gordon
920 Midland Building
Cleveland, Ohio 44115

RE: UIF v. BT v. JFD

Dear John:

* I enclose copies of the transcript of the depositions of Harry Gilbert, Richard Helhoski and Jerome Cohn.
* I also enclose copies of exhibits B-6, B-12 and J-6.

Very truly yours,

Richard S. Phillips

RSP:lag

* Enclosures

cc: Mr. Robert H. Rines

RECEIVED
JUL 24 1967
RINES AND RINES
10 TEN POST OFFICE SQUARE, BOSTON

McNENNY, FARRINGTON, PEARNE & GORDON
920 MIDLAND BUILDING
CLEVELAND, OHIO 44115

July 20, 1967

Richard S. Phillips, Esq.
Hofgren, Wegner, Allen, Stellman & McCord
20 North Wacker Drive
Chicago, Illinois 60606

Re: UIF v. BT v. JFD

COPY

Dear Dick:

Thank you for so promptly sending me your copy of the Finkel deposition taken in the above case. I was able to touch base with Bob Rines by telephone yesterday on various aspects of the log periodic litigation, and, in the course of our discussion, he suggested that I ask you also to send me your copies of the Gilbert, Helhowski, and Cohn (spelling of the last two names uncertain) depositions in the subject suit which deal with antitrust and unfair competition by JFD. The loan of your copies of those additional depositions will be greatly appreciated.

I have Xeroxed the Finkel deposition and am returning your copy herewith.

In reading through the Finkel deposition, I found that I do not have a copy of what appears to have been identified in a prior deposition as your Exhibit J-6 (an advertisement from Popular Electronics, September, 1965), your Exhibit B-12 (letter of 7/27/64 with a handwritten notation "handed by Finkel as a draft"), or, possibly, your Exhibit B-6 (apparently comprising several items: A JFD sales bulletin, a Home Furnishings Daily Reprint, and a U. of Illinois Foundation news release). These may be of some interest, and I would appreciate your also sending me copies of those particular exhibits if that can be done without too much difficulty.

Many thanks for your continuing help.

Sincerely,

John

JFP:jh
Enclosure

cc: Robert H. Rines, Esq.

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JUL 24 1967
RINES AND RINES
NO. TEN POST OFFICE SQUARE BOSTON

P.S. to Mr. Rines: (see page 2)

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20 NORTH WACKER DRIVE

CHICAGO 60606

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FINANCIAL 6-1630
AREA CODE 312

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JOHN P. MILNAMOW
DILLIS V. ALLEN
W. A. VAN SANTEN, JR.
JOHN R. HOFFMAN
A. R. OSTRAUSKAS

January 10, 1967

Mr. Robert H. Rines
Rines and Rines
No. Ten Post Office Square
Boston, Massachusetts 02109

Dear Bob:

* I enclose a copy of an analysis of the President's Commission Report from the standpoint of the individual inventor, which may be of interest to you. This was prepared by Lou Robertson, one of our local patent attorneys who has, I think, spent more time than anyone else in this area advocating increased incentives for the inventor.

Very truly yours,

Richard S. Phillips

RSP:iag

* Enclosure

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"SCORE CARD" On Report of the President's Commission on the Patent System

RECEIVED JAN 12 1967 RINES AND RINES No. TEN POST OFFICE SQUARE, BOSTON

I Six Recommendations Which Will Add to Inventors'-Incentives:

* Permitting simple preliminary applications, p.8

* Applications may be by assignees (whose right must be shown by assignment before publishing)inventors being named on filing, p.14

Early publication of application on request (with some rights, p.32), p.16

* Importation of product made abroad by process patented here will infringe, p.35

Clarification of right of patentee to license for restricted field of use, p.36

Microfilming Patent Office search files, p.50

II Twenty-one Recommendations Which Will Detract From Inventors' Incentives:

* Public use in other countries will defeat subsequent invention here, p.5

** Removal of "grace period" in which to file application. Thus application is irretrievably defeated by anything publ prior to it (with two insignificant exceptions, p.9),p.5

* No patents on computer programming, p.12

* Priority date lost in case of inadvertent failure to claim it at time of filing a later application, p.16

** Publication of all applications 18 months or two years after effective date (with some provisions for royalty from then on, under limiting conditions, p.32), p.16

* "Second try" applications after allowance or appeal virtually excluded (loss of priority, and if first application is published, it becomes prior art) p.18

* No second applications to improve disclosure of same invention, after first is published, p.18 (First is prior art)

* Time limits on filing divisional applications, p.18

** No waiver of doubts for applicants, p.22

Period for citation of prior art or institution of public use proceedings by public before patent grant, p.23

Evaluation of patents granted by each examining group of Patent Office, p.24

** On appeal, Patent Office not reversed unless clearly erroneous, p.26

** Court of Appeal,D.C. placed over Court of Customs & Patent Appeals, pp. 26-67

* Cancellation proceedings before Patent Office, with opportunity given to narrow the claims, p.29

Court cases filed during cancellation proceedings normally suspended, p.29

* No more broadening reissue applications, p.30

* Term of patents 20 years from effective U.S.filing date, with extension only when government orders secrecy for national security, pp.33-34

Disclaimers of extra term in a second patent will not save it from invalidity for double patenting, p.35

* Final decision that a patent claim is invalid cancels it, p.38

* Authorizing fee-setting by Commissioner of Patents, within Congressional guidelines, p.45

* Effective dates of legislation, including application to applications now pending, p.52

---

* More important; ** Most important. (Rated on degree of effect, considering certainty and generality)

III Thirteen Recommendations Which Could Have An Effect Either Way:

Between rival inventors, first to file prevails, p.5 (Effect unpredictable. Should decrease top costs,[1] but will make patents expire quicker and suffer more invalidity due to weak, premature disclosures)

Patent valid in spite of erroneous naming of inventors, if no deceptive intent, p.14.(Encouraging to assignees, discouraging to omitted inventors, but possibly no change from present).

Republication after allowance or appeal, p.16.(Little effect except added expense).

Standby authority for optional deferred examinations,pp.19-21. (Effect, if used, unpredictable).

Clarification of aspects of licensing other than restricted field of use, p.36. (Effect depends on nature of "clarification").

Civil Commissioners to supervise patent litigation before trial, p.39. (Effect unpredictable).

Some possibility of simplified litigation by consent, p.41. (Extent of use and effect unpredictable).

Authorizing Patent Office to use money it collects,p.45. (Gives Patent Office incentive to collect higher fees, offsetting benefits unpredictable).

Restatement of practice now supposed to be followed in Patent Office concerning amending applications after citation of new grounds, p.47. (This would be rated as a major gain if the practice recommended had not already been adopted by the Commissioner of Patents. The recommendation does not appear to extend to the further gain for which there is need.)

Future studies, pp. 43,48. (Effect unpredictable)

Worldwide index of patents, p.50. (Effect, if any, unpredictable)

Revisions of patent treaties, p.54. (Giving foreigners priority on a new ground would be prejudicial to American inventors, but too remote in time to count).

Ultimate establishment of world-wide patent system, p.55. (Too indefinite and remote in time to count. If substituted for our system could be weaker; if added, would help. More immediate steps recommended are unpredictable in their effect).

---

[1] In great majority of cases (not placed in interference now) costs may be increased by the average cost of preliminary applications (which will be universal).

LR/EVS
1/4/67

Q/Belmont 4/14/67

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April 13, 1967 Enr.

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NO. TEN POST OFFICE SQUARE, BOSTON

VIA AIR MAIL

Mr. Robert H. Rines
Rines and Rines
No. Ten Post Office Square
Boston, Massachusetts 02109

RE: UIF v. BT v. JFD

Dear Bob:

I talked with John Pearne this morning and understand he is going to talk with you with regard to several matters.

His motion for summary judgment will be delayed a few days, but he is sending you a copy of a draft.

He is considering the possibility of a motion to separate the fraud question for trial and wondered if that might be of interest to you as a procedural tactic. I suggested that the question of fraud might be raised with regard to the Isbell patent also in view of Quarterly Report No. 2. I doubt if we could establish fraud on the Patent Office, but there might be an argument with regard to the continuation of this litigation after the facts become known.

The stipulation he is securing with regard to Quarterly Reports 1 and 2, Technical Report 39, and the Collins Radio publication sounds like a good idea and should simplify the testimony.

We checked with Judge Hoffman's clerk this morning and find that his trial calendar is moving as he had planned. The clerk suggested that he would not be able to give any definite information regarding your call until three or four days before the date it is set. Presumably you will go to trial on or shortly after May 1.

Very truly yours,

Dick

RSP:iag

Richard S. Phillips

PLEASE RETURN THIS

217 Sweet Reply

◀ ◀ ◀ ◀ TO WES

3/12/65
DATE

ENGINEERING DEPARTMENT

BLONDER-TONGUE LABORATORIES, INC.

9 ALLING STREET, NEWARK, N. J. 07102

To WES → G.K. → H.G.

3/19/65 MARKETING

MB 3/18/65 WES.

SUBJECT

Boom - Shield

5 & 9 Element

Antennas

Message

FOR CONSIDERATION, ETC

PLEASE APPROVE AND/OR COMMENT.

NEED NO LATER THAN 3/19/65

SIGNED

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Reply

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NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

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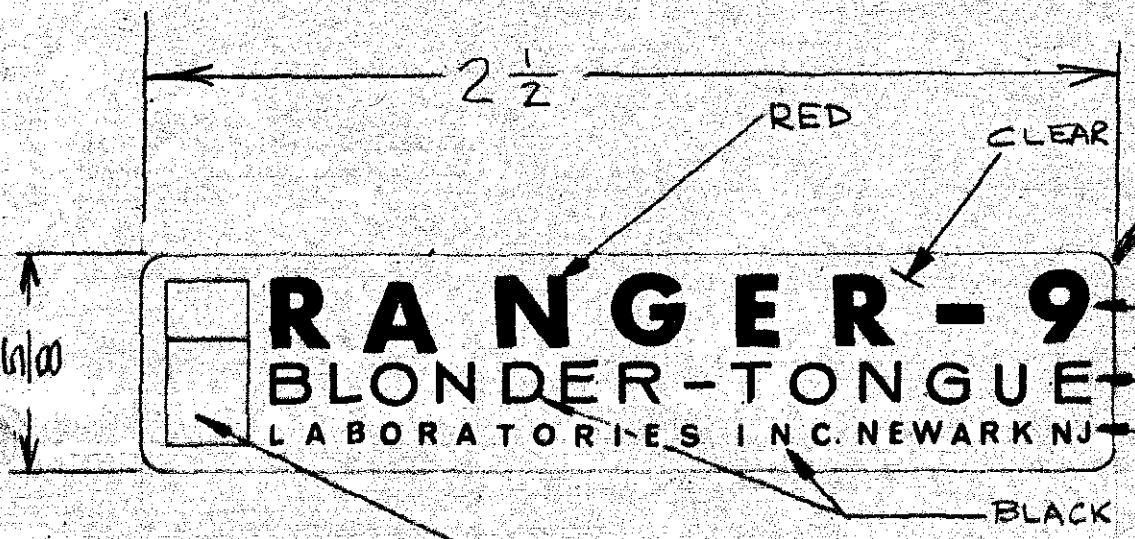
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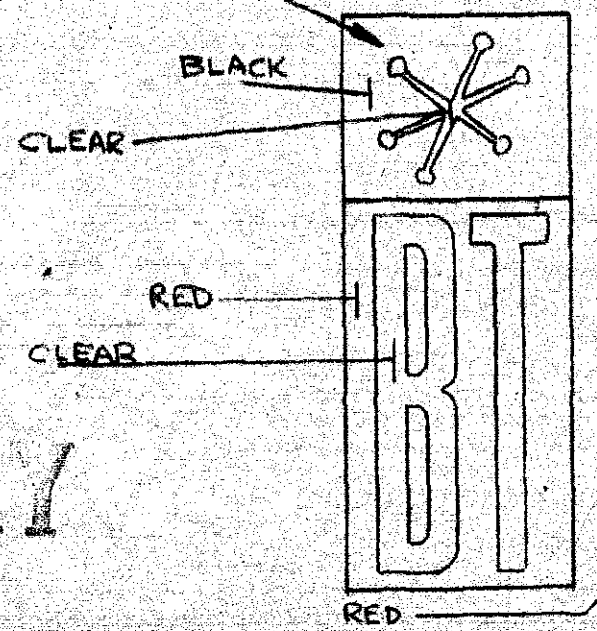
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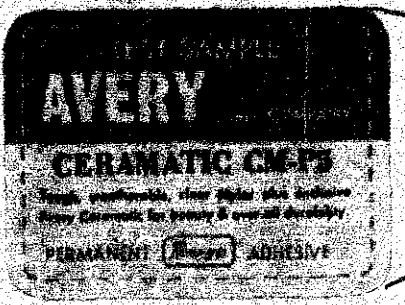
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NOTES (1) 5/64 BETWEEN LINES
(2) 1/16" BORDER ALL AROUND
(3) THERE WILL BE TWO LABELS, RANGER-9 & RANGER-5

UNITED STATES DISTRICT COURT
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OR ENG. APP'D EQUIV.

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PRELIMINARY

BLONDER-TONGUE
ENGINEERING DEPT.

EJS 3/12/65

UHF GOLDEN DART
Outdoor Periodic Antenna

175

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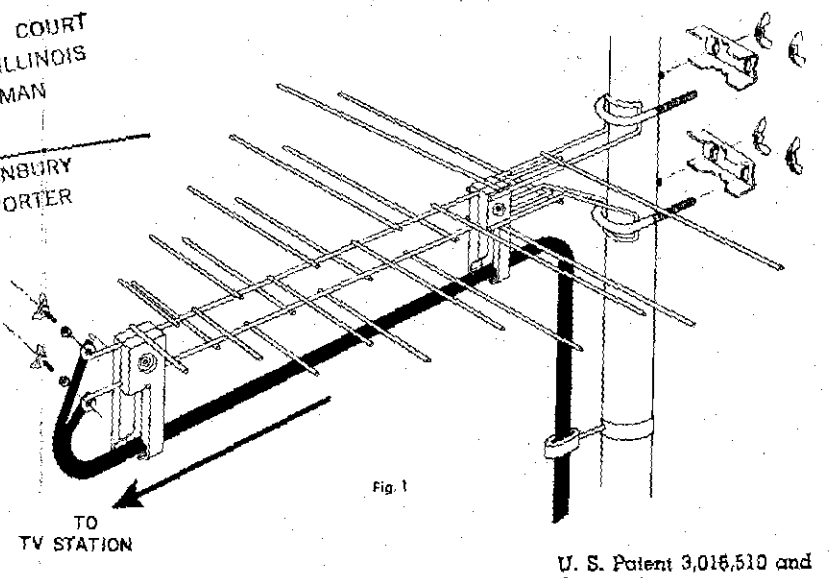


Fig. 1

U. S. Patent 3,016,510 and Foreign Patents, Patent Pending.

INSTALLATION INSTRUCTIONS

1. Mount antenna as shown in Fig. 1.
2. Assemble thumb screw and stripless washer on the flat side of the threaded stud.
3. Slit twin lead and flatten or trim end to fit under stripless washer. Note: Low loss foam filled UHF lead is recommended.
4. Tighten thumb screw and check to see that stripless washer pierces insulation and makes contact with wire.
5. Snap twinlead into insulating fingers and use a standoff close to the antenna as shown.

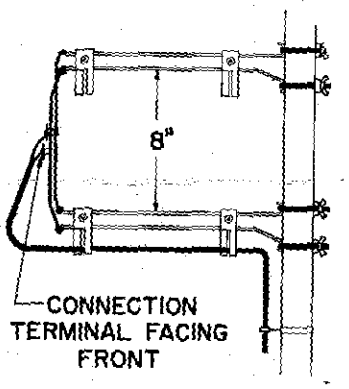


Fig. 2

For Weak Signal Areas Stack Two Darts With Kit 3519

1. Attach stacking bars as shown in Fig. 2.
   Note: bars are attached by slipping over hollow threaded studs on antenna. See Fig. 3.
2. Attach downlead to center of stacking bars and dress thru insulators on bottom Dart, as shown in Fig. 2.



Fig. 3

ASSOCIATED EQUIPMENT

1. ABLE U-2 — High gain all channel transistorized 300 ohm mast mounted UHF amplifier.
2. UHF-2 — UHF Line splitter to feed two TV sets from one antenna or to connect two Darts facing different directions into one down lead.
3. A-107 — Use to combine signals from UHF and VHF antenna as well as splitting UHF-VHF signals from one down lead.
4. CMB-92U — Use to run 75 ohm shielded cable in high interference areas.
5. Complete line of UHF converters for the home and for Master Antenna Systems.

LOOK TO B-T AS THE LEADER IN UHF RECEPTION AIDS

BLONDER TONGUE
9 Alling St., Newark, N. J.

Canadian Div.: Benco Television Assoc., Ltd., Toronto, Ont.

home TV accessories • UHF converters • master TV systems
industrial TV systems • closed circuit TV systems

Oct 65

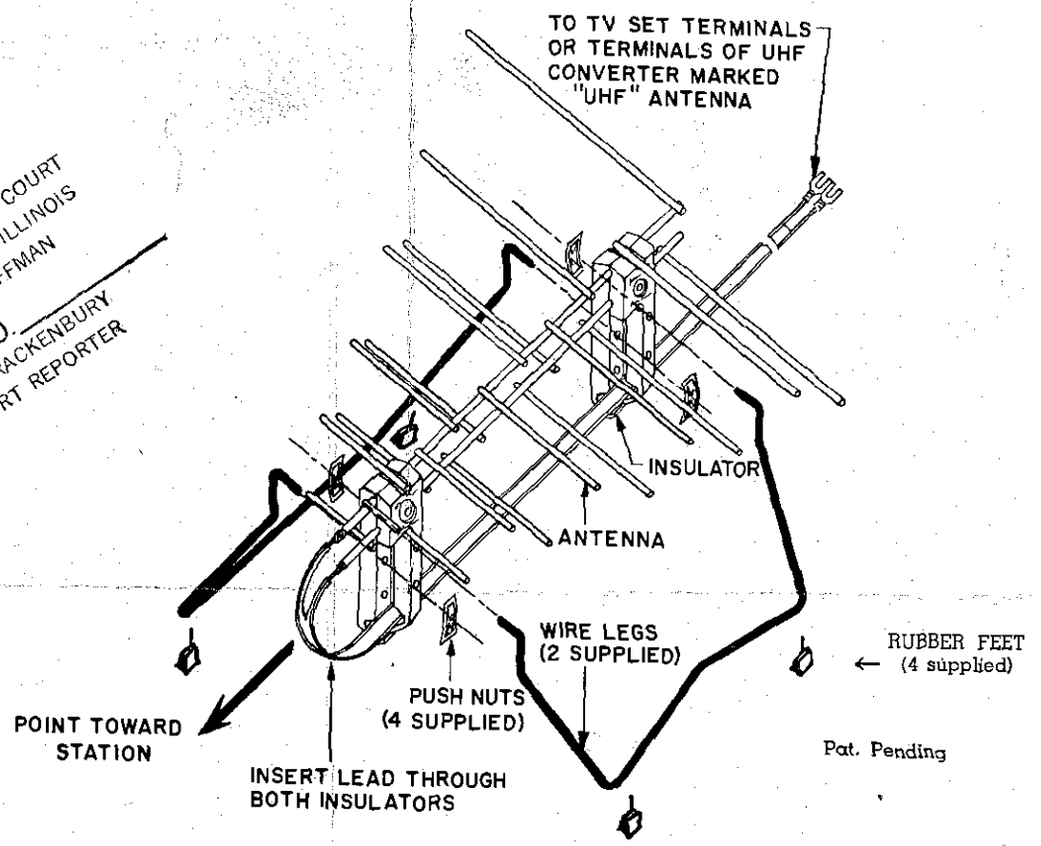
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BLONDER-TONGUE

176

GOLDEN ARROW

INDOOR UHF ANTENNA



Pat. Pending

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ASSEMBLY INSTRUCTIONS

Check contents for the following:

A. (1) antenna assembly (with attached twinlead)
(2) wire legs
(4) push-nuts and (4) rubber feet (enclosed in plastic bag)

B. Insert lead through both insulators, as shown.

C. Install wire legs, as shown. (Be sure to use top holes of insulator).

D. Attach rubber feet as shown.

E. If T.V. set has built in UHF tuner, attach lugs of antenna lead directly to terminals on set marked "UHF" antenna. If a UHF converter is employed, install converter following the manufacturers instructions. Attach lugs of antenna to terminals of converter marked "UHF Ant".

POSITIONING THE ANTENNA

Best results are obtained by the **careful** tuning of UHF T. V. set or T. V. set/converter in combination with the correct positioning of the antenna toward the T. V. station. Face short-element side of antenna toward T. V. station. Follow manufacturers instructions for tuning UHF T. V. set or T. V. set/converter. **Slowly** rotate antenna for best picture and sound. Quality of reception may possibly be improved by a slight re-tuning of the T. V. set fine tuning control.

LOOK TO B-T AS THE LEADER IN UHF RECEPTION AIDS

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9 Alling St., Newark, 2 N. J.

home TV accessories • UHF converters • master TV systems
industrial TV systems • closed circuit TV systems

Oct 65

6510416☆

6650138

PURCHASE-REQUISITION

(9)

A _____
B _____
C _____
D _____
F _____
E _____

☑ ALLING ST.
☐ McCARTER HWY.
☐ 2 - 10 LIBERTY ST.

DATE 12/11

AMOUNT	F. O. B.	SHIP VIA	SHIP TO	PRICE	P/O

DESCRIPTION

1 [illegible]

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212

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9 ALLING STREET
NEWARK 2, N. J.

The Su[illegible] 00 CTS

221

Pay

DISCOUNT	VOUCHER NO.	CHECK NO.	DATE	AMOUNT
		177	9/16/63	1965.00

TO THE ORDER OF

Liberty Mold & Duplicating Co.
80 Fadhm Road
Springfield, New Jersey

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN
DEFENDANT EX. NO.
DOROTHY L. BRACKENBURY
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ACCT. NO.	DATE	INVOICE NO.	AMOUNT	TOTAL	VO. NO.
350	8/14/63	581	1965.00	1965 1965.00	VR8-19

BLONDER-TONGUE SYSTEMS, INC.
9 ALLING STREET

Received From Liberty Mold & Engineering Co.

☐ Partial 222 No. 60522
☒ Complete Date 8-16-63 196

PUR. ORDER NO.	VIA ☐ Freight ☐ Express ☐ Truck ☐ P. P.	WAYBILL NO.	NO. PKGS.	WEIGHT	TRANS. CHARGES
F19469-T	Carrier Vendor	—	1		$

☐ STOCK ☐ SHIPPING ☐ OFFICE ☐ LAB. ☐ MAINT. ☐ OTHER ☐ Prepaid Collect ☐ Cash ☐ Charge

RECEIVING DATA

	1.	2.	3.	4.	5.
PART NO.					
QUANTITY RECEIVED		1 - Complete Mold (Repair)			
QUANTITY PURCHASED					
OVER					
SHORT					
WEIGHT & CARTONS					

AUDIT

INCOMING INSPECTION DATA

INSPECTION REPORT NO.					
INSPECTION COMPLETED					
INSPECTOR					

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NORTHERN DISTRICT OF ILLINOIS
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ANOTHER JUNGO PRODUCT • WAUKEGAN, ILL.

RR-101-5M-128

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☑ Complete Date 8-28- 1963

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F20318	Carrier Victor		1		$

☐ STOCK ☐ SHIPPING ☐ OFFICE ☐ LAB. ☐ MAINT. ☐ OTHER ☐ Prepaid ☐ Collect ☐ Cash ☐ Charge

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	1.	2.	3.	4.	5.
PART NO.					
QUANTITY RECEIVED	1- Complete mold - Clamp outdoor V.H. Antenna				
QUANTITY PURCHASED					
OVER		Note - This is a repair.			
SHORT					
WEIGHT & CARTONS					

AUDIT

INCOMING INSPECTION DATA

INSPECTION REPORT NO.					
INSPECTION COMPLETED					
INSPECTOR					

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RR-101-5M-12-3

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			8/16/63	60522	1			

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TO: Liberty Mold & Duplicating Co.
69 Fadem Road
Springfield, New Jersey

D 350

DATE 6/28/63

SHIP TO: 1181 McCarter Highway
Newark, New Jersey

ATT: Mr. C. Roschner

TERMS	F. O. B.	SHIP VIA
	Delivered	Your truck

OUR PART NO.	QUANTITY	DESCRIPTION	PRICE
6027819	1	This is your authorization to build one (1) two cavity injection mold for clamp, outdoor antenna, per Dwg. DI-1532-E enclosed. This mold to be used in our Van Dorn E-260 molding machine	$1965.00

Confirming phone order to Mr. Roschner - 6/27/63

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NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

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...JECT TO CONDITIONS
...TED ON REVERSE SIDE
...number must appear on
... Packing Slips & Corr.

David H. Rubin
AUDIT

ELECTROCOMP, INC.

PURCHASING AGENT

LIBERTY MOLD & DUPLICATING CO.

Complete Services for the Plastic and Die Casting Industry

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ENGINEERING • DUPLICATING & ENGRAVING • HOBS & HOBBING • ELECTRIC DISCHARGE MACHINING

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Invoice Nº 581

Sold to

Electrocomp, Inc.
9 Alling Street
Newark, New Jersey

D 350

Via

Invoice Date August 16, 1963
Your Pur. Order # F 20318-799
Your Molding Order #
Your Tool Order #
Your S. O. #
Your Dept. No.
Our S. O. # 485-63
Typed by cm
Terms: Net 30 Days NO DISCOUNT

This is your authorization to build one (1) ~~xxx~~ two cavity injection mold for clamp, outdoor antenna, per drawing # M-1552-B enclosed. This mold to be used in our Van Dorn H-260 molding machine

$ 1,965.00

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Due Date 9/16		
Rec'd. 8/13	Price	
Inv. Date 8/16	Inv. Number 581	
INVOICE AMT.	$ 1965	¢ —
Account Number D350	G/L Amt. $ 1965	¢ —
Account Number	G/L Amt. $	¢
P/O #	Ext.	

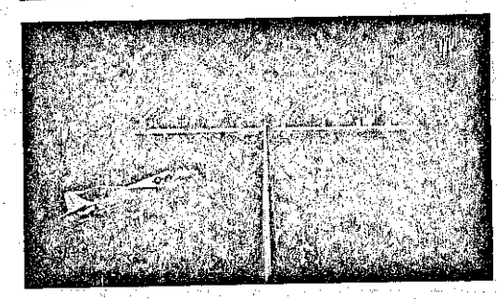
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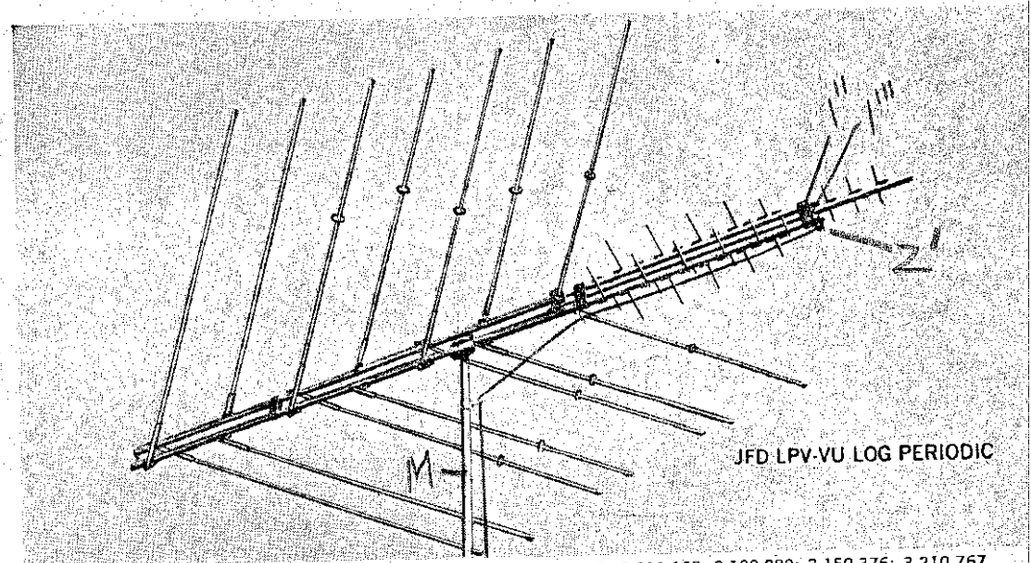


Back in 1962, we invented a new kind of TV antenna.

passport

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER



JFD LPV-VU LOG PERIODIC

Licensed under one or more of U.S. patents 2,958,081; 2,985,879; 3,011,168; 3,108,280; 3,150,376; 3,210,767, RE. 25,740 and additional patents pending in U.S.A. and Canada. Produced by JFD Electronics Co. under exclusive license from the University of Illinois Foundation.

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1500 W. Burbank Boulevard
Burbank, California

DEAN'S ELECTRONICS
2310 Long Beach Boulevard
Long Beach, California

GROSSMAN & REYNOLDS
1800 West Valley Boulevard
Alhambra, California

MARCUS ELECTRONICS
5751 W. Pico Boulevard
Los Angeles, California

MARTIN DISTRIBUTING COMPANY
2509 East Florence Avenue
Huntington Park, California

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2101 N. Fairview, Santa Ana, 638-7220
In: Inglewood, 679-2276 Ontario, YU 6-6638; San Bernardino, TU 5-0721; Long Beach, HE 6-8268; Oxnard, HU 3-0133; Oceanside, SA 2-7694.

PAPEL BROTHERS
4652 E. Third Street
Los Angeles, California

RABER WHOLESALE ELECTRONICS
265 So. Laurel St., Ventura
116 No. Nopal St., Santa Barbara

RADIO PRODUCTS SALES
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Los Angeles, California

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1134 33rd Street
Bakersfield, California

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NOV 14 1966
AND PINE
OFFICE, BOS

tion: PERFECTION CONQUERED

We did not improve on an old antenna. We started from scratch to design a new one. *Really new.*

It wasn't easy. And it wasn't cheap. But it worked like mad.

We called it the LPV Log Periodic. Its performance caught our competitors with their charts down. But it wasn't long before they came up with LPV copies in every way—except in performance.

Meanwhile back at the JFD labs in Champaign, Illinois, our scientists and engineers continued their "assault on perfection." In 1963, they again shattered antenna precedent by coming up with the *first* combination VHF/UHF/FM log periodic antenna, the LPV-VU. Instead of three different antennas, installers now needed only *one* LPV-VU and *one* downlead.

Our competitors scoffed at the idea. They said it couldn't be done. Until the "eye-popping" results started to roll in. Then there was a mad scramble for the LPV-VU bandwagon.

These "me-too" antennas looked like the LPV-VU Log Periodic. Sounded like it, too. But their charms were skin-deep.

Only the JFD LPV-VU delivered deluxe 82-channel log periodic performance. Because only the JFD LPV-VU followed the genuine patented log periodic concept of the University of Illinois Antenna Research Laboratories. Thanks to the protection of eleven different LPV-VU U.S. patents issued and pending—more than those of any other antenna.

You would think by now our Research and Development people in Champaign would leave well enough alone. But no. These "Young Turks" have gone and done it again. This time it's a new all-band log periodic design—the LPV-CL Color Laser. (Must be that "assault on perfection" bug they've still got up their polinear recorder.)

Why did we call it the Color Laser?

Well, engineers tell us that laser light beams with their tremendous bandwidth capacity are the communications carrier of the future. And we believe that our new VHF/UHF/FM Color Laser with its extreme bandwidth, among other unique characteristics, is the antenna of the future—only it's available to you *now*. How does the Color Laser deliver unsurpassed natural color, black and white across 82 channels, and FM, too?

Three reasons: (1) *Patented "VHF "cap-electronic" Log Periodic V Design,* (2) *a new broad band UHF "zoned" trapezoid driver,* (3) *a new disc-on-rod UHF director system.* And there are patents issued and pending on all three.

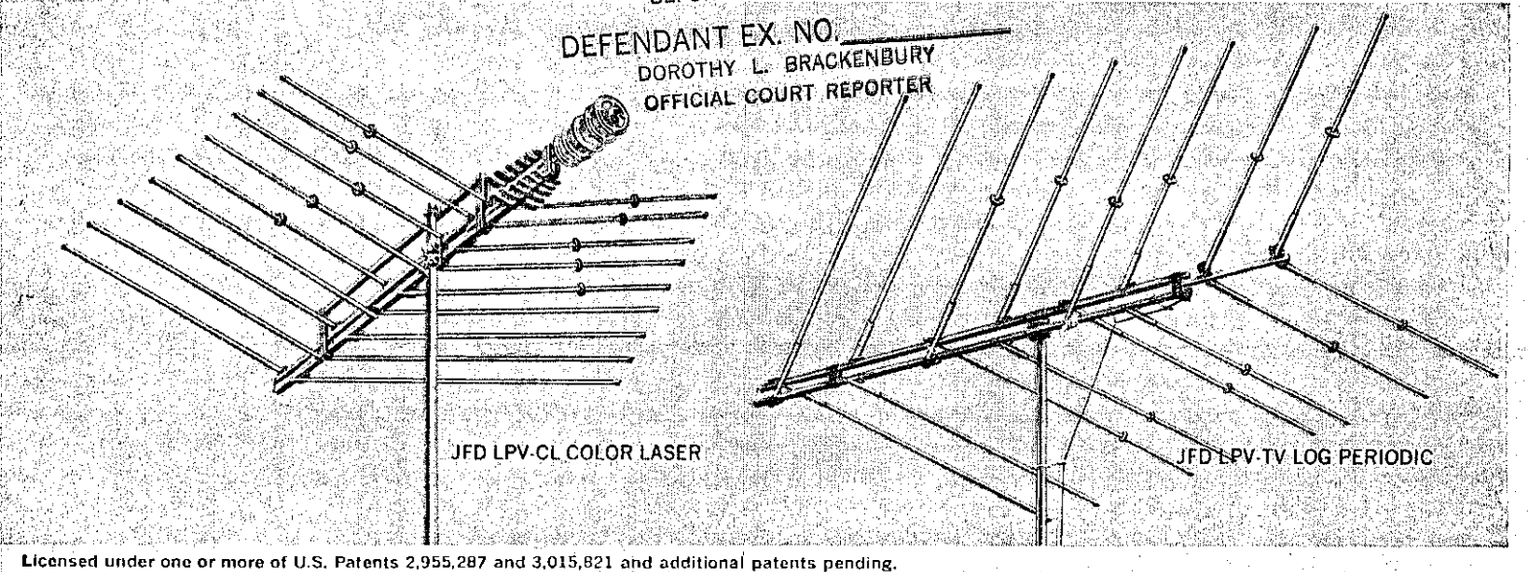
We've also spun off the LPV "cap-electronic" Log Periodic section of the Color Laser. It forms the heart of a great new VHF antenna series we've named the LPV-TV.

This "assault on perfection" of ours involved a complete new mechanical design, as well. Results: "fast-lok" element brackets, "hot" twin booms (no lossy harnesses or transformers), new super-strength double U-bolt profiles, high reliability cylindrical capacitors, plus our electrically conductive gold alodized aluminum.

If you're the breed of professional contract installer or self-servicing appliance dealer who *never* settles for less than the best, we have a suggestion. Use a JFD LPV-CL Color Laser or LPV-TV Color Log Periodic on your next installation. See what it feels like to install the *best* of all in performance and customer satisfaction.

You will also see why our research and development people have now changed their watchword from "assault on perfection" to "perfection *conquered*".

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN
DEFENDANT EX. NO.
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER



JFD LPV-CL COLOR LASER

JFD LPV-TV LOG PERIODIC

Licensed under one or more of U.S. Patents 2,955,287 and 3,015,821 and additional patents pending.

JFD®

JFD ELECTRONICS CO.
15th Avenue at 62nd Street, Brooklyn, N.Y. 11219
JFD International, 64-14 Woodside Ave., Woodside, N.Y. 11377 JFD Canada, Ltd., Canada
JFD de Venezuela, S.A., Avenida Los Haticos 125-97, Maracaibo, Venezuela

CASS ALTSHULER
801 Seventh Avenue
Oakland, California

DUNLAP ELECTRONICS
1800 - 18th Street
Sacramento, California 95809
Also in: Chico, Vallejo, Modesto, Fresno, Walnut Creek, Bakersfield, Marysville, Stockton, Merced, Redding and Reno, Nevada

QUEMENT ELECTRONICS
1000 South Bascom Avenue
San Jose, California

REDWOOD ELECTRONICS SUPPLY COMPANY
711 Summer Street
Eureka, California

WHOLESALE RADIO & ELECTRIC SUPPLY COMPANY
1348 El Camino Real
San Carlos, California

WHOLESALE RADIO & ELECTRIC SUPPLY COMPANY
1116 Folsom Street
San Francisco, California 94103
Also in Petaluma

ENGINEERING 178
UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN
DEFENDANT EX. NO.
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

TO: GEORGE KAPLAN JUNE 30, 1965

FROM: ABE SCHENFELD

SUBJECT: ANTENNA FIELD TRIP TO GEORGIA (JUNE 8 - JUNE 11)

1. ARRIVAL AND PRE-TESTING CONFERENCE

1.1 UPON ARRIVAL AT ATLANTA AIRPORT, WE DROVE DIRECTLY TO THE SPECIALTY DISTR. CO. AND MET J. E. EATON (STUMPY), GENERAL SALES MANAGER, AND HERSHALL BAGWELL, MANAGER OF THE ATLANTA BRANCH.

1.2 WE ASSEMBLED A COLOR RANGER-5 AND A U-RANGER AND POINTED OUT ALL THE FEATURES.

1.3 STUMPY THEN SUGGESTED WE START OUR FIELD TESTING IN NORTH ATLANTA.

2. FIRST LOCATION -- NORTHWEST OF ATLANTA

2.1 WE MET W. E. KAYLOR, MANAGER OF SPECIALTY DISTR. BRANCH.

2.2 WE WERE INTRODUCED TO THE LOCAL DEALER AND LEARNED THAT A SEVERE GHOST PROBLEM EXISTS THROUGHOUT THE AREA ON CHANNEL 2 A MAJOR COLOR STATION (HILLS AND TALL TREES THROUGHOUT). OTHER CHANNELS IN THE AREA ARE 5 AND 11.

2.3 WE LEARNED THAT MOST NEW INSTALLATIONS ARE FOR COLOR SETS.

2.4 MOST INSTALLATIONS USE THE CHANNEL MASTER CROSS FIRE SERIES ANTENNAS AS THEY FOUND TO REJECT GHOSTS BEST OF ALL OTHER ANTENNAS.

2.5 THE JFD LPV SERIES HAS POOR LOBE REJECTION.

2.6 THE TEST WAS CONDUCTED AT A NEW COLOR INSTALLATION, A ONE-STORY PRIVATE HOME. A CHANNEL MASTER 3605 7 ELEMENTS WAS INSTALLED BUT DIDN'T ELIMINATE THE REFLECTIONS ENTIRELY.

2.7 AFTER VIEWING THE PICTURE, WE INSTALLED THE COLOR RANGER-5 ON A PORTABLE POLE SLIGHTLY UNDER THE HEIGHT OF THE EXISTING ANTENNA AND APPROXIMATELY 15 FEET AWAY FROM IT IN LINE WITH THE TRANSMITTER.

2.8 THE DEALER AND TWO OF HIS SERVICEMEN CLAIMED THAT OUR COLOR RANGER-5 PERFORMS SLIGHTLY BETTER THAN THE CHANNEL MASTER 7 ELEMENT ANTENNA FOR GHOST REJECTION ON CHANNEL 2 AND DELIVERED SLIGHTLY CRISPER SIGNALS ON CHANNELS 5 AND 11.

2.9 THE COLOR RANGER-10 WAS SUBSTITUTED FOR THE COLOR RANGER-5 AND ODDLY ENOUGH DID NOT SHOW AN IMPROVEMENT ON CHANNEL 2 OVER THE COLOR RANGER-5. (THE COLOR RANGER-10 HAS AT LEAST 10DB BETTER BACK LOBE REJECTION).

3. SECOND LOCATION -- MARIETTA

3.1 WE MET MR. DUPRI, DEALER.

3.2 MR. DUPRI INFORMED US THAT THERE IS A SEVERE GHOST PROBLEM ON CHANNEL 2.

3.3 MR. DUPRI TRIED ALL ANTENNA AND FOUND CHANNEL MASTER CROSS FIRE SERIES TO PERFORM BEST.

3.3.1 HE CANNOT USE THE JFD LPV IN MOST OF HIS LOCATIONS. HE FOUND THAT THE JFD LPV HAS MORE GAIN IN THE HIGH-BAND THAN THE CHANNEL MASTER ANTENNA.

3.3.2 HE FOUND THE WINEGARD ANTENNAS TO HAVE LARGE VARIATIONS IN GAIN, AND THEY DROP SHARPLY IN GAIN ON CH-6. (WE SUBSTANTIATED HIS OBSERVATION IN THE LAB).

3.3.3 MOST NEW INSTALLATIONS ARE COLOR SETS.

3.3.4 THE CHANNELS IN THE AREA ARE 2, 5, 11, 30. CH-30 IS AN EDUCATIONAL CHANNEL AND IS NOT POPULAR AT ALL.

3.4 THE TEST WAS CONDUCTED AT A NEW INSTALLATION (COLOR SET). A CHANNEL MASTER 3504 11 ELEMENTS ALREADY INSTALLED AND A SLIGHT GHOST ON CHANNEL 2 WAS OBSERVED.

3.5 THE COLOR RANGER-10 WAS SUBSTITUTED FOR THE EXISTING ANTENNA AND WAS RATED TO PERFORM APPROXIMATELY THE SAME AS THE CHANNEL MASTER 11 ELEMENTS.

3.6 MR. DUPRI SHOWED ENTHUSIASM. HIS REASON WAS THAT AS A LOG-PERIODIC IT PERFORMED BETTER THAN THE JFD ANTENNAS, HAD MORE H.B. GAIN THAN THE C.M. AND THE SAME LOBE REJECTION.

HE INDICATED THAT HE WOULD LIKE TO TRY OUR ANTENNAS IN OTHER LOCATIONS AND GRAHAM SIBSOM PROMISED TO SUPPLY HIM WITH A FEW ANTENNAS.

4. THIRD LOCATION -- ROME

4.1 ROME IS SITUATED APPROXIMATELY HALF WAY BETWEEN ATLANTA AND CHATTANOOGA, TENNESSEE, 60 MILES FROM EACH.

4.2 RECEPTION IS: CH 3, 9, 12 FROM CHATTANOOGA AND
CH 2, 5, 11 FROM ATLANTA.

CH 2 FROM ATLANTA IS A MAJOR COLOR STATION. SINCE HALF OF THE TOWN (50,000 POP.) IS BLOCKED AND CANNOT RECEIVE CH 2 FROM ATLANTA, THEY HAVE TO RELY ON CH 3 (COLOR) FROM CHATTANOOGA. A SEVERE GHOST PROBLEM EXISTS ON CH 3.

4.3 TEST CONDUCTED AT SAVAGE ELECTRONICS AND TV SERVICE. MR. STEVE SAVAGE IS OWNER (DEALER).

4.4 MR. SAVAGE CLAIMS THAT THE C.M. CROSS FIRE 3601 23 ELEMENTS HAS BEST GHOST REJECTION (BUT DOES NOT SOLVE THE PROBLEM COMPLETELY.)

