

(No Model.)

C. H. RICHARDSON.
CONTROLLING MECHANISM FOR ELECTRIC MOTORS.

No. 537,994.

Patented Apr. 23, 1895.

FIG. 1.

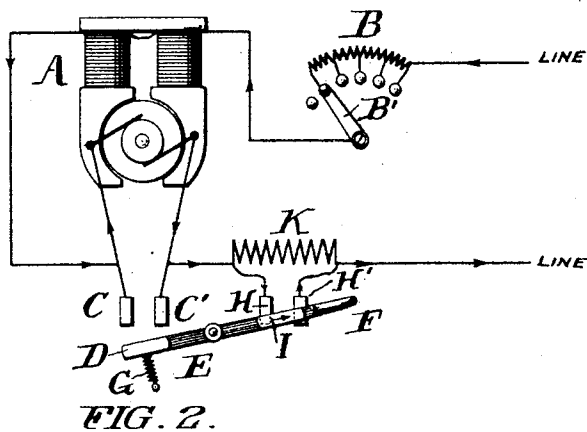


FIG. 2.

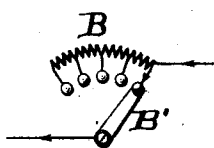


FIG. 3.

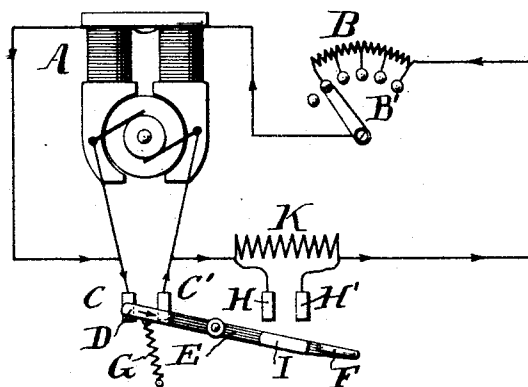


FIG. 4.

WITNESSES:

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CONTROLLING MECHANISM FOR ELECTRIC MOTORS.

SPECIFICATION forming part of Letters Patent No. 537,994, dated April 23, 1895.

Application filed June 9, 1894. Serial No. 514,031. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. RICHARDSON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Controlling Mechanism for Electric Motors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain improvements, as hereinafter claimed, in means for controlling the speed and arresting the motion of electric motors.

In the accompanying drawings, which show a suitable embodiment of my invention, Figure 1 is a view in elevation with my improvements shown as applied to a series motor, with the motor represented as running at slowest speed. Fig. 2 is a similar view, with the controlling mechanism adjusted to stop the motor. Fig. 3 is a view in detail of the speed regulating resistance set for highest speed; and Fig. 4 a view similar to Fig. 1 except that a shunt wound motor is employed.

As will be seen by reference to Figs. 1 and 2 the current enters to the motor A after passing through the speed regulating resistance B of suitable kind, and which may be such as shown by United States Letters Patent dated August 15, 1893, No. 503,453.

Connected with the respective armature brushes are two contacts C C' adapted to be short-circuited by means of a contact plate D on a switch lever E provided with a foot rest F.

Instead of operating the switch lever by foot it may be adapted to be operated by hand.

A spring G serves to normally hold the switch lever out of connection with the contacts C C' as shown by Fig. 1.

In the position in which the switch lever is represented in Fig. 1, the current passes from the motor to contact H and by way of contact plate I and contact H' to line, and thus short-circuits the supplementary resistance K.

By adjustment of the switch lever B' of the starting or speed-regulating resistance the motor may be stopped, started and its speed of rotation controlled, as desired, when the switch lever E is out of connection with the contacts C C'.

The switch lever E, it will be seen, is adapted to be moved so as to break connection with contacts H H' before making connection with contacts C C'.

To quickly stop the motor the switch lever E is moved into the position in which it is represented in Fig. 2, thus short-circuiting the motor armature through contacts C C' D, and at the same time inserting the resistance K in series with the motor field.

In short-circuiting the armature by switch lever E and contacts C C', the switch lever B' of the starting and controlling resistance B may be in any one of its positions of adjustment—say, set for highest speed, as shown in Fig. 3, while by throwing the resistance K into series with the motor field any danger of burning out the field coils when a series motor is used, and destroying the armature circuit or the line when a shunt motor is used, from the excess of current which would flow through the field were the resistance K omitted, is avoided.

The operation of the apparatus shown by Fig. 4, in which a shunt wound motor is employed, will readily be understood from the above description.

It will be seen that in accordance with my invention the supplementary, independent, quick-stopping devices can be applied to motors and their ordinary speed-controlling devices already set up and in operation, without requiring any change in the motors or their starting or speed-controlling devices.

I claim as my invention—

The combination of the motor, conductors connecting the armature of the motor with the supply circuit, the speed regulating resistance in the supply circuit, the supplementary resistance in one of the conductors connecting the armature of the motor with the supply

circuit, and the supplementary resistance
switch mechanism by one adjustment of which
the armature is short circuited and said sup-
plementary resistance thrown in to prevent
5 an overflow of current, and by the opposite
adjustment of which switch mechanism said
supplementary resistance is short circuited
thus cutting it out of the armature circuit

and removing the short circuit from the ar-
mature, substantially as set forth. 10

In testimony whereof I affix my signature
in presence of two witnesses.

CHARLES H. RICHARDSON.

Witnesses:

R. DALE SPARHAWK,
EDW. F. SIMPSON, Jr.