

BRUSH AND ANOTHER V. CONDIT AND OTHERS.

Circuit Court, S. D. New York. July 12, 1884.

PATENT—ELECTRIC LIGHT—ANNULAR
CLAMP—INVENTION ANTICIPATED.

The invention, in the first, third, fifth, and sixth claims of the patent to Charles F. Brush known as “the clamp patent,” and which consisted in the described means of moving the carbon rod, holding it by the angular impingement of the clamp, and continuously regulating the distance between the carbons by a continuous and gradual feed through the annular clamp, was anticipated by the invention of Charles H. Hayes.

In Equity.

Geo. H. Cristy, Causten Browne, and E. N. Dickerson, for plaintiffs.

Edmund Wetmore and Chauncey Smith, for defendants.

SHIPMAN, J. This is a bill in equity, brought by the owner and the exclusive licensee of two letters patent to Charles F. Brush,—one, granted October 23, 1877, for an improvement in illuminating points for electric lights, and known as the carbon patent; and the other, reissued May 20, 1879, having been originally granted May 7, 1878, for an improvement in electric lamps, and known as the clamp patent,—charging the defendants with the infringement of each patent. The bill was filed December 3, 1880. The defendants were charged with infringing the second claim of the carbon patent, and the eight claims of the clamp patent, except the fourth and the eighth. Testimony was taken and closed, on both sides, in respect to the carbon patent, but the plaintiffs, after the cause was set down for hearing, gave notice to the defendants that they would move for leave to discontinue so much of the bill as relates thereto. The decree should be for a dismissal, upon the plaintiff’s motion, of so much of the bill as

relates to said patent, with costs. As this does not amount, under the practice in the federal courts, to a dismissal upon the merits, (*Badger v. Badger*, 1 Cliff. 237,) the decree should contain the condition that the evidence taken by the defendants in relation to the patent may be stipulated into any future suit upon the same patent by the plaintiffs against the defendants, or the company which has defended this suit.

The preparation of the case relating to the clamp patent was made on both sides with great and exhaustive care and learning, and at large expense, and as a result the issues were much simplified by 827 the disclaimers which the plaintiffs filed during the process of the testimony, and which will be hereafter recited.

An automatic electric arc lamp first establishes an electric arc, and then, as the electrodes are consumed, regulates the arc by automatically controlling the distance between the carbons, or rather by enabling the strength of the current and the length of the arc to mutually control each other. The automatic lamps which contain this principle of the mutual control of the length of the arc and the strength of the current are divided, says Mr. Pope, one of the defendants' experts, into two classes:

"In the first class, a positive motion of one or both of the electrodes, causing them to approach or recede from each other, as the case may be, is derived from clock-work mechanism, impelled by a spring, or its equivalent; the direction of the motion to be communicated to the electrodes being determined by the greater or less attractive force of an electromagnetic apparatus included in the electric circuit of which the luminous arc forms a part. In the second class, the clock-work, or other extraneous power, is dispensed with, and the necessary movements are effected solely by the action of the electric current itself. The electrodes tend to move towards each other

at all times under the influence of a constant force, usually that of gravity, although a spring is employed in some cases. This tendency is opposed by the electromagnetic action, which tends to resist the movement of the electrodes towards each other, and to separate them. These opposing forces are designed to be in equilibrium when the electrodes are at a proper distance from each other to produce the maximum development of light with a given electric current.”

Is this general state of the art, Mr. Brush was an original inventor of mechanism belonging to the second of these two classes, and thought that his invention was exhibited in two forms, which are described in the original and reissued patents, and are respectively shown in the drawings 1 and 6.

So much of figure 1 as is important in this connection was constructed as follows:

A helix of insulated wire, the helix being in the form of a tube or hollow cylinder, rests upon an insulated plate. An iron core and the carbon holder, which passes loosely through the core, are within the cavity of the helix. The core is made to move very freely within this cavity, and is partially supported by springs. Just below the core is a ring of metal surrounding the carbon holder, and resting upon a floor or support. One edge of the ring is over a finger or lifter which is attached to the core, while the opposite edge of the ring is a short distance below the crown of an adjustable set-screw.