4.4.1 THE JFD LPV-14 HAS BETTER H.B. GAIN AND HE USES IT FOR THE ATLANTA STATIONS ONLY (CH 2, 5, 11).

4.4.2 HE USES THE KAY-TOWNES ANTENNAS WHICH ARE DIRECT COPIES OF THE CHANNEL MASTER 3601 AND THE JFD LPV-14. (THE KAY-TOWNES PLANT IS ONLY A FEW MILES AWAY).

HE AGREES THAT THE KAY-TOWNES ARE SOMEWHAT FLIMSY IN CONSTRUCTION BUT OTHERWISE FOUND TO PERFORM EXACTLY AS THE ORIGINAL MODELS.

4.5 ON HIS TEST SITE HE HAS A FEW C.M. CROSS FIRES AND A FEW LPV-14'S MOUNTED WITH A ROTATOR TO ORIENT THE ANTENNAS TOWARD ATLANTA OR CHATTANOOGA.

4.6 A DIRECT COMPARISON BETWEEN THE C.M. 23 ELEMENTS AND THE COLOR RANGER-10 (SAME MAST) SHOWED THAT THE C.M. ANTENNA HAD A BETTER GHOST REJECTION ON CH 3. ALL OTHER CHANNELS WERE APPROXIMATELY THE SAME. (SEE CHART).

4.7 A DIRECT COMPARISON BETWEEN A JFD LPV-14 COPY BY KAY-TOWNES AND THE COLOR RANGER-10 PROVED OUR ANTENNA TO BE SUPERIOR ON GHOST REJECTION AND GAIN ON CH 3. THE GAIN COULD EASILY BE NOTICED ON THE SCREEN.

4.8 C.M. 23 ELEMENTS VS COLOR RANGER-10

	CHANNEL	SIG. LEVEL C.M. 3601 PIX.	23 EL. SOUND	SIG. LEVEL COLOR RANGER-10 PIX.	SOUND
ATLANTA	2	170μV	165μV	170μV	180μV
	5	150μV	175μV	120μV	130μV
	11	45μV	60μV	53μV	58μV
CHATTANOOGA	3	400μV	250μV	330μV	270μV
	9	110μV	50μV	110μV	50μV
	12	110μV	65μV	110μV	71μV

4.9 C.M. 23 ELEMENTS VS JFD LPV-14

	CHANNEL	SIG. LEVEL JFD LPV-14 PIX.	SOUND	SIG. LEVEL C. M. 23 PIX.	SOUND
CHATTANOOGA	3	275μV*	225μV	410μV	300μV
	9	140μV	65μV	125μV	60μV
	12	120μV	35μV	120μV	80μV

* NOTE LOW LEVEL

5. FOURTH LOCATION --- STATESBORO

5.1 STATESBORO IS APPROXIMATELY 250 MILES SOUTH OF ATLANTA RECEIVING CHANNELS 3, 6, 11, APPROXIMATELY 45-50 MILES FROM SAVANNAH AND CHANNELS 6, 12, APPROXIMATELY 60 MILES. (CH 6 IS MAJOR COLOR STATION).

5.2 LOCATION: DATH'S TV SALES AND SERVICE.

5.3 A WINEGARD CL-1/4 ANTENNA WITH A MAST MOUNTED BOOSTER AND ROTATOR (15DB GAIN, WINEGARD). MOUNTED ON TOP OF A 70 FT. MAST. ADDITIONAL 25DB OF AMPLIFICATION IS PROVIDED AT THE BST LOCATION. (JERROLD AMP.)

5.3.1 TWO STACKED CONICALS (KAY-TOWNES) MOUNTED APPROXIMATELY 25 FT. ON THE ROOF.

5.4 THE COLOR RANGER-10 WAS MOUNTED APPROXIMATELY 25 FT. HIGH (SAME HEIGHT AS THE STACKED CONICALS).

5.5 THE COLOR RANGER-10 PULLED IN FAIRLY CLEAN SIGNALS AND WAS JUDGED BY THE CHIEF TECHNICIAN AND TWO SERVICEMEN TO PERFORM AS WELL AS THE BEST ANTENNA TRIED AT THIS LOCATION.

5.6 COLOR PERFORMANCE (CH 6) WAS JUDGED BEST AND WAS MUCH BETTER THAN THE CL-1/4 WINEGARD. (MIGHT BE DUE TO THE BOOSTER ON THE WINEGARD).

5.7 THE STACKED CONICALS DELIVERED VERY SNOWY SIGNALS WHICH WERE COMPLETELY UNVIEWABLE. THE COLOR RANGER-10 HAD AT LEAST 6-10DB MORE GAIN.

6. PRICE COMPARISON

MODEL	LIST	DEALER 12 & UP	DIST.
JFD LPV-11	$39.95	$ 19.98	$14.58
JFD LPV-14	49.95	24.98	17.98
CHANNEL MASTER 3605(7)	14.95	9.00	5.40
CHANNEL MASTER 3604(11)	21.95	13.00	7.92
CHANNEL MASTER 3601(23)	49.95	30.00	17.93
COLOR RANGER-5		144 ANTENNAS	7.50
COLOR RANGER-10		FREIGHT PREPAID	12.80

7. CONCLUSIONS AND OBSERVATIONS

7.1 STUMPY EATON, GENERAL MANAGER OF SPECIALTY DISTR. CO., HERSHALL BAGWELL, MANAGER OF THE ATLANTA STORE AND ALL DEALERS LIKED THE MECHANICAL CONSTRUCTION.

7.2 ALL DEALERS AND TECHNICIANS CLAIMED THAT OUR ANTENNAS PERFORM BETTER THAN THE JFD LPV ANTENNAS, AND THAT THE CHANNEL MASTER CROSS FIRE ANTENNAS HAVE BETTER BACK LOBE REJECTION THAN OUR ANTENNAS.

7.3 DEALERS SEEMED TO HAVE A GOOD, PRACTICAL ANTENNA KNOWLEDGE. THEY ARE FAMILIAR WITH THE MAJOR ANTENNAS ON THE MARKET AND HAVE AN IDEA HOW THEY PERFORM.

7.4 DEALERS SHOWED A GREAT CONCERN OVER THE PERFORMANCE AT EACH HOME INSTALLATION. EVEN WHEN THE CUSTOMER WAS SATISFIED, THE DEALERS HAD TO BE SATISFIED AND DID ALL THEY COULD TO IMPROVE RECEPTION.

7.5 MANY DEALERS SHOWED ENTHUSIASM FOR OUR ANTENNAS AND OFFERED THEIR HELP IN FUTURE TESTS.

7.6 STUMPY EATON CLAIMED THAT THE JFD LPV-11 AND LPV-14 ARE THE BEST SELLERS. HE WAS NOT AWARE OF THE GHOST PROBLEM ON CHANNELS 2 AND 3 THAT EXISTS THROUGHOUT THE AREA, NOR WAS HE AWARE THAT THE CHANNEL MASTER ANTENNAS WERE USED BY THE DEALERS AND SELLING THAT GOOD.

7.7 STUMPY EATON, UPON LEARNING OF THE SUCCESS OF THE CHANNEL MASTER ANTENNAS, INDICATED THAT HE WOULD LIKE OUR ANTENNAS TO PERFORM BETTER.

7.8 JFD ENGINEERS ARE CONSTANTLY MAKING FIELD TRIPS AND ARE FIELD TESTING ANTENNAS AND BOOSTERS.

7.9 THE REMBRANDT INDOOR ANTENNAS ARE GOOD SELLERS IN THE SOUTH. THE SALESMEN ARE GETTING $0.50 FOR EVERY ANTENNA THEY SELL FROM THE MANUFACTURER.

7.10 THE JERROLD COLOR GUARD CAMPAIGN HAS NO IMPACT.

7.11 ROTATOR SALES ARE NOT GOOD.

7.12 IN THE FUTURE, IT SEEMS ADVISABLE TO INVESTIGATE THE PROBLEMS OF THE SPECIFIC MARKET IF WE PLAN TO INTRODUCE AN ANTENNA IN THAT MARKET. THE ESTIMATED SALES FOR THIS AREA (2,000 ANTENNAS PER WEEK) SHOULD HAVE WARRANTED AN INVESTIGATION OF THIS AREA AND WHETHER THE NEED FOR CUSTOM-MADE ANTENNAS WOULD HAVE BEEN TO OUR ADVANTAGE.

7.13 AS A RESULT OF THE ABOVE FINDINGS, A COLOR RANGER-12 WAS DESIGNED (WHICH IS EQUIVALENT OR SUPERIOR IN PERFORMANCE TO THE C. M. 18 ELEMENT ANTENNA) AND SHIPPED TO GRAHAM SISSOM FOR FIELD TESTING.

DISTRIBUTION LIST:

I. BLONDER
J. BALASH
H. GILBERT
D. HELHOSKI
G. KAPLAN
G. SISSOM
B. TONGUE
ALL PROJECT ENGINEERS

BLONDER-TONGUE

Laboratories Inc./9 Alling St., Newark, N. J./MArket 2-8157

SOLD TO [illegible] STATE ELECT. SUP
[illegible] E. MICHIGAN ST
MICHIGAN CITY, IND

SHIP TO SAME AS ABOVE

CUST NO. 6868 — 235

TERMS: NET CASH 30 DAYS 2% DISCOUNT FOR PAYMENT AS FOLLOWS:
INVOICES DATED 1st TO 15th PAID ON OR BEFORE 25th OF MONTH.
INVOICES DATED 16th TO 31st PAID ON OR BEFORE 10th OF FOLLOWING MONTH.
DISCOUNT STARTS FROM DATE OF INVOICE

CUST. ORDER NO.	ORDER DATE	REP.	DATE SHIPPED	INVOICE DATE	INVOICE NO.
VERBAL	03/31/54	DBR	04/01/54	4/01/54	6688

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
12	CA 3520	2.67	32 04

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

SHIPPING CHARGE
VIA [illegible] EXP WT. 25 NO. CTNS. 1

*DENOTES BACK ORDER AND DATE

INVOICE TOTAL $ 32.04

BOOKKEEPING DEPT

BLONDER-TONGUE

Laboratories Inc./9 Alling St., Newark, N. J./MArket 2-8151

SOLD TO FORBES DIST CO
10 CHURCH STREET
DECATUR ALABAMA

CUST NO. 3253 — 236

SHIP TO SAME AS ABOVE

TERMS: NET CASH 30 DAYS 2% DISCOUNT FOR PAYMENT AS FOLLOWS:
INVOICES DATED 1st TO 15th PAID ON OR BEFORE 25th OF MONTH.
INVOICES DATED 16th TO 31st PAID ON OR BEFORE 10th OF FOLLOWING MONTH.
DISCOUNT STARTS FROM DATE OF INVOICE

CUST. ORDER NO.	ORDER DATE	REP.	DATE SHIPPED	INVOICE DATE	INVOICE NO.
86439	092763	103	092863	92463	11712

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
40	DART 092763	2.28	109.44
	UNITED STATES DISTRICT COURT NORTHERN DISTRICT OF ILLINOIS BEFORE JUDGE HOFFMAN DEFENDANT EX NO. DOROTHY L. BRACKENBURY OFFICIAL COURT REPORTER		

SHIPPING CHARGE VIA PUBLIC WT. 135 NO. CTNS 03

INVOICE TOTAL $ 109.44

*DENOTES BACK ORDER AND DATE

BOOKKEEPING DEPT

BLONDER-TONGUE

Laboratories Inc. / 9 Alling St., Newark, N. J. / MArket 2-8151

CUST NO. 5663 **237**

SOLD TO SPECIALTY DISTR CO
763 JUNIPER ST N E
ATLANTA GA 30308

SHIP TO SPECIALTY DIST CO
612 E BROAD ST
SAVANNAH GA 31402

TERMS: NET CASH 30 DAYS 2% DISCOUNT FOR PAYMENT AS FOLLOWS:
INVOICES DATED 1st TO 15th PAID ON OR BEFORE 25th OF MONTH.
INVOICES DATED 16th TO 31st PAID ON OR BEFORE 10th OF FOLLOWING MONTH.
DISCOUNT STARTS FROM DATE OF INVOICE

CUST. ORDER NO.	ORDER DATE	REP.	DATE SHIPPED	INVOICE DATE	INVOICE NO.
43979S	061765	102	062165	62165	13020

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
12	RANGER 5	7 50	90 00
12	RANGER 10	12 80	153 60

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

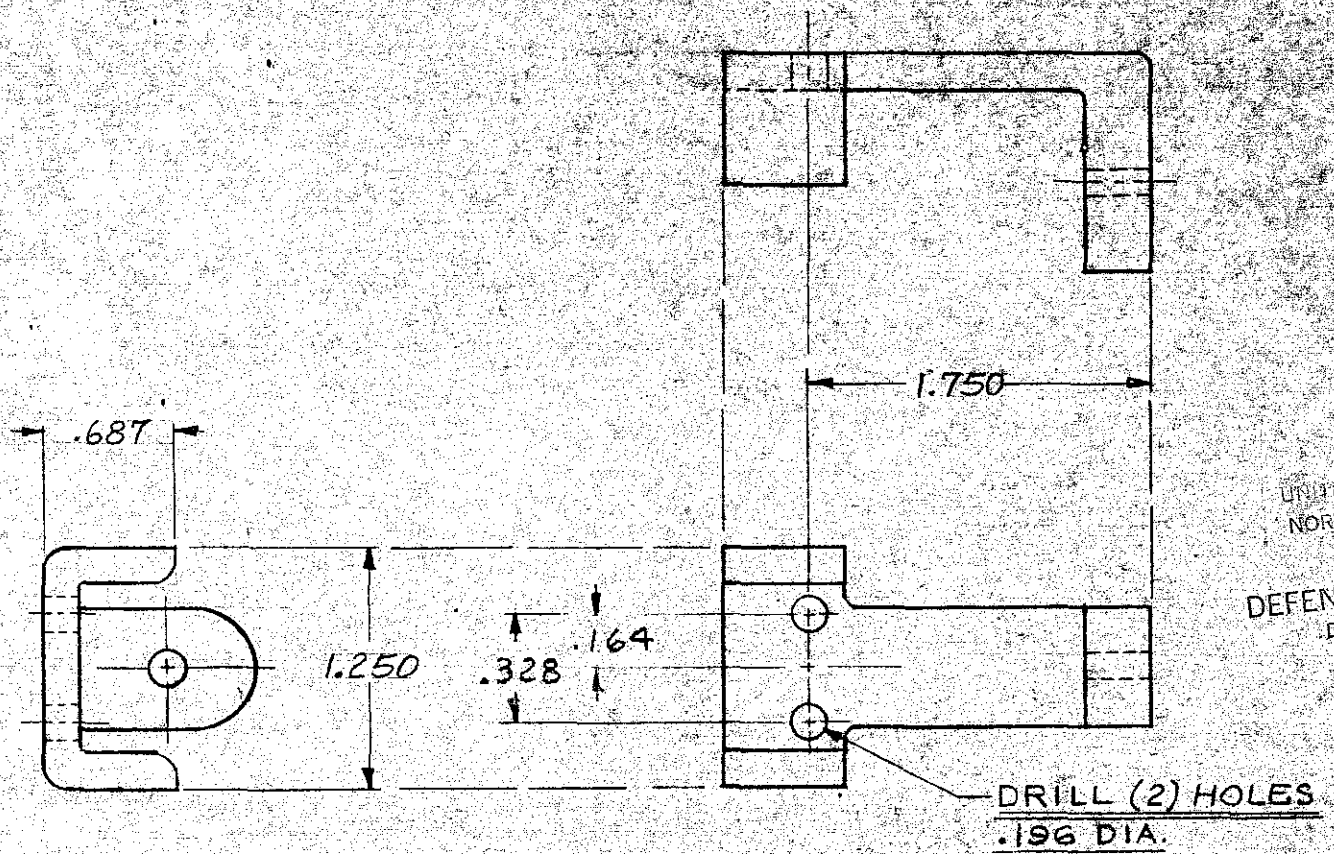
SHIPPING CHARGE VIA HENNIS WT. 160 NO. CTNS. 4

INVOICE TOTAL $ 243.60

*DENOTES BACK ORDER AND DATE

BOOKKEEPING DEPT

REV.	DESCRIPTION	DATE	APP.
A	.437 WAS .562	6-16-64	



UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN
DEFENDANT EX. NO.
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

ITEM NO.	NO. REQ'D	PART NO.	DESCRIPTION	MATERIAL	SPECIFICATION	NOTE

SCALE: 1:1

NO. REQ'D PER ASSEMBLY: 3

TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONAL ± 1/64
DECIMAL ± .005
ANGULAR ± 1/2°

STAND-OFF
LPV-VU ANTENNAS

MATERIAL: MADE FROM PART # 10000-0001

HEAT TREAT:

FINISH:

DRAWN	CHECKED	ENG. APP.	PROD. APP.
Anderson 1-2-63			

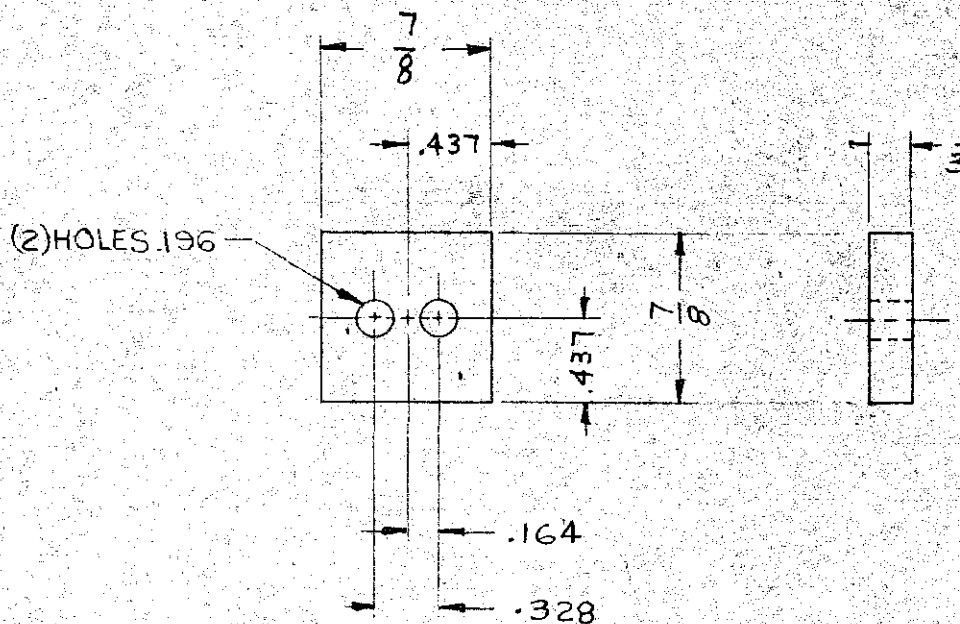
JFD ELECTRONICS CORP.
BROOKLYN 19, N.Y.

DATE OF PRINTING: APR 5 1967

NEXT ASSEMBLY:

DRAWING NO. 12449-0001

REV.	DESCRIPTION	DATE	APP.



UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____

DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

ITEM NO.	NO. REQ'D	PART NO.	DESCRIPTION	MATERIAL	SPECIFICATION	NOTE

SCALE: FULL

NO. REQ'D PER ASSEMBLY: 3

MATERIAL:

HEAT TREAT:

FINISH:

TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONAL ± 1/64
DECIMAL ± .005
ANGULAR ± 1/2°

SPACER INSULATOR
LPV-VU

DRAWN	CHECKED	ENG. APP.	PROD. APP.
Anderson 12-26-63			

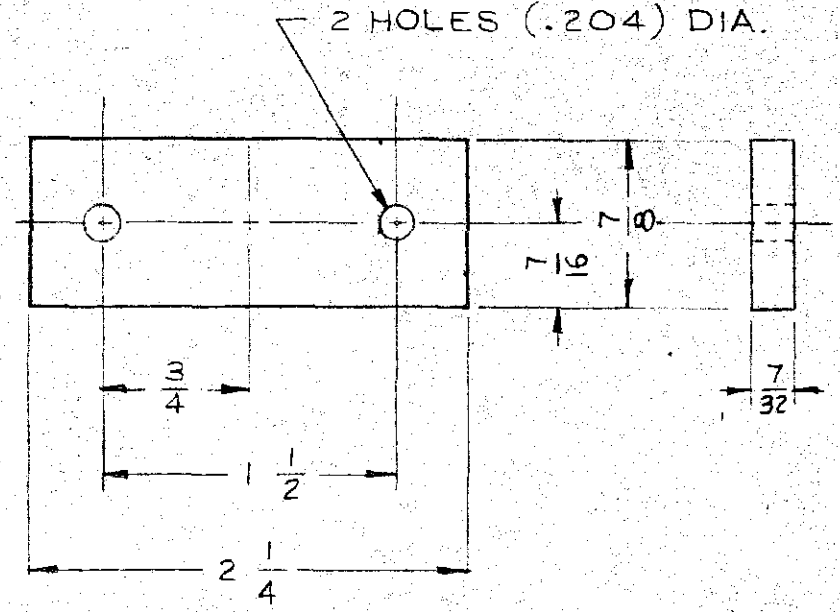
JFD ELECTRONICS CORP.
BROOKLYN 19, N.Y.

DATE OF PRINTING
APR 5 1967

NEXT ASSEMBLY

DRAWING NO.
12450-0001

REV.	DESCRIPTION	DATE	APP.



UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO. _____

DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

ITEM NO.	NO. REQ'D	PART NO.	DESCRIPTION	MATERIAL	SPECIFICATION	NOTE

SCALE: FULL

NO. REQ'D PER ASSEMBLY: 1

TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONAL ± 1/64
DECIMAL ± .005
ANGULAR ± 1/2°

MATERIAL: 7/32 × 3/4 MADE FROM 85090

HEAT TREAT:

FINISH:

TAKE-OFF Insulator LPV-VU

DRAWN	CHECKED	ENG. APP.	PROD. APP.
Anderson 1-2-68			

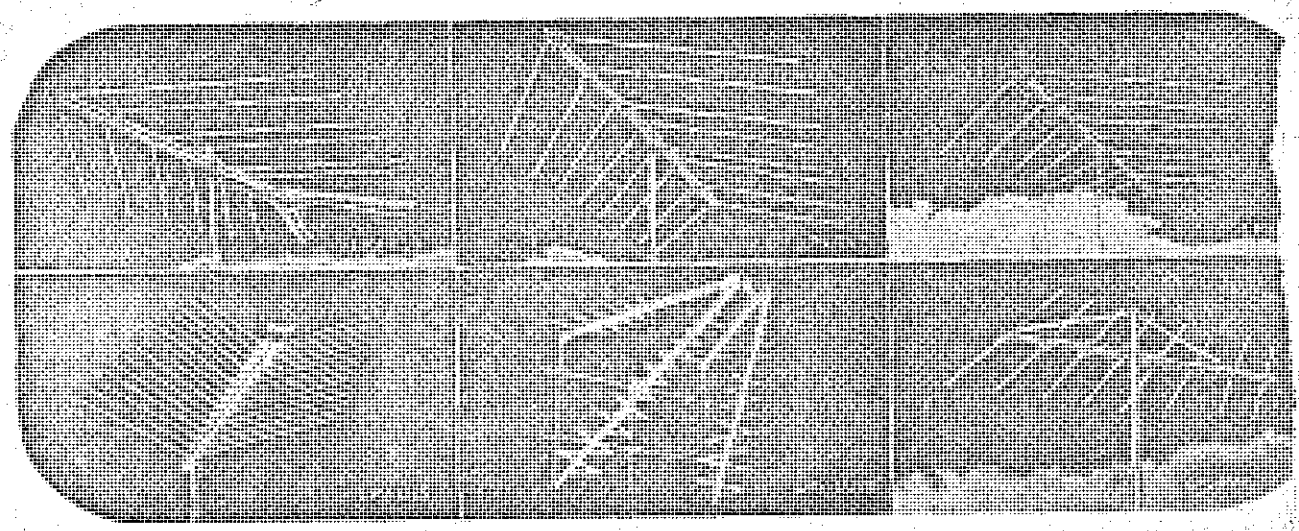
JFD ELECTRONICS CORP.
BROOKLYN 19, N.Y.

DATE OF PRINTING
APR 5 1967

NEXT ASSEMBLY

DRAWING NO.
12451-00

What does JFD® have that other TV antenna manufacturers wish they had?



the JFD® LPV® COLOR LOG PERIODIC

2

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO._____
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

Mr. Dealer:

Don't let other antenna makers "snow" you with claims of how their antenna "break-throughs" work so sensationally you hardly need a TV set to get a picture.

They've got little choice.

Ever since the LPV Color Log Periodic was introduced by JFD back in '62, our competitors' engineers have been going around in circles.

They've copied it down to the rivets.

They've camouflaged their use of the log periodic principle with terms such as "energy distribution."

They've imitated its name by calling theirs "V-log," "Super-log" and ..... -log.
(fill-in-yourself)

They've tried to equal its performance with "half-size" compacts—but you can't send a midget to do a man's job—this just doesn't work.)

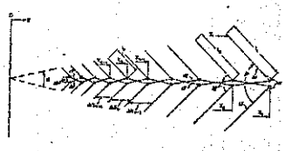
They still don't know whether to block it . . . fight it . . . join it . . . or how to live with it.

We say the proof of it all is the picture your antenna delivers to your customer's set. That is where the JFD LPV Color Log Periodic conclusively demonstrates its basic performance superiority.

If you're looking to give your customers the finest and truest color . . . crispest black & white . . . more VHF and UHF channels . . . even better FM stereo—don't compromise your professional reputation with "antenna-compromises." Rely on the patented JFD LPV Color Log Periodic as do so many tens of thousands of knowledgeable service-dealers.

We don't expect you to take our word for it either. Let the picture (and your profits) be the proof.

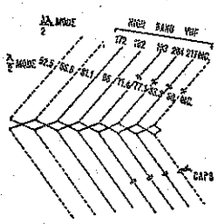
Exactly WHAT the JFD LPV Color Log Periodic has that other so-called antenna "break-throughs" would like to have!



- ONLY the JFD LPV delivers genuine **frequency-independent** performance. The **entire** antenna (not part of the antenna as in other ordinary antennas) responds to **every** channel.

$$\frac{L_{(n+1)}}{L_n} = \tau$$

- ONLY the JFD LPV follows the **patented log periodic** design of the University of Illinois Antenna Research Laboratories.



- Only the JFD LPV uses **Cap-Electronic** (capacitor-coupled) elements. This permits (1) precise and independent tuning for optimum performance in **both** fundamental **and** harmonic modes—**plus** (2) increased capture area—**plus** (3) directors tuned to perform on **all** bands, not just one. The result is **higher** gain, **narrower** directivity, **higher** front-to-back ratios for brilliant color, better-than-ever black & white—on channels 2 to 83.

LIFE NATIONALLY ADVERTISED IN LIFE. Month after month, 32 million readers of LIFE are being exposed to the reasons why the JFD LPV works best.

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25 DIFFERENT LPV LOG PERIODICS TO CHOOSE FROM. Interested in VHF? . . . UHF? . . . VHF/UHF/FM? Whether it's just **one** band or **all**, town or country, you get the precise antenna-answer when you make it an LPV Color Log Periodic. Interested in more facts? Just write us.

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• A WORD ABOUT OUR PATENTS . . . Eleven different U. S. patents and patents pending embrace the scientific advances of the JFD LPV—more than any other outdoor TV antenna. Our competition's attorneys are burning the midnight oil trying to find loopholes and ways to circumvent this patent protection which assures you of getting the **only** genuine antenna designed according to the **original** patented **log periodic** design of the famous **University of Illinois Antenna Research Laboratories.**

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AT THE MOMENT OF TRUTH THE PICTURE IS THE PROOF WHY JFD LPV COLOR LOG PERIODICS WORK BEST!

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN

DEFENDANT EX. NO._____
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In discussing this promotion, Joseph A. DeMambro, president of the distributing firm, said: "Because our dealers helped us grow during the past 30 years, we feel we want them to make extra money with their purchases from our firm." Mr. DeMambro is a former president and board chairman of the National Electronic Distributors Association.

DeMambro branches are located in Lawrence, Salem and Worcester, Mass.; Providence, R. I.; New London, Conn., and Manchester and Keene, N. H.

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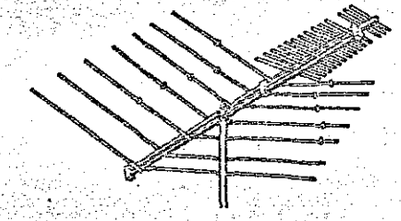
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JFD Antenna

higher - mode resonance to activate more elements of the antenna for higher gain and narrower beamwidths on Channels 7 to 13 without affecting low-band VHF. This makes it possible for more low-band elements to function on the high VHF band as well as the low VHF band. JFD design does this by inserting capacitors in the dipoles, thereby shortening them electrically so that their physical length is increased for the same wavelength, it was explained.

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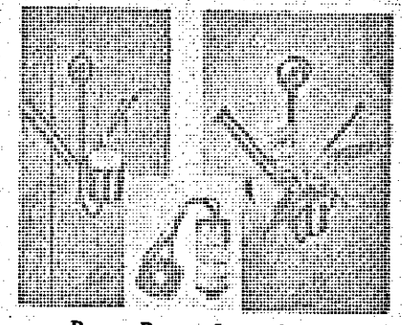
Among product classifications at the show are phonographs, high fidelity, stereo, radios, sound equipment and accessories, tape manufacturers and accessories and television sets and accessories.

Perma-Power Gives New Super-Sconce in Holiday Promotion

Dual Purpose Gift Is Offered as Free Premium With Tube Briteners

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The Super-Sconce, designed of ebony



Perma-Power Super-Sconce

wrought iron, will enhance any decorating scheme, Mr. Ackerman said. As is Perma-Power's custom prior to the holiday season, an item was selected that can be used as a gift from the TV service dealer to the lady of his choice.

Super-Sconce is available with both Tu-Brite and Vu-Brite packages. The Tu-Brite package of four Briteners sells for $8.95; the Vu-Brite package, with 12 Briteners, sells for $9.95.

Three Base Types

The Tu-Brite pac' ages are provided in all three base types, one type to a package. Included are units for duodecal base picture tubes, 110 degree button base picture tubes, and 110 degree shell base picture tubes. All

BT-33

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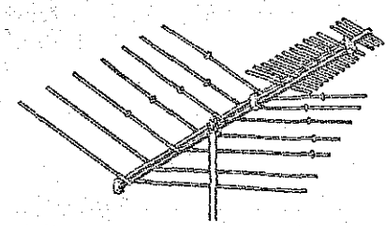
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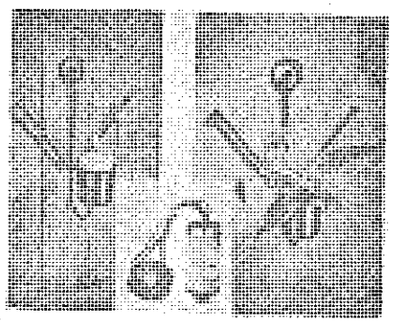
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TECHNICAL SECTION

APPROVED REVIEW BOARD microwave JOURNAL SEAL OF AUTHORITY

Reduced Size Log Periodic Antennas*

DANIEL F. DiFONZO

INTRODUCTION

The value of broadband log periodic antennas for ground-based communications systems in the high frequency band (3 - 30 Mc) is now well established. This type of antenna also has widespread potential in limited-area applications such as shipboard use; but since the dimension of the longest element is on the order of one-half wavelength ($\lambda/2$) at low frequency cutoff, the use of LP's in this area has been limited.

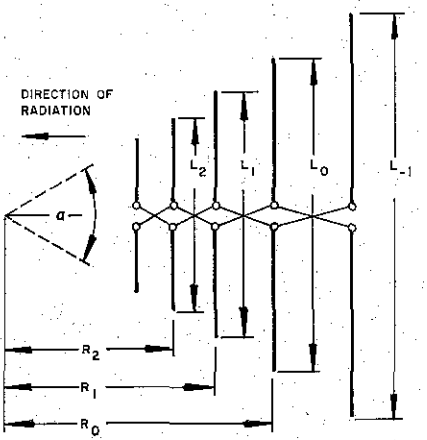
In order to use these antennas in applications where their size would normally prohibit installation, it is necessary to effect a considerable reduction in the size of the antenna elements. For example, a current study program has as its goal the investigation of electrical designs for a 6 - 30 Mc horizontally polarized log periodic antenna for shipboard mounting, with an additional requirement that the structure have a maximum dimension of 55 feet.

An equivalent full size LP would have a dipole element length of about 82 feet at 6 Mc. This requires a 35 to 40 per cent reduction in the size of the LP elements. A further consideration is that the loading technique must be mechanically simple.

The use of reduced size dipole radiators in log periodic structures introduces several problems which could affect the performance of the antenna as compared to a full size structure. Consider first the conventional dipole array shown schematically in Figure 1.[1]

The antenna elements are fed from a two-wire transmission line which supports a slow wave progressing from the apex of the LP toward the rear of the array. When energy reaches a portion of the structure containing elements which are nearly a half wavelength long, it is radiated by these elements in a direction toward the apex. Within this region of near resonant elements, commonly called the "active region," the transmission line currents decay rapidly. Thus the longer elements play no role in determining pattern and impedance characteristics. This attenuation through the active region is extremely important since it allows the structure to be truncated.

An important factor governing performance is the width of the active region, i.e., the number of elements it encompasses. It is known that the gain of the antenna is roughly proportional to the bandwidth of the active region. The shorter elements preceding the active region act as shunt capacitive loads to the transmission line of the antenna.



$$\tau = \frac{R_{n+1}}{R_n} = \frac{L_{n+1}}{L_n}$$

$$\sigma = \frac{R_n - R_{n+1}}{2L_n} = \frac{1}{4}(1-\tau)\cot\frac{\alpha}{2}$$

Figure 1 — Log periodic dipole antenna.

In a properly designed LP, this capacitive loading by the shorter elements is the chief factor in determining the antenna input impedance and is also important in establishing the coupling to the active elements. Thus, it can be appreciated that it is not sufficient to merely scale resonant dipoles by a given periodicity factor to insure frequency independent operation; for proper operation, the log periodic antenna should possess certain additional properties.

First, the electrical distance to the active region should be long enough (at least 0.3λ) to allow sufficient transforming action along the capacitively loaded transmission line. Second, the bandwidth of the active region should be at least large enough to contain a minimum of one resonant element over a period. This bandwidth is inversely proportional to the Q of the individual elements, where Q is defined as the ratio of

* *This paper was contained in the proceedings of the Ninth National Communications Symposium (1963).*



DANIEL F. DiFONZO

AMERICAN ELECTRONIC LABORATORIES, INC.

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A graduate of Villanova University with a degree in Electrical Engineering, Mr. DiFonzo is currently working toward an advanced degree in Electrical Engineering at the University of Pennsylvania. Upon joining AEL, Mr. DiFonzo participated in the design and development of a vertically polarized HF log periodic antenna. Following this he assumed responsibility as project engineer on a study program directed to the development of techniques for the size reduction of log periodic antennas. He is now responsible for the electrical design of antennas on an Air Force program which has as its goal the standardization of HF antennas, including horizontally polarized log periodic, vertically polarized log periodic, discone and conical monopole antennas. Mr. DiFonzo is a member of the IEEE and G-AP.

antenna characteristic impedance to resistance at resonance, thus placing emphasis on the Q of the element as an important factor in design.

Third, the attenuation of energy through the active region must be great enough (15 db typical) to eliminate so-called "end effects" due to reflections from the rear truncation and/or energy coupling to elements resonant in higher order modes ($3\lambda/2$, $5\lambda/2$, etc.).

The above-mentioned properties achieve added significance when the dipole elements are electrically loaded to reduce their frequency of operation. It is typical that when dipole elements are so loaded their characteristic impedance and Q rise sharply. The high Q of the reduced size elements narrows the active region tending to cause large fluctuations in pattern and impedance over a period of operation.

If the impedance match to the elements is poor, there is insufficient attenuation through the active region. Energy will then continue to propagate to elements which are resonant in higher order modes causing pattern and impedance deterioration. Therefore what is needed is a method of loading the dipole elements which produces the lowest Q and lowest characteristic impedance consistent with a given size reduction.

ANTENNA LOADING

Several loading techniques applicable to size reduction of log periodic structures have been investigated. In the following paragraphs these techniques are first discussed analytically, and then certain experimental findings are reviewed.

Series Inductance Loading

Reduction in the resonant frequency of an antenna by means of a series inductance is a common approach. Figure 2 illustrates a simple technique for achieving a series inductance, which involves placing a section of shorted coaxial line of length l and characteristic impedance Z_l in series with the antenna element.

The input impedance of an unloaded monopole is approximately given by

$$Z_a = R_r - jZ_c \cot\beta H \quad R_r \ll Z_c \tag{1}$$

Series loading modifies this expression to

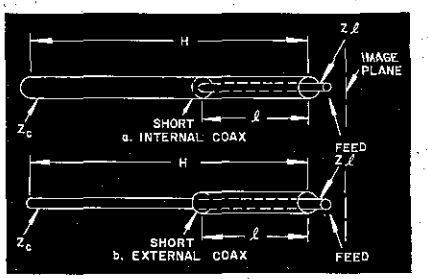


Figure 2 — Series inductive loading.

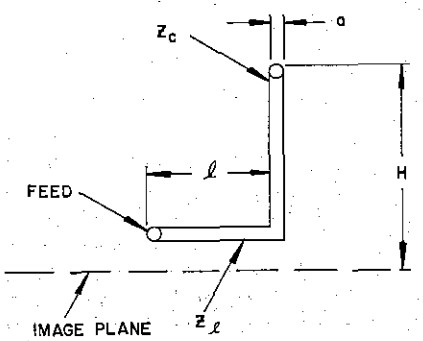


Figure 3 — Transmission line loading.

$$Z_{in} = R_r - j(Z_c \cot\beta H - Z_l \tan\beta l), \tag{2}$$

where

Z_c = antenna characteristic impedance[2]

R_r = resistance at resonance

The antenna is resonant when

$$Z_c \cot\beta H = Z_l \tan\beta l \tag{3}$$

Calculations for this configuration indicate that the ratio of Z_l/Z_c should be large and the length of the coaxial section must be quite long. For example, in order to resonate a 0.15λ monopole of 300 ohms characteristic impedance (Z_c) with a coaxial section of $Z_l = 150$ ohms, the length of the coaxial section should be 0.15λ, as long as the monopole itself.

Series inductive loading also results in a very high Q due to the rapid increase of the loaded characteristic impedance (loaded Z_c) as the resonant frequency is decreased. For a loaded antenna, the Q is given by

$$Q = \frac{Z_c'}{R_r'} \tag{4}$$

where

Z_c' = loaded antenna characteristic impedance

R_r' = loaded radiation resistance

These drawbacks are generally considered too severe to warrant the use of series inductive loading on the elements of reduced size log periodic antennas. Lumped constant (coil) loading is not considered for shipboard LP antennas due to the severe mechanical and environmental requirements.

A variation of inductive loading has been investigated by Stephenson and Mayes at the University of Illinois[3] and a practical solution has been found in the use of helical dipole radiators.

Transmission Line Loading

A section of transmission line of length l and characteristic impedance Z_l placed in series with an antenna of height H can reduce the resonant frequency of the antenna (see Figure 3). The input impedance of this configuration is

$$Z_{in} = Z_l \frac{\frac{Z_a}{Z_l}\cos\beta l + j\sin\beta l}{\cos\beta l + j\frac{Z_a}{Z_l}\sin\beta_l} \tag{5}$$

where Z_a = input impedance of an unloaded monopole. The quantity Z_a is given approximately by[2]

$$Z_a = Z_c \coth\left(\frac{R_r}{Z_c} + j\beta H\right) \tag{6}$$

This antenna is also resonant when Equation (3) is satisfied.

Calculations for this configuration indicate that Z_l should be large (at least equal to Z_c), and l must be relatively long for the desired 40 per cent reduction in resonant frequency. For example, if $Z_l = 300$ ohms, it is found that a transmission line length of 0.10λ is needed to resonate a 0.15λ monopole. At 6 Mc, this transmission line length is greater than 16 feet, causing it to overlap several other dipoles in a log periodic structure.

While transmission line loading seems electrically desirable and might find application in other log periodic antenna configurations, it was eliminated for shipboard use because of mechanical limitations.

Capacitive Loading

Capacitive loading offers what is probably the simplest means from both electrical and mechanical considerations for reducing the size of log periodic antennas. Compared to series inductive loading and transmission line loading, capacitive loading results in lower values of element Q for a given size reduction.

This type of loading can be applied to an antenna in many forms, a few of which are shown in Figures 4 through 7. A discussion of these configurations follows.

Disc Loading

The basic configuration for the disc loading of reduced size antenna radiation is shown in Figure 4. The principle of this technique as applied to single monopoles is well known: the antenna element can be made to resonate when

$$H+kD=\lambda/4 \qquad (7)$$

where

H = monopole height

D = diameter of the disc

k = constant, dependent upon monopole and disc dimensions

Because of its simplicity, this technique was applied to a log periodic, pyramidal dipole antenna in an early attempt at size reduction, as shown in Figure 8. It may be noted that the loading is applied only to the last five elements of the log periodic antenna and not uniformly to all dipole elements. The antenna was loaded in this manner simply because the rear of the structure is the area in which size reduction was required. Since the dipole elements become progressively shorter towards the apex, little is gained by loading beyond a certain region.

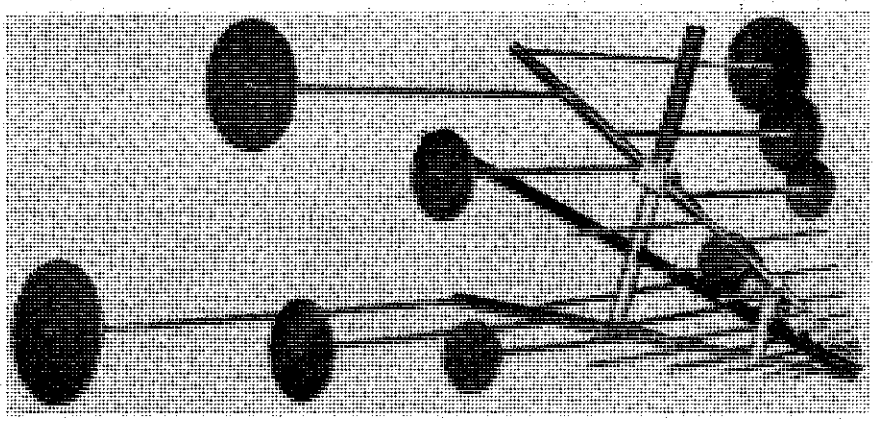


Figure 8 — Pyramidal log periodic employing capacitive disc loading.

The structure was chosen to be pyramidal in order to achieve narrower H-plane beamwidths than could be obtained with an equivalent coplanar structure. This model represents a scaling factor from 6 Mc such that its operating range is from 180 - 900 Mc. To achieve a boom length which would meet the required antenna size, the α angle was chosen at 90 degrees. The plate separation angle (ψ angle) was set at 30 degrees. The diameter of the discs is approximately $\lambda/16$ at the frequency at which each element is to be resonant.

While the use of disc loading does indeed allow for a 40 per cent reduction in size with pattern and impedance comparable to a full size structure, it has the disadvantage of excessive mechanical loading. At 6 Mc the largest disc would be approximately 10 feet in diameter at the end of a half element 25 feet long.

