

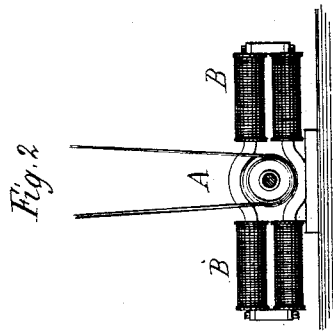
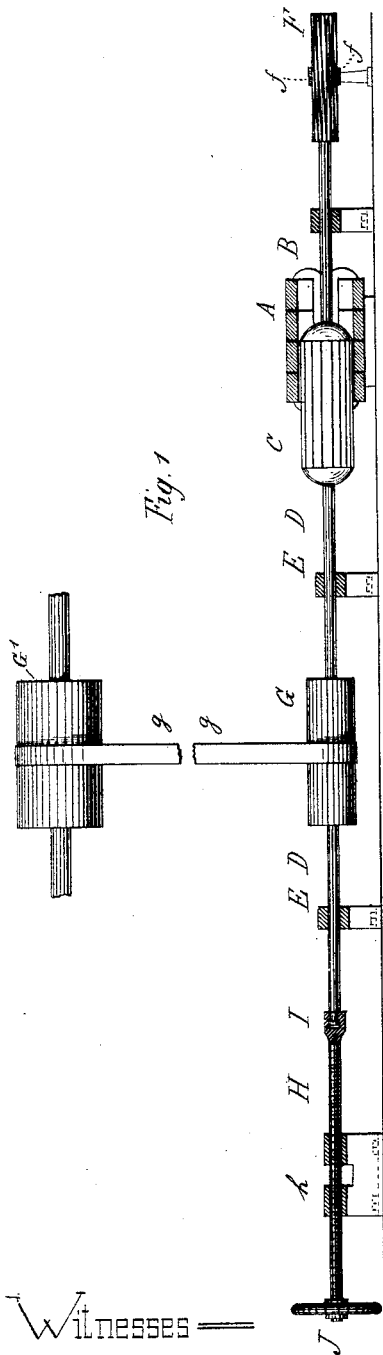
(No Model.)

J. H. IRWIN.

DYNAMO ELECTRIC MACHINE.

No. 262,782.

Patented Aug. 15, 1882.



Witnesses =  
*Wm. A. Lane*  
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# UNITED STATES PATENT OFFICE.

JOHN H. IRWIN, OF MORTON, PENNSYLVANIA.

## DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 262,782, dated August 15, 1882.

Application filed February 25, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. IRWIN, of Morton, county of Delaware, and State of Pennsylvania, have invented certain new and useful Improvements in Dynamo-Electric Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates especially to electric generators or dynamo-electric machines, and has for its object the production of a device whereby the strength of the current generated may be easily regulated in order to supply only the energy required in the circuit, according to the number of lamps, &c., in use therein.

It consists essentially in arranging the parts constituting the generator in such manner that the relative surface of action between the armature and field-of-force or exciting magnets may be changed at will, thus increasing or decreasing the electro-motive force or current in accordance with the required demand.

In the drawings there is shown a generator in which the armature is so constructed and arranged that it may be drawn from or pushed into the field of the exciting-magnets, whereby the current is regulated. By such construction I dispense with the use of artificial resistance in the circuit, and save the power which has heretofore been wasted in generating an excess of energy.

In the drawings, Figure 1 is a longitudinal sectional view of my improved generator, and Fig. 2 is an end elevation thereof.

Like letters of reference, wherever they occur, indicate corresponding parts in both figures.

A are the field-of-force or exciting magnets, constructed in the usual manner and wound with bobbins B.

C is the armature, constructed in any approved manner. In the device shown the armature-shaft D is made longer than usual, in order to permit the bearings E therefor to be so placed as to permit the armature to be drawn out of the field-magnets A when reducing the strength of the current generated. F is the commutator, made of sufficient length to per-

mit a lateral movement corresponding to and with the armature.

*ff* are the brushes for taking the current.

G is a pulley, located upon shaft D, and driven by belt *g*, passing to pulley G' upon the main shaft. These pulleys are made wider than usual, in order to permit free play of the armature in a lateral direction.

H is a screw-threaded shaft, which passes through and engages with a correspondingly screw-threaded support, *h*.

At I is located a clutch, which forms a loose coupling between the shaft D and screw H, said clutch being so adapted and arranged as to permit the shaft to rotate freely, and at the same time holding it securely against lateral movement, excepting such as may be communicated thereto when the screw H is turned by means of wheel J.

By thus arranging the parts of my device it will at once be seen that the armature may be located at any desired point within the field of the exciting-magnets, and the current generated will correspond to the proportion of the armature which comes within their influence, whereby I attain easy, effective, simple, and accurate control of the circuit.

I am aware that the publication of Müller (Physikimo Meteralogie, 1868) describes an induction-coil wherein the outer or secondary coil has by hand a longitudinal movement back and forth over the inner or primary coil for the purpose of regulating the strength of the induced current at pleasure, and therefore I do not claim such an induction-coil.

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

1. In a dynamo-electric machine, the combination of an armature adapted and arranged to be drawn out of or pressed into the field-of-force magnets and a commutator adapted and arranged to have movement across the face of its brushes, substantially as described.

2. In a dynamo-electric generator, the combination, with the armature, of a screw connected therewith and adapted and arranged to control the position of the armature within the field of the exciting-magnets, substantially as shown and described.

3. The combination, with the field-of-force magnets A, of an armature C, shaft D, screw H, bearing wheel J, and commutator F, the whole arranged to operate substantially as shown and described.

4. In a dynamo-electric machine, the combination of inclosing field-of-force magnets, an inclosed armature, and a commutator, the armature and commutator being adjustable back and forth by the same mechanical means, substantially as described.

5. In a dynamo-electric machine, the combination of the field-of-force magnets, an armature and a commutator both adjustable back and forth, and the latter elongated, so as to be at all times subject to sufficient contact with the commutator-brushes, substantially as described.

6. In combination, in a dynamo-electric machine having inclosing field-of-force magnets and an inclosed armature, a shaft to which both the armature and the commutator are directly secured, provided with a clutch adapted to permit free revolution of the shaft while the same may be moved back and forth, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

JOHN H. IRWIN.

Witnesses:

F. W. HANAFORD,  
A. M. PIERCE.