(No Model.) 2 Sheets—Sheet 1.

P. DIEHL.

REGULATOR FOR DYNAMO ELECTRIC MACHINES.

No. 324,666. Patented Aug. 18, 1885.

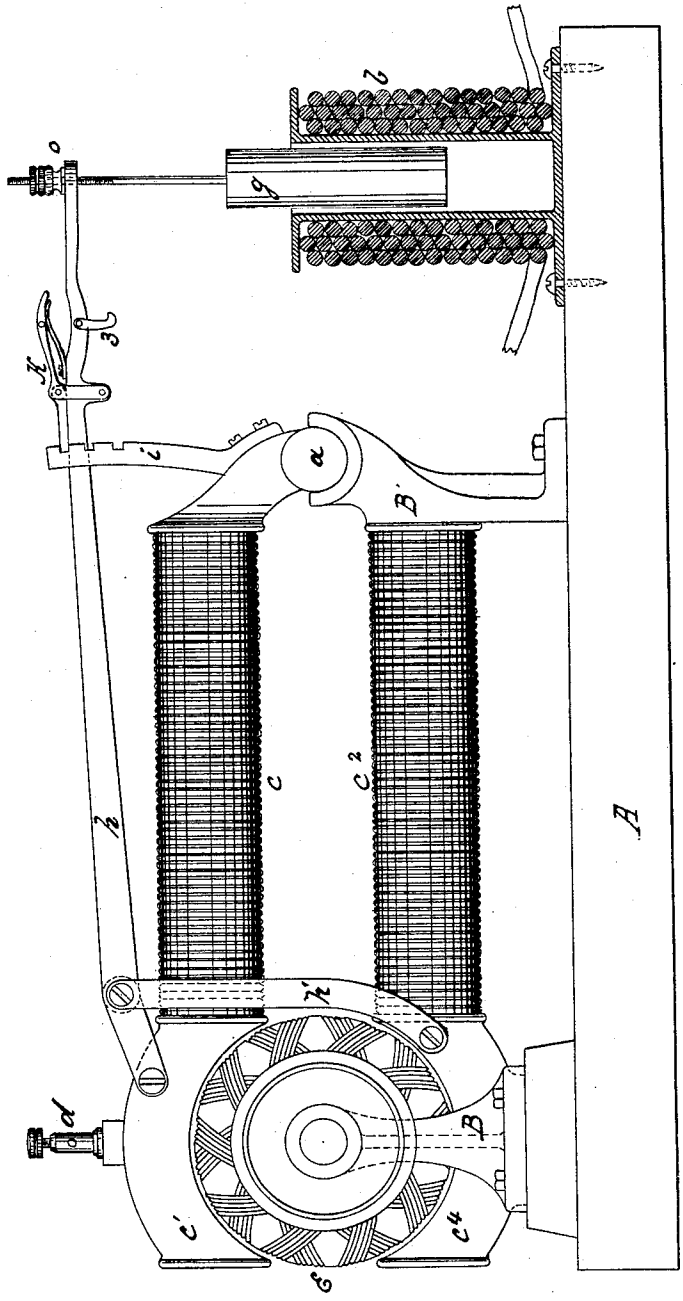


Fig. 1.

WITNESSES:
J. F. Caldwell.
C. R. Waterbury.

INVENTOR
Philip Diehl
by Charles W. Forbes
Atty.

(No Model.) 2 Sheets—Sheet 2.

P. DIEHL.

REGULATOR FOR DYNAMO ELECTRIC MACHINES.

No. 324,666. Patented Aug. 18, 1885.

Fig. 3.