Quoting now from the descriptive part of the specification of the reissued patent, which is substantially identical with the corresponding portion of the original, and omitting only the letters where they can be omitted,—

“The core, by the force of the axial magnetism thus created, is drawn up within the cavity of the helix, and, by means of the finger, it lifts one edge of the ring, until, by its angular impingement against the rod,

it clamps said rod, and also lifts it up to a distance, limited by the adjustable stop.

“While the ring retains this angular relation with and impingement against the rod, said rod will be firmly retained and prevented from moving through 828 said ring. The adjustable stop is fixed so that it shall arrest the lifting of the rod when the carbons are sufficiently separated from each other. While the electric current is not passing, the rod can slide readily through the loose ring and the core, and it will be readily seen that in this condition the simple force of gravity will cause the carbon, F, to rest down upon the carbon, F¹, thus bringing the various parts of the device into the position of closed circuit. Now, if a current of electricity is passed through the apparatus it will instantly operate, as just explained, to lift the rod and thus separate the carbons and produce the electric light. * * * As the carbons burn away, thus increasing the length of the voltaic arc, the electric current diminishes in strength, owing to the increased resistance. This weakens the magnetism of the helix, and accordingly the core, rod, and carbon move downward by the force of gravity until the consequent shortening of the voltaic arc increases the strength of the current and stops this downward movement. After a time, however, the clutch-ring will reach its floor or support, and its downward movement will be arrested. Now, any further downward movement of the core, however slight, will at once release the rod, allowing it to slide through the ring until it is arrested by the upward movement of the core, due to the increased magnetism.

“In continued operation the normal position of the ring is in contact with its lower supports, the office of the core being to regulate the sliding of the rod through it. If, however, the rod accidentally slides too far, it will instantly and automatically be raised again,

as at first, and the carbon points thus continued in proper relation to each other. * * *

“[I do not limit myself narrowly to the ring, D, as other devices may be employed which would accomplish the same result. Any device may be used which, while a current of electricity is not passing through the helix, A, will permit the rod, B, to move freely up and down, but which, when a current of electricity is passed through the helix, will, by the raising of the core, C, operate both to clamp and to raise the rod, B, and thereby separate the carbon points, F, F¹, and retain them in proper relation to each other.]”

The paragraph which is inclosed in brackets was subsequently disclaimed. The patentee then described another form of his device, shown in figure 6 of the drawings, and which was applicable to a lamp which moves both carbons. This form, he said, contained his invention, and was substantially like figure 1 in construction and operation. In figure 6 the core is rigidly connected with and directly communicates its motion to the carbon rod. The clamp surrounds the carbon rod and is lifted as the rod is lifted, while it is tilted or held in its angular clamping position by a spring which is not attached to the core.

The application for the original patent contained five claims, as follows:

“(1) In an electric lamp, the clamp, D, or its equivalent, by means of which the carbon holder, B, is firmly held, and permitted to gradually feed the carbon point, as the same is consumed, substantially as specified.

“(2) In an electric lamp, the combination of the clamp, D, and adjustable stop, D¹, or their equivalents, by means of which the carbon points are prevented from becoming so far separated as to break the electric

current and extinguish the light, substantially as specified.

“(3) In an electric lamp, the combination of the core or armature, C, and the clamp, D, by means of which the carbon points are separated from each other as soon as an electrical current is established, and held asunder during 829 the continuance of the current, and then permitted to come together as soon as the current ceases, substantially as and for the purposes specified.

“3 (4) In an electric lamp, the combination of the core or armature, C, the clamp, D, and adjustable stop, D¹, or their equivalents, whereby the points of the carbons are separated from each other when an electrical current is established, prevented from separating so far as to break the current, and gradually fed together as the carbons are consumed, substantially as described.

