No. 868,467. PATENTED OCT. 15, 1907.

F. P. McBERTY.

BRUSH HOLDER.

APPLICATION FILED NOV. 18, 1904.

Fig. 1.

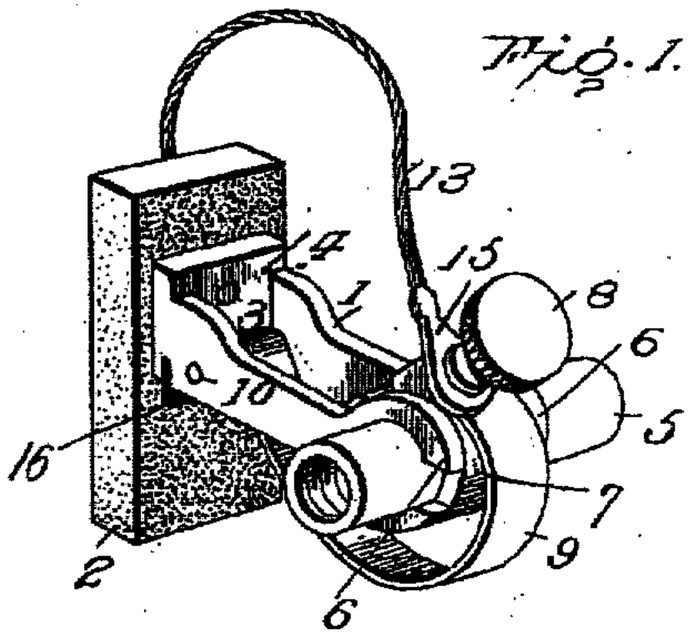



Fig. 2.

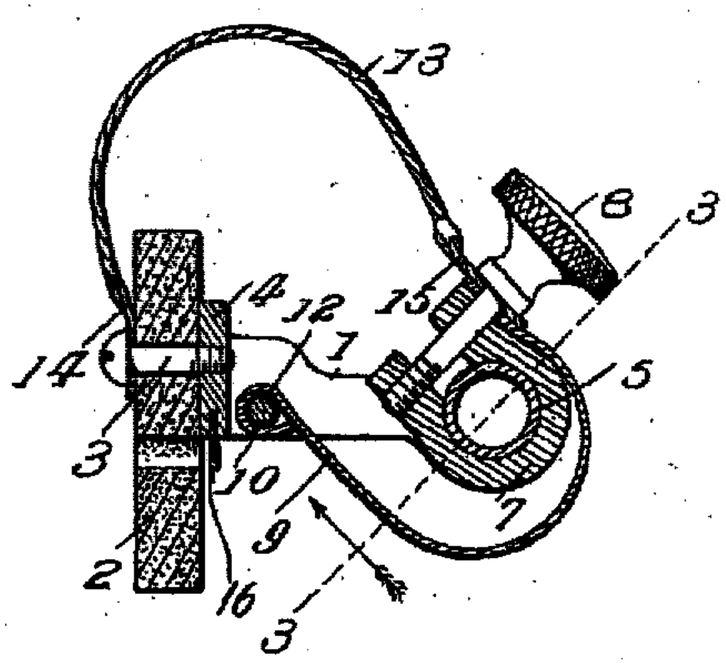



Fig. 3.

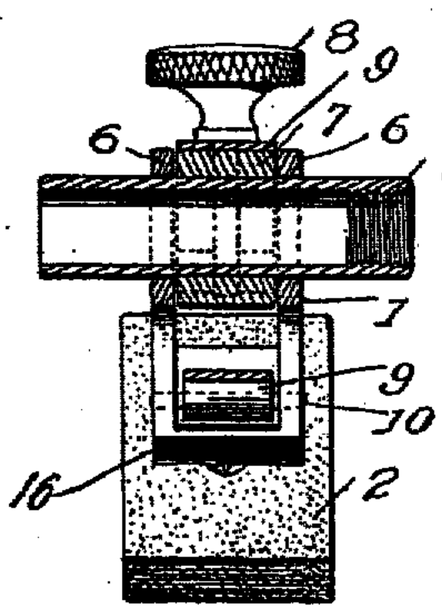



Fig. 4.

