

the competition between these parties is sharp, and that the appellee is inclined to press over the line fixed by the adjudication in Wisconsin; but the duty of the court below was fully discharged, and under that decree the limit of its power was reached, when it confirmed the rights there established, and enjoined their violation. A careful comparison of the two decrees in the light of the entire record in this case has forced us to the conclusion that no decree can be drawn which will accomplish this result more effectually and exactly than that which the court below has rendered. It must accordingly be affirmed, with costs, and it is so ordered.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO. v. BEACON
LAMP CO. et al.

(Circuit Court, D. New Jersey. July 14, 1899.)

1. PATENTS—ANTICIPATION—UNSUCCESSFUL EXPERIMENTS.

Experiments producing unsatisfactory results, and consequently abandoned, cannot be held to establish a prior use which would close the door to further invention by which a commercially valuable and useful product can be placed upon the market.

2. SAME—UTILITY.

The utility of an invention must be gauged by the state of the art at the time the patent was applied for, and it is immaterial that since then other means have been employed to accomplish the same result at still less cost.

3. SAME—CARBONS FOR INCANDESCENT LAMPS.

Patent No. 323,372, covering a process of manufacturing carbon conductors for incandescent lamps by saturating silk thread or other animal matter or film with a solution of dilute sulphuric acid and sugar, and then heating the saturated material so as to evaporate the water, and leave the acid in the fiber, and finally carbonizing suitably formed strips or filaments thereof, construed, and held valid and infringed.

This was a suit in equity by the Westinghouse Electric & Manufacturing Company against the Beacon Lamp Company and others for alleged infringement of a patent for a process of manufacturing carbon conductors for incandescent lamps.

J. Edgar Bull, for complainant.

E. J. Myers, for defendants.

KIRKPATRICK, District Judge. The bill in this case sets out that the complainants are the holders of letters patent for an invention relating to a new and useful carbon for incandescent lamps and the process for making the same. It charges the defendants with infringement, not only by the use of the said process, but also by the manufacture and sale of carbons for incandescent lamps substantially such as are made in accordance therewith. The patent referred to in said bill and set out in the record—No. 323,372, dated July 28, 1885—states its object to be “to provide for incandescent electric lamps a flexible carbon of high specific resistance, which can be cheaply and easily produced.” No claim, however, is made for the carbon so to be produced; on the contrary, the words of the patent are: “The above-described filament is not herein claimed per se, as it forms the

matter of a separate pending application." The single claim of the patent is as follows: "What we claim is new, and desire to secure by letters patent, is the hereinbefore described process of manufacturing carbon conductors for incandescent lamps, which consists in first saturating silk thread or other animal matter or film with a solution of dilute sulphuric acid and sugar, and then heating the saturated material so as to evaporate the water, and leave the acid of the solution in the fiber, and finally carbonizing suitably formed strips or filaments thereof, substantially as and for the purposes set forth." The defendants, in their answer, deny infringement, and set up prior use and want of novelty in the process.

Upon the hearing, the defense of noninfringement was abandoned, the language of the defendants' counsel in the brief being, "The proof is clear, and without contradiction, that upon the service of subpoena in this cause the use of the patented process was discontinued." A reading of the patent in suit demonstrates clearly that it relates only to a specific process and not to the product of a process. Nothing more was contended for upon the hearing. What was claimed to be new was the process, which, by the use of old, and perhaps well-known, elements or principles, so combined them as to produce a desired result by novel means. The material to be used in the production of the desired carbon was to consist of animal, as distinguished from vegetable, matter, and the difficulty to be overcome was the removal of nitrogen found in animal matter, and which had a tendency to cause complete or partial combustion before carbonization could be effected. The process consists of taking bleached silk thread, and thoroughly saturating it with a mixture formed of 90 parts by volume of water and 10 parts by volume of sulphuric acid, in which there has been dissolved as much sugar or saccharine matter as the mixture will hold in suspension. The saturated thread is then dried, and wound upon a form made of carbon or other noncombustible material, and placed in a drying oven, which is slowly raised to a temperature of not less than 100° and less than 300° Centigrade. By this means the water in the fiber is evaporated by the heat, and the sulphuric acid which remains thereby becomes stronger, and attacks and carbonizes, without swelling, the sugar which has been taken into the fiber, while distributing it evenly through the filament, and making the structure more dense. At the same time with the carbonization of the sugar the fiber itself undergoes a chemical change through the action of the strengthened acid by which the nitrogen of the fiber is almost entirely removed from it, and the fibrine which it contains is converted into new chemical combinations, all very poor in nitrogen. "In this way the hitherto nitrogenous animal fiber is converted into an essentially non-nitrogenous substance, which will not be destroyed during carbonization, as would be the case if the nitrogen originally present were allowed to remain; but can readily be converted into a tough, elastic carbon of high specific resistance." After the sugar is carbonized, and the nitrogen removed from the fiber, the product is taken from the drying oven, placed in a closed retort, and subjected in a furnace to a temperature higher than that necessary to carbonize woody fiber,—say 3,000° Fahrenheit,—till

completely carbonized. By this process there was a gradual strengthening of the sulphuric acid, which simultaneously drove out the nitrogen from the silk, and replaced the space occupied by the nitrogen with the carbon already formed by its action on the sugar. The utility of the complainants' invention is attested by the fact of its successful use, and by its adoption by the defendants to accomplish the results which it was intended to attain. Useless and expensive processes are permitted to sleep unobserved. It is only when successful and economical that their benefits are sought to be appropriated by others.

