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ON LETTERS PATENT FOR INVENTIONS.

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BY

FREDERICK EDWARDS, JUN.

AUTHOR OF

"OUR DOMESTIC FIRE-PLACES,"

AND

"A TREATISE ON SMOKY CHIMNEYS."

LONDON:

ROBERT HARDWICKE, 192, PICCADILLY.

1865.

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PREFACE.

At the conclusion of a treatise by the author on the economical use of fuel in domestic fire-places, published a year since, he added some observations on the patent laws, in which he shortly expressed many of the views contained in the following pages. In extending his work for a second edition, he proposed to rewrite his "observations" at greater length; but on considering that the patent question was receiving increased public attention, and that if he had anything new to offer at all, he might most usefully accomplish his purpose by giving it separate publication, he was induced to reprint his former observations, and to delay the preparation of his new little work until a recent publication and the enlarged edition of his "domestic fire-places" had brought him sufficient support to give a pleasure

and zest to his labours. Such support he has had, and sufficient to lead him to hope that as the nature of his publications becomes better understood, they will gradually succeed in bringing to the public some of the benefit of which his suggestions may be capable.

The author cannot regret the little delay in preparing the present treatise, as it has given him the opportunity before writing, of perusing the interesting parliamentary report on the working of the patent law, and he now consigns his pages to his readers, in the hope that on a subject which demands the efforts of many, they may not be without useful influence.

The author has the pleasure to acknowledge the assistance he has received from the observations of Sir William Armstrong, Mr. William Hawes, and Mr. R. A. Macfie, Chairman of the Liverpool Chamber of Commerce, and of others who have preceded him in discussing the patent question.

Great Marlborough Street,

April 4th, 1865.

ON LETTERS PATENT FOR INVENTIONS.

Of the many important subjects that relate to the well-being of the community, there are, perhaps, few more generally interesting than the application of inventive skill to the products and principles of nature for the purposes of life. The machines by which remarkable results are effected, and the appliances by which bodily convenience or comfort is obtained or enhanced, address themselves so directly to the curiosity and understanding, that they are necessarily capable of receiving a larger amount of attention than can be commanded by subjects which, appealing more exclusively to the mind, give greatest satisfaction to the few. And, not merely is there an intrinsic cause for such popularity, but there is one that may be considered peculiar to our time. The wonders which our age has witnessed,—the rapid establishment of railway communications, of steam vessels, of the electric telegraph, the cheapening of manufactures, and the spread of those manufactures to most parts of the globe,—give to all matters connected with discovery and invention a significance they have never had be-

fore; and, if the question how to stimulate invention, by placing the possibility of adequate reward within reach of the inventor, is one that has at many times received the anxious consideration of the thoughtful, that question must be considered to be fraught with tenfold interest now that the changes through which we have passed and are passing seem like the gradual entering of the world on a new and higher phase of existence, and that every year is applying more and more the discovery of the individual to the general benefit of mankind.

The expediency of granting protection to the inventor by means of a monopoly of his invention for a limited period, has been very generally recognized; and every one must admit that it appears to provide a most simple and tangible mode of reward. That the inventor should be recompensed by those who immediately profit by his labors, that his reward should depend on the success of his invention, and on his perseverance in making it known, is so evidently advantageous, that none but the most powerful reasons, and those which comprise within them the true interest of the inventor himself, can suffice to set the system altogether aside. It is, in fact, only within a recent period that patents for inventions have been strongly attacked; but the subject has, nevertheless, been receiving a gradually increasing share of public attention, and, as there is every probability that the question will before long be affected by legislative enactments, every one who takes a strong

interest in matters connected with his country's welfare, must feel increasing anxiety that it should receive the full amount of consideration it deserves, and that the changes which may be effected will be such as will most completely identify the interest of the inventor with that of the community.

Every one who remembers the passing of the Patent Law Amendment Act of 1852, must be aware what reasonable expectations were formed from removing the old complex and expensive machinery, and substituting one that would give instant protection to the inventor, and that, if he should be unsuccessful, might occasion him but inconsiderable loss. And if, on carefully considering the various results of twelve years' working of the Act, he is obliged to see that those results are very different to what he could have expected, and that even the most experienced had been deceived, he will feel the necessity of increased caution in dealing further with the matter; and, whether as observer, as inventor, as manufacturer, or as legislator, will be thankful if he can but in a small degree throw light on a difficult and complex question.

Before entering upon a consideration of the working of the present laws, it will be well to enquire upon what principle of right letters patent for inventions have been considered to repose, and what amount of analogy there is between them and protection by copyright for works of literature and for designs.

An unexceptionable authority upon matters relating to patents, legally and historically considered, is Mr. Thomas Webster, Barrister-at-Law, a gentleman who has been extensively engaged, during a long practice, in patent cases, who has published some most interesting books relative to patents, and who, moreover, was engaged in preparing the Patent Law Amendment Act of 1852. Mr. Webster gives the following early definition of the principle of granting protection to the inventor:—

"Where any man, by his own charge or industry, or by his own wit and invention, brings any new trade into the realm, or any engine tending to the furtherance of a trade that never was before, and that for the good of the realm; in such cases the king may grant to him a monopoly patent for some reasonable time, until the subjects may learn the same, in consideration of the good that he doth bring by his invention to the commonwealth, otherwise not.

"(Arts and manufactures were at this time, A.D. 1602, at an exceedingly low ebb in this country, and nearly all improvements were introduced from abroad. The law, as here stated, has been adhered to in spirit from the earliest cases to the present time.)"—*Law and Practice of Letters Patent for Inventions*, by Thomas Webster, Esq., of Lincoln's Inn, Special Pleader.

A few years later (in 1623) the celebrated Statute of Monopolies, entitled "An Act concerning Monopolies and Dispensations, with Penal Laws and the Forfeitures thereof," was passed, and contained the following provisions:—

"V. Provided nevertheless, and be it declared and enacted; That any declaration before mentioned shall not extend to any

letters patents and grants of privilege for the term of one-and-twenty years or under, heretofore made, of the sole working or making of any manner of new manufacture within this realm, to the first and true inventor or inventors of such manufactures, which others at the time of the working of such letters patents and grants did not use, so they be not contrary to the law, *nor mischievous to the State, by raising the prices of commodities at home, or hurt by trade, or generally inconvenient*, but that the same shall be of such force as they were, or should be, if this act had not been made, and of none other.

"VI. Provided also, and be it declared and enacted: That any declaration before mentioned shall not extend to any letters patent and grants of privilege for the term of fourteen years as under, hereafter to be made, of the sole working of any new manufactures within this realm, to the true and first inventor or inventors of such manufactures, which others at the time of making such letters patents and grants shall not use, so as also they be not contrary to the law, *nor mischievous to the State, by raising prices of commodities at home, or hurt by trade, or generally inconvenient.*"

In the Patent Law Amendment Act of 1852, the form of warrant granting letters patent to the petitioner declares:—

"And we, being willing to give encouragement to all arts and inventions which may be for the public good, are graciously pleased to condescend tc the petitioner's request.

"Provided always, and these our letters patent are and shall be upon this condition, that if at any time during the said term hereby granted it shall be made appear that this our grant is contrary to law, *or prejudicial or inconvenient to our subjects in general*, or that the said invention is not a new invention as to the public use and exercise thereof . . . . . or that the said . . . . . is not the first and true inventor thereof, ... these our letters patent shall forthwith cease,

determine, and be utterly void to all intents and purposes, anything hereinbefore contained to the contrary notwithstanding."

Then follow provisions making the privilege to cease unless the sum of fifty pounds is paid before the expiration of three years, and one hundred pounds before the expiration of seven years, from the date of the patent. Mr. Webster thus explains the policy of patent rights for inventions:—

"That the person who brings into the public stock some new trade, whence arise the sources of national wealth, should receive some reward for his ingenuity, and some remuneration for the trouble and expense which he has incurred, is only reasonable. Hence, the conferring of patent rights may be considered as having the following objects: To reward the inventor for his ingenuity, and for the benefit which he has conferred on the public; to secure to the inventor suitable remuneration for his outlay of capital; and to encourage and stimulate inventions and improvements. Such being the policy and principles of patent rights, it would appear that a temporary or limited monopoly is a most appropriate, equitable, and convenient reward. For a reward of this nature proceeds directly from the invention, and it is unfettered by legislative interference. The monopoly should only be temporary, for the inventor has no natural or inherent right in his invention; and it would be unjust and injurious to exclude the public for any great length of time from a participation in a branch of useful trade newly opened to them."—*Webster's Law and Practice of Letters Patent for Inventions.*

It appears, by the above quotations, that letters patent have been regarded in the nature of a privilege granted to an individual with a view to promote the good of the realm, for which privilege he has been expected to pay to the State certain consider-

able sums of money; and that, in the Statute of Monopolies, it was provided that the grant might cease if found to be "*mischievous to the State, by raising prices of commodities at home, or hurt by trade, or generally inconvenient;*" or, as expressed in the Patent Law Amendment Act, if "*prejudicial or inconvenient to our subjects in general.*" Our law-givers do not appear, therefore, to have had any conception of there being any natural right on the part of the inventor to the exclusive use of his invention, but the question of granting him a limited monopoly has been entirely one of expediency. Whether or not their principle has been the correct one, it may be useful shortly to consider.

It may be stated broadly that the inventor is supposed to investigate and understand certain laws and principles of nature, and to be intimately acquainted with the use of certain materials or products. He discovers by reason, by experiment, or by chance, that those laws can be so applied to certain substances as to produce a result which is new to him and which may be beneficial to mankind. He therefore asks for protection to use his discovery, and it is called his invention. The more intimate he is with nature, and the more carefully he considers his knowledge with reference to any subject of investigation, the more probable it is that he will gain a particular end in a very complete manner. And the more completely he succeeds, the more certain it is that if any other man of equal knowledge, equal capacity, equal

opportunities, and working with equal care and perseverance, investigated the same subject, he would arrive at the same or equivalent results. Now, the laws and principles of nature being, by inherent right, the property of all men to investigate, to understand, and to apply, the knowledge how to use those laws and principles so as to gain a certain result beneficial to mankind, being a mere ramification of such inherent right, belongs as naturally to every man who can gain such knowledge, whether by reason, by experiment, or by chance, that he may apply it to his own use, communicate it to his neighbour, or publish it abroad at his pleasure. The history of invention has been said to be the history of simplification, which can merely mean that the discovery of one man is followed by the deeper discovery of another, and it implies that nature offers very perfect modes of doing things; but that, what is most peculiar to man is his partial insight, his hopes, his struggles, his disappointment, his vexation and his loss.

In an imperfect community, however, all questions cannot be settled by notions of abstract right. The natural right of the individual has sometimes to yield to the general benefit of the community. Thus, in the matter of patent rights, the privilege granted to one man, who may be the first to make a useful discovery is calculated to interfere with the natural rights of other men, and can therefore rest on no other basis than that of expediency.

It appears, therefore, that those who believe the

inventor to have a natural right to the exclusive use of his discovery, and that his invention is, in fact, his property, which should be protected by legal enactments, must have an entire misconception as to what it is the inventor really achieves. If he produced a work of art that could by no possibility be the work of any hand but his own, there could be no question as to his right; but, if he anticipates discovery; if any other man of equal attainments, or with equal advantages, may make the same discovery; if, indeed, one or many others do, unknown to one another, make the same discovery, his merit must consist essentially in priority, often a very great merit indeed, and one for which there should be adequate reward; but, still, one that does not entail any notion of the right to exclusive possession.

Those who entertain an erroneous notion respecting the inventor's natural right, invariably adduce the instance of copyright for works of literature as affording, or appearing to afford, analogous treatment, and it will be well to enquire how far a careful consideration of the protection afforded to the author may lead to the conclusion that similar protection should, by right and expediency, be afforded to the laborer in the applications of science.

A little consideration will soon show that between the inventor's and the author's labours there are some striking points of resemblance. A good book may be compared to a good invention, and an indifferent or bad book may be compared to an

indifferent or bad invention. The writer of a book endeavors to do something new or something better than has been done before, and the inventor endeavors to do something new or something better than has been done before. An author endeavors to instruct mankind, receiving recompense by the sale of his productions, by the honor he may obtain, or by the satisfaction of doing some good in his time; and the inventor may also be considered to work with the same motives, to receive recompense, to gain honor, and to have the satisfaction of doing some good in his time. Of the total number of books published, very few command or receive the amount of attention the authors consider them to deserve, and many are forgotten as soon as they have appeared; and, of the total number of inventions, very few command or receive the amount of attention the authors consider them to deserve, and many are forgotten as soon as they have appeared. The author protected by his copyright is scarcely ever known at the law courts; but here, there is a great difference, for the successful inventor is far from being a stranger at the law courts. The author may have at his command all the facts he can ascertain relating to the past and present; he may use the knowledge he has gained for the purpose of showing the true relation of things, he may attempt the philosophy of history, he may endeavor to deduce from all that reason, experience, and moral principle may furnish, new principles

of action and useful guidance for the future, himself unimpeded but assisted by the labors of others, himself not impeding, but, perhaps, assisting the labors of others. But here, there is an immense difference, for the inventor obtains protection for the exclusive use of his discovery, and it is not until the expiration of his privilege that it is at the free service of the nation. The cause of this difference is evidently that by copyright for works of literature, protection is only granted for that which is peculiar to the man himself; viz., the arrangement of words by which his knowledge or speculations are conveyed, and which may be considered during his life to be inalienable; whereas, in protection being granted for anything pertaining to the nature of discovery, let it result from reason, from experiment, or from chance, it is for that which is not peculiar to the man himself, which may proceed from many different men, and which is by nature the property of all men who can attain it. Therefore, for protection to the inventor, to be placed on so unassailable a basis as that of copyright, only that must be patented which could proceed from none but the inventor himself, and it is impossible to conceive how this could be achieved, unless, like the author, he were to frame his knowledge in words, and to allow any exclusive claim to that which nature holds forth to mankind entirely to cease.

