J. HETHERINGTON & C. E. CHAPIN.

PIGTAIL BRUSH.

APPLICATION FILED JAN. 17, 1911. RENEWED MAY 1, 1915.

1,155,063. Patented Sept. 28, 1915.

Fig. 1.

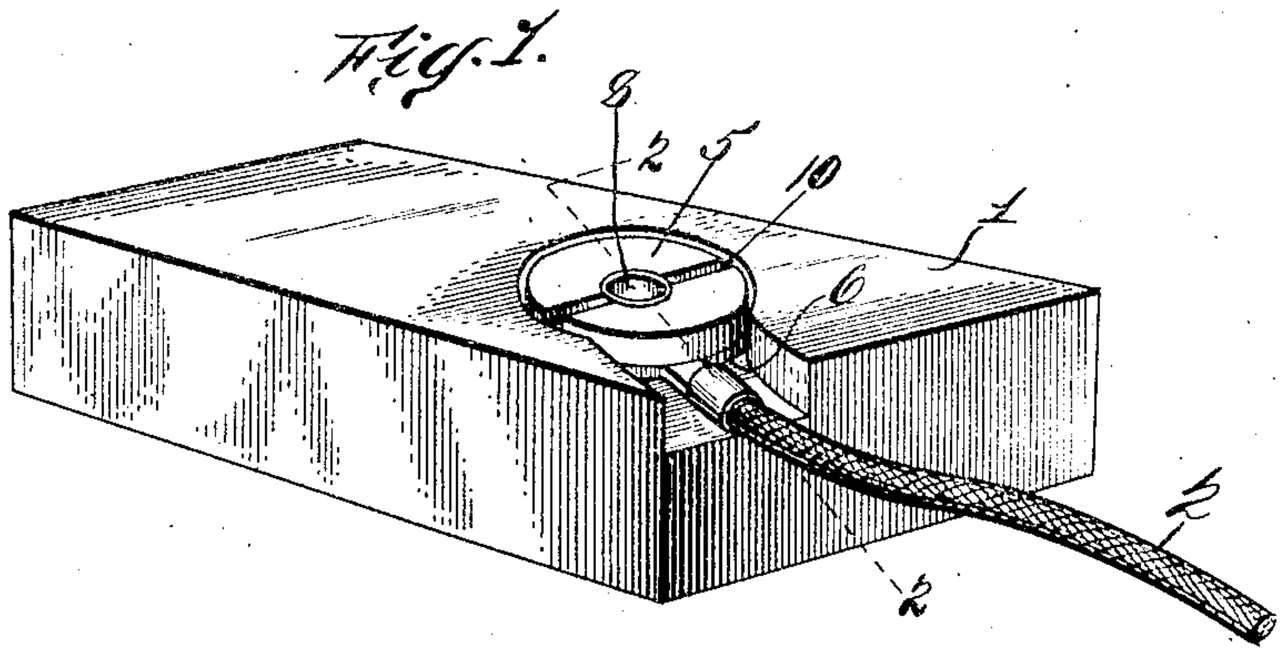
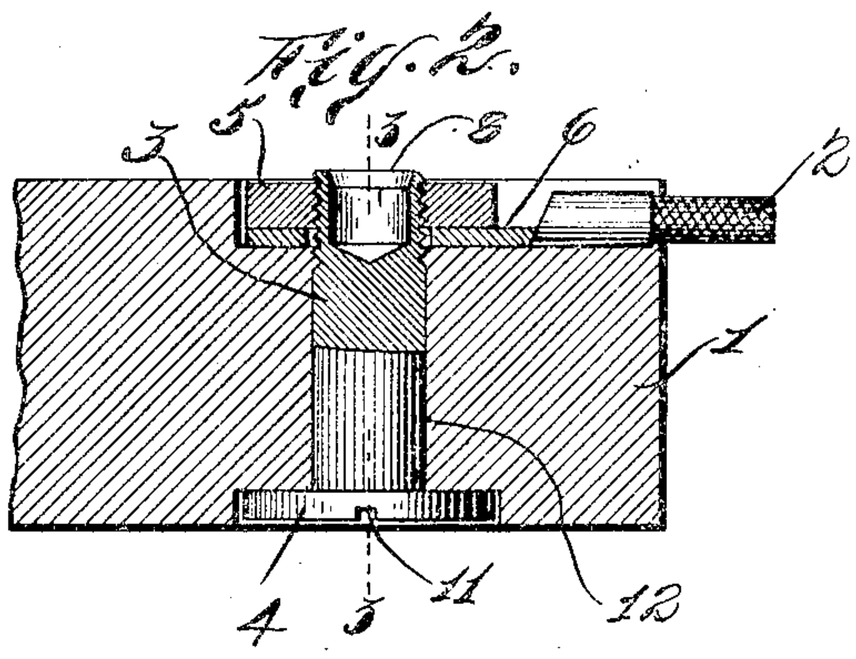


Fig. 2.



