No. 801,201. PATENTED OCT. 10, 1905.

I. F. BAKER.

REVERSING SWITCH.

APPLICATION FILED JUNE 28, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

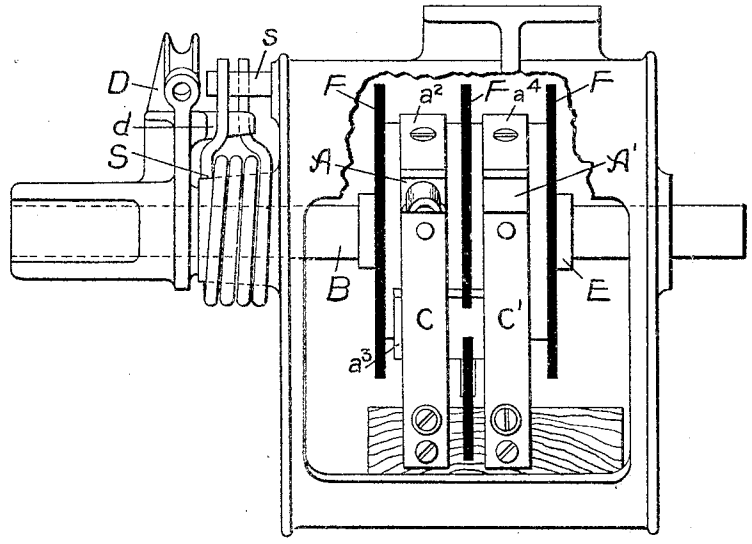
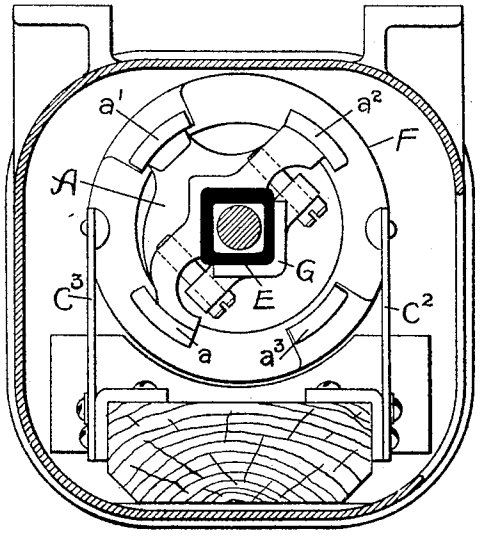


Fig. 2.



WITNESSES:

J. Ellis Glen.

Helen Orford

INVENTOR:

Isaac F. Baker.

by Albert G. Davis Atty

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2 SHEETS—SHEET 2.

Fig. 3.

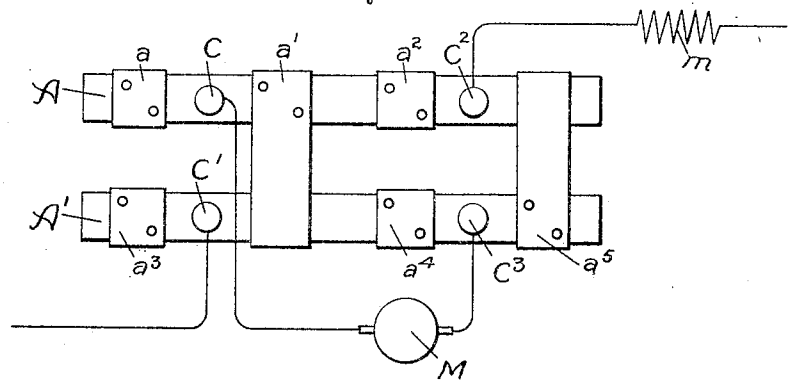


Fig. 4.

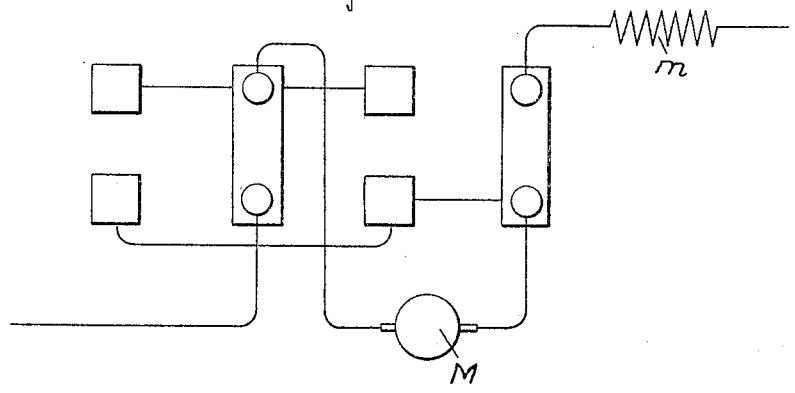
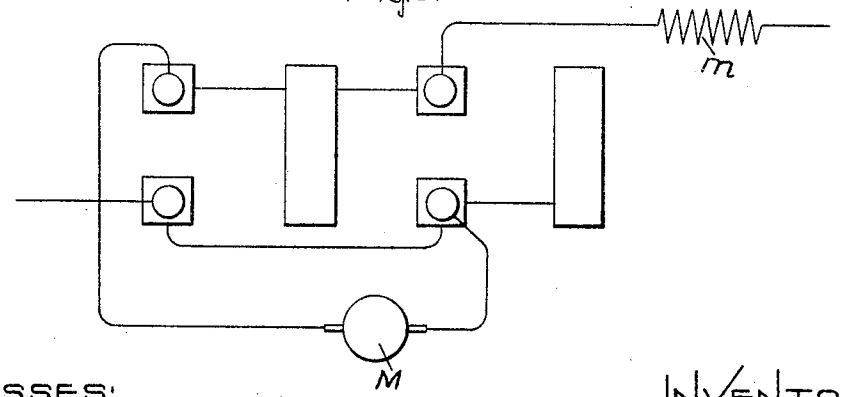


Fig. 5.



