(No Model.)

C. H. FARRINGTON.

HOLDER FOR CARBON BRUSHES OF COMMUTATORS.

No. 455,856. Patented July 14, 1891.

Fig. 1.

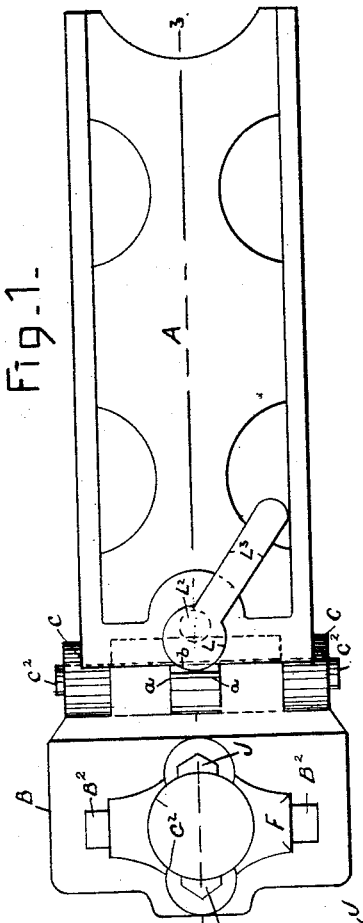


Fig. 2.

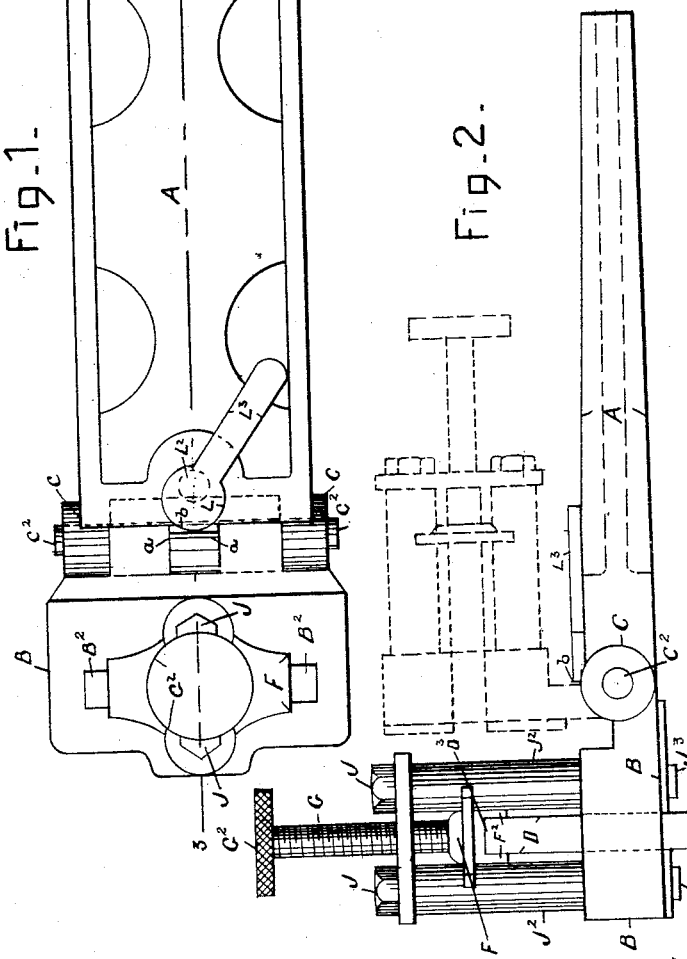
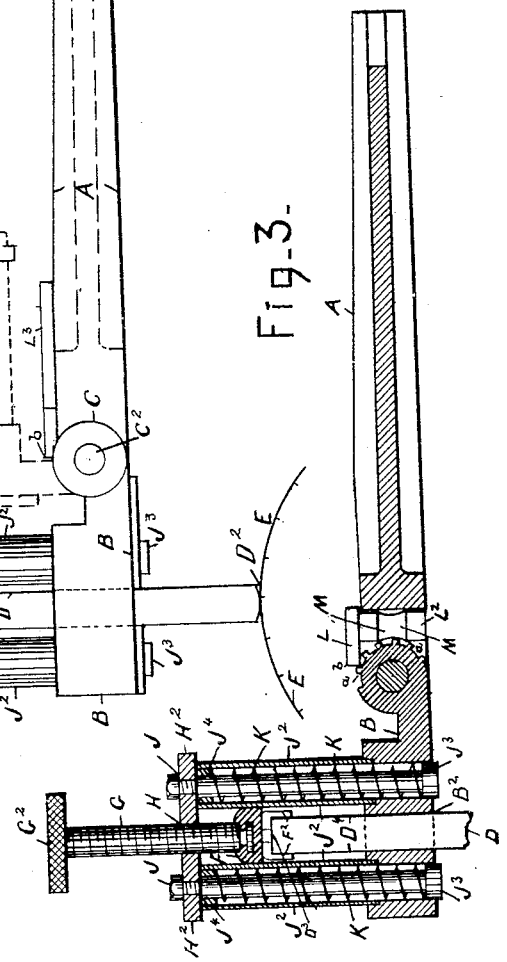


Fig. 3.



WITNESSES.

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HOLDER FOR CARBON BRUSHES OF COMMUTATORS.

SPECIFICATION forming part of Letters Patent No. 455,856, dated July 14, 1891.

Application filed October 21, 1890. Serial No. 368,858. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE H. FARRINGTON, a citizen of the United States of America, and a resident of Milford, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Holders for Carbon Brushes of Commutators, of which the following is a full, clear, and exact description.

