The First Plant Patent

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ON August 18, 1931, the United States Patent Office issued the first patent to the "inventor" of a new variety of plant, under the amendment of the patent laws signed by President Hoover on May 23, 1930.

Curiously and ironically enough, Plant Patent 1 does not go to a plant breeder at all. Mr. Henry F. Bosenberg of New Brunswick, New Jersey, who has the honor of being granted the first patent on "new and useful improvements in an asexually reproduced plant," is a landscape gardener who bought a number of Van Fleet roses for use in his work. One of these proved to be a bud sport, apparently, and a new variety had been—"invented!" The new rose is exactly the same as the well-known climbing rose originated by Dr. Walter Van Fleet, and bearing his name, except that it is claimed to be everblooming.

From a number of points of view this first patent raises interesting problems. We learn from the *Jounal of the Patent Office Society* that Mr. Bosenberg avers under oath that he did nothing to originate the new form; the aberrant plant was one of a number he bought for use in landscape work. The plant showed ever-blooming habits, and buds from it perpetuated the tendency. It was tested four years and found not to revert. Nevertheless in the patent specification he says: "—but the same ever-blooming habits may be attained by breeding this new quality into other varieties of climbing roses." Obviously nothing appears in the record to substantiate this claim. If the plant is a bud mutation, as seems certain, the quality might be "breedable;" more likely it would not. Perhaps there is nothing serious in permitting such unproved and possibly unprovable statements in plant patent applications, but when they are made the basis of so broad a claim ("A climbing rose as herein shown and described") it may influence adversely the value of the plant patent law.

The Type Plant

If the law is to prove a benefit it must not offer unduly exclusive protection. Is Mr. Bosenberg entitled to a patent on "a climbing rose as herein shown and described, characterized by its everblooming habit?" Is he not entitled rather to protection on "climbing roses arising by asexual propagation *from the plant herein shown and described,* characterized by their ever-

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blooming habit?'' In practice there might be a world of difference in the two claims. The broader claim appears to give him a monopoly on practically all ever-blooming bud variations or hybrids of the Walter Van Fleet which essentially resemble the parent form except in everblooming habit. Theoretically and practically to do this renders the plant patent law a travesty before it starts, because plants are variable, and there is only one way to bring this matter of plant patents to a focus, and that is by reference to the original plant, or to designate type plants, in the patent specifications. The originator may be given protection for the asexual propagation of the specific plant he has originated, or he may be given more or less mythical protection based on verbal descriptions, which because they are vague promise too much, and very likely in practice protect much less.

From the social point of view the distinction is very important. One form of patent protection is constructive—the other essentially destructive. The owner of a dozen or so vaguely defined patent claims can, if he has the right psychology and money enough to hire a lawyer, cause almost complete cessation of improvement of a given plant. Patents can be acquired by purchase, and not very many would be needed to work wholly unexpected and unjustified hardships.

Conversely the actual linking of the claim to the specific plant gives the plant originator the protection he is entitled to—in a specific and definite form. His rose, *the one that he originated,* is being propagated. It is this that he wants to protect, and the law takes care of that. There is a remote possibility that an indistinguishable form might be originated independently. In the case of bud variations, as in the instance of Plant Patent 1, there is a distinct possibility that similar variations might occur repeatedly, as has happened in the case of the Thompson variation of the Washington Navel orange in California[1] and in other repeating variations.

Are Bud Variations Patentable?

This brings up the question of the patentability of fortuitous bud variations under the law. In the discussion of the law at the time it was enacted it was pointed out that ''discover,'' in the sense intended in the Constitution and in the present patent statute means to *invent* as the word is used today. Obviously Bosenberg in the ''origination'' of this new form was much more of a ''discoverer,'' in the accepted sense of the word, than an

[1] See Shamel, A. D., et al. Bud Selection in the Washington Navel Orange. *Journal of Heredity* 16:233-241. 1925.