In fact, the more we consider the analogy of copyright in literature to letters patent for inventions, the more it seems to appear that the

instruction which can be drawn from the former, is such as fails to show that the latter is a reasonable mode of protection. If we turn to some of our greatest authors, to those who, in addition to the skill of the artificer, have unquestionably the power of the inventor, we shall perceive that whatever they display which can be considered to be analagous to the inventor's labor is not the subject of protection. In the works of Mr. Tennyson, Mr. Carlyle, Lord Macaulay, Mr. Mill, and Mr. Buckle, the conclusions drawn from investigation, from observation, and from reason do not receive protection. The same conclusions may have been drawn from the same bases by other men. Many of them have undoubtedly been drawn by other men. Their published knowledge becomes immediately the property of the nation, and that which remains essentially to the author is the arrangement of words in which his instruction is included, and the confidence which reputation may gain for him in his further endeavors. If we conceive of such a thing as authors battling in law courts for ideas, for opinions, for facts, or for speculations, we shall understand how copyright, instead of being the quiet and orderly protection that it is, would present a maze of confusion, how it would be the scene of contention and of loss, and how, many, who might be able to offer instruction to the public, would prefer not to seek its protection at all.

As, therefore, a consideration of copyright for works of literature does not assist us in the belief

that a similar protection is applicable to the exclusive use of any discovery in the applications of science, we can turn to the more modern protection given by the registration of designs.

It is well known that down to so late a period as 1851, when the first international exhibition was held, the knowledge of design in our country was in so low a state, that nearly all our best designs were imported from abroad. At an earlier period there was great complaint on the part of such good producers of designs as we possessed, that the results of their labours became appropriated by others immediately on publication, and in consequence failed to bring adequate remuneration to themselves. It was in 1787, according to Mr. Webster, that the principle of giving protection by copyright for designs was first publicly recognized; and it was in 1842 and 1843, that what was found to be an urgent public want, was fully responded to by bills, which passed the legislature, giving protection to the designer for a period varying from a few months to three years, according to the nature of the material for which he might operate. Within the last few years, schools of design have been established throughout the country, a magnificent art library has been opened at South Kensington, which only requires to become more known, and is available to any one on the payment of a small sum, and there is some reason to believe that many of us will live to see a transforming power operating even to the interiors and exteriors of our

laborer's homes. No one can entertain any doubt that the Designs Act has operated and is operating with good influence, and that it will continue to operate beneficially for some time to come. Our only experience, however, of such protection has been in the infancy of art. Should it ever happen that knowledge of design becomes so extended that good designs may be readily obtained in all branches of manufacture, that any veering of public taste is met by a supply from a thousand quarters, that new designs for the most part present few variations from what have gone before, and that any designs are evaded by simple adepts; it may be found that what has been a necessary protection at one time is hardly cared for, and that, having fulfilled its fostering influence, it may, from natural causes, fall more and more into disuse. Whether or not such a fate is in all probability reserved for the Designs' Act, it is unnecessary to prove; but, as its protection is allowed for a very limited period, and as its operation has only been known in our country during a few years, and at a time when no reasonable means could be neglected for the purpose of developing the taste of our artificers, it would be unsafe to adduce it in support of a similar form of protection to the inventor except under strictly analagous conditions.

Of infinitely greater importance than any real or seeming analogy between patent rights and copyrights is the question, whether or not the system of patents has hitherto acted beneficially for the in-

ventor and for the community? If it is clear that it has acted beneficially, and that it continues to fulfil in a respectable measure a useful purpose, patent rights repose still on a firm basis. If it can be proved that our system is unfavorable for the inventor, and that, by implication, the community must suffer, a very short time may see an end to the granting of letters patent. And, if the evidence which may be adduced, leaves it open to much doubt as to whether or not it is expedient to continue the present system, it must necessarily be the general desire that no considerable change should be effected under such circumstances. Fortunately for the stability of all that is intrinsically valuable in our institutions, it is not more easy to pull down than to set up. Those who are unconvinced are very properly on the side of what is, instead of verging to the side of what may be; and, if by any chance a change were effected, for which the public mind is not fully prepared, the unconvinced would be found, as experience has abundantly proved, to range themselves on the side of strong advocates of the old system, and reaction be the inevitable result.

An examination of the working of the patent law may be usefully preceded by a short review of the subject from a much earlier period. By the table given at note A in the appendix, it appears that letters patent for inventions were granted from so early a period as 1617. There were some few, indeed, granted at previous periods, but, at this

distance of time, it is not easy to determine to what extent many of the monopolies granted for exclusive manufacture comprised anything of the nature of invention. Indeed the same difficulty occurs subsequently to the passing of the Statute of Monopolies in 1623; and an examination of many early cases, five of which are given after the table in the appendix, shows that the grants were sometimes very comprehensive. To what extent new manufactures of those periods resulted from the inventive skill of our forefathers, or from information acquired abroad, it is not important to decide here. What is clearly evident from the table is that the grants were very few in number, averaging less than four yearly during the last eight years of the reign of James the First and the first nine years of the reign of Charles the First; about twelve during the next five years; suddenly falling off till they disappeared altogether during the most troublous period of the reign of Charles the First and during the Commonwealth; being revived immediately on the accession of Charles the Second, and averaging rather more than four yearly for a period of thirty-one years; then suddenly increasing to the average of about twenty-one during the three early years of the reign of William and Mary, and afterwards rapidly falling till, during the reign of Anne, the yearly average number was only about two and a-half. In the time of the two first Georges, the yearly number averaged rather more than seven, but soon after the accession of George the Third

the yearly number began to present a great increase. A hundred years ago (in 1765) the number of patents was thirty-one, and in the last year of the century it amounted to ninety-six. In 1830 the number was one hundred and eighty; in 1840, four hundred and forty; and during about nine months of 1852, the closing year under the old law, it was four hundred and sixty-five. It is, therefore, evident by the table that it is within the last hundred years that any considerable amount of enterprise has been displayed in invention, but chiefly during the present century, and very notably since the introduction of railways, rather more than thirty years ago.

The average cost of letters patent under this system was, according to an excellent authority,* four hundred pounds for England, Scotland, and Ireland. For England alone the average total cost, including expenses of agency, was three hundred pounds. The system was therefore very expensive, and was in addition so complex, and to the last degree unsatisfactory, that some societies sprang into existence for the purpose of obtaining reform. The matter was agitated by the Society of Arts, and, previous to the Exhibition of 1851, a bill was prepared and passed the legislature, giving tem-

* Mr. Hindmarch, Q.C., quoted in the appendix to the evidence of Mr. Woodcroft, in the Report of the Commissioners appointed to inquire into the working of the Law relating to Letters Patent for Inventions.

porary protection to all exhibitors of new inventions on the payment of a small sum. This was followed by a more complete measure; the knell of the old system was sounded, and, in October 1852, the Patent Law Amendment Act came into operation. This new law allowed the inventor to lodge a petition for a patent on the payment of the sum of five pounds, which may be considered to be equivalent to provisional protection. He would have four months to mature his plans, and, if he resolved to proceed, he could obtain his patent for three years from the date of his first application on the payment of a total further sum of twenty pounds. At the expiration of three years, his privilege might be extended for a further period of four years on the payment of fifty pounds; and, at the expiration of the seventh year from the date of his patent, he might extend his rights for another period of seven years on the payment of one hundred pounds; thus, making the protection to last for a total period of fourteen years at an expense of one hundred and seventy-five pounds, exclusive of agent's charges.

It is very evident that the reform effected was a very substantial one. A very expensive and complex system was removed and a simple one substituted; a system that offered protection to the inventor to use his discovery for three years on the payment of so small a sum as twenty-five pounds, thus giving him full opportunity to use whatever

means he could devise to bring his contrivance into public use before being called upon to pay any considerable amount. Such a system, together with the result that the patent would become void at a certain period unless the inventor elected to pay for a continuance of his privilege, satisfactorily met the views of most of those who had much considered the subject. An examination of some results of twelve years' working of the new Act will show how beneficially certain of its arrangements have operated.

The following table shows the number of patents granted during the last twelve years of the old system :—

Year.	Number of Patents.
1841	440
1842	371
1843	420
1844	450
1845	572
1846	493
1847	493
1848	388
1849	514
1850	523
1851	455
9 months 1852	465

The numbers of applications for patents and complete patents, from the introduction of the new system to the end of 1862, have been as follow :—

		Applications for Patents not included in the next column.	Complete Patents.	Total.
3 months	1852	320	891	1211
	1853	934	2111	3045
	1854	954	1810	2764
	1855	969	1989	2958
	1856	1059	2047	3106
	1857	1224	1976	3200
	1858	1074	1933	3007
	1859	1063	1937	3000
	1860	1182	2014	3196
	1861	1264	2012	3276
	1862	1333	2157	3490
		11,376	20,877	32,253

The disproportion between these figures and those given in the previous table is enormous. By the removal of certain impediments, the number of patents granted in ten years and three months amounted to no less than 28,877, exceeding by 6,518 the total number granted in two hundred and thirty-six years under the old system. In addition to this there have been 11,376 applications which, from various reasons, were not matured into complete patents. The change in the law, therefore, gave an enormous stimulus at the patent office. The sudden rise from about five hundred yearly to two thousand is very striking, and appears to be a good sign, whether it is due to any incentive given to inventive skill by the change in the law, or chiefly to inducements given to persons to take patents who would have been deterred from it by the old complex and expensive machinery. The following table will show

in what directions many of the patents and applications have been distributed. Printed indices for 1863 and 1864 have not yet been published, and the figures for those years cannot therefore be safely given.

	*Railways and Railway Carriages. Number of Applications.	Telegraphs. Number of Applications.	Steam and other Boilers. Number of Applications.	Steam Engines. Number of Applications.
3 months 1852 ...	48	12	45	49
1853 ...	144	34	121	95
1854 ...	134	33	81	98
1855 ...	110	29	93	127
1856 ...	155	30	115	109
1857 ...	161	50	126	121
1858 ...	127	108	150	121
1859 ...	144	75	137	113
1860 ...	134	68	142	145
1861 ...	134	62	146	123
1862 ...	127	57	137	127
	1418	558	1293	1228
Number of Patents to Oct. 1852 ...	630	109	377	704
	2048	667	1670	1932

* SUBDIVISIONS.

Railways and Railway Carriages.

I. Permanent Way, Rails, Rail-joints, Chairs and Sleepers; Portable Railways, Atmospheric Railways, Tramways.

II. Railway Switches, Points, Crossings and Turntables.

III. Railway Carriages; Coupling and Uncoupling and Altering Position of Carriages and Engines.

IV. Railway Buffers and Breaks; Retarding and Stopping Trains; Preventing Collisions.

Telegraphs (Electric).

Telegraphic Printing Apparatus.

Steam and other Boilers.

Cleansing and Preventing Incrustation of Boilers; Water-feeding Apparatus for Boilers.

	*Spinning.	Electricity and Galvanism, Electro-plating.	Sewing and Embroidery.	Heating an Evaporating.
	Number of Applications.	Number of Applications.	Number of Applications.	Number of Applications.
3 months 1852 ...	57	43	7	60
1853 ...	203	74	21	118
1854 ...	187	90	33	119
1855 ...	171	56	26	70
1856 ...	165	47	26	84
1857 ...	164	69	25	116
1858 ...	139	50	33	80
1859 ...	160	36	34	120
1860 ...	145	52	55	106
1861 ...	231	73	53	104
1862 ...	215	72	39	131
	1837	662	352	1108
Number of Patents to Oct. 1852 ...	1120	38	40	373
	2957	700	392	1481

I. Constructing Steam and other Boilers; Generating and Superheating Steam; Preventing Boiler Explosions.
II. Cleansing and Preventing Incrustation in Boilers; Purifying the Water.
III. Water-feeding Apparatus for Boilers; Heating Feed-water.

Steam Engines.

Stationary, Locomotive, and Marine.

* SUBDIVISIONS.

Spinning and Preparing for Spinning.

I. Opening, Ginning, Breaking and Cleaning Fibrous Materials.
II. Carding, Combing, and Heckling Fibrous Materials; Making Cards.
III. Roving, Slubbing, Spinning, Twisting, Doubling, and Throwing Fibrous Materials.

Electricity, Galvanism and Magnetism, and their Applications.

Electro-plating and Galvanizing; Depositing Metal by Electricity.

Sewing and Embroidery.

Threading Needles.

Heating and Evaporating.

Regulating Heat.

	*Fire Places; Grates.	Flues and Chimneys.	Fuel.	Ventilating Buildings, Carriages, Ships, &c.
	Number of Applications.	Number of Applications.	Number of Applications.	Number of Applications.
3 months 1852 ...	19	7	19	23
1853 ...	28	27	17	36
1854 ...	32	30	17	34
1855 ...	25	17	12	26
1856 ...	47	27	28	42
1857 ...	32	25	18	48
1858 ...	27	19	28	36
1859 ...	20	29	23	30
1860 ...	25	39	21	26
1861 ...	27	38	23	48
1862 ...	35	20	21	43
	317	278	227	392
Number of Patents to Oct. 1852 ..	169	75	129	81
	486	353	356	473

The preceding tables will be perused both with interest and astonishment, and, perhaps, with the greatest interest and astonishment by those who are familiar with some of the branches of manufacture alluded to, but who have not been initiated in the records of the Patent Office. Of their correctness there can be no question. The records of patents for inventions are so lucidly arranged that statistical

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* SUBDIVISIONS.

