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ELECTRIC CONTACT BRUSH

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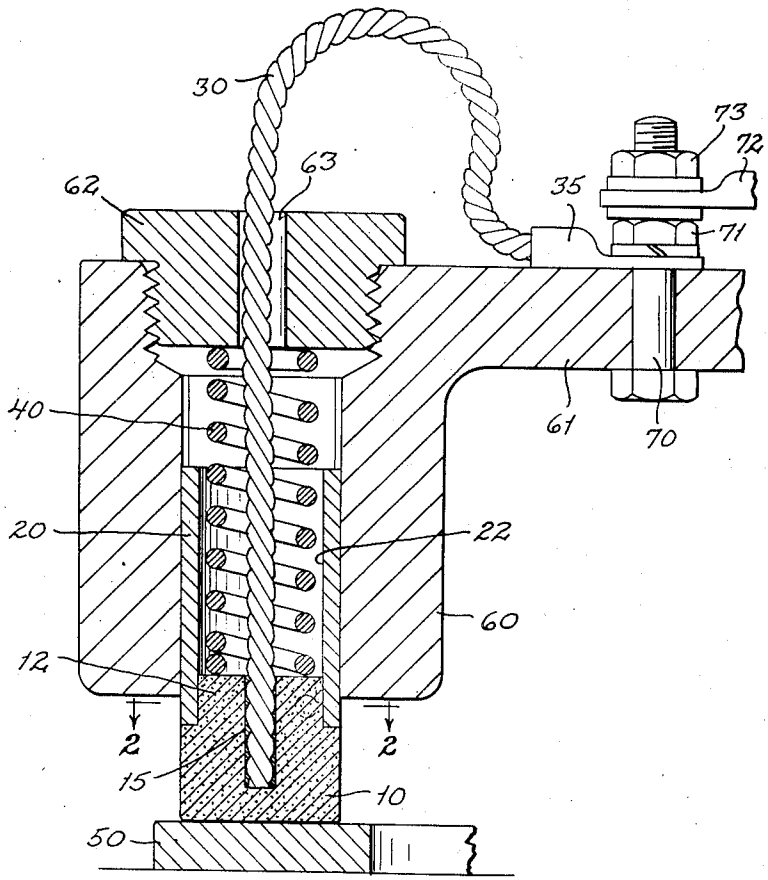

FIG. 1

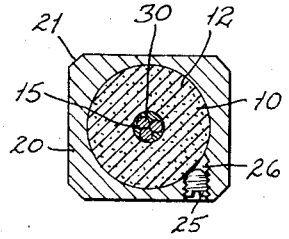

FIG. 2

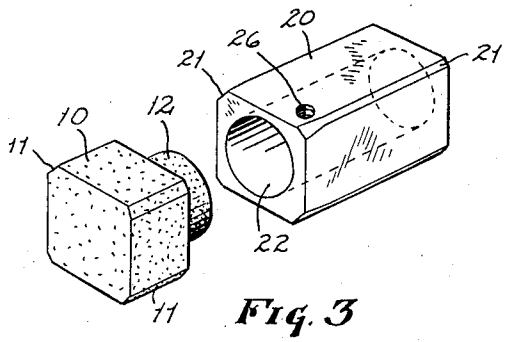

FIG. 3

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ELECTRIC CONTACT BRUSH

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3 Claims. (Cl. 171—323)

This invention relates to a brush to contact with a collector ring, commutator or similar member of an electric device and conduct the current.

The object of the invention is to provide a simple, efficient and durable brush adapted to maintain a proper contact with the rotating conductor during use, but which may have its contacting portion readily renewed at slight expense, whenever wear makes it desirable.

My contact brush may be used in various electric devices. One instance cited merely as an illustration, is for connecting a supply line to the slip ring of a reel which carries a wound up flexible conductor for carrying current to a lifting magnet or to a mining locomotive.

My contact brush is illustrated in the drawing hereof, and is hereinafter more fully described, and its essential novel features are summarized in the claims.

In the drawing, Fig. 1 is a sectional elevation of one embodiment of my brush; Fig. 2 is a cross-section as indicated by the lines 2—2 on Fig. 1, which illustrate the connection of the contact shoe to its carrying sleeve; Fig. 3 is a perspective of the contacting portion of the brush, and its carrying sleeve separated.