“4 (5) In combination with the core, C, one or more sustaining springs, c, substantially as and for the purpose shown.

The first and third claims were rejected by the examiner upon the ground that they were anticipated by the English patent of Slater and Watson, of 1852. The application was thereupon amended by the erasure of these two claims, and by the insertion of the following, which became the first claim of the original patent, and, as amended, the patent was granted.

“(1) In an electric lamp, the combination with the carbon holder and core of a clamp surrounding the carbon holder, said clamp being independent of the core, but adapted to be raised by a lifter secured thereto, substantially as set forth.”

The first four claims of the reissued patent are identical with the four claims of the original patent.

The fifth and sixth claims of the reissue are as follows:

“(5) In an electric lamp, the combination with a carbon holder of an annular clamp surrounding the carbon holder, said clamp adapted to be moved, and thereby to separate the carbon points by electrical or magnetic action, substantially as herein set forth.

“(6) In an electric lamp, an annular clamp adapted to grasp and move a carbon holder, substantially as shown.”

It is not necessary to quote the seventh and eighth claims, as they relate to a different part of the invention and have been disclaimed.

On October 14, 1881, the patentee disclaimed the paragraph in the descriptive part of the specification which has been quoted and inclosed in brackets. On April 6, 1883, the patentee disclaimed “so much or such part of the invention described in said letters patent, and coming within the general language of the third claim thereof, as may cover or include as elements thereof the core or armature, C, and the clamp, D, excepting when the core or armature raises the clamp by a lifter secured to such core or armature, substantially as described in said patent.” The specific combinations forming the subject-matter of the second, seventh, and eighth claims were also at the same time disclaimed.

The second disclaimer, so far as it relates to the second and third claims, was filed in consequence of the testimony which was introduced by the defendants respecting the lamps invented by Leroy S. White in 1874 and 1875, and manufactured by Wallace & Sons, of Ansonia, and which anticipated figure 6. The second claim manifestly related to figure 6, and the third claim might have been construed to include a lamp in which the clamp was raised by the rod, as well as by a lifter secured to the armature.

The question next arises whether the disclaimer, having attempted to disclaim figure 6 and to retain

figure 1, had left an invention in the patent; in other words, whether the difference between the two figures are those merely of detail, not involving any principle. The important thing in each lamp is the office of the clamp in connection with the carbon holder and the core. In figure 6 the clamp, when it comes in contact with the stop, arrests the upward movement of the rod, and thereby limits the distance between the carbons. But, says Mr. Pope, "it does not produce any material effect in connection with the downward or forward movement of the core or carbon." The clamp in figure 1 acts, "first, to permit a descent of the carbon rod, and then to check such descent," or to control the intermittent forward motion; but in figure 6 there is no "such alternate permission and descent of the carbon rod by any action of the clamp." The clamp in figure 6 does not regulate the descent of the rod, whereas in figure 1 it keeps a continuous, intermittent feeding or forward motion of the rod. The experts upon the opposite side do not differ in regard to this feeding motion.

Mr. Pope says:

"It is accomplished by the contact of the clamping ring with the floor, which tilts the former into a position which permits the carbon holder to slip through it a sufficient distance to accomplish the object."

Mr. Hicks says:

"When the carbon rod, the clamp, and the core have settled enough to bring the lower portion of the angular clamp in contact with the upper surface of the lower portion of the frame at the top of the lamp, which is its normal position in continued action, any further lengthening or tendency to the lengthening of the electric arc will cause the side of the clamp which is held by the lifter of the core to fall an almost imperceptible amount by the minute weakening of current. As the end of the clamp which is in

contact with the frame cannot descend any further, the other end of the clamp descends and the angular grip is slightly relaxed, which, no longer able to sustain the weight of the rod and carbon, allows the rod and the carbon to descend a trifle, which brings the carbon points slightly nearer together, shortening the arc a trifle, which gives a proportionate increase to the strength of the current passing through the helix, causes the core slightly to rise, carrying the lifter and one side of the ring instantly upward, which checks the further descent of the carbon holder through the clamp, and brings the annular clamp into the same angular position in regard to the carbon holder and the floor which it had before the last feeding adjustment.”

