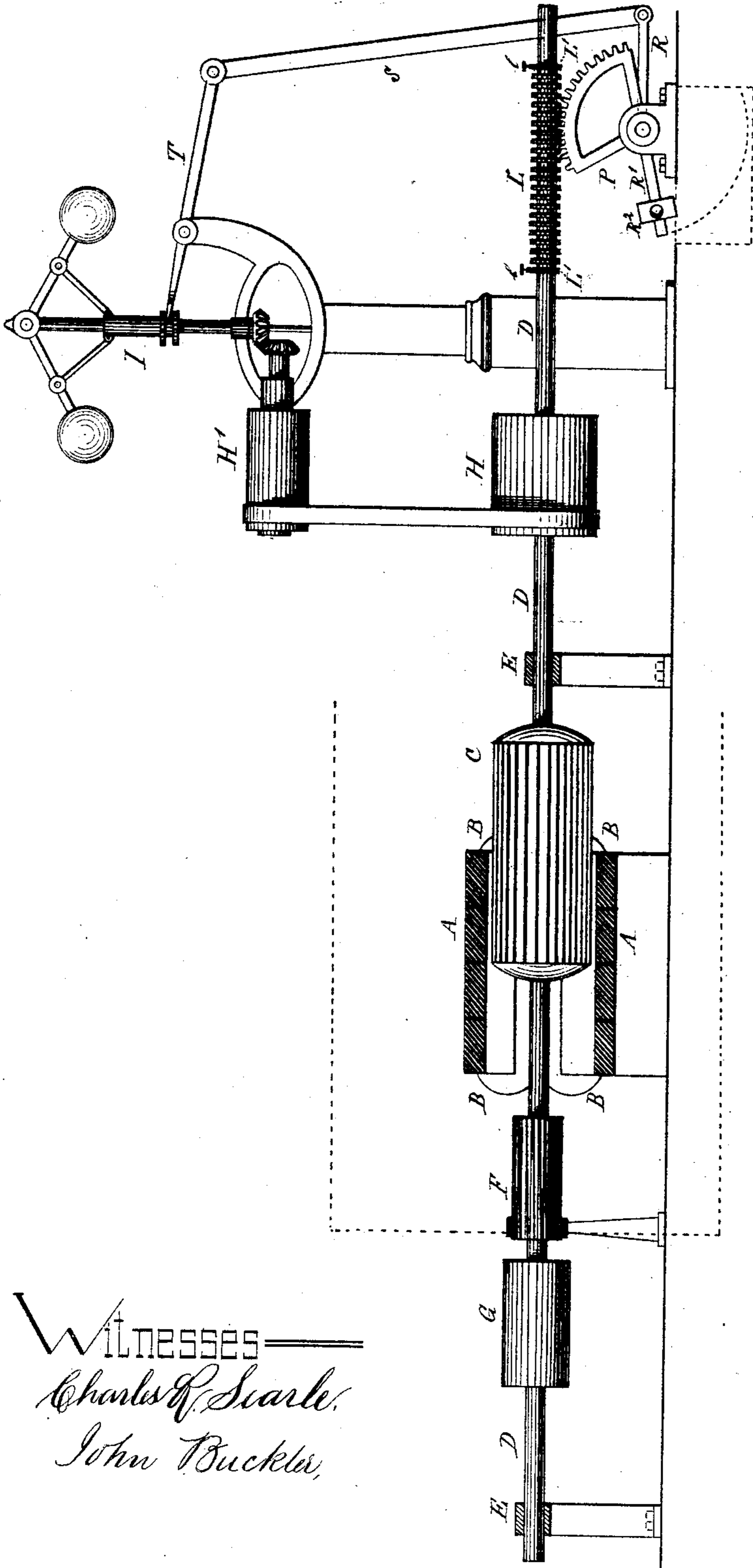


(No Model.)

J. H. IRWIN.
ELECTRO MOTOR.

No. 260,574.

Patented July 4, 1882.



Witnesses—
Charles R. Searle,
John Buckler,

Inventor—
John H. Irwin,
By A. W. Pierce,
Atty.

UNITED STATES PATENT OFFICE.

JOHN H. IRWIN, OF MORTON, PENNSYLVANIA.

ELECTROMOTOR.