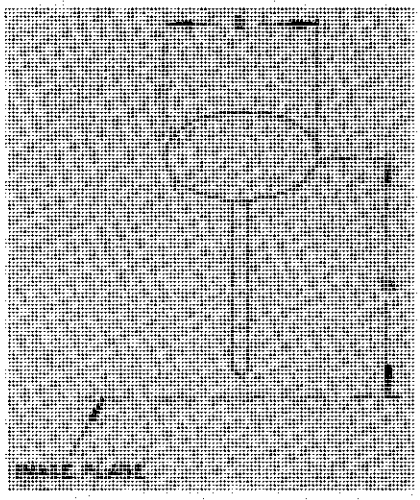


Figure 4 — Capacitive disc loading.

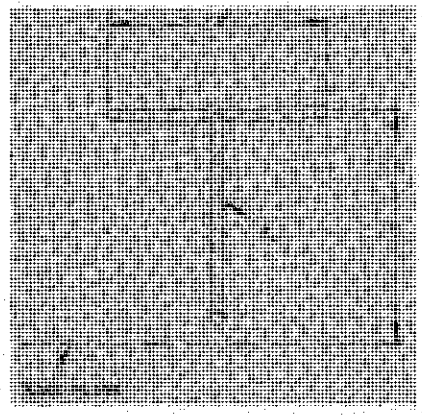


Figure 5 — Capacitive "T" loading.

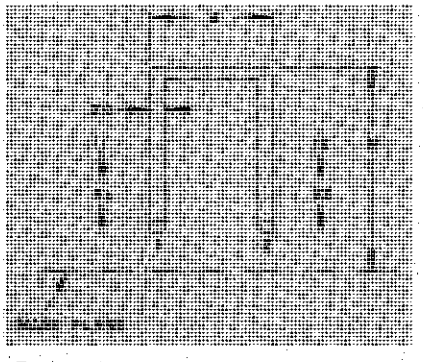


Figure 6 — Capacitive "U" loading.

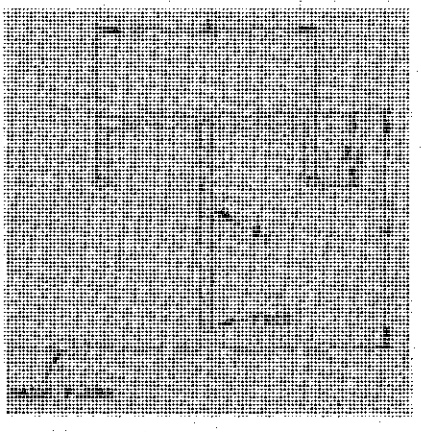


Figure 7 — Capacitive "E" loading.

Capacitive "T" Loading

A more practical method of end loading is the use of a bar placed in the form of a "T" across the end of a reduced size half element. This configuration possesses obvious mechanical advantages over disc loading.

A typical "T"-loaded half element is shown in Figure 5. Referring to the figure, the element can be made to resonate when

$$H+kl=\lambda/4 \qquad (8)$$

where

H = monopole height

l = length of the "T" section

k = constant, dependent upon the physical dimensions of the "T" and the half element

The value of k was determined experimentally by subjecting a monopole over a ground plane to various degrees of "T" loading. Impedance measurements indicated the frequency of resonance from which the value of k was calculated, knowing the physical dimensions of H and the "T" bar.

In the case of an experimental monopole antenna, the height-to-radius ratio is about 40:1 and the average length-to-radius ratio of the

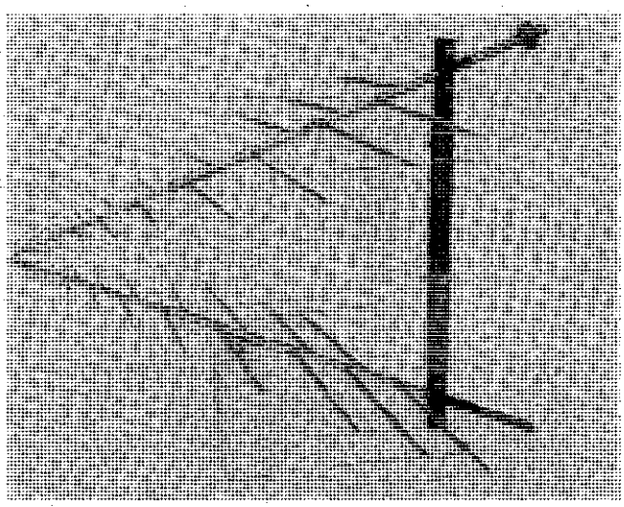


Figure 9 — Pyramidal log periodic employing capacitive "T" loading.

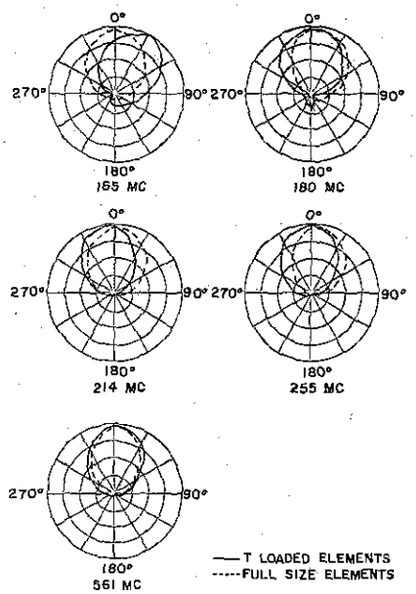


Figure 10 — H-plane power patterns of "T"-loaded and equivalent full size log periodic.

"T" section is approximately 150:1. This resulted in a value of 0.7 for k. Applying this k value to an LP half element height of 25 feet (0.15λ, at 6 Mc) indicates that the half element will be resonant when the length of the "T" bar is 23 feet.

The "T" loading, when applied to a pyramidal log periodic antenna of the same parameters as the disc-loaded LP, allows operation comparable to that of an equivalent full size structure.

However, patterns at the low frequency edge of the operating band deteriorate due to end effects which are manifested in a relatively poor front-to-back ratio. This is because the higher Q and the increased characteristic impedance of the loaded elements do not allow efficient coupling of the elements in the active region to the antenna transmission line. As a result, radiating efficiency is reduced and the currents in the active region are not adequately attenuated.

These problems suggest that the loaded antenna should have a higher τ ratio than a corresponding full size structure. However, since a high τ ratio is mechanically undesirable in that it makes a prohibitively heavy antenna, and since this particular antenna is end-loaded only at the large end, the idea of an antenna with a variable τ is suggested. This would be achieved by increasing the number of elements only at the low frequency end of the antenna.

This technique was applied to a pyramidal structure whose normal τ ratio was 0.84. For the last five elements, however, the τ ratio was increased to 0.916. Only the element spacing was changed to accommodate more elements. Referring to Figure 1, only the ratio of R_{n+1} to R_n was increased at the back of the structure; the ratio L_{n+1}' to L_n' remained constant, where L_n' is the effective electrical length of the reduced size elements. (The effective α angle is thereby kept constant.)

The pyramidal LP employing varying τ and "T"-bar end loading is shown in Figure 9. The heights (H) of the last six half elements are kept constant and the degree of end loading varied to resonate the elements at periodic frequencies.

Results of this application are considered remarkably good. Figure 10 illustrates typical linear power patterns in the H plane for the "T"-bar end-loaded configuration. Also seen in the figure for comparison purposes are H-plane patterns of an equivalent full size (unloaded) antenna.

The low design frequency is 180 Mc, representing a scaling of 30:1 with respect to 6 Mc. Scaled to 6 Mc, the largest half element would be 25 feet in length, giving a total spread of 50 feet for the last element. The pattern performance is reasonable, since the pattern of an electrically short dipole is not too different from that of a half wavelength dipole.

The input impedance of the loaded antenna could be expected to change with respect to an unloaded antenna due to the effects of loading on characteristic impedance; application of the "T" loads increased Z_c only slightly at the low frequencies, however.

Slight adjustment of the individual "T" loads resulted in a VSWR less than 2:1 relative to a mean impedance level of 120 ohms, as can be seen from the impedance plot illustrated in Figure 11. The impedance locus of a full size unloaded antenna falls within the same circle.

The foregoing investigation produced an antenna which offers significant size reduction accompanied by mechanical simplicity.

Capacitive "U" Loading

Another variation of capacitive loading is the "U"-loading configuration shown in Figure 6. The equivalent circuit representation for this configuration is

$$V_1 = I_1 Z_{11} + I_2 Z_{12} \qquad (9)$$

$$V_2 = I_1 Z_{12} + I_2 Z_{22} \qquad (10)$$

where the subscripts 1 and 2 refer to the antenna terminals.

The quantities Z_{11} and Z_{12} may be determined by the behavior of the antenna in the balanced (+, +) and unbalanced (+, −) modes of excitation. For balanced excitation, the voltages and currents are equal so that

$$Z_{in}^{++} = Z_{11} + Z_{12}$$

$$= 2\,\overline{Z}_c \coth\left(\frac{R_r}{Z_c} + j\beta H\right) \qquad (11)$$

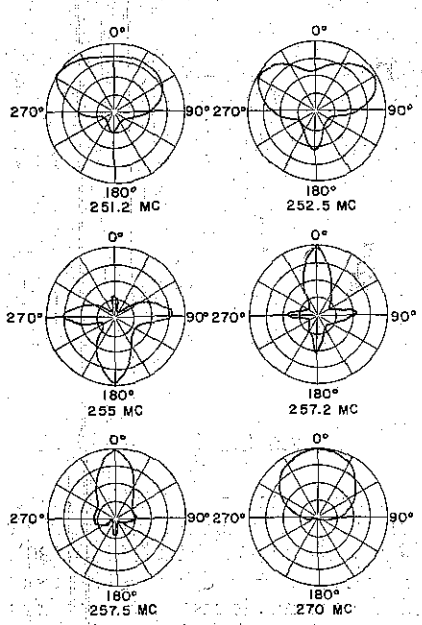


Figure 14(a) — H-plane power patterns of "U"-loaded log periodic.

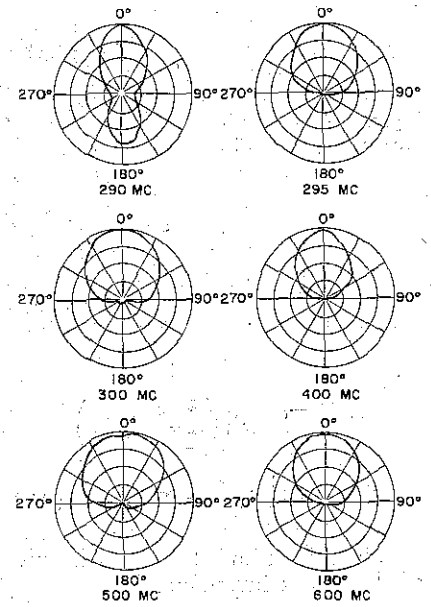


Figure 14(b) — H-plane power patterns of "U"-loaded log periodic.

$\tau = 0.9$, Z_0 of the two-wire feeder = 600Ω.

Limited data taken of this model indicate that the Q of the elements and their corresponding low radiation resistance do not allow efficient coupling to first order resonant elements. Energy progressing through the active region is not greatly attenuated and continues on to elements resonant in higher order modes. This effect can be seen in the power patterns of Figures 14(a) and 14(b).

At frequencies between 100 and 300 Mc, the elements do not load the transmission line sufficiently to allow the necessary phase delay between elements for backfire radiation. In Figure 14(b), good backfire patterns are seen above 300 Mc as a result of the longer elements radiating in the $3\lambda/2$ mode where the impedance characteristic of the $3\lambda/2$ elements is favorable to good coupling.

The "U"-loading technique is still considered promising, however; and it is expected that suitable modifications, such as adding a delay line between elements to allow greater phase shift, will ultimately allow the antenna to perform in the desired manner.

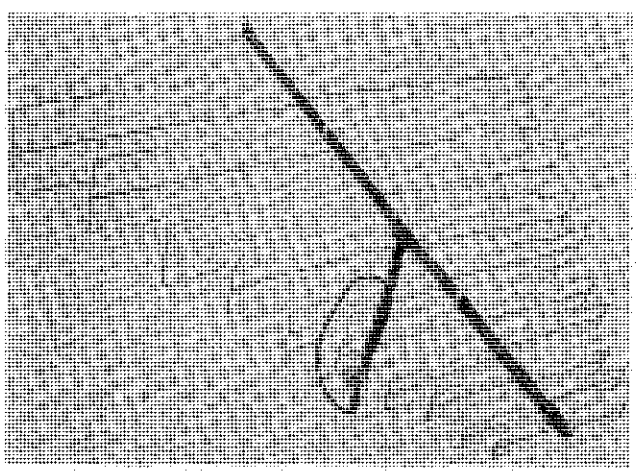


Figure 15 — "E"-loaded log periodic.

Capacitive "E" Loading

Capacitive "E" loading, shown in Figure 7 and pictured in Figure 15 as applied to the log periodic dipole array, offers size reductions comparable with other types of capacitive loading. This configuration, like the "U" configuration, is undergoing further investigation; both types have considerable promise.

CONCLUSIONS

Some of the various means of reducing the size of log periodic antennas have been considered both analytically and experimentally.

Certain techniques, such as transmission line loading and series inductance loading, may find application in some circumstances, but these methods possess limiting structural and environmental disadvantages.

Of those techniques considered in this paper, the most fruitful in terms of size reduction with comparable operation and mechanical simplicity have been those involving capacitive end loading. The "T"-loaded antenna offers a 40 per cent reduction in maximum size with performance comparable to that of a conventional log periodic. This antenna has widespread applications in areas which are now restricted due to space limitations.

The limited data available at this time indicate that both the "U" and "E" configurations potentially can allow even greater size reductions with comparable operation and more rugged construction.

ACKNOWLEDGMENT

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Log Periodic Dipole Array with Parasitic Elements*

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INTRODUCTION

Coplanar log periodic dipole arrays fed in a phase reversal manner have been in existence since 1960.[1] This paper is concerned with modifying the design of a log periodic dipole array fed in phase progression rather than in phase reversal such that the antenna will produce backfire radiation and operate in a pseudofrequency-independent manner. The modification consists basically of replacing every alternate dipole element with a parasitic element of the same length. The resulting configuration is a log periodic dipole array which incorporates driven and parasitic elements with the same design ratio, τ, and element-spacing-to-element-length ratio, s/l, as the conventional antenna.

The characteristics of the modified antenna are discussed below along with the results of measurements taken on antenna models using one or two parasitic elements per cell. It is shown that the dipole array images exactly over a perfect ground, lending its design to a monopole version of the antenna requiring no special matching networks. The result is a log periodic antenna that is adaptable for use from high frequencies through microwave frequencies.

UNIFORM DIPOLE ARRAY WITH PARASITIC ELEMENTS

As a preliminary examination of the log periodic dipole array with parasitic elements, consider a *uniform* array of driven and parasitic elements, as illustrated in Figure 1. Its construction consists of a two-wire transmission-line feeder with dipole elements connected to it in a phase progression manner where the elements on one side of the structure are attached to one side of the two-wire transmission-line feeder and the other elements are attached to the second wire of the transmission-line feeder. The input to the feeder is electrically balanced. Parasitic elements are placed between the dipole elements to obtain a current phase reversal of π radians from one element to the next. This phase reversal is a primary requirement for obtaining a pseudofrequency-independent operation of the antenna.[1]

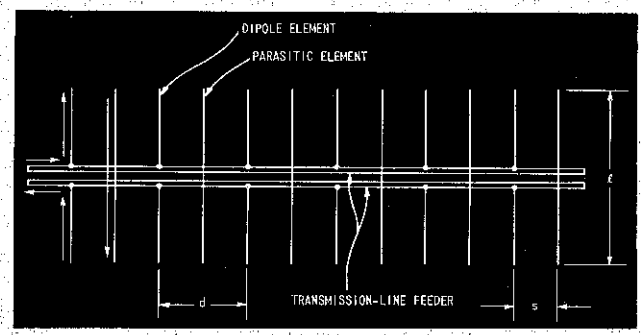


Figure 1 — Uniform dipole array with parasitic elements.

A uniform dipole array with parasitic elements 24 inches long was constructed to determine its Brillouin ($k-\beta$) diagram and radiation patterns associated with the diagram.[2] This structure has resonant elements near 490 Mc. An element spacing of 2.4 inches (0.1λ at 490 Mc) was used. The diameter, a, of the metal rods used as the radiating elements was 1/4 inch. This array was designed to have a 50-ohm input impedance at the design frequency. The characteristic impedance of this uniform array was found to be dependent primarily upon the transmission-line feeder characteristics and also upon the element-spacing-to-element-length ratio, s/l.

Near-field phase measurements for the Brillouin diagram were taken along the transmission-line feeder of the structure over the frequency range of 50 - 1000 Mc, and radiation patterns were measured over the corresponding frequency range. From these measurements, the relationship of the phase constant on the periodic structure, β, to the intrinsic phase constant of free space, k, was determined. If a unit cell on the structure

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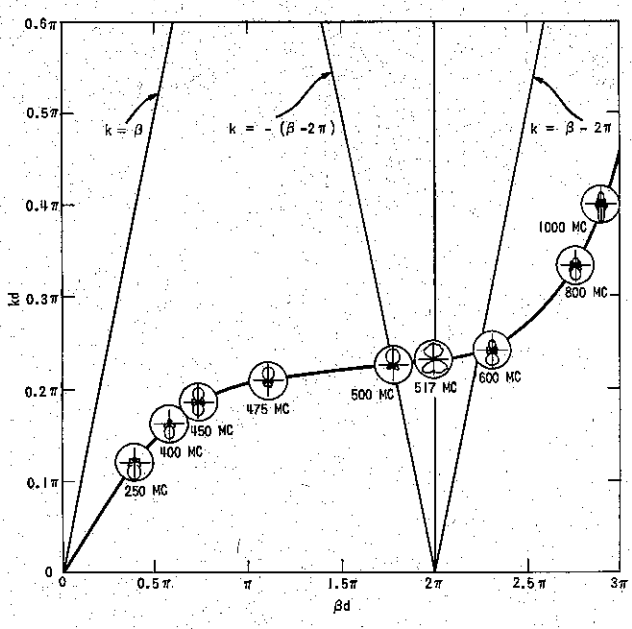


Figure 2 — Brillouin diagram for uniform dipole array with a single parasitic element per cell ($\frac{s}{l} = 0.2$, a = 1/4 inch).

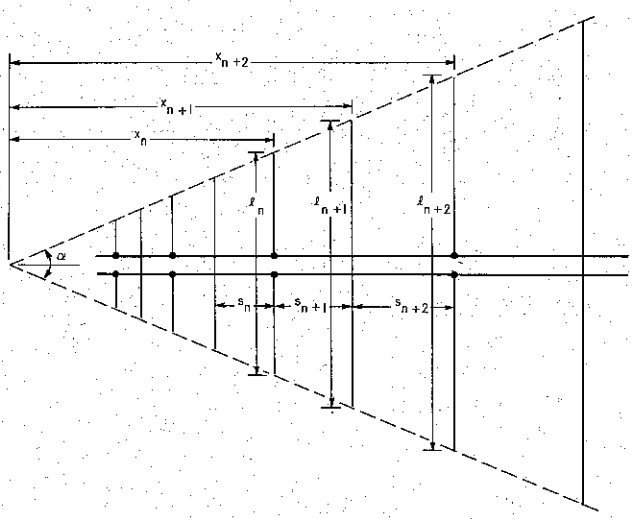


Figure 3 — Parameters used to define a log periodic dipole array with parasitic elements.

is defined to be the region from one driven element to the next along the feeder, then the Brillouin diagram can be normalized in terms of a unit cell distance, d. The diagram for the uniform structure is shown in Figure 2 as having the normalized coordinates, kd and βd. This diagram contains a few of the measured E-plane radiation patterns at discrete frequencies.

The Brillouin curve begins at the origin at zero frequency and extends through the forward wave region, $0 \leq \beta d \leq \pi$, with increasing frequency. In this region, the phase along the feeder line lags the reference phase at the input terminals, and end-fire radiation occurs as shown by the radiation patterns. As the curve approaches the boundary, $d = \pi$, radiation in both the end-fire and backward directions occurs, indicating that both the forward and backward waves are excited on the structure. The curve now extends into the backward-wave region, $\pi \leq \beta d \leq 2\pi$, where a leading phase distribution exists on the feeder line. Backward-wave radiation now occurs as shown in Figure 2.

In the region where $kd \geq -(\beta d - 2\pi)$, the surface wave on the structure is loosely bound; however, the wave is tightly bound in the region where $kd \leq -(\beta d - 2\pi)$. The curve then proceeds to cross the boundary, $\beta d = 2\pi$, into the forward-wave region, $2\pi \leq \beta d \leq 3\pi$. The wave is still loosely bound in this region. At the intersection with the line, $\beta d = 2\pi$, broadside radiation in both the end-fire and backward directions occur once again on the structure, as shown in Figure 2. The region, $2\pi \leq \beta d \leq 3\pi$, is then entered, and end-fire radiation occurs once again with the wave tightly bound.

The Brillouin diagram shows that a log periodic dipole array with parasitic elements is capable of stable, pseudofrequency-independent operation. This diagram for a particular uniform array can be used to predict the performance of other similar arrays, provided the element length to element spacing, s/l, is kept constant. This constancy is achieved by scaling the coordinates, kd and βd, to compensate for the difference in the element lengths. The active region of a log periodic antenna occurs where the electrical length of the elements is nearly a half wavelength; thus, it can be seen that the Brillouin diagram of a uniform array with an element of equivalent length predicts that backfire-radiation will most likely occur at this frequency.

For example, if a log periodic array having an s/l ratio of 0.2 is fed with a 490 Mc signal, then the diagram of Figure 2 applies. It is apparent that the point on the curve corresponding to this frequency lies in the backward-radiation region of the diagram. A close investigation of the frequency bandwidth in the radiation region of Figure 2 for the uniform array shows that its radiation region is narrower than that of a uniform, conventionally fed dipole array.[3] This indicates that the equivalent circuit for the active region of the dipole array with parasitic elements has a higher effective Q.

From this information, it can be predicted that a higher density of elements (a larger value of τ) is required for the log periodic dipole array with parasitic element design than for the conventional dipole array design. As will be seen below, this is a necessity for successful operation of the antenna.

LOG PERIODIC DIPOLE ARRAY WITH PARASITIC ELEMENTS

Single Parasitic Element Design

A log periodic dipole array with a single parasitic element per cell will be considered in this section. The antenna is a coplanar type designed such that each alternate element can be considered to be a driven element, with a parasitic element located between each pair of driven elements. The antenna utilizes a two-wire transmission-line feeder having a balanced input, the input being located at the end with the shortest elements, as shown in Figure 3.

The driven elements are connected to the feeder line, and the parasitic elements are unattached, as described in the discussion on the uniform array. The length and spacing between

each adjacent element is a function of the geometric ratio, τ, and the element-spacing - to - element-length ratio, s/l, in a similar manner as a conventional log periodic dipole array.[1,4] As is apparent in Figure 3, the geometric ratio gives the growth rate of the elements and spacings by the following relationships:

$$\tau = \frac{l_n}{l_{n+2}} = \frac{x_n}{x_{n+2}} \qquad (1)$$

or

$$\tau = \frac{l_n}{l_{n+1}} = \frac{x_n}{x_{n+1}} \qquad (2)$$

where x_n is the distance from the apex of the antenna to the nth element. The element-spacing-to-element-length ratio is given by

$$\frac{s_n}{l_n} = \frac{(1-\tau)}{2 \tan \frac{\alpha}{2}} \qquad (3)$$

where $S_n = x_n - x_{n-1}$, and α is the included angle at the apex of the structure.

Therefore

$$\alpha = 2 \tan^{-1} \frac{l_n}{2 x_n} \qquad (4)$$

The parasitic elements, essentially, are located at the position normally occupied by the active elements that connect to the opposite sides of the transmission line in a conventional log periodic dipole array. The parasitic elements produce the same effect as the driven dipole elements that they replace; that is, they introduce a constant phase shift of π radians between elements. A parasitic element, when located in the active region of the antenna, receives its energy primarily by the mutual coupling between it and the active elements. To some extent mutual coupling effects also exist between parasitic elements. *Energy is not coupled to the parasitic elements capacitively from the feeder line.* To verify this, experiments were performed in which the spacing between the parasitic elements and the transmission-line feeder was varied. No evidence of capacitive coupling was noted since the experimental results showed only second order changes in the antenna characteristics.

Several models of the dipole array with parasitic elements were constructed for evaluation. These antennas were found to have a pseudo-frequency - independent operation. Their radiation patterns have constant beamwidths, and their input impedance is nearly constant over the entire frequency range of the an-

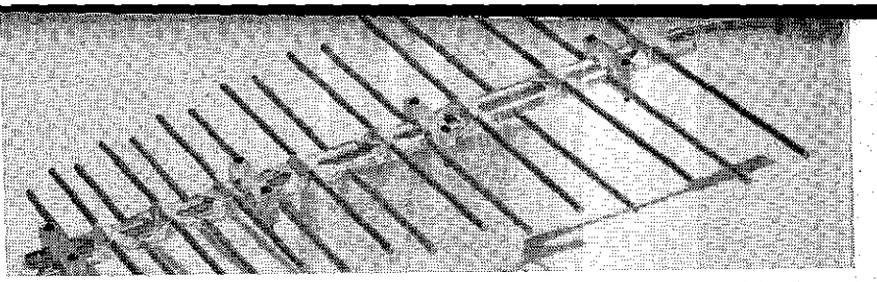


Figure 4 — Log periodic dipole array with parasitic elements — one parasitic element per cell ($\tau = 0.898$, $\frac{s}{l} = 0.113$, a = 1/8 inch).

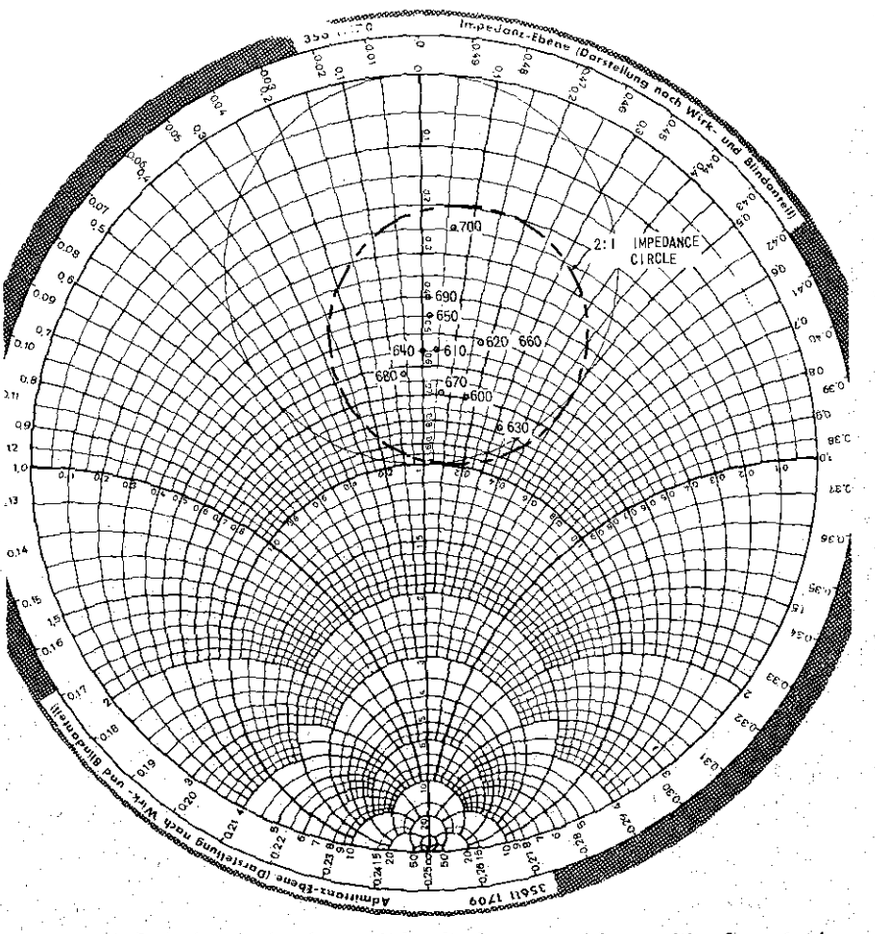


Figure 5 — Impedance of a log periodic dipole array with parasitic elements ($\tau = 0.898$, $\frac{s}{l} = 0.113$, a = 1/8 inch).

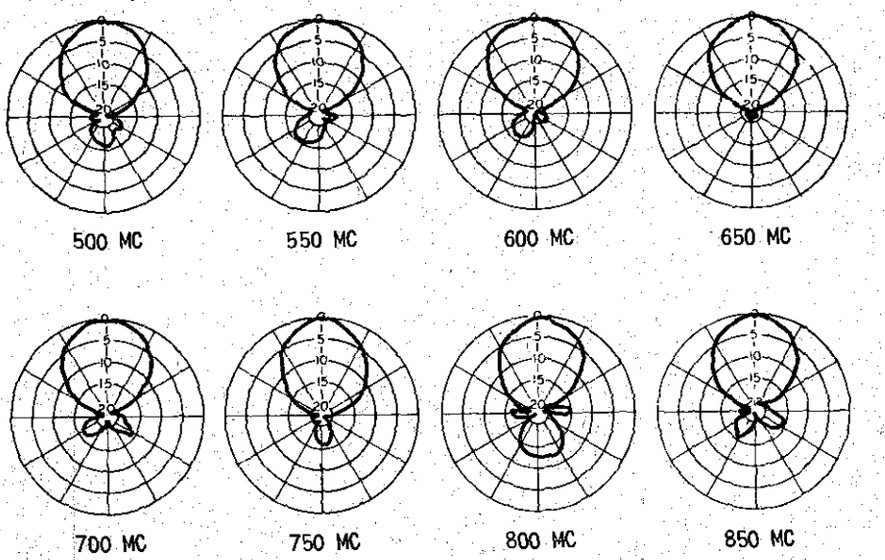


Figure 6 — E-plane radiation power patterns of a log periodic dipole array with parasitic elements ($\tau = 0.898$, $\frac{s}{l} = 0.113$, a = 1/8 inch).

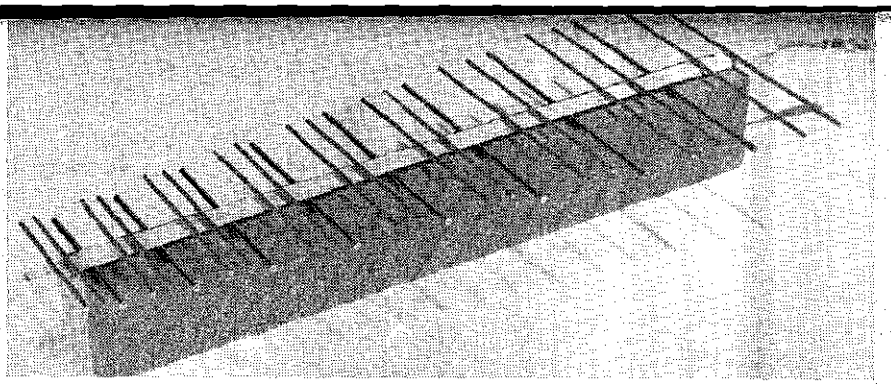


Figure 7 — Log periodic dipole array with parasitic elements — dual parasitic element design.

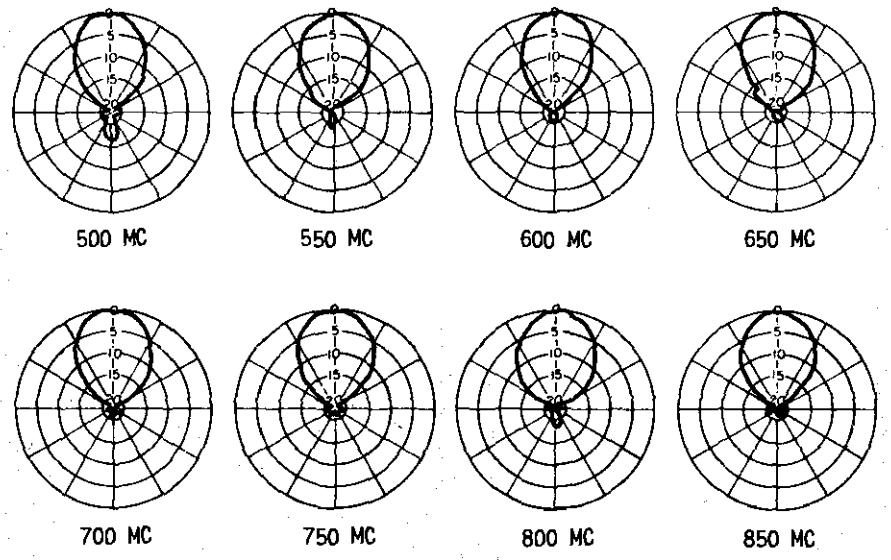


Figure 8 — E-plane radiation power patterns of log periodic dipole array with dual parasitic elements.

tennas. It was noted that on models having simultaneously too low a value of τ and angle α, the antenna ceased to function in a pseudofrequency-independent manner.

With large element spacings, the mutual coupling between the parasitic elements and the active elements is reduced to a value below which the reradiated energy from the parasitic element is not sufficient to act as an equivalent source. When the antenna operates properly, it behaves as though its apparent phase center moves along the structure with frequency such that, over a period, the phase center will change continuously and smoothly from the driven element to the parasitic element, and finally to the next driven element.

A model of the dipole array with parasitic elements which has the design parameters $\tau=0.898$ and $s/l=0.113$, and element diameter $a=1/8$ inch, is shown in Figure 4. The shortest element of the structure (a driven element) is 5.60 inches long, and the longest element (a parasitic element) is 12.54 inches long. The driven elements are attached to a 50-ohm parallel-wire transmission line. (The diameter of the wires is 3/8 inch, and the separation between their centers is 0.408 inch.)

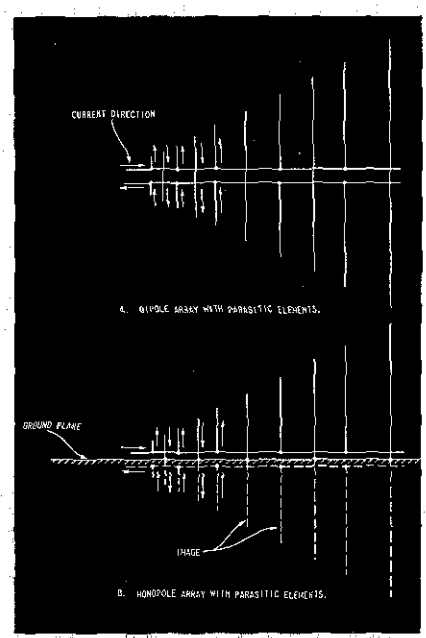


Figure 9 — Comparison of log periodic dipole and monopole arrays with parasitic elements.

The antenna is fed with an "inherent" balun feed arrangement. This balun requires no additional circuitry other than the parallel-wire line to provide balanced feed voltages over the full frequency range of the antenna. A coaxial line with a characteristic impedance of 50 ohms was used to feed the antenna and make up one of the two wires forming the parallel-wire transmission line.

The impedance characteristics of this antenna over a full period are shown in Figure 5. The impedance encircles approximately 25 ohms with a VSWR of 2:1 over the frequency range of 600 - 700 Mc. The low value of impedance occurs because of the proximity of the parasitic element to the driven element. This effect is similar to that experienced with a dipole antenna having a driven and a reflecting parasitic element.[5]

The radiation power patterns in the plane of the electric field are shown in Figure 6. These patterns have essentially a constant beamwidth of 60° and a front-to-back ratio of 15 dB or better. The radiation patterns are well behaved over the frequency bandwidth of the antenna, as evident in Figure 6, and no apparent radiation pattern degradation is experienced because of the parasitic elements in this antenna design.

Multiparasitic Element Design

The next logical development of the log periodic dipole antenna with parasitic elements is a structure having more than one parasitic element in a cell (a cell being defined in this case as the distance from one driven element to the next adjacent driven element). For this investigation, a dipole array with a single parasitic element and having the design parameters $\tau=0.9$ and $s/l=0.201$ was constructed first. This antenna was tested and found to work satisfactorily in accordance with the behavior described above.

The next step involved modifying this antenna by adding to it a second complete set of parasitic elements. The second set of parasitic elements was cut to the same length as the existing parasitic elements and placed on the antenna such that there were two parasitic elements of the same length between the driven elements or cells. The relative spacing of these elements in each cell was varied by the same percentage to obtain the

(TECHNICAL SECTION CONTINUED ON PAGE 67)

best impedance and radiation characteristics of the antenna.

The best design for this antenna resulted in a spacing for the first parasitic element of 43 per cent of the distance along a cell as measured from the shortest driven element in that cell, and a spacing for the second element of 68 per cent of the distance along the same cell. The antenna of this design is shown in Figure 7. The original spacing between the driven elements is unchanged from the initial model and is spaced in accordance with the geometric ratio, $\tau = 0.95$. It can be seen from Figure 7 that the log periodic configuration is maintained from cell to cell and that the antenna is no longer periodic from element to element.

The measured radiation power patterns in the electric field plane of the antenna are shown in Figure 8. The radiation pattern shape is constant with frequency and has half-power beamwidths of 50° in the E plane and 60° in the H plane (not shown). Gain measurements greater than 10 dB above isotropic were obtained on this model. One of the most significant improvements of this antenna as compared to the same antenna with only a single parasitic element per cell is an increase in the front-to-back ratio. An improvement of 5 dB or greater is achieved, giving a front-to-back ratio equal to or greater than 20 dB.

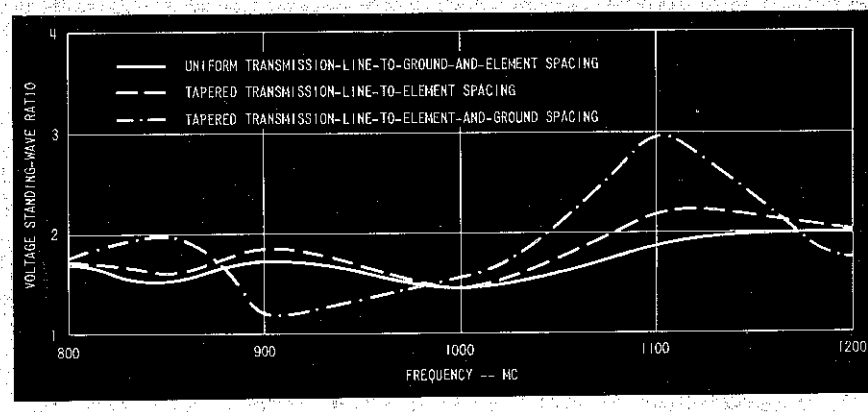


Figure 10 — VSWR vs. frequency for a log periodic monopole with parasitic elements — one parasitic element per cell ($\tau = 0.886$, $\frac{s}{l} = 0.0568$, a = 1/8 inch).

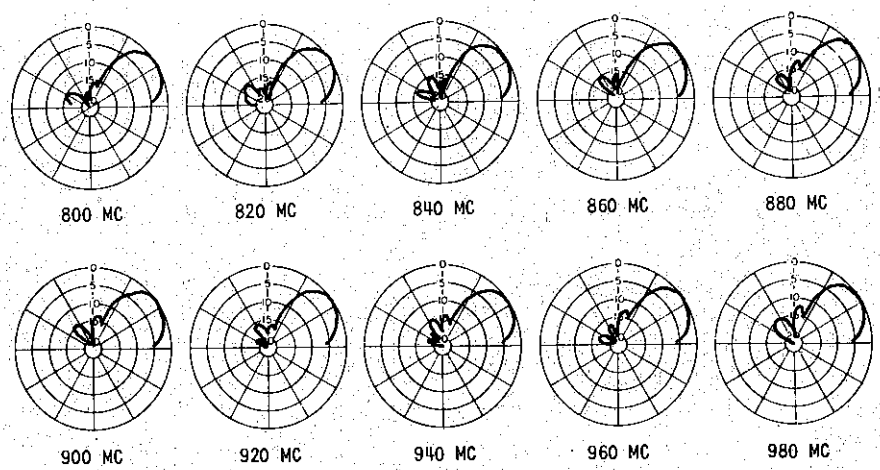


Figure 11 — E-plane radiation power patterns of a log periodic monopole array with parasitic elements ($\tau = 0.886$, $\frac{s}{l} = 0.0568$, a = 1/8 inch).

LOG PERIODIC MONOPOLE ARRAY WITH PARASITIC ELEMENTS

Because of the nature of the transmission-line feeder used with the conventional log periodic dipole array, the antenna cannot be imaged exactly over a ground plane to form a log periodic monopole array. As a result, it became necessary to develop techniques for introducing the proper amount of phase shift between the monopole elements required for log periodic operation.[3,6] Successful operating models of log periodic monopoles are now in existence, but none of these antennas results in a configuration that conforms to a true image of the log periodic dipole array.

In this respect the log periodic dipole array with parasitic elements lends itself to imaging with a ground plane to form a monopole array with parasitic elements. Figure 9(a) shows the current directions on the forward section of the log periodic dipole array with parasitic elements. The lower figure [Figure 9(b)] shows half of this antenna over a ground plane and its current distribution over the same region of the antenna as Figure 9(a). The current along the transmission line feeder of the monopole array has an image in the ground plane with the current direction reversed. The driven elements of the monopole are connected to the feeder line. For this arrangement, the image consists of monopole elements connected to the imaged feeder line.

The current in these imaged elements is in the same direction as the actual elements themselves. The parasitic monopole elements are connected to the ground plane, and the image of these elements connects with the actual elements to form an equivalent continuous element with a unidirectional current distribution. Therefore, it can be seen from Figure 9 that the monopole antenna and its image, along with the removal of the ground plane, corresponds exactly to the dipole form of the antenna with parasitic elements.

UHF Model

A UHF model of the log periodic monopole array with parasitic elements was constructed for evaluation. This antenna consists of a metallic ground plane over which is placed a transmission feeder line. This line is fed with the inner conductor of a coaxial line. The outer conductor of the coaxial line makes electrical contact with the surface of the ground plane. The driven elements are attached to the feeder line, and the parasitic elements are placed in between the driven elements and electrically connected to the ground plane. A design ratio, τ, of 0.886 was used for this UHF model along with an element-spacing-to-element-length ratio, s/l, of 0.0568. The diameter of the radiating element was 1/8 inch.

The VSWR of the antenna was measured with respect to 50 ohms for different transmission-line-to-ground-plane spacings. The following configurations were tried:

a. uniform transmission-line-to-ground-plane spacing (1/16 inch) and uniform transmission-

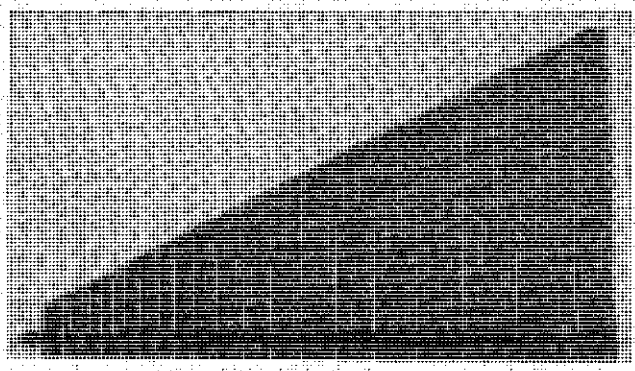


Figure 12 (a) — Microwave model of a log periodic monopole array with parasitic elements—one parasitic element per cell ($\tau = 0.898$, $\frac{s}{l} = 0.0557$). Driven elements shown in this view.