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"inventor." His contribution to the production of the new variety is in no way comparable to that of the originator of the Van Fleet Rose, who spent years of purposeful endeavor to produce the final form[2]. In Van Fleet's contribution we have real inventiveness applied to plant breeding—in distinct contrast to what Bosenberg displayed in noticing that one plant was different from its fellows, and in propagating it.

Another angle that undoubtedly will be considered by the courts is the basic principle of patent law that a patent must represent an improvement that is not an obvious development to a person "skilled in the art." For example, a patentable invention is not deemed to exist when a mechanic increases the rigidity of a machine by the addition of struts and braces. Similarly it might be argued that persons skilled in the art of horticulture have for several thousand years made a practice of propagating aberrant plants that appear spontaneously in their gardens, and that the propagation of a new form appearing as a bud mutation is not an instance of inventive faculty, but an obvious procedure to anyone "skilled in the art."

The only way to test such features of the plant patent law is, of course, to grant the patents and let the matter take its course through the courts. When this is done, it is probable that the courts will construe the law in the light of existing patent decisions, applying these where they *seem* to fit. The granting of patents on bud variations might be argued either way from the point of view of agricultural expediency, but if such patents are held to be valid it would seem to represent a drastic revision of existing concepts of what constitutes inventive faculty, which is the faculty assumed to be stimulated by patent protection.

A Patent an Embodied Idea

In this connection it must be borne in mind that the Courts have consistently held that a patent is essentially *the physical embodiment of an idea.* The *idea* is the basic and essential part of every patent. In many instances new varieties of plants represent just what has heretofore been protected by patent, and as such are clearly patentable. The Van Fleet Rose and this "New Dawn" variations are an excellent example of the distinction. One represents an embodied idea, persistently striven for; the other represents an "accident" and a little

[2] "Moreover, it is to be noted that the committee has, by its amendment in striking out the patenting of 'newly found' varieties of plants, eliminated from the scope of the bill those wild varieties discovered by the plant explorer or other person who has in no way engaged either in plant cultivation or care and who has in no other way facilitated nature in the creation of a new and desirable variety."—Senate Committee report on plant patent law.

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forethought—nothing more. It may well be questioned whether the Courts will revise their views with regard to this matter to fit the new patent law. Unless there is a complete reversal in this matter, the validity of Plant Patent 1 might also be questioned because of the notable absence of the inevitable brainstorm that is said to be an essential concomitant of every patent. This has no general bearing on the constitutionality of the plant patent clause as a whole, but it might limit the application of the law to valid instances of plant inventions—not to entirely casual "discoveries."

"Products of Nature" Not Patentable

The reaction, if any, of the new patent legislation on the courts is perhaps reflected in two decisions rendered since the law was adopted. In the case of the patentability of ductile uranium the U. S. Court of Customs and Patent Appeals rendered a decision in the following terms: "Uranium is a product of nature, and applicant is not entitled to a patent thereon nor upon any of its inherent natural qualities" (*in re Marden*, 409 O. G. 559). On the same principle patents have been denied on ductile tungsten and ductile thorium, on polished oyster shells, and on oranges treated with borax. The latter decision was rendered by the United States Supreme Court on March 2, 1931, nearly a year after the plant patent law was enacted. In this case, involving very large interests, the Supreme Court reversed the decisions of lower courts and held that an orange dipped in a solution of borax to render the skin mould-resistant was not a manufactured article, and hence not patentable. There has always been a clear distinction maintained between products of nature and manufactured articles.[3]

Whether varieties derived through the exercise of the plant breeders' art will not also be considered products of nature in the same sense as are products of ductile tungsten, a substance not known to occur naturally, remains to be determined. In the last analysis, all chemical and physical properties are inherent in the elements, and therefore "natural." It is a little hard to distinguish the natural property of tungsten that renders it ductile under certain conditions from the natural properties of carbon and hydrogen and oxygen that permit them to combine in various ways to form a vast array of patentable chemical com-

[3] The statute reads: "Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvements thereof, *or who has invented or discovered and asexually reproduced any distinct and new variety of plant other than a tuber-propagated plant*, not known or used by others in this country, before his invention or discovery thereof. * * * * *

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pounds. Unquestionably the genetic elements which go to make up a new form of plant are "natural." Into which category of "naturalness" the courts will conclude that these phenomena of plants should be placed is an extremely interesting problem.

