J. S. DEAN.

BRUSH HOLDER.

APPLICATION FILED JAN. 4, 1916.

Patented Mar. 4, 1919.

1,295,860.

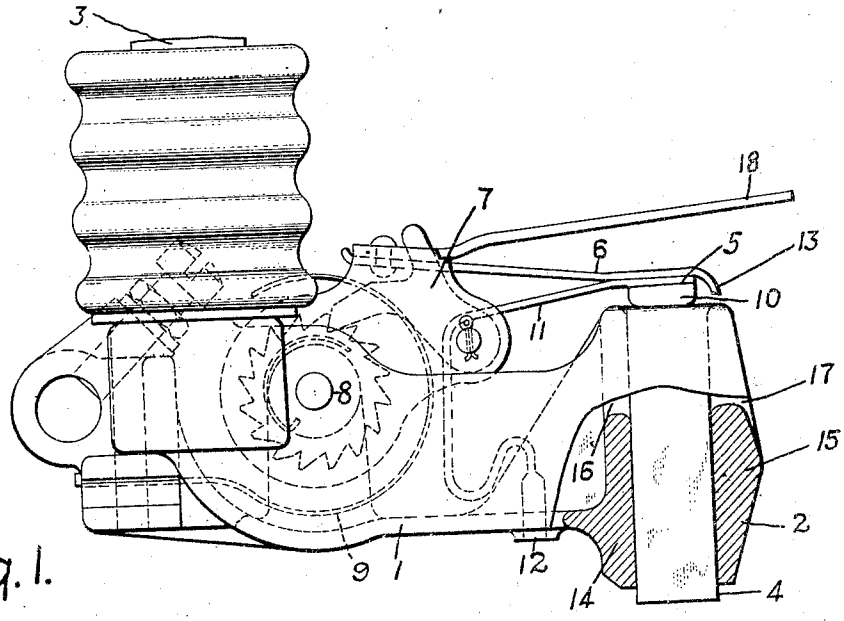

Fig. 1.

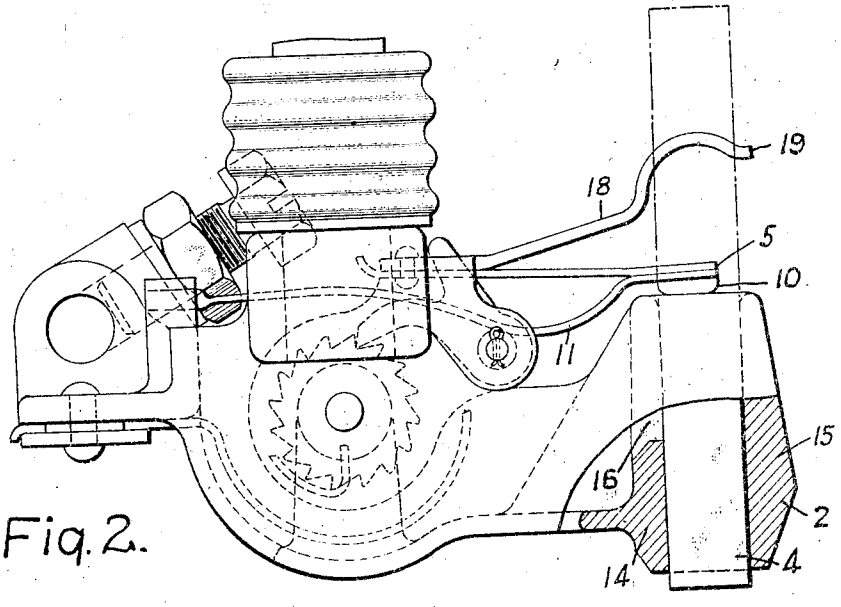

Fig. 2.

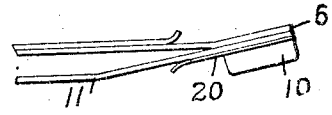

Fig. 3.

WITNESSES:

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BRUSH-HOLDER.

1,295,860. Specification of Letters Patent. Patented Mar. 4, 1919.

Application filed January 4, 1916. Serial No. 70,236.

To all whom it may concern:

Be it known that I, JOHN S. DEAN, a citizen of the United States, and a resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Brush-Holders, of which the following is a specification.

My invention relates to brush holders for dynamo-electric machines and particularly to brush holders in which a flexible conductor or shunt is attached to the pressure-exerting device that engages the current-collecting brush, in order to limit the amount of current flowing through the resilient member of the pressure-exerting device.

The object of my invention is to provide means for preventing the flexible conductor or shunt from coming into contact with portions of the brush holder body, whereby the conductor might be injured.

In the accompanying drawings, Figure 1 is a view, partially in section and partially in side elevation of a brush holder embodying my invention; Fig. 2 is a view, partially in section and partially in side elevation, showing my invention as applied to a different type of brush holder from that shown in Fig. 1, and Fig. 3 is a fragmentary view showing a modification of my invention.