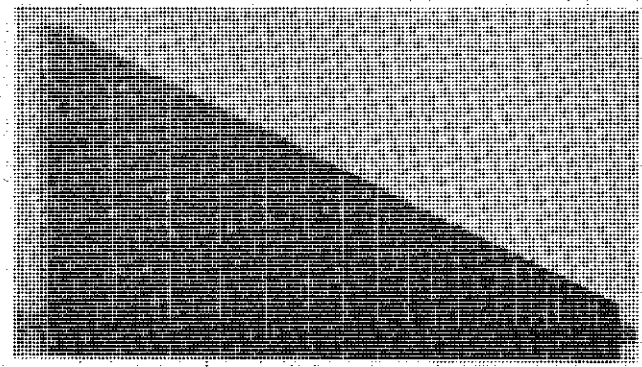


Figure 12 (b) — Microwave array model of Figure 12 (a). Parasitic elements shown in this view.

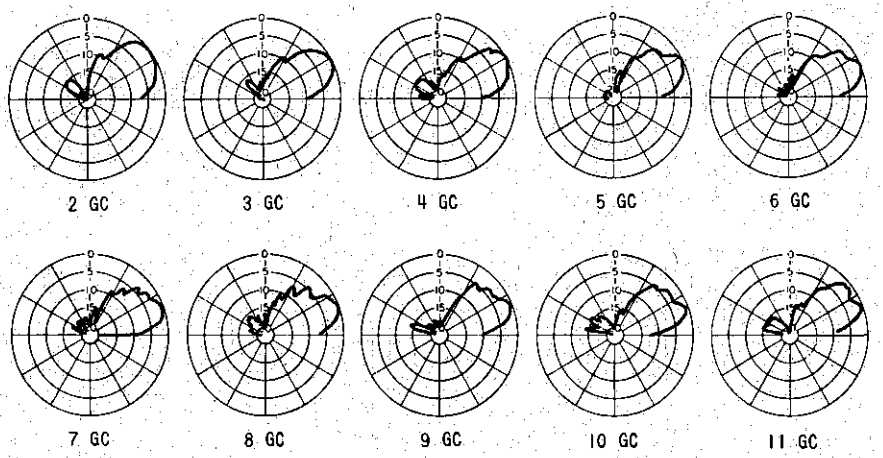


Figure 13 — E-plane radiation power patterns of a log periodic monopole array with parasitic elements ($\tau = 0.898$, $\frac{s}{l} = 0.0557$).

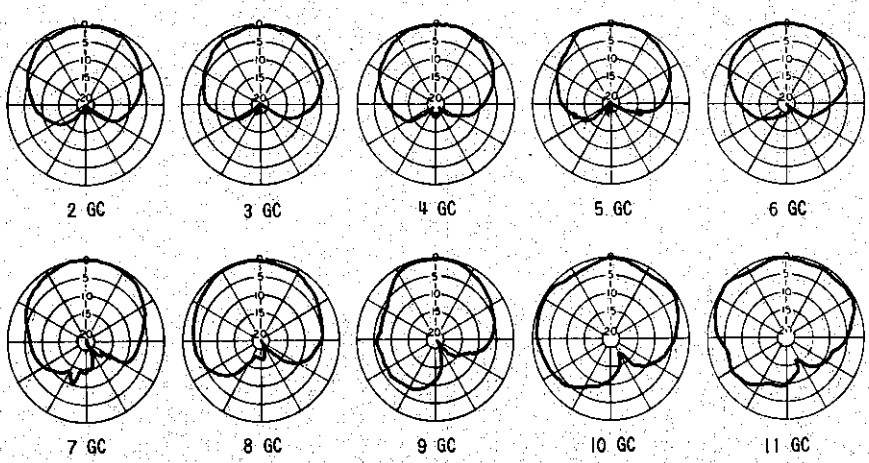


Figure 14 — H-plane radiation power patterns of a log periodic monopole array with parasitic elements ($\tau = 0.898$, $\frac{s}{l} = 0.0557$).

line-to-parasitic-element spacing (1/16 inch)

b. uniform transmission-line-to-ground-plane spacing (1/16 inch) and tapered transmission-line-to-parasitic-element spacing (tapered from 1/16 inch at feed end to 3/16 inch at opposite end)

c. tapered transmission-line-to-ground-plane spacing (tapered from 1/16 inch at feed to 3/16 inch at opposite end) and uniform transmission-line-to-parasitic-element spacing (1/16 inch)

The results of the VSWR measurements as a function of frequency for these various configurations are shown in Figure 10. A good match is shown to exist between the antenna and the coaxial line feed for all three configurations. It is important to note that the VSWR is nearly insensitive to the variations in the transmission-line - to - parasitic-element spacings. This behavior serves as evidence that the parasitic elements are excited by mutual coupling effects rather than by capacitive coupling.

This antenna operates in a pseudo-frequency-independent manner. A few of the measured E-plane radiation power patterns of this antenna are shown in Figure 11. It can be seen that the radiation-pattern shapes remain essentially constant with frequency. The half-power beamwidths are 38° in the E plane and 120° in the H plane (not shown). These radiation patterns have a front-to-back ratio of 15 dB.

In its simplicity of feeding, this antenna has the advantage over other log periodic monopole designs. No balun transformer is required, no critical spacing between the transmission-line feeder and the ground plane or parasitic elements exists, and no capacitive coupling to the elements is involved.

A second model of the monopole array with parasitic elements was constructed using a smaller value of τ and a larger value of s/l. A value of τ equal to 0.807 and s/l equal to 0.104 was used. This antenna did not operate in a frequency-independent manner. There was radiation pattern breakup at the frequencies where the main source of radiation appeared at the parasitic elements. The results of this experiment showed that the mutual coupling between the parasitic element and driven element was too low, indicating that there is a lower limit to the value of τ that can be used with this class of antennas.

An additional experiment of interest was performed where the parasitic elements of the first antenna discussed in this section were disconnected from the ground plane. This configuration of the antenna failed to work in a frequency-independent manner.

Microwave Model

A microwave version of the log periodic monopole antenna with parasitic elements was designed to operate from S- through X-band frequencies. A design ratio of 0.889 and element-spacing-to-length ratio of 0.0557 was used. The antenna itself was etched on a double clad printed circuit board with the driven elements and the feeder line etched on one side, as shown in Figure 12(a). The connection at the feed can be seen in this illustration. The parasitic elements are etched on the opposite side and are shown soldered to the ground plane in Figure 12(b). The longest element of the antenna is 1.556 inches in length, and the shortest element is 0.191 inch in length.

The characteristics of this antenna were measured and found to be pseudofrequency independent. An impedance circle of about 50 ohms with a VSWR of 3:1 was obtained from 1.5 - 12.6 Gc. Radiation pattern measurements were also measured over this frequency range. Some of the E- and H-plane (20° conical cut) radiation power patterns are shown in Figures 13 and 14. These radiation patterns have essentially constant beamwidths with a constant vertical take-off angle over the entire frequency range and with a front-to-back ratio of about 15 dB.

The log periodic antenna is well suited for microwave applications in that it provides good electrical performance in this frequency range and is inexpensive to construct. Good performance is possible primarily because of the simplicity of feeding the antenna. No special coaxial transformers are required, and there is no need for coaxial lines or other components in the vicinity of the element (such components would be a large percentage of the size of the smallest element). The independence from any form of capacitive coupling eliminates the need for critical spacings.

CONCLUSION

The log periodic dipole and monopole arrays with parasitic elements have been introduced and their characteristics presented. It was shown that the method of feeding these antennas is relatively simple, making the antennas suitable for frequency ranges that are difficult to cover with other log periodic antennas. It was also shown that an antenna having one or more parasitic elements between each pair of driven dipole elements will work as a pseudofrequency-independent antenna.

In this respect there exist numerous configurations and possibilities with the dipole or monopole arrays having multiparasitic elements. A limitation on the log periodic dipole or monopole array with parasitic elements is that larger values of τ or smaller values of α must be used in comparison with other log periodic antennas. As a result, this antenna will have a high density of elements.

REFERENCES

1. Isbell, D. E., "Log Periodic Dipole Arrays," *IRE Trans. - AP,* Vol. AP-8, No. 3, May 1960, pp. 260-270.
2. Mittra, R. and K. E. Jones, "Theoretical Brillouin ($k-\beta$) Diagram for Monopole and Dipole Arrays and Their Application to Log Periodic Antennas," *1963 IEEE Intl. Conv. Rec.,* Part 1, March 25-28, 1963, pp. 118-128.
3. Hudock, E. and P. E. Mayes, "Propagation along Periodic Monopole Arrays," *1963 PTG-AP Intl. Symp. Digest,* July 9-11, 1963, pp. 127-132.
4. Elfving, C. T., "Design Criteria for Log Periodic Antennas," Paper 1/2, 1961 WESCON, August 22-25, 1961.
5. Jasik, H., *Antenna Engineering Handbook,* McGraw-Hill Book Co., Inc., New York, N. Y., 1961, pp. 5-6 to 5-11.
6. Berry, D. G. and F. R. Ore, "Log Periodic Monopole Arrays," *1961 IRE Intl. Conv. Rec.,* Part I, March 20-23, 1961, pp. 76-85.

Transversely Polarized Corner Reflector Antenna

KIYOSHI NAGAI
NATIONAL RESEARCH COUNCIL OF CANADA

APPROVED REVIEW BOARD microwave JOURNAL SEAL OF AUTHORITY

INTRODUCTION

An antenna which we shall call the transversely polarized corner reflector antenna consists of a corner reflector whose apex angle is 90° and a 90° V-shaped antenna which is placed in the corner in a plane normal to the axis. Thus, this antenna radiates a wave polarized transversely to the common corner reflector antenna with a dipole parallel to the axis.

General expressions for the E- and H-plane radiation patterns of the antennas were derived by assuming a reflector of infinite size and a sinusoidal current distribution on the V-antenna. Parameters were chosen from this general expression to optimize the radiation patterns, and a test antenna was built. Measured patterns for the test antenna showed good agreement with theoretical patterns. The input impedance and the gain of the test antenna were also measured and found to be good.

Finally, top and bottom plates were put on the test antenna, so that it became a sectoral horn excited by a 90° V-antenna. This horn antenna also showed good characteristics — especially the gain which reached 16 dB over a dipole. Thus, this horn antenna is roughly equivalent over a narrow frequency band to a conventional sectoral horn antenna of considerably greater length.

$$D(\theta)=j4\left[\frac{\sin(kh\sin\theta)}{\sin\theta}\left[\left\{\cos(kl\cos\theta)-\cos kl\right\}\cos(kh\cos\theta)-\left\{\sin(kl\cos\theta)-\cos\theta\sin kl\right\}\sin(kh\cos\theta)\right]+\frac{\sin(kh\cos\theta)}{\cos\theta}\left[\left\{\cos(kl\sin\theta)-\cos kl\right\}\cos(kh\sin\theta)-\left\{\sin(kl\sin\theta)-\sin\theta\sin kl\right\}\sin(kh\sin\theta)\right]\right] \quad (1)$$

$$D(\phi)=j\frac{8}{\sqrt{2}}\left[\frac{\sin\left(kh\frac{\cos\phi}{\sqrt{2}}\right)}{\sin^2\left(\cos^{-1}\frac{\cos\phi}{\sqrt{2}}\right)}\left[\cos\left(kh\frac{\cos\phi}{\sqrt{2}}\right)\left\{\cos\left(kl\frac{\cos\phi}{\sqrt{2}}\right)-\cos kl\right\}-\sin\left(kh\frac{\cos\phi}{\sqrt{2}}\right)\left\{\sin\left(kl\frac{\cos\phi}{\sqrt{2}}\right)-\frac{\cos\phi}{\sqrt{2}}\sin kl\right\}\right]\right] \quad (2)$$

THEORETICAL RADIATION PATTERN

Let us assume that the corner is infinite in size, that the current on the V-antenna is sinusoidal, and let us take the coordinates as shown in Figure 1.

Then, using the image method, the E-plane radiation pattern is given by Equation (1) where

$k = 2\pi/\lambda$, λ = wavelength

l = length of the 90° V-shaped antenna

h = distance between the reflector plane and the V-shaped antenna

Also, the H-plane radiation pattern is given by Equation (2). E- and H-plane radiation patterns were calculated from Equations (1) and (2) for all combinations of

$l = 1.5\lambda$, 1.75λ and 2λ

and

h = 0.125λ, 0.250λ, 0.375λ, 0.500λ and 0.625λ

and plotted. It was found that the best

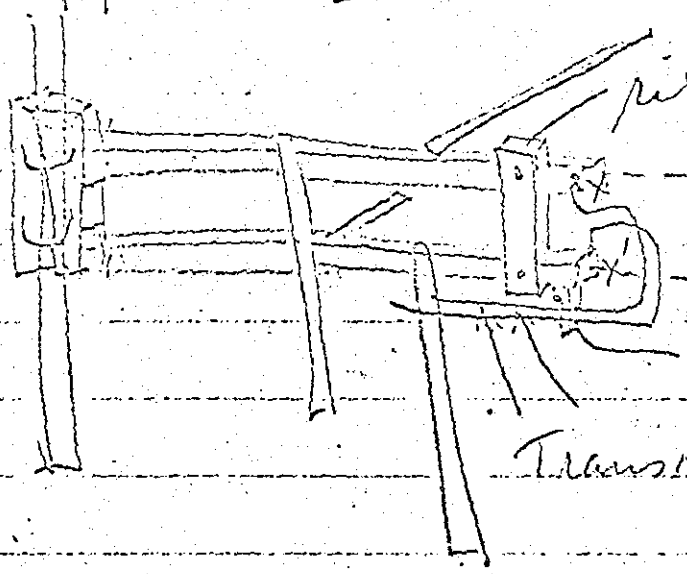


KIYOSHI NAGAI
RADIO & ELECTRICAL ENGINEERING DIVISION
NATIONAL RESEARCH COUNCIL
OTTAWA, CANADA

Dr. Nagai received a BSc degree in Electrical Engineering (1951) and a PhD in Engineering (1960) from Tohoku University, Japan. In 1960 he joined the Research Institute of Electrical Communication, Tohoku University as an associate professor. In 1963 he obtained a leave of absence from the university to work at the National Research Council of Canada as a postdoctorate fellow, where he was engaged in research on antennas. He returned to Japan in November 1964 and resumed his post at Tohoku University. Dr. Nagai is a member of the IEEE and IECE (Japan).

JPD

Model LPV-VU12



seen at D-T wed. May 18:66

"NEW"
Made May 1'65
earlier.

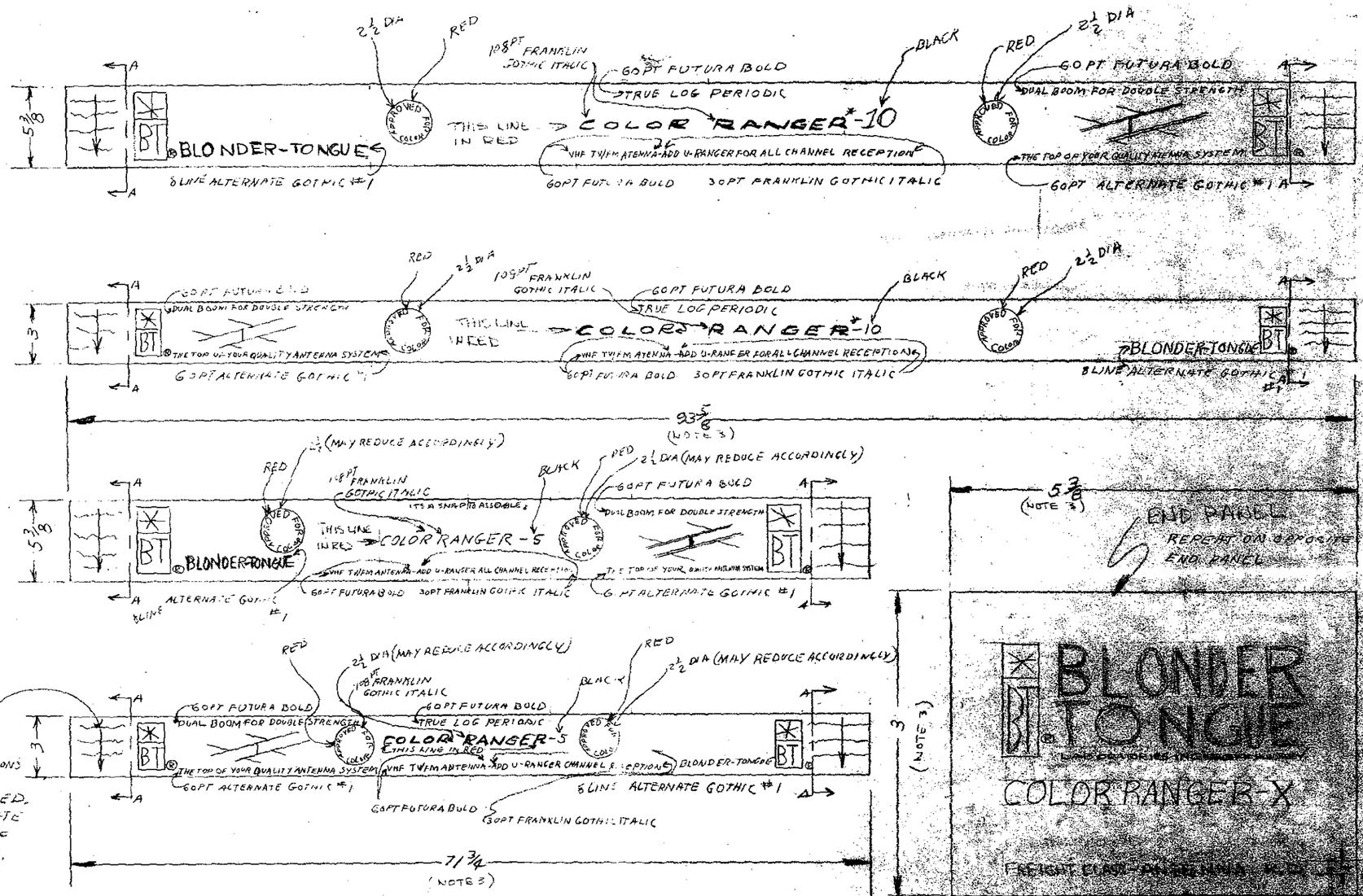
LPV-VU18, 15, 12, 9, 6

LPV-TV 19, 16, 13, 10, 7, 5, 3.

cc DEF.
PHILLIPS
EXHIBIT
J-3

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN
COUNTER
DEFENDANT EX. NO. JFD-16
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER

Handwritten notes added by
J. S. Blanchi



REVISION C
REDRAWN-NEW INFORMATION ADDED.
4-15-65
T.M.

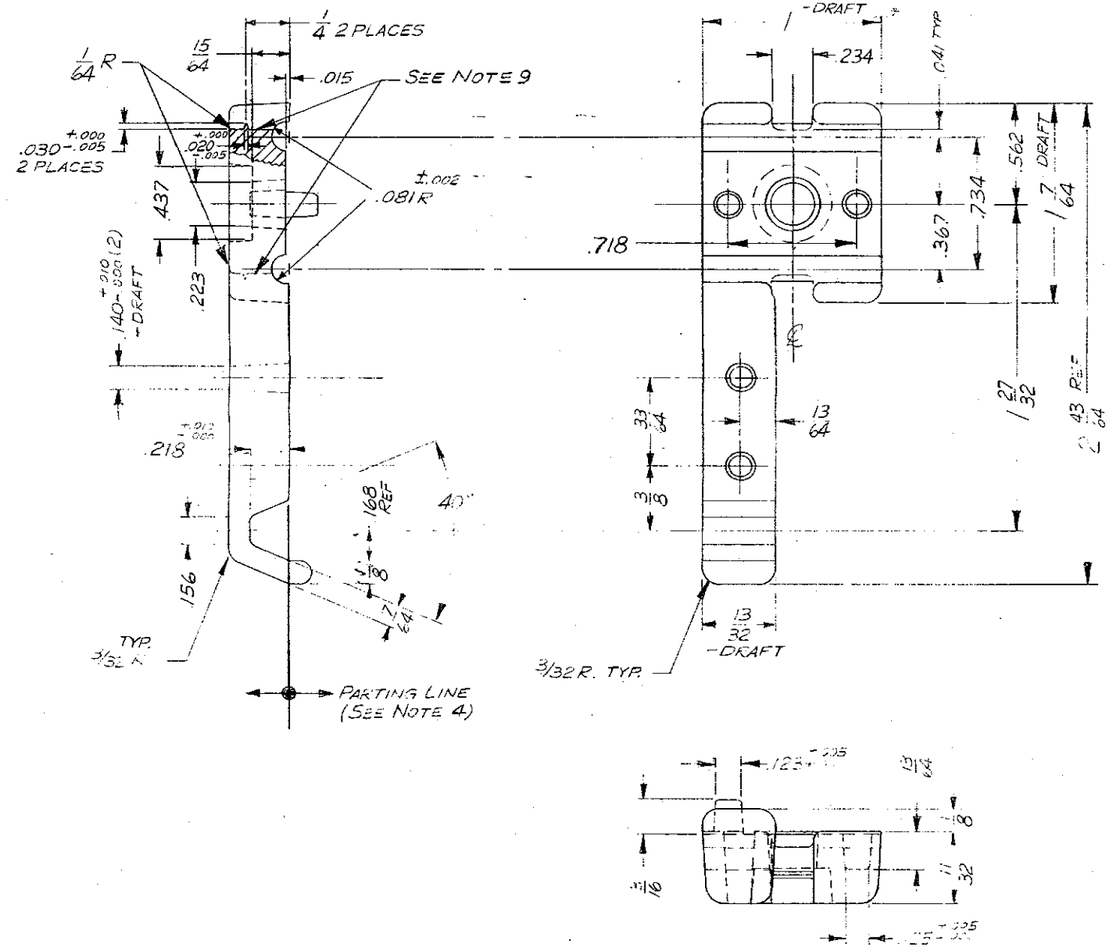
1. UNLESS OTHERWISE INDICATED SURFACES KLA WHITE COATED WITH BLACK LETTERING
2. UNLESS OTHERWISE INDICATED, ALL PRINTING TO BE ATLEAST ¾" FROM EDGE OF CARTON.
3. DIMENSIONS SHOWN FOR L,W & H ARE INSIDE DIMENSIONS.

	PART NO.	
93⅝" CARTON	6520-4-10	10
71¾" CARTON	6520-4-5	5

REV B 3/4
72" WAS 71

1. MATERIAL: POLYPROPYLENE, BLACK.
2. ALL DRAFT IS UNLESS OTHERWISE SPECIFIED.
   2 CAVITY MOLD FOR VAN DORN H-160 MOLDING MACHINE.
4. PARTING LINE OF DIE (TOOL MAKER TO CONTACT B-T LABS
   IF PARTING LINE SHOULD BE IN A DIFFERENT LOCATION)
5. VENDORS TO SUBMIT MOLD DRAWINGS FOR B-T LABS APPROVAL BEFORE STARTING MOLD
6. SAMPLES TO BE SUBMITTED FOR B-T LABS APPROVAL (BEFORE MOLD IS APPROVED)
7. HEIGHT OF MOLDING FLASH NOT TO EXCEED .004
8. TWO PIECES ARE TO MATE WITH EACH OTHER WITH V.010.
9. THESE SURFACES MAY HAVE SOME DRAFT TO FACILITATE EJECTION.

REVISIONS		
B	6-27-63	MZ
REVISED NOTE 3		
C	7-19-63	MZ
REVISED HOLE SIZE & CLOSEST DIMENSION		
D	9-10-63	MZ
REVISED FOR ACCEPTANCE OF FINAL SAMPLES.		
E	12-10-63	MZ
ADDED NOTE 9. B-T No. 6220683 WAS 6220619 ADDED FEATHER EDGE.		





UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION
DEFENDANT EX. NO. _____
DOROTHY L. ZEMANSKY
OFFICIAL COURT REPORTER

177

ITEM	PART NO.	DESCRIPTION	QTY.	DWG. NO.

BLONDER-TONGUE LABS., INC. NEWARK 2, N. J.	ELECTROCOMP, INC. NEWARK 2, N. J.
PART NO. 6220683	TITLE CLAMP, OUTDOOR UHF ANTENNA
DO NOT SCALE	DWN. ZERK 5-8-63 CHK'D. MZ SCALE 2:1
TOLERANCES UNLESS OTHERWISE SPECIFIED FRACT. ± 1/64 DEC. ± .015 ANG. ± 1°	ENG. MZ APP'D. DWG. NO. M-1551-E

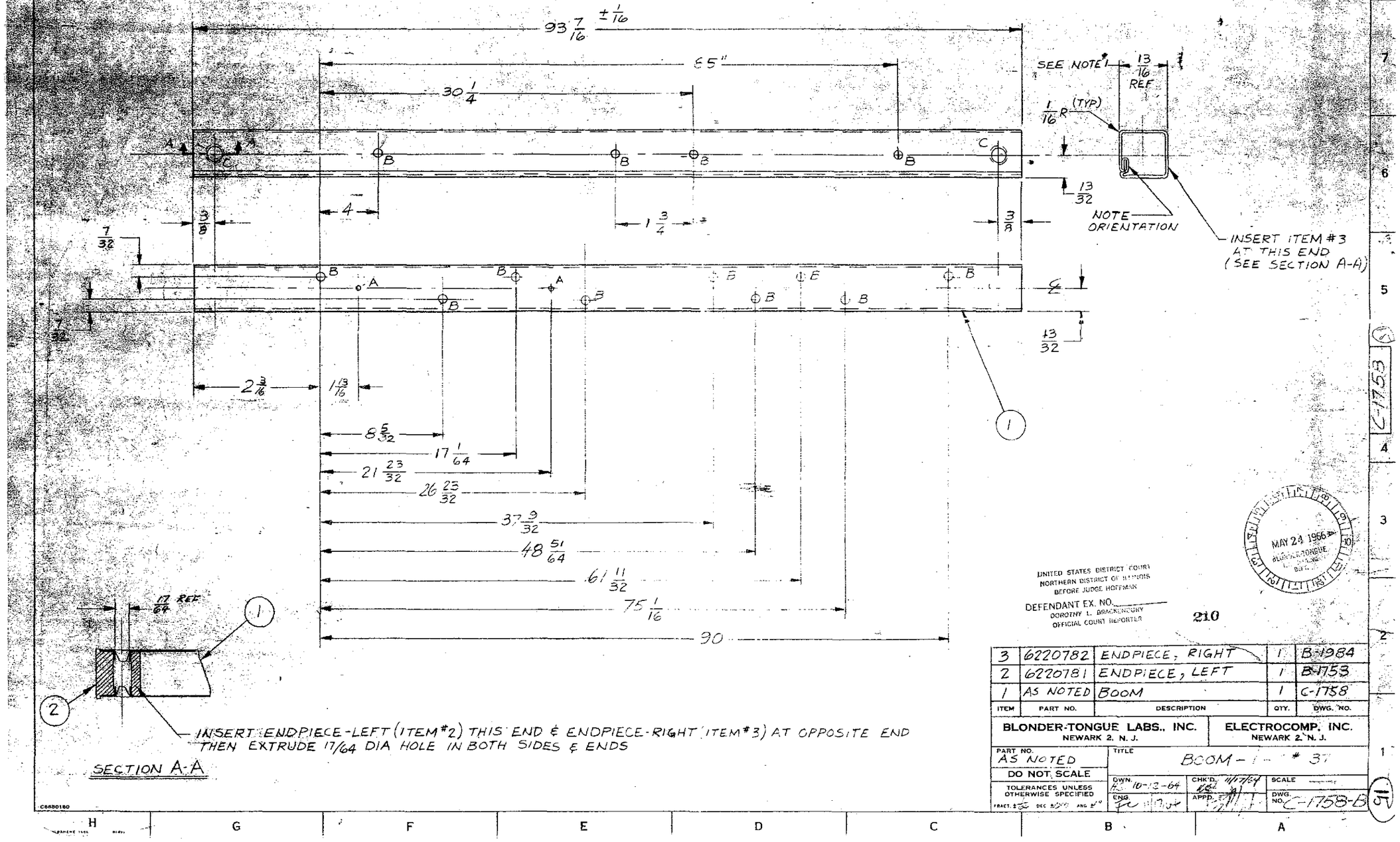
C6630180

H G F E D C B A

MATERIAL: ALUMINUM SQUARE TUBING SEAMED .807 +.005 -.000 SQ. O.D. x WALL THK .031
MANUFACTURER TOLERANCE.
B-T RAW STOCK #6720047 (IF MADE BY ELECTROCOMP)
FT. NO. (PLAIN) 6220855
FT. NO. (PUNCHED) 6220856
FT. NO. (FINISHED) 6220857

SYM.	DESCRIPTION	QTY.
A	.125 +.000 -.005 DIA	2
B	.218 +.005 -.000 DIA	13
C	SEE SECTION A-A	4

REVISIONS	
BY	CK.
CAM	
ADDED RAW STOCK	



SECTION A-A

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN
DEFENDANT EX. NO. 210
DOROTHY L. BRACKENTORY
OFFICIAL COURT REPORTER

MAY 24 1966
BLONDER-TONGUE

ITEM	PART NO.	DESCRIPTION	QTY.	DWG. NO.
3	6220782	ENDPIECE, RIGHT	1	B-1984
2	6220781	ENDPIECE, LEFT	1	B-1753
1	AS NOTED	BOOM	1	C-1758

BLONDER-TONGUE LABS., INC. NEWARK 2, N. J.
ELECTROCOMP, INC. NEWARK 2, N. J.

PART NO. AS NOTED
DO NOT SCALE
TOLERANCES UNLESS OTHERWISE SPECIFIED
TITLE BOOM - 1 - # 37
DWN. 10-13-64
CHK'D. 11/17/64
APPD.
SCALE
ENG.
DWG. NO. C-1758-B

C-1753

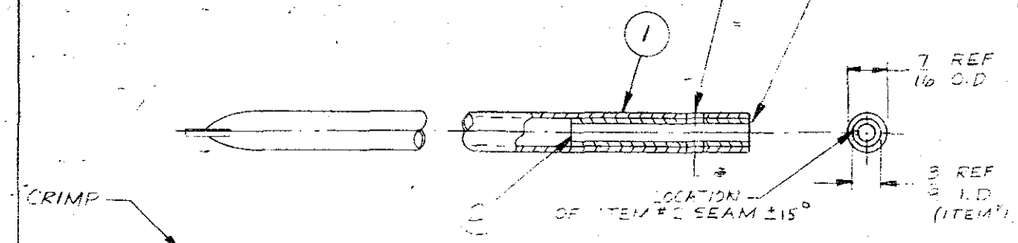
C6800180

NOTE: 1. MATERIAL: .437 ±.005 ALUMINUM TUBING (.035 ±.023 WALL THICKNESS) BUTT SEAMED

2. FINISH:

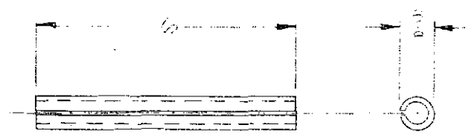
* NOTE: THIS CUT EDGE OF ITEM #1 MUST BE FREE OF BURRS IN ORDER TO ENSURE EASY INSERTION OF ITEM # 2

* INSERT ITEM #2 INTO ITEM #1 THEN; DRILL OR PUNCH THRU .131 +.002 -.0 DIA BOTH WALLS AS SHOWN



(1) ELEMENT

NOTES:
MATERIAL: .875 ±.005 ALUMINUM TUBING (.035 ±.023 WALL THICKNESS)
BUTT SEAMED AT A



(2) STIFFNER TUBE

PIONEER * 37 (BT RAW STOCK NO 6120052)

	55 5/16	2	6220851	6220852	6220853	6220854
	50 49/64	2	6220847	6220848	6220849	6220850
	46 39/64	2	6220843	6220844	6220845	6220846
	42 25/64	2	6220839	6220840	6220841	6220842
	38 9/32	2	6220835	6220836	6220837	6220838
	36 5/64	2	6220831	6220832	6220833	6220834
	33 3/64	2	6220827	6220828	6220829	6220830
	30 7/16	2	6220823	6220824	6220825	6220826
	27 31/32	2	6220819	6220820	6220821	6220822

HOMESTEADER * 39 BT RAW STOCK NO 6120052

	2	6220800	6220801	6220802	6220803
1/2	2	6220796	6220797	6220798	6220799
	2	6220792	6220793	6220794	6220795
	2	6220788	6220789	6220790	6220791
32	2	6220784	6220785	6220786	6220787

QUAN PER	BT-PART NO PLAIN	BT-PART NO W/INSERT	BT-PART NO PUNCHED	BT-PART NO FINISHED

REVISIONS		
B	12-16-64	CHM
DRILL DIM .131 WAS .187		
C	1-7-65	CHM
ADDED RAW STOCK		

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION
HONORABLE JUDGE HOFFMAN
DEFENDANT EX. NO. 211
DOROTHY L. SPANGENBURG
OFFICIAL COURT REPORTER

PATENT OFFICE
MAY 24 1966
WASHINGTON

ITEM	PART NO.	DESCRIPTION	QTY.	DWG. NO.
2	6220807	STIFFENER TUBE	1	C-1757
1	AS NOTED	ELEMENT	1	C-1757

BLONDER-TONGUE LABS., INC. NEWARK 2, N. J.

ELECTROCOMP, INC. NEWARK 2, N. J.

PART NO. SEE CHART

DO NOT SCALE

TOLERANCES UNLESS OTHERWISE SPECIFIED

TITLE: ELEMENT (TUBING) FOR HOMESTEADER

DWN. 10-12-64 CHK'D. APPD.

ENG. 12/17/64

SCALE

DWG. NO. C-1757-C

REV. C

H G F E D C B A

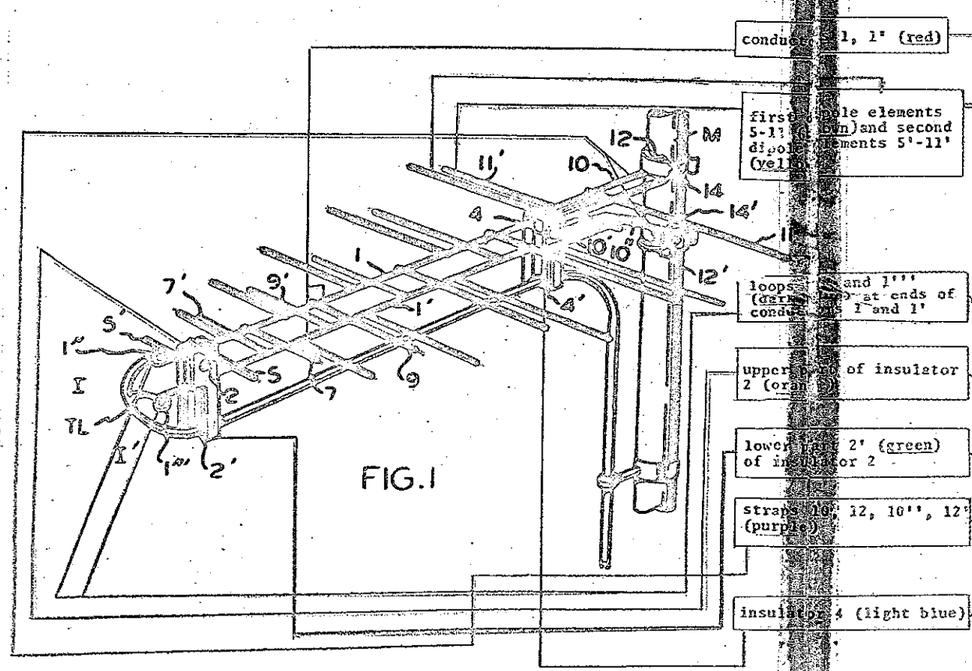


FIG.1

ELEMENT NO.	ANTICIPATION OF CLAIM 5 BY PRIOR ART (PARTICULARLY TECHNICAL REPORT 52)	IS ELEMENT FOUND IN T.R. 52
INTRO	An antenna for operation over a predetermined frequency band, having, in combination,	YES
1	a pair or rigid longitudinal conductors held spaced a predetermined vertical distance apart in a vertical plane,	YES
2	first and second pluralities of dipole elements lying in corresponding first and second vertically spaced horizontal planes containing the respective conductors,	YES
2A	the dipole elements extending from opposite sides of and transversely at an angle to each conductor at successive points therealong with dipole elements connected to one conductor extending in opposite direction to the corresponding dipole elements of the other conductor,	YES
2B	the length of the dipole elements successively increasing from one end of the conductors towards the other end thereof,	YES
3	means for connecting a parallel-wire transmission line to the said one end of the conductors,	YES
4	rigid insulating means securing the said connecting means mechanically in spaced-apart relation	YES
4A	and connected with means for supporting the transmission line near the said one end,	NO, BUT
5	and means for mounting the antenna at a region of the said conductors remote from the said one end,	YES
6	further rigid insulating means being provided for securing the said longitudinal conductors mechanically in rigid spaced-apart relation near the said region,	YES
7	the said vertical distance being less than the distance between the said successive points and less than the wavelengths of the said band.	YES

July 5, 1966 I. S. BLONDER ETAL 3,259,904
ANTENNA HAVING COMBINED SUPPORT AND LEAD-IN
Filed Nov. 21, 1963

From p.16 T.R.52 at right of Fig. 7

FROM TECHICAL REPORT 5 (T.R.52)

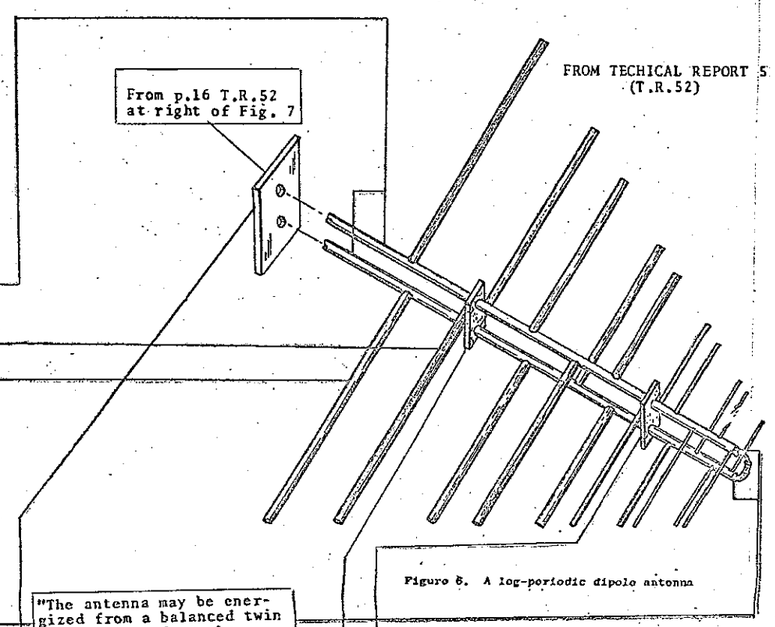


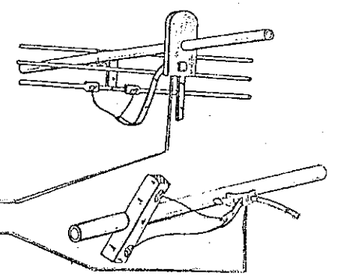
Figure 8. A log-periodic dipole antenna

"The antenna may be energized from a balanced twin wire connected at the junction of the feeder and smallest element. Alternatively, a coaxial line--" as shown in Figure 6 may be used.-- P. 18 T.R. 52.

it is obvious to provide an antenna with a strain relief member at any convenient location to support a transmission line where the lattor electrically connects to an antenna as taught by the prior art as exemplified by:

-- Line Lok

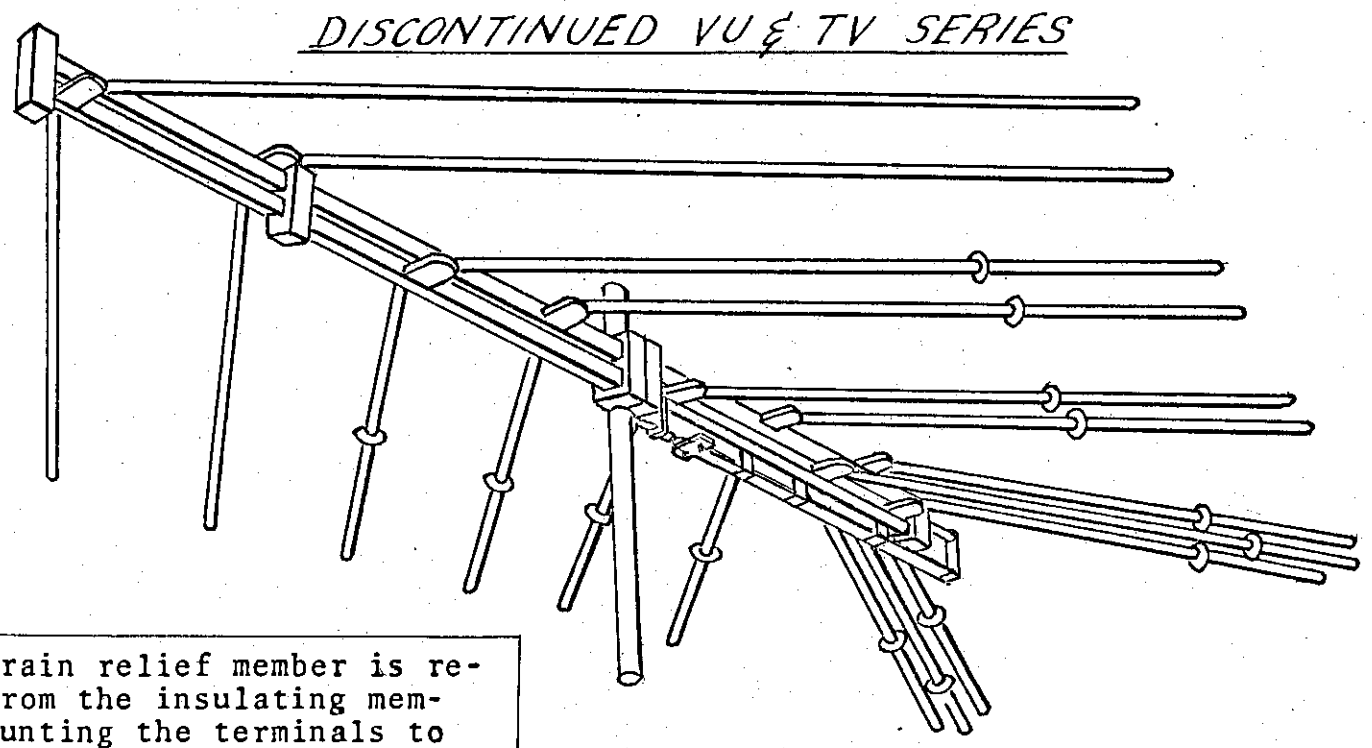
-- Strain Relief on Zip Antenna



JFD CHART 1

IS ELEMENT FOUND IN OLD LPV-VU & LPV-TV?
YES
YES
YES
YES
YES
YES
YES
NO
YES
NO
YES

DISCONTINUED VU & TV SERIES

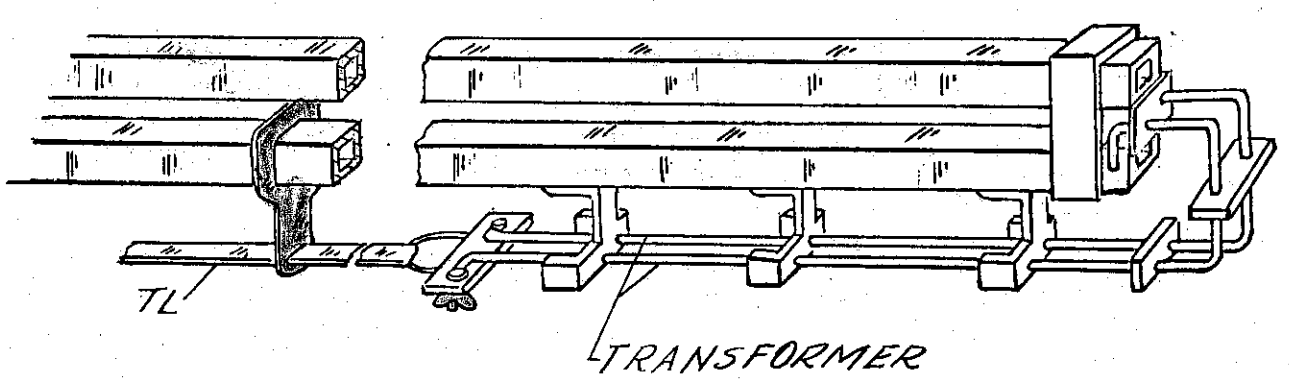


LPV-VU9

The strain relief member is remote from the insulating member mounting the terminals to which the transmission line connects. Hence, the strain relief and insulating members are no more connected together than each member of the antenna is "connected" to every other member by virtue of the fact that the antenna is a mechanical assembly of parts. Note that the Blonder et al strain relief 2' is integral with insulator 2 while in the JFD antenna the strain relief member is spaced from the member mounting the transmission line connecting terminals.