Fire Places, Grates and Stoves; Fenders and Fire Guards.
Flues and Chimneys; Chimney Tops; Curing Smoky Chimneys; Chimney Windguards.
Fuel; Treating Coal; Preparing Fire-wood; Fire Lighters.
Ventilating Buildings, Carriages, Ships, &c.; Supplying Diving Bells with Air.

information is obtained with great facility. It is very evident that there has been a great deal of enterprise on the part of projectors. Subjects that have only come prominently forward within a few years, such as the applications of electricity, ventilation, and sewing machines, have nevertheless furnished considerable proportions, and it would be well if we could know to what extent the inventors have met with success. The following table will throw some light on this point:—

		Total Number of Applications.	Applications which did not become Patents.	Patents of three years' standing only.	Patents of seven years' standing only.	Patents of fourteen years.
3 mths.	1852...	1211	320	581	208	102
	1853...	3045	934	1490	416	205
	1854...	2764	954	1297	373	140
	1855...	2958	969	1438	356	195
	1856...	3106	1059	1474	359	214
		13084	4236	6280	1712	856
	1857...	3200	1224	1392	584	These cannot be divided between the seven and fourteen years' columns till the expiration of the first period of seven years.
	1858...	3007	1074	1394	539	
	1859...	3000	1063	1395	542	
	1860...	3196	1182	1435	579	
		25487	8779	11896	3956	856

It appears by the above figures that, though the number of patents increased after the Patent Law Amendment Act from about five hundred yearly to about two thousand, the number of persons who have paid the sum of fifty pounds after the expiration of three years for an extension of their patent rights for a further period of four years, has not much

exceeded the number of persons who paid a far larger sum under the old law to obtain patent rights in the first instance. If the seven and fourteen years' patents of the first four complete years are added together, the yearly average of the eight complete years will be found to be about five hundred and sixty-three, showing a yearly increase of about sixty-six on the last eight complete years under the old law. It appears also that the number of persons who, under the new law, have paid the sum of one hundred pounds after the expiration of seven years for an extension of privilege for the full period of fourteen years, is less than half the number that paid in advance for the same period under the old law. It would be interesting, if it were possible, to deduce from the above figures what advance our country has made in manufacturing skill since the passing of the Patent Law Amendment Act. This, however, appears to be impossible. It would be unsafe to take the figures showing the number of persons that have paid fifty pounds under the new law at the expiration of three years, and to suppose that the same number would have paid a far larger sum to obtain a patent in the first instance under the old law. They, perhaps, would have done so if they could, but patents are now very often taken by persons to whom two or three hundred pounds is a large sum of money, and would, in fact, be prohibitory. On the other hand, it may be considered that, of the patents which are now allowed to lapse at the expiration of the first three years, very many

would have paid the large sum required under the old law. For any man to have done so, it is not necessary to suppose that his invention was meritorious. He might have been impelled by a sanguine temperament, and by having the necessary means at his disposal.

The figures shown in the next column are very important. The number of those who maintain patent rights for fourteen years under the present system, is so much smaller than the number of those who had protection for the same period under the old law, that many will perhaps readily trace it to the fact, that of the old patents a large number became useless in the hands of their possessors within a very few years, and that, then as now, a residue only yielded profit to their possessors for the full period of fourteen years. If we accept this simple and intelligible explanation, it is clear that persons who miscalculate the value of their inventions lose now a far smaller sum of money than they did under the old system, and that their patents soon lapse and become unobstructive.

What appears, however, to be most remarkable in the above tables, is the unprogressive nature of the figures during the last few years. Our population is greater, our trade has much increased, we bear heavier taxes, education has spread. And yet, if we are to judge from the last table, our inventive skill has not been developed in the same ratio. Some, perhaps, may be disposed to regard such

want of divergence as resulting from the degree of perfection to which we have attained in most branches of manufacture: others may regard it as the resultant of two opposing forces; one urging an increasing number of persons who can avail themselves of knowledge not to take patents; the other urging an increasing number of persons who can avail themselves of knowledge to take patents. If the latter explanation is correct, the figures may be considered as indicative of the estimation in which a patent system has come practically to be held, rather than as affording any criterion as to advance in the applications of science. Some of the facts that have yet to be adduced in these pages will, it may be hoped, tend to elucidate this question.

No one, on examining the last table, can be otherwise than disappointed to observe that, of upwards of thirteen thousand applications for patents, only eight hundred and fifty-six were considered of sufficient value to their possessors after the expiration of seven years, to induce them to pay the sum of one hundred pounds for another seven years of privilege. They would wish reasonably to know whether or not the figures represent accurately the relative value of the inventions which have been protected, or whether there are disturbing causes, such as want of capital, the various difficulties attending the introduction of anything new, which, if fully known, would materially alter the results. Of

considerable assistance in throwing light upon this point is an examination which has been made of the first hundred applications for patents in the years 1855, 1858, and 1862, by Mr. Bennet Woodcroft, superintendent of specifiations at the patent office, a most competent gentleman, whose beneficial influence is recognized by those who have profited by his extensive labours. Mr. Woodcroft's conclusions, taken from the appendix to his evidence, given in the parliamentary report on the patent question lately published, are given in full in note B in the Appendix to this treatise. The following are the leading points :—

A.D. 1855.

Of the first hundred inventions, for which applications for patents were made in the year 1855, none are apparently of considerable value, but I believe it to be impossible to predict beforehand the value of any invention. Four of the hundred inventions appear to be of some, but not of great value, and patents were granted for all of them. One of these patents expired at the end of the third year of the grant, and two at the end of the seventh year; and consequently only one continues in force.

A.D. 1858.

Of the first hundred inventions, for which applications for patents were made in the year 1858, none are apparently of considerable value. Three of the hundred inventions appear to be of some, but not of much value; and patents were granted for all of them ; but these patents expired at the end of the third year of the grant.

A.D. 1862.

Of the first hundred inventions, for which applications for

patents were made in the year 1862, one is apparently of considerable value; and a patent was granted for it, which is still in force.

Of the same hundred inventions, one appeared to be of some, but not of great value; and a patent was granted for it, which is still in force.

Therefore, according to Mr. Woodcroft's judgment, given with the caution that might be expected on matters of such complexity and variety, of three hundred applications, only one appeared to him to be of considerable value, and eight others appeared to him to be of some but not of great value. These conclusions are remarkable, and are even more unsatisfactory than the published statistics. If only nine patents out of three hundred applications appeared to possess some substantial value, there might be no more than ninety out of three thousand. But the table in page 24 appears to show that of 3,106 applications in 1856, 214 persons found their patents valuable to them after seven years. And, if they were remunerative to the inventors, it may appear reasonable to suppose that they were all intrinsically of substantial value. Some consideration of this question, which may throw some light on Mr. Woodcroft's conclusions, can be attempted when we consider whether or not there are other inducements to persons to retain the privilege granted in patents, than the intrinsic merit of that which is protected. It may be useful, however, first to inquire why it is so large a number of persons apply for patents every

year, and so few appear by the statistics to be ultimately successful.

Previous to the last International Exhibition, a pamphlet was published by the commissioners, giving a list of trades in the United Kingdom, which were found to amount to no less than 2,546. In the list there is necessarily a certain amount of redundance, as some of the titles are practically synonymous, but an examination establishes the fact very clearly, that a large majority of those trades offer distinct matters for protection by patent. If we turn to the records of the patent office, we find that in the indices to subject matter for patents, there are nearly three thousand distinct terms used in titles, most of which are distinct subjects in different branches of manufacture. All these subjects are now comprised at the patent office in about two hundred and seventy-eight divisions or subdivisions, the various trades connected with spinning being entered under three divisions; railways and railway carriages under four divisions, and so forth. The various persons engaged in the production and sale of manufactures may be divided into three general divisions:—1. Those engaged in obtaining raw produce and supplying the manufacturer. 2. Those engaged in actual manufacture, whether of parts or of the whole. 3. Those who act between the manufacturer and the public as certain agents and all retailers. It is often found that a person has more than one character. He is

sometimes producer and manufacturer, and sometimes manufacturer and retailer. While, therefore, the number of subjects for which patent rights may be sought is very large, the number of persons directly and indirectly connected with the different branches of manufacture, and who may possess knowledge in all degrees in those branches, is truly enormous, and may be supposed to comprise in fact a great proportion of the working population of our country.

Patents may be regarded in two distinct divisions:—1. Those which address themselves immediately to the manufacturer, such as improved means for making substances of common use; and 2. Those which address themselves more immediately to the public, such as a new lamp, new dyes, &c. The difficulties attending the promulgation of improvements in both classes are evidently very different in nature. If the manufacturer is immediately addressed, he may have to remount or to change his machinery. If the public are immediately addressed, they may merely have to purchase a useful article.

The difficulties attending the promulgation of improvements may also depend on the position of the person by whom such improvements are attempted. If he is in no way connected with the branch of manufacture to which he has turned his attention, his difficulties are very great. If he is indirectly connected with the manufacture, he has much greater facility, and, if he is immediately

engaged in such manufacture, and can therefore readily employ his energy and attention in promoting his own interests, he may have a good chance of gaining some success for his patent.

And not merely has the manufacturing class much greater opportunities than mere observers to make a patent remunerative, but they have also much better opportunities of understanding practically the question upon which each may endeavor to improve, and can therefore with much greater probability succeed in contriving that which will be found practically useful. It is true that in all branches of manufacture, there are many men who are more loth than willing to depart from established notions, whose minds run in a groove, and who are far from being well-informed even upon what they should understand best. But all men are not so, and, though there is no reason why observers should not be able to originate improvements, they can only generally do it upon the inexorable conditions that they are well-informed men, and take care to understand thoroughly the subject to which they turn their attention.

If now, we apply the preceding considerations to the general results of the patent system, we may gain some insight into the causes why so many applications for patents are made, and so few appear after a few years to make any show of success.

If we turn to the class of observers, we shall see

that the want of opportunities of fully understanding their subject, and of knowing what has been done before, together with the want of facilities for turning their ideas to practical account, give a sufficient explanation for a very large number of applications which do not proceed to obtain the patent privilege. As soon as the difficulties of carrying out an idea are fully encountered, the observers generally vanish. What was easily conceived easily disappears, and nothing remains but the few lines of the applicant's provisional specification. The general course in such cases appears to be much as follows:—A person seizes the idea that a certain good result may be obtained by a certain means, and fresh with the idea, and entertaining the affection every one does for his own notions, he goes to the patent office or to a patent agent, describes in a few words what he claims a patent for, and his application is published on the payment of five pounds. Before the expiration of four months, he has time to consider the subject more fully. He perhaps encounters some difficulty that had not occurred to him before, or he communicates his ideas to some of his friends, who regarding the matter a little more coolly than himself, do not offer him much encouragement. Or he very probably seeks the assistance of some one in trade who can do nothing more for him than give him the names of those who might have the best opportunities of turning his notions to good account. He

then perhaps proceeds further, goes to the manufacturer, who hears all that is said, pleads some general reason for not entering upon the matter, or perhaps tells him that the idea is no novelty, and points out what he has done himself in the same direction. It is now that the intending patentee very often sees for the first time what difficulties he has to encounter to make a patent remunerative to himself. He finds that he must turn manufacturer or tradesman to carry out his notion, and the result is that in an interval of payments required at the patent office, very probably before preparing a final specification and drawings descriptive of his invention, he is sufficiently discouraged to let the time slip by, while he remains inactive, and his opportunity of obtaining a patent privilege is gone. If, however, he is very sanguine of the success of his scheme, he takes his patent, and trusts that within the succeeding two and a half years he will find some one sufficiently impressed with its merits to purchase his privilege, or to work it under a license.

It is not observers only, however, who miscalculate the difficulties of establishing anything new connected with manufactures, or who apply for a patent for something that is of little or no practical value, for, very frequently, those who are indirectly connected, and those who are immediately connected with particular branches make the same mistakes, and, accordingly, they frequently find out their error, either before the expiration

of six months from their application, or during the subsequent two and a half years.

The number of persons who take patents for three years, and then stop short, averages rather more than fourteen hundred yearly, and appears to consist of a heterogeneous mass of observers, and of persons indirectly and directly connected with the branches of manufacture, who have believed they have made a discovery that would be of practical value, and that, in addition, might be remunerative to themselves if they had exclusive privilege to use it, but whose notions have been corrected by experience. The very large number of persons therefore who make applications for patents, or who hold patents for three years only, may be regarded simply as persons who make a mistake for which they have to pay a certain sum of money, and who have no very important bearing on the whole patent system.

We can now turn to the more important class of inventors, to those who, after they have had their patents for three years, are sufficiently encouraged to pay fifty pounds for four years more, which class is seen to number from five to six hundred yearly. A little investigation of the lists of persons who hold those patents, is sufficient to show that the patents are almost entirely in the hands of those who may be considered to have the best opportunities of making discoveries of value in their particular trades, and who have also facilities for turning their new projects to profitable account. It is

this column and the next which comprises the fourteen years' patents, which may be considered to contain essentially the pith of the patent system.