WITNESSES:

Robt. L. Chapman.

Arlen Alford

INVENTOR:

Isaac F. Baker.

by Albert G. Davis

Atty.

UNITED STATES PATENT OFFICE.

ISAAC F. BAKER, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO SPRAGUE ELECTRIC COMPANY, A CORPORATION OF NEW JERSEY.

REVERSING-SWITCH.

No. 801,201. Specification of Letters Patent. Patented Oct. 10, 1905.

Application filed June 28, 1904. Serial No. 214,470.

To all whom it may concern:

Be it known that I, ISAAC F. BAKER, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Reversing-Switches, of which the following is a specification.

My invention relates to reversing-switches for electric motors, and is particularly applicable to switches designed for controlling motor-operated hoists.

The object of my invention is to provide a novel form of reversing-switch which is simple, compact, and cheap to construct and in which the amount of necessary insulation is reduced to a minimum.

My invention will best be understood by reference to the accompanying drawings, in which—

Figure 1 shows a side elevation of a switch arranged in accordance with my invention. Fig. 2 shows an end elevation of the same. Fig. 3 shows a development of the switch-contacts, and Figs. 4 and 5 are diagrams of circuit connections for the two directions of rotation of the motor.

Referring first to Figs. 1 and 2, A and A′ represent two metallic spiders or disk segments which are mounted side by side on the shaft B. The spider A carries three contacts a to a^2, which are uninsulated from the spider, and consequently are electrically connected to each other. The spider A′ also carries three contacts a^3 to a^5, similarly mounted. The shaft B at its central portion is made square, as shown in Fig. 2, and an insulating-bushing E is fitted over this part of the shaft. The spiders A and A′ are provided with rectangular grooves, as shown in Fig. 2, and are clamped over the insulating-bushing E by means of the clamps G. The two spiders are consequently insulated from the shaft and from each other. They are also separated by the insulating-rings F. A pair of stationary contact-fingers C C′ and C^2 C^3 are disposed on opposite sides of the two spiders and are adapted to engage the contacts carried by the spiders when the spiders are rotated.

The means for rotating the spiders to close the motor-circuit consists of an arm or lever D, secured to one end of shaft B and adapted to receive a rope by means of which the switch may be controlled from the floor below. S is a tension-spring which normally holds the switch in its off position by its engagement with the lug d, carried by arm D, and with the stationary lug s.

The arrangement of the contacts on the two spiders is clearly shown in Fig. 3. The spider A carries the three contacts a, a', and a^2. The contact a' projects over but does not touch the spider A′. Similarly, the contact a^5, carried by spider A′, projects over but does not touch the spider A. This is shown in Fig. 2. M represents the armature of the motor, which is connected to the stationary contacts c and c^3. One line-terminal is connected to the contact c, and the other line-terminal is connected through the motor-field m and the contact c^2. Fig. 3 shows the switch in its off position. The two closed positions of the switch for raising and lowering are shown in Figs. 4 and 5. The motor-circuits are evident in these figures and need no further description.

It will be seen that the arrangement above described is simple and compact and that the only insulation required for the moving parts is the single insulating-bushing E.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a switch, a shaft, two conducting members mounted thereon in parallel planes and insulated therefrom, a portion of each member extending into the plane of the other but not in contact therewith, two sets of stationary contact-fingers arranged respectively in the planes of said two members, and means for rocking said shaft to bring a portion of each set of fingers into engagement with said two members alternately.

2. In a switch, a shaft, two spiders secured to said shaft side by side, means for rocking said shaft, a plurality of uninsulated contacts carried by each spider, one or more of the contacts of each spider extending over but not contacting with the other spider, and a set of stationary contacts arranged opposite each spider, and adapted to engage therewith.

3. In a switch, a shaft, two conducting members carried thereby and insulated therefrom, means for rocking said shaft, a plurality of uninsulated contacts carried by each member, all the contacts of each member being arranged in the same radial plane and one or more of the contacts of each member extending over into the plane of the other set of contacts, and two sets of stationary contacts

arranged respectively in the two planes of the movable contacts.

4. In a switch, a shaft, two conducting members carried thereby and insulated therefrom, means for rocking said shaft, a plurality of uninsulated contacts carried by each member, and a plurality of stationary contact-fingers opposite to each member and adapted to engage said contacts, one or more of the contacts carried by each member extending over, but not contacting with the other member, so that a portion of the said fingers engage the contacts of each member alternately when said shaft is moved in opposite directions.

In witness whereof I have hereunto set my hand this 24th day of June, 1904.

ISAAC F. BAKER.

Witnesses:
PAUL MULLER,
ROGER H. BUTTERWORTH.