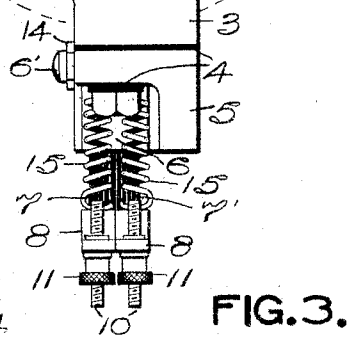
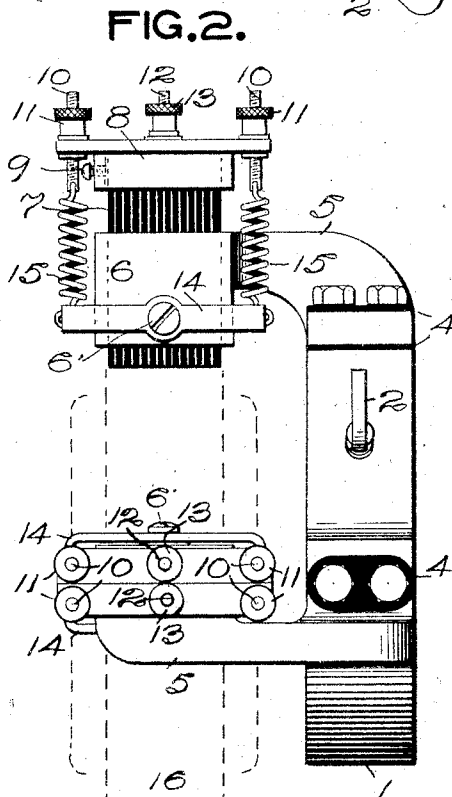
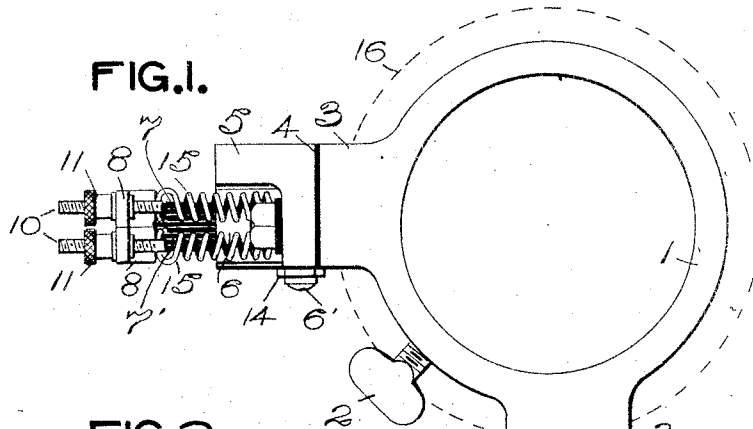


977,400.

Patented Nov. 29, 1910.

2 SHEETS—SHEET 1.



WITNESSES

W. B. Stoops
A. Phillips

INVENTOR

Frederick W. Reeves
By *Richard D. Harrison*
his Attorney

977,400.

Patented Nov. 29, 1910.
2 SHEETS-SHEET 2.

FIG. 4.