It has been observed that between the observing and manufacturing class of inventors, there are those who are indirectly connected with certain manufactures. Such persons occasionally produce inventions of some value. They have the advantages of considerable familiarity with a subject that is often before them, and connection by trade with those who follow the particular pursuit, so that, when their discovery presents a fair promise of success, they are often induced to abandon their usual occupation, and to apply themselves to one that appears to be more promising. They, therefore, swell the list of manufacturers who carry out their own patents, and, as the residue of non-manufacturing inventors who have patents for long terms is exceedingly small, we can chiefly confine our attention to those who use their own patents to further the purposes of trade.

We have seen that a certain proportion of inventions are addressed to the manufacturer only. These are new machines, improvements to existing machinery, plans for consuming smoke in furnaces, improvements to boilers for generating steam, &c. We have also seen that a large proportion of patents are addressed to the public, such as articles of common use. There is a certain peculiarity, however, in both divisions. The patents are very seldom known to proceed from large establish-

ments, employed either as manufacturers or retailers. Being extensively engaged, the conductors of such establishments appear to be more careful to carry on their business successfully than to expend the time and care which are necessary for the purpose of instituting any improvement. There are, of course, a few conspicuous exceptions, but generally it is from a different class—it is from the smaller manufacturer and from the tradesman, from the mechanician, and from the overlooker that proceed the great number of seven and fourteen years' patents. And every one will admit that they are a class which would most deservedly benefit by any improvement they could effect in any branch of manufacture. When he is in possession of his patent, the inventor who addresses the manufacturer takes the necessary proceedings to make his contrivance known. He issues his prospectus, he pays a visit to the manufactories where his invention can be used, takes probably a model with him, and offers to construct, perhaps to modify what may exist, or to give permission for this to be done by others upon stipulated terms. His demands are at first very heavy. If he believes he can cheapen production he bases his calculations of reward, not on a respectable return for his labor and enterprise, but, on the saving which his process may effect to the country. He asks to be paid a certain per centage upon all the manufactures that might pass through his process, which would amount perhaps, if adopted and successful, to many thousands, or

even tens of thousands of pounds in a year. He soon begins to find, however, that to introduce anything new is very uphill work; manufacturers are not willing at any one's behest to change or alter their machinery. They have, perhaps, had the experience of inventions of great promise that have succeeded so partially that they have been finally abandoned, after occasioning enormous expense. They have heard of such a thing as an invention being followed by something better, and they are reasonably disposed to wait until the merit of the new proposition has become sufficiently tested for its adoption to be a matter of expediency. This does not, however, generally suit the inventor. Being, as he almost invariably is, far from a rich man, he wants substantial support. If he is wise, he attends to his ordinary business; he looks to that for his daily bread, promotes his patent as much as he reasonably can, and is not too sanguine about the future. If, however, as is but too often the case, he is dazzled with the conception of the fortune he would make if his invention met with the success he thinks it should have, he is found to neglect his ordinary business for his patent. He does all in his power to promote it, obtains perhaps a partner with a little capital, perseveres for a time, but, circumstances become too hard, and, at a time when much pressed by urgent needs, he borrows money and gives his patent as a security for repayment; or, very often his difficulties are such that he is obliged to place himself in the hands of his

creditors, and his patent passes from himself to his assignees. If it possesses real merit, it then passes sometimes for a nominal sum into the hands of a man of considerable capital, who, perhaps, eventually realizes a fortune by it. It is the commonest story of the inventor that his career has presented a desperate struggle, and it would be very useful if we could learn what proportion of inventors have lost by their inventions and what proportion have gained, and also what number have been ruined by their inventions, compared with the number of those who have made a fortune by the purchase of a patent.

It cannot therefore be supposed that the success his patent has had is what always disposes the patentee to extend his privilege for four years after the expiration of the first three years. He may have had little or no success, but he may be firmly of opinion that he ought to have success. He hopes in the future and perseveres: circumstances may have compelled him to leave his patent in abeyance; or, he may have had a partial success, and, if he has been diligent in his ordinary calling, he may have found that his patent has brought him introductions of a useful nature, and that, indirectly it has proved of considerable value to him. Altogether the patentee very commonly feels that his patent is something to cling to: he regards it perhaps as peculiar to himself: it is part of his stock in trade that may be useful both directly and indirectly, and presents to him frequently a hope,

however delusive, of something extraordinary in the future. These are powerful causes which operate to induce persons to extend their patent rights, and it cannot, therefore, be considered that the mere fact of a man holding a patent for seven or even for fourteen years, affords a sure criterion of the value of his scheme.

If we turn now from the inventor who obtains his reward from the manufacturer, to the inventor who immediately addresses the public, we shall find that similar causes operate in this case to the former. Extensive tradesmen, as has been stated, are seldom known to take patents, but smaller ones and persons who are seeking to establish themselves very commonly do so; and, if they can introduce real improvements, they well deserve all the success they can gain. They have generally, however, a great difficulty to contend with: they cannot address the public except by a large and expensive system of advertising. A few years have made a great change in this respect. At one time a gentleman would not purchase of a tradesman who advertised; now, there are few gentlemen who, if occasion required, would not look through a list of advertisements. A few houses have been known to raise up a very large business and some to be making a fortune entirely by advertising their establishment. Some houses have been said to expend from two to five thousand pounds a year in advertisements. The system has been contagious. Thousands of such advertisements now appear

daily, and newspapers have become the most promising means by which the public can be addressed. This, however, is not to be done without capital. A considerable expenditure may not bring adequate returns until the public have become very familiar with the advertiser's name; and accordingly, it is found that if the possessor of a patent who addresses the public generally, has not sufficient capital or sufficient enterprise, he meets with little or no success. If, however, he has capital and enterprise he perseveres: his patent distinguishes him in some degree from others: he takes care generally to promote an ordinary description of business in addition to his patent, and obtains on the whole satisfactory results. If his patent continues to be remunerative, he keeps to it; if it becomes decidedly of no use to him, he allows it to expire. Patents have been so frequently used to promote general purposes of trade, that they often appear to possess a fictitious character in the hands of the enterprising. It is not always that there is any deception attempted with reference to the quality of the article that is sold. This possibly is most excellent, but, it may be that the manufacturer or retailer often considers that he has a better chance of the value of the article being appreciated by the public if he makes it the subject of a patent, and gives the public to understand that they can obtain it only from him. Such a person's patent would not of course be valid if it were contested; but such patents either

are constantly infringed, or, if they are not, other persons do not think it worth their while to interfere with them. It is, therefore, clear that patents may have a value, quite irrespective of intrinsic merit as new discoveries; and, if we take the patents of seven years standing, it may be fair to conclude that, as patents, they are all, with very few exceptions, of no value except to the person who from some cause or another makes them subservient to trade purposes. They may contain excellent suggestions, but they are not valuable as patents. The patentee has had seven years to endeavor to make his proposition available; and if he abandons his privilege, it must surely be because it presents little promise for the future, and has not during seven years attained any marketable value.

If we turn now to the final column, to the patents of fourteen years, we shall find grounds for more satisfactory conclusions. Two hundred and fourteen patents in one year have appeared to their projectors to be of sufficient value, after seven years' experience, to induce them to pay a hundred pounds for an additional seven years of exclusive right. The number of applications in the same year was three thousand one hundred and six. By the side of the latter figures, the two hundred and fourteen patents appear to be very few in number. We must not, however, let the smaller number suffer by contrast with the larger. If we get two hundred inventions yearly of substantial value, we

may live to see the world transformed; and, if a large number of substantially good inventions are due to the existence of a patent system, no body of men will succeed in removing a privilege that is found to work so well. To understand the value of the figures, we must consider whether or not some of the influences which have been found to operate in the seven years' patents influence also the fourteen years' list. A little consideration will suffice to show that there is no reason why the same influences should not operate. The only impediment is the hundred pounds which has to be paid for the extension. The inventor is the only judge of the expediency of extending his privilege; and, accordingly, it is found that while the fourteen years' patents comprise the substantial improvements that are carried into effect under the patent system, they also caution many that are by no means of equal character.

It must in fact be considered that persons can continue their patents for the full period, either because their patents are of substantial value, or because they have strong faith in them, or because they are strongly attached to them, or because they answer indirectly the purposes of trade. It would hardly be considered that many persons would pay a hundred pounds for protection in a patent that could directly or indirectly yield them but little benefit; and the writer would, if he had not come across many undoubted cases, have passed over such a cause as so seldom likely to

occur as to be irrelevant to the discussion of the results of the patent system. He has, however, seen such indubitable instances of persons who have, apparently, from mere fondness for their own notions, and from their being tolerably prosperous, clung to the exclusive possession of what they have patented, that he feels bound to mention it as one operating cause.

A very much more important influence, however, is the fact that persons engaged in trade often profit both directly and indirectly by a patent. If a patent occasionally leads a manufacturer into new connections, he may be induced from such a cause to pay for a continuance of his privilege; and, in considering the reasons which may influence him, the most important perhaps often is, whether or not he has the funds conveniently at his disposal to meet the demands of the Patent Office.

A third cause, which leads many to continue their patents, is that they have not given up hoping for that which is quite impracticable. They possess something that has some good points, but which, to become extensively used, would perhaps require an expenditure on the part of the patentee far larger than could ever be realized by the project. Such persons err in judgment. They perhaps have few opportunities to discover their mistake, and anticipate that the wheel of fortune will throw some means within their reach that will enable them to get the success they desire.

A fourth reason for persons retaining patents is the one mentioned before with reference to seven year's patents; viz., that irrespective of any question of value as a patent, they are used as a matter of policy for the purposes of trade. Such patents are probably continued for fourteen years, if the manufacturer or tradesman is generally successful in his business. When he is unsuccessful, they are of course abandoned, unless he has hopes of retrieving his position.

Now, the preceding considerations will perhaps throw some light on *Mr. Woodcroft's investigations* alluded to in page 28, from which it might be implied that the number of patents of some, or of considerable value, is in all probability much smaller than the two hundred, or thereabouts, which pay in a single year for a continuance of their privilege for the full period of fourteen years. It is impossible to say to what extent other causes than the intrinsic value of the patents may operate. It would be a thankless task for anyone to attempt an analysis of the apparently successful patents, even if he were truly competent to perform it; but, that other causes do operate and very conspicuously is indubitable. In fact, the inventions which in any year attain any celebrity, may probably be counted on a man's fingers. Many of course are of too technical a nature to attain notoriety, beyond the range of persons who are familiar with the class of manufacture. What the number of these may be, it is not very important to decide. If many

substantial improvements are patented every year, this is something upon which we may congratulate ourselves; but what is most important in the present investigation, is to know in what way substantial improvements and their introducers are affected by the patent system, let their number be what it may.

It may be supposed by many that when the inventor can suggest a substantial improvement by which certain manufactures can be cheapened, or when he has produced a new contrivance of great general utility, his patent will lead him rapidly on the road to wealth and fame. The inventor's difficulties are however generally of far too serious a nature for them to be easily overcome. He cannot do without capital. He should have sufficient general information, address, and perseverance to enable him to make his invention extensively known and appreciated at its proper value. He often requires the co-operation of persons already engaged either as manufacturers or retailers, and such co-operation cannot usually be obtained without much delay, tact, business habits, and enterprise. The passive resistance in all branches of manufacture, to turn from a present course to a new one, is very great. How surely and how fatally it had operated was fully seen on the failure of the cotton supply. Manufacturers are right in being cautious. They are reasonable in testing thoroughly a new contrivance before they adopt it; but, when they go beyond this; when

they allow prejudice and indifference and dislike to being disturbed in their usual course, to influence them in obstructing, or in refusing to afford reasonable assistance to an inventor, their invidious and short-sighted policy greatly mars his interests, and is very injurious to the community. So potent is the obstruction sometimes offered by existing interests, that it has not been uncommon to see the possessor of a patent which ought to have had success very little advanced, even seven years after he had obtained his privilege.

The inventor's want of success, however, may have been in a great measure due to himself. He may have had little or no capital, and have been deficient in the requisite judgment, tact and energy. His demands may have been too high. Very often, his wisest course, if he can effect it, is to disregard the manufacturers, and to look for some one who will invest the requisite amount of capital to carry on the manufacture extensively on an independent basis, and to take all other necessary proceedings for the purpose of making the improvement fully available to the public. This may, however, be a most difficult business, for, when a capitalist is found, who might be willing, there is the commencent of a new set of difficulties. The inventor has his own notions of what his recompense should be. The capitalist, on the other hand, is most anxious to protect himself. He may have to provide good business qualifications to make the undertaking successful. He may have to bring or to

resist actions at law for infringement. And, altogether, the difficulties and responsibilities are often so onerous that not the slightest surprise need be entertained if the capitalist is often found to vanish as soon as he is able to take them seriously into consideration, and that the inventor's and capitalist's interests are seldom sufficiently identical and powerful in nature to enable both parties to proceed with mutual satisfaction. The inventor's difficulty, therefore, of obtaining capital to carry out his patent, is often no less serious than the obstruction offered by existing interests; and, when he has fully realized both difficulties, his vision of wealth may begin to appear likely to end in nothing more than a vision.

It may be, however, that the introducer of a substantial improvement can address the public immediately, and, if so, his difficulties may be considerably less. But a great success must still depend on his ability to carry on his manufacture extensively, and on his having the necessary means and energy to make his production extensively appreciated. Altogether, the difficulties of promulgating improvements are so great, and the want of means to do so efficiently are so generally absent in those who introduce them, that it is common for several years to elapse before even notable improvements benefit the public; and, while there are undoubted instances of inventions that have become ultimately highly successful, many of which have passed inexorably at a time of trouble from the unfortunate struggling inventor, there is nothing more rare to

find than the man to whom a patent has, as the result entirely of his own labors to improve, brought considerable reward.

