

C. B. BERST.
COMMUTATOR BRUSH.
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1,300,239.

Patented Apr. 15, 1919.

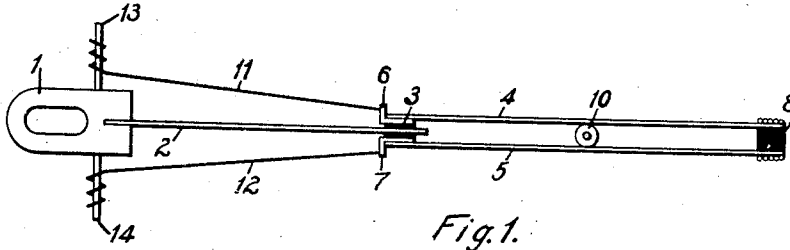


Fig. 1.

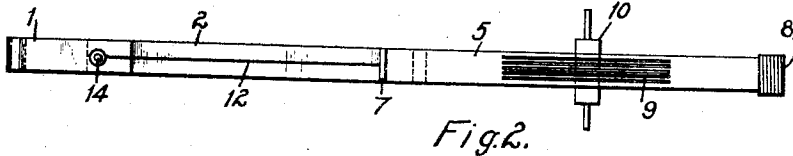


Fig. 2.

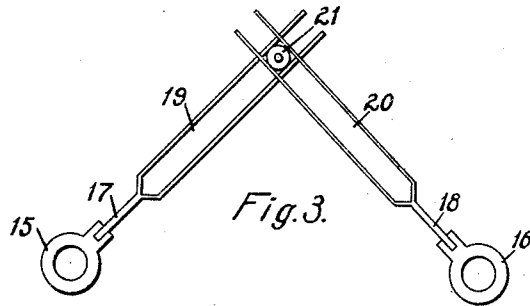


Fig. 3.

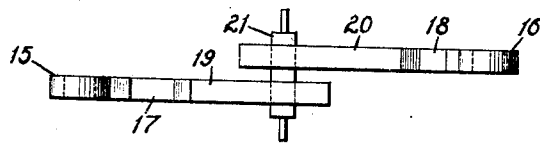


Fig. 4.

WITNESSES:

R. J. Fitzgerald
J. A. Procter

INVENTOR

Charles B. Berst.

BY

Wesley C. Carr
ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES B. BERST, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE
ELECTRIC AND MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

COMMUTATOR-BRUSH.

1,300,239.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES B. BERST, a citizen of the United States, and a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Commutator-Brushes, of which the following is a specification.

My invention relates to commutator brushes and particularly to brushes that are adapted to be used in connection with electrical-measuring instruments whereby continuous engagement is obtained between the brushes and the commutator cylinders.

The object of my invention is to provide pairs of brushes for an electrical-measuring instrument that shall be so supported that the lateral movement of one brush will impart a substantially corresponding lateral movement to the other.

In the carrying out of my invention, I provide a pair of substantially flat brushes that are adapted to be mechanically secured together at their respective ends and that are provided with a single resilient supporting means for connecting one pair of brush ends to a supporting member. By such construction, any lateral movement of the commutator cylinder that tends to impart a lateral movement to one of the brushes imparts a substantially corresponding lateral movement to the other brush.

Figure 1 of the accompanying drawing is a view, partially in plan and partially in section, of a pair of brushes embodying my invention, Fig. 2 is an elevational view of the brushes shown in Fig. 1, Fig. 3 is a plan view of a modified form of brushes embodying my invention, and Fig. 4 is an elevational view of the brushes shown in Fig. 3.

A supporting block 1, that may be connected by any suitable means to the frame of an electrical-measuring instrument (not shown), is provided for supporting one end of a resilient member 2, the other end of which is operatively connected to an insulating member 3, substantially as shown in Fig. 1 of the drawing. Two substantially flat resilient brushes 4 and 5 are connected to the respective sides of the insulating member 3 and are provided with connecting ears 6 and 7, respectively. The outer ends of the brushes 4 and 5 are mechanically connected together, but insulated from each other, by an insulating member 8.

