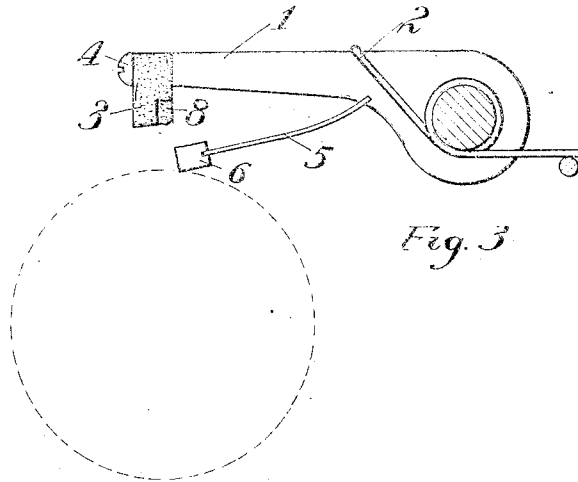
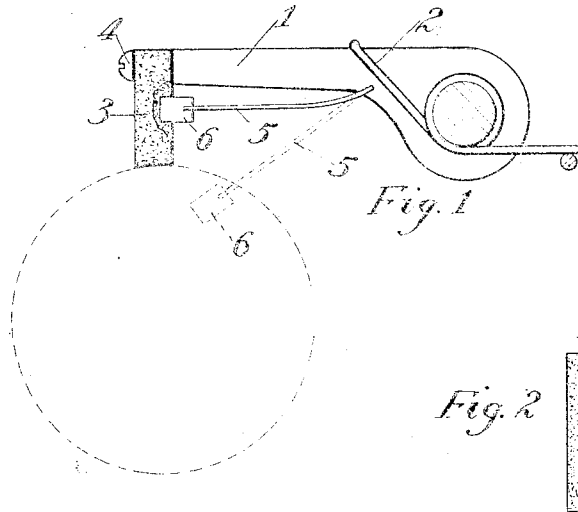


A. KIMBLE.
BRUSH HOLDER.

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942,264.

Patented Dec. 7, 1909.



Witnesses:

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UNITED STATES PATENT OFFICE.

AUSTIN KIMBLE, OF CHICAGO, ILLINOIS, ASSIGNOR TO KIMBLE ELECTRIC COMPANY,
OF CHICAGO, ILLINOIS.

BRUSH-HOLDER.

942,264.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed March 22, 1909. Serial No. 484,996.

To all whom it may concern:

Be it known that I, AUSTIN KIMBLE, a citizen of the United States of America, and a resident of Chicago, Cook county, State of Illinois, have invented certain new and useful Improvements in Brush-Holders, of which the following is a specification.

The main objects of this invention are to provide an improved form of brush holder particularly adapted for the purpose of preventing destruction of the contact members; to provide a device of this class capable of opening the circuit before injury to the commutator and brush holder is possible; to provide an improved mechanism capable of being controlled by the wear of the contact surfaces and adapted to positively insure the opening of the circuit at a predetermined brush position or at the limit of safe brush operation; to provide improved means for rigidly securing the operating mechanism whereby the mechanism will be positively released at a predetermined danger point; and to provide improved means whereby the operating mechanism may be readily reset when the worn out brush is replaced by a new one.

A specific construction embodying this invention is illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of a brush holder, being partly broken away to show the method of seating the releasing device in a socket in the brush. The position of the commutator or contact member is represented by the circle under the brush. Fig. 2 is a detail broad side view of the prepared carbon brush. Fig. 3 is a view corresponding to Fig. 1, but showing the brush held clear of the commutator by means of the releasing device, after the brush has been worn down to the releasing point.

In the form shown in the drawings, the brush holder 1 may be of any usual construction, urged by a spring 2 to carry the brush 3 into contact with the contact member. The brush 3 consists of a block of carbon which is secured to the brush holder 1 by means of a screw 4. On the side of the brush holder adjacent to the commutator there is secured a spring 5 which carries a block 6 of insulating material at its end. The end of the insulating block is seated in a cavity in the adjacent face of the brush 3. In Fig. 2 the screw hole is designated 7, and the recess in which the block 6 is seated is designated 8.

In operation, as soon as the brush wears down to the point near the bottom of the cavity 8, the block 6 will be released from the brush 3, and the spring 5 will throw up the arm 1, as indicated in Fig. 3, and lift the brush clear of the commutator. This operation will, of course, stop the motor before the brush has been worn down far enough to bring the metal parts of the brush holder in contact with the commutator. Assume, for example, a form of motor which does not require immediate attention and may be remotely controlled by the operator; it will frequently happen that the commutator and brush holders are ruined, through the fact that the brush is worn out and allows the brush holder to engage the commutator. The friction and sparking between the parts will rapidly destroy the commutator and brush holder without giving any warning of the injury which is taking place. With an automatic release, the electric circuit will be opened at a predetermined limit of safe brush operation, and the motor will be brought to a full stop before the metal parts of the commutator and brush holder are allowed to come into contact.

Although but one specific embodiment of this invention is herein shown, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit or scope of this invention.

I claim:

1. In a dynamo electric machine, the combination of a movable contact member, a brush bearing on said contact member, a spring arranged to throw said brush away from said contact member, and means for automatically releasing said spring when the brush has been worn to a certain point.

2. In a dynamo electric machine, the combination of a movable contact member, a brush bearing on said contact member, a spring adapted to act between the brush and contact member, means for holding said spring in a retracted position, and means for automatically releasing said spring to throw said brush away from said contact member when said brush has been worn to a certain point.

3. In a dynamo electric machine, the combination of a movable contact member, a brush bearing on said contact member, a spring adapted to act between the brush and

contact member, means for holding said spring in a retracted position, and means for automatically releasing said spring to throw said brush away from said contact member when said brush has been worn to a certain point, and a block of insulation carried by said spring and adapted to engage the contact member and insulate the brush after the release of said spring.

4. In a dynamo electric machine, the combination of a movable contact member, a brush bearing on said contact member, a spring adapted to act between the brush and contact member, means for holding said spring in a retracted position, means for automatically releasing said spring to throw said brush away from said contact member when said brush has been worn to a certain point, a block of insulation carried by said spring and adapted to engage the contact

member and insulate the brush after the release of said spring, and insulating material interposed between the brush holder and contact member in such manner as to prevent the short-circuiting thereof by said spring.

5. In a dynamo electric machine, the combination of a movable contact member, a brush bearing on said contact member, a spring adapted to act between the brush and contact member, there being a socket in the brush for holding said spring in a retracted position, and means for automatically releasing said spring when said brush has been worn to a certain point.

Signed at Chicago this 10th day of March 1909.

AUSTIN KIMBLE.

Witnesses:

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