There is another series of difficulties, however, which beset the holders of patents that are successful, or that may become so. The patentee may find that other persons are making use of his invention without leave and license from him, and he may therefore have to protect his interests by an appeal to the civil courts. He generally meets this difficulty as soon as his contrivance obtains public notoriety, and his early successes are found to interfere with the interests, or to excite the desire of others. To comprehend the exact nature of this new difficulty, we may shortly consider the circumstances or conditions upon which the patent privilege is obtained in the first instance. In the preceding pages, the terms "privilege" and "right" have been indifferently used in speaking of patents, but every one knows that there is no protection necessarily involved in the granting of such "privilege" or "right." If there were, a most searching examination would have to be made into the originality and merit of the inventor's new proposition —a work of such difficulty, and liable to such serious errors and abuse, that no person is found who would propose to carry it out to a full extent. The simpler and preferable system has been adopted of granting letters patent to the inventor, upon the conditions that he only included one invention in a single application, and that he believed himself

to be "the first and true inventor thereof." The effect of this has been to throw all responsibility on the shoulders of the inventor. His patent could afford him no certain protection unless he really was, and could prove himself to be, what he represented himself to be. If he found, subsequently to obtaining his patent, that he had made a mistake in considering himself to be the first inventor, his proper course would simply be to consider his claim for exclusive use to be nullified, and to allow others to make use of the invention if they should think fit; and he would, of course, ask for no extension of a privilege that could exist only on parchment. If, however, he considered himself to be the first and true inventor of his contrivance, and he therefore held to his patent, he could, on others interfering with his right, apply to the Court of Chancery for an injunction to restrain them, and eventually recover damages. And here, now that we have the inventor in possession of a patent that proves to be profitable, and that is considered to be of sufficient importance to excite opposition and to provoke a legal contest, we are led to a consideration of difficulties and anxieties that may rank by no means among the least of the inventor's troubles. A patent is not often infringed, unless it very strongly conflicts with the interests of others. Most men very wisely avoid legal contests, if they can; and it is, therefore, no uncommon thing for the possessor of a patent of no great value to remain in undisturbed possession of his contrivance, whether

the privilege granted by patent is valid or not. But, if the patent gives promise of being highly remunerative, the case is altogether altered. Such a patent is sure to interfere with many existing interests. Some of those to whom it is inimical know, discover, or believe that there is a flaw in the patentee's title, and then follows a trial at law, and, sometimes, one of the most deplorable spectacles that are ever furnished by our civil courts. When once legal proceedings are begun, the passions of the litigants get excited. The records of the Patent Office are searched, for defence on the one side, and for attack on the other. Evidence which can be adduced from other sources, from workmen, and from scientific witnesses, is forthcoming. The trial begins. The plaintiff's specification is produced, and, at the very commencement, there is often the greatest difficulty for judge, counsel, and jury, upon an unusual and complicated subject, to know clearly what is really the invention for which protection by patent is claimed, so vague is the language often employed, so comprehensive, or so involved in extraneous matter. The case proceeds. After some days' trial, a verdict is given, perhaps, in the rough and ready way some members of a jury often settle the balance of probabilities, and carry the rest of their brethren—a satisfactory way enough upon matters that are clearly within a jury's apprehension, but, upon a matter of great nicety and difficulty, where scientific or practical knowledge is required in advance, where the evi-

dence requires to be received with the greatest care, where the non-essential must be eliminated, and the essential most carefully considered—in such a case, an ordinary jury is about the most unsatisfactory tribunal that the invention of man could devise. The difficulties are sometimes so great, that not merely the jury but the judge and counsel, as has been stated on excellent authority, have sometimes failed to understand fully the essential points at issue. The consequence is inevitable. Leave is obtained for a new trial or the case is referred to arbitration. If both sides have equal stamina, the insight they have gained in one trial sharpens them for further proceedings. The whole business is gone over again, perhaps with better results than before, perhaps not. It is not always the best side that wins. The weakest in point of a very essential element for legal contests may at an early period be pushed to the wall, and, whichever succeeds, it is no uncommon thing for the defeated party to be found to be utterly exhausted, and for the winner to have consequently to bear all the expenses he has incurred, either in defending a patent or the right to infringe it. Those who know what amount of annoyance and expense is often incurred in a trial at law upon a very simple issue, will understand the anxiety or mental torture that may be the concomitant of a man's having, perhaps, his whole monetary interests at stake; and, when the result of a most expensive and troublesome process leaves the question practically in the same position

as at first, they would hardly be glad to accept the inventor's inheritance of hopes and troubles. Sometimes the same patent produces several actions, many thousands of pounds are spent, and it has been no uncommon thing for the patentee, who has been much involved in legal contests to apply at the expiration of his fourteen years' license, to the Privy Council for a still further extension of his privilege, on the ground that causes over which he had had no control had deprived him of any reasonable remuneration. Occasionally such a petition has been responded to.

This slight sketch of the troubles which often assail the possessor of a successful patent is no exaggeration. On the contrary, it is the faintest delineation of the truth. If any one will peruse carefully the Parliamentary Report on the working of the patent law lately published, he will find much evidence of its truth. One case is mentioned where the trial lasted six days, and some of the jury accompanied their verdict with the remark, "that it was very unsatisfactory, for that they believed that they did not understand it;" and the present Chief Justice said upon that, "Well, then, gentlemen, I am afraid that that remark of yours has rendered our week's work of little value."* Another case occupied nine days, and the jury were unable to agree. Another trial about the same time occupied six days, with the same result. The case of Betts *v.*

* See evidence of Mr. M. E. Smith, M.P., Q.C. *Parliamentary Report*, page 76.

Menzies is detailed, where a patent for capsules for brandy bottles led to contests that involved an expenditure of plaintiff and defendants to the extent of £24,857. The great hot-blast case is stated by Mr. J. Scott Russell to have involved costs of more than £100,000. There was the case of Josiah Marshall Heath, in which the total costs amounted to £15,000. And the contested cases are not few in number. Mr. Grove, Q.C., states in his evidence before the Commissioners, of which he was himself a member :—

"The Courts now really cannot try these cases. We have at these very sittings three patent cases made remanets because they cannot be tried; they interfere too much with other business. We have at this moment going on, a patent trial which is now in its fourth day. We have had within, I think, a week, another trial of a patent which lasted seven, and a third which lasted five days. During the time that these patent cases have been going on, there have been many patent arbitrations going on, two of which I can speak to myself; one, I think, lasted seventeen days, and the other, which involved a very simple issue, lasted six or seven days; those arbitrations went on contemporaneously, and the cases were obliged to be tried by arbitration, because the Courts could not try them—it would have occupied too much public time. While these cases have been going on several patent cases have been also ready for argument in banco; and one has been postponed in consequence of the counsel on both sides retained to argue it being engaged in another patent case. Yesterday, for instance, there were in the paper three patent cases, one for trial and two for argument; and, speaking with reference only to the last fortnight or three weeks, if every judge at Westminster, who was sitting at *Nisi Prius*, had been employed in trying the patent cases alone, the time would not have sufficed for it, to say nothing of work at Judges' Chambers in settling particulars of breaches, notices of objections," &c.

This extract affords no very amiable picture of the patent system, certainly. Whether or not all patents that prove to be unquestionably remunerative are at some time contested at law, it is difficult to decide. It is certain that the sympathies of a jury are very naturally on the side of the party whose real or assumed rights are attacked, but it is equally certain that there is nothing more difficult than to find the inventor whose title to a patent is without a flaw. It is not that the patentee has been dishonest in describing himself as "the first and true inventor." Far from it. It is that the leading notion in a successful patent may occur to many persons familiar with the manufacture, and may have, in some manner, and unknown to the patentee, received publication before the date of his patent. Such prior publication does not necessarily diminish the merit of the patentee, but it may be fatal, if it can be clearly proved, to any privilege that can be secured to him by law. So unquestionable is it that a patentee can rarely or never establish himself as an originator in the fullest sense of the word, that, as Mr. Woodcroft tells us in the appendix to his evidence given before the Commissioners on the patent law, many of our best inventions have been preceded by others in which the same principles had been imperfectly displayed. Thus:—

"Richard Arkwright's spinning-frame was anticipated by that of Lewis Paul.

"James Nasmyth's steam-hammer was anticipated by that proposed and patented by James Watt.

"Francis Petit Smith's screw-propeller was anticipated by that proposed and patented by Charles Cammeron.

"Francis Ronalds' transmitted messages by electricity through eight miles of wire, in the year 1816.

"Messrs. Ruthven's method of propelling vessels by the discharge of water had formed the subject of an invention, for which William Busk obtained a patent.

"Franz Uchatius' improvement in the manufacture of cast steel was anticipated by the invention of John Wood, patented more than 90 years before.

"Thomas Aldridge Weston's improved pulley, or system of pulleys, had been invented many years previous by Mr. Moore, and described in Carpenter's Mechanical Philosophy.

"Numerous other cases could be given of great inventions which never had been used, or that had fallen into disuse, but which were revived by subsequent inventors."

Though, however, a failure to establish priority in discovery upon the only point that can render an invention valuable as a patent is very likely to happen, we may hope for the sake of the men, if not for the sake of the system, that some do, after all their troubles, obtain some substantial recompense at last. It is not clear, however, that many are likely to be even so favorably placed. There are cases where, if the patent is very profitable, and the patentee has been able to keep it in his own hands, he may, after his legal contests, be able to reap sufficient profit to cover his losses and to bring him substantial reward. The possibility of his being so fortunate must evidently depend on the nature of the invention, and on the time that may have to elapse before the expiration of his fourteen years' license. His final success may also depend upon whether or not he can present a case sufficiently

exceptional and of sufficient urgency to obtain a still further extension of his privilege from the Privy Council. It must be obvious, however, that such exceptional privilege must be the lot of very few, and perhaps chiefly of those who have obtained public notoriety. But there may be many who are unable to present a sufficiently strong case for the consideration of the Privy Council, but which yet may fail, from various causes, to bring adequate reward. Some patentees may want the necessary means to pursue a difficult contest and therefore abandon it. Some may, in the midst of financial troubles, raise money on their patent and eventually lose it. Others may, from a flaw in their title being very clearly proved, be overthrown in a court of law. But, among so many causes of failure, there may still be patents in which the profit is clearly and unquestionably so great as altogether to counterbalance the expense, the trouble, and anxiety that may have ensued from the possession of the privilege. The most striking of these are the cases of manufacturers of some capital who have succeeded in making some improvement in an article of daily use, who have had the means of carrying the improvement rapidly into effect, who have defeated attempts at infringement, and have ultimately reaped considerable fortunes; but, whether or not, there are cases of men who have been similarly successful, but who have not had similar advantages, is a very different question, and one upon which it is highly desirable we should

have information. It is a disagreeable thing to point out the misfortunes and failures of a man, but there can be nothing more agreeable for some of those who have had a lengthened experience of the patent system, than to indicate instances of men, who have been raised by it from poverty and obscurity to fame and wealth. Failing such instances, and a very respectable number of them, considering the many thousands of patents which have been granted during the present century, it may be fair to conclude that the difficulties which beset the inventor, of promulgating his improvement, and of defending his privilege are generally so great, that a patent, though it may possibly be suited to the wealthy man, is quite unsuited to the poor.

There will, no doubt, be many who will be disposed to believe that, if the preceding pages exhibit faithfully many of the principal features of the patent system, the patent privilege reposes either on the most rotten basis, or that it requires amendments of so radical and comprehensive a nature as would transform it into something that could hardly be said to bear any resemblance to that which is. They may say that, if a large number of persons are so ill-informed as to what has been already done, and are so little able to appreciate the difficulty of a single man instituting anything new, that they spend their money in obtaining a patent for something, which, though it might possibly contain a useful notion, could by no shadow of a chance bring reward to the projector; and, if a large num-

ber persevere in hope, and many have to be satisfied with a small success and indirect benefits; and, if others make use of patents as a mere matter of trade policy; and if, after seven years and a hundred pounds obstruction, the same causes are still seen to operate; if some men, who are well-to-do, apparently from mere fondness for their own notions, cling to a patent; and if, of the residue, of those substantial improvements which spring naturally from new discoveries in science, from the spread of education, and from the extension of wants, the difficulties of promulgating improvements are so great that several years often go by before a patent becomes highly successful; and if, of those which do become highly successful, adverse interests are often so strongly moved that litigation of a most onerous character is the result, and the weakest man, in point of funds, may be pushed to the wall; and if, after all his difficulties, it is sometimes found that a patent has passed out of the inventor's hands, and is yielding handsome reward to some who have made little or no sacrifice; and if, finally, in addition to these last, the only persons who appear unquestionably to profit by the possession of a patent are those who, with ample facilities, overcome all difficulties, and, upon some article of common use, reap a handsome harvest: in the face of such considerations, they may say that the evils of the patent system are so incommensurate with any advantages which it may possibly possess, that the sooner it is totally removed

the better. And, truly, there is great reason for believing such to be a very sound conclusion. Before deciding, however, whether or not this is the result to which we are inevitably led by a review of the whole patent system, it may be useful to note some other points which have not yet come under consideration.

Firstly, it has been shown that a large number of persons take patents for something that may contain something good, but which patents must inevitably turn out in the end to be unremunerative as patents. If, however, any one who knows a little more than the patentee has had the same notion, and may be able to apply it far more perfectly, but who has judged better than to take a patent for it, he is in the position of being unable to make use of his own discovery, without exposing himself to the disagreeable chance of a contest with the patentee.