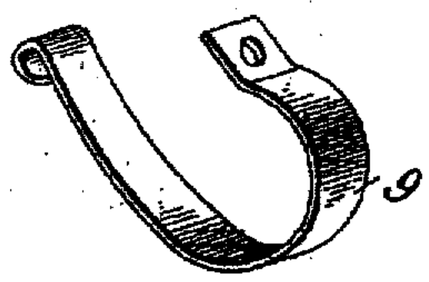
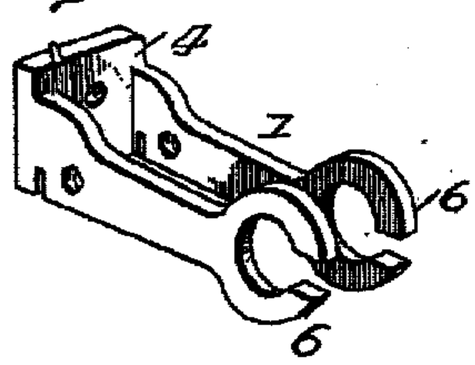



Fig. 5.

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# UNITED STATES PATENT OFFICE.

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## BRUSH-HOLDER.

No. 868,467. Specification of Letters Patent. Patented Oct. 15, 1907.

Application filed November 18, 1904. Serial No. 233,273.

*To all whom it may concern:*

Be it known that I, FRED P. McBERTY, of Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Brush-Holders; and I do hereby 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.

The objects of this invention are, first, to provide a brush holder which may be readily adapted to different supports and capable of being made to conform thereto; second, to allow of ready and easy regulation of the spring tension exerted on the brush; third, to provide a path for the current from the brush to the support independently of the brush holding arm; and, lastly, to prevent the tension spring from carrying the current.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective. Fig. 2 is a vertical longitudinal sectional view. Fig. 3 is a cross sectional view on line 3—3, Fig. 2. Fig. 4 is a view of the spring detached. Fig. 5 is a view of the brush holding arm removed from its support.

Referring to the drawings, 1 designates a swinging holding arm to which the brush 2 is rigidly secured by one or more screws 3. This arm is of metal and is formed with two parallel spaced-apart sides connected together at one end by a cross piece 4 against which the brush is seated. The free ends of these sides are formed with openings to accommodate the conducting support 5 upon which the arm is movably mounted. To enable the arm to be applied to supports of different sizes, and to cause it to fit snugly thereon, the openings are preferably provided by forming the mounted ends of the spaced-apart sides with oppositely-curved branches 6, the ends whereof are not connected. This permits the curved branches to be readily compressed or expanded by any suitable means.

7 designates a clamp encircling the support between the sides of the swinging arm, said clamp being formed from a single metallic band having extended apertured ends through which a binding screw 8 is extended. By means of this screw the band may be firmly clamped on the support and thereby hold the swinging arm as against lateral displacement. Its main function, however, is to regulate the spring tension on the brush. For this purpose, one end of a bent flat spring 9 is rigidly secured to the clamp by the screw 8, and is carried outwardly and downwardly beneath the support and up between the sides of the swinging arm. Its outer end is coiled around a cross pin 10 supported by the sides of the arm, and from which pin the spring is insulated, as shown at 12. By thus insulating the spring the same is prevented from carrying the current.

13 designates a flexible shunt connection for making a path for the current from the brush to the rigid conducting support independently of the swinging arm. It is preferably composed of copper wire which at one end is secured to a plate or washer 14 held in close contact with the brush by means of the retaining screw 3, and at its other end is secured to a second copper plate or washer 15 which is shown as retained by the holding screw 8 of the clamp. To regulate the spring tension it is only necessary to loosen the latter screw sufficiently to permit of the axial turning of the clamp on the support, and this in no way interferes with the shunt connection. I have shown the ordinary strip 16 of insulating material depending from the free end of the arm 1 so as to hold the latter out of engagement with the commutator should the brush become worn or drop from position.

The advantages of my invention are apparent to those skilled in the art. It will be seen that while any desired spring tension may be applied upon the brush the current will not be conveyed through the spring, and regardless of the connection formed by the swinging holding arm the current is directly conveyed from the brush to the rigid support or conductor independently of both the arm and the spring. By leaving open the support-engaging ends of the sides of the swinging arm the ready adjustment of the latter to the support may be easily accomplished.

I claim as my invention:—

1. In a brush holder, the combination of a conducting support, a swinging holding arm composed of two spaced-apart sides having each opposite curved portions for hugging said support and capable of being made to conform thereto, a brush secured to the arm, a clamp mounted on said support between the sides of the arm, a spring rigidly attached at one end to said clamp, a cross pin between said sides with which the other end of said spring engages, and means for insulating the spring from the cross pin.

2. The combination with the conducting support, the swinging arm having spaced-apart sides, and adjustable curved portions for engaging said support, a split binding band, a holding screw for connecting the ends thereof, a cross pin supported by said sides, a flat spring secured at one end by said holding screw and at its other end engaging said cross pin, insulating material between the latter and said cross pin, the brush, and the electrical conductor secured to said brush and to said holding screw.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

FRED P. McBERTY.

Witnesses:
W. C. WARD,
SARA FISHER.