The brush holder generally comprises a main body member 1 that is provided, at one end, with a brush box 2 and is adapted to be mounted in any suitable manner by means of upwardly extending portions 3. A current-collecting member or brush 4 is adapted to slide within the brush box 2 and is held in operative relation to a coacting rotatable member of a dynamo-electric machine (not shown) by means of a pressure-exerting device 5. The pressure-exerting device 5 comprises a resilient member 6 that is carried by a rotatably mounted arm 7. The arm 7 is mounted on a pin 8 carried by the body member 1 and tends to rotate in a clockwise direction through the action of a coil spring 9, the force exerted by the spring being controlled by a ratchet and pawl mechanism in a well known manner. The pressure-exerting device 5 further comprises a contact tip 10, preferably formed of a metal having a high electrical conductivity and a flexible conductor or shunt 11. The conductor 11 is secured, at one end, intermediate the resilient member 6 and the contact tip 10 and, at the other end, to the portion of the body member 1, as indicated at 12. The members 6, 10 and 11 are secured together in any suitable manner, such, for example, as by soldering or welding. The resilient member 6 is provided with a bent-over portion 13 which extends beyond the ends of the conductor 11 and the contact tip 10.

The side walls 14 and 15 of the brush box 2 are provided with notches 16 and 17 of substantially equal depth which are so positioned that the pressure-exerting device 5 is permitted to enter the brush box 2 as the brush 4 wears down. The bent-over portion 13 is adapted to engage the bottom of the right-hand notch 17 before the portion of the conductor 11 adjacent to the contact tip 10 engages the bottom of the left-hand notch 16. Thus, the bent-over portion 13 will prevent the flexible conductor 11 from coming into contact with the bottom of the slot 17 if the brush 4 wears down to such an extent as would otherwise permit such contact. The pressure-exerting device is further provided with a finger 18 by means of which the device 5 may be raised out of engagement with the brush 4 in order to permit its removal. In case the brush 4 has been removed and the device 5 is allowed to snap downwardly under the action of the spring 9, the bent-over portion 13 will prevent damage to the flexible conductor 11, as will be readily understood.

The brush holder shown in Fig. 2 is of the same general construction as that shown in Fig. 1, with the exception that only the left-hand side wall 14 is provided with a notch 16. The finger 18 of the pressure-exerting device 5 is provided with a bent-over portion 19 that is adapted to engage the top of the wall 15 of the brush box 2 before the portion of the flexible conductor 11 adjacent to the contact tip 10 engages the bottom of the slot 16. The flexible conductor 11 will thus be protected from injury in the manner described with reference to Fig. 1.

In the modification shown in Fig. 3, a plate 20 is interposed between the contact tip 10 and the flexible conductor 11 to engage the bottom of the slot 16 and thereby prevent injury to the conductor 11. The plate 20 is preferably formed from material of high electrical conductivity and possessing considerable mechanical strength, such as an alloy of copper and nickel.

While I have shown my invention as applied to a particular type of brush holder, it is not so limited but is capable of application to any brush holder of the same general type, and I desire that only such limitations shall be imposed thereon as come within the scope of the appended claims.

I claim as my invention:

1. In a brush holder, the combination with a body member provided with a brush box, and a brush adapted to move therein, of a pressure-exerting member and a contact tip in engagement with said brush, an electric conductor connected, at one end, to said body member and, at the other end, between said pressure-exerting member and said contact tip, and means embodied in said pressure-exerting member for preventing contact of said conductor with the walls of said brush box.

2. In a brush holder, the combination with a body member provided with a brush box, and a brush adapted to move therein, and a supporting member attached thereto, of a pressure-exerting member and a contact tip in engagement with said brush, an electric conductor connected, at one end, to said supporting member and, at the other end, between said pressure-exerting member and said contact tip, and an extending portion provided on said pressure-exerting member for preventing contact of said conductor with the walls of said brush box.

3. In a brush holder, the combination with a body member provided with a brush box having a slot in one wall thereof and a brush adapted to move in said box, of a pressure-exerting device for said brush and an electric conductor connected thereto, the said pressure-exerting device being adapted to enter the slot in the brush box, and a projection on said pressure-exerting device for engaging a wall of the brush-box before the said conductor engages the bottom of the slot.

4. In a brush holder, the combination with a body member provided with a brush box having a slot in one wall thereof and a brush adapted to move in said box, of a pressure-exerting device for said brush comprising a resilient member, a contact member and an electric conductor disposed intermediate said members, the said device being adapted to enter the slot in the brush box, and a projection provided on said resilient member for engaging a wall of the brush-box before the said conductor engages the bottom of the slot.

In testimony whereof I have hereunto subscribed my name this 30th day of December, 1915.

JOHN S. DEAN.