Secondly, a man very often takes a patent, and some one sees the contrivance, who brings perhaps equal or greater capacity and a fresh mind, and is able to suggest a considerable improvement. But, it would be of no use for him to take a patent for the improvement, as he could only use the original contrivance with the patentee's permission; and, as adverse interests are not easily reconciled, very few care to improve on a patented invention.

Thirdly, the inventor, who has priority at the patent office, can claim the leading principle involved in his contrivance. But a far abler man

may succeed, who may know nothing of the first man's attempt, and who may have carried it to a much greater degree of perfection. A patent to him, however, would be nugatory, and the privilege is therefore in the hands of the man who is least deserving.

These new difficulties in the patent system do not seem to mend matters. That they are practically experienced there cannot be the slightest question. A perusal of the evidence of Sir William Armstrong, Mr. J. Scott Russell, and Mr. J. A. Macfie, in the parliamentary report already referred to, will satisfy any one on this point; but, after such an array of inconveniences of the patent system, we should consider what there is of an opposite nature. It has appeared that some persons after their troubles are over may get profit from a patent, whether it has been the original inventor or not. And it has also appeared, that when a promising patent has happened to fall in the most promising hands, it has perhaps turned competence to wealth. It has also appeared that many have profited indirectly by a patent; or, as it would perhaps be more correct to say in this case, by an invention. There are other advantages, however, which are claimed to arise from the patent system. We are told that we should not get our most valuable inventions, but for the temptation which the system offers. It is not very clear at present that the introducers of our most valuable inventions have reaped great reward by the patent

system. * Some have reaped reward certainly, whether it has been owing to the patent system or not. Others have reaped reward by an improvement in an article of common use, which though it may bring great reward to the projector, is not necessarily the one that displays the greatest amount of talent, or that has involved the largest amount of sacrifice. In addition to the above, there may be persons who would hold out the attraction offered by the patent system as presenting a hope, however delusive it might prove to be, to the inventor to persevere, so that the community might eventually profit whether the inventor profited or not. But our countrymen, unless we except what some tell us of many of the clergy, generally prefer a little of the substantial to much of the imaginary; and, we may, from common

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* "Instances, lamentable as regards their consequences, and discreditable to the nation,—instances in which the authors of inventions, which have enlarged the boundaries of science and art, which have added to the wealth, the convenience and the comforts of the people, to an extent which cannot be estimated, have been neglected and have died, unrequited for the benefits conferred upon mankind,—are unfortunately too numerous; each of such instances presents its own individual features; in some, the impracticable character of the inventor; in others, the difficulty of introducing the invention, however meritorious, a difficulty in general proportionate to its merits; in others, the opposition of interested classes; and in all, the indifference and apathy of the public to changes not actually forced upon them, contribute to that which has become matter almost of national reproach and of bye-word, namely, the way Great Britain has treated some of the greatest benefactors—the authors and introducers of useful inventions."—*The Case of Josiah Marshall Heath, the Inventor and Introducer of the Manufacture of Welding Cast Steel from British Iron*, by Thomas Webster, M.A., Barrister-at-Law, F.R.S.

humanity, if from no higher principle, decline to get our improvements on such terms.

It will be interesting now to turn to a consideration of some of the propositions which have been made for mitigating some of the evils of the patent system. In the first place there is the evil arising from the existence of a vast number of frivolous and useless patents. Any person is practically allowed to obtain a patent upon his representing that he believed himself to be a first and true inventor; and, as an invention is considered to apply to anything novel connected with the production of manufactures, except mere design, the number of such inventions may almost be illimitable. And, in consequence of the merit of new propositions being of all degrees, it is of the utmost difficulty to lay down rules by which a large number could be rejected. Some of those who have much considered the subject have proposed that only those should be rejected that are clearly not new, or that are clearly very frivolous. Others have reasonably proposed that advice should be given to the intending patentee, so that, if he thought proper to proceed, he would do so in the face of sound information which might be placed before him. The Commissioners on the patent law appear to have found it to be so impossible to deal comprehensively with this point, without the chance of evoking a new set of evils which might be as great or greater than the present, that they have not recommended any preliminary investigation into the merits of an in-

vention, but they advise " that a careful inquiry be instituted under the direction of the Law Officers of the Crown, as to whether there has been any previous documentary publication of the invention, either by grant of Letters Patent, or otherwise; and if such publication have taken place, that the Patent shall be refused."

Secondly, there is the great objection to the present mode of trying patent cases in our courts of law; and, on this point, the Commissioners have recommended " that such trials ought to take place before a Judge sitting with the aid of scientific assessors, but without a jury, unless at the desire of both parties to the suit or action." If a patent system is to continue, every one will be glad of the adoption of this suggestion.

Thirdly, there is the question of licenses frequently granted by a patentee to others to use his invention. An invention may sometimes seriously interfere with persons already engaged in the branch of manufacture, and it appears, therefore, to be most necessary that the granting of a license should be made compulsory. Mr. Webster has proposed that it should be, but, as to make the granting of a license compulsory without fixing the terms would only partly meet the difficulty, and, as to fix the terms in matters of such variety and of such various degrees of merit, would entail the constitution of machinery in which the most conscientious might err, and there would be abundant scope for abuse, the commissioners appear to have been

unable to recommend an amendment of such a nature for legislative enactments.

In addition to these points, there are others referred to by the commissioners, the most important of which are that patents should no longer be granted to importers of foreign inventions, and that, in no case should the patent privilege be extended beyond the ordinary period of fourteen years. They conclude their report in the following ominous language:—

"While, in the judgment of the Commissioners, the changes above suggested will do something to mitigate the inconveniences now generally complained of by the public, as incident to the working of the patent law, it is their opinion that these inconveniences cannot be wholly removed. They are, in their belief, inherent in the nature of a Patent Law, and must be considered as the price which the public consents to pay for the existence of such a law."

The report is signed by Lord Stanley, Lord Overstone, Sir William Erle, Sir W. P. Wood, Sir H. M. Cairns, Mr. H. Waddington, Mr. W. R. Grove, Mr. W. E. Forster, and Mr. Wm. Fairbairn.

Therefore, the evils of a man being unable to use what he may invent, in consequence of a privilege of exclusive use having been conferred on a prior discoverer; of a man being unable to use what he may even be first to discover, unless he goes to the Patent Office to secure himself against a succeeder; of manufacturers in any particular trade being at the mercy of one man to charge what he pleases for the use of a patent, and to give an exclusive privilege if it so pleases him; and of a manufacturer being

at liberty to keep a patent to himself, and to exclude his competitors from using it on reasonable terms —these evils the commissioners have not been able to encounter; and, indeed, these evils are such, that it is not very obvious how, if the commissioners had continued their propositions of improvement sufficiently far, any portion of the patent system could have failed to disappear.

In coming, however, to this apparently inevitable conclusion, we must not suppose that the patent system has always been a practical evil. It has, in its time, answered a good purpose. It would not have stood for so long, if there had not been much in it that had proved valuable. If we turn to the table at page 86, we shall find abundant reason for believing that the system has been valuable. In the year 1617, when Mr. John Cason obtained his patent* "for the framing, contrivinge, and makinge of locks, sluces, bridgs, cutts, cranes, mills, dames, and other invencons necessarie for grindinge of corne, raisinge of water, makinge of rivers and streames navigable and passable for boats, keeles, and other vessells, not yet used or practised by anie other within His Ma^tios realmes and dominions," the privilege granted to one man was calculated, by stimulating enterprise, to work for the general good. Patents were of use, a hundred years since, to Richard Arkwright. They were of great use to James Watt. But now, matters are altogether

* See page 89.

altered. Enterprise is so great, that infinitely greater things are done without special privileges than with. Our railways are formed, our bridges are built, steam vessels of enormous size are constructed, companies are spending English money in all quarters of the globe and thousands of commercial establishments spring up, upon no other principle than that to meet a public want will bring of itself a due reward; and, if the holders of patents do not generally appear to be successful to a corresponding extent, it may possibly arise because there is not equal freedom in the application of a new discovery; because the privilege is not in the hands of the man best calculated to give it due effect, or even in the hands of the most deserving; because such a privilege, when successful, generally leads to most onerous responsibilities; and because the right of one man to interfere with the natural action of trade is an obstruction to the liberty of the subject, but which will notwithstanding be both directly and indirectly contravened.

Yes, for one man that has succeeded by a patent there are hundreds—nay, thousands—who have attained, and have far more certainly attained, success without any privilege whatsoever. And when we conceive that the progress of scientific discovery, the spread of knowledge, and the extension of our wants, must inevitably develope, instead of checking, the spirit of enterprise, it will be at once seen that anything so anomalous as a patent system can only be regarded as an unmitigated

evil. To suppose that we shall not get all the advantages we now have from inventions if we have no patent system, can hardly enter with justice into anyone's imagination. Surely, if there is perfect freedom to all the manufacturing intelligence of the country to discover and to use, we shall get a great deal more than we do at present. As long as there are such things as enterprise and competition, so long will the intelligence of man, working for his own good, bring to the community all that the community can want. The intellect of man asks only to be left alone. It will benefit himself and others, not perhaps by a wonderful blow of fortune, but in all cases with surety and certainty. And, in days which are witnessing the Atlantic telegraph persevered in after failures, the Great Eastern persevered in after the misfortunes of others; many thousands of pounds invested to connect two small towns by railway; joint stock companies to effect an infinity of purposes: in such days, it is not easy to conceive that any great achievement which the discovery of man can effect in the applications of science will be allowed, from mere want of enterprise, to remain incomplete and unapplied.

It has been said by an ingenious patent agent, who has written a little on the subject of patents, that "men of mark and cultivation and consecutive mental industry will not sow that others may reap the harvest;" that "as unenclosed land will produce a wild crop, so will unenclosed mentality," and "that an inventor should have a patent—a mental

inclosure—to induce him to foster" his invention "and to give it a new birth." And, as to pursue the analogy of the ingenious patent agent, forty "mental inclosures" are very much better than one, so may forty patent agents, each man in his "mental inclosure," set themselves to invent means for rendering a patent system compatible with the natural right of the individual, to promote in a high degree the benefit of the community, and to bring sure reward in all cases to the deserving; and if, as the result of the labors of many men of similar opportunities and similar attainments, the same useful propositions should proceed from several, so natural a result may be regarded, not as a reason for contest among themselves as to the right to first discovery, but, as the natural consequence of men of equal knowledge and capacity laboring with equal care to throw light on an important and familiar subject.

There is one aspect of the patent system that will readily account for much of the support it is receiving, and will receive as long as such a system is allowed to exist. It is regarded by many as a possible short road to wealth. There has been an instance within a few years, mentioned by Mr. William Hawes,* of the man who took a patent for the application of the new dyes, discovered by Professors Faraday and Hofman, and who is now

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* *Journal of the Society of Arts*, vol. xii., page 374, an admirable speech.

reaping with others great wealth as the result of the new discoveries of those philosophers, who do not however benefit to the extent of one shilling. So delusive is the notion of the possibility of making a discovery that will open a mine of gold at a man's feet, that there are now men, laboring on in poverty and wretchedness, in the hope of discovering perpetual motion and other impossibilities, and to whom nothing could be kinder than to dispel their delusion by removing the system.

It was the opinion of the late Sir M. I. Brunel that patents are injurious alike to the inventor, the public, and the manufacturer. He was quite right. They are injurious to the inventor, because the field of invention is not freely open to him, because one man gets a privilege and precludes others, and because, even the man who obtains the privilege, instead of reaping a sure success, though perhaps not a very considerable one, is led on by the hope of an uncertain success but a great one, and from a variety of causes, which may be said to spring only from his patent, he may live only to die in wretchedness, poverty, and shame.

Patents are injurious to the public, because, with them, the increased knowledge and enterprise of thousands is not allowed to work with full freedom for the good of the community. And they are injurious to the manufacturer, because he may not be able to use knowledge he may himself gain, because his course of trade may be disarranged by a privilege being in the hands of a

competitor, and because he may be unable to avail himself of all the knowledge which may result directly or indirectly from the advances of science.

If the inconveniences of the patent system are so clear and so great, it might be expected that their possibility would have been to some extent foreseen; and, accordingly, if we turn to the Act by which the privilege is granted, we shall see that it appears to contain elements necessary for its own dissolution. It is provided in the Act that the grant shall be void, "*if prejudicial or inconvenient to our subjects in general;*" and, as it was expressed in the Statute of Monopolies, if "*mischievous to the State, by raising prices of commodities at home, or hurt by trade, or generally inconvenient.*" We can, therefore, imagine such a thing, if the patent system should last much longer, as some one in the interest of the public, proceeding by *scire facias* to the attack of the privilege, and advancing the Attorney-General's notable argument in the case of "Feather *v.* The Queen," for the purpose of obtaining a precedent that would strike at the root of the whole patent system. It may be hoped, however, that so troublesome a process will not be found necessary.

