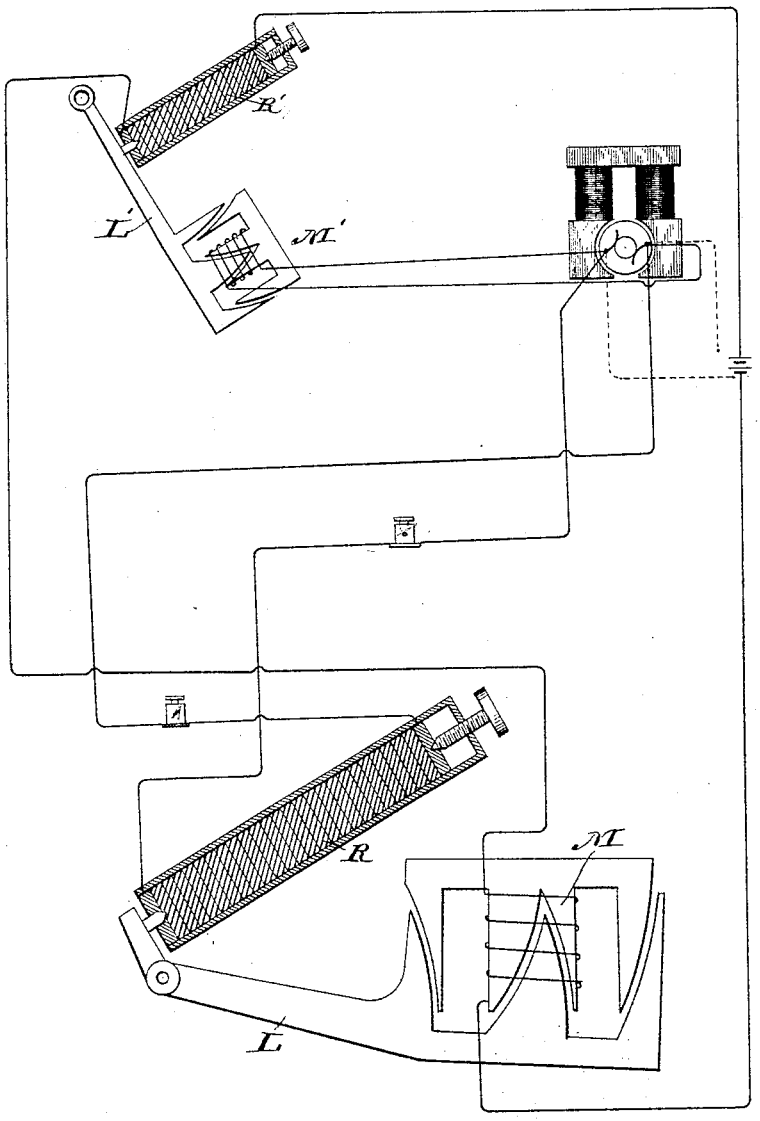
(No Model.)

C. HERING.

ELECTRIC REGULATOR FOR CONSTANT POTENTIAL.

No. 454,476. Patented June 23, 1891.



Witnesses

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CARL HERING, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JOHN HOSKIN, OF SAME PLACE.

ELECTRIC REGULATOR FOR CONSTANT POTENTIAL.

SPECIFICATION forming part of Letters Patent No. 454,476, dated June 23, 1891.

Application filed May 24, 1889. Renewed May 23, 1891. Serial No. 385,960. (No model.)

To all whom it may concern:

Be it known that I, CARL HERING, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Electric Regulators for Constant Potential, of which the following is a specification.

My invention relates to an apparatus for automatically maintaining constant the difference of potential in an electric circuit.

The object of my invention is to correct automatically irregularities in such differences of potential, from whatever cause arising, and thereby maintain such difference of potential constant.

In my application for Letters Patent for electric regulators, filed December 16, 1887, Serial No. 258,127, I have shown and described an apparatus for such purpose, which is the same illustrated in the figure of the drawing which forms part of this application. The invention shown in that application consists, essentially, of a detector and an adjustable resistance which detect and correct any change in the difference of potential at a point where such difference is to be kept constant.

The object of my present invention is to magnify the effect of such changes upon the device there shown, and thus to render their correction more quick and accurate.

Referring to the accompanying drawing, which is a diagrammatic view of the apparatus, R is a resistance which regulates the current whose potential is to be kept constant.

L is a lever having its fulcrum in the middle, one arm acting upon the adjustable resistance and varying its conductivity and the other forming the armature of the electro-magnet M, which is energized by a current obtained from any convenient source, as S, and passing through the adjustable resistance R′.

L′ is a lever having its fulcrum at its end, acting at its middle upon the adjustable resistance R′ and varying its conductivity, and formed at its other end into the armature of an electro-magnet M′, which is energized by a current obtained from the points at which the potential is to be kept constant—as, for instance, at the poles of a dynamo or at the points of distribution of an incandescent-light circuit or at the poles of a battery.

Any increase of the potential of the current energizing M′ attracts the armature at the end of lever L′, and by the motion of that lever increases the conductivity of R′, thereby increasing the current and magnetism in M and its attraction for its armature, causing a movement toward M of lever L and a diminution of conductivity in resistance R, diminishing the current through it. Any diminution of potential of the current energizing M′ produces the opposite effect. The current passing through R may be either a main current or the field-magnet current of the shunt-wound magnets of a dynamo. The current passing through magnet M and resistance R′ may be obtained from any convenient source, as S, or preferably from the main source, as shown by wires therefrom approaching S. The current through magnet M′ is derived from the same source as and is dependent upon the fluctuations of the current passing through R.

I claim as my invention—

1. In combination with an electric regulator for constant potential, having an electro-magnet and having a resistance adapted to be diminished in conductivity by increase of current through its electro-magnet, a relay having an electro-magnet and having a resistance adapted to be increased in conductivity by increase of current through its electro-magnet, said first-named electro-magnet and last-named resistance being in the same circuit.

2. In combination with a constant-potential regulator having an electro-magnet, an inclined carbon pile in the circuit of the current to be regulated, and a support for the armature of said magnet upon and compressive of said carbon pile, so constructed and adapted that upon increase of current through the electro-magnet the compression of the carbon pile is diminished, a relay having an electro-magnet, an inclined carbon pile in circuit with the electro-magnet of the regulator, and a support for the armature of said relay-magnet upon and compressive of said carbon pile of the relay so constructed and adapted that upon increase of current through

the relay-magnet the compression of the carbon pile of the relay is increased.

3. In combination with a constant-potential regulator having an electro-magnet upon a lever, an inclined carbon pile in the circuit of the current to be regulated, and a lever carrying the armature of said magnet and bearing upon said carbon pile and adapted to be diminished in its pressure upon said pile upon increase of current in said magnet, a relay having an electro-magnet whose armature is upon a lever, an inclined carbon pile in circuit with the electric magnet of the regulator, and a lever carrying the armature of the relay-magnet and bearing upon the carbon pile of the relay and adapted to be increased in its pressure upon said pile upon increase of current in said relay-magnet.

CARL HERING.

Witnesses:
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