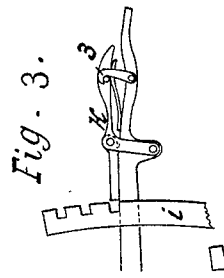
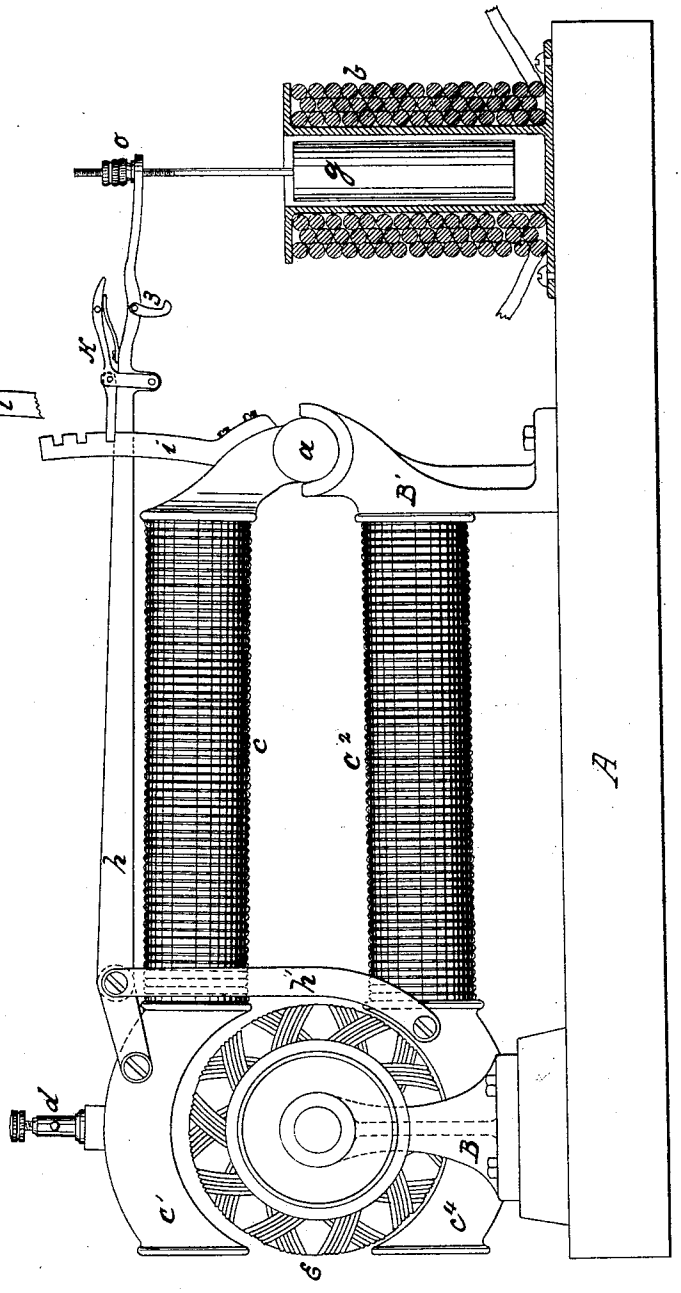


Fig. 2.



WITNESSES:
J. L. Caldwell.
J. R. Waterbury

INVENTOR
Philip Diehl
by Charles M. Forbes
Atty.

UNITED STATES PATENT OFFICE.

PHILIP DIEHL, OF ELIZABETH, NEW JERSEY.

REGULATOR FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 324,666, dated August 18, 1885.

Application filed September 8, 1884. (No model.)

To all whom it may concern:

Be it known that I, PHILIP DIEHL, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented a new and useful Improvement in Dynamo-Electric Machines, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which—

Figure 1 represents a side elevation, partly in section, of a machine embodying my invention; Fig. 2, a similar view showing a changed relative position of the parts, and Fig. 3 a side view of the locking-detent (shown in Figs. 1 and 2) disengaged.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to regulate the electric motive force in dynamo-electric machines, so that said motive force will be increased as the resistance which the current meets is augmented, and vice versa; and the invention consists in the means indicated by the claims for automatically varying the distance between an armature and the pole or poles of its field-magnet.