Further, the conductors forming an impedance matching transformer bring the transmission line connecting terminals to a point remote from "said one end of the conductors" and the strain relief for the transmission line connected to these terminals is even more remote from "said one end" than are these terminals.

There is no rigid insulating means other than claim element 5 in the region where the antenna mounts to the mast.



JFD CHART 2E

July 5, 1966 I. S. BLONDER ETAL 3,259,904

ANTENNA HAVING COMBINED SUPPORT AND LEAD-IN

Filed Nov. 21, 1963

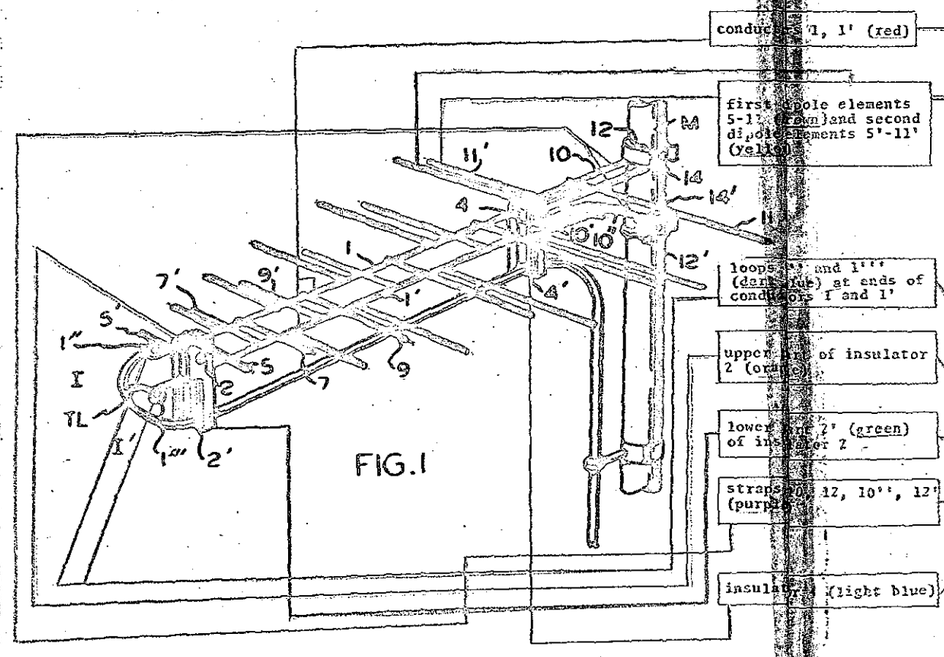


FIG. 1

JFD CHART 1

July 5, 1966 I. S. BLONDER ETAL 3,259,904

ANTENNA HAVING COMBINED SUPPORT AND LEAD-IN

Filed Nov. 21, 1963

ELEMENT NO.	ANTICIPATION OF CLAIM 5 BY PRIOR ART (PARTICULARLY TECHNICAL REPORT 52)	IS ELEMENT FOUND IN T.R. 52?
INTRO	An antenna for operation over a predetermined frequency band, having, in combination,	YES
1	a pair or rigid longitudinal conductors held spaced a predetermined vertical distance apart in a vertical plane,	YES
2	first and second pluralities of dipole elements lying in corresponding first and second vertically spaced horizontal planes containing the respective conductors,	YES
2A	the dipole elements extending from opposite sides of and transversely at an angle to each conductor at successive points therealong with dipole elements connected to one conductor extending in opposite direction to the corresponding dipole elements of the other conductor,	YES
2B	the length of the dipole elements successively increasing from one end of the conductors towards the other end thereof,	YES
3	means for connecting a parallel-wire transmission line to the said one end of the conductors,	YES
4	rigid insulating means securing the said connecting means mechanically in spaced-apart relation	YES
4A	and connected with means for supporting the transmission line near the said one end,	NO, BUT
5	and means for mounting the antenna at a region of the said conductors remote from the said one end,	YES
6	further rigid insulating means being provided for securing the said longitudinal conductors mechanically in rigid spaced-apart relation near the said region,	YES
7	the said vertical distance being less than the distance between the said successive points and less than the wavelengths of the said band.	YES

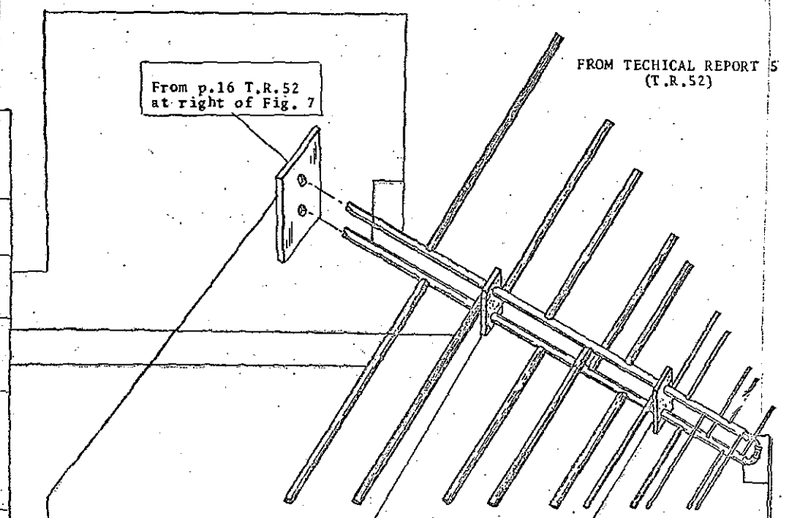


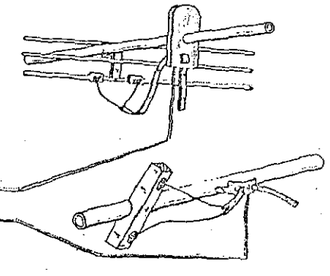
Figure 6. A log-periodic dipole antenna

"The antenna may be energized from a balanced twin wire connected at the junction of the feeder and smallest element. Alternatively, a coaxial line--" as shown in Figure 6 may be used.-- P. 18 T.R. 52.

it is obvious to provide an antenna with a strain relief member at any convenient location to support a transmission line where the latter electrically connects to an antenna as taught by the prior art as exemplified by:

-- Line Lok

-- Strain Relief on Zip Antenna



UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
BEFORE JUDGE HOFFMAN
COUNTER
DEFENDANT EX. NO. JFD-12
DOROTHY L. BRACKENBURY
OFFICIAL COURT REPORTER



NEW VHF ANTENNA

Prof. Paul E. Mayes, left, and Robert L. Carroll of the U. of I. Antenna Laboratory instal a model television antenna for testing purposes on the roof of the Electrical Engineering Research Laboratory. Its ribs are swept forward in a new design that is planned to receive all VHF channels equally well.

U. of I. Develops Powerful All-Channel VHF Antenna

By Lynn Ludlow

Engineering research at the University of Illinois has developed a powerful V-shaped television antenna that will receive all VHF channels equally well.

This gives it a marked advantage over other antennas used for long - distance reception. Most are designed to receive one channel better than others.

Negotiations are under way with manufacturers, although marketing problems may keep the new antenna from appearing soon in your neighborhood store.

Prof. Paul E. Mayes and Robert L. Carroll, a graduate student, are co-inventors. Patents will be held by the U. of I. Foundation.

Like the spiral antenna on Transit 1-B, an earth satellite still orbiting, the television antenna is a byproduct of the U. of I. Antenna Laboratory. The laboratory, part of the department of electrical engineering, has been concentrating in recent years on "frequency independent" antennas for high speed aircraft.

Another antenna invented at the laboratory will be used to receive radio emissions from distant stars at the University's radio-telescope near Danville.

Antenna Described

In some ways the new television antenna resembles the conventional Yagi antenna after a terrific windstorm. Fourteen aluminum ribs are attached diagonally to two central eight-foot rods, which will be mounted on a housetop or a 40-foot tower and cranked in the direction of the television stations it is trying to pick up.

The big difference, however, is in reception of more than one station. The antenna will probably be most useful for persons living in fringe areas that are served by more than one television station in different cities.

Mayes and Carroll have constructed one model for VHF and another for UHF. The latter is not V-shaped but more like the conventional ladder - shaped antenna. They are also designing a combined VHF-UHF model that would be particularly useful in Champaign - Urbana and the few other areas served by both types of television station.

UHF Model Put Up

The UHF model is now mounted on a 40 - foot tower at Mayes' residence, 1902 Broadmoor Dr. He can receive not only UHF stations in Danville, Decatur, Springfield and Peoria, but he expects to be able to receive just as clearly the educational programs to be beamed on two much higher channels, 72 and 76, after the Midwest Project in Airborne Television Instruction gets under way.

The "resonant - V" antenna is one of two fruitful designs conceived at the laboratory. The spiral antenna designed several years ago by Prof. V. H. Rumsey, now of the University of California, has been adapted in a number of ways, most of them classified.

Prof. John D. Dyson, also of the laboratory, invented the spiral antennas to be installed at the radio telescope. A model has been constructed, and contract negotiations are now completed with a Broadview manufacturer.

Three hundred of the spiraling antennas will be installed along the catwalk between the four 185-foot towers in the trough of the radio telescope.

Radio signals from the stars will be reflected from the sides of the trough to the antennas, which will transmit them to a nearby laboratory. The big advantage of this antenna is that it can be adjusted. Those who operate the radio telescope can adjust their view, so to speak, of the skies.

Graduate students will make the adjustments each day.

The special advantage of this antenna, according to Prof. Dyson, is that it will permit the fixed telescope installation to be aimed at specified parts of the sky. It permits as much as 30 degrees variation from the area of the sky directly overhead and is the only antenna with this quality.

Complicated electronic mechanisms would be needed to do the same thing, he says.

Radio astronomers at the U. of I. are planning a five - year project of charting and cataloging all radio sources from the stars, many of which are not visible on visual telescopes.

FOR RADIO TELESCOPE

Lyle Hawkey, 1705 Parkside Ter., holds a model spiral antenna of the type to be installed at the U. of I. radio telescope. Hawkey, a technician with the radio astronomy project for two years, has been helping Prof. John D. Dyson with testing.

GOP to Draft Distress Plan

Ten Republican members of the Illinois House and Senate will meet next week to draft a counterproposal to the Democratic plan for altering the state's congressional districts.

The Democratic proposal, introduced into the Illinois House Tuesday, calls for extreme revamping of the 21st and 22nd Congressional Districts.

State Rep. Edwin E. Dale (R-Champaign), one of the 10 Republicans who will draft their party's proposal and also a member of the House Committee on elections and reapportionment, said Thursday there was "no doubt" but that the Democratic plan was a gerrymander.

The committee on elections and reapportionment will have to act on any proposed redistricting plan. According to Rep. Dale, the committee should meet soon to consider some of the proposals which have been made.

Magic Show at Library

Tony Parks, a 5th grader at Webber Schol will present a magic show during the children's program at 9:30 a.m. Saturday in Urbana Free Library. Mrs. Berniece Fiske, children's librarian, will tell stories.

Cropp Named Aide in LAS

Dean Jack W. Peltason of the University of Illinois College of Liberal Arts and Sciences has named Prof. Frederick W. Cropp, 28, assistant dean.

The appointment will be on a half-time basis. Prof. Cropp will spend the rest of his time with teaching and research activities in the geology department.

Born in Wheeling, W. Va., Cropp received a bachelor's degree from College of Wooster, Wooster, Ohio, and master's and doctoral degrees from the U. of I.

He has been on the faculty since 1954 and also has worked with the Illinois State Geological Survey and Shell Oil Company.

Prof. Cropp is a member of Phi Kappa Phi and Sigma Xi honor societies, Geological Society of America, Society of Economic Paleontologists and Mineralogists, American Association of Petroleum Geologists, American Association for the Advancement of Science, Association of Geology Teachers and Illinois State Academy of Science.

SERVICES SATURDAY FOR FLOYD STEVENS

Rantoul (Special)

Funeral services for Floyd Stevens, 59, will be held at 2 p.m. Saturday in Clark Funeral Home, Rantoul. Burial will be in Maplewood Cemetery. The Rev. W. Harold Loyd will officiate.

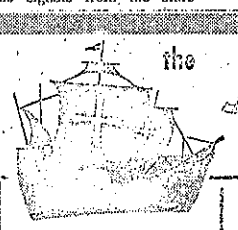
Mr. Stevens was found dead Wednesday in his house trailer in Rantoul. Friends may call from 7 to 9 p.m. Friday and 10 to 11 a.m. Saturday at the funeral home.

Mrs. Lafen ... gets 'Fairly Good'

Mrs. Nellie ... Champaign Hospital where she underwent major surgery Mon... Friday was re... good."

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Wesley Will Honor Burts At Reception

The Rev. and Mrs. Paul Burt will be honored for their 33-year ministry by Wesley church and corporation members at a reception at 2 p.m. Sunday in Wesley Foundation.

Community residents are invited to attend the reception. Resident church members and the Wesley Foundation student council will act as hosts and hostesses.

Dr. Burt's sister, Miss Viola Burt of New York City, will be a house guest of the Burts for the weekend, coming especially for the reception. Mrs. Barbara Burt Arnason, the Burts' only daughter, lives in Monterey, Calif., and will be unable to attend, but many alumni are expected to attend either the reception or the church services earlier in the day.

Bishop and Mrs. H. Clifford Northcott are among those expected to be here from out-of-town. Bishop Northcott became pastor of the First Methodist Church of Champaign the same year that Dr. Burt came to Wesley. Bishop Northcott, now retired, left Champaign in 1948 to become bishop of the Wisconsin Area.

Miss Ruth-Helen Burlison will play piano selections throughout the evening.

Floral and table appointments for the reception have been created by Mrs. Charles Odell, Mrs. A. L. Whiting, Mrs. Donald G. Smith, Mrs. Harold Jackman, Mrs. Clyde Titus and Mrs. Walter Johnson.

Wives of corporation members will pour during the evening. They are Mrs. E. L. Simmons, Decatur; Mrs. Robert Kimbell, Wheaton, Mrs. Clarence Nordling, Paris, Mrs. John VanSickle, Rockford; Mrs. Forrest Colwell and Mrs. A. K. Laing, both of Champaign. Mrs. Robert I. Dickey is general chairman.

Dr. Burt is retiring this year after one of the longest ministries at one church known in Methodism. His retirement will become effective in June or later, depending on the naming of a successor.

Reckless Homicide

Mittan Placed On Probation

Gerald Lee Mittan, 25, former Chanute airman, Thursday in County Court was granted probation for two years.

Mittan had pleaded guilty to reckless homicide, requesting probation. He presently is stationed on the East Coast. Probation was recommended by Probation Officer Willis Bloom.

Mittan, a tech sergeant, was charged with responsibility for the wrongful death of another Air Force tech sergeant, Cecil Henderson, in a traffic accident Oct. 8, 1960.

Sgt. Henderson, riding as a passenger in Mittan's car, was killed when the car collided with another on U.S. Highway 136.

Robert Douglas of Franklin To Study in Florida

Robert S. Douglas, mathematics teacher at Franklin Junior High School, has been awarded a grant to attend the Summer Institute for High School Teachers of Science and Mathematics at the University of Florida.

The Institute will be held June 19 through Aug. 11. It is supported by a National Science Foundation grant.

Douglas was selected from a group of more than 600 applicants for the Institute.

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ONLY 89¢

Flewelling Improving

Maj. Charles M. Flewelling, 1607 Normandy Dr., a staff officer of the 44th Division, Illinois National Guard, was in "fair" condition Friday morning in Burnham Hospital. He was taken to the hospital in serious condition following a severe coronary attack at 3 a.m. Thursday and placed under oxygen.

Academy Names Leonard

Eight at U.I. in Arts and Sciences Group

Prof. Nelson J. Leonard of the University of Illinois was named Thursday as a fellow in the American Academy of Arts and Sciences.

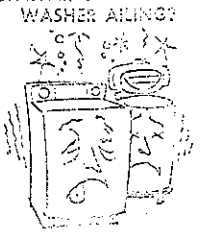
A member of the department of chemistry and chemical engineering since 1942, Prof. Leonard is one of 100 new fellows elected to the Academy.

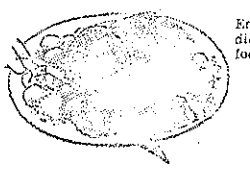
All areas of science are represented in the Academy, which was founded during the American Revolution under the leadership of John Adams, second president of the United States.

Three men from the state of Illinois were elected. The others are Charles P. Miller and Henry Taube, both of the University of Chicago.

Eight U. of I. men now are members of the Academy.

The others are Prof. John Bardeen, Nobel Prize physicist; Prof. Carl S. Marvel, chemist; Prof. Leigh E. Chadwick, entomology department head; Prof. C. Ladd Prosser, physiology department head; Prof. [illegible], mathematician; Prof. [illegible] Rabinowitch, physicist and artist best known as editor of the Bulletin of the Atomic Scientists; Prof. Roger Adams, former president of American Association for Advancement of Science, internationally known chemist, whom Prof. Leonard [illegible] here as a post-[illegible]

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July 5, 1966 L. S. BLONDER ET AL 3,259,904

ANTENNA HAVING COMBINED SUPPORT AND LEAD-IN

Filed Nov. 21, 1963

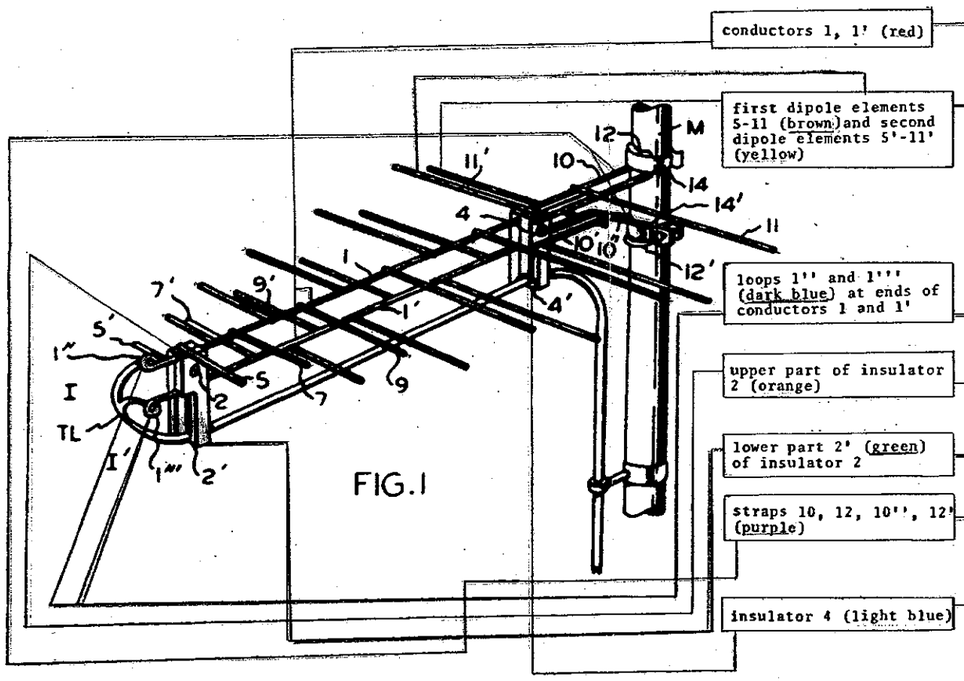


FIG.1

CHART SHOWING WHEREIN ELEMENTS OF CLAIM 5 OF BLONDER ET AL PATENT 3,259,904 ARE NOT FOUND IN JFD STRUCTURES

ELEMENT NO.	ELEMENTS OF CLAIM 5 BLONDER ET AL PATENT 3,259,904	IS ELEMENT FOUND IN LPV-UCL?
INTRO	An antenna for operation over a predetermined frequency band, having, in combination,	YES
1	a pair or rigid longitudinal conductors held spaced a predetermined vertical distance apart in a vertical plane,	YES
2	first and second pluralities of dipole elements lying in corresponding first and second vertically spaced horizontal planes containing the respective conductors,	YES
2A	the dipole elements extending from opposite sides of and transversely at an angle to each conductor at successive points therealong with dipole elements connected to one conductor extending in opposite direction to the corresponding dipole elements of the other conductor,	YES
2B	the length of the dipole elements successively increasing from one end of the conductors towards the other end thereof,	YES
3	means for connecting a parallel-wire transmission line to the said one end of the conductors,	YES
4	rigid insulating means securing the said connecting means mechanically in spaced-apart relation	YES
4A	and connected with means for supporting the transmission line near the said one end,	NO
5	and means for mounting the antenna at a region of the said conductors remote from the said one end,	NO
6	further rigid insulating means being provided for securing the said longitudinal conductors mechanically in rigid spaced-apart relation near the said region,	NO
7	the said vertical distance being less than the distance between the said successive points and less than the wavelengths of the said band.	NO

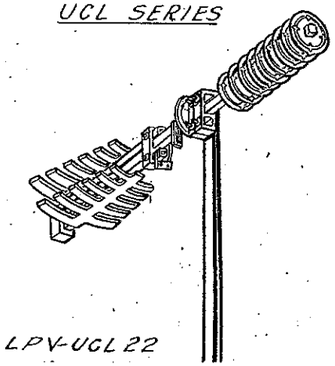
The strain relief member is remote from the insulating member mounting the terminals to which the transmission line connects. Hence, the strain relief and insulating members are no more connected together than each member of the antenna is "connected" to every other member by virtue of the fact that the antenna is a mechanical assembly of parts. Note that the Blonder et al strain relief 2' is integral with insulator 2 while in the JFD antenna the strain relief member is spaced from the member mounting the transmission line connecting terminals.

No, for Models LPV-UCL 18, 22, 26 since each is mounted adjacent to the transmission line connecting points.

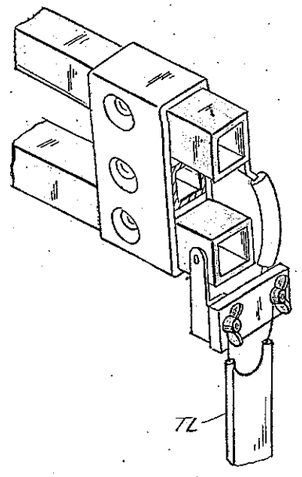
Detailed explanation depends upon the interpretation given by B-T.

The vertical distance (center-to-center) between the longitudinal conductors is 2 3/4 inches while in each instance the spacing (center-to-center) between successive points is less than 1 3/4 inches.

UCL SERIES



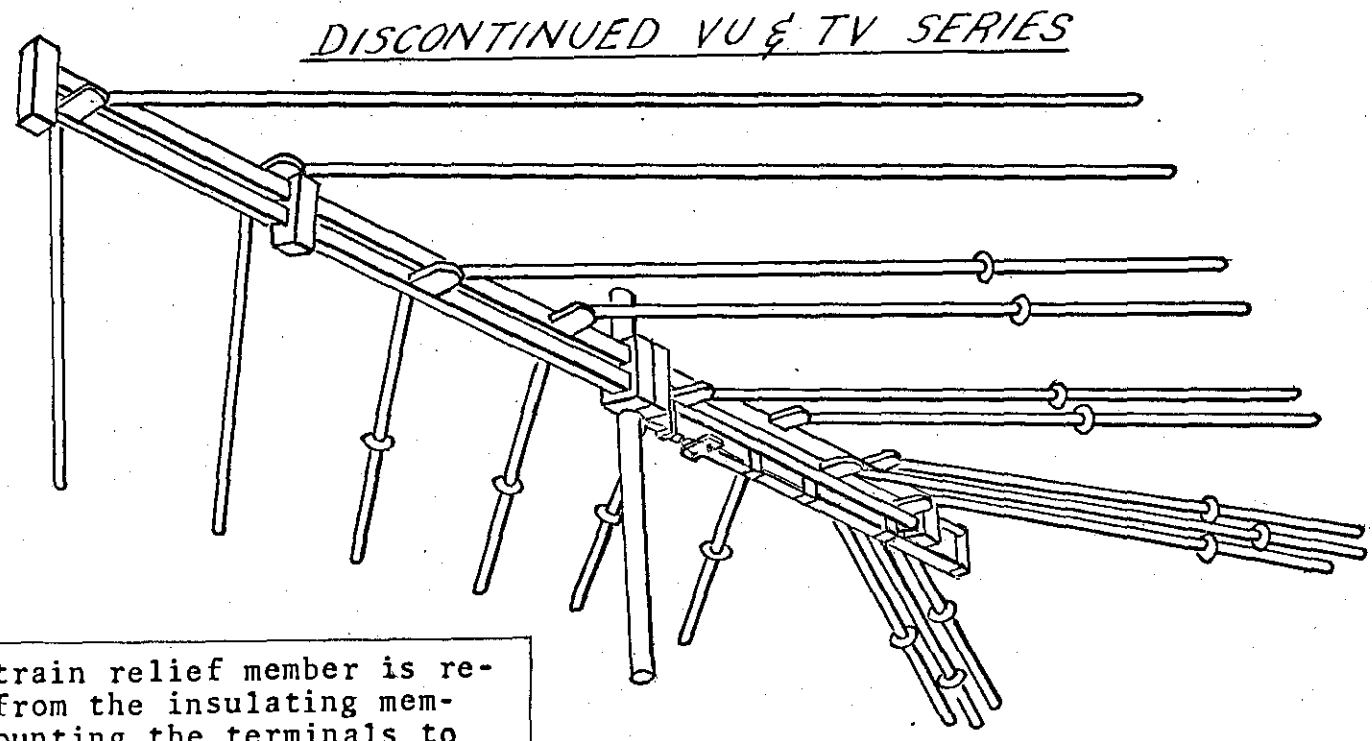
LPV-UCL 22



JFD CHARTS 2A-2E

JFD CHART 2A

DISCONTINUED VU & TV SERIES



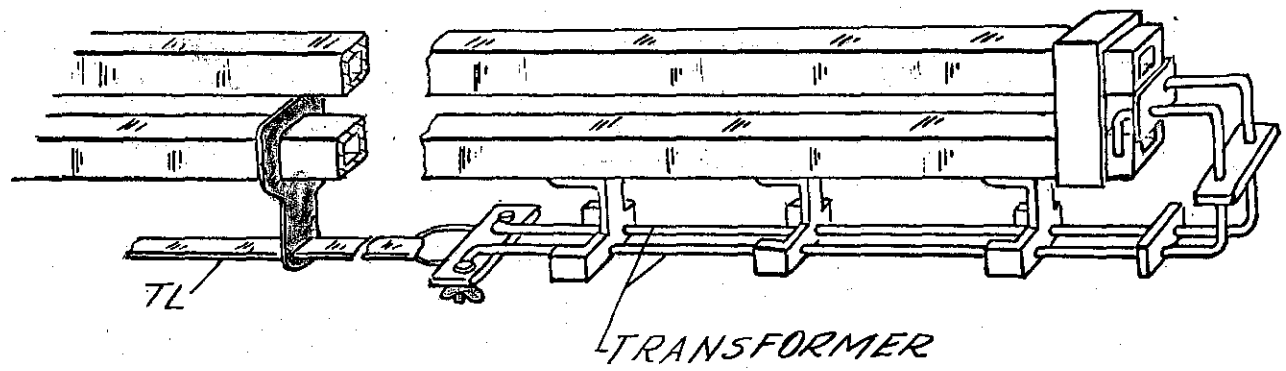
LPV-VU9

IS ELEMENT FOUND IN OLD LPV-VU & LPV-TV?
YES
YES
YES
YES
YES
YES
NO
YES
NO
YES

The strain relief member is remote from the insulating member mounting the terminals to which the transmission line connects. Hence, the strain relief and insulating members are no more connected together than each member of the antenna is "connected" to every other member by virtue of the fact that the antenna is a mechanical assembly of parts. Note that the Blonder et al strain relief 2' is integral with insulator 2 while in the JFD antenna the strain relief member is spaced from the member mounting the transmission line connecting terminals.

Further, the conductors forming an impedance matching transformer bring the transmission line connecting terminals to a point remote from "said one end of the conductors" and the strain relief for the transmission line connected to these terminals is even more remote from "said one end" than are these terminals.

There is no rigid insulating means other than claim element 5 in the region where the antenna mounts to the mast.



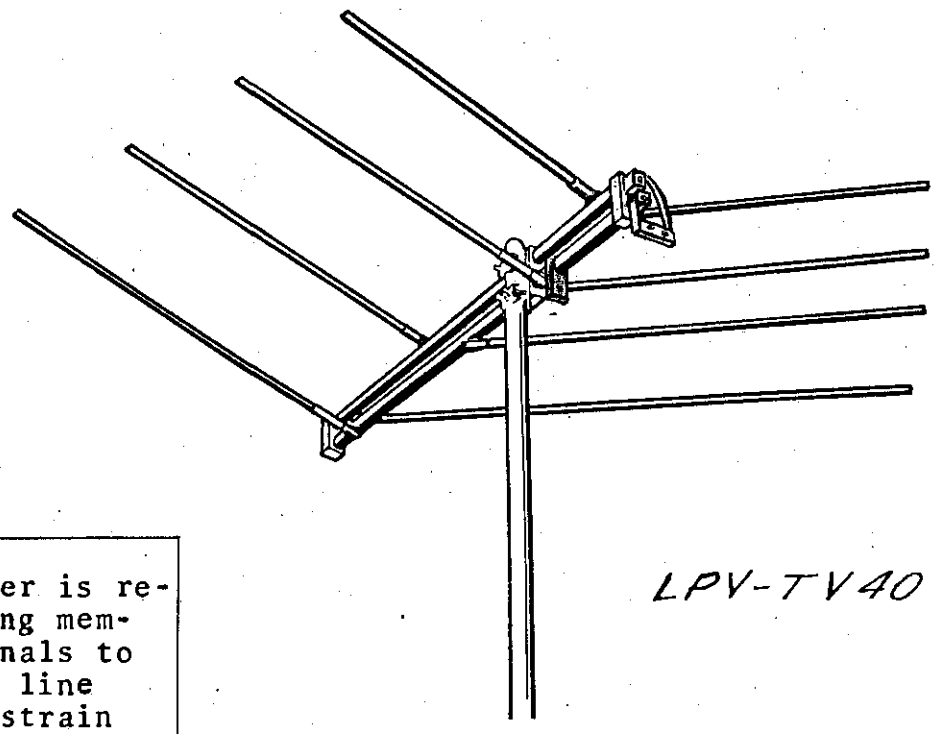
JFD CHART 2E

IS ELEMENT FOUND IN NEW LPV-TV?
YES
YES
YES
YES
YES
YES
YES
NO
YES
NO
YES

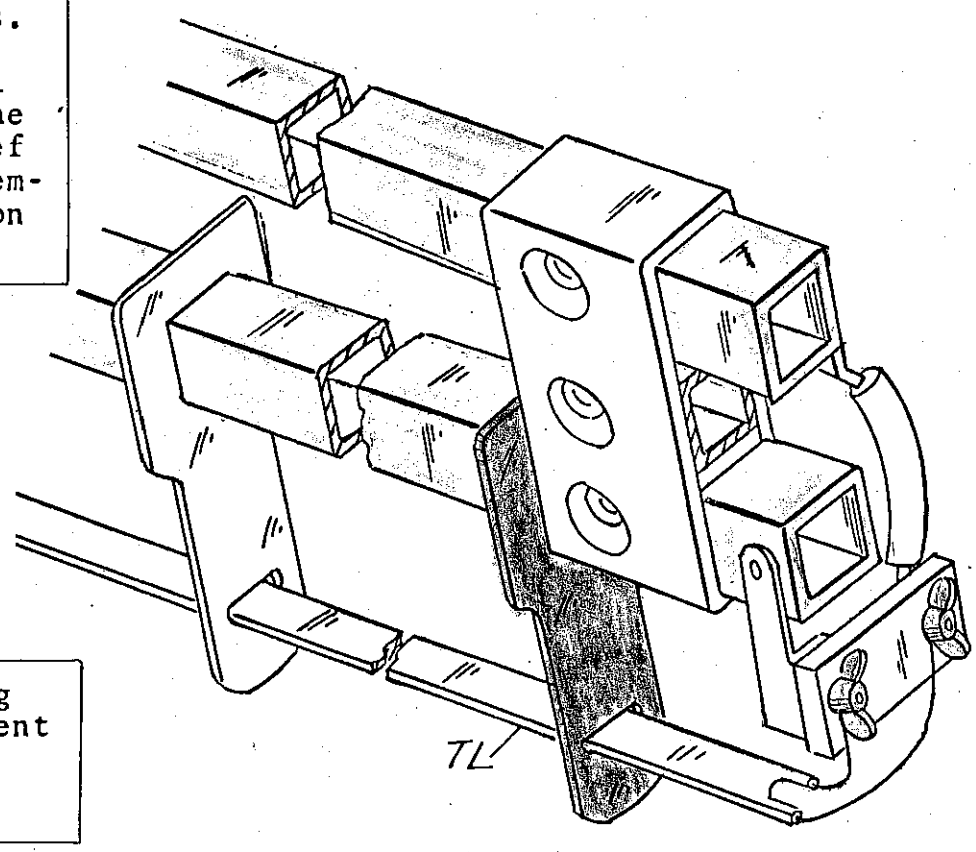
The strain relief member is remote from the insulating member mounting the terminals to which the transmission line connects. Hence, the strain relief and insulating members are no more connected together than each member of the antenna is "connected" to every other member by virtue of the fact that the antenna is a mechanical assembly of parts. Note that the Blonder et al strain relief 2' is integral with insulator 2 while in the JFD antenna the strain relief member is spaced from the member mounting the transmission line connecting terminals.

There is no rigid insulating means other than claim element 5 in the region where the antenna mounts to the mast.

CURRENT TV SERIES



LPV-TV40



JFD CHART 2D

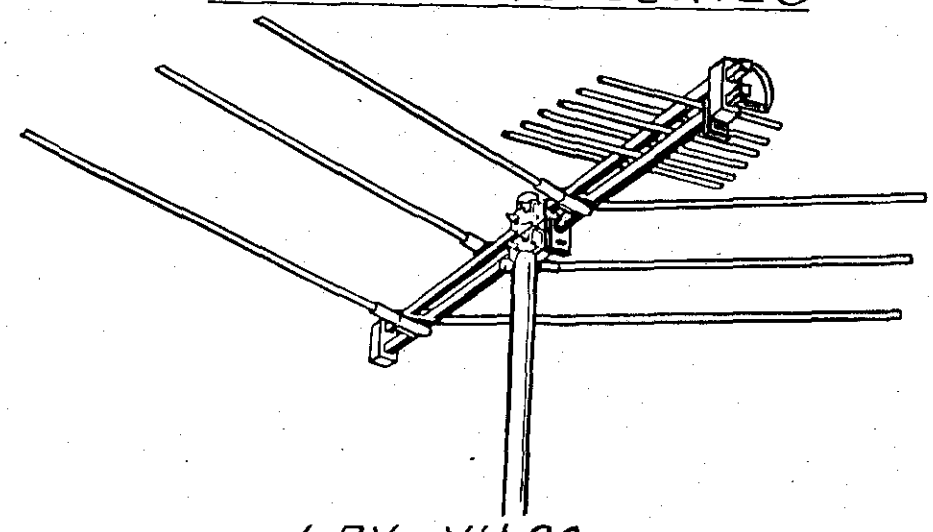
IS ELEMENT FOUND IN NEW LPV-VU?
YES
YES
YES
YES
YES
YES
NO
YES
NO
NO

The strain relief member is remote from the insulating member mounting the terminals to which the transmission line connects. Hence, the strain relief and insulating members are no more connected together than each member of the antenna is "connected" to every other member by virtue of the fact that the antenna is a mechanical assembly of parts. Note that the Blonder et al strain relief 2' is integral with insulator 2 while in the JFD antenna the strain relief member is spaced from the member mounting the transmission line connecting terminals.

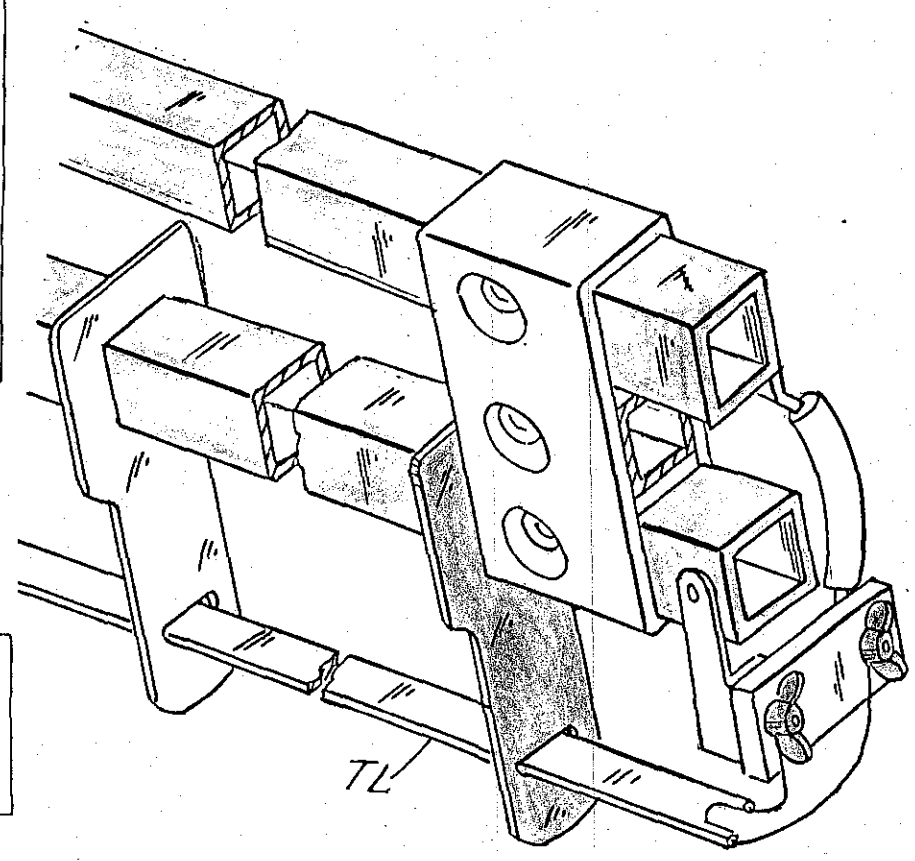
There is no rigid insulating means other than claim element 5 in the region where the antenna mounts to the mast.

The spacing (center-to-center) between many of the successive points in the region of the teeth perpendicular to the longitudinal conductors is less than the spacing (center-to-center) between the longitudinal conductors.

