

PATENTS AS INVESTMENTS.*

BY ALBERT SCHEIBLE.

Our greatness as a manufacturing nation depends so largely on the patent system, which has been in force for the last sixty years, that the question of the value of patents must be of general interest. Especially is it of importance to workers in the electrical field, since the commercial side of our line shows its dependence on patents at every step. Still, among electrical people as among others, we find quite a range of opinion in regard to the value of patents (the term being used to denote the control of patented inventions). On the one hand we find lists of patents scheduled as heavy assets by our prominent electrical concerns, while on the other hand we hear the grumbling about the worthlessness of patents issued by the United States government and the folly of spending money in obtaining them. Of course a patent in itself is merely a formal recognition of the inventor's originality and of his willingness to let the public have the free knowledge and use of his invention after the expiration of the seventeen years during which he can defend himself against pirates. The patent in itself does not confer any value. It is merely offered in order that the inventor will disclose what is of value. So in treating of patents as investments, we must consider the value of the patented invention as compared with the unpatented and, hence, unmonopolized one.

If we are ourselves inclined to originate new and useful ideas, we want to know if it will pay to invest money in patents as a first step in controlling their exploitation. Then, as engineers, we have the general public looking to us for guidance. So the question becomes still more important. And since every dollar improperly spent in connection with electrical work takes at least one dollar out of the reach of those who need it for promoting legitimate undertakings, hence we should all be more or less interested in checking any rash investments. Some years ago ex-Commissioner of Patents Thatcher made the claim that over half of the patents issued by our government are remunerative; but I believe he did not state how well the paying ones were averaging nor what was lacking with the balance that would keep them from bringing proper returns. Perhaps we can best get at this point by studying the features which ought to make an invention worthy of commercial success and hence of patent protection. For while there may be no general rule of commercial success or failure which we can apply to all patented inventions, is it not plausible that those will fare best which are most worthy of success? Here, for not be noticeable in a given invention:

(1) Decided originality; not merely enough to make it patentable, but sufficient to avoid the evading of such a patent by equally simple and effective devices.

(2) Utility to the extent of filling a decided want more than a mere local usefulness, so as to command a widespread sale under varying conditions.

(3) Exploitability at the hands of the inventor or of those with whom he is in contact.

Then as to the patent itself, there is point 4. The patent should strongly cover the invention.

These four points strike me as the ones which would usually determine the prospects of success or failure for any patent from an investment standpoint. And are they not points whose importance ought to be self-evident? It takes originality in an invention to entitle it to a patent; but a very simple rearranging of parts with an extra hook or lever may be enough for this. And if the device is easily gotten up, why should it be hard for a competitor to get up an equally effective one which would evade the patent? Only the decidedly original patents are usually hard to evade, and therefore valuable as protectors. Then we need utility to a large degree in order to find any considerable market for the patented article. The man who patented the shadow sign device for use in street railway tunnels no doubt devised an article which could prove useful in the three Chicago tunnels, but where else would he find a market for it? Then as to the strength and breadth of the patent when procured. It takes an able lawyer to weigh every word and every phrase in the application so that his client may get all to which he is entitled, and either the inventor or his attorney or both must have a good knowledge of the allied art and a keen insight into the future of the invention. It always lessens my opinion of a patent when I hear the inventor brag about writing his own claims and specifications; for not only do two heads think more than one, but it takes the skilled attorney to tell just what to put in and what to leave out in order that the case may be put most clearly before the examiner. And of course there must be some prospects of exploiting the invention, else of what use is the patent?

