

such decision. The patentee's remedy is against those who, after binding themselves to conform to his restrictions, have violated their agreements. He may protect himself either by selling his lamps only to persons on whose honesty and responsibility he can rely, or by requiring from them sufficient security that they will respond for any damages he may sustain by their failure to keep faith with him. The purchaser of lamps once sold by the patentee, or by the person whom he authorizes to make and sell them, cannot, under the decisions *supra*, be charged with knowledge of the restrictions upon resale, which are matter of agreement between the patentee or the licensed manufacturer and the first purchaser. Motion to punish for contempt is denied.

EDISON ELECTRIC LIGHT CO. et al. v. BLOOMINGDALE et al.

(Circuit Court, S. D. New York. December 27, 1894.)

Eaton & Lewis, for complainants.
Cravath & Houston, for defendants.

LACOMBE, Circuit Judge. I am still of the opinion expressed on the original argument (65 Fed. 212), viz. that, by the stipulation in the Southern district suit, complainants have practically assented, for the time being, to the sale of Buckeye lamps there. When they shall have changed the situation there by getting rid of their stipulation, or by obtaining an injunction against the defendants in that suit, the situation here will be different. But, while it is as it is, defendants' use of lamps, which apparently they may buy in the Northern district, will not be enjoined. As the conclusion now arrived at is adverse to complainants, it is unnecessary to await the decision in the Bate Case. Ordered accordingly.

THOMSON-HOUSTON ELECTRIC CO. v. WESTERN ELECTRIC CO.

(Circuit Court, N. D. Illinois. January 14, 1895.)

PATENTS—REGULATOR FOR DYNAMO—ANTICIPATION.

Letters patent No. 238,315, issued March 1, 1881, to Elihu Thomson and Edwin J. Houston, for a current regulator for dynamo-electrical machines, consisting of a device whereby the brushes on the commutator are automatically shifted so as to change the output of the machine to meet the change of conditions presented by variations in the number of burning lamps dependent thereon, are void for want of invention, being anticipated by letters patent No. 223,659, issued January 20, 1880, to the same parties, for a device whereby the same result in a less degree was obtained by a similar device for the purpose of preventing the production of sparks, which injured the machine.

Suit by the Thomson-Houston Electric Company against the Western Electric Company for injunction and accounting.

Offield, Towle & Linthicum, for complainant.
Barton & Brown, for defendant.

GROSSCUP, District Judge. This is a suit for infringement of patent No. 238,315, granted to Elihu Thomson and Edwin J. Houston March 1, 1881, for "current regulator for dynamo-electric machines." The object of the invention is to control the operation of a dynamo-electric machine in such manner that the constant and unvarying

strength of current shall be maintained in its circuit, notwithstanding changes of load occurring from variations in the number of lamps or other devices actuated by it. A dynamo machine is a device for converting mechanical energy into electricity. It has a revolving part, called the "armature," usually driven from a steam engine. At one end of the armature there is a projecting part, called the "commutator," standing out something like the hub of a wagon wheel. Upon two opposite sides of this commutator are placed two copper strips, bars, or bundles of thin copper leaves, called "commutator brushes," which press upon the surface of the commutator during its revolution. A wire joined to one of these brushes leads away from the machine through the lamps or motors in which the current is used, and back to and through the other brushes. Thus the electric current which is generated in the armature by its revolutions passes out through one brush and back through the other. Prior to the time of the taking out of complainant's patent, the development of electrical lighting made it desirable to so construct a device that one, two, or more lamps might be dropped out or added to the circuit at will. In the operation of a dynamo it is necessary that the volume of current generated should be closely adapted to the work done. The problem was to change the output of the machine to meet the change of conditions presented by variations in the number of lamps burning. This could be done either by varying the speed of the machine or interposing for each lamp extinguished a resistance which would consume the same amount of energy, or by any device that, notwithstanding the variations of load, would keep the volume of the current sustained. The device described in the patent accomplishes this by means of the mechanical elements described therein. It was known by the patentees that by shifting the position of the brushes on the commutator, the volume of the current would be increased or diminished, and that this law of electrical mechanism was constant. For instance, if, after shifting the brushes to the position of least spark for eight lamps, a lamp should be cut off, the moving of the brushes forward a certain distance would so change the output of the machine that it would be adapted to the running of seven lamps; and a still further movement forward would adapt it to six, five, and so on; and that by a like shifting of the brushes backward a new load could be imposed without changing the apparent energy or varying the speed of the machine. The object of the complainant's patent was to obtain the advantage of this effect in electrical mechanism through some device that would move the brushes automatically, and upon the impulse of the condition that made the movement necessary. This was accomplished by means of a yoke, on which the brushes were rocked backward and forward, and which obtained its motion through the interposition in the main circuit of an electro-magnet, consisting of a core of soft iron, wound with insulated wire, which, becoming magnetic, more or less, according to the strength of the current, attracted an armature, supported upon a lever, at the other end of which was a spring antagonizing the attraction of the magnet. Thus the increase or diminution of