CURRENT VU SERIES

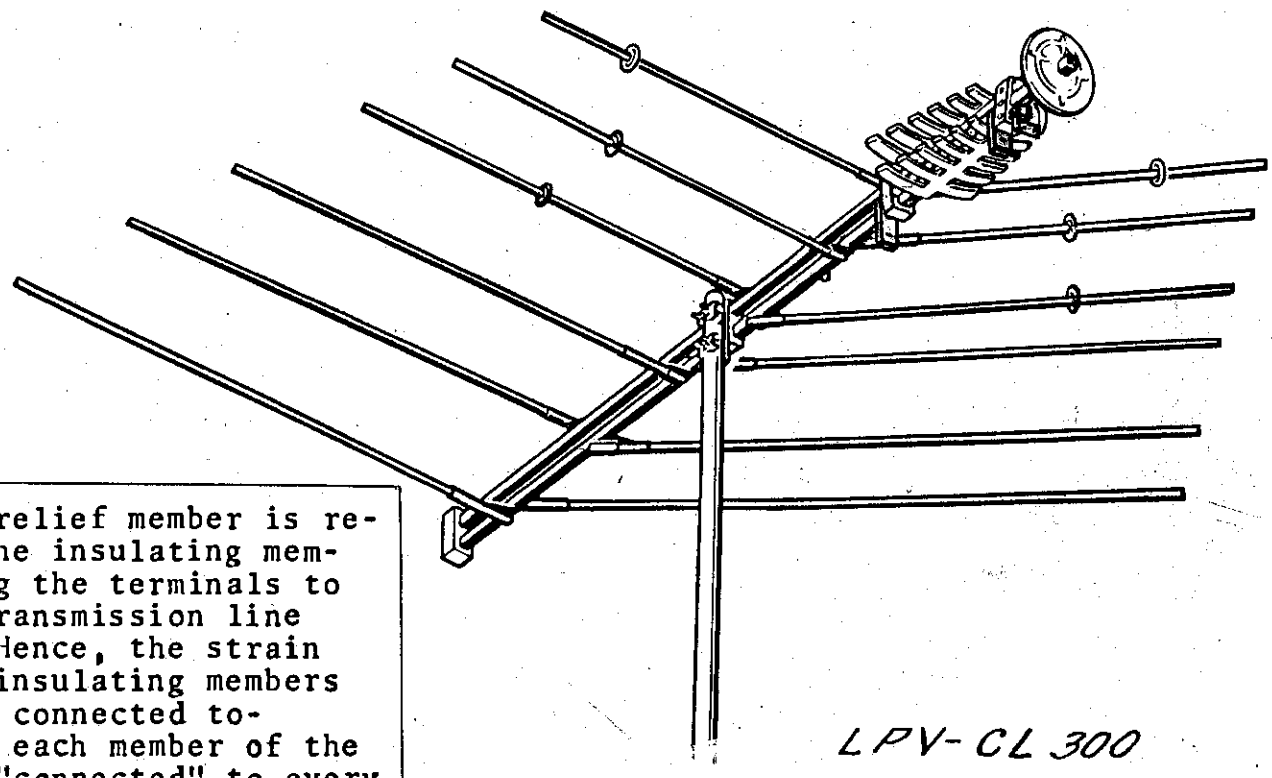


LPV-VU 30



JFD CHART 2C

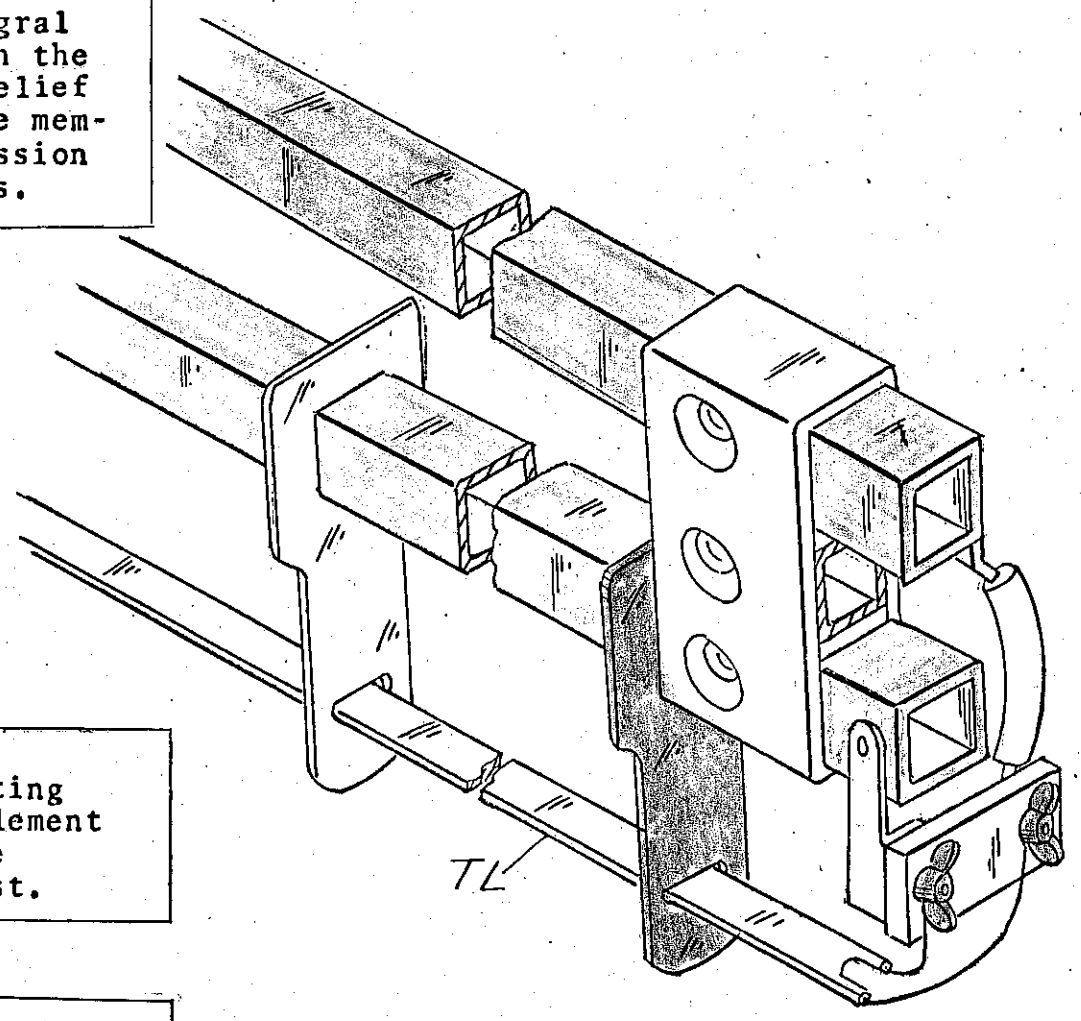
CL SERIES



LPV-CL 300

IS ELEMENT FOUND IN LPV-CL?
YES
YES
YES
YES
YES
NO
YES
NO
NO

The strain relief member is remote from the insulating member mounting the terminals to which the transmission line connects. Hence, the strain relief and insulating members are no more connected together than each member of the antenna is "connected" to every other member by virtue of the fact that the antenna is a mechanical assembly of parts. Note that the Blonder et al strain relief 2' is integral with insulator 2 while in the JFD antenna the strain relief member is spaced from the member mounting the transmission line connecting terminals.



There is no rigid insulating means other than claim element 5 in the region where the antenna mounts to the mast.

The vertical distance (center-to-center) between the longitudinal conductors is 2 3/4 inches while the spacing (center-to-center) between the successive points in the region of the sheet metal teeth is less than 1 3/4 inches.

JFD CHART 2B

DUAL BOOM FOR DOUBLE STRENGTH



THE TOP OF YOUR QUALITY ANTENNA SYSTEM

BLONDER-TONGUE

DUAL BOOM FOR DOUBLE STRENGTH



THE TOP OF YOUR QUALITY ANTENNA SYSTEM

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APPROVED FOR COLOR

APPROVED FOR COLOR

TRUE LOG PERIODIC

COLOR RANGER® -10

PAT. PENDING

VHF TV/FM ANTENNA - ADD U-RANGER FOR ALL CHANNEL RECEPTION

TRUE LOG PERIODIC

COLOR RANGER® -10

PAT. PENDING

VHF TV/FM ANTENNA - ADD U-RANGER FOR ALL CHANNEL RECEPTION

TRUE LOG PERIODIC

COLOR RANGER® -10

PAT. PENDING

VHF TV/FM ANTENNA - ADD U-RANGER FOR ALL CHANNEL RECEPTION

APPROVED FOR COLOR

APPROVED FOR COLOR

APPROVED FOR COLOR

BLONDER-TONGUE

DUAL BOOM FOR DOUBLE STRENGTH



THE TOP OF YOUR QUALITY ANTENNA SYSTEM

BLONDER-TONGUE

DUAL BOOM FOR DOUBLE STRENGTH



THE TOP OF YOUR QUALITY ANTENNA SYSTEM

January 13, 1969

VIA AIR MAIL

Mr. Robert H. Rines
Rines and Rines
No. Ten Post Office Square
Boston, Massachusetts 02109

RE: UIF v. BT v. JFD

Dear Bob:

* I enclose several copies of the brief. I had to make a few more deletions in order to get the length down to 50 pages. I have marked up copies of the galley and page proof if you want to check the deletions.

I also have a few additional copies of the brief if you would like some more.

Very truly yours,

Richard S. Phillips

RSP:iag

* Enclosures

January 13, 1969

Mr. John F. Pearne
McNenny, Farrington, Pearne & Gordon
920 Midland Building
Cleveland, Ohio 44115

Dear John:

* I enclose three copies of the brief for Blonder-Tongue in the appeal. I had to squeeze out a little bit more in order to get it down to 50 pages.

Very truly yours,

Richard S. Phillips

RSP:iag

* Enclosures

cc: Mr. R. H. Rines

January 13, 1969

VIA AIR MAIL

Mr. Isaac S. Blonder
Blonder-Tongue Laboratories, Inc.
9 Alling Street
Newark, New Jersey 07102

Dear Ike:

I understand Bob is off on a world tour. Accordingly, I am sending you directly a couple of
* copies of the brief on appeal.

Best wishes.

Very truly yours,

Richard S. Phillips

RSP:iag

* Enclosures

cc: Mr. R. H. Rines

Rep & Brief

1 I. Issue & Its Development
1 1. The Foundation position
3 2. DFD Position
7 3. Conclusion

7 II. A. The Foundation Model Paper
7 ~~1. The Foundation position~~
12 ~~2. DFD~~

II B The Mayer & Comel Paper
12 ~~1. The Foundation position~~
14 ~~2. DFD~~

16 III Non-expression
16 ~~1. The Foundation Position~~
16 ~~2. DFD~~

16 IV The Legal Concept & Practice (C.C.)
16 ~~1. The Foundation Position~~
17 ~~2. The DFD~~
18 Title Role
18 Reading
21 Mismatch & Factors pilot
22 Trade secrets
22 Factors
24 Summary
24 V Blanket Subscription C.C.
28 Conclusion

March 14, 1969

VIA AIR MAIL

Mr. Robert H. Rines
Rines and Rines
No. Ten Post Office Square
Boston, Massachusetts 02109

RE: UIF v. BT v. JFD

Dear Bob:

* This just arrived. Since it is so short, I may add something.

Very truly yours,

Richard S. Phillips

RSP:iag

* Enclosure (page proof of reply brief)

cc: Mr. J. F. Pearne (*)

March 13, 1969

VIA AIR MAIL

Mr. Robert H. Rines
Rines and Rines
No. Ten Post Office Square
Boston, Massachusetts 02109

RE: UIF v. BT v. JFD

Dear Bob:

* This is going over to the printer today. We should have a page proof sometime tomorrow.

Very truly yours,

Richard S. Phillips

RSP:iag

* Enclosure

cc: Mr. J. F. Pearne (*) Sorry we didn't get to use more of your material. We'll see what happens when we get the page proof.

R. S. P.

REPLY BRIEF FOR DEFENDANT AND
COUNTERCLAIMANT-APPELLANT

I. THE ISSUE AS TO DUE PROCESS

1. The Foundation's Position

In its brief, the Foundation argues that Blonder-Tongue has conceded that the record

> "contains a sufficient recital of the facts to permit this court to come to a conclusion on the issues." (p. 3)

"A conclusion"?

No.

Only one conclusion, namely, that even on the basis of ~~the present~~ an incomplete record, as a matter of law, the District Court should be reversed.

But if this Court finds that the District Court's legal conclusions are not wrong, Blonder-Tongue maintains it is entitled to make a complete record with the aid of at least its patent expert, Dr. Chu, who had been preparing for the Foundation's patent suit and the Blonder-Tongue patent counterclaim III for over a year; and its customer witnesses in connection with the unfair competition and antitrust counterclaims I and II, none of which Blonder-Tongue was able to produce at the postponed time of trial. A list of the intended witnesses delivered to opposing counsel March 27, 1967, identifying Dr. Chu and two customers.

The Foundation says that there is "nothing before this Court to indicate" that if those witnesses had been present, the trial court would have decided differently.

It ~~appears~~ elementary, however, that in a patent case, one function of the expert is to provide evidence regarding the prior art (of which there was considerable identified in the List of Exhibits delivered to opposing counsel March 27, 1967), and the issue of obviousness or

nonobviousness ~~to one skilled in the art at the time~~ of the invention -- the precise question relied upon by the District Court both for sustaining the Foundation's patents and for summarily discarding the Blonder-Tongue patent.

Blonder-Tongue, during the Foundation's case (which was commenced when even Mr. Blonder could not be located due to a rush business trip to the West Coast and Canada), had to try to elicit what it could by cross-examination of the Foundation's witnesses, and was without a single intended witness of its own. In addition, Blonder-Tongue was erroneously and prejudicially restricted in that endeavor as well (main brief, p. 8).

It is significant that the Foundation does not dispute in the slightest Blonder-Tongue's assertion that the District Court heaped

> "abuse. . .upon both Boston and local counsel"

and supplemented this

> "initial outburst (App.75). . .by similar episodes throughout the trial. . ." (pp. 6 and 7 of main brief).

2. The JFD Position

JFD, at pp. 5 and 6 of its brief, saysthat if Blonder-Tongue had no expert,

> "only it is to blame"

and it could have used Mr. Blonder himself as the expert in a pinch.

No authority is cited for this novel proposition ~~of law~~ that a partisan litigant (Mr. Blonder is Chairman of the Board of Blonder-Tongue), even if he had sufficient technical qualifications -- which JFD disputed at the trial (App. 507-8) -- is the equivalent of an impartial, world-renowned professorial expert. Mr. Blonder would have had to try to master

overnight the numerous prior art references and related material to whatever limited degree he could.

As for the two very material and specific instances of prejudicial deprival of proof ~~of evidence set forth on pages 7 and 8 of Blonder-Tongue's~~ (pp. 7, 8) main brief, JFD tries to show the propriety of such exclusion, apparently conceding its serious prejudicial effect upon the Blonder-Tongue proofs.

With regard to admissions in the JFD advertisements and publications which were improperly excluded (App. 534, 538, 540), JFD says that these were properly excluded (p. 8) since ~~an~~ the exhibit was "dated prior to the issuance of B-T's own patent".

But this evidence was offered solely for the unfair competition and antitrust counterclaim and not in connection with the Blonder-Tongue patent counterclaim; and the record shows that Blonder-Tongue was selling its antennas long before its patent issued and at the very period when these advertisements, with false claims, false patent markings and deprecations of competitors' antennas, including Blonder-Tongue, were issued, reproduced and circulated throughout the trade.

This certainly was an improper and highly prejudicial exclusion.

~~As for the examination of Dr. Mayes,~~ JFD argues that ~~this~~ the restriction of the examination of Dr. Mayes ~~on examination by the District Court~~ was ~~also~~ proper and that Dr. Mayes shouldn't be asked anything about his own patent because "the document speaks for itself". No complicated patent, of course, "speaks for itself" in patent litigation without technical explanation to the Court, as this Court has often reiterated. (Technograph Printed Circuits v. Methode Electronics, Inc., 356 F.2d 442, 448 (CA 7, 1966).

Similarly, JFD says it was proper for the District Court to exclude questions that would show the adverse or hostile character of the witness to enable cross-examination,

because to show "Prof. Mayes' own financial interest was to impeach him" (JFD Brief, p. 9).

How else does one show the adverse nature of a witness called by the interrogating party?

Lastly, JFD excuses the exclusion of questioning as to "The JFD-Mayes relationship" since it was supposedly "irrelevant to the patent infringement issue". Since JFD actually had the equitable title in the patents, being the Foundation's exclusive licensee, it is hard to see what could be more relevant; particularly in establishing the adverse nature of the witness.

JFD, like the Foundation, does not dispute the abusive manner in which Blonder-Tongue's counsel was treated throughout the trial. The only comment is that, at times (p. 7), the Judge also "expressed annoyance at actions of counsel for both the Foundation and JFD".

In fact, JFD appears to concede that at least insofar as the Foundation's patent suit is concerned:

> "Any possibly reversible errors. . . all related to the claim by the Foundation against BT for patent infringement, and none concerned the BT Counterclaim against JFD and the Foundation" (p. 10).

JFD thus argues for a severance.

But, as above shown, the same errors apply to the BT patent councerclaim (which also required expert testimony) and to the unfair competition and antitrust counterclaims (which required customer witnesses and the opportunity to put into evidence advertisements and other admissions of JFD, as above discussed).

Neither the Foundation nor JFD has offered any authority that excuses forcing a litigant, through no fault of its own, to go to trial without witnesses; and certainly not to undertake a complicated patent trial without its patent

expert, or an unfair competition and antitrust trial without its customer witnesses or the right to put in perfectly proper documentary evidence.

II. THE FOUNDATION'S PATENTS

A. Isbell 3,210,767

We agree with the Foundation that it is not the function of the Court of Appeals to overrule "findings of the lower court. . .supported by substantial evidence" (with the exception of those instances where such findings are grossly and shockingly against the weight of the evidence).

It is "the conclusions of law of the District Court" that we are asking this Court to overrule (main brief, p. 9).

Should this Court not agree that the conclusions of law, based on the District Court's findings from the incomplete record, are erroneous, particularly inlight of the undisputed or admitted facts, then we maintain the case should be remanded (p. 9) to enable Blonder-Tongue to have a full and fair trial.

Turning to item 1 (the effect of the publication of Quarterly Engineering Report No. 2), the Foundation agrees on page 7 that the law set forth on pages 11-13 of the Blonder-Tongue main brief, i.e., that when a report is

> "'received' by a library",

or is

> "'filed' in a library",

or is

> "made accessible to the public",

is determinative of publication, ~~under the established decisions~~.

The Foundation also agrees that librarian Miss Johnson testified, ~~as quoted on~~ (page 12 of ~~the Blonder-Tongue~~ main brief), that more than a year before the Isbell patent application filing date, Quarterly Engineering Report No. 2

had been "received" and was "available. . .either as a library reference or as an extra copy" to anyone who "requested" the same (D. Ex. 22, p. 201).

Contrary to the Foundation's statement at the top of page 7, Mr. Lawler did not contradict Miss Johnson at App. 465-466 or anywhere else, with regard to the facts as to what was done with ~~this particular~~ Quarterly Engineering Report No. 2 in this particular case.

In fact, Mr. Lawler conceded that Miss Johnson knew more about what was actually done with this report than he:

> "Q. Who, Mr. Lawler, had more detailed information with regard to the availability of and dates of publication of the Quarterly Reports, Defendant's Exhibits 7 and 8, you or Miss Marjorie Johnson?
>
> "A. She would probably have more detailed information on them, yes."

There is no fact dispute; only the issue of law.

Whether anyone did request a copy of the report before the Isbell application filing date does not affect its "publication". Rather,

> "intent that the fruits of research be available to the public is determinative of publication under the statute" The Hamilton Laboratories, Inc. v. Massengill, 111 F.2d 584 (6 Cir. 1940).

There is no question but that this report was "printed", "received", "filed" and "available [to the public]" more than a year before the filing of the Isbell patent application in contravention of 35 USC 102b.

As to items 2 and 3 (obviousness-predictability-the Winegard decision), the Foundation makes four assertions but without giving any support therefor in the record.

Lest it be interpreted that Blonder-Tongue has conceded such items as the significance of Dr. DuHamel's alleged activities, the pertinence of the prior art references, and the alleged unsolved needs, failures or others and so-called commercial success, it should be pointed out that Blonder-

Tongue has not had its day in court to present evidence as to these issues through its patent expert.

All that Blonder-Tongue has argued at pp. 13-15 of its main brief is a single issue of law on the matter of whether "predictability" (~~found by the Dirstrict Court~~) is synonymous with the statutory test of "obviousness". If Blonder-Tongue and the Court of Appeals for the 8th Circuit in the Winegard case correctly understand the law, the District Court in this case has misapplied the same.

(INSERT FROM PEARNE)

We also pointed out (p. 14) contemporaneous statements at the late date in log periodic antenna development that Isbell started to make his "thin linear elements" (p. 2 of Report No. 1, D. Ex. 7) -- evidence in this suit, irrespective of the 8th Circuit Winegard case -- that "multielement log periodic antennas" were by that time "found to be predictable".

But the Foundation says we lifted this "out of context", an erroneous assertion as this Court can readily see from inspection of the document.

More important, the Foundation implies that there is some magical difference between "sheet metal" antenna elements (as to which it at least admits there was "predictability" at the time Isbell started work) ~~on his patent in suit, as reflected by Report No. 1~~) and the "thin linear elements" used by Isbell.

But the Foundation's own witness, Mr. Harris, admitted that the sheet metal dipole antenna element and the thin linear dipole antenna element, both well known before Isbell, had precisely the same kind of operation and performance

(App. 157-161, 200-202, D. Ex. 1),

> "Q. Would it be a fair statement that all of those dipoles operate to receive, for example, radio energy in substantially the same way, but they differ by their impedance characteristics?
>
> "A. Yes, that is basically true." (App. 202)

Which brings us to the question of law.

Is it patentable to substitute one well known type of antenna element for another in accordance with precisely the same old log-periodic dimensioning arrangement and operation? Can as many patents be granted as there are well known similar elements to substitute?

We think the answer, as a matter of law, is quite definitely in the negative.

This certainly raises an entirely different factual situation than that which gave rise to the Tomlinson case cited on page 9 of the Foundation's brief, and falls, rather, within the well-established doctrine of the Winegard and similar cases (p. 14, main brief).

The Foundation's theory regarding "predictability" was ~~repeated~~ rejected by the Court of Customs and Patent Appeals in In re Moreton, 288 F.2d 940, 943 (1961):

> "What this amounts to is an argument that if one slavishly following the prior art, albeit with a little educated imagination, will sometimes succeed and sometimes fail, then he is always entitled to a patent in case of success. That is not the intention of 35 U.S.C. 103. Obviousness does not require absolute predictability. Where, as here, the knowledge of the art clearly suggests * * *, the mere possibility of failure does not render their successful use 'unobvious'."

JFD, though the exclusive licensee, has declined comment on the Isbell patent.

B. Mayes and Carrel Re.25,740

The Foundation does not (and can not) dispute that Mr. Turner gave Dr. Mayes not only the teaching of inclining the Isbell dipole antennas into V's, but taught Mayes the precise angle to use -- the very V-angle used by Blonder-

Tongue in its allegedly infringing Color Ranger antenna and called for in the claims of the Mayes et al patent in suit.

Instead, on pages 10 and 11, the Foundation sets forth a story (without any reference to testimony in the record) that this resulted in an "unsuccessful" device and "an abandoned experiment", and it remained for Mayes et al to take some magical "last step".

Assuming, arguendo, that this story had been proven, ~~in the record was not~~, the claims of the Mayes et al patent set forth no more than Isbell's antenna, with the precise V-angle suggested by Turner -- nothing more. The claims are either invalid as representing an inoperative device, or they were invented by Turner.

The District Court itself found that the V'ing is "the only structural difference between his (Mayes and Carrel) patent and the Isbell patent" (App. 830).

As for the fraud issue, it is significant that the Foundation has not denied the facts discussed in Blonder-Tongue's main brief (pp. 19-23) as to the conduct in the Patent Office.

It thus remains for this Court to decide the applicable law. Is it the law of the Wen Products case (which deals with the situation of normal patent prosecution and the lack of requirement of a patent applicant to volunteer all the prior art he knows about); or the law of the Flick-Reedy, Hazel-Atlas Glass and Precision Instrument cases (main brief, p. 21) dealing with situations where a deliberate act was made, as an affidavit voluntarily filed, to induce the Patent Office to withdraw its rejection and allow a patent. An affidavit under Rule 131 certainly requires complete candor with regard to earlier publications of the prior art known to applicant and his attorney.

A recently reported decision ~~of the Sixth Circuit Court of Appeals~~ condemned the failure of an applicant to make a full disclosure to the Patent Examiner:

> "Pfizer and Cyanamid, like all other applicants, stood before the Patent Office in a confidential relationship and owed the obligation of frank and truthful disclosure." Charles Pfizer & Co. v. F.T.C., 401 F.2d 574, 579 ~~(1968)~~ (CA 6, 1968)

JFD has remained silent, other than to disclose ~~a~~ any all association with the charge of fraud in the Patent Office.

III. NONINFRINGEMENT OF THE ISBELL AND MAYES ET AL PATENTS

The Foundation's argument on pages 12 and 13 seems to be that any separation of the antennas at all is "substantially coplanar" within the meaning of the Isbell and Mayes et al patents.

The Foundation does not dispute the Blonder-Tongue showing, pages 23-25 of its main brief, that the Blonder-Tongue separation of the antenna planes is "deliberate" and is "about twenty times the substantially touching or coplanar (0.003 wavelength) relation of Isbell", as taught in the Isbell and Mayes et al patent specifications and as testified to by JFD witness Heslin.

Nor does the Foundation dispute that the Patent Office granted the Blonder-Schenfeld patent for this "radically different construction", among other features.

Clearly, if Isbell had been entitled to a claim covering any separation, none of its skilled attorneys, the applicant, or the Patent Office would have permitted or required a limitation in the claims to "substantially coplanar".

And the final proof of noninfringement was admitted by Dr. Mayes himself (quoted main brief, p. 25). If the Blonder-Tongue antenna booms were "moved together so that they are substantially in the same plane ", the antennas would no longer operate properly. This was not in any way disputed by the Foundation -- and could not be.

It is elementary that a device that cannot work in accordance with a patent claim cannot possibly be an infringement thereof (see citations at p. 25 of main brief).

JFD appears to have shown agreement with Blonder-Tongue that the Blonder-Tongue antennas are decidedly not constructed to operate in substantially the same plane as

taught by Isbell and Mayes et al, but require a deliberate "vertical distance between booms" (p. 40).

IV. THE UNFAIR COMPETITION AND ANTITRUST COUNTERCLAIMS I AND II

The Foundation considers that it had no part in any of the activities complained of, except the "purported fraud in the Patent Office and improper news releases" (p.14).

The fraud has been discussed above; and it is not disputed, as stated on p. 22 of Blonder-Tongue's main brief, that without the filing of the affidavit,

> "the Examiner clearly would not have allowed the Mayes et al patent! (see rejection, D. Ex. 12, p. 30)"

The news releases will be discussed in treating with JFD's position, as will the involvement of the Foundation in other aspects of the counterclaims.

JFD does not take issue with the Blonder-Tongue showing, p. 29 and 30, that the law recognizes that a "pattern of such a series of acts can be unfair compeitition (and also antitrust violation), even if the acts individually by themselves were nonactionable."

Nor does JFD dispute that the District Court did not treat with this important doctrine of law.

Instead, JFD follows the tack of the District Court and argues merely, p.11, that

> "none of the separate and unrelated activities of JFD was wrongful". (emphasis added)

It is, of course, for this Court to decide whether these acts are "unrelated"; and to decide the correctness of Blonder-Tongue's contention that these were related and, as a pattern, were illegal.

That damage resulted to Blonder-Tongue as a result of these acts has been amply proven (see, for example, pages 36, bottom page 38, center page 40 of Blonder-Tongue's main

brief).

As for the individual or separate acts themselves, we shall now treat with JFD's arguments under two caveats:

First, it should be borne in mind that Blonder-Tongue did not have its full day in court, with the improper exclusion of critical evidence and proferred testimony relating thereto (bottom p. 7 and p. 8 ~~of Blonder-Tongue main~~ main brief) and the inability to remarshall its customer witnesses in time for the reset trial. Thus, in its main brief, Blonder-Tongue has had to argue only on the basis of the District Court's findings as supplemented by whatever undisputed additional facts are in this incomplete record.

Second, the JFD brief abounds with statements unsupported even by attempted reference to the record, and certainly unsupported by the record itself. These are too numerous to counter except for the most glaring matters. It is respectfully requested that before this ~~Honorable~~ Court accepts any such unsupported statements or interpretations of testimony or exhibits, not in the District Court's decision, they be checked in the record.

Tie-In Sales

JFD conceded that there was other undisputed evidence besides that which led the District Court to find that there was at least some "evidence. . .which tends to support the argument of "tie-in" sales.

Specifically, JFD concedes that in addition to Mr Finkel's testimony, there was hearsay testimony ~~(not excluded)~~ in the deposition of General Manager Gilbert of coercion and tie-in activities (App. 675), and testimony ~~(also not excluded)~~ in Marketing Director Helhoski's deposition of instances of "implied" coercion by JFD (App. 687).

There is no contrary evidence in the record.

As before pointed out, not only was Blonder-Tongue deprived by the District Court of a postponement to reassemble its customer witnesses, but it was JFD's own deliberate actions that ~~resulted in~~ inhibited other modes of proof and interfered with the very processes of the court:

1. The District Court found that "some records dealing with customers were found to be missing" (App. 835) when one employee (Balash), who had been "assigned. . .to personally investigate" the threats of JFD to customers, to reply to this suit (App. 511-2; 694-5), was "subsequently hired by JFD" (App. 835).

2. JFD hired away just before the trial Blonder-Tongue's West Coast sales representative, Graham Sisson -- the West Coast being one of the places where there had been specific distributor customer coercion (see literature sent by JFD to Sacramento Electronics, D.Ex. 43).

How can JFD now be heard to complain, p. 13, that "No BT salesman produced evidence as to the alleged customer coercion."?

Even without its full day in court, Blonder-Tongue succeeded at least in convincing the District Court that there was some evidence "which tends to support this argument" (App. 836).

We question the conclusion of law, therefore, that because this is what the District Court called "a normal business practice", it is proper to use a line of allegedly patented antennas as a club to force the purchase of unpatented related converter and booster equipment.

Admittedly the proofs aren't the strongest or most complete (thanks, in part, to the actions of JFD); but, as the District Court itself had to conclude, there was some evidence and nothing to rebut the same on the other side.

The Raiding

While JFD says that the people hired away were not "key" people, this does not make it so, particularly in the face of the uncontradicted testimony (see summary, main brief, pages 33-35).

Is the test of "raiding" a numbers game as JFD and the District Court have asserted? We think not.

No matter how dissatisfied an employee may be with an employer, has an adverse litigant the right -- during preparation for trial -- the hire away such employee who possesses confidential and intimate information vital to the proofs of the employer?

Certainly JFD knew that Schenfeld was the co-inventor of the patent upon which JFD was sued in the counterclaim by Blonder-Tongue; and certainly JFD knew Mr. Balash's involvement and that of Mr. Sisson, as well!

We think the authorities support us that this conduct is ~~of xx xx xx xf~~ improper.

Mismarking and False Patent Legends and Claims

JFD concedes (p. 18-21), despite excuses, that it did mismark; but it seeks the shield of the District Court's protective "minimal" effect doctrine.

We have shown deliberate action as part of a conspiracy to restrain lawful competition; and we believe that the decisions in the Kobe, Perfection Mfg. Co., Angel Research, Inc., Channel Master and White Motor Co. cases clearly show the error of the District Court's conclusion (main brief, p. 37-39).

The ~~Type of~~ Circularizing of the Trade
~~Re Litigation That Is Here Involved~~

Again JFD tries to consider the issue of improper venue and the like out of its true context and setting in the scheme of advertising and circularizing the trade to

dissuade doing business with Blonder-Tongue.

Such dissection begs the point, we believe.

JFD states (JFD brief, p. 27) fact situations that it considers are controlled by the Panay, Maytag, Gerosa and Robbins cases. We submit that the uncontradicted record establishes those precise kinds of facts (main brief, p. 39-41).

The False Advertising

JFD says it was only "puffing" (p. 25).

It also criticizes the evidence that Blonder-Tongue was able to muster as to the wildly false performance claims in JFD advertising. But co-inventor Schenfeld, who had tested the JFD antennas for ~~testifying~~ evidence in this suit, was hired away by JFD ~~just~~ before the trial, App. 504-5.

JFD has failed to produce (because it could not) one whit of evidence that any of its antennas have anything even resembling these wild "35 db" performance claims (p. 43-4, main brief) -- claims deliberately made under color of the name and prestige of the University of Illinois!*

JFD, indeed, tries to excuse this by its gratituous hope that it

> It "is unlikely. . .that many customers came across or were influenced by these passages".

And it tries to avoid the effect of the Foundation's belated criticism of JFD's false advertising (p. 43, 44, main brief) by asserting,

> "statements it makes are not binding upon JFD" (JFD brief, p. 29).

The damage that was caused Blonder-Tongue by this false advertising, coupled with raiding, patent mismarking,

---

* Lately concocted arguments -- not supported by any testimony or proofs, of alleged exaggerated claims of Blonder-Tongue (p. 28 of JFD brief) -- do not even relate to or bear resemblance to the kind of deliberate false performance numbers spread through JFD's Foundation-approved advertisements to the trade.

coercion and trying of litigation in the papers and press releases, was clearly shown (e.g., page 36, 38, 40, 44, main brief).

Summary as to Unfair Competition and Antitrust Counts

We do not understand how this Court can accept JFD's explanation at p. 29, that if the complained of

> "acts were improper, none of them was intentionally so."

Everything that could be done to restrain Blonder-Tongue's antenna sales program was done in every available medium. The assertion that no damage was shown is equally not understandable. ~~Not only is,~~ Furthermore, there a public interest in unclean hands, misuse and per se antitrust violations (involved in the fraud, mismarking and extension of patents to unpatented items), but the clear testimony summarized in our main brief ~~regarding~~ illustrates the damage.

V. THE BLONDER-SCHENFELD PATENT COUNTERCLAIM

JFD, p. 30, concedes that the District Court

> "might have made additional findings of fact"

as required by the Supreme Court in the Graham case and this Court in the U. S. Gypsum Co. case (p. 45, main brief).

JFD tries to modify and supply the deficiencies in the District Court's decision as to prior-art references (p. 34-37), file wrapper estoppel (p. 37-39), lack of invention (p. 39-40), inoperativeness (p. 40), and indefiniteness (p. 41-2). It also purports to deny infringement (p. 44-49).

Clearly, the attempt by JFD in its brief to interpret the pertinence of complicated technical publications and patents and to push off on this Court the job of

"interpretation of documents, if this Court wants findings",

is contrary to the policy that technical explanation required in complex patent cases must be done in the District Court (supra). This, JFD failed to do at the trial.

But even if we were, arguendo, to accept what JFD says the prior art shows (which it does not), it is clear that JFD concedes that no reference teaches the claimed invention. It is allegedly only the question of "obviousness" in combining the elements said to be individually associated with antennas of a Technical Report No. 52, Mayes or Heslin, with rigid insulators of Gross, dipole-half spacing of Valach, impedance adjustments of Kane and Wickersham, standoff mountings of Callaghan, parallel transmission line mountings of Winegard, and strain reliefs of LineLok or Zip, in order to produce the combination of Blonder-Schenfeld claim 5.

We submit, as a matter of law, this necessary use of many references to anticipate the cooperating elements of an antenna (not an aggregation as in the Lincoln Engineering Co. case), on its face shows unobviousness as a matter of law, Minneapolis-Honeywell Regulator Company v. Midwestern Instruments Inc., 298 F.2d 36, 38 (CA 7, 1962) (main brief, p. 47).

Similarly, as a matter of law, we are relying on claim 5 as it issued in the patent, and not any broader or narrower claims discussed on p. 37-40 of the JFD brief so that there is no possible legal estoppel.

Lastly, neither the Patent Office, Mr. Blonder, Dr. Mayes, nor the District Court had difficulty in finding a meaning for claim 5, supported by the disclosure of the patent. In fact, Mr. Blonder applied the claim to the Blonder-Tongue antenna (Addendum, main brief).

NOT

This Court can readily follow the identification of the cooperative elements of the noval combination of claim 5 by referring to the Addendum.

As a matter of law, we feel the presumption of validity has not been rebutted. The patents cited by the Examiner/(all relied on by the District Court), are of the same nature as the other citations (App. 838). No new type of art not considered by the Patent Office is involved.

during prosecution of the application

~~We feel, also, that~~ where it is necessary to rely on many references (one report, 2 antennas, 12 patents) to build up an alleged anticipation -- as ~~both~~ the District Court and JFD have tried to do -- this is evidence of invention.

This leaves the issue of infringement. While denying the legal conclusion of infringement, JFD has failed to point out a single element that it does not have which is specified in the actual language of claim 5. JFD's interpretation requires non-existent limitations in the claim, such as "integral" strain reliefs and reliefs that cannot be "flexible" -- concepts having nothing to do with the clear language of the claim or with the invention.

JFD has not demonstrated any error in Mr. Blonder's application of the claim to the JFD structure (App. 500-2) (Addendum, col. 3); nor has JFD denied that its antenna operates in the manner of the log periodic antenna of the Blonder-Schenfeld patent.

Thus, while disputing the conclusion of law as to infringement, JFD does not actually dispute the facts. We believe the conclusion of law as to infringement inexorably follows.

cooperated

The Foundation has ~~engaged~~ in the advertising program of JFD with responsibility in its license to approve

the ads (App. 745), has assisted in the advertising for sale of the JFD antennas that infringe the Blonder-Schenfeld patent, and has contributed its name in the ads to effect persuasion of such sales. Inducing infringement by selling and offering for sale is, of course, an act of infringement by the Foundation.

CONCLUSION

We submit that the Isbell and Mayes et al patents are invalid, not infringed and unenforceable for unclean hands and misuse, as a matter of law, even on the incomplete record of this case.

We further submit that both the over-all pattern or scheme of innumerable acts (found by the District Court and admitted in uncontraverted evidence) and the several acts themselves, directed toward dissuading competition with Blonder-Tongue, constitute unfair competition and violation of the antitrust laws.

Lastly, we submit ~~that~~ as a matter of law, that the legal conclusion of validity and infringement of the Blonder-Schenfeld patent should be drawn, even if JFD's arguments be considered, arguendo, as supplementary to the District Court's erroneous legal conclusion.

Should, however, this Court of Appeals disagree with Blonder-Tongue as to application of the law in both or either of the Foundation suit and the Blonder-Tongue counterclaims, then justice requires due process for Blonder-Tongue by way of a new and proper trial~~, that it was deprived of in this case~~.

In the

United States Court of Appeals

For the Seventh Circuit

No. 17153

UNIVERSITY OF ILLINOIS FOUNDATION, *Plaintiff and Counterclaim Defendant, Appellee,* *vs.* BLONDER-TONGUE LABORATORIES, INC., *Defendant and Counterclaimant, Appellant,* *vs.* JFD ELECTRONICS CORPORATION, *Counterclaim Defendant, Appellee.*	Appeal from the United States District Court for the Northern District of Illinois, Eastern Division. Honorable **Julius J. Hoffman,** Judge Presiding.

REPLY BRIEF FOR DEFENDANT AND COUNTERCLAIMANT-APPELLANT.

I. THE ISSUE AS TO DUE PROCESS.

(1) The Foundation's Position.

In its brief, the Foundation argues that Blonder-Tongue has conceded that the record

> "contains a sufficient recital of the facts to permit this court to come to a conclusion on the issues." (p. 3)

"*A* conclusion"?

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Only *one conclusion*, namely, that even on the basis of an incomplete record, as a matter of law, the District Court should be *reversed*.

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> "initial outburst (App. 75) . . . by similar episodes throughout the trial . . ." (pp. 6 and 7 of main brief).

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JFD, at pp. 5 and 6 of its brief, says that if Blonder-Tongue had no expert,

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and it could have used Mr. Blonder himself as the expert in a pinch.

No authority is cited for this novel proposition that a partisan litigant (Mr. Blonder is Chairman of the Board of Blonder-Tongue), even if he had sufficient technical qualifications—*which JFD disputed at the trial* (App. 507-8)—is the equivalent of an impartial, world-renowned professorial expert. Mr. Blonder would have had to try to master overnight the numerous prior art references and related material to whatever limited degree he could.

As for the two very material and specific instances of prejudicial deprival of proof (main brief, pp. 7, 8), JFD tries to show the propriety of such exclusion, apparently conceding its serious prejudicial effect upon the Blonder-Tongue proofs. With regard to admissions in the JFD advertisements and publications which were improperly excluded (App. 534, 538, 540), JFD says that these were properly excluded (p. 8) since the exhibit was "dated prior to the issuance of B-T's own patent".

But this evidence was offered solely for the *unfair competition* and *antitrust counterclaim* and *not* in connection with the Blonder-Tongue patent counterclaim; and the record shows that Blonder-Tongue was selling its antennas *long* before its patent issued and at the very period when these advertisements, with false claims, false patent markings and deprecations of competitors' antennas, including

claim by the Foundation against BT for patent infringement, and none concerned the BT Counterclaim against JFD and the Foundation'' (p. 10).

JFD thus argues for a severance.

But, as above shown, the same errors apply to the BT patent counterclaim (which also required expert testimony) and to the unfair competition and antitrust counterclaims (which required customer witnesses and the opportunity to put into evidence advertisements and other admissions of JFD, as above discussed).

Neither the Foundation nor JFD has offered any authority that excuses forcing a litigant, through no fault of its own, to go to trial without witnesses; and certainly not to undertake a complicated patent trial without its patent expert, or an unfair competition and antitrust trial without its customer witnesses or the right to put in perfectly proper documentary evidence.

II. THE FOUNDATION'S PATENTS.

A. Isbell 3,210,767.

We agree with the Foundation that it is not the function of the Court of Appeals to overrule ''findings of the lower court . . . supported by substantial evidence'' (with the exception of those instances where such findings are grossly and shockingly against the weight of the evidence).

It is *''the conclusions of law of the District Court''* that we are asking this Court to overrule (main brief, p. 9).

Should this Court not agree that the conclusions of law, based on the District Court's findings from the incomplete record, are erroneous, particularly in light of the undisputed or admitted facts, then we maintain the case should be remanded (p. 9) to enable Blonder-Tongue to have a full and fair trial.

of designing log-periodic antennas which would predictably operate with frequency independence, . . ."

In the same sentence, the District Court concluded that "the Isbell patent was not obvious after its [the article's] publication." No clearer case of an error of law by relying upon hearsay evidence in deciding the ultimate question of obviousness can be imagined.

JFD, though the exclusive licensee, has declined comment on the Isbell patent.

B. Mayes and Carrel Re. 25,740.

The Foundation does not (and can not) dispute that Mr. Turner gave Dr. Mayes not only the teaching of inclining the Isbell dipole antennas into V's, but taught Mayes the precise angle to use—the very V-angle used by Blonder-Tongue in its allegedly infringing Color Ranger antenna and called for in the claims of the Mayes et al. patent in suit.

Instead, on pages 10 and 11, the Foundation sets forth a story *(without any reference to testimony in the record)* that this resulted in an "unsuccessful" device and "an abandoned experiment", and it remained for Mayes et al. to take some magical "last step".

Assuming, arguendo, that this story had been proven, the *claims* of the Mayes et al. patent set forth no more than Isbell's antenna, with the precise V-angle suggested by Turner—*nothing more*. The claims are either invalid as representing an inoperative device, or they were invented by Turner.

The District Court itself found that the V'ing is "the only structural difference between his (Mayes and Carrel) patent and the Isbell patent" (App. 830).

As for the fraud issue, it is significant that the Founda-

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In the

United States Court of Appeals

For the Seventh Circuit

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No.

Only *one conclusion,* namely, that even on the basis of an incomplete record, as a matter of law, the District Court should be *reversed.*

But if this Court finds that the District Court's legal conclusions are not wrong, Blonder-Tongue maintains it is entitled to make a *complete* record with the aid of at least its patent expert, Dr. Chu, who had been preparing for the Foundation's patent suit and the Blonder-Tongue patent counterclaim III for over a year; and its customer witnesses in connection with the unfair competition and anti-trust counterclaims I and II, none of which Blonder-Tongue was able to produce at the postponed time of trial. A list of the intended witnesses delivered to opposing counsel March 27, 1967, identifying Dr. Chu and two customers.

The Foundation says that there is "nothing before this Court to indicate" that if those witnesses had been present, the trial court would have decided differently. It is elementary, however, that in a patent case, one function of the expert is to provide evidence regarding the prior art (of which there was considerable identified in the List of Exhibits delivered to opposing counsel March 27, 1967), and the issue of obviousness or nonobviousness of the invention—the precise question relied upon by the District Court both for sustaining the Foundation's patents and for summarily discarding the Blonder-Tongue patent.

Blonder-Tongue, during the Foundation's case (which was commenced when even Mr. Blonder could not be located due to a rush business trip to the West Coast and Canada), had to try to elicit what it could by cross-examination of the Foundation's witnesses, and was *without a single intended witness* of its own. In addition, Blonder-Tongue was erroneously and prejudicially restricted in that endeavor as well (main brief, p. 8).

It is significant that the Foundation does *not* dispute in the slightest Blonder-Tongue's assertion that the District Court heaped

"abuse . . . upon both Boston and local counsel"

and supplemented this

> "initial outburst (App. 75) . . . by similar episodes throughout the trial . . ." (pp. 6 and 7 of main brief).

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Blonder-Tongue, were issued, reproduced and circulated throughout the trade.

This certainly was an improper and highly prejudicial exclusion.

JFD argues that the restriction of the examination of Dr. Mayes was proper and that Dr. Mayes shouldn't be asked anything about his own patent because "the document speaks for itself". No complicated patent, of course, "speaks for itself" in patent litigation without technical explanation to the Court, as this Court has often reiterated. (*Technograph Printed Circuits* v. *Methode Electronics, Inc.*, 356 F. 2d 442, 448 (C. A. 7, 1966.)

