May 26, 1942. B. C. EVANS 2,284,384

ELECTRIC CONTACT BRUSH

Filed Jan. 9, 1940

Fig. 1.

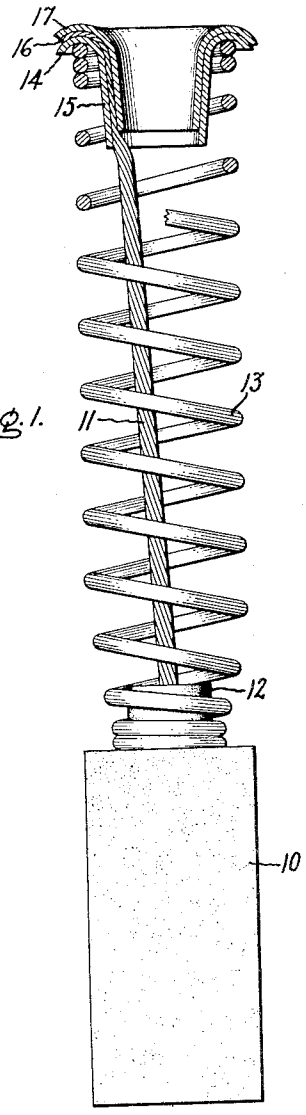
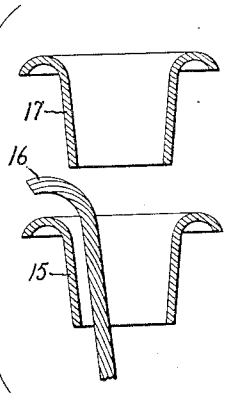


Fig. 2.



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ELECTRIC CONTACT BRUSH

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7 Claims. (Cl. 171—326)

My invention relates to electric contact brushes and connectors and a method of making the same.

An object of my invention is to provide an improved contact brush and connector.

Another object of my invention is to provide an improved connector for an electric contact brush.

A further object of my invention is to provide an improved method of making an electric contact brush and connector.

Further objects and advantages of my invention will become apparent and my invention will be better understood from the following description referring to the accompanying drawing, and the features of novelty which characterize my invention will be pointed out with particularity in the claims annexed to and forming part of this specification.

In the drawing, Fig. 1 is a side elevational view of an electric contact brush and flexible connector embodying my invention, partly broken away to illustrate more clearly my improved arrangement; and Fig. 2 is an exploded sectional view of a part of the flexible brush connector and contact terminal as these parts are arranged prior to assembly.

Referring to the drawing, I have shown a carbon electric contact brush 10, such as that used with commutating dynamo-electric machines, provided with a connector of my improved construction. This connector comprises a flexible electrical conductor 11 which is secured to an end 12 of the contact brush 10. This type electric contact brush generally is biased into engagement with another conductive element, such as a commutator or a slip ring, and various types of biasing devices may be used to provide this biasing force. Usually it is desirable to prevent contact of the biasing device with the other electrically conductive element, such as the commutator, when the contact brush becomes worn, as engagement between the biasing device and the commutator might result in serious damage to the commutator. In the illustrated arrangement, I provide a biasing coil spring 13 arranged in engagement with the end of the brush 10 adjacent the terminal 12, and this spring is held under slight compression between this end of the brush and a curved flange 14 extending from one end of an annular conical or tapered terminal element 15. In order to provide a good spring seat for the coil spring 13, the annular flange 14 extends outwardly from the conical eyelet or sleeve element 15, and is curved back in the direction of the other end of this element. The end portion 16 of the flexible conductor 11 is arranged over the inner surface of the terminal element 15, as shown in Fig. 2, and a second annular tapered or conical eyelet or sleeve element 17, similar to the element 15, is secured within the terminal element 15 by pressing together the complementary engaging surfaces of these two elements into tightly fitted engagement as shown in Fig. 1 with the portion 16 of the flexible conductor 11 securely clamped therebetween. Fig. 2 illustrates the relative arrangement of the two terminal elements 15 and 17 and the end portion 16 of the flexible conductor 11 prior to final assembly thereof. As shown in Fig. 1, the two terminal elements 17 and 15 are slightly flexibly deformable and provide a tightly fitted engagement with each other and by a slight deformation thereof secure the end 16 therebetween in such a manner as to retain the biasing spring 13 under slight compression between the underside of the flange 14 and the upper end of the contact brush 10. In this manner, the coil spring 13 biases the terminal elements 15 and 17 away from the contact brush 10, and the flexible electrical conductor 11 provides a predetermined limiting distance to which the brush 10 can be biased away from the terminal elements. Thus, when the brush 10 has become worn, so that the biasing spring 13 is expanded to the full length of the flexible conductor 11, no further biasing force will be exerted upon the brush tending to urge it towards a commutator or slip ring.

While I have illustrated and described a particular embodiment of my invention, modifications thereof will occur to those skilled in the art. I desire it to be understood, therefore, that my invention is not to be limited to the particular arrangement disclosed, and I intend in the appended claims to cover all modifications which do not depart from the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. An electrical connector for an electric contact brush including a tapered deformable terminal element having a flange thereon, a second deformable tapered terminal element having a flange formed thereon and having a tightly fitted telescopic engagement with said first-mentioned tapered element, and a flexible electrical conductor secured to the brush and having a portion thereof secured by being pressed between said

two tapered elements with an end of said portions secured between said flanges.

2. An electrical connector for an electric contact brush including an annular deformable element, a second annular deformable element having a tightly fitted telescopic engagement with said first-mentioned annular element, and a flexible electrical conductor secured to the brush and having a portion thereof secured between said two annular elements.

3. An electrical connector for an electric contact brush including a deformable terminal element, a second deformable terminal element having a tightly fitted telescopic engagement with said first-mentioned terminal element, and a flexible electrical conductor secured to the brush and having a portion thereof secured by being pressed between said two terminal elements.

4. An electric contact brush having an electrical connector including a terminal element having a flange thereon, a second terminal element having a flange formed thereon and a complementary engaging surface having a tightly fitted engagement with said first-mentioned terminal element, a flexible electrical conductor secured to said brush and having a portion thereof secured between said two terminal elements, and means engaging said brush and said flange for biasing said terminal elements away from said brush.

5. An electrical connector for an electric contact brush including a conical deformable terminal element having a flange extending outwardly therefrom and curved back in the direction of an end of said element, a second conical deformable terminal element having a flange thereon substantially covering said flange on said first-mentioned conical element and having a tightly fitted telescopic engagement therewith, and a flexible electrical conductor secured to the brush and having a portion thereof secured between said two conical elements with an end of said portion secured between said flanges by being pressed therebetween.

6. An electric contact brush having an electrical connector including an annular element having a curved flange formed thereon, a second annular element having a curved flange formed thereon and a complementary engaging surface having a tightly fitted engagement with said first-mentioned annular element, a flexible electrical conductor secured at one end thereof to said brush and having the other end thereof secured between said two annular elements, and a biasing coil spring compressed between an end of said brush and the curve of one of said curved flanges on one of said annular elements.

7. An electrical connector for a contact brush or the like including a tapered deformable terminal element, a second tapered deformable terminal element secured by a tight press telescopic fit to said first-mentioned terminal element, and a flexible electrical conductor secured between said two terminal elements by being pressed therebetween.

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