Briefly, you need only to ask yourself four questions: Is the invention decidedly original, does it fill a widespread want, will the proposed patent properly cover it and is the inventor in position to profit by the governmental protection implied in the patent? If the invention meets these four tests, it ought to be worthy

of success, and hence a good investment; but every shortcoming on any of these four points will count against it. And if a given idea will not stand the test of these four simple questions, why spend a single dollar toward patenting it? Our government issues patents because it wants the public to be benefited by new devices needed for its progress and welfare, but that does not mean that every new idea is so needed by the public. Indeed, the average thinker will strike a great many ideas which fill no decided want. He can well afford to shelve most of them if he will only learn to save the one or two that are really worth exploiting, for it is only by persistent study and experiment that most of the really valuable patented inventions have been produced. The first rough pencil sketch may be quickly made the basis of a patent, but rarely of as broad and valuable a patent as it would if based on farther thought and trial. Indeed, the hasty patent often prevents the getting of a broader and not readily evaded one later on; so it is usually both wiser and cheaper to do some developing before drawing up the application. The law allowing the public use of an invention for two years before an application is filed seems to have been carefully timed; for my own experience has shown it to take about two years for an invention to mature from the pencil sketch to the working model, from this to the marketable form and thence to the practically successful and patentworthy form. Sometimes a very few months or weeks will prove an idea to be of little commercial value; then, so much the better, for the patent money saved is just so much money earned and ready for a worthier device. If you want a practical illustration, look at some of the strongest and most feared patents—some, for instance, of Brush or Elihu Thomson. See what an insight they show into both the prior art and the field for the invention; also how well they cover those modifications which only suggest themselves to one who has been hunting for possible weak points in his own proposed patent.

It is the speculative type of patents that leads to a large share of the unremunerative ones, and unfortunately the average inventor is surrounded by influences that tend to encourage rather than suppress the speculative tendency. Our newspapers tell about the fortunes made out of patents, and, as most men imagine that the big profits can only be made in some one else's business, they jump at the idea of "inventing" along a line where every turn brings up something new to them (though perhaps old and time worn to those proficient in that particular line). So the man of ideas produces ideas to the novelty of his contrivance, then as to the great demand which will spring up for it, and perhaps even as to the rate at which manufacturers will tumble over each other to get control of his invention. A conscientious attorney would be apt to disturb his alluring dream. So he seeks the other and more eager kind—the ones that offer prizes to the most prolific originator of patentable (even if not patent-worthy) ideas. These urge him to make haste and file his application before some one overtakes him, and if he hesitates as to the prospects of returns, they clinch his dollars with that money-wasting phrase: "No patent, no pay." They do not tell him to first consult parties commercially interested in devices similar to his invention to learn if the calls for it would be by the thousand or only by the dozen. Nor is he allowed to think what he can do with the device after he gets it patented, but every effort is directed to interesting him in quickly getting some sort of a patent. He gets it and soon begins to wonder what he has got. Later on we can hear the grumbling about our inefficient patent system, about frauds which must have happened in order to spoil the inventor's chances and about patents being "worth the full price of wall paper."

It is easy to blame the Patent Office, but is it not the public that needs the educating? Look at the class of reading matter which the public accepts as wholesome. Send for one of those "inventor's manuals" published for free distribution by ever so many wholesale patent enticers, and what advice do you find in it? Let me quote from a few of these pamphlets: "Don't think you can't invent, but keep on thinking and you will invent something." "Nothing yields greater profits than patents." "Patents appear to be the poor man's only hope of escaping the slave's fetters." "Lose no time—the man who has ever conceived an invention and has failed to patent it until some one else has anticipated him has lost the opportunity of a lifetime to win a fortune with the least possible expenditure of time and labor." In other words, everybody that does any thinking should invent early and often and should rush his applications into the Patent Office (through this or that attorney) before the idea is cold! Just as if any quantity of hurriedly concocted ideas (even if patentable) were more to be desired than a single carefully thought out and really patentworthy invention. Such a patentee himself can only speculate as to what he has produced and what returns he may get for it, and is it for promoting such speculations that our patent system was established? If not, then why should we criticize the system for the results of this abuse?