This improved holder for carbon brushes is designed for electric motors and generators.

The holder of this invention, in substance, is composed of two arms hinged end to end together, and one arm suitable, as well known, to be fixed as desired and the other arm free to be swung on said fixed arm, in combination with means held on said swinging arm and constructed and adapted to receive and hold the brush and to enable it to be forced endwise and with an elastic and yielding pressure into contact with the commutator of the motor or generator, and means held on said arms to fasten them to and unfasten them from each other, and all otherwise, substantially as hereinafter described, and pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a plan view of the holder. Fig. 2 is a side elevation; and Fig. 3 is a longitudinal vertical section of the same on line 3 3, Fig. 1.

In the drawings, A and B are the two arms of the holder, and C is the butt-hinge, having a detachable central pintle C^2, hinging together said arms end to end, and when the arm A is fixed in position as desired, the arm B is free to be swung on it, turning about the pintle C^2 of the butt-hinge of the two arms.

D is the carbon brush. (Shown as a rectangular-shaped block.) This brush D extends through a way B^2 and projects at its opposite end portions from opposite sides of the swinging arm B. The brush D in use at one projecting end D^2 is in contact with the commutator E of the motor or generator, and at the other end D^3 it is in contact with and is pressed upon by a block F, which has spring-arms F^2 F^2, arranged to press against the brush D at its opposite side faces D^4 D^4, and also a screw-threaded rod G, which at one end is engaged with and turns in but is confined against lengthwise movement through it, and at its opposite end has a milled wheel G^2. This screw-rod, between its two ends, engages a screw-threaded nut H at the middle portion of a cross bar or head H^2, which at its opposite end portions is made fast to rods J, that are parallel with each other and with the lengthwise direction and movement of the brush and extend each through separate tubes J^2 J^2, which are parallel with each other and said rods and are held on the swinging arm B at its side toward said cross bar or head H^2. Each tube contains a spring K, coiled about its rod and confined lengthwise on the rod between a head J^3 of the rod at its end opposite to that to which it is fastened and a shoulder J^4 at the end of the tube J^2 toward the cross-head. The tubes J^2 J^2 guide the block F in its travel back and forth. The central butt of the hinge of the two arms A B, and which is on the swinging arm B, has a series of parallel peripheral longitudinal teeth and notches *a* for the engagement of the edge *b* of a disk L, which is fixed on and eccentric to the axis of the pintle L^2, arranged to turn in suitable bearings at the hinged end of the fixed arm A, and therein confined against accidental escape by the interlock of said butt with said pintle, which for that purpose has a lengthwise peripheral concavity M, Fig. 3.

L^3 is a handle to turn the eccentrically-mounted disk L, and thereby to bring its edge into position to engage or to be placed out of engagement with the teeth and notches *a* of the hinge-butt. With the disk L in engagement with the hinge-butt of the swinging arm B said arm is fastened against movement in a direction toward said disk, and with the disk out of said engagement said arm is released for movement in the direction stated. In the first instance the swinging arm is made stationary, so as to act as a resistant on a turn of the screw-rod H in a direction to place and force and hold the brush into contact with the commutator E and with a pressure which is elastic and yielding from the then action of the springs K, confined and arranged as aforesaid relative to said screw-rod and guide-rods J and tubes J^2. In the second instance the swinging arm is set free, and so the brush can be immediately placed and held out of contact with the commutator without disturbing the adjustment of its said spring-pressure

thereon, and also, if desired, the brush and arm B can be entirely swung out of position. (Dotted lines, Fig. 2.) With the brush out of contact, as stated, the side spring-arms F^2 F^2 bearing thereon hold it against accidental escape.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an electric generator or motor, the combination of a swinging arm B, held on an arm A, suitably fixed, means held on said swinging arm to receive and hold the brush and to secure an adjustable and yielding or elastic pressure thereof in contact with a commutator, the same consisting of the way B^2 of swinging arm B, the block F, screw-threaded rod G, engaging and free to turn in said block, a screw-nut H, engaged by said screw-rod and held on a cross-head H^2, headed parallel rods J, held on said cross-head, shouldered tubes J^2, receiving said rods and fixed to swinging arm B, and coiled springs K about said rods J and confined endwise thereon between their heads and the heads of said tubes, and means to fasten and unfasten said swinging arm to and from said fixed arm, substantially as described, for the purposes specified.

2. In an electric generator or motor, the combination of a swinging arm B, held on an arm A, suitably fixed, means held on said swinging arm to receive and hold the brush and to secure an adjustable and yielding or elastic pressure thereof in contact with a commutator, and means to fasten and unfasten said swinging arm to and from said fixed arm, consisting of teeth and notches on the swinging arm B and an eccentric disk mounted on the fixed arm and adapted to be engaged with and disengaged from said teeth and notches, substantially as described, for the purposes specified.

3. In an electric generator or motor, the combination of a swinging arm B, held on an arm A, suitably fixed, means held on said swinging arm to receive and hold the brush and to secure an adjustable and yielding or elastic pressure thereof in contact with a commutator, and means to fasten and unfasten said swinging arm to and from said fixed arm, consisting of teeth and notches on the swinging arm B and an eccentric disk hung by a pintle L^2, turning in suitable bearings of the fixed arm and adapted to be engaged laterally by the butt of the hinge connection of the arms, which is on the swinging arm B, substantially as described, for the purposes specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CLARENCE H. FARRINGTON.

Witnesses:
ALBERT W. BROWN,
FRANCES M. BROWN.