the current decided whether the attraction of the electro-magnet or the resistance of the spring was the stronger force, and in accordance therewith rocked the movable armature upwards and downwards, and by means of connecting devices likewise rocked the yoke to which the brushes were attached backward and forward. The intermediate motor device is not a part of the invention claimed, and therefore may be dropped from view.

The claims of the patentees are for a combination, and are expressed in the following terms:

"(1) In a current regulator for a dynamo-electric machine, the combination of a device responding to changes in the main or generated current, a shifting commutator for said machine, and mechanism controlled by said responsive device to shift the commutator to those positions where the current taken up by said commutator shall be constant. (2) In a current regulator for a dynamo-electric machine, an electro-magnetic device, acted upon by variations in the main or generated current, an adjustable or shifting commutator for the machine, and mechanism controlled by said electro-magnetic device to adjust the commutator to those positions where the main or generated current taken up by said commutator shall be constant."

Through an inadvertence of the drawings, at variance in that respect with the written description in the patent, the complainant's device, as drawn, is inoperative. But, this corrected, and the device in some other respects slightly modified, the so-called invention is both practical and highly valuable.

The principal defense is that, in view of the prior state of the art, and especially of the invention patented by Thomson & Houston, January 20, 1880, No. 223,659, this so-called invention has been anticipated, and the patent, therefore, is invalid. Much learning on this question by counsel for both sides, and by the experts called, has been put at the disposal of the court, and many questions relating to the laws of electricity, which are in their very nature, in the present state of the art, insolvable by one not an expert, are raised. I have availed myself, as closely as I could, of the excursions of counsel into these abstruse fields, but have come back from them, I confess, more bewildered than enlightened. So far as I have been able to ascertain, all knowledge of electricity is, so far, purely empirical, and mere speculations, therefore, however acute and plausible, as to the ways and methods of this force, are likely to be erroneous, and therefore valueless. In the view of the case to which my judgment has come, it is unnecessary to enter these regions of speculation, or to attempt to decide between the respective contentions so earnestly put forth and learnedly maintained.

Patent 223,659 discloses a device almost identical with that of the patent in dispute. As stated already, the commutator is made up of a number of subdivisions called "segments," which are electrically insulated from each other. In the revolutions of the commutator each of these segments comes into contact first with one brush, then with the other; and, as the contact is broken by the passing of the segment away from the brush, there is a tendency to form a spark between the tips of the brush and the edge of the leaving segment. When such sparking is violent, or repeated, it eats away the metal surfaces between which it occurs, and is, in every respect, disadvantageous. Whatever may be the cause of the sparking, it