The invention of figure 1 consisted in the described means of moving the rod, holding it by the angular impingement of the clamp, and continuously regulating the distance between the carbons by a continuous and gradual feed through the annular clamp. The means by which the effect is produced are the lifting of the clamp, which is not fixed to the core and which surrounds the rod, by a lifter secured to the core, so that the clamp will angularly impinge against, bite, and arrest the upward movement of the rod, and then, as the current diminishes and the core drops, the consequent descent of the clamp 831 and the loosening of its grasp upon the rod by its contact with the floor.

It is next claimed by the defendants that if this was the invention of the patentee, it was not described nor claimed in his patent prior to the disclaimer, and that, neither having been described nor claimed, it is an invention which was not shown in the patent, and therefore cannot be introduced into it by means of a disclaimer. The law upon this subject is clearly stated in *Hailes v. Stove Co.* 16 FED. REP. 240.

The doctrine of the *Hailes Case* is not applicable here, because the effect of the disclaimer is to disclaim

figure 6 from the patent and to retain figure 1, which was clearly described, and all whose mechanical features were pointed out, although the distinctive principle of the invention was neither known nor stated. The object of the disclaimer was to limit the patent to clamp D of figure 1, with the elements necessarily connected therewith or specified as in combination therewith; and, as will hereafter be stated, the natural construction of the first claim is and was that it relates to figure 1, and does not include figure 6.

The next point to be considered is the construction of the various claims.

The defendants strongly insist that the first claim refers to figure 6, and that the clauses "said clamp being independent of the core, but adapted to be raised by a lifter secured thereto," mean that the clamp is independent of and not in any way dependent for its motion upon the core, but is adapted to be raised by a lifter secured to itself. The plaintiffs insist that this language was intended to describe a clamp independent of, *i. e.*, not fixed to, the core, but adapted to be raised by a lifter secured to the core. The latter construction is in accordance with the natural meaning of the words used, and the claim, as thus construed, includes the invention which the patentee made, and what he desires to hold, while the defendant's construction describes an invention which he admits that he was not the first to make, and which he has endeavored to disclaim. The natural construction is the one which should be adopted.

It is next insisted by the defendants that the first claim includes the adjustable stop, D, of the third claim, because it is said that the clamp will be inoperative without a stop. The first claim includes the combination of the clamp, core, and rod, and the described elements which are necessary to cause an angular impingement upon the rod, and an intermittent

downward feeding of the rod. The stop is not one of those elements, but its office was to arrest the upward motion of the clamp. This claim is not limited to the described solenoid and core, and to no other motor, but by the words "solenoid" and "core" are meant an armature, or "any magnetically moving part whose property or law of motion is substantially that of a core in a solenoid."

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The construction of the third claim does not require examination.

The clamp of the sixth claim is not any annular clamp adapted to grasp and move a carbon holder. If it was, the claim would be larger than the invention, and larger than the patent with the disclaimers. On the contrary, the claim means to describe, in general terms, the clamp of the first claim, which raises, clamps, and feeds downwardly the rod, preserving a practically uniform length of arc by the described means, or an annular clamp surrounding the carbon holder, independent of the core, but adapted to be raised by a lifter secured to the core or magnetic motor, and some suitable agency to allow the clamp to be tripped.

The fifth claim includes the clamp of the first and sixth claims, the carbon holder, the motor, and the tripping device.