And where shall we start to remedy some of this mis-

direction of energy, time and money? Right among ourselves, for it is the electrical engineer of to-day who can and who ought to counteract the rashness which is commonly thought to be proper for any one who originates a new contrivance or who spends money on it. The unwritten ethics of our profession demand that we should promote the legitimate and suppress the speculative in patents as in every other phase of electrical work. Then we owe it to our splendid patent system that we should insist on its being used only in the way which will be most helpful to general progress. And to whom can the isolated inventor look for guidance, if not to us who have (or hope some day to have) a broad survey of the whole field of electrical engineering? Whatever we can do to turn his efforts from the rushing after many and narrow patents to the working out of a single and much needed one will react for the benefit of our profession. Should not we be prepared both to judge of new devices ourselves and to guide the over-enthusiastic inventor so that he may see his own contrivance in a broader light? If four or five plain hints will help him, perhaps these will do:

(1) First learn the state of the art, so as to see how much real novelty there is in the invention. Only the man who is well informed on what is old can know that a certain idea is really new, and we all need to take full advantage of those factors which keep us abreast of the times—like our electrical papers and our technical society meetings.

(2) Consult parties commercially interested in the particular line, so as to learn whether or not the invention is worth patenting. Study the tendencies of the times to see if they are toward a more widespread or a more limited use of the invention.

(3) Test the probable scope of the patent for yourself by trying to devise other means for producing the same result. Can you readily invent a way of getting around your proposed patent?

(4) Consider what you can do with the patent after you get it. Can you properly exploit it yourself, or have you reason to believe that others can and will do so for you?

(5) Find out something about your proposed attorney. Has he a broad knowledge of the field, can he word clear and concisely broad patents, will he advise in favor of his client's interest or only for the benefit of his own pocketbook?

Given such hints to turn the latent energy of our inventors to thoroughness in their work and to a businesslike estimate of its value; given also an undercurrent of protest against the speculation that sometimes masks in patents, and given a frank admission that the trouble with our patent system lies chiefly in its abuse at the hand of misguided inventors and investors—then may we not look for a finer type of patent applications and a higher estimate of the value of patents?

Salted Fruits.

The preservation of lemons, oranges and citrons destined for export from Italy, and not for immediate consumption in their integrity, but which are nevertheless valuable articles of export on account of the various uses to which their juices may be applied, is a very important object in those cases where the shipment and conveyance to distant parts would be impossible, either on account of the distance to be traversed, or on account of the unsoundness of the fruit, or from both causes combined. It is customary in Italy to slice and steep the fruit in large casks filled with salt and brine. The bitter oranges, lemons or citrons are then first of all examined, and Vice-consul Pignatorre, of Messina, says that, although not subjected to the same crucial tests which would be required were the fruit to be shipped entire or their essence properties considered, still they must not be internally diseased and must be of average juiciness to be exportable and marketable. They are then soaked in salt water for a few days, the time varying between three and eight days, according to the more or less maturity of the fruit. On the arrival of the fruit it is repeatedly washed in fresh water until the salt contained has been completely dissolved and carried off. It is, however, unquestionable that whatever the preserving qualities of the salt, the process involves an almost total loss of the essential oil of the peel and a deterioration of the juice, and should only be resorted to in extreme cases, when the fruit would not be otherwise profitably used at home or shipped abroad.—Journal of the Society of Arts.

German Trade.

The imports from the United States into Germany increased from \$114,000,000 in 1893 to \$120,000,000 in 1895. The imports from Great Britain into Germany decreased in the same period from \$160,000,000 to \$130,000,000, and those from the Austro-Hungarian monarchy from \$143,000,000 to \$126,000,000. Russia, on the other hand, increased her imports from \$86,000,000 to \$140,000,000, thereby taking the first place among countries importing into Germany. The increase was mainly in agricultural products.—Umland's Wochenschrift.

* A paper read before the Chicago Electrical Association, October 16.

Recent Patent and Trade Mark Decisions.

Dueber Watch Case Manufacturing Company v. Robins (U. S. C. C. A., 6th Cir.), 75 Fed., 17.

Danial of Validity by Licensee.—While a licensee of a patent cannot deny its validity, this rule applies only while the license is in force: after it has expired the validity of the patent may be disputed in any suit not on the license contract.

Extensive Use as Evidence of Invention.—Extensive use is to be considered as evidence of invention only in cases otherwise doubtful; and it loses its force as evidence where the use can be attributed to something else than mere novelty.