Similarly, JFD says it was proper for the District Court to exclude questions that would show the adverse or hostile character of the witness to enable cross-examination, because to show "Prof. Mayes' own financial interest was to impeach him" (JFD Brief, p. 9).

How else does one show the adverse nature of a witness called by the interrogating party?

Lastly, JFD excuses the exclusion of questioning as to "The JFD-Mayes relationship" since it was supposedly "irrelevant to the patent infringement issue". Since JFD actually had the equitable title in the patents, being the Foundation's exclusive licensee, it is hard to see what could be more relevant, particularly in establishing the adverse nature of the witness.

JFD, like the Foundation, does not dispute the abusive manner in which Blonder-Tongue's counsel was treated throughout the trial. The only comment is that, at times (p. 7), the Judge also "expressed annoyance at actions of counsel for both the Foundation and JFD".

In fact, JFD appears to concede that at least insofar as the Foundation's patent suit is concerned:

"Any possibly reversible errors . . . all related to the

claim by the Foundation against BT for patent infringement, and none concerned the BT Counterclaim against JFD and the Foundation'' (p. 10).

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But, as above shown, the same errors apply to the BT patent counterclaim (which also required expert testimony) and to the unfair competition and antitrust counterclaims (which required customer witnesses and the opportunity to put into evidence advertisements and other admissions of JFD, as above discussed).

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Turning to item 1 (the effect of the publication of Quarterly Engineering Report No. 2), the Foundation agrees on page 7 that the law set forth on pages 11-13 of the Blonder-Tongue main brief, i.e., that when a report is

"'received' by a library",

or is

"'filed' in a library",

or is

"made accessible to the public",

is determinative of publication.

The Foundation also agrees that librarian Miss Johnson testified (p. 12, main brief) that more than a year before the Isbell patent application filing date, Quarterly Engineering Report No. 2 had been "received" and was "available . . . either as a library reference or as an extra copy" to anyone who "requested" the same. (~~D. Ex. 22, p. 201~~).

Insert

Contrary to the Foundation's statement at the top of page 7, Mr. Lawler did *not* contradict Miss Johnson at App. 465-466 or anywhere else, with regard to the facts *as to what was done with Quarterly Engineering Report No. 2 in this particular case.*

In fact, Mr. Lawler conceded that Miss Johnson knew *more* about what was actually done with *this* report than he:

> "Q. Who, Mr. Lawler, had more detailed information with regard to the availability of and dates of publication of the Quarterly Reports, Defendant's Exhibits 7 and 8, you or Miss Marjorie Johnson?
>
> "A. She would probably have more detailed information on them, yes."

There is *no fact* dispute; only the issue of law.

Whether anyone did request a copy of the report before the Isbell application filing date does not affect its "publication". Rather,

"intent that the fruits of research be available to the

Insert - page 6 - paragraph following line 16:

The stipulated testimony of Miss Johnson regarding the availability of publications in general and of Quarterly Report No. 2, in particular, from the local library of the Engineering Research Laboratory, Department of Electrical Engineering, is reproduced in the Addendum at the end of this brief.

Insert - page 7 - paragraph following line 7:

The decision of the District Court that the availability of Quarterly Report No. 2 was not sufficiently public to constitute a publication admits that if the document had been available in "even a very small or a highly specialized library" (App. 829), it would have been published. This assumption that the facility in the Electrical Engineering Research Laboratory was not a library ignores the contemporary designation of "Local Library" by the University itself. See the distribution list (D. Ex. H-4) for copies of reports under Air Force contract 6079 (the very contract under which Quarterly Report No. 2 was prepared), part of the stipulated testimony of Miss Johnson, D.Ex. 22 reproduced in the Addendum hereto.

> public is determinative of publication under the statute". *The Hamilton Laboratories, Inc.* v. *Massengill,* 111 F. 2d 584 (6 Cir. 1940).

There is no question but that this report was "printed", "received", "filed" and "available [to the public]" more than a year before the filing of the Isbell patent application in contravention of 35 USC 102b.

Insert →

As to items 2 and 3 (obviousness-predictability-the *Winegard* decision), the Foundation makes four assertions but without giving any support therefor in the record.

Lest it be interpreted that Blonder-Tongue has conceded such items as the significance of Dr. DuHamel's alleged activities, the pertinence of the prior art references, the alleged unsolved need, failures of others and so-called commercial success, it should be pointed out that Blonder-Tongue has not had its day in court to present evidence as to these issues through its patent expert.

All that Blonder-Tongue has argued at pp. 13-15 of its main brief is a single issue of law on the matter of whether "predictability" is synonymous with the statutory test of "obviousness". If Blonder-Tongue and the Court of Appeals for the 8th Circuit in the *Winegard* case correctly understand the law, the District Court in this case has misapplied the same.

We also pointed out (p. 14) contemporaneous statements at the late date in log periodic antenna development that Isbell started to make his "thin linear elements" (p. 2 of Report No. 1, D. Ex. 7) that "multielement log periodic antennas" were by that time "found to be predictable".

But the Foundation says we lifted this "out of context", an erroneous assertion as this Court can readily see from inspection of the document.

More important, the Foundation implies that there is some magical difference between "sheet metal" antenna

elements (as to which it at least admits there *was "predictability"* at the time Isbell started work) and the "thin linear elements" used by Isbell.

But the Foundation's own witness, Mr. Harris, admitted that the sheet metal dipole antenna element and the thin linear dipole antenna element, both well known before Isbell, had precisely the same kind of operation and performance (App. 157-161, 200-202, D. Ex. 1):

> "Q. Would it be a fair statement that all of those dipoles operate to receive, for example, radio energy in substantially the same way, but they differ by their impedance characteristics?
>
> "A. Yes, that is basically true." (App. 202)

Which brings us to the question of law.

Is it patentable to substitute one well known type of antenna element for another in accordance with precisely the same old log-periodic dimensioning arrangement and operation? Can as many patents be granted as there are well known similar elements to substitute?

We think the answer, as a matter of law, is quite definitely in the negative.

This certainly raises an entirely different factual situation than that which gave rise to the *Tomlinson* case cited on page 9 of the Foundation's brief, and falls, rather, within the well-established doctrine of the *Winegard* and similar cases (p. 14, main brief).

The Foundation's theory regarding "predictability" was rejected by the Court of Customs and Patent Appeals in *In re Moreton*, 288 F. 2d 940, 943 (1961):

> "What this amounts to is an argument that if one slavishly following the prior art, albeit with a little educated imagination, will sometimes succeed and sometimes fail, then he is always entitled to a patent in case of success. That is not the intention of 35 U. S. C. 103. Obviousness does not require absolute

Insert, page 9, after line 4.

Further contributing to the District Court's misunderstanding of the matter of unpredictability is its reliance upon hearsay as proof of the unpredictability. Referring to the DuHamel and Ore article, the District Court stated:

> "but the paper, by its own statement, proves that 'no theory has been established which even predicts the types of structures which will give frequency independent operation.'" (Emphasis added)

The mere fact of publication does not prove the truth of ~~anything which it~~ the matter stated. It is pure hearsay, and the language used by the District Court demonstrates that it accepted such hearsay as establishing its next conclusion, ~~to wit~~:

> "It cannot be said that this article taught a method of designing log-periodic antennas which would predictably operate with frequency independence, . . ."

In the same sentence, the District Court concluded that "the Isbell patent was not obvious after its [the article's] publication." No clearer case of an error of law by relying upon hearsay evidence in deciding the ultimate question of obviousness can be imagined.

> predictability. Where, as here, the knowledge of the art clearly suggests * * *, the mere possibility of failure does not render their successful use 'unobvious'."

Insert →

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B. Mayes and Carrel Re. 25,740.

The Foundation does not (and can not) dispute that Mr. Turner gave Dr. Mayes not only the teaching of inclining the Isbell dipole antennas into V's, but taught Mayes the precise angle to use—the very V-angle used by Blonder-Tongue in its allegedly infringing Color Ranger antenna and called for in the claims of the Mayes et al. patent in suit.

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Assuming, arguendo, that this story had been proven, the *claims* of the Mayes et al. patent set forth no more than Isbell's antenna, with the precise V-angle suggested by Turner—*nothing more.* The claims are either invalid as representing an inoperative device, or they were invented by Turner.

The District Court itself found that the V'ing is "the only structural difference between his (Mayes and Carrel) patent and the Isbell patent" (App. 830).

As for the fraud issue, it is significant that the Foundation has not denied the facts discussed in Blonder-Tongue's main brief (pp. 19-23) as to the conduct in the Patent Office.

It thus remains for this Court to decide the applicable

law. ~~Is it~~ the law of the *Wen Products* case (which deals with the situation of *normal* patent prosecution and the lack of requirement of a patent applicant to volunteer all the prior art he knows about); or the law of the *Flick-Reedy, Hazel-Atlas Glass* and *Precision Instrument* cases (main brief, p. 21) dealing with situations where a deliberate act was made, as an affidavit voluntarily filed, to induce the Patent Office to withdraw its rejection and allow a patent? An affidavit under Rule 131 certainly requires *complete* candor with regard to earlier publications of the prior art known to applicant and his attorney.

A recently reported decision condemned the failure of an applicant to make a full disclosure to the Patent Examiner:

> "Pfizer and Cyanamid, like all other applicants, stood before the Patent Office in a confidential relationship and owed the obligation of frank and truthful disclosure." *Charles Pfizer & Co.* v. *F.T.C.*, 401 F. 2d 574, 579 (CA 6, 1968).

JFD has remained silent, other than to disclaim all association with the charge of fraud in the Patent Office.

III. NONINFRINGEMENT OF THE ISBELL AND MAYES ET AL PATENTS.

The Foundation's argument on pages 12 and 13 seems to be that *any* separation of the antennas at all is "substantially coplanar" within the meaning of the Isbell and Mayes et al. patents.

The Foundation does not dispute the Blonder-Tongue showing, pages 23-25 of its main brief, that the Blonder-Tongue separation of the antenna planes is "deliberate" and is "about *twenty times* the substantially touching or coplanar (0.003 wavelength) relation of Isbell", as taught in the Isbell and Mayes et al. patent specifications and as testified to by JFD witness Heslin.

Nor does the Foundation dispute that the Patent Office granted the Blonder-Schenfeld patent for this "radically different construction", among other features.

Clearly, if Isbell had been entitled to a claim covering *any* separation, none of its skilled attorneys, the applicant, or the Patent Office would have permitted or required a limitation in the claims to "substantially coplanar".

And the final proof of noninfringement was admitted by Dr. Mayes himself (quoted main brief, p. 25). If the Blonder-Tongue antenna booms were "moved together so that they are *substantially in the same plane*", the antennas would no longer operate properly. This was not in any way disputed by the Foundation—and could not be.

It is elementary that a device that cannot work in accordance with a patent claim cannot possibly be an infringement thereof (see citations at p. 25 of main brief).

JFD appears to have shown agreement with Blonder-Tongue that the Blonder-Tongue antennas are *not* constructed to operate in substantially the same plane as taught by Isbell and Mayes et al., but require a deliberate "vertical distance between booms" (p. 40).

IV. THE UNFAIR COMPETITION AND ANTITRUST COUNTERCLAIMS I AND II.

The Foundation considers that it had no part in any of the activities complained of, except the "purported fraud in the Patent Office and improper news releases" (p. 14).

The fraud has been discussed above; and it is not disputed that, without the filing of the affidavit,

> "the Examiner clearly would not have allowed the Mayes et al. patent! (see rejection, D. Ex. 12, p. 30)"

The news releases will be discussed in treating with JFD's position, as will the involvement of the Foundation in other aspects of the counterclaims.

JFD does not take issue with the Blonder-Tongue showing, pp. 29 and 30, that the law recognizes that a "*pattern of such a series of acts can be unfair competition* (and also antitrust violation), even if the acts individually by themselves were nonactionable."

Nor does JFD dispute that the District Court did not treat with this important doctrine of law.

Instead, JFD follows the tack of the District Court and argues merely, p. 11, that

> "none of the *separate* and unrelated activities of JFD was wrongful". (Emphasis added.)

It is, of course, for this Court to decide whether these acts are "unrelated"; and to decide the correctness of Blonder-Tongue's contention that these were related and, as a pattern, were illegal.

That damage resulted to Blonder-Tongue as a result of these acts has been amply proven (see, for example, pages 36, bottom page 38, center page 40 of Blonder-Tongue's main brief).

As for the individual or separate acts themselves, we shall now treat with JFD's arguments under two caveats:

First, it should be borne in mind that Blonder-Tongue did not have its full day in court, with the improper exclusion of critical evidence and proffered testimony relating thereto (bottom p. 7 and p. 8, main brief) and the inability to remarshal its customer witnesses in time for the reset trial. Thus, in its main brief, Blonder-Tongue has had to argue only on the basis of the District Court's findings as supplemented by whatever undisputed additional facts are in this *incomplete record.*

Second, the JFD brief abounds with statements unsupported even by attempted reference to the record, and certainly unsupported by the record itself. These are too

numerous to counter except for the most glaring matters. It is respectfully requested that before this Court accepts such unsupported statements or interpretations of testimony or exhibits, not in the District Court's decision, they be checked in the record.

Tie-In Sales.

JFD conceded that there was other undisputed evidence besides that which led the District Court to find that there was at least *some* "evidence . . . which tends to support the argument of 'tie-in' sales."

Specifically, JFD concedes that in addition to Mr. Finkel's testimony, there was hearsay testimony in the deposition of General Manager Gilbert of coercion and tie-in activities (App. 675), and testimony in Marketing Director Helhoski's deposition of instances of "implied" coercion by JFD (App. 687).

There is *no* contrary evidence in the record.

As before pointed out, not only was Blonder-Tongue deprived by the District Court of a postponement to reassemble its customer witnesses, but *it was JFD's own deliberate actions* that inhibited other modes of proof and interfered with the very processes of the court:

1. The District Court found that "some records dealing with customers were found to be missing" (App. 835) when one employee (Balash), who had been "assigned . . . to personally investigate" the threats of JFD to customers, to reply to this suit (App. 511-2; 694-5), was "subsequently hired by JFD" (App. 835).

2. JFD hired away just before the trial Blonder-Tongue's West Coast sales representative, Graham Sisson —the West Coast being one of the places where there had been specific distributor customer coercion (see literature sent by JFD to Sacramento Electronics, D. Ex. 43).

How can JFD now be heard to complain, p. 13, that "'No *BT salesman* produced evidence as to the alleged customer coercion''?

Even without its full day in court, Blonder-Tongue succeeded at least in convincing the District Court that there was *some* evidence "which tends to support this argument" (App. 836).

We question the conclusion of law, therefore, that because this is what the District Court called "a normal business practice", it is proper to use a line of allegedly patented antennas as a club to force the purchase of unpatented related converter and booster equipment.

Admittedly the proofs aren't the strongest or most complete (thanks, in part, to the actions of JFD); but, as the District Court itself had to conclude, there was some evidence and nothing to rebut the same on the other side.

The Raiding.

While JFD says that the people hired away were *not* "key" people, this does not make it so, particularly in the face of the uncontradicted testimony (main brief, pages 33-35).

Is the test of "raiding" a numbers game as JFD and the District Court have asserted? We think not.

No matter how dissatisfied an employee may be with an employer, has an adverse litigant the right—*during preparation for trial*—to hire away such employee who possesses confidential and intimate information vital to the proofs of the employer?

Certainly JFD knew that Schenfeld was the co-inventor of the patent upon which JFD was sued in the counterclaim by Blonder-Tongue; and certainly JFD knew Mr. Balash's involvement and that of Mr. Sisson, as well!

We think the authorities support us that this conduct is improper.

Mismarking and False Patent Legends and Claims.

JFD concedes (pp. 18-21) that it *did mismark;* but it seeks the shield of the District Court's protective "minimal" effect doctrine.

We have shown deliberate action as part of a conspiracy to restrain lawful competition; and we believe that the decisions in the *Kobe, Perfection Mfg. Co., Angel Research, Inc., Channel Master* and *White Motor Co.* cases clearly show the error of the District Court's conclusion (main brief, pp. 37-39).

The Circularizing of the Trade.

Again JFD tries to consider the issue of improper venue and the like out of its true context and setting in the scheme of advertising and circularizing the trade to dissuade doing business with Blonder-Tongue.

Such dissection begs the point, we believe.

JFD states fact situation that it considers are controlled by the *Panay, Maytag, Gerosa* and *Robbins* cases (p. 27). We submit that the uncontradicted record establishes those precise kinds of facts (main brief, pp. 39-41).

The False Advertising.

JFD says it was only "puffing" (p. 25).

It also criticizes the evidence that Blonder-Tongue was able to muster as to the wildly false performance claims in JFD advertising. But coinventor Schenfeld, who had tested the JFD antennas for evidence in this suit, was hired away by JFD before the trial, App. 504-5.

JFD has failed to produce (because it could not) one

white of evidence that *any* of its antennas have anything even resembling these wild "35 db" performance claims (pp. 43-4, main brief)—claims deliberately made under color of the name and prestige of the University of Illinois!*

JFD, indeed, tries to excuse this by its gratuitous hope that:

> "It is unlikely . . . that many customers came across or were influenced by these passages".

And it tries to avoid the effect of the Foundation's belated criticism of JFD's false advertising (pp. 43, 44, main brief) by asserting,

> "statements it makes are not binding upon JFD" (JFD brief, p. 29).

The damage that was caused Blonder-Tongue by this false advertising, coupled with raiding, patent mismarking, coercion and trying of litigation in the papers and press releases, was clearly shown (*e.g.*, pages 36, 38, 40, 44, main brief).

Summary as to Unfair Competition and Antitrust Counts.

We do not understand how this Court can accept JFD's explanation at p. 29, that if the complained of

> "acts were improper, none of them was intentionally so."

Everything that could be done to restrain Blonder-Tongue's antenna sales program was done in every available medium. The assertion that no damage was shown is equally not understandable. The clear testimony sum-

---

* Lately concocted arguments—not supported by any testimony or proofs—of alleged exaggerated claims of Blonder-Tongue (p. 28 JFD brief)—do not even relate to or bear resemblance to the kind of deliberate false performance numbers spread through JFD's Foundation-approved advertisements to the trade.

marized in our main brief illustrates the damage. Furthermore, there is a public interest in unclean hands, misuse and *per se* antitrust violations (involved in the fraud, mismarking and extension of patents to unpatented items).

V. THE BLONDER-SCHENFELD PATENT COUNTERCLAIM.

JFD, p. 30, concedes that the District Court

> "might have made additional findings of fact"

as required by the Supreme Court in the *Graham* case and this Court in the *U. S. Gypsum Co.* case (p. 45, main brief).

JFD tries to modify and supply the deficiencies in the District Court's decision as to prior-art references (pp. 34-37), file wrapper estoppel (pp. 37-39), lack of invention (pp. 39-40), inoperativeness (p. 40), and indefiniteness (pp. 41-2). It also purports to deny infringement (pp. 44-49).

Clearly, the attempt by JFD *in its brief* to interpret the pertinence of complicated technical publications and patents and to push off on this Court the job of

> "intepretation of documents, if this Court wants findings",

is contrary to the policy that technical explanation required in complex patent cases must be done in the District Court (*supra*). This, JFD failed to do at the trial.

But even if we were to accept what JFD says the prior art shows (which it does not), it is clear that JFD concedes that *no* reference teaches the claimed invention. It is allegedly only the question of "obviousness" in combining the elements said to be individually associated with antennas of a Technical Report No. 52, Mayes or Heslin antennas, with rigid insulators of Gross, dipole-half spacing of Valach, impedance adjustments of Kane and Wickersham, standoff mountings of Callaghan, parallel

transmission line mountings of Winegard, and strain reliefs of LineLok or Zip, in order to produce the combination of Blonder-Schenfeld claim 5.

We submit, as a matter of law, this necessary use of many references to anticipate the cooperating elements of an antenna (*not* an *aggregation* as in the *Lincoln Engineering Co.* case) on its face shows unobviousness as a matter of law, *Minneapolis-Honeywell Regulator Company* v. *Midwestern Instruments Inc.*, 298 F. 2d 36, 38 (C. A. 7, 1962) (main brief, p. 47).

Similarly, as a matter of law, we are relying on claim 5 *as it issued* in the patent, and not any broader or narrower claims discussed on pp. 37-40 of the JFD brief so that there is no estoppel.

Lastly, neither the Patent Office, Mr. Blonder, Dr. Mayes, nor the District Court had difficulty in finding a meaning for claim 5, supported by the disclosure of the patent. In fact, Mr. Blonder applied the claim to the Blonder-Tongue antenna (Addendum, main brief). This Court can readily follow the identification of the cooperative elements of the novel combination of claim 5 by referring to the Addendum.

As a matter of law, we feel the presumption of validity has *not* been rebutted. The patents cited by the Examiner during prosecution of the application (all relied on by the District Court) are of the same nature as the other citations (App. 838). No new type of art not considered by the Patent Office is involved.

Where it is necessary to rely on many references (one report, 2 antennas, 12 patents) to build up an alleged anticipation—as the District Court and JFD have tried to do—this is evidence of invention.

This leaves the issue of infringement. While denying the *legal conclusion* of infringement, JFD has failed to point out a single element that it does not have which is

specified in the *actual language* of claim 5. JFD's interpretation requires non-existent limitations in the claim, such as "integral" strain reliefs and reliefs that cannot be "flexible"—concepts having nothing to do with the clear language of the claim or with the invention.

JFD has not demonstrated any error in Mr. Blonder's application of the claim to the JFD structure (App. 500-2) (Addendum, col. 3); nor has JFD denied that its antenna operates in the manner of the log periodic antenna of the Blonder-Schenfeld patent.

Thus, while disputing the conclusion of *law* as to infringement, JFD does not actually dispute the *facts*. We believe the conclusion of law as to infringement inexorably follows.

The Foundation has cooperated in the advertising program of JFD, with responsibility in its license to approve the ads (App. 745), has assisted in the advertising for sale of the JFD antennas that infringe the Blonder-Schenfeld patent, and has contributed its name in the ads to effect persuasion of such sales. Inducing infringement by selling and offering for sale is, of course, an act of infringement by the Foundation.

CONCLUSION.

We submit that the Isbell and Mayes et al. patents are invalid, not infringed and unenforceable for unclean hands and misuse, as a matter of law, even on the incomplete record of this case.

We further submit that both the over-all pattern or scheme of innumerable acts (found by the District Court and admitted in uncontroverted evidence) and the several acts themselves, directed toward dissuading competition with Blonder-Tongue, constitute unfair competition and violation of the antitrust laws.

Lastly, we submit as a matter of law that the legal conclusion of validity and infringement of the Blonder-Schenfeld patent should be drawn, even if JFD's arguments be considered, arguendo, as supplementary to the District Court's erroneous legal conclusion.

Should, however, this Court of Appeals disagree with Blonder-Tongue as to application of the law in both or either of the Foundation suit and the Blonder-Tongue counterclaims, then justice requires due process for Blonder-Tongue by way of a new and proper trial.

Respectfully submitted,

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ADDENDUM. J- 11 and copy

Marjorie
Testimony of Miss/Johnson regarding publication and Quarterly Report No 2
of reports:

"Q. (By Mr. Kulie) Did you frequently receive requests from persons within the University and by others for copies of these reports?

"A. Yes.

"Q. And were these requests responded to by delivery of copies of reports to the extent they were available?

"A As long as we were fairly sure that it was a responsible party making the request, yes.

"Q If I were to have come to your office and asked for the report, would there be any restriction on delivery of the report to me?

"A Probably not, if you identified yourself as an attorney for a company, but we did not, of course, allow them for undergraduate students, who really wanted nothing more than scratch paper." (D. Ex. 22, p. 201)

* * * * *

"Q And you previously indicated that when materials were delivered from the printer to your office, they were available for distribution on the date they were delivered to your office?

"A Yes.

"Q With the extra copies of this material that you had printed, and I specifically refer to Quarterly Report No. 2, would it have been available ~~to~~ in your office for distribution upon request on the date it was delivered in your office?

"A Yes.

"Q If I had come to your office on April 30th, the date indicated on that requisition document, and requested a copy of Report No. 2, would I have been likely to have been delivered a copy?

"A Very likely.

"Q Would you say then, Miss Johnson, that Quarterly Engineering Report No. 2 was available in your office on April 30th, 1959 to the same extent as any other publication or report was available in your office either as a library reference or as an extra copy?

"A To my knowledge, yes.

"Q So that, to this extent, you would not distinguish the availability of this Report No. 2 from any other similar report then in your office?

"A No." (D. Ex. 22, pp. 216-217)

* * * * *

"Q Now, Miss Johnson, having seen that document, H-11, I again ask you whether in your opinion quarterly engineering report No. 2 was available in your office on April 30, 1959 to the same extent as any other publication or report was available in your office, either as a library reference or as an extra copy?

"A In my opinion, yes.

"Q This report, you wouldn't distinguish it then as to the availability of this report No. 2 from any other similar report then in your office?

"A No, I wouldn't." (D. Ex. 22, p. 240)

* * * * *

"Q Miss Johnson, whether these documents were in brown wrappers, on the desk, on a shelf, on the floor, were they available as a library reference on the date that they were received in your office?

"A Yes." (D. Ex. 22, p. 243)

AF 33(616)-6079

Distribution Total 1357

5333.

LOCAL LIST

	Technical	Progress
P. Mayes	9	9
Dr. E. C. Jordan, E. E. Bldg.	1	1
~~Dean Wendell Miller, 145 E. E. Bldg.~~	~~1~~	~~1~~
Engineering Library, 106 Civil Eng. Hall	2	2
Local Library, E.E.R.L.	1	1
C. H. Tang (box)	1	1
Raj Mittra, E.E. College box	1	1

Exhibit from Stipulated Testimony
of Miss Marjorie Johnson, D. Ex. 22

DX
H-4

EXHIBIT FROM STIPULATED TESTIMONY
OF MISS MARJORIE JOHNSON, D. EX. 22.

AF 33 (616)-6079 Distribution Total

Local List

	Technical	Progress
P. Mayes	9	9
Dr. E. C. Jordan, E. E. Bldg.	1	1
~~Dean Wendell Miller, 145 E. E. Bldg.~~	~~1~~	~~1~~
Engineering Library, 106 Civil Eng. Hall	2	2
Local Library, E. E. R. L.	1	1
C. H. Tang (box)	1	1
Raj Mittra, E. E. College box	1	1

AF 33(616)-6079

5338

LOCAL LIST

	Technical	Progress
P. Mayes	9	9
Dr. E. C. Jordan, E. E. Bldg.	1	1
~~Dean Wendell Miller, 145 E. E. Bldg.~~	~~1~~	~~1~~
Engineering Library, 106 Civil Eng. Hall	2	2
Local Library, E.E.R.L.	1	1
C. H. Tang (box)	1	1
Raj Mittra, E.E. College box	1	1

DX
H-4

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In the

United States Court of Appeals

For the Seventh Circuit

No. 17153

UNIVERSITY OF ILLINOIS FOUNDATION, *Plaintiff and Counterclaim Defendant, Appellee,* vs. **BLONDER-TONGUE LABORATORIES, INC.,** *Defendant and Counterclaimant, Appellant,* vs. **JFD ELECTRONICS CORPORATION,** *Counterclaim Defendant, Appellee.*	Appeal from the United States District Court for the Northern District of Illinois, Eastern Division. Honorable **Julius J. Hoffman,** Judge Presiding.

BRIEF FOR DEFENDANT AND COUNTERCLAIMANT-APPELLANT.

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REPLY BRIEF FOR DEFENDANT AND COUNTERCLAIMANT-APPELLANT.

I. THE ISSUE AS TO DUE PROCESS.

1. The Foundation's Position.

In its brief, the Foundation argues that Blonder-Tongue has conceded that the record

> "contains a sufficient recital of the facts to permit this court to come to a conclusion on the issues." (p. 3)

"A conclusion"?

No.

Only one conclusion, namely, that even on the basis of ~~the present~~ an incomplete record, as a matter of law, the District Court should be reversed.

But if this Court finds that the District Court's legal conclusions are not wrong, Blonder-Tongue maintains it is entitled to make a complete record with the aid of at least its patent expert, Dr. Chu, who had been preparing for the Foundation's patent suit and the Blonder-Tongue patent counterclaim III for over a year; and its customer witnesses in connection with the unfair competition and antitrust counterclaims I and II, none of which Blonder-Tongue was able to produce at the postponed time of trial. A list of the intended witnesses delivered to opposing counsel March 27, 1967, identifying Dr. Chu and two customers.

The Foundation says that there is "nothing before this Court to indicate" that if those witnesses had been ~~were~~ present, the trial court would have decided differently.

It ~~appears~~ is elementary, however, that in a patent case, one function of the expert is to provide evidence regarding the prior art (of which there was considerable identified in the List of Exhibits delivered to opposing counsel March 27, 1967), and the issue of obviousness or

nonobviousness ~~to one skilled in the art at the time~~ of the invention -- the precise question relied upon by the District Court both for sustaining the Foundation's patents and for summarily discarding the Blonder-Tongue patent.

Blonder-Tongue, during the Foundation's case (which was commenced when even Mr. Blonder could not be located due to a rush business trip to the West Coast and Canada), had to try to elicit what it could by cross-examination of the Foundation's witnesses, and was without a single intended witness of its own. In addition, Blonder-Tongue was erroneously and prejudicially restricted in that endeavor as well (main brief, p. 8).

It is significant that the Foundation does not dispute in the slightest Blonder-Tongue's assertion that the District Court heaped

> "abuse. . .upon both Boston and local counsel"

and supplemented this

> "initial outburst (App.75). . .by similar episodes throughout the trial. . ." (pp. 6 and 7 of main brief).

2. The JFD Position.

JFD, at pp. 5 and 6 of its brief, says that if Blonder-Tongue had no expert,

> "only it is to blame"

and it could have used Mr. Blonder himself as the expert in a pinch.

No authority is cited for this novel proposition ~~of law~~ that a partisan litigant (Mr. Blonder is Chairman of the Board of Blonder-Tongue), even if he had sufficient technical qualifications -- which JFD disputed at the trial (App. 507-8) -- is the equivalent of an impartial, world-renowned professorial expert. Mr. Blonder would have had to try to master

overnight the numerous prior art references and related material to whatever limited degree he could.

As for the two very material and specific instances of prejudicial deprival of proof ~~of evidence set forth on pages 7 and 8 of Blonder-Tongue's~~ (main brief, pp. 7, 8) JFD tries to show the propriety of such exclusion, apparently conceding its serious prejudicial effect upon the Blonder-Tongue proofs.

With regard to admissions in the JFD advertisements and publications which were improperly excluded (App. 534, 538, 540), JFD says that these were properly excluded (p. 8) since ~~an~~ the exhibit was "dated prior to the issuance of B-T's own patent".

But this evidence was offered solely for the unfair competition and antitrust counterclaim and not in connection with the Blonder-Tongue patent counterclaim; and the record shows that Blonder-Tongue was selling its antennas long before its patent issued and at the very period when these advertisements, with false claims, false patent markings and deprecations of competitors' antennas, including Blonder-Tongue, were issued, reproduced and circulated throughout the trade.

This certainly was an improper and highly prejudicial exclusion.

~~As for the examination of Dr. Mayes,~~ JFD argues that ~~this~~ the restriction of the examination of Dr. Mayes ~~on examination by the District Court~~ was ~~also~~ proper and that Dr. Mayes shouldn't be asked anything about his own patent because "the document speaks for itself". No complicated patent, of course, "speaks for itself" in patent litigation without technical explanation to the Court, as this Court has often reiterated. (Technograph Printed Circuits v. Methode Electronics, Inc., 356 F.2d 442, 448 (CA 7, 1966).

Similarly, JFD says it was proper for the District Court to exclude questions that would show the adverse or hostile character of the witness to enable cross-examination,

because to show "Prof. Mayes' own financial interest was to impeach him" (JFD Brief, p. 9).

How else does one show the adverse nature of a witness called by the interrogating party?

Lastly, JFD excuses the exclusion of questioning as to "The JFD-Mayes relationship" since it was supposedly "irrelevant to the patent infringement issue". Since JFD actually had the equitable title in the patents, being the Foundation's exclusive licensee, it is hard to see what could be more relevant; particularly in establishing the adverse nature of the witness.

JFD, like the Foundation, does not dispute the abusive manner in which Blonder-Tongue's counsel was treated throughout the trial. The only comment is that, at times (p. 7), the Judge also "expressed annoyance at actions of counsel for both the Foundation and JFD".

In fact, JFD appears to concede that at least insofar as the Foundation's patent suit is concerned:

> "Any possibly reversible errors. . . all related to the claim by the Foundation against BT for patent infringement, and none concerned the BT Counterclaim against JFD and the Foundation" (p. 10).

JFD thus argues for a severance.

But, as above shown, the same errors apply to the BT patent counterclaim (which also required expert testimony) and to the unfair competition and antitrust counterclaims (which required customer witnesses and the opportunity to put into evidence advertisements and other admissions of JFD, as above discussed).

Neither the Foundation nor JFD has offered any authority that excuses forcing a litigant, through no fault of its own, to go to trial without witnesses; and certainly not to undertake a complicated patent trial without its patent

expert, or an unfair competition and antitrust trial without its customer witnesses or the right to put in perfectly proper documentary evidence.

II. THE FOUNDATION'S PATENTS.

A. Isbell 3,210,767.

We agree with the Foundation that it is not the function of the Court of Appeals to overrule "findings of the lower court. . .supported by substantial evidence" (with the exception of those instances where such findings are grossly and shockingly against the weight of the evidence).

It is "the conclusions of law of the District Court" that we are asking this Court to overrule (main brief, p. 9).

Should this Court not agree that the conclusions of law, based on the District Court's findings from the incomplete record, are erroneous, particularly in light of the undisputed or admitted facts, then we maintain the case should be remanded (p. 9) to enable Blonder-Tongue to have a full and fair trial.

Turning to item 1 (the effect of the publication of Quarterly Engineering Report No. 2), the Foundation agrees on page 7 that the law set forth on pages 11-13 of the Blonder-Tongue main brief, i.e., that when a report is

"'received' by a library",

or is

"'filed' in a library",

or is

"made accessible to the public",

is determinative of publication, ~~under the established decisions~~.

The Foundation also agrees that librarian Miss Johnson testified, ~~as quoted on~~ (page 12 of ~~the Blonder-Tongue~~ main brief), that more than a year before the Isbell patent application filing date, Quarterly Engineering Report No. 2

had been "received" and was "available. . .either as a library reference or as an extra copy" to anyone who "requested" the same (D. Ex. 22, p. 201).

Contrary to the Foundation's statement at the top of page 7, Mr. Lawler did not contradict Miss Johnson at App. 465-466 or anywhere else, with regard to the facts as to what was done with ~~this particular~~ Quarterly Engineering Report No. 2 in this particular case.

In fact, Mr. Lawler conceded that Miss Johnson knew more about what was actually done with this report than he:

> "Q. Who, Mr. Lawler, had more detailed information with regard to the availability of and dates of publication of the Quarterly Reports, Defendant's Exhibits 7 and 8, you or Miss Marjorie Johnson?
>
> "A. She would probably have more detailed information on them, yes."

There is no fact dispute; only the issue of law.

Whether anyone did request a copy of the report before the Isbell application filing date does not affect its "publication". Rather,

> "intent that the fruits of research be available to the public is determinative of publication under the statute", The Hamilton Laboratories, Inc. v. Massengill, 111 F.2d 584 (6 Cir. 1940).

There is no question but that this report was "printed", "received", "filed" and "available [to the public]" more than a year before the filing of the Isbell patent application in contravention of 35 USC 102b.

As to items 2 and 3 (obviousness-predictability-the Winegard decision), the Foundation makes four assertions but without giving any support therefor in the record.

Lest it be interpreted that Blonder-Tongue has conceded such items as the significance of Dr. DuHamel's alleged activities, the pertinence of the prior art references, and the alleged unsolved needs, failures or others and so-called commercial success, it should be pointed out that Blonder-

Tongue has not had its day in court to present evidence as to these issues through its patent expert.

All that Blonder-Tongue has argued at pp. 13-15 of its main brief is a single issue of law on the matter of whether "predictability" (~~found by the District Court,~~) is synonymous with the statutory test of "obviousness". If Blonder-Tongue and the Court of Appeals for the 8th Circuit in the Winegard case correctly understand the law, the District Court in this case has misapplied the same.

(INSERT FROM PEARNE)

We also pointed out (p. 14) contemporaneous statements at the late date in log periodic antenna development that Isbell started to make his "thin linear elements" (p. 2 of Report No. 1, D. Ex. 7) - evidence in this suit, irrespective of the 8th Circuit Winegard case -- that "multielement log periodic antennas" were by that time "found to be predictable".

But the Foundation says we lifted this "out of context", an erroneous assertion as this Court can readily see from inspection of the document.

More important, the Foundation implies that there is some magical difference between "sheet metal" antenna elements (as to which it at least admits there was "predictability" at the time Isbell started work ~~on his patent in suit, as reflected by Report No. 1~~) and the "thin linear elements" used by Isbell.

But the Foundation's own witness, Mr. Harris, admitted that the sheet metal dipole antenna element and the thin linear dipole antenna element, both well known before Isbell, had precisely the same kind of operation and performance

(App. 157-161, 200-202, D. Ex. 1):

> "Q. Would it be a fair statement that all of those dipoles operate to receive, for example, radio energy in substantially the same way, but they differ by their impedance characteristics?
>
> "A. Yes, that is basically true." (App. 202)

Which brings us to the question of law.

Is it patentable to substitute one well known type of antenna element for another in accordance with precisely the same old log-periodic dimensioning arrangement and operation? Can as many patents be granted as there are well known similar elements to substitute?

We think the answer, as a matter of law, is quite definitely in the negative.

This certainly raises an entirely different factual situation than that which gave rise to the Tomlinson case cited on page 9 of the Foundation's brief, and falls, rather, within the well-established doctrine of the Winegard and similar cases (p. 14, main brief).

The Foundation's theory regarding "predictability" was rejected by the Court of Customs and Patent Appeals in In re Moreton, 288 F.2d 940, 943 (1961):

> "What this amounts to is an argument that if one slavishly following the prior art, albeit with a little educated imagination, will sometimes succeed and sometimes fail, then he is always entitled to a patent in case of success. That is not the intention of 35 U.S.C. 103. Obviousness does not require absolute predictability. Where, as here, the knowledge of the art clearly suggests * * *, the mere possibility of failure does not render their successful use 'unobvious'."

JFD, though the exclusive licensee, has declined comment on the Isbell patent.

B. Mayes and Carrel Re.25,740.

The Foundation does not (and can not) dispute that Mr. Turner gave Dr. Mayes not only the teaching of inclining the Isbell dipole antennas into V's, but taught Mayes the precise angle to use -- the very V-angle used by Blonder-

Tongue in its allegedly infringing Color Ranger antenna and called for in the claims of the Mayes et al patent in suit.

Instead, on pages 10 and 11, the Foundation sets forth a story (without any reference to testimony in the record) that this resulted in an "unsuccessful" device and "an abandoned experiment", and it remained for Mayes et al to take some magical "last step".

Assuming, arguendo, that this story had been proven, ~~in the record was not~~, the claims of the Mayes et al patent set forth no more than Isbell's antenna, with the precise V-angle suggested by Turner -- nothing more. The claims are either invalid as representing an inoperative device, or they were invented by Turner.

The District Court itself found that the V'ing is "the only structural difference between his (Mayes and Carrel) patent and the Isbell patent" (App. 830).

As for the fraud issue, it is significant that the Foundation has not denied the facts discussed in Blonder-Tongue's main brief (pp. 19-23) as to the conduct in the Patent Office.

It thus remains for this Court to decide the applicable law. Is it the law of the Wen Products case (which deals with the situation of normal patent prosecution and the lack of requirement of a patent applicant to volunteer all the prior art he knows about); or the law of the Flick-Reedy, Hazel-Atlas Glass and Precision Instrument cases (main brief, p. 21) dealing with situations where a deliberate act was made, as an affidavit voluntarily filed, to induce the Patent Office to withdraw its rejection and allow a patent. An affidavit under Rule 131 certainly requires complete candor with regard to earlier publications of the prior art known to applicant and his attorney.

A recently reported decision ~~of the Sixth Circuit Court of Appeals~~ condemned the failure of an applicant to make a full disclosure to the Patent Examiner:

> "Pfizer and Cyanamid, like all other applicants, stood before the Patent Office in a confidential relationship and owed the obligation of frank and truthful disclosure." Charles Pfizer & Co. v. F.T.C., 401 F.2d 574, 579 ~~(1968)~~ (CA 6, 1968)

JFD has remained silent, other than to ~~disclose~~ aim all association with the charge of fraud in the Patent Office.

III. NONINFRINGEMENT OF THE ISBELL AND MAYES ET AL PATENTS

The Foundation's argument on pages 12 and 13 seems to be that any separation of the antennas at all is "substantially coplanar" within the meaning of the Isbell and Mayes et al patents.

The Foundation does not dispute the Blonder-Tongue showing, pages 23-25 of its main brief, that the Blonder-Tongue separation of the antenna planes is "deliberate" and is "about twenty times the substantially touching or coplanar (0.003 wavelength) relation of Isbell", as taught in the Isbell and Mayes et al patent specifications and as testified to by JFD witness Heslin.

Nor does the Foundation dispute that the Patent Office granted the Blonder-Schenfeld patent for this "radically different construction", among other features.

Clearly, if Isbell had been entitled to a claim covering any separation, none of its skilled attorneys, the applicant, or the Patent Office would have permitted or required a limitation in the claims to "substantially coplanar".

And the final proof of noninfringement was admitted by Dr. Mayes himself (quoted main brief, p. 25). If the Blonder-Tongue antenna booms were "moved together so that they are substantially in the same plane ", the antennas would no longer operate properly. This was not in any way disputed by the Foundation -- and could not be.

It is elementary that a device that cannot work in accordance with a patent claim cannot possibly be an infringement thereof (see citations at p. 25 of main brief).

JFD appears to have shown agreement with Blonder-Tongue that the Blonder-Tongue antennas are ~~decidedly~~ not constructed to operate in substantially the same plane as

taught by Isbell and Mayes et al, but require a deliberate "vertical distance between booms" (p. 40).

IV. THE UNFAIR COMPETITION AND ANTITRUST COUNTERCLAIMS I AND II.

The Foundation considers that it had no part in any of the activities complained of, except the "purported fraud in the Patent Office and improper news releases" (p.14).

The fraud has been discussed above; and it is not disputed, as stated on p. 22 of Blonder-Tongue's main brief, that without the filing of the affidavit,

> "the Examiner clearly would not have allowed the Mayes et al patent! (see rejection, D. Ex. 12, p. 30)"

The news releases will be discussed in treating with JFD's position, as will the involvement of the Foundation in other aspects of the counterclaims.

JFD does not take issue with the Blonder-Tongue showing, p. 29 and 30, that the law recognizes that a "pattern of such a series of acts can be unfair compeitition (and also antitrust violation), even if the acts individually by themselves were nonactionable."

Nor does JFD dispute that the District Court did not treat with this important doctrine of law.

Instead, JFD follows the tack of the District Court and argues merely, p.11, that

> "none of the separate and unrelated activities of JFD was wrongful". (emphasis added)

It is, of course, for this Court to decide whether these acts are "unrelated"; and to decide the correctness of Blonder-Tongue's contention that these were related and, as a pattern, were illegal.