As shown in each of the views, 10 designates the shoe which is substantially rectangular (preferably with the corners bevelled as at 11) and with a cylindrical extension 12 projecting from one face of the main portion. This block is secured to a suitable sleeve 20 of brass, or other material. This sleeve is shown as having a rectangular in cross-section exterior (preferably of the same external dimension as the main portion of the shoe and with bevelled corners 21), and having a cylindrical bore 22. This bore snugly receives the cylindrical extension 12 of the carbon block.

In use, the carbon block is secured in a suitable manner to the sleeve, as for instance, by a screw 25 occupying a threaded recess 26 in the sleeve, and bearing at its inner end against the periphery of the block extension 12.

An electric conductor, indicated at 30, in Fig. 1, extends substantially axially through the sleeve into an axial recess 15 in the block where it is rigidly held, as, for instance, by suitable conductive cement.

Occupying the sleeve 20, and pressing against the inner end of the shoe is a helical compression spring 40, which reacting against a suitable abutment serves to maintain the shoe in desirable pressure against the collector ring or other contact device with which it cooperates, as, for instance, the flat metallic member 50 in Fig. 1. This metallic member may, for instance, be a ring on the end of a reel (not shown) and form the terminal of a conductor wound on a suitable reel.

The compound brush is slidably mounted in a suitable housing which carries the abutment for the helical spring. In Fig. 1 I have shown the housing 60 in the form of a sleeve having a rectangular bore and forming part of a suitable bracket 61. Screwed into an enlarged recess at the upper end of the housing is a block 62 which forms the abutment for the spring. This block has an axial passageway 63 through which the cable 30 freely extends.

I have shown this cable 30 as terminating in an eyepiece 35, which is secured to the bracket 61, by a bolt 70 and nut 71. This bolt furnishes means for electrically connecting the conductor with a supply line; for instance, a supply conductor terminating in an eye-piece 72 which also surrounds the bore and is clamped in place by a nut 73.

It will be seen that the conductor may supply current directly to the carbon contact shoe 10, while the sleeve maintains such shoe in effective operating engagement with the movable member 50. By making the carbon shoe in the form of a small block rigidly but detachably connected to the metallic guiding sleeve, I not only form an effective guide for the shoe, and provide better wearing surface between the brush and its housing, but also I am enabled to replace the engaging portion of the brush at very little expense when it becomes unduly worn.

To renew the brush face, it is only necessary to unscrew the plug 62, draw out the brush and spring, loosen the screw 25, remove the carbon shoe and break it off from the cable and secure a fresh shoe to the cable and then replace the parts. I have indicated cement as the means of securing the cable to the shoe, but if desired, a pin may be employed.

By making the body of the shoe of the same external cross-sectional dimensions as the sleeve, I provide the maximum wearing surface for the face of the shoe and still can withdraw the shoe through the housing whenever it is desired to replace by a fresh shoe.

I claim:

1. In a device of the character described, the combination of a housing, a sleeve slidably mounted within the housing, a contact block removably secured to the sleeve and extending into

it and beyond it, a helical compression spring within the sleeve and bearing at one end against the contact block and at the other end against a stop, and an electric conductor passing freely through the sleeve and having its end attached to the contact block.

2. In a device of the character described, the combination of a housing, a sleeve slidably mounted within the housing, a contact block secured to the sleeve, a helical spring within the sleeve tending to force the contact block outwardly, said block having the same external cross sectional dimensions as the sleeve, whereby either the sleeve or block may snugly occupy the housing, and an electric conductor passing freely through the sleeve and having its end portion attached to the contact block.

3. In a device of the character described, the combination of a housing, a sleeve with a non-circular exterior slidably mounted within the housing, a contact block having an extension projecting snugly into the sleeve, a helical spring within the sleeve and bearing at one end against the contact block and at the other end against a stop carried by the housing, said contact block having the same external cross sectional dimensions as the sleeve, whereby either the sleeve or block may snugly occupy the housing, and an electric conductor passing freely through the sleeve and having its end portion extending into a recess in the contact block.

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