We can turn now to some consideration of the position the inventor would occupy if there were no patent system. He could have no exceptional privilege, but others would be in the same position as himself. He would have perfect freedom to use all the knowledge he could gain. He might be

stimulated to push his researches very far—sufficiently far to place himself at the base of all that is known on his particular subject; and, as a result, he might be able to improve: he would publish his information abroad, and, if he displayed undoubted evidence of superior knowledge, he would gain confidence in himself and command respect for his attainments and perseverance. So meritorious and honorable a thing as to benefit the community would distinguish him among his brethren. His superior knowledge, when once made known, would by slow but sure means, bring him success in the same way as the same qualification brings success to the lawyer, the physician, the engineer, and the architect. He would not stand still, but the little reputation, when once got, would be made available to him by his own perseverance, and would be a firm step in the ladder of success. His invention, if it could bring him even no direct reward, would be to him what the publication is to the physician, the fortunate opportunity well embraced to the barrister, the first notable work to the engineer, the proportional pile or well-contrived arrangements are to the architect, a scientific discovery is to the philosopher, or a first success to the painter or author.

If the inventor is in no way connected with trade and cannot, therefore, reap a reward in the same way as all others who have to labor for their daily bread, he must, like the philosopher, the geologist, and many others, be actuated by pure love of

science, and he will therefore be satisfied with the reward which this brings to him—with the honor he gains and the satisfaction of having an opportunity of rendering a service to the community, which is able to render great services to him. Those who are most given to think that every service rendered to the community should necessarily receive a corresponding monetary reward, are little familiar with the spirit that generally actuates the philosopher and author, and they should reflect that if a man freely gives, he also freely takes. The advantages which naturally flow from a community to an individual are very great. Necessities or luxuries for the body and the mind are placed by enterprise and competition within his reach to an extent that could never have been conceived of in a former age; and, though there is no more respectable motive for action than a man's laboring conscientiously for his own support, when considered within certain limits, other motives are found to govern where persons are differently placed, and there is a motive which we consider the highest of all, which would, perhaps, be a little more familiar to us if only the general wealth of the community were greater.

If the inventor should meet his reward in the same way as the physician, the barrister, the engineer, the architect, and others, and his discovery should be therefore merely regarded as an important step in the road of success, we may enquire whether or not there is something erroneous in supposing invention to consist only in what has been protected

by patent. If the inventor places himself at the base of knowledge bearing upon his particular subject and discovers that a new result beneficial to mankind can be accomplished, there are others who are in the same position as himself. With such a definition the physician may be an inventor; the discovery of the philosopher will be to that of the inventor merely what a great stream is to a rivulet; the architect and engineer have no merit unless they invent. If our lawyers are not great inventors, it is not because they have no scope. There are those who endeavor to extend our knowledge of the past, or to enlighten us in the present, to soften the prejudices of classes, to castigate the unprincipled for their vices, to awaken sympathies for the lowly, and to excite pleasure by the humorous. These must ever invent. The man might have proved a useful inventor who, starting with such a theoretical system of railways for our metropolis and suburbs as a series of lines, short and long, radiating from a central point, or from a circle of small radius, to be followed by successive circles at suitable distances as boundaries enlarged, could have succeeded in making a portion at least of such a system occupy the place of a more complex one. The labors of the geologists, who are ever employed in collecting facts and in discovering generalizations, and who may continue to do so until man's opportunities reveal, perhaps, all that he can discover of the operation of the forces from without and from within on the world's crust, are not without con-

siderable analogy to the labors of the inventor. The inventive powers of the man are not very considerable who despairs of humanity, and who appears to think that nothing remains for the Maker but to acknowledge the imperfection of his workmanship, to remelt it, and to make a fresh attempt. But those may show greater promise who are far from believing that the human race has yet arrived at its age of decrepitude, who think that many great things have yet to be done, and that, in all that relates to the bodily, intellectual, and moral constitution of man, hope is a far more powerful instrument for good than fear or despair. And, the title of a useful inventor need not be denied to the man who lives to hold a leading place in his country's councils, who can somewhat comprehensively realize the present and the past, whose sympathies are not confined to an order, who has faith in the slow but sure elaboration of the future, and who has strength to assimilate the valuable for his daily instruction and guidance.

If we accept the proposition that the inventor should seek his recompense from the advantages which may naturally follow the proof he gives of his superior knowledge and ability, we shall see that a system of paying for his labors by direct grants from the State, which some have proposed, would be unnecessary. There is nothing more pleasing than to see a man fully rewarded for his labor, but all must be on the same footing. The inventor would be dealt with in a manner different

to all others who labor to gain and apply knowledge, and the system would be attended inevitably with abuses, mistakes, dissatisfactions, heartburnings, and bickerings that might almost make one wish for the old system back again. And, though anyone would assent immediately to the proposition that, if a man had been able to render a considerable service to the community, there are certain cases in which he should be considered by the State, these are special cases which could be easily provided for, and which need not entail a novel principle and a troublesome and unsatisfactory machinery.

Of greater use and importance than a lengthened consideration of such a question, may be to enquire whether or not any of the difficulties the inventor is found to labor under can be to some extent removed. We have seen that one great requirement of the inventor is publicity, and that the difficulties and expense of obtaining this are often very great. As it is highly to the interest of the inventor to get at the public, and it is also to the benefit of the public to get at the inventor, it seems impossible to imagine that if any adequate means could be devised to effect the introduction, there could be any other than a mutually satisfactory result. It is true that a large number of inventors do not address the public in the first instance; but still there can be nothing of such intrinsic value to themselves and their inventions as publicity, and it may therefore be worthy of most

serious consideration whether much public good would not result by the adoption of the late Prince Consort's comprehensive measure for stimulating the inventive talent of the country. Some only of those who have been engaged in manufactures can have a conception of the enormous trouble and expense that attend the introduction of anything new. Advertisments in the newspapers are the most ready means; but they do not say much, and are not always to be trusted. No manufacturer succeeds in getting the assistance of the numberless persons engaged in trade for anything new until the public begin themselves to demand. Our wants extend yearly and, with every new want, many persons appear to supply, but nearly all labour in the dark. Last year no less than thirty-seven persons applied for patents in connection with sewing machines. This year, to the eighteenth of March, there have been seventeen. Last year, from the fourteenth of May, no less than fifty-one persons applied for a patent for signals between the passengers and guard, or between the guard and driver of a railway train. This year, to the eighteenth of March, there have been sixteen. The suggestions lie buried at the Patent Office. Most of them are no doubt practically worthless. Some may be of little and some of considerable value; but they struggle, if at all, with the greatest difficulty, to see the light of day. In everything else there is the same thing, an immense difficulty on the part of the projector to make his suggestions

known, and no ready means for the public to find the projector. We have seen that years often go by before inventions of great value benefit the public; but there can probably be no greater remedy for this than freedom to use and publicity. Many will meet the proposition for a comprehensive Museum of Inventions by considerations drawn from International Exhibitions, but such considerations may possibly mislead. If it is really a great public want that the inventor and the public should be brought quickly together, it seems impossible to imagine that other conditions are required for success than proper organization and power of enlargement, as in our postal system, our railways, and other social conveniences. It is true that, if we look at the inventions at the Patent Office, they are a most heterogeneous mass, but by a most important provision, the valuable could be continually separated from the others. One part of the museum might be of a permanent nature, and, to this, new inventions could be admitted as soon as their undoubtedly valuable nature was ascertained. The main body of inventions would necessarily not be permanent, and these might be admitted on the payment of a small charge by the inventor, such as a guinea yearly for a square yard of space, which would exclude much that is frivolous, be no check to the genuine inventor, and provide a portion of the funds necessary to carry out the scheme. There might be specifications of inventions printed, as at present, at the option and cost of the inventor, to

be circulated at the cost of paper and printing; and, as the number of these would be vastly less than under the present compulsory system, and consist in a great measure of the most useful, they would be of considerable value for study and reference. Specifications could under certain circumstances be printed at the cost of the State. A weekly illustrated record might supersede the present *Patents' Journal*, or this might be left to private enterprise. The daily press might possibly be able to render occasional assistance, and altogether it may appear that nothing but good could arise from giving to the inventor some of the publicity he so much requires.

A second great advantage that might result from a museum of inventions is the instruction of the inventor. A large number of the present useless propositions would not be made if the inventor had easy means of knowing what has been done already. Useful information could be readily obtained by him, partly by means of the specimens and models deposited in the museum, whether permanent or temporary, and partly by the scientific library, now deposited in Southampton Buildings, which is spoken of in very high terms, and which urgently requires the necessary accessories of space, arrangement and situation, to make it fully available for the benefit of the inventor and the public. There is at present at South Kensington an interesting collection of historical models or curiosities that would form a fitting

nucleus to such a museum as that proposed; and, possibly, if the scheme were as highly successful as might be hoped, something of the nature of an economic museum for the benefit of the laboring classes might spring from it ultimately as a sort of natural offshoot, in the same way as the Post Office, from carrying letters has come also to carry books and a variety of parcels. An interesting subject for consideration would be whether or not any description of honorary reward should be given to the successful inventor. Many of those who have had personal experience of three great International Exhibitions, would perhaps be disposed to question the expediency of any such system. If it could be carried out unerringly and give general satisfaction, it would of course be admirable. But who could hope for such things? Still, there are very many to whom some such appreciation of merit would be of real value, and give such unquestionable satisfaction, that it might demand most serious consideration whether or not a certificate or other award should be given as a general recognition of merit, and not as a commitment to the recommendation of anything which might be suggested. The Society of Arts would doubtless be able to solve the difficulty. There are other points, such as the rejection of the clearly frivolous and of mere specimens of manufacture or design, liberty to the inventor to furnish particulars of his invention by circular, which would be necessary for the complete success of the museum; but that all

matters of difficulty would be overcome by its being taken up as a truly national undertaking, with such assistance as the Society of Arts and the officers of the present Patent Office and Museum could give, there can perhaps be no reasonable doubt. In a parliamentary report published last autumn, on the present Patent Office Library and Museum, the question of an extension of the present museum is entered into, and preference is given to Chancery Lane among several localities for carrying out something on a moderate scale. But, as Chancery Lane would not afford ready scope for enlargement, and no one is willing to go there except from necessity, it may be that some locality far more congenial for a popular institution and for study should be found, if anything be attempted on a larger scale.

While facility for obtaining publicity may promote the interest of the inventor, there is another difficulty he encounters, arising from his want of capital, which may to some extent be provided for. The great increase of large establishments of late years, has rendered it more difficult than ever for the man of small capital to succeed; but the advantages which have resulted to the public by increased enterprise and reduction of prices, have been sufficiently great to outweigh the disadvantages of destroying the independent working of many men, and the accumulation of wealth in few hands. Independence, however, is dear to all, and if the manufacturer cannot meet capital with its own weapons, he must try what the smaller

capital will do with the greater skill and industry. Whoever administers best to the community will inevitably prevail, and, as in a vast number of manufactures skill and industry are of much greater importance than large capital, any means by which adequate capital may be brought within the reach of the man of principle and ability, must be hailed as likely to become highly beneficial. An admirable measure, with respect to the leading principle involved, was proposed in the last session of Parliament, by which the principle of limited liability could be applied to ordinary commercial partnerships, in the case of anyone providing capital. The measure met with much opposition, but it is to be revived again this year. Those who were unfriendly to it proposed that all commercial establishments receiving support by the means provided by the Bill should bear a public announcement which would intimate the fact abroad. As, however, any such provision would deter very many men from availing themselves of the measure, if they had the power of doing so, and as the only persons interested to know the particulars of a man's status, could be easily furnished with the necessary information by such means as give to preferential securities a certain publicity, the promoters of the measure may be considered to have acted wisely in refusing concurrence to a principle that might render the measure almost nugatory.

The success of the limited liability principle, applied to joint stock companies, has been very

great. It has, no doubt, been too great, and many may have, therefore, to reap disagreeable consequences from putting implicit faith in the representations of the unprincipled. But a great public want has been supplied, and there can hardly be a doubt that, when the same facility is given for the use of capital in an ordinary commercial enterprise, the skill, industry, and moral principle of one man will be found ultimately to present a not less sure promise of adequate return for capital than similar qualifications in the promoters and directors of public companies.

Another thing which will assist the inventor is the falling away of the old system of long credit, which system is becoming more and more impossible with the increase of knowledge and competition. And, of equal importance for his interests, is to avail himself of the liberty secured to him by law of affixing his name or mark to his productions. If he gain any repute, this will be of the greatest service to him, as the public will, for two reasons, very generally give preference to him over others. And if he is not a manufacturer, but would have to offer his services professionally, identically the same causes would be found to operate; and it may not be impossible that, even in the case of the manufacturer, who is most inconvenienced by the introduction of anything new, and who is now too often inimical to the inventor, that free enterprise and competition will not only compel him to accept changes as part of the inevitable consequences of

trade, but that the same influences will often induce him to seek the assistance of the inventor, as the fittest exponent of his discovery, and the most reliable to superintend the arrangements for giving it full effect.

A movement, in relation to the laboring classes, has recently begun, which has much connection with invention, and which is one of many excellent signs that those classes are awakening to a knowledge of the means by which their position can become gradually ameliorated. The industrial exhibitions which are now held tend to bring out the mechanic as an inventor, but, unfortunately, some well-intentioned though most mistaken men, have been leading him into a delusive notion of the blessings of the patent system. Much harm will not, perhaps, be done; and it is satisfactory to find that, though some may not always comprehend what will be clearly for the working man's benefit, there is nevertheless a spirit abroad, which, when it works in the right channels, will do a vast amount of good. By reducing excessive hours of labor, by raising the working man's pay where it can be done with reason, by encouraging him to avail himself of opportunities for obtaining knowledge of the most practically useful character, by teaching him that, if he offers sobriety, perseverance, and moral principle, as an inducement to capital, capital will be surely found to respond and to prove a most true friend,—it is by such means as these, and by teaching him, above all, that he must

depend chiefly on his own hand and head, that the sum total of happiness will be greatly increased, and some awful stains upon our civilization eventually removed.