That damage resulted to Blonder-Tongue as a result of these acts has been amply proven (see, for example, pages 36, bottom page 38, center page 40 of Blonder-Tongue's main

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brief). 4

As for the individual or separate acts themselves, we shall now treat with JFD's arguments under two caveats:

First, it should be borne in mind that Blonder-Tongue did not have its full day in court, with the improper exclusion of critical evidence and proferred testimony relating thereto (bottom p. 7 and p. 8, ~~of Blonder-Tongue main~~ main brief) and the inability to remarshall its customer witnesses in time for the reset trial. Thus, in its main brief, Blonder-Tongue has had to argue only on the basis of the District Court's findings as supplemented by whatever undisputed additional facts are in this incomplete record.

Second, the JFD brief abounds with statements unsupported even by attempted reference to the record, and certainly unsupported by the record itself. These are too numerous to counter except for the most glaring matter. It is respectfully requested that before this ~~Honorable~~ Court accepts ~~any~~ such unsupported statements or interpretations of testimony or exhibits, not in the District Court's decision, they be checked in the record.

Tie-In Sales

JFD conceded that there was other undisputed evidence besides that which led the District Court to find that there was at least some "evidence. . .which tends to support the argument of "tie-in" sales.

Specifically, JFD concedes that in addition to Mr Finkel's testimony, there was hearsay testimony ~~(not excluded)~~ in the deposition of General Manager Gilbert of coercion and tie-in activities (App. 675), and testimony ~~(also not excluded)~~ in Marketing Director Helhoski's deposition of instances of "implied" coercion by JFD (App. 687).

There is no contrary evidence in the record.

As before pointed out, not only was Blonder-Tongue deprived by the District Court of a postponement to reassemble its customer witnesses, but it was JFD's own deliberate actions that ~~resulted in~~ inhibited other modes of proof and interfered with the very processes of the court:

1. The District Court found that "some records dealing with customers were found to be missing" (App. 835) when one employee (Balash), who had been "assigned. . .to personally investigate" the threats of JFD to customers, to reply to this suit (App. 511-2; 694-5), was "subsequently hired by JFD" (App. 835).

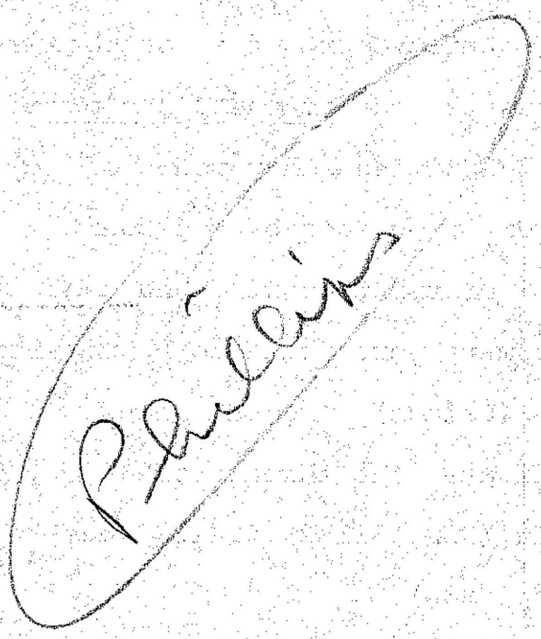
2. JFD hired away just before the trial Blonder-Tongue's West Coast sales representative, Graham Sisson -- the West Coast being one of the places where there had been specific distributor customer coercion (see literature sent by JFD to Sacramento Electronics, D.Ex. 43).

How can JFD now be heard to complain, p. 13, that "No BT salesman produced evidence as to the alleged customer coercion."?

Even without its full day in court, Blonder-Tongue succeeded at least in convincing the District Court that there was some evidence "which tends to support this argument" (App. 836).

We question the conclusion of law, therefore, that because this is what the District Court called "a normal business practice", it is proper to use a line of allegedly patented antennas as a club to force the purchase of unpatented related converter and booster equipment.

Admittedly the proofs aren't the strongest or most complete (thanks, in part, to the actions of JFD); but, as the District Court itself had to conclude, there was some evidence and nothing to rebut the same on the other side.



The Raiding

While JFD says that the people hired away were not "key" people, this does not make it so, particularly in the face of the uncontradicted testimony (see ~~summary~~, main brief, pages 33-35).

Is the test of "raiding" a numbers game as JFD and the District Court have asserted? We think not.

No matter how dissatisfied an employee may be with an employer, has an adverse litigant the right -- during preparation for trial -- the hire away such employee who possesses confidential and intimate information vital to the proofs of the employer?

Certainly JFD knew that Schenfeld was the co-inventor of the patent upon which JFD was sued in the counterclaim by Blonder-Tongue; and certainly JFD knew Mr. Balash's involvement and that of Mr. Sisson, as well!

We think the authorities support us that this conduct is ~~xxxxxxxxx~~ improper.

Mismarking and False Patent Legends and Claims.

JFD concedes (p. 18-21), ~~despite excuses~~, that it did mismark; but it seeks the shield of the District Court's protective "minimal" effect doctrine.

We have shown deliberate action as part of a conspiracy to restrain lawful competition; and we believe that the decisions in the Kobe, Perfection Mfg. Co., Angel Research, Inc., Channel Master and White Motor Co. cases clearly show the error of the District Court's conclusion (main brief, p. 37-39).

The ~~Type of~~ Circularizing of the Trade ~~Re Litigation That Is Here Involved~~

Again JFD tries to consider the issue of improper venue and the like out of its true context and setting in the scheme of advertising and circularizing the trade to

dissuade doing business with Blonder-Tongue.

Such dissection begs the point, we believe.

JFD states (JFD Brief, p. 27) fact situations that it considers are controlled by the Panay, Maytag, Gerosa and Robbins cases. We submit that the uncontradicted record establishes those precise kinds of facts (main brief, p. 39-41).

The False Advertising

JFD says it was only "puffing" (p. 25).

It also criticizes the evidence that Blonder-Tongue was able to muster as to the wildly false performance claims in JFD advertising. But coinventor Schenfeld, who had tested the JFD antennas for ~~testifying~~ evidence in this suit, was hired away by JFD ~~just~~ before the trial, App. 504-5.

JFD has failed to produce (because it could not) one whit of evidence that any of its antennas have anything even resembling these wild "35 db" performance claims (p. 43-4, main brief) -- claims deliberately made under color of the name and prestige of the University of Illinois!*

JFD, indeed, tries to excuse this by its gratituous hope that ~~it~~ It

> "is unlikely. . .that many customers came across or were influenced by these passages".

And it tries to avoid the effect of the Foundation's belated criticism of JFD's false advertising (p. 43, 44, main brief) by asserting,

> "statements it makes are not binding upon JFD" (JFD brief, p. 29).

The damage that was caused Blonder-Tongue by this false advertising, coupled with raiding, patent mismarking,

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* Lately concocted arguments -- not supported by any testimony or proofs, of alleged exaggerated claims of Blonder-Tongue (p. 28 of JFD brief) -- do not even relate to or bear resemblance to the kind of deliberate false performance numbers spread through JFD's Foundation-approved advertisements to the trade.

coercion and trying of litigation in the papers and press releases, was clearly shown (e.g., page 36, 38, 40, 44, main brief).

Summary as to Unfair Competition and Antitrust Counts

We do not understand how this Court can accept JFD's explanation at p. 29, that if the complained of

> "acts were improper, none of them was intentionally so."

Everything that could be done to restrain Blonder-Tongue's antenna sales program was done in every available medium. The assertion that no damage was shown is equally not understandable. Furthermore, there a public interest in unclean hands, misuse and per se antitrust violations (involved in the fraud, mismarking and extension of patents to unpatented items) the clear testimony summarized in our main brief illustrates the damage.

V. THE BLONDER-SCHENFELD PATENT COUNTERCLAIM

JFD, p. 30, concedes that the District Court

> "might have made additional findings of fact"

as required by the Supreme Court in the Graham case and this Court in the U. S. Gypsum Co. case (p. 45, main brief).

JFD tries to modify and supply the deficiencies in the District Court's decision as to prior-art references (p. 34-37), file wrapper estoppel (p. 37-39), lack of invention (p. 39-40), inoperativeness (p. 40), and indefiniteness (p. 41-2). It also purports to deny infringement (p. 44-49).

Clearly, the attempt by JFD in its brief to interpret the pertinence of complicated technical publications and patents and to push off on this Court the job of



"interpretation of documents, if this Court wants findings",

is contrary to the policy that technical explanation required in complex patent cases must be done in the District Court (supra). This, JFD failed to do at the trial.

But even if we were, arguendo, to accept what JFD says the prior art shows (which it does not), it is clear that JFD concedes that no reference teaches the claimed invention. It is allegedly only the question of "obviousness" in combining the elements said to be individually associated with antennas of a Technical Report No. 52, Mayes or Heslin antennas, with rigid insulators of Gross, dipole-half spacing of Valach, impedance adjustments of Kane and Wickersham, standoff mountings of Callaghan, parallel transmission line mountings of Winegard, and strain reliefs of LineLok or Zip, in order to produce the combination of Blonder-Schenfeld claim 5.

We submit, as a matter of law, this necessary use of many references to anticipate the cooperating elements of an antenna (not an aggregation as in the Lincoln Engineering Co. case), on its face shows unobviousness as a matter of law, Minneapolis-Honeywell Regulator Company v. Midwestern Instruments Inc., 298 F.2d 36, 38 (CA 7, 1962) (main brief, p. 47).

Similarly, as a matter of law, we are relying on claim 5 as it issued in the patent, and not any broader or narrower claims discussed on p. 37-40 of the JFD brief so that there is no possible legal estoppel.

Lastly, neither the Patent Office, Mr. Blonder, Dr. Mayes, nor the District Court had difficulty in finding a meaning for claim 5, supported by the disclosure of the patent. In fact, Mr. Blonder applied the claim to the Blonder-Tongue antenna (Addendum, main brief).

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This Court can readily follow the identification of the cooperative elements of the noval combination of claim 5 by referring to the Addendum.

As a matter of law, we feel the presumption of validity has not been rebutted. The patents cited by the Examiner/(during prosecution of the application (all relied on by the District Court), are of the same nature as the other citations (App. 838). No new type of art not considered by the Patent Office is involved.

~~We feel, also, that~~ Where it is necessary to rely on many references (one report, 2 antennas, 12 patents) to build up an alleged anticipation -- as ~~both~~ the District Court and JFD have tried to do -- this is evidence of invention.

This leaves the issue of infringement. While denying the legal conclusion of infringement, JFD has failed to point out a single element that it does not have which is specified in the actual language of claim 5. JFD's interpretation requires non-existent limitations in the claim, such as "integral" strain reliefs and reliefs that cannot be "flexible" -- concepts having nothing to do with the clear language of the claim or with the invention.

JFD has not demonstrated any error in Mr. Blonder's application of the claim to the JFD structure (App. 500-2) (Addendum, col. 3); nor has JFD denied that its antenna operates in the manner of the log periodic antenna of the Blonder-Schenfeld patent.

Thus, while disputing the conclusion of law as to infringement, JFD does not actually dispute the facts. We believe the conclusion of law as to infringement inexorably follows.

The Foundation has ~~engaged~~ cooperated in the advertising program of JFD, with responsibility in its license to approve

the ads (App. 745), has assisted in the advertising for sale of the JFD antennas that infringe the Blonder-Schenfeld patent, and has contributed its name in the ads to effect persuasion of such sales. Inducing infringement by selling and offering for sale is, of course, an act of infringement by the Foundation.

CONCLUSION

We submit that the Isbell and Mayes et al patents are invalid, not infringed and unenforceable for unclean hands and misuse, as a matter of law, even on the incomplete record of this case.

We further submit that both the over-all pattern or scheme of innumerable acts (found by the District Court and admitted in uncontraverted evidence) and the several acts themselves, directed toward dissuading competition with Blonder-Tongue, constitute unfair competition and violation of the antitrust laws.

Lastly, we submit that as a matter of law, the legal conclusion of validity and infringement of the Blonder-Schenfeld patent should be drawn, even if JFD's arguments be considered, arguendo, as supplementary to the District Court's erroneous legal conclusion.

Should, however, this Court of Appeals disagree with Blonder-Tongue as to application of the law in both or either of the Foundation suit and the Blonder-Tongue counterclaims, then justice requires due process for Blonder-Tongue by way of a new and proper trial.

Respectfully submitted,

(Sigs. as on cover)

Philemon

p -

p 8

The Foundation is theory regarding "predictability" was upheld by the Court of Custom and Patent Appeal in In re Moreton,

288 F 2d 940, 943 (1961)

"

Copy quote - p 10 - Wine jar and bing

Blonder-Tongue Laboratories appellee

For Mr Pelletier

from Rivise Plaza

REPLY BRIEF FOR DEFENDANT AND COUNTERCLAIMANT — APPELLANT

I. THE ISSUE AS TO DUE PROCESS

1. The Foundation's Position

In its brief, the Foundation ~~(p. 3-5)~~ argues that Blonder-Tongue has conceded that the record

> "contains a sufficient record ~~of~~ trial of the facts to permit this court to come to a conclusion on the issues." (p 3)

"A conclusion"? (one of many)

No.

Only one conclusion, ~~but not the converse~~; namely, that even on the basis of the present incomplete record, as a matter of law, the District Court ~~can~~ should be reversed ~~on an issue of law.~~

But if this Court finds that the District Court's legal conclusions are not wrong, Blonder-Tongue maintains it is entitled to make a complete record ~~to show different facts~~ with the aid of at least its "patent expert", Dr. Chu, who had been preparing for ~~this complicated case~~ for over a year, ~~in connection with~~ the Foundation's patent suit and the Blonder-Tongue patent counterclaim III; and its customer "witness" in connection with the ~~Blonder-Tongue~~ unfair competition and antitrust counterclaims I and II), none of which Blonder-Tongue was able to produce ~~in~~ at? the postponed time of trial. A list of the intended ~~customer~~ witnesses was ~~filed with the court at~~ delivered to opposing counsel March 23, 1967, identifying Dr. Chu, and two customers.

Disc: we filed a paper giving these names before trial.

The Foundation says that there is "nothing before this Court to indicate" that if those witnesses were present, the trial court would have decided differently.

It appears elementary, however, that in a patent case, one function of the expert, among other things, is to provide evidence regarding the pertinence of the cited prior art (of which there was considerable identified in the list of Exhibits delivered to opposing counsel, March 27, 1967.), and the issue of obviousness or non-obviousness to one skilled in the art at the time of the invention--- the precise question relied upon by the District Court both for sustaining the Foundation's patents and for summarily discarding the Blonder-Tongue patent. The Blonder-Tongue answer in this suit for infringement of its own patent sets forth these issues of pertinence of prior art to the Foundation's patents. Specific references are cited in the pretrial proceedings, and the matter of obviousness of the alleged "inventions" was raised.

Blonder-Tongue, during the Foundation's case (which was commenced when Mr. Blonder himself came to Canada, on a rush business trip to the West Coast and were located), had to try to elicit what it could by cross-examination of the Foundations' witnesses, and was without a single witness of its own intended. In addition Blonder Tongue and, at that, as explained on page 8 of its main brief, was erroneously

(main brief p. 8)

and prejudicially restricted in that endeavor, as well.

It is significant that the Foundation does not dispute in the slightest Blonder-Tongue's assertion that the District Court heaped

> "abuse...upon both Boston and local counsel"

and supplemented this

> "initial outburst (App. 75) ...by similar episodes throughout the trial..." (p. 6 and 7 of main brief).

2. The J F D Position

J F D, at p. 5 and 6 of its brief, says that if Blonder-Tongue had no expert,

> "only it is to blame"

and it could have used Mr. Blonder himself as the expert in a pinch.

No authority is cited for this ~~(brand) new~~ novel proposition of law, ~~however~~, that a partisan litigant (Mr. Blonder is Chairman of the Board of Blonder-Tongue), even if he had sufficient technical qualifications--which, ~~indeed,~~ J F D disputed at the trial (App. 507, 8) --is ~~#~~ the equivalent of an impartial, world-renowned professorial expert. ~~This is altogether apart from the fact that Professor Chu~~

In addition,

Dick - Wasn't objection to Blonder-Tongue's qualifications

~~of the Massachusetts Institute of Technology~~ "had been working ~~on this~~ case for over a year in preparation for trial" (App.), whereas Mr. Blonder would suddenly have to try to master overnight the numerous prior-art references and related material to whatever limited degree he could.

As for the two very material and specific instances of prejudicial deprival of proof of evidence set forth on pages 7 and 8 of Blonder-Tongue's main brief, J F D tries to show the propriety of such exclusion, apparently conceding its ~~services~~ serious prejudicial effect upon Blonder-Tongue proofs.

With regard to admissions in the J F D advertisements and publications which were improperly excluded (App. 534-538-540), J F D says that these were properly excluded (p. 8) since an exhibit was "dated prior to the issuance of BT's own patent".

But this evidence was offered solely for the unfair competition and antitrust counterclaim and not in connection with the Blonder-Tongue patent counterclaim; and the record shows that Blonder Tongue was selling its antennas long before its patent issued and at the very period ~~that~~ when these advertisements, with false claims, false patent markings and deprecations of competitors'

antennas, including Blonder-Tongue, were issued, reproduced and circulated throughout the trade.

This certainly was an improper and highly prejudicial exclusion.

As for the examination of Dr. Mayes, ~~whom Blonder-Tongue~~ had to try the dangerous tack of calling as its own witness, despite the fact that the record showed it was one of his patents that was ~~asserted in the Foundation's suit~~, J F D argues that this restriction on examination by the District Court was also proper and that Dr. Mayes shouldn't be asked anything about his own patent because "the document speaks for itself".

No complicated patent, of course, "speaks for itself" in patent litigation as this Court has often reiterated, without technical explanation to the Court (~~citation~~).

Similarly, J F D says it was proper for the District Court to exclude questions that would show the adverse or hostile character of the witness to enable cross examination, because to show "Prof. Mayes' own financial interest was to impeach him" (p. 9).

How else does one show the adverse nature of a witness ~~even~~ one called by the interrogating party?

(Technograph Printed Circuits v. Methode Electronics, Inc., 336 F 2d 442, 448, (CA 7, 1966).

Lastly, J F D excuses the exclusion of questioning as to "The J F D-Mayes relationship" since it was supposedly "irrelevant to the patent infringement issue." Since J F D actually had the equitable title in the patents, being the Foundation's exclusive licensee, it is hard to see what could be more relevant; particularly in establishing the adverse nature of the witness.

J F D, like the Foundation, does not dispute the abusive manner in which Blonder-Tongue's counsel was treated throughout the trial. The only comment is that, at times (p. 7), the Judge also "expressed annoyance at actions of counsel for both the Foundation and J F D".

In fact, J F D appears to concede that at least insofar as the Foundation's patent suit is concerned,

> "Any possibly reversible errors...all related to the claim by the Foundation against BT for patent infringement, and none conceived the BT counterclaim against J F D and the Foundation" (p. 10).

J F D thus argues for a severance.

But, as above shown, the same errors apply to the BT patent counterclaim (which also required expert testimony) and to the unfair competition and antitrust counterclaims, (which required customer witnesses and the opportunity to put in evidence advertisements and other admissions of JFD, as above discussed).

3. Conclusion As To Due Process

Neither the Foundation nor J F D has offered any legal or other authority that excuses forcing a litigant, through no fault of its own, to go to trial without witnesses; and certainly not to go to undertake such complicated trials as patent trial without its patent expert, or unfair competition and antitrust trials without its customer witnesses or the right to put in perfectly proper documentary evidence.

II. A. THE FOUNDATION'S ISBELL PATENT

1. The Foundation Position

On page 5 of its brief, the Foundation states that it is not the function of the Court of Appeals to overrule "findings of the lower court...supported by substantial evidence" with which we, of course, agree (with the exception of those instances where such findings are grossly and shockingly against the weight of the evidence).

As pointed out in the Blonder-Tongue main brief, (p. 9), it is "the conclusions of law of the District Court", even based on a record where Blonder-Tongue has been deprived of its day in court, that we are asking this Court to overrule. (main brief, p 9)

Should this Court not agree that the conclusions of law, based on the District Court's findings from the incomplete record, are erroneous, particularly in the light of undisputed and admitted facts, then we maintain the case should be remanded (p. 9) to enable Blonder-Tongue to have a full and fair trial which strongly to establish the fact situation pleaded in its answer and counterclaim which would even more clearly warrant opposite conclusions of law.

Turning to item I (the effect of the publication of Quarterly Engineering Report No. 2), the Foundation agrees on p. 7 with the law set forth on pages 11-13 of the Blonder-Tongue main brief that the fact alone that a report is

"'received' by a library",

or is

"'filed' in a library",

or is

"made accessible to the public"

is determinative of publication under the established decisions.

The Foundation also agrees that librarian Miss Johnson testified, as quoted on page 12 of the Blonder-Tonge main brief, that more than a year before the Isbell patent application filing date, Quarterly Engineering Report No. 2 had been "received" and was "available...either as a library reference or as an extra copy"

to anyone who "requested" the same.

Contrary to the Foundation's statement at top of page 7, Mr. Lawler did not contradict Miss Johnson at App. 465-466 or anywhere else, with regard to the facts as to what was done with this particular Quarterly Engineering Report No. 2 in this particular case. ~~This Court can readily so ascertain from the record.~~

In fact, Mr. Lawler conceded that Miss Johnson knew more about what was actually done with this report than he: (quote). Thus, there is no fact dispute; only the issue of law.

~~We maintain that the mere fact that no one~~ whether anyone did request a copy of the report before the Isbell application filing date does not, ~~as the District Court appears to have held, detract from~~ affect its "publication". As ~~quoted from~~ The Hamilton Laboratories, Inc. v. Massengill ~~case on page 11 of the Blonder-Tongue main brief, it is the~~ Rather,

> "intent that the fruits of research be available to the public (~~that~~) is determinative of publication under the statute"

and there is no question but that this report was "printed", "received", "filed" and "available" to the public more than a year before the filing of the Isbell patent application in contravention of 35 USC 102 b.

As to items 2 and 3 (obviousness-predictability-the Winegard decision), the Foundation makes four assertions, but without giving any support therefor in the record.

Lest it be interpreted that Blonder-Tongue has conceded such items as the significance of Dr. DuHamel's alleged activities, the pertinence of the prior-art references and the alleged unsolved needs, failures of others and so-called commercial success, it should be pointed out that Blonder-Tongue has not had its day in court to present ~~the~~ evidence ~~it was prepared to present~~ as to these issues through its patent expert.

All that Blonder-Tongue has argued at p. 13-15 of its main brief, is a single issue of law on the matter of whether "predictability" (found by the District Court) is synonymous with the statutory test of "obviousness". If Blonder-Tongue and the Court of Appeals for the 8th Circuit with Winegard case correctly understand the law, the District Court in this case has misapplied the same.

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We also pointed out (p. 14) contemporaneous statements at the late date in log periodic antenna development that Isbell ~~was~~ started to make his "thin linear elements" (p. 2 of Report No. 1, D. Ex. 7),--evidence in this suit, irrespective of the 8th Circuit Winegard case-- that "multi~~linear~~ element log periodic antenna" were by

that time "found to be predictable".

But the Foundation says we lifted this "out of context", an assertion which this Court can readily see to be erroneous from inspection of the document.

More important, however, the Foundation implies that there is some magical difference between "sheet metal" antenna elements (as to which it at least admits there was "predictability" at the time Isbell started work on his patent in suit, as reflected by Report No. 1) and the "thin linear elements" used by Isbell.

But the Foundation's own witness, Mr. Harris, admitted that the sheet metal antenna element and the thin linear element had precisely the same kind of operation and performance (App. 157-161, 200-202, D. Ex.) and were both well-known before Isbell (App.).

Which brings us to the question of law.

Is it patentable to substitute one well-known type of antenna element for another in accordance with precisely the same old log-periodic dimensioning and arrangement? Can as many patents be granted as there are well-known elements to substitute?

We think the answer, as a matter of law, is quite in the negative.

This certainly raises an entirely different ~~admitted~~ factual situation than that which gave rise to the Tomlinson case cited on page 9 of the Foundation brief, and falls, rather, within the well-established doctrine of the Winegard and ~~other~~ similar cases (p. 14 of the Blonder-Tongue main brief).

~~2. The x A x F x D x Position x As x To x The x Isbell x Patent~~

2. The J F D Position As To The Isbell Patent

J F D, through the exclusive licensee, has declined comment on the Isbell patent.

~~II.~~ B THE MAYES AND CARREL PATENT

1. The Foundation Position

The Foundation does not (and cannot) dispute that Mr. Turner gave to Dr. Mayes not only the teaching of inclining the Isbell dipole antennas into V's, but taught Mayes the precise angle to use--as used by Blonder-Tongue in its allegedly infringing ~~X~~ Color Ranger antenna and ~~or~~ set ~~forth~~ called for in the claims of the Mayes et al patent in suit.

Instead, on pages 10 and 11, the Foundation sets forth a story (without any references ~~whatsoever~~ to testimony in the record) that this resulted in "an abandoned experiment", and it remained for Mayes et al to take some magical "last step".

Assuming, arguendo, that this story had been ~~proven~~ proven in the record (which it was not), the claims of the Mayes et al patent ~~on their face~~ set forth no more than Isbell's teaching ~~of the combination~~ with the ~~V-ing suggested by Turner and the~~ precise V angle suggested by Turner--nothing more. These claims ~~thus~~ are either invalid as representing ~~less than~~ an inoperative device, or they were invented by Turner.

The District Court itself found, ~~indeed,~~ that the V'ing is "the only structural difference between his (Mayes and Carrel) patent and the Isbell patent" (I App. 830).

As for the fraud issue, it is significant that the Foundation has not denied ~~a single one of facts 1 through 4~~ the facts discussed in Blonder Tongue ~~set forth on pages 19 and 20 and thereafter~~ (p 19-23) as to the conduct in the Patent Office.

It thus remains for this Court to decide the applicable law. Is it the law of the Wen Products case (which deals with the

P 14

Refer to FTC (10/28/68)

15 GPQ 195

~~In the recently reported decision~~

A recently reported decision of the Sixth Circuit Court of Appeals condemned the ~~failure~~ of an applicant to make a full disclosure to the Patent Examiner:

401 F 2d 574 " Ruth p 579 "

~~entirely different~~ facts of normal patent prosecution and the lack of requirement of a patent applicant to volunteer all the prior art ~~it~~ he knows about), or the law of the Flick-Reedy, Hazel-Atlas Glass and Precision Instrument ~~cases cited at the top of page 21 of the Blonder-Tongue~~ main brief (p. 21) dealing with ~~citations~~ situations where a deliberate act was made, as an affidavit voluntarily filed, to induce the Patent Office to withdraw its rejection and allow a patent. And under a Rule ~~(Rule 131, that by its very terms involved~~ certainly required applicant complete candor ~~in a statement under oath~~) with regard to earlier publication of the prior art known to applicant and his attorney.

~~2. The J F D Position On The Mayes et al Patent~~

J F D has remained silent, other than to disclaim all association with the charge of fraud in the Patent Office, ~~stating, p. 18, that these acts were done~~

~~"without concept or cooperation with J F D."~~

III. Non-Infringement of The Isbell and Mayes et al Patents

~~1. The Foundation Position~~

The Foundation's argument on pages 12 and 13 seems to be that any separation of the antennas at all is "substantially coplanar" within the meaning of the Isbell and Mayes et al patents.

The Foundation does not dispute the Blonder-Tongue showing, pages 23-25 of its main brief, that the Blonder-Tongue separation of the antenna planes is "deliberate" and is "about twenty times the substantially touching or coplanar (0.003 wavelength) relation of Isbell", as taught in the Isbell and Mayes et al patent specifications and as testified to by J F D witness Heslin.

Nor does the Foundation dispute that the Patent Office granted the Blonder-Schenfeld patent for this "radically different construction", among other features.

Clearly, if Isbell had been entitled to a claim covering any separation, none of its skilled attorneys, the applicant, or the Patent Office would have required a limitation in the claims to "substantially coplanar".

And the final proof of noninfringement was admitted by Dr. Mayes himself (as quoted on page 25 of the Blonder-Tongue main brief). If the Blonder-Tongue antennas were "moved together so that they are substantially in the same plane" (the language of the Isbell and Mayes et al claims), the antennas would no longer operate properly (main brief, p. 25). This was not in any way disputed by the Foundation -- and could not be.

the Isbell and Mayes et al claims), the antennas would no longer operate properly.

It is elementary that a device that cannot work in accordance with a patent claim, cannot possibly be an infringement thereof (see citations at p. 25 of main brief).

~~2. J F D Position on Non-Infringement~~

~~None, except indirectly~~ J F D appears to have shown agreement with Blonder-Tongue that ~~the~~ the Blonder-Tongue antennas are decidedly not constructed to operate in substantially the same plane as taught by Isbell and Mayes et al, but require a deliberate "vertical distance between booms" (p. 40).

IV. THE UNFAIR COMPETITION and ANTITRUST COUNTERCLAIMS I and II

~~1. The Foundation Position~~

The Foundation considers that it had no part in any of the activities complained of, except the "purported fraud in the Patent Office and improper news releases" (p. 14).

The fraud has been discussed above; and it is not disputed, as stated on p. 22 of Blonder-Tongue's main brief, that without the filing of the affidavit

> "the Examiner clearly would not have allowed the Mayes et al patent! (see rejection, D.Ex. 12, p. 30)"

~~As for~~ The new releases, ~~this~~ will be discussed in treating with JFD's position, as will the involvement of the Foundation in other aspects ~~actions of all~~ the counterclaims.

2. The J F D Position

J F D does not take issue with the Blonder-Tongue showing, p. 29 and 30, that the law recognizes that a "pattern of such a series of acts can be unfair competition (and also antitrust violation), even if the acts individually by themselves ~~are~~ were non-actionable."

As for the individual or separate acts themselves, we shall now treat with JFD's arguments under two caveats:

Nor does JFD dispute that the District Court did not treat with this important doctrine of law.

Instead, JFD follows the tack of the District Court and argues merely, p. 11, that

> "none of the separate and unrelated activities of JFD was wrongful". (~~underscoring~~ Emphasis added)

It is, of course, for this Court to decide whether these acts are "unrelated"; and to decide the correctness of Blonder-Tongue's contention that these were related and, as a pattern, were illegal.

That damage resulted to Blonder-Tongue as a result of these acts has been amply proven (see, for example, pages 36, bottom page 38, center page 40 ~~38~~ of B-T's main brief).

First, it should further be borne in mind that Blonder-Tongue did not have its full day in court, with the improper exclusion of critical evidence and proferred testimony relating thereto (bottom p. 7 and p. 8 of Blonder-Tongue main brief), and with the inability to remarshall its customer witnesses in time for the reset trial. Thus, in its main brief, Blonder-Tongue has had to argue on the basis of the District Court's findings as supplemented by whatever undisputed additional facts are in this incomplete record only.

Second, the JFD brief abounds with statements unsupported even by attempted reference to the record, and certainly unsupported by the record itself. There are too numerous to counter except for the most glaring matters, so that it is respectfully requested that before this Honorable Court accepts any such unsupported statements or interpretations of testimony or exhibits, not in the District Court's decision, they be checked in the record.

Tie-In Sales

JFD concedes that there was other undisputed evidence besides that which led the District Court to find that there was at least some "evidence...which tends to support the argument" of "tie-in" sales.

Specifically, JFD concedes that in addition to Mr. Fankel's testimony, there was hearsay testimony (not excluded) in the deposition of General Manager Gilbert of coercion and tie-in activities (App 675), and testimony (also not excluded) in marketing director Helhoski's deposition of instances of "implied" coercion by JFD (App. 687).

There is no contrary evidence in the record.

As before pointed out, not only was Blonder-Tongue deprived by the District Court of a postponement to reassemble its customer witnesses ~~specified in~~ , but it was JFD's own deliberate actions that resulted in inhibiting other modes of proof and interfering with the very processes of the court; ~~as follows~~:

1. The District Court found that "some records dealing with customers were found to be missing" (App. 835) when one ~~envelope~~ employee (Balash), who had been "assigned...to personally investigate" the threats of JFD to customers (App. 511-2; 694-5), was "subsequently hired by J F D" (App. 835).

2. J F D hired away, ~~also during this litigation and~~ just before the trial, Blonder-Tongue's West Coast sales representative, Graham Sesson--the West Coast being one of the places where there had been specific ~~distributor~~ distributor customer coercion (see ~~distributor-~~

letter sent by JFD to

~~customer letters and JFD distributed news releases, sales bulletin~~ to Sacramento Customers, D. Ex 43 ~~referenced at bottom of page 39 of main brief).~~

How can JFD now be heard to complain, p. 13, that "No BT salesman produced evidence as to alleged customer coercion."?

Even without its full day in court, Blonder-Tongue succeeded at least in convincing the District Court that there was some evidence "which tends to support this argument" (App. 836).

We question the conclusion of law, therefore, that because this is what the District Court called "a normal business practice", it is proper to use a line of allegedly patented antennas as a club to force the purchase of unpatented related converter and booster equipment.

Admittedly the proofs aren't the strongest or complete (thanks, in part, to the above actions of JFD), but, as the District Court itself had to conclude, there was some evidence and nothing to rebut the same on the other side.

The Raiding

While JFD says that the people hired away (during this trial) were not "key" people, this does not make it so, particularly in the face of the uncontradicted testimony ~~referenced on pages 33-35 of Blonder-Tongue's~~ quoted (See summary, Page 33-35), main brief.

Is ~~the~~ numbers game the test of "raiding" as JFD and the District Court have asserted? We think not.

No matter how dissatisfied an employee may be with an employer, has ~~another employer~~ an adverse litigant the right--during ~~litigation~~ suit and preparation for trial ~~with the first employer~~--to hire away such employee who ~~is known, or should have been known, to~~ possess confidential and intimate information vital to the proofs of the ~~trial by the first~~ employer?

Certainly JFD knew ~~or should have known~~ that Schenfeld was the co-inventor of the patent upon which JFD was sued in the counterclaim by Blonder-Tongue; and certainly JFD knew Mr. Balash's involvement and that of Mr. Sesson, as well!

We think the authorities support us ~~(p. 35)~~ that this conduct is of ~~itself~~ improper.

Mismarking and False Patent Legends and Claims

JFD concedes (p. 18-21), despite excuses, that it did mismark; but it ~~runs to~~ seeks the shield of the District Court's protective "minimal" effect doctrine.

We have shown deliberate action ~~(including action~~ as part of ~~the~~ a conspiracy~~s involved in all of these acts~~ to restrain lawful competition~~,~~ at p. 37 of our main brief; and we believe that the decisions in the Kobe, Perfection Mfg. Co., Angel Research Inc., Channel Master Corp. and White Motor Co. cases ~~quoted on pages 37-39 thereof~~ clearly show the error of the District Court's ~~legal~~ conclusion. (main brief, pp 37-39)

The Type of Circularizing of the Trade Re Litigation Hereinvolved

Again JFD tries to consider the issue of improper venue and the like out of its true context and setting in the scheme of advertising and circularizing the trade to dissuade doing business with Blonder-Tongue.

Such dissection begs the point, we believe.

~~At the bottom of page 23,~~ JFD states that it considers the fact situations are (JFD brief, p 23) ~~(BT brief, p 41)~~ controlled by the Panay, Maytag, Gerosa and Robbins cases ~~quoted and cited at p. 41 of our main brief to relate to~~. We submit that the uncontradicted record ~~referenced on pages 39-41~~ establishes those precise kinds of facts. (main brief, pp 39-41)

The False Advertising

JFD says it was only "puffing" (p. 25).

It also criticises the evidence that Blonder-Tongue was able to muster as to the wildly false performance claims in JFD

even though such could be presented without the benefit of

advertising, despite the losing its co-inventor Schenfeld who had

been charged with testing the JFD antennas for testifying in this

suit, but who was hired away by JFD just before the trial, App. 504-5.

But JFD has failed to (because it could not) produce any wit of

evidence that any of its antennas produced anything even resembling

these wild "35 db" performance claims (p. 43-4 of our main brief)--

and under the color of the name and prestige of the University of

Illinois!*

JFD, indeed, tries to excuse this by its gratituous hope

that it

> "is unlikely...that many customers came across or were influenced by these passages".

And it tries to overcome the effect of the Foundation's belated

criticism of JFD's false advertising (quoted on p. 43, and 44 of our

main brief) by asserting, pr 29

> "the Foundation" statements are not binding upon JFD"

The damage that was caused Blonder-Tongue by this false

advertising, coupled with the patent mismarking, coercion, and

tying of litigation in the papers and press releases, and raiding,

was clearly shown (see, for example, the center of page 36, bottom

of 38, center of 40, 44 of our main brief).

* Lately concocted arguments--not supported by any testimony or proofs, of alleged exaggerated claims of Blonder-Tongue (p.28 of JFD brief)--do not even relate to or bear upon the same services in kind of deliberate false performance numbers spread through JFD's Foundation-approved advertisements to the trade.

Summary as to Unfair Competition and Antitrust Counts

We do not understand how this Court can accept JFD's explanation at p. 29, that if the complained of

> "acts were improper, none of them was intentionally so."

Everything that could be done to restrain Blonder-Tongue's antenna sales program was done in every available medium, and the assertion that no damage was shown is equally not understandable in the public interest in unclean hands, misuse and per se antitrust violations (involved in the fraud, mismarking and extension of patents to unpatented items), but the clear testimony summarized at p. of our main brief to actual damage.

V. THE BLONDER-SCHENFELD PATENT COUNTERCLAIM

JFD, p. 30, concedes that the District Court

> "might have made additional findings of fact"

as required by the Supreme Court in the Graham case and this Court in the U. S. Gypsum Co. case (p. 45 of our main brief).

JFD tries to modify and supply the deficiencies in the District Court's decision as to prior art references (p. 34-37), file wrapper estoppel (p. 37-39), lack of invention (p. 39-40), inoperativeness (p. 40), and indefiniteness (p. 41-2). It also purports to deny infringement (p. 44-49).

Clearly, the attempt by JFD in its brief to interpret the pertinence of complicated technical publications and patents and to push off on this Court the job of

"interpretation of the documents, if this Court wants findings",

is contrary to the policy that technical explanation is required in complex patent cases (supra) and this must be done in the District Court. This, JFD failed to do at the trial.

But even if we were, arguendo, to accept what JFD says (p. 34-7) the prior art shows (which it does not), it is clear that JFD concedes that no reference teaches the claimed invention. It is allegedly only the question of "obviousness" in combining the elements said to be individually associated with antennas of a technical Report No. 52 (Mayes or Heslin), with rigid insulators of Gross, dipole-half spacing of Valach, impedance adjustments of Kane and Wickersham, standoff mountings of Callaghan, parallel transmission line mountings of Winegard, and strain relief constructions of LineLok or Zip, as under, to produce the combination of Blonder-Schenfeld claim 5.

We submit, as a matter of law, this necessary use of many references to anticipate the cooperating elements of an antenna (not an aggregation as in the Lincoln Engineering Co. case), on its face shows unobviousness as a matter of law, Minneapolis Honeywell Regulator Company v. Midwestern Instruments Inc. 298 F. 2d 36, 38

(7 Cir., 1962), quoted at p. 47 of our main brief.

Similarly, as a matter of law, we are relying on claim 5 as it issued in the patent, and not any broader or narrower claims discussed on p. 37-40 of the JFD brief, so that there is no possible legal estoppel.

Lastly, none of the Patent Office, Mr. Blonder, Dr. Mayes, or the District Court had difficulty in finding a meaning for claim 5 ~~that rendered it entirely and properly descriptive of an operative combination~~ and most clear and definite and supported by the disclosure of the patent. In fact, Mr. Blonder applied the ~~same~~ claim to the ~~highly operative~~ Blonder-Tongue antenna, ~~App. 500-2 and earlier, as reproduced in the~~ Addendum, ~~p. 51 of our~~ main brief).

This Court can readily follow this identification of the cooperative elements of the novel combination of claim 5 by referring to this Addendum, ~~and column 2 thereof, which refers to the numbers in the patent itself.~~

As a matter of law, thus, we feel the presumption of validity has not been rebutted, ~~particularly since the District Court also found it necessary to include all of the patents cited~~ (all relied on by the District Court) by the Examiner during the prosecution of the application, ~~as~~ are of the

same nature as the other citations. (App. 638).

~~(Quote --citation from earlier draft of 1st brief)~~

No really new type of art not considered by the Patent Office is ~~thus~~ ~~really~~ involved.

We feel, also, that ~~the doctrine of law as to validity is clear~~ that where it is necessary to rely on ~~many~~ many references (1 report, 2 antennas, 12 patents) to build up an alleged anticipation--as both the District Court and JFD have ~~here~~ tried to do--this is, ~~rather,~~ evidence of invention.

~~This is as distinguished from~~ JFD's interpretation requires reading in non-existent limitations in the claim, such as "integral" strain reliefs and reliefs that cannot be "flexible"--concepts having nothing to do with the clear language of the claim and ~~prior specification~~ the invention.

This leaves the issue of infringement. ~~As to this,~~ JFD has failed to ~~While~~ denying the legal conclusion of infringement, ~~not~~ pointed out a single element that it does not have ~~that~~ which is ~~not~~ specified in the actual language of claim 5, this is as distinguished from reading-in non-existent limitations in the claim, such as "integral" strain reliefs and reliefs that cannot be "flexible"--concepts having nothing to do with the clear language of the claim and specification.

JFD has not in no sense, at p. 44-49 or elsewhere, demonstrated any error in Mr. Blonder's application of the claim to the JFD structure, App. 500-2, ~~as reproduced in column 3 of the~~ Addendum, ~~on p. 51 of our main brief~~; and JFD certainly has not denied ~~in any sense~~ that its antenna operates in the manner of the log periodic antenna of the Blonder-Schenfeld patent.

Thus, while disputing the conclusion of law as to infringement, JFD does not actually dispute the facts ~~of Addendum~~ 1. We believe the conclusion of law as to infringement inexorably follows.

The Foundation, ~~having~~ engaged in the advertising program of JFD with responsibility in its license to approve the ads, (~~reference~~ App. 745), has assisted in the advertising for sale of the ~~LPV V-U 18 and other~~ JFD antennas that infringe the Blonder-Schenfeld patent, and has contributed ~~with~~ its name ~~used~~ in the ads to effect persuasion of such sales ~~(reference to ad?)~~ by selling and offering for sale, inducing infringement, is, of course, an act of infringement by the Foundation.

Conclusion

We accordingly submit that the Isbell and Mayes et al patents are invalid, not infringed and unenforceable for unclean hands and misuse, as a matter of law, even on the incomplete record of ~~the~~ this case.

Similarly, we submit that both the overall pattern or scheme of innumerable acts, found ~~even on this incomplete record, to have existed~~ by the District Court and admitted in uncontraverted other evidence, directed toward dissuading competition with Blonder-Tongue, and the several acts ~~in and of~~ themselves, constitute unfair competition and violation of the antitrust laws.

Lastly, we submit that, as a matter of law, the legal conclusion of validity and infringement of the Blonder-Schenfeld patent should be drawn, even if JFD's arguments be considered, arguendo, as supplementary to the District Court's erroneous legal conclusion.

Should, however, this Court of Appeals disagree with ~~appellant~~ as to improper application of the law in both the Foundation patent suit and the Blonder-Tongue ~~unfair competition, antitrust and patent~~ counter claims, then justice requires due process for ~~the Appellant to establish a stronger and new record~~ by way of a proper trial, that it was deprived of in this case.