Stem Winding Watches.—The Colby patent, No. 287,001, of which the essential feature is the spring latch attachment of the stem with a key, whereby the latter is free to rotate but is prevented from being moved longitudinally except by special effort, is void, because it does not amount to invention in view of the prior art.

Consolidated Store Service Company v. Whipple (U. S. C. C., Mass.), 75 Fed., 27.

Store Service Apparatus.—The Osgood patent, No. 293,192, has been held valid as to claim 2, and No. 357,851, valid as to claim 1.

Holyoke Machine Company v. Jolly (U. S. C. C., Mass.), 75 Fed., 190.

Water Wheels.—The McCormick patent, No. 265,689, providing the acting face of water wheel buckets with corrugations to better retain the water therein and in constructing the corrugations that substantially equal amounts of water will pass through them, is void.

Leatheroid Manufacturing Company v. Cummings (U. S. C. C., Mass.), 75 Fed., 271.

Boxes.—The Andrews patent, No. 329,875, for a box of thin flexible material reinforced at its upper edge by a band, and protected at the corners by metal corner pieces, is void, as being a mere aggregation of old devices.

Boston Lasting Machine Company v. Woodward (U. S. C. C., Mass.), 75 Fed., 271.

Lasting and Fastening Machine.—The Woodward patent, No. 248,544, is not infringed by a machine in which the tack driving machine is actuated, not by the pressure of the work but by the pressure of a rod connected with a treadle, so that the desired result of driving a tack at the proper time, without the use of the operator's hand, is attained by a different method.

A. B. Dick Company v. Henry (U. S. C. C., N. Y.), 75 Fed., 388.

Mere Carrying Forward Prior Art.—The rule that a mere carrying forward or more extended application of an original invention so as to obtain higher finish, greater beauty, and increased commercial value is not a patentable invention, is not applicable where the improvement, by reason of its adaptation to new uses and hitherto undeveloped possibilities, performs new functions and accomplishes new results.

Proof of Title.—The technical objection that title to the patent has not been proved will not prevent a disposition of the case on its merits when the question is not raised until nearly the close of the final hearing.

Stencil Sheets.—The Broderick patent, No. 377,706, for stencil sheets consisting of yoshino or other porous paper coated with wax so soft that the impression made thereon does not materially disintegrate the fibers, but presses the wax out of the sheet on the form of the impressing matter, is valid.

Bennett v. Schooley (U. S. C. C., Pa.), 75 Fed., 392.

Meaning of "Detachable" in Claims.—The words "detachable clip," as used in the claims of a patent for a railway torpedo, mean a removable clip, that is one which is connected with but not positively attached to the torpedo, as by riveting or soldering.

Railway Torpedoes.—The Beckwith patent, No. 409,902, has been held valid.

New York Paper Bag Machine Manufacturing Company v. Western Paper Bag Company (U. S. C. C., Ill.), 75 Fed., 395.

Preliminary Injunction.—A preliminary injunction based on claim 9 of the patent to Lienback, Wolle and Brunner, No. 242,661, for a paper bag machine, was refused, because it was not certain that the hinged folding plates of the claim 9, with the associated mechanism as described, were to any degree practically operative for making paper bags.

Western Mineral Wool and Insulating Fiber Company v. Globe Mineral Wool Company (U. S. C. C., W. Va.), 75 Fed., 400.

Process for Making Mineral Wool.—The Rockwell patents, No. 447,360 and No. 452,733, for making mineral wool by remelting hardened slag or scoria from smelting furnaces with lime and silica or silica and lime-bearing stone, and blowing the same into mineral wool, has been held valid.

Bemis Car Box Company v. Boston & R. Electric Railway Company (U. S. C. C., Mass.), 75 Fed., 403.

Car Axle Box.—The Bemis patent, No. 239,702, has been held valid, and infringed by a device made in substantial accordance with the Brill patent, No. 418,439,

for a dust shield for car axle boxes, as it merely adds an abutment, which is a mere change of form.

Car Wheel.—The Bemis patent, No. 333,072, which consists substantially in having the annular flange of the wheel detachably secured to the wheel instead of cast integral with it, is not infringed by a wheel where it is possible to remove the flange and substitute another, but the change would amount substantially to a reconstruction.