In order that others may understand my invention I will proceed to describe the same in connection with a dynamo-electric machine in which the electrical current is produced by revolving the armature through a magnetic field. I do not, however, confine its application to machines of this class, as it is equally well adapted to other kinds of electro-magnetic machines—for instance, for increasing or diminishing the speed or power of an electric motor by varying the distance between its armature and field-magnet.

In the drawings, A represents the base, and B B the frame-work or supporting-standards, to which the main essential elements of the machine are connected.

E is a revolving armature, inclosed to the extent of about three-fourths of its cylindrical surface by the curved soft-iron pole-pieces c' c^1, which are the prolongations of the cores of the electro-magnet c c^2. The part c of the magnet is pivoted at one end to the standard B′, as shown at a, which renders its opposite or free end capable of adjustment to or from the armature E, the adjustment being effected by means of a lever, h, pivoted thereto, and to a fulcrum-bar, h', connected to the pole-piece c^1 or other stationary part of the frame-work. The lever h is extended to a suitable length, and provided with a locking-detent, K, that engages with a notched bar, i, located within its arc of movement and rigidly attached to the adjacent frame-work.

The part c^2 of the magnet is represented as fixed in the respective views, and the relative changed position of the part c of the magnet and its operating devices with relation to the armature E is shown in Figs. 1 and 2, respectively.

The spring-detent K is withdrawn from the notches in the bar i by compressing its hand-piece, and may be kept from engagement by means of the hook 3, as shown in Fig. 3, this being necessary when the lever is connected for automatic action, to which I will now refer.

g, Figs. 1 and 2, represents a core of a solenoid that is adjustably connected with the lever h, as shown at o, and b is a solenoid connected with the main circuit generated by the dynamo.

In the relative position of the armature E, pole-piece c', and bar g shown in Fig. 1, the current is strongest, owing to the close proximity of the said pole-piece to the armature E, and consequently the strength of the current connected with the solenoid b is increased proportionally. As the strength of the current passing around the solenoid b is increased the core g is drawn farther within the said solenoid, thus increasing the distance between the armature and the movable pole of the magnet by means of the connecting-lever h, and thereby automatically reducing the strength of the current. By such operation it will be readily seen, for example, that a lessened resistance, caused by a reduction of one or a number of lights in a given circuit, would naturally increase the strength of the current, and this increase would be corrected or counteracted by my invention.

I do not confine myself to the specific devices herein referred to other than such essential elements as are necessary to constitute a mechanical organization to effect the object sought; neither do I wish to confine the adjusting feature to one pole-piece, as shown, as it is obvious that the same adjustment may be applied to both pole-pieces without departing

from the spirit of my invention. I do not, however, wish to be understood as claiming in this application a locking device for securing one or more movable poles in any desired position relative to the armature, or mechanism, comprising one or more levers, for adjusting movable poles toward or from the armature, such features being embraced by my application No. 165,624, filed May 15, 1885.

Therefore, having sufficiently described the same to enable others to understand and practice it, I claim—

1. The combination, with a revolving armature, of a field-magnet having one or more movable poles adjacent to said armature, a solenoid, and a core movable relative to said solenoid, and connected with the said movable pole or poles, substantially as set forth.

2. The combination, with a revolving armature, of an electro-magnet having a movable pole adjacent to said armature, a solenoid, a core movable relative to said solenoid, and a lever connected with said pole and core, whereby as the strength of the current passing through said solenoid is increased the said pole will be moved away from said armature, and vice versa, substantially as set forth.

3. The combination, with the armature, of the magnet having fixed and pivoted portions and pole-pieces, the fulcrum-bar *h'*, the lever *h*, bar *i*, detent K, solenoid *b*, and movable core *g*, adjustably connected with said lever *h*, substantially as set forth.

PHILIP DIEHL.

Witnesses:
CHAS. W. FORBES,
JNO. S. CALDWELL.