The spirit of one has just gone to its rest who did more than any man in our day to remove trammels from our industry, and to make knowledge practically available for the well-being and happiness of his race. His spirit has gone, and yet it remains. His features were not those of a hard, shrewd, and unsympathizing worldly schemer, who weaves his miserable devices, and his fate is very different. He fought nobly for the good and the true, and he descends loved and honored to the grave. Worldly rank and wealth are not often the lot of such men. They bear in them rank and wealth higher than man can bestow. Their reward is far higher than fame. It is the satisfaction of using the faculties given by the Eternal to promote the good of their kind. It is the progress of a few firm steps in the onward path by which the strong soul is purged of its dross and advances in the scale of being.

"Studisi ognun giovare altrui; chè rade
Volte il ben far senza il suo premio fia;
E se pur senza, almen non te ne accade
Morte, nè danno, nè ignominia ria.
Chi nuoce altrui, tardi, o per tempo cade
Il debito a scontar, che non s'obblia.
Dice il proverbio, ch'a trovar si vanno
Gli uomini spesso, e i monti fermi stanno."

NOTE A.

List showing the number of Letters Patent for Inventions granted yearly, from 1618 to 1852, deduced from "Titles of Patents of Inventions," chronologically arranged, from March 2, 1617 (14 James I.) to October 1, 1852 (16 Victoriæ). By Bennet Woodcroft, Suprintendent of "Specifications, Indices, &c." The figures include extensions of patents.

Year.	Number of Patents.	Year.	Number of Patents.	Year.	Number of Patents.
1617	4	Brought fwd.	127	Brought fwd.	165
1618	6	1645	—	1672	3
1619	5	1646	—	1673	4
1620	2	1647	—	1674	5
1621	2	1648	—	1675	11
1622	3	1649	—	1676	4
1623	5	1650	—	1677	7
1624	3	1651	—	1678	7
1625	2	1652	—	1679	3
1626	3	1653	—	1680	1
1627	6	1654	—	1681	5
1628	3	1655	—	1682	8
1629	4	1656	—	1683	7
1630	5	1657	—	1684	13
1631	2	1658	—	1685	5
1632	6	1659	—	1686	3
1633	4	1660	3	1687	6
1634	12	1661	4	1688	4
1635	11	1662	6	1689	1
1636	11	1663	2	1690	3
1637	15	1664	4	1691	20
1638	8	1665	2	1692	25
1639	1	1666	2	1693	19
1640	3	1667	5	1694	9
1641	—	1668	3	1695	8
1642	1	1669	—	1696	3
1643	—	1670	3	1697	3
1644	—	1671	4	1698	7
Carried fwd.	127	Carried fwd.	165	Carried fwd.	359

Year.	Number of Patents.	Year.	Number of Patents.	Year.	Number of Patents.
Brought fwd.	359	Brought fwd.	581	Brought fwd.	1458
1699	5	1742	6	1785	61
1700	2	1743	7	1786	60
1701	1	1744	17	1787	55
1702	1	1745	4	1788	42
1703	1	1746	4	1789	43
1704	4	1747	8	1790	68
1705	1	1748	11	1791	57
1706	5	1749	13	1792	85
1707	2	1750	7	1793	43
1708	2	1751	8	1794	55
1709	3	1752	7	1795	51
1710	—	1753	13	1796	75
1711	3	1754	9	1797	54
1712	3	1755	12	1798	77
1713	2	1756	3	1799	82
1714	3	1757	9	1800	96
1715	4	1758	14	1801	104
1716	9	1759	10	1802	107
1717	6	1760	14	1803	73
1718	6	1761	9	1804	60
1719	2	1762	17	1805	95
1720	7	1763	20	1806	99
1721	8	1764	18	1807	94
1722	13	1765	15	1808	95
1723	7	1766	31	1809	101
1724	14	1767	22	1810	108
1725	9	1768	23	1811	115
1726	5	1769	36	1812	119
1727	7	1770	30	1813	142
1728	11	1771	22	1814	96
1729	8	1772	29	1815	102
1730	12	1773	29	1816	118
1731	9	1774	35	1817	103
1732	3	1775	20	1818	132
1733	5	1776	29	1819	101
1734	8	1777	33	1820	97
1735	1	1778	30	1821	109
1736	5	1779	37	1822	113
1737	4	1780	33	1823	138
1738	6	1781	34	1824	180
1739	3	1782	39	1825	250
1740	4	1783	64	1826	131
1741	8	1784	46	1827	150
Carried fwd.	581	Carried fwd.	1458	Carried fwd.	5594

Year.	Number of Patents.	Year.	Number of Patents.	Year.	Number of Patents.
Brought fd.	5594	Brought fd.	7525	Brought fd.	12,009
1828	154	1838	394	1848	388
1829	130	1839	411	1849	514
1830	180	1840	440	1850	523
1831	150	1841	440	1851	455
1832	147	1842	371	1852	465
1833	180	1843	420	(Chiefly during nine months)	
1834	207	1844	450	1853	5
1835	231	1845	572		
1836	296	1846	493	Total ...	14,359
1837	256	1847	493		
Carried fd.	7525	Carried fd.	12,009		

The following are some particulars of the first five patents taken from the same volume.

Rapburne, Burges, 2nd March, 1617.

1. A privilege granted to Aaron Rapburne, gent., and Roger Burges, for term of xxj yeares next, of the sole making describing, carving and graving in copper, brasse, or other metall, all such and soe manie mappes, plotts, or descripcōns of Lond.· Westm, Bristoll, Norwich, Canterbury, Bath, Oxford, and Cambridge, and the towne and castle of Windsor, and to imprint and sett forth and sell the same. Teste ij Marci j pd. Pbre.

Hillyard, 1st May, 1617.

2. A spiall priviledge granted to Nicholas Hillyard, gent., His Ma^{ts} servant and principal drawer for the small Ptraits and inbosser of His Ma^{ts} medallies of gould. Shewing that whereas in respect of his extraordinary arte and skyll in drawinge, graving, and imprintinge of such pictures and reprentacōns of His Ma^{tie} and others as he should hereafter make and invent, His Ma^{tie} doth hereby grant unto the said Nicholas Hillyard and his assigns free license, power, and priviledge, for the term of twelve yeares next ensuing, within anie His Ma^{ts} realms and dominions, to invent, make, grave, and imprinte anie picture or pictures of His māⁱᵉ image or other represntacōn of His Highnes' pson as well in pap and pchment as in anie other thinge whatsoever fit for the better shewinge of his skyll and invencon in this arte or mistery, prohibitinge

others to doe the same upon payne of forfeyture of all such pictures, representacōns, plates, or woor'ces; the one moyty of which forfeitures to be His Ma^tie his . . . . . and the other moyty to be to the said Nicholas Hillyard and his assignes, with power and authority takinge . . . . . or other officer to search for anie of . . . . . the same so found to take and carry . . . . . aforesaid yieldinge and payinge . . . . . receipt of exchequer the yearlie . . . . . with a proviso that this grant . . . . . debarr or hinder anie psons whats . . . . . science and facultyes of printing . . . . . formerly they have done. Teste j die Maii, anno regni quintodecimo. Record mutilated.

3. A speciall priviledge granted to John Cason esq., shewing that whereas hee by his great charge and industrie hath attained to the skill and pfeceōn of a more apte and beneficiall means for the framing, contrivinge, and makinge of locks, sluces, bridgs, cutts, cranes, mills, dames, and other invencōns necessarie and convenient for grindinge of corne, raisinge of water, makinge of rivers and streams navigable and passable for boats, keels, and other vessels, not yet used or practised by anie other within His Ma^ties realmes and dominions, His Ma^tie doth hereby graunte unto the said John Cason, his executors, administrators, deputies, and assignes, free licence and priviledge within the realme of England, dominion of Wales, and town of Barwick, in places meete and convenient, durinye the term of xxj^tie yeares next ensuinge, as well to devise, make, direct, pfect and practise the pmisses and other invencons not repugnant to the laws and statuts of this realme, as also to make and invent all manner of engines and tooles for the pfectinge and pforminge thereof. And for that the effecting and pfectinge of the pmisses will amount to a very great charge, His Ma^tie doth hereby comande and prohibit that no pson or persons whatsoever (other than such as shal be licenced or appointed by the said John Cason, or which shall give contentment to him, his deputies or assignes) attempt, practise, or go about by anie waie or meanes, directlie or indirectlie, to passe, saile, or remaine upon, in, or by anie the rivers, water sluces, cutts, or dames, so to be cutt, made navigable, or pfected by the said John Cason or his deputies aforesaid, or intermeddle, practise, use, make, build, or putt in use in or upon the same anie mills, sluces, locks, Cason, 1st July, 1617.

bridges, or engines, such or the like as by the s[d] John Cason his deputies or assigns have been first invented, pfected, or sett up, uppon paine of forfeiture and His Ma[ties] high displeasure; provided that the said John Cason shall not by cullor hereof, make, attempt, or cause to be made any cutt, river, watercourse, or anie other the premisses in or upon anie lands or grounds, place or places, whatsoever, but first compounding and agreeing with the owners thereof. And shall further, at his own cost and charges, make, erect, and maintain good bridges over the said rivers and places soe to be by him cutt as aforesaid. And for avoidinge of manie inconveniences wich maie befall by the obstinacie of some evill disposed psons, His Ma[tie] doth therefore ordaine that no pson or psons, owner or owners of anie lands, woods or wastes, where the said patentee or his assignes shall have necessarie occasion to compound for or in respect of the pmisses p[e]sume to refuse a reasonable composicon as aforesaid, upon paine to His Ma[ties] high displeasure to be incurred for their contempt of His Royall will in that behalf—yielding and payinge into His Ma[ties] exchequer yearely, during the said terme, the some of fortie shillings. Teste R[e] apud Westm. vicisimo primo Julii.

Pbre, &c.

Holfen, Miller 1st July, 1617.

4. A priviledge granted to John Casper Wolfen, of His Ma[ties] privie chamber, and John Miller, a German borne, to have the sole making of a certain oyle for xxj years, by them invented to keep armor and armes from rust and kanker—paying into His Ma[ties] exchequer yearlie xl[s] Teste ut sup[a]

Pbre, &c.

Murray, 11th January, 1618.

5. A spiall priviledge granted to Thomas Murray esq[r]., for 21 yeares, for the sole practise of a newe invencõn for the sole making of sword blades, faulchions, skeynes, and rapier blades within the realmes of England and Ireland; rendering to His Ma[tie] v[li] rent yearlie until the said manufacture be soe pfected as that there shall be a decay of importacon from w[ch] time the patentee is to paie to His Ma[tie] x[li] rent, and soe much more yearlie rent, in lieu of His customes, as shall be found by a medium of 7 yeares to be cast up to have been answered by the same.

Teste xj[o] Januari j Pd

Pbre

NOTE B.

RESULTS of the EXAMINATION of the first hundred inventions for which applications for patents were made in each of the years 1855, 1858, and 1862, by Mr. Bennet Woodcroft. From the Appendix to evidence taken before the commissioners appointed to inquire into the working of the law relative to letters patent for inventions. P. 154.

A.D. 1855.

Of the first hundred inventions for which applications for Patents were made in the year 1855, none are apparently of considerable value; but I believe it to be impossible to predict beforehand the value of any invention.

Four of the hundred inventions appear to be of some, but not of great value, and patents were granted for all of them.

One of these patents expired at the end of the third year of the grant, and two at the end of the seventh year; and consequently only one continues in force.

The remaining 96 of the hundred inventions seem to be of little or no value; and patents were granted for 66 of them. One of these patents became void at the end of the term of six months from the date thereof for want of a final specification; 50 expired at the end of the third year of the grant, and 13 at the end of the seventh year; and consequently only two continue in force. Patents were not obtained for the remaining 30 of the 96 inventions.

It may be further remarked that 16 of the above-mentioned 96 inventions are on the face of them old; six partly old; and others might be found to be old on examination; and one for giving circular motion to a shaft, although new, is costly, complicated, and utterly unfit for use.

A.D. 1858.

Of the first hundred inventions for which applications for

patents were made in the year 1858, none are apparently of considerable value.

Three of the hundred inventions appear to be of some but not of much value, and patents were granted for all of them; but these patents expired at the end of the third year of the grant.

The remaining 97 of the hundred inventions seem to be of little or no value; and patents were granted for 62 of them. 48 of these patents expired at the end of the third year of the grant, and 14 continue in force, but have not yet reached the seventh year of the term. Patents were not obtained for the remaining 35 of the 97 inventions.

Fourteen of the above-mentioned 97 inventions are obviously old; one partly old; many more on examination might be found to be old; one for making curtains and wall hangings of india-rubber is of a ridiculous character; and one ought not to have formed the subject of Letters Patent, but should have been registered under the Designs Act.

A.D. 1862.

Of the first hundred inventions for which applications for patents were made in the year 1862, one is apparently of considerable value; and a patent was granted for it, which is still in force.

Of the same hundred inventions, one appeared to be of some but not of great value; and a patent was granted for it, which also is still in force.

The remaining 98 of the hundred inventions seem to be of little or no value. Patents were granted for 59 of them, but not for the other 39. Three of these patents became void at the end of the term of six months from the date thereof, for want of a final specification. Fifty-six patents are consequently still in force, but have not yet reached the third year of the term.

Seven of the before-mentioned 98 inventions are old; others, on examination, might be found to be so; one is for an absurd mode of lubricating axles; and one is a scheme for a perpetual motion.

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