The next question is that of novelty. Neither one of the Slater and Watson lamps anticipated either claim as thus construed. Their clamps raise, bite, and release the rod, but do not have the gradual, intermittent feeding motion produced by the contact of clamp with floor. The clamp, in combination with the other necessary elements, which was made by Charles H. Hayes, of Ansonia, Connecticut, and was a part of a lamp which he constructed, about the end of June, 1876, as an improvement upon the White lamp, is the combination of the first and third claims of the Brush patent. The carbon rod was square or rectangular,

and therefore was surrounded by a rectangular clamp, which was independent of the core. It is not denied that this clamp is the equivalent of an annular clamp. It was raised by a lifter secured to the core, and was tripped by coming in contact with a floor, while the ascent of the rod was checked by the contact of the clamp with an adjustable stop. The plaintiffs' answer to the anticipatory character of this clamp is that it was an abandoned experiment, and never was a perfected invention. The facts in regard to its character and position as an invention are as follows:

Mr. Hayes was in 1876, and has been continuously since, in the employ of Wallace & Sons, who are large manufacturers of brass goods in Ansonia. In 1876 this firm was trying to find a successful electric lamp to manufacture. Mr. White furnished them with his device, which they sent, as a part of their exhibit, to the centennial exposition at Philadelphia. Mr. Hayes testified as follows: "Experiments with the White lamp showed its defects so strongly or plainly that I designed this (the Hayes) lamp to overcome those defects. I made rough drawings in the middle or latter part of May, 1876, commenced building the lamp at once, and finished it about the end of June following; tested it, tried it, and made some minor alterations, and run it from time to time, when a lamp was needed, until the sixteenth of September following." At this time he was in Philadelphia, and a fellow-employee by the name of King, thinking that he could improve upon the clutch, and make the feeding of the carbons answer more promptly to changes of the current, or make the feeding less "jerky," obtained permission from Wallace & Sons, who owned the lamp, to make an alteration. The "King clutch," constructed upon a different principle from that of the Hayes or the Brush clamp, was put into the lamp, which has remained in use in the mill, and, since the end of 1876, has been" used in the electrical room for testing machines,

carbons, 833 etc., and has been used for that purpose more or less ever since." But one Hayes lamp was made, until a duplicate specimen was made for use in this case. The Hayes clamp, it will be observed, was used in the lamp only until September 16th. Prior to that date, the use of the lamp with the original clamp is thus described by Mr. Hayes upon cross-examination: "It (the lamp) was moved about and burned in different places, in the mill and outside, and it was also burned in our other shop occasionally." This shop was known as the skirt-shop, the third floor of which was used for electrical work. The mill and skirt-shop were ordinarily lighted by gas. *Question.* "On what occasions did you use the lamp out of doors? *Answer.* The lamp was used out of doors on several occasions, when gangs of men required light unloading freight from railway cars, digging for some work connected with the water-power. I am unable to specify positively any particular date, but have a general recollection of being frequently called upon to make a light for some such purposes. *Q.* Did you use it sometimes to test dynamos with in June—September, 1876? *A.* I think not during that time. *Q.* What other use did you put it to during those months, except the occasions out of doors which you have mentioned? *A.* It was used about the mill, more particularly around the muffles, on occasions when it was necessary to work during the evening."

The use was a public one, in the presence of the employes of the factory. The Hayes clamp has been preserved, and was an exhibit in the case. Wallace & Sons thereafter, after much experimenting, went to a limited extent into the manufacture of what were known in the case as "plate lamps," or lamps having two carbon plates instead of rods, but did not continue the business long. They say that the discontinuance was due to the fact that they did not have a satisfactory generator. The Hayes clamp was used upon the plate

lamps, but, as has been said, was used upon but one carbon pencil electric lamp.

The plaintiffs vigorously insist that the Hayes clamp was not a completed and successful invention, but that its use was merely tentative and experimental, and was permanently abandoned because the device did not promise to be successful. Two facts are manifest: (1) That the Hayes clamp was the clamp of the Brush patent; and (2) that it became, after September 16th, a disused piece of mechanism in connection with carbon points. The question then is, was it a perfected and publicly known invention, the use of which was abandoned prior to the date of the Brush invention, or was its use merely experimental, which ended in an abandoned experiment on September 16th?