SPECIFICATION forming part of Letters Patent No. 260,574, dated July 4, 1882.

Application filed March 6, 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

5 Improvements in Electromotors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

10 My invention relates especially to motors employed for generating power by the use of electricity, and has for its object the production of a device wherein means are employed for automatically regulating the power of the

15 motor in accordance with the demands made thereon; and it consists essentially in arranging the constituent parts of the device in such a manner that the relative surface of action between the armature and field-of-force mag-

20 nets may be automatically changed or varied by means of suitable governing mechanism engaging with the shaft of the armature.

It is obvious that the device might be regulated by a screw turned by the hand, as fully

25 set forth and described in an application for Letters Patent for improvement in dynamo-electric machines, filed by me February 25, 1882, or by a lever engaging with the armature-shaft, as shown in my present invention,

30 without the aid of an automatic device.

The drawing presented herewith represents a side elevation and partial section of my motor.

Like letters of reference indicate corresponding parts.

A are the field-magnets, constructed in the usual manner, and wound with bobbins B. C is the armature, and D is the elongated shaft thereof. E are the bearings therefor. F is

40 the commutator. G is a pulley for transmitting the power generated. H is a pulley placed upon shaft D for the purpose of driving a governor, I, by means of pulley H'.

Upon shaft D is located a sleeve bearing a

45 series of rings or flanges, L. If desired, sleeve L may be loose upon the shaft and held from lateral motion thereon by collars L', bearing set-screws l. When small power is needed the sleeve may be fixed upon the shaft in such a

50 manner as to allow only a portion of armature C to enter the magnets.

P is a toothed segment, mounted upon a shaft in suitable bearings, the teeth of said toothed segment engaging with the rings upon sleeve L. Attached to cog P is an arm, R, which, by

55 means of a rod, S, is connected with the governor-lever T. R' is an arm attached to toothed segment P, and bearing a counterbalancing-weight, R².

Upon the armature-shaft, which is extended

60 a considerable distance on each side from the armature, the commutator and power-transmitting pulley should preferably be placed, both upon one of the extensions of such shaft, and the pulley to drive the governor and the

65 mechanism for moving such shaft longitudinally upon the other extension, to the end that such shaft may be supported steadily in the working of the machine.

When all the power generated by the motor

70 is being utilized the armature C will remain within the magnets. Should any of the mechanical resistance placed upon the motor be removed, the rotation of the armature will become more rapid, increasing the speed of the

75 governor, depressing rod S. Thereby toothed segment P will be turned toward the right, drawing the armature from the magnets. When greater mechanical resistance is added to the motor this operation will be reversed. By this

80 means the speed of the motor will remain practically the same, the power thereof being in accordance with the demands made upon it.

Having now fully described my invention, what I claim as new therein, and desire to se-

85 cure by Letters Patent, is—

1. In combination with an electromotor having an armature-shaft adapted and arranged to draw or push the armature into the field-of-force magnets, a series of rings or flanges

90 on said shaft, and a toothed segment arranged to mesh with said rings or flanges, substantially as and for the purposes set forth.

2. In combination with an electromotor having an armature-shaft adapted and arranged

95 to draw out or push the armature into the field-of-force magnets, an adjustable sleeve upon said shaft, having a series of rings or flanges, and a toothed segment arranged to mesh with said rings or flanges, substantially as and for

100 the purposes set forth.

3. In combination with an electromotor hav-

ing an armature-shaft adapted and arranged to draw out or push the armature into the field-of-force magnets, a series of rings or flanges on said shaft, a toothed segment arranged to mesh with said rings or flanges, and a governor connected with said toothed segment, substantially as and for the purposes set forth.

4. In combination with an electromotor having an armature-shaft adapted and arranged to draw out push the armature into the field-of-force magnets, an adjustable sleeve upon said shaft, having a series of rings or flanges, a toothed segment arranged to mesh with said rings or flanges, and a governor connected with said toothed segment, substantially as and for the purposes set forth.

5. An electromotor having an armature-shaft extending in each direction from the armature, and carrying upon one extension a commutator and a power-transmitter pulley and upon the other extension a pulley to drive the governor and the mechanism for moving the shaft longitudinally, whereby the shaft may be supported more steadily in the working of the machine, 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.