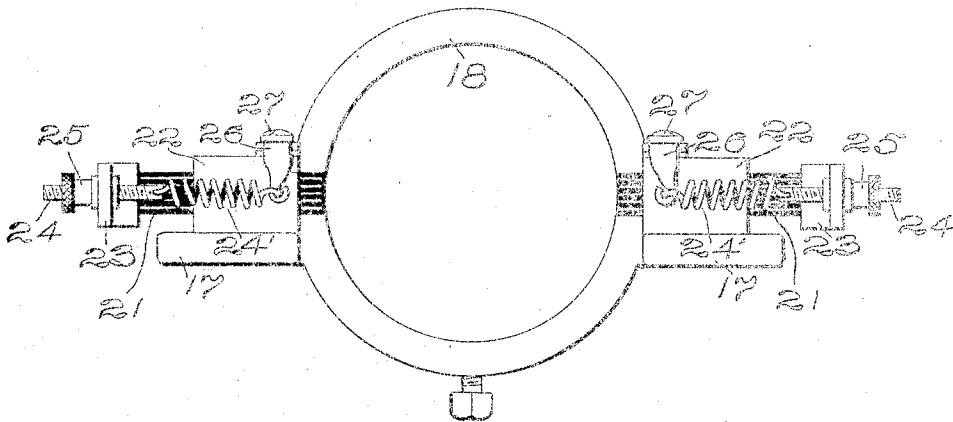
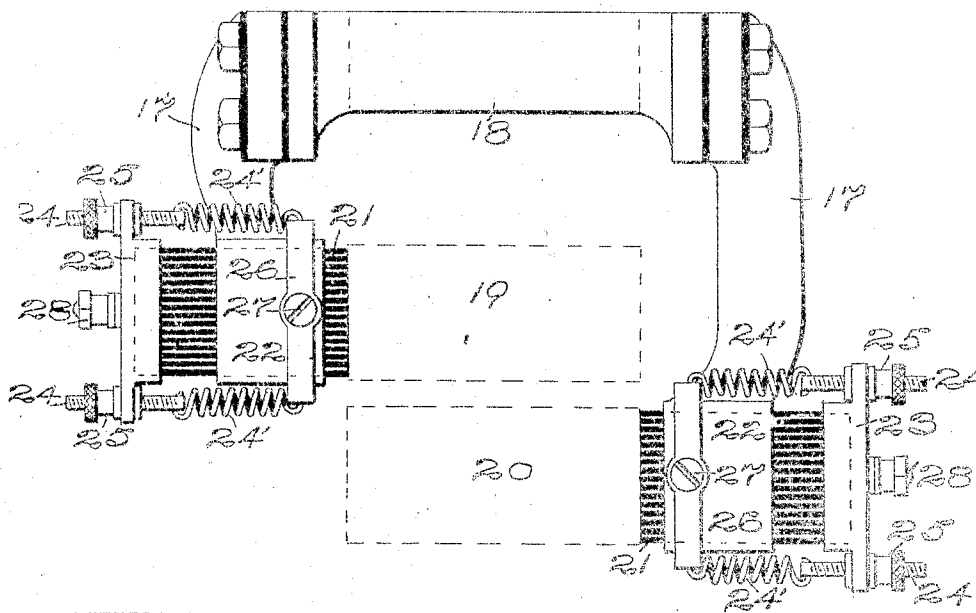


FIG. 5.



WITNESSES

W. B. Stokes
J. Phillips

INVENTOR

Frederick W. Reeves
By Richard D. Harrison
Attorney

UNITED STATES PATENT OFFICE.

FREDERICK W. REEVES, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE ELECTRIC ACCUMULATOR COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

BRUSH-HOLDER.

977,400.

Specification of Letters Patent. Patented Nov. 29, 1910.

Application filed March 7, 1910. Serial No. 547,685.

To all whom it may concern:

Be it known that I, FREDERICK W. REEVES, a citizen of the United States, residing at Pittsburg N. S., in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Brush-Holders; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention has for its object to provide a simple and practical form of brush holder, for either commutators or collector rings, in which the yieldable pressure is disposed longitudinally thereof and distributed equally throughout the breadth of their active surface, thus insuring a perfect engagement at all times, and under all conditions.

Other objects of the invention are, to reduce the friction of the brushes with the commutator or rings and cause said brushes to readily respond to any inequalities of surface in said commutator or collector rings.

With the above objects in view, the invention consists in certain novel features of construction, and in certain parts, improvements and combinations, as will hereinafter be more fully described and pointed out in the appended claims.

In the accompanying drawings, forming a part of this specification, Figure 1, is an end elevation of the holder having the brushes disposed at an angle of ninety degrees to one another. Fig. 2, is a plan view of the same. Fig. 3, is an end elevation of a portion of the same, partly in section. Fig. 4, is an end elevation of a modified form of the holder, and Fig. 5, is a plan view thereof, in all of which views, like detail parts are designated by like numerals of reference.

By further reference to said views, particularly Figs. 1 to 3, inclusive, it will be observed that the structure comprises a yoke portion 1, adapted to engage over a suitable projection of one of the fixed bearings, (in the usual manner) and be retained in its adjusted position by the set-screw 2. This yoke has secured to each projection 3 thereof, a laterally disposed arm 5, which are each insulated therefrom by the insulating

material 4, said arms being each provided at its free extremity with a brush holding guide 6 disposed transversely thereof, which arms and guides constitute the holder proper.