The brushes 4 and 5 may be constructed of a flexible conducting material that is provided with a number of slits 9, or they may be constructed of a plurality of relatively small conductors that are soldered or otherwise suitably secured together at their respective ends. The brushes 4 and 5 are adapted to tangentially engage a commutator cylinder 10 at substantially diametrical points, and conductors 11 and 12 are connected to the ears 6 and 7, respectively, for the purpose of conducting current to and from the commutator cylinder 10. Arms 13 and 14 are carried by the member 1 for the purpose of supporting the conductors 11 and 12, respectively.

If the commutator cylinder 10 is, by any means, moved laterally to cause a lateral movement of one of the brushes, the member 2 and the member 8 will cooperate to cause the other brush to have a corresponding lateral movement. Thus, continuous engagement is obtained.

In Figs. 3 and 4 of the drawing, supporting members 15 and 16 are secured to corresponding ends and pairs of flexible brushes 19 and 20 are secured to the other corresponding ends of resilient members 17 and 18, respectively. The pairs of brushes are adapted to engage substantially diametrical points on a commutator cylinder 21, which, in this instance, constitutes a part of a four-pole motor-meter. Since the brushes 19 are adapted to engage equi-potential points on the commutator cylinder 21 and the brushes 20 are adapted to engage other equi-potential points, it is not necessary to secure the outer ends of the brushes together. However, if the commutator cylinder 21 is moved laterally, at least one of the brushes of each of the pairs will maintain its engagement with the commutator cylinder because of their single resilient supporting means.

I do not wish to be limited to the particular constructions illustrated, as many modifications may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

I claim as my invention:

1. The combination with a commutator cylinder, of a pair of brushes adapted to engage substantially diametrical points on the commutator cylinder, and a single resilient means adapted for lateral movement only with respect to the commutator cylin-

der for supporting corresponding ends of said brushes.

2. In an electrical measuring instrument, the combination with a commutator cylinder, of a pair of flexible brushes adapted to make tangential engagement with the commutator cylinder, and a single resilient means adapted for lateral movement only with respect to the commutator cylinder for supporting the said brushes.

3. In an electrical measuring instrument, the combination with a commutator cylinder, of a pair of flexible brushes adapted to engage substantially diametrical points on the cylinder, a single resilient means for supporting corresponding ends of the said brushes, and insulating means for securing them together at their other corresponding ends.

4. In an electrical measuring instrument, the combination with a commutator cylinder, of a pair of flexible brushes adapted to engage points on the cylinder, a single resilient means adapted for lateral movement only with respect to the commutator cylinder for supporting the said brushes at corresponding ends, and means for maintaining said brushes a predetermined distance apart.

5. In an electrical measuring instrument, the combination with a commutator cylinder, of a pair of resilient brushes adapted to engage the commutator cylinder, and a single laterally-movable resilient strip for so supporting the brushes that a lateral movement

of one imparts substantially corresponding lateral movement to the other.

6. In an electrical measuring instrument, the combination with a commutator cylinder, of a pair of resilient brushes adapted to engage the commutator cylinder, a supporting standard, and a laterally movable resilient strip for so connecting the brushes to the supporting standard that a lateral movement of one imparts a substantially corresponding lateral movement to the other.

7. In an electrical measuring instrument, the combination with a commutator cylinder, of a pair of flat flexible brushes adapted to make substantially tangential engagement with the commutator cylinder, insulating means for connecting the brushes together at their respective ends, a brush-supporting standard, and a single resilient means for operatively connecting the brushes to the standard.

8. In an electrical measuring instrument, the combination with a commutator cylinder, of a pair of flexible brushes adapted to engage substantially diametrical points on the cylinder and a single resilient means adapted for lateral movement only with respect to the commutator cylinder for supporting corresponding ends of the said brushes.

In testimony whereof, I have hereunto subscribed my name this 8th day of March 1916.

CHARLES B. BERST.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."