It is urged by the defendants that to make carbon of animal matter or silk fiber was not new with these patentees, nor was the carbonization of silk fiber by saturation in sulphuric acid unknown to the art. The defendants rely upon the British patent to Muirhead, in which it is stated that they "prepare carbon filaments from silk hornbeam or manilla paper prepared for the purpose by soaking in strong solution or syrup to fill up the pores with carbonaceous matter." The process by which the result is accomplished is set out in the patent as follows: "We take a number of threads or strips of these materials, and imbed them in powdered charcoal or lamp-black in a porcelain tube. We then pass the vapor of either carbon bisulphide or wood spirit through the porcelain tube until all the air has been drawn out, when we close the tube, and gradually heat it to redness for about an hour." If the complainants' patent were for a result, it might be that the Muirhead patent would have been an anticipation, but the methods of Muirhead are so essentially different from those adopted by complainants' patentees that they cannot be said to have suggested the process in suit. While silk thread, after being saturated with syrup, is used by Muirhead, the saccharine matter is not carbonized until after the filaments are introduced into the carbonizing furnace, nor is there any suggestion of the employment of means by which the nitrogen of the animal matter or silk thread is to be expelled prior to carbonization. Nothing done by Muirhead prevented the use of silk thread saturated with syrup. "The field was open to ingenious men to invent and use other processes using part of the laws used by the patented process or using all of them in other combinations and methods." Walk. Pat. (3d Ed.) p. 13, § 14.

The record also shows that Colby had made experiments with silk threads as a basis for carbon filaments, but I am not satisfied from the testimony that they were successful. He himself says that the filaments produced were inferior to those that were being made by another process. His language is, "We did not carry the experiment beyond the point of determining whether they produced a filament superior to that which we were then using commercially." Experiments producing unsatisfactory results, and abandoned in consequence, cannot be held to establish a prior use which would close the door to further invention by which a commercially valuable and useful product can be placed upon the market. *Deering v. Harvester Works*, 155 U. S. 286, 15 Sup. Ct. 118.

It is objected on the part of the defendants that the result of the

complainants' process is not a product which is practically marketable; that something more than is described in the process is necessary to complete it. In order to compete in the market as a useful filament for incandescent lamps, it is necessary, they say, that it should be subjected to what is called the "hydrocarbon" or "flashing" process. The patent of the complainants relates to a method of making a carbon filament from animal matter, and the process is complete when the filament is made. That it can be made more valuable, and its resistance reduced, by flashing or any other subsequent treatment, is a matter with which the inventor of the process had no concern. Other means, then unknown to the art, of increasing the efficiency of the filament, might or may be disclosed, and it was not necessary for the patentees to limit their invention of a desirable process for producing a filament by the addition of a step beyond the object sought to be obtained. Does the process produce a filament at less cost than it had theretofore been made? Its utility must be gauged by the state of the art at the time the patent was applied for, and it is immaterial that since then other means have been employed to accomplish the same result at still less cost. In my opinion, the complainants' process was a practical step in advance, and as such was patentable. Let a decree be prepared.

HANIFEN v. LUPTON et al.

(Circuit Court, E. D. Pennsylvania. June 19, 1899.)

No. 9.

1. PATENTS—CONSTRUCTION OF LICENSE.

A licensee was authorized to "deal in, import, use, and sell the knitted fabric" covered by the patent, at a royalty of two cents per yard; and the licensee covenanted not to handle or deal in any goods like those covered by the patent which were made in this country by any party "not licensed under the above-mentioned patent, unless he pays the royalty thereon himself, it being understood, however, that but one royalty shall be paid in such goods, or any fabric coming under this license, whether paid by manufacturer or seller." *Held* that, while this provision created no privity between the licensor and any third person who might make such goods in this country and sell them through the licensee, yet, if the licensee paid the royalty on such goods, this was a waiver of the monopoly as to them, so that the licensor could not sue the manufacturers for infringement.

2. SAME—ANNULMENT OF LICENSE—BREACH OF COVENANT.

The mere breach of a covenant by the licensee does not ipso facto annul a license. There must be some proper proceeding and a rescission in equity.

Fraley & Paul and W. P. Preble, Jr., for complainant.
A. B. Stoughton, for respondents.

GRAY, Circuit Judge. This is a suit for infringement of letters patent No. 374,888, granted to the complainant, under date of December 13, 1887, for improvements in knitted fabrics. The patent has