Heapv. Fremont and Suffolk Mills (U. S. C. C., Mass.), 75 Fed., 406.

Cloth Napping Machine.—The Grosslin patent, No. 377,151, if valid, is limited by the prior art to the specific methods used to produce the main result which is the function of the machine.

Mullen v. King Drill Company (U. S. C. C., Ind.), 75 Fed., 407.

Grain Drills.—The Mullen patent, No. 355,462, for grain drills designed for the special purpose of drilling seed between rows of standing corn, has been held valid.

Dunbar v. Eastern Elevating Company (U. S. C. C., N. Y.), 75 Fed., 567.

Grain Elevators.—The Dunbar reissue, No. 10,521, for a grain elevator wherein the elevator tower may be quickly and easily moved so as to reach the different hatches of a vessel and with two elevator legs that may be simultaneously moved so as to take grain from two hatches at once, has been held valid.

Reissue for Attorney's Mistake.—Where a patent solicitor consents to the striking out of a certain claim upon the citation of a patent which he thought was prior in date of invention, but which was afterward shown to be of a later date, his mistake is such that the reissue may be had, if seasonably applied for, wherein the parts stricken out are restored.

Infringement by Modifying the Device.—Where one uses the substance and essentials of a patented combination, he cannot escape infringement by varying the non-essential details.

Thompson v. Jennings (U. S. C. C. A., 2d Cir.), 75 Fed., 572.

Saws.—The Thompson patent, No. 328,019, for a metal saw with a tough pliable solid blade highly tempered as to its teeth only, to prevent the breaking of the blade by sudden twisting, has been held valid.

American Soda Fountain Company v. Zwietusch (U. S. C. C., Wisc.), 75 Fed., 573.

Enlargement of Claims by Reissue.—Where the specification and claims of a patent for soda fountains clearly referred to the style of apparatus for vertical sirup cans and the claims mentioned only vertical cans, a subsequent reissue which included both vertical and horizontal cans was void for improper enlargement of the claims, especially where the same were thereby made to cover a new device invented and placed upon the market in the meantime by another, and the testimony of the solicitor that in using the word "vertical" in the original patent he had in mind merely the form of apparatus in which the cans were inserted from above as distinguished from that in which they were inserted from in front, was not a sufficient showing of inadvertence, accident or mistake.

Lapse of Time in Reissuing a Patent.—Lapse of time is only one of the elements to be considered in an application for a reissue, and the fact that an application was made less than ten months after the issue of the original will not warrant the insertion of claims deliberately omitted in the original, especially where adverse rights intervened.

Soda Water Apparatus.—The Park reissue patent, No. 11,313, is void, for unwarranted enlargement of the claims.

English Motor Carriage Race.

An immense crowd assembled near the Hotel Metropole, London, November 14, 1896, to witness the departure of the motor carriages for their race to Brighton, 47 miles. The occasion of the race was the going into effect of the new law which opens the highways to the use of the motor carriages and doing away with the antiquated laws and restrictions which have hitherto obtained. It is a curious fact that under the old law self-propelled vehicles were not allowed to go faster than six miles an hour and have to be preceded by a horseman waving a red flag.

Nearly fifty carriages started in the race, including many of those which obtained celebrity in the now famous Paris-Marseilles races. The spectators were very enthusiastic and the roads were so blocked that the police had considerable difficulty in clearing the way at times. It is a great satisfaction to know that the race was won by the American Duryea motor wagon, which was the first to arrive at Brighton. The distance was covered in four hours.

A NEW lamp shade invented by A. Von Kozlowski is made hollow, to be filled with a suitable liquid, such as a very dilute solution of sulphate of copper with a slight addition of ammonia. This shade absorbs the heat and reflects the light, at the same time giving it an agreeable color.—Wiener Gewerbe Zeitung.

Science Notes.

Prof. Virchow's birthday occurred on November 13 and was fittingly celebrated in Berlin. He is now seventy-five years old. He took his medical degree in 1843.