Loosely arranged within the brush holding guide of each arm is a carbon brush, each comprising the two plates 7 and 7', of equal thickness and arranged one on top of the other, the division thereof being on a line with the axis of rotation of the commutator with which they operate, the brushes in this instance being shown as disposed at an angle of ninety degrees with one another.

Each carbon forming a brush is provided at its outer end with a cap 8, secured thereto by a set-screw 9, which cap is provided at each end with a screw 10 loosely fitted within an opening thereat and provided with a thumb-nut 11, the intermediate portion of the cap being provided with a fixed screw 12 having a thumb-nut 13 thereon to form a binding post for the connection of the conductor therewith.

Each of the brush holding slides 6 has pivotally secured to its opposite sides, by means of a screw 6', an equalizing bar 14, the ends of which are connected to the inner ends of the screws 10 by spiral springs 15, so that when the brushes are in engagement with the commutator, shown by dotted outlines 16, pressure is placed upon the brushes in the same direction in which they are disposed, which pressure allows the brushes to yield and maintain contact with the commutator equally throughout their breadth of surface at all times and under all conditions. Furthermore, the brushes being each formed of two parts, each under a yieldable pressure, independent of one another, contact is always assured in the passing of the same from one commutator segment or bar to the other, said pressure being regulated by adjustment of the aforesaid thumb-nuts 11.

At Figs. 4 and 5, a modification of the structure is shown for use with collector rings, wherein the arms 17 of the yoke 18 are disposed at opposite sides, one of which is of less length than the other so as to bring the brushes in operative position with the respective collector rings 19 and 20. In this instance the brushes 21 are each formed of a single carbon loosely fitted into the holding slide 22 of the arm, each having a

cap 23 engaging upon its outer end, which cap carries adjusting screws 24 provided with thumb-nuts 25, said screws being connected by spiral springs 24', to an equalizing bar 26 pivotally secured, by a screw 27, to one side of the brush slide. The cap 23 of each brush is also provided with a binding post 28 for connection with a conductor.

The form of brush holder shown at Figs. 1 to 3, inclusive is designed more particularly for use in connection with my improved commutator for which I filed application for patent on December 4, 1909, Serial No. 531,289, but it is obvious that the same may, with slight changes in the positioning of the brushes, be employed with other forms of commutators with good results.

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

1. A brush holder, comprising a holder proper, a pair of brushes slidably arranged therein, and means to place a yieldable pressure longitudinally on said brushes and equalize the same laterally.

2. A brush holder, comprising a holder proper, a pair of brushes slidably arranged thereon, and yieldable members disposed at opposite sides of said brushes to place pressure longitudinally thereon and equalize the same laterally.

3. A brush holder, comprising a holder proper, a pair of brushes slidably arranged thereon, a cap carried by each brush, an equalizing bar pivotally secured to the holder and disposed transversely of each brush, and a spiral spring connecting each end of the brush caps with the ends of the equalizer.

4. A brush holder, comprising a holder proper, a pair of brushes slidably arranged

thereon, a cap carried by each brush, adjusting screws carried by each end of said cap, equalizing bars disposed transversely to the brushes and pivotally secured to the holder, and spiral springs connecting the ends of the equalizing bars with the said caps.

5. A brush holder, comprising a holder proper, a pair of brushes slidably arranged thereon, each including a pair of plates one disposed on the other, and means to place a yieldable pressure on each brush plate independent of the other and equalize the same laterally.

6. A brush holder, comprising a holder proper, a pair of brushes slidably arranged thereon, each including a pair of plates one disposed on the other, and a yieldable member disposed at each side of each brush plate to place a longitudinal pressure thereon and equalize the same laterally, the pressure on one of said brush plates being independent of the other.

7. A brush holder, comprising a brush holder proper, a pair of brushes slidably arranged thereon, each including a pair of plates one disposed on the other, a cap carried by each brush plate, a pair of adjusting screws carried by each cap, a pair of equalizing bars pivotally secured to the holder on opposite sides of each brush, and a spiral spring connecting each adjusting screw with the equalizing bars, each of said brush plates having the spring pressure applied thereto independent of the other plate.

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

FREDERICK W. REEVES.

Witnesses:

D. B. OAKS,
R. S. HARRISON.