

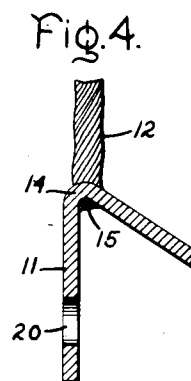
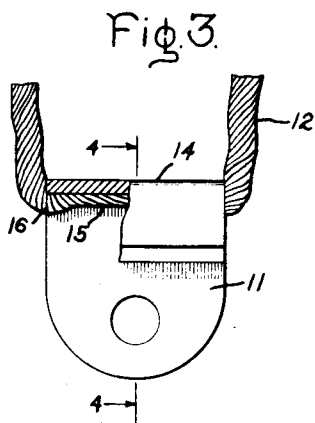
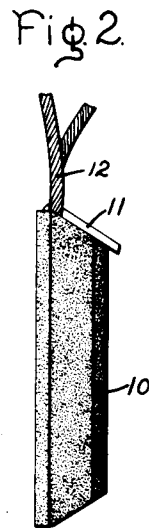
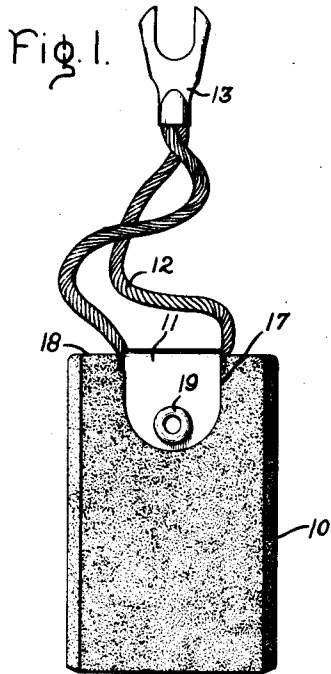
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2,242,014

ELECTRIC CONTACT BRUSH AND CONNECTOR

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UNITED STATES PATENT OFFICE

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ELECTRIC CONTACT BRUSH AND CONNECTOR

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9 Claims. (Cl. 171—326)

My invention relates to an electric contact brush and connector and a method of making the same.

An object of my invention is to provide an improved and simplified 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; Fig. 2 is a side elevational view of the brush shown in Fig. 1 with a part of the connector broken away; Fig. 3 is an enlarged view of a flexible connector and brush clip such as that shown in Fig. 1 with part of the clip broken away to illustrate better the manner in which the flexible conductor is secured to the clip; and Fig. 4 is a sectional view taken along line 4—4 of Fig. 3.

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 substantially V-shaped terminal clip 11, made of any suitable conducting material, to which a flexible stranded electrical conductor 12 is secured. In the past, it has been found that in securing such a flexible conductor to brush terminal clips, the strands of the conductor are embrittled by soldering to the clip or by fusing by the heat of a flame to such a terminal. In order to overcome this difficulty, I secure together the ends of a loop of flexible conductor 12 by clamping them together in a terminal 13 and arrange the closed portion of the loop so that a predetermined length of the conductor is in contact with the inner surface of the apex 14 of the clip 11. As shown in Fig. 3, the flexible conductor is spot welded at 15 intermediate the ends of the portion of the loop in contact with the clip so that less than the predetermined length of conductor in contact with the clip becomes hardened and welded to the clip 11. In this manner, only the

intermediate spot welded portion of the flexible conductor becomes hardened and a small portion 16 adjacent each end of the clip within the apex thereof remains flexible. In this spot welding operation, no flux is used, and therefore, no embrittlement of the conductor is produced by penetration of flux into the conductor between the strands thereof.

This spot welding is done by pressing an electrode against the portion 15 of the flexible conductor 12 and against the outer side of the apex 14 of the clip 11, and then passing an electric current between these two electrodes. The brush connector is then applied to the carbon brush 10, and one side of the clip 11 is arranged in a slot 17 in one side of the brush adjacent an end thereof, so that the loop 15 of the flexible conductor 12 is in contact with the upper edge 18 of the brush 10 and provides an electrical contact therewith. The connector is secured to the brush 10 by a hollow rivet 19 which extends through an opening in the brush and a complementary opening 20 in one side of the clip 11. In this manner, I provide a simplified brush and connector and method of making the same, wherein the portion of the flexible conductor which connects the brush terminal clip to the brush holder terminal is not embrittled adjacent the terminal clip by the method of securing it to this clip, and the useful life of the brush is increased by insuring the flexibility of this conductor, and thereby, reducing the possibility of breakage of the conductor at the point where it is secured to the brush terminal clip.

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 electric contact brush having a terminal clip secured thereto, and a flexible electrical conductor arranged in contact with and secured to said clip by a spot weld for a length thereof less than the width of said clip.

2. An electric brush having a V-shaped terminal clip secured thereto, and a flexible electrical conductor secured to said clip by a weld within the apex of said clip.

3. An electric contact brush having a V-shaped

terminal clip secured thereto, a flexible electrical conductor formed as a loop inserted between said clip and said brush, and a weld securing said conductor loop within the apex of said clip.

4. An electric contact brush having a terminal clip secured thereto, a flexible electrical conductor formed as a loop having a portion thereof inserted between said clip and said brush, and a spot weld securing said conductor loop portion to said clip for a length thereof less than the width of said clip.

5. An electric contact brush having a terminal clip secured thereto, and a flexible electrical conductor arranged in electrical contact with said clip for a predetermined length thereof and secured thereto by a spot weld intermediate the ends of said predetermined length.

6. An electric contact brush having a terminal clip secured thereto, and a flexible electrical conductor arranged in electrical contact with said clip for a predetermined length thereof and secured thereto for less than said predetermined

length by a spot weld intermediate the ends of said predetermined length of conductor.

7. An electric contact brush having a terminal clip secured thereto, a flexible electrical conductor formed as a loop with a predetermined length thereof inserted between said clip and said brush, and a spot weld securing said conductor loop to said clip intermediate the ends of said predetermined length of conductor.

8. An electric contact brush having a terminal clip secured thereto, a flexible electrical conductor formed as a loop with a predetermined length thereof inserted between said clip and said brush, and a spot weld for less than said predetermined length of conductor securing said conductor loop to said clip.

9. An electrical connector for a carbon brush or the like including an electrically conductive clip, a flexible electrical conductor having a predetermined length thereof arranged in electrical contact with said clip, and a spot weld intermediate the ends of said predetermined length securing said flexible conductor to said clip.

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