(No Model.)

E. P. CLARK.

REGULATOR FOR CONSTANT CURRENT DYNAMOS.

No. 458,617. Patented Sept. 1, 1891.

Fig. 1.

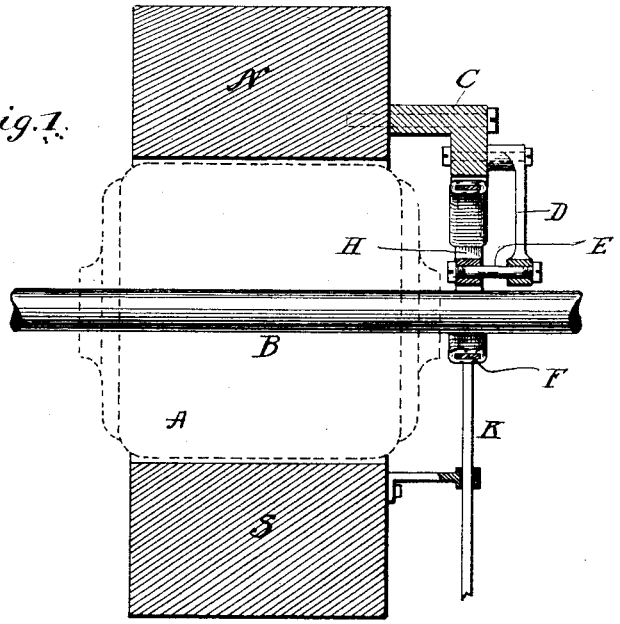
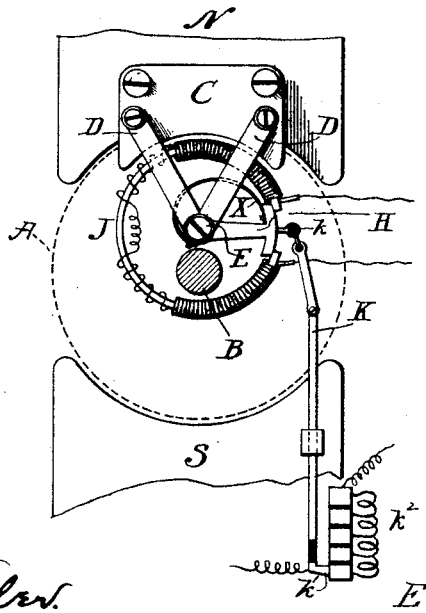


Fig. 2.



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ERNEST P. CLARK, OF NEW YORK, N. Y., ASSIGNOR TO THE CLARK ELECTRIC COMPANY, OF SAME PLACE.

REGULATOR FOR CONSTANT-CURRENT DYNAMOS.

SPECIFICATION forming part of Letters Patent No. 458,617, dated September 1, 1891.

Application filed October 4, 1890. Serial No. 367,103. (No model.)

To all whom it may concern:

Be it known that I, ERNEST P. CLARK, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Automatic Regulators for Constant-Current Dynamos, of which the following is a specification.

In that class of regulators which depend for their action upon the automatic motion of a sliding contact-piece across the face of a number of fixed contact-pieces, whereby the effective resistance of a rheostat or its equivalent is automatically varied, it is important that the motion of the moving part or distance traversed by it shall be as great as possible, with the smallest possible variation in the current actuating it. It is also desirable that the power or motive effort of the moving part shall be as great as possible, in order to overcome the friction of moving parts with ease. These results are usually accomplished in this class of apparatus by the use of very heavy electro-magnets or solenoids, which, besides being expensive and cumbersome, usually consume considerable energy in their working.

In my invention, described below and illustrated in the accompanying drawings, the moving parts are reduced in size and cost, and while their resistance is much less, owing to the reduced length of wire employed, the power or moving effort is greater than in most devices of this character, and the range of motion or distance traversed is very great.

In the accompanying drawings, Figure 1 is a longitudinal vertical section of a dynamo having my improved regulator, and Fig. 2 is a side elevation of the same.

N and S represent the pole-pieces of a dynamo. A represents the armature revolving between them, with its supporting-shaft B. To one of the pole-pieces (N in the figure) I fasten a small auxiliary pole-piece C, and to this pole-piece I attach a supporting-piece D, of brass or other non-magnetic material. This supporting-piece carries a pin E, about which rotates or oscillates the moving part of the regulator. This part consists of a piece of wrought-iron F, bent into the form of a nearly complete ring, having a gap sufficiently wide to admit the armature-shaft of the dynamo. This gap is merely for convenience in assembling the parts and has no further functions in the action of the apparatus. The said iron ring is mounted, as shown, upon a T-headed arm of brass or other suitable material H, which arm is journaled on the pin E. By this arrangement the iron ring F is free to move about the pin E, and may make about three-quarters of a complete revolution, the limit of its motion in either direction being when the piece H comes in contact with the armature-shaft B. If the ring F is wound with insulated wire, as shown, reversing the direction of winding at the point J, and a current of electricity is passed through the wire in the proper direction by means of flexible conductors, the ring will become an electro-magnet, whose power will depend upon the strength of current flowing in the wire, and whose S pole is located at J and whose N pole is at the ends of the ring, where it is fastened to the piece H. The effect of this polarity is a powerful rotary effort tending to carry the point J under the pole-piece C. This effort being opposed by a spring X, the result will be that the ring will take up a position depending upon the power of the spring and the strength of current flowing in the ring. As the power of the spring remains fixed, the position of the ring will vary as the current varies, and in practice I find this arrangement capable of giving a wide range of movement of considerable power with a very slight variation in current strength. The rod K is attached to a stud or post k, fastened to the ring, and partakes of its movements, and the sliding contact-piece k' being attached to the rod K, as shown, I am thus enabled to obtain the desired movement of the sliding contact across the face of the fixed contacts k^2. This motion may be utilized in any of the various methods to regulate the dynamo to which the device is attached.

In another application for Letters Patent I have described the principle and construction of the dynamo upon which I have used this device. The principal objects this particular device is designed to attain are power

and rapidity of action and the consolidation of all regulating devices upon the dynamo itself.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

In an automatic regulating device, the combination of a dynamo-electric machine, a ring-shaped electro-magnet having consequent poles and journaled at its center, a spring to oppose the motion of the ring-shaped magnet, and a movable part actuated by the ring-shaped magnet and a rheostat, said movable part adapted to vary the resistance of said rheostat when moved by the action of the ring-shaped magnet moving in a magnetic field, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ERNEST P. CLARK.

Witnesses:

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