was then discovered or known by the patentees that a proper shifting of the brushes upon the commutator would bring about a condition of minimum sparking. But the position of the brushes upon the commutator to prevent sparking was not necessarily uniform. It depended upon the speed of the revolutions, which, in turn, was dependent upon the uniformity of power, not so easily obtainable then as now. It depended also upon the accidental or purposed introduction or withdrawal of resistance from the circuit. It is apparent that a shifting by hand to meet these varying conditions would be both cumbersome and unsatisfactory, and the invention subsequently patented as 223,659 was to meet these electrical difficulties. The object here, as in the subsequent patent in suit, was to obtain a device that would move the brushes backward and forward responsively to the electrical condition that such movements were intended to meet. For this purpose the patentees employed a mechanical device in every substantial respect like that described in the patent in suit, except that the electromagnet was put in the short circuit beginning with the forward member of one of the brushes, and ending in the main circuit at the rear of the other member of the brush, instead of having been put in the main circuit, as in the patent in suit. It may be admitted that the anti-sparking device is, in some respects, different from the one in suit. The question is whether the difference is one of principle and conception, or only such a difference in use as leaves the uses nevertheless analogous. The complainant's anti-sparking patent revealed to the public a device by which the brush on the commutator could be automatically changed forward and backward responsively to a change in the current of electricity. The device, it may be admitted, was only used to prevent sparking, and was only acted upon by a small portion of the current; but it disclosed clearly and for all purposes a mechanism that would rock the brushes responsively to changes in the current, irrespective of whether such current were the main or only accessory ones. The problem sought to be solved by the patent in suit was a somewhat different one in its ultimate ends, but the object of both patents was reached by the application of any principle and the use of any device that would automatically maintain constancy of current, notwithstanding changes of motive power or of resistance. The fact that one may be intended to prevent destructive effects upon the machine itself, and the other to adapt the machine to the circumstances of changing resistance, will not make both devices patentable, if they employ substantially the same principles and the same mechanism. It seems clear to me that the real immediate use intended by both of these patents was to automatically equalize the volume of the current; the one in the less, and the other, it is true, in a much greater, degree. The immediate objects in view were thus analogous, and the ultimate uses into which they diverged do not make them less so.

Now, if the uses were analogous, and the principles and devices employed were somewhat different, the sole question remains whether an electrical mechanic, having the knowledge of the art that the public possessed when the so-called invention in suit was conceived,

could, without invention, have adapted the anti-sparking mechanism to the analogous uses of the patent in suit. It must be remembered that it was then well known to electricians that the shifting of the brushes forward and backward upon the commutator increased and diminished the volume of the current, and thus equalized it against the tendencies of a changed resistance. This is what the anti-sparking invention accomplished automatically within narrow limits. It is what the so-called invention in suit accomplished automatically through a wider scope. To an electrical mechanic, bent upon devising a remedy for the inconstancy of the current caused by the putting in and taking out of the lamps, and possessed of the knowledge that a shifting of the brushes on the commutator would accomplish this, and that such shifting, within very narrow limits at least, could be accomplished automatically by the anti-sparking invention, the sole problem was presented whether, by a like device, an automatic shifting of the brushes through a wider scope, and adapted to the whole current, could be effectuated. The mechanical idea and conception, and the principle on which it was based, were all before him. There was required simply experimentation to determine its adaptability to the new purpose. Doubtless such experimentation was difficult and delicate, and called into exercise a multitude of different adjustments of the brushes. But it was all done in the light and along the lines of the earlier device and of electrical principles well known to the public. It was, in my mind, adjustment purely, and not a new conception of either a principle of electricity or a mechanism to carry it out. If there is any mistake in this judgment, it is, I think, in putting a higher estimate upon mechanical skill in electrical fields than is applied to other fields. But I do not see how this can or ought to be avoided. It necessarily requires high skill to be an electrical mechanic at all. Adjustments and adaptations are there every day made use of. To give to each of these the dignity and consequence of inventions would tie up permanently this whole useful field to monopoly. No new distinct conception or discovery ought practically to go unrewarded. But it certainly would, if its readaptations, by experiment or adjustment, to the thousand uses the field of electricity discloses, were to be regarded as patentable improvements.

I differ from Judge COLT in this case with reluctance, for I defer to his superior experience and wisdom in the patent field; but I cannot follow him in this case without violating my own sense of judicial responsibility. The bill will be dismissed.

HEATON-PENINSULAR BUTTON-FASTENER CO. v. EUREKA
SPECIALTY CO. et al.

(Circuit Court, W. D. Michigan, S. D. January 22, 1895.)

PATENTED MACHINES—SALE—RESTRICTION IN USE — PUBLIC POLICY — INJUNCTION.

Though a patentee sells button fastening machines made in accordance with his patent, with a stipulation that in them shall be used, for the purpose of fastenings, only the staples manufactured by patentee, but not in