The plaintiffs, in support of their view, say that Wallace & Sons were searching for a successful lamp, and were exhibitors of an electric lamp at the centennial exhibition; that inventors were in their employ, who were encouraged to make experiments and trials, in the hope that something good might be produced, and, under this stimulus, one Hayes lamp was made; that improvements in the location of the spring were made. Then it gave a "jerky" light, and when the inventor was away another clamp was put on, by the permission of the owners, to remedy this irregular feeding, but that afterwards no other lamp was ever constructed, and the Hayes clutch was left among 834 other "odds and ends," and that the indifference with which it was received, its confessed faults, the attempted improvements, and its disuse, show that the Hayes clamp never was anything more than an attempt to invent something which proved to be a failure.

The question of fact in this part of the case must turn upon the character of the use of the lamp prior to September 16th, because it is established that; the Hayes clamp and the Brush clamp, in its patented

features, were substantially alike, and that the point in which they differ, viz., the length of the arms, is not a part of the principle of the device. Was the lamp with this clutch used merely to gratify curiosity, or for purposes of experiment, to see whether the feeding device was successful, or whether anything more was to be done to perfect it? or was it put to use in the ordinary business of the mill as a thing which was completed, and was for use, and was neither upon trial nor for show?

Hayes made the lamp for Wallace & Sons as an improvement upon the White lamp, and apparently turned it over to them to be used when they chose. An alteration was subsequently made in the location of the spring. The lamp was used at different times in the work of the mill at night, in doors and out of doors. Its use at these times does not seem to have been for the purpose of testing the machine, or of calling attention to its qualities, or of gratifying curiosity, but it was used to furnish light to the workmen at their work. I have queried whether this use was not that of a thing which might be of help in an emergency, and which was thought to be better than nothing, though not of much advantage. But it was apparently used to accomplish the ordinary purposes of an electric light in a mill, to enable the workmen to see at night, although it was not uniformly used, because the mill was lighted by gas.

But the plaintiffs press the question, why, then, was the further use of the Hayes clamp and lamp discontinued? This question is significant, because the abandonment of a thing which is greatly wanted is, ordinarily, a very suggestive circumstance to show that it was defective, and that, before the invention could be completed, something was to be done which never was done.

I think that Wallace & Sons did not push the electric-lamp business because they had no generator,

and I also think that the Hayes lamp, either with or without the Hayes clutch, did not impress them favorably, for they contented themselves with making only one specimen, whereas they made six White lamps, and after much experimenting, and after the invention of the Hayes lamp, they made 50 or 60 plate lamps. For some reason they did not manufacture the Hayes lamp, but turned away to the plate lamps. But the facts that the anticipatory device was the device of the patent, and did do practical work and was put to ordinary use, and that it does not appear that the Hayes clamp was the cause of the neglect with which Wallace & Sons treated the Hayes lamp, seem to me to outweigh the 835 doubts which arise from the shortness of its existence, and its permanent disappearance from a carbon pencil lamp. The case is that of the public, well-known practical use in ordinary work, with as much success as was reasonable to expect at that stage in the development of the mechanism belonging to electric arc lighting, of the exact invention which was subsequently made by the patentee; and although only one clamp and one lamp were ever made, which were used together two and one-half months only, and the invention was then taken from the lamp and was not afterwards used with carbon pencils, it was an anticipation of the patented device under the established rules upon the subject. With a strong disinclination to permit the remains of old experiments to destroy the pecuniary value of a patent for a useful and successful invention, and remembering that the defendants must assume a weighty burden of proof, I am of the opinion that the patentee's invention has been clearly proved to have been anticipated by that of Hayes. *Coffin v. Ogden*, 18 Wall. 120; *Reed v. Cutter*, 1 Story, 590; *Pickering v. McCullough*, 18 O. G. 818; Curt. Pat. §§ 89-92.

The bill, so far as it relates to the clamp patent, is dismissed.

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