In our issue for November 7 we illustrated an explosive nut. A reader of the SCIENTIFIC AMERICAN tells us that the nuts can be kept from exploding by filling with melted lead, the lead passing into all the chambers. He also tells us that in Cuba the nuts are loaded with lead and are afterward filled with dynamite and left by the insurgents within reach of the Spanish army. Details as to how they are detonated are lacking, however.

We have learned from credible sources, says the Popular Science News, that St. Von Niementowski has prepared a paper giving an account of carboxethylorthoamidoparatoluyamide, of nitrometamethylorthoamidobenzoyl, of amidometamethylorthoamidobenzoyl, of dinitrometamethylorthoamidobenzoyl, of diamidometamethylorthoamidobenzoyl, and of the diacetyl derivative of diamidometamethylorthoamidobenzoyl.

A correspondent says: "Noting your article on page 286, October 10, about salt water for catarrh colds, I wish to 'offer an amendment.' Take equal quantities of salt and sugar, say half a teaspoonful of each to a glass of warm water, and use as directed in above article. It will be found that the addition of the sugar takes away the stinging sensation produced by the salt alone or even by plain warm water. Have used it for years with great satisfaction."

Prof. Patrick and Dr. Gilbert, of the University of Iowa, have recently tried the experiment, which is described in the Psychological Review, of keeping three observers awake for ninety consecutive hours. The observers did not suffer, although dogs die if kept awake four or five days. The physical and mental condition of the observers were noted during and after the enforced insomnia, and the results are of great scientific and practical interest.

Dr. Nansen will receive a special gold medal from the Royal Geographical Society when he goes to London, as he has already received the society's highest award, the gold medal, for his explorations in Greenland. Dr. Nansen has received \$50,000 from the publishers for his coming book. This statement was sworn to in a suit they brought recently to prevent the Daily Chronicle from printing a long account of his explorations written by him. Dr. Nansen's work on his expedition to the North Pole will be published in the English language by Messrs. Archibald Constable & Co.

Augusto Franch, an Italian botanist, died in his seventy-sixth year, after a long retirement from active scientific work, says the Garden and Forest. His principal papers relate to the development and relations of the vascular system in plants and to the mode of growth of stems and roots. He is best known to Americans, perhaps, by his travels and botanical discoveries in the States west of the Mississippi River, especially in Texas, where he was sent in 1848 by the French government to collect material for the Paris Museum and to study the textile plants used by the Indians of the plains, and where he remained during three years. The beautiful arborescent yucca of the lower Rio Grande valley, first introduced by him into European gardens, bears his name.

J. Agafonoff, having studied about a hundred and thirty crystalline substances, finds that matter in this condition does not as a rule absorb ultra-violet rays in a marked degree. Chromates absorb all the ultra-violet, violet and blue rays, the pressure of chromium appearing generally to increase absorption. Nitrates absorb more than sulphates and organic bodies are extremely absorbent. The strong absorption of the latter seems to indicate that chemical molecules tend to absorb ultra-violet rays more abundantly in proportion as they are more complicated. Except chromates, substances which have a strong absorption crystallize badly, while those that crystallize well are in general transparent to the ultra-violet rays, as, for example, alums, quartz, fluor spar, sulphates, tartrates, citric acid, and erythrite.—Comp. Rend.

The important matter of the sight of school children has been receiving attention in Baltimore. The eyes of 53,067 pupils were examined, and the percentage of normal vision was found to be: first grade, 35; second, 41; third, 47; fourth, 49; fifth, 48; sixth, 48; seventh, 54; and eighth, 56 per cent. In the cases of 9,051 pupils the eyesight was found to be so defective as to make any schoolwork unsafe. An unexpected and unexpected result of the examination was the showing of a steady decrease in defective eyesight from the second to the eighth grade, the second showing 30 per cent less than the first, the third 42 per cent less than the second, the fourth 53 per cent less than the third, the fifth 63 per cent less than the fourth, the sixth 75 per cent less than the fifth, the seventh 85 per cent less than the sixth, and the eighth 91 per cent less than the seventh. The eyesight of some pupils in the higher grades had been improved by their wearing glasses, and some teachers found that "stupid" children were making better students after an examination of their eyesight.