

THOMSON-HOUSTON ELECTRIC CO. V. CITIZENS' ELECTRIC LIGHT
CO. *ET AL.*

Circuit Court, D. Massachusetts.

August 14, 1888.

PATENTS FOR INVENTIONS—ANTICIPATION—REGULATORS FOR DYNAMO
MACHINES.

Letters patent No. 238,315, granted March 1, 1881, to Elihu Thomson and Edwin J. Houston, for a regulator for dynamo machines, controlling automatically the strength of the electric current by adjusting the commutator so as to keep the current constant, are not anticipated by letters patent No. 223,659, granted to the same persons for an automatic adjuster for commutator brushes on magneto-electric machines, whereby an adaptation to variations of circuit resistance is secured by adjusting the commutator so as to keep the current at its maximum value.

In Equity.

B. F. Thurston and Livermore & Fish, for complainant.

Chauncey Smith, Edwin H. Brown, and E. W. Burdett, for defendants.

COLT, J. This suit is brought for the infringement of letters patent No. 238,315, granted Elihu Thomson and Edwin J. Houston, March 1, 1881, for improvements in current regulators for dynamo-electric machines. The specification says:

“The object of our invention is to provide improved means for controlling automatically the strength of an electric current flowing over a circuit composed of a dynamo-electric machine and one or more electric lamps, or other appliances, through which the current passes, and to obtain said control without the introduction of resistances as such, and without varying the speed or field of the dynamo-electric machine, and at the same time, if desired, to utilize the reaction principle for the magnetization of said dynamo-electric machine, or, in other words, to cause the current generated to pass through the

field-magnet coils. We accomplish these results at the same time that the power expended to drive the dynamo-electric machine varies directly in accordance with the changed resistance of its circuit, being less as the resistance is less, and greater as the resistance is greater. In the improved system of operation provided by our present invention, we possess the ability to cut out lamp after lamp from circuit, and yet maintain a uniform current strength in the remaining lamps, and economy of motive power proportional to the diminished resistance, while the normal light-giving power of each lamp not cut out is maintained, and an absence of heating or necessity for any other adjustments than those at the commutator of the machine obviated. These adjustments are preferably made automatic, for we find that with the commutator used by us, as herein specified, a proper adjustment of the commutator being effected when a certain resistance is in circuit, a similar adjustment will, when the resistance is changed, give the same current. In our system we have employed a dynamo-electric machine in which the commutator is constructed of three insulated segments of a ring connected to three armature-coils. The collecting-brushes applied to said commutator are supported so as to be movable around the commutator, without changing the relative positions of the two collectors. This movement of the collecting-brushes is well known in the art. We find in practice, moreover, that we obtain with this automatic regulation of the current strength an independence of speed variations in the machine, it being only necessary to so adjust the speed of running that when the speed is at its lowest the machine shall yet be sufficient in power to maintain the number of lights placed in its circuit. We are therefore able to operate successfully under conditions of motive power variations that have hitherto been recognized as fatal to steadiness of light obtained. In United States patent No. 223,659, January 20, 1880, before referred to, we have described a means of automatically adjusting the commutator collectors of dynamo-electric machines, which method is adaptable to the present case of current regulation. Our present method of operating, therefore, so far as it relates to automatic regulation, is based upon the same principles of operation as our previous invention; and it consists in an improved construction and mode of use of the apparatus employed in patent No. 223,659. We claim: (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.”

The main defense in this case is that the prior patent No. 223,659, issued to these complainants, is an anticipation of the patent in suit. Upon careful examination of the two patents, in connection with the testimony of experts and the able arguments of counsel, I cannot agree with the position taken by the defendants. The object of the two patents, as disclosed by their titles, is different. The patent in suit is for a current regulator for dynamo machines; the earlier patent is for an automatic adjuster for commutator brushes on magneto-electric machines. Current regulation, or "to provide improved means for controlling automatically the strength of the electric current," is the object of the patent

in suit; while the object of the prior patent was the construction of an automatic adjuster for commutator brushes, "whereby an automatic adaptation to variations of circuit resistance is secured, and the burning and destructive effects of false adjustments obviated." The design of the present patent is to adjust the commutator to those positions which shall keep the current constant; the design of the prior patent was to adjust the commutator so as to keep the current at its maximum value; or, in other words, to adjust, the brushes so that their contacts with the commutator segments should be at the neutral points, by which means the difficulty from sparking would be reduced to a minimum. It is true that the means employed in both patents to accomplish these different results bear a close relation to each other. The patentees declare that the earlier method described is adaptable to the present case of current regulation, but they also say that their present method consists in an improved construction and mode of use of the apparatus employed in the prior patent. To construct an automatic adjuster which shall avoid sparking or leakage by bringing the brushes in contact with the commutator-segments at the neutral line, or the points of the maximum difference of potential between the segments, and therefore of maximum current, maybe an important invention, but it is certainly quite a different invention to adjust the brushes of the commutator to positions which shall keep the current constant, independently of the question whether the brushes touch the segments at the neutral points, or whether sparking is avoided.

It is said that the present invention is shown in Figs. 1 or 2 of the earlier patent. The testimony of defendants' experts seems to find the invention described in Fig. 1, while the learned senior counsel for defendants appears to reject this contention, and turns to Fig. 2 as an anticipation of the patent in suit. I do not find in Fig. 2 of the earlier patent the combination of mechanism which forms the subject-matter of the claims of the patent now under consideration. I do not find that which constitutes the important thing in the present invention, namely, the responsive device responding to changes in the main or generated current. In respect to Fig. 1, the most that can be said is that it imperfectly describes that which was perfected in the subsequent patent now in controversy. It seems to me, in other words, that the language of the specification is strictly accurate where it declares that the present invention "consists in an improved construction and mode of use of the apparatus employed in patent No. 223,659."

Upon the subject of infringement I have no doubt. The question is not as to the form of dynamo the defendants may use, or whether their machine may be adjusted by hand to avoid sparking, but the question is whether they use the complainants' invention by the employment of substantially the same means to accomplish the same result, namely, the regulation of the current by means of a device responding to changes in the main or generated current, and this the complainants have shown. Let a decree be entered as prayed for in the bill. Decree for complainants.