Experiment and "Unexpected Results"

In the field of chemical patents another set of principles appears to apply. Many chemical patents have been granted for combinations that produced unexpected results. In fact, decisions in some of the lower courts have advanced the principle that, in substitution of one material for another in a chemical compound, the new compound is not patentable unless an "unexpected result" be obtained. This seems to be diametrically opposed to the concept that the idea is basic in a patent. An unexpected result is obviously one that occurs in the absence of a deliberate plan or in spite of it. Opposed to this view, the Supreme Court has held that "it does not detract from its [the invention's] merit that it is the result of experiment and not the instant and perfect product of inventive power." The analogy between this situation in chemistry and the production of new plant varieties is striking. While a chance bud variation may be considered to be a natural product, a variety that represents years of application and a great number of experiments with different combinations of plants represents certainly an outcome that can hardly be considered "natural" by any reasonable test.

The importance of bud mutation in the production of new varieties is a somewhat debatable question. In many instances the varieties produced by bud mutation have been variations in color or shape of existing forms. Even if it were held that bud mutations were not patentable for either of the above reasons it would leave the larger field of improvement, that of the production of new forms by hybridization and selection, still subject to patent protection.

It has been suggested that the most important contribution that radiation-induced mutations will make to plant breeding is in the field of asexually reproduced plants.[4] Bud mutations induced by X-rays may be propagated asexually and without regard to lethals and chromosome derangements which would make sexual propagation difficult. One who induces mutations, even though he is not sure just what he is going to induce, is after all definitely experimenting, and the product could hardly be called "natural." A new variety produced by such means is perhaps more an "invention" than one which is found ready to hand in the back yard.

[4] Stadler, L. J. *Journal of Heredity* 21:31-19. 1930.

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It is hoped that these speculations on some of the complexities that are almost certain to arise in administering the plant patent law will emphasize an important fact. Past decisions with regard to patent law seem in many instances to be diametrically opposed to each other. It is still an open question which of these principles will be deemed to apply to plants. An intelligent understanding by plantsmen of the legal complexities which may arise in construing the law is thus a matter of the utmost importance. It would be a calamity to let the early decisions with regard to the plant patent law be made without clear statements by those "skilled in the art" of plant improvement as to what form of patent protection can be expected to stimulate most effectively the art of the plant breeder.

A plant with a new character may be a valuable discovery, but it is not a formula or a contrivance. Nevertheless inventive genius of a high order is often displayed in the production of new forms. New plants may be sought diligently in nature or by making large numbers of artificial hybrids, after the methods of Burbank and Van Fleet, selecting a few desirable forms and destroying great numbers of worthless individuals. The art of the breeder lies in knowing what to look for, and in having the interest to look; and in skill and persistance in the making of crosses. The practical question now to be determined is whether the interest in plant improvement can be rewarded and stimulated through the granting of patents. Much of the success or failure of this experiment, which was only just begun by the amendment of the law, depends on the details of its application, practically all of which have yet to be worked out.

Prize Awarded Dr. Langmuir

A check for $10,000 and a gold medal have been given Dr. Irving Langmuir of the Research Laboratory of the General Electric Co. as the 1931 award of the magazine *Popular Science* Monthly for notable achievement.

A committee of prominent American scientists singled Dr. Langmuir out from hundreds of candidates in recognition of his many contributions to pure and applied science, among which the invention of the nitrogen-filled incandescent electric bulb and the atomic welding process are conspicuous.

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