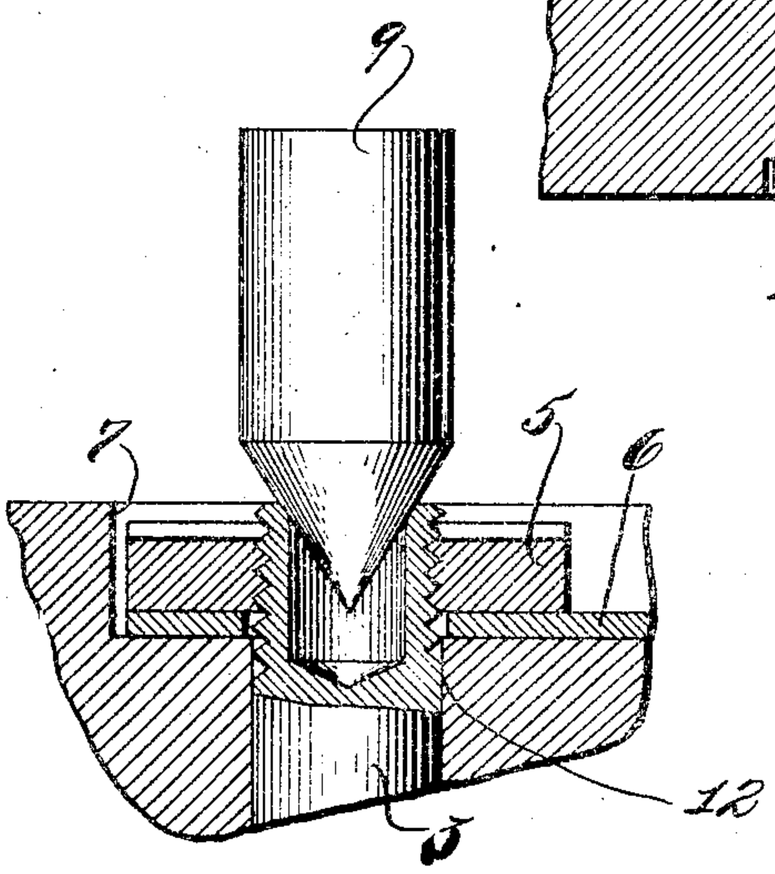


Fig. 4.

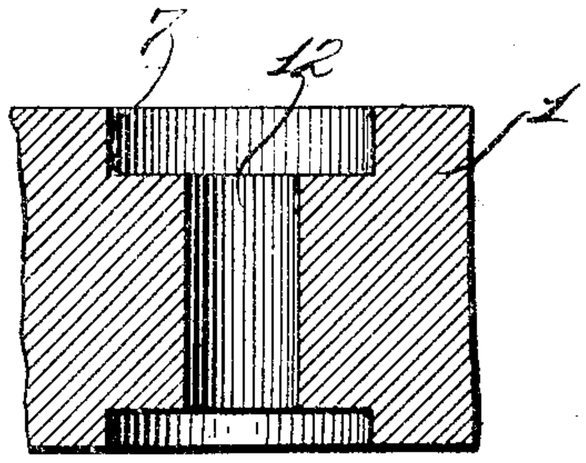


Fig. 3.

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UNITED STATES PATENT OFFICE.

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PIGTAIL-BRUSH.

1,155,063. Specification of Letters Patent. **Patented Sept. 28, 1915.**

Application filed January 17, 1911, Serial No. 603,063. Renewed May 1, 1915. Serial No. 25,308.

To all whom it may concern:

Be it known that we, JOHN HETHERINGTON and CHARLES E. CHAPIN, citizens of the United States, residing, respectively, at Newark, New Jersey, and New York, N. Y., have invented certain new and useful Improvements in Pigtail Brushes, of which the following is a clear, full, and exact description.

This invention relates to an improved connection between electrically-conducting members, as for instance the connection in a pigtail brush usually employed in dynamos and the like.

The object of this invention is to provide a connection which may be securely locked with ordinary tools, such as are always at hand, and which will remain locked under all ordinary conditions of use, but which when necessary may be unfastened by an ordinary tool, such as a screw-driver. In the illustrated preferred embodiment we have shown this connection as employed in the ordinary pigtail carbon brush of a dynamo.

We do not wish our invention to be limited to the specific form disclosed in the present case, as various modifications may be made in the same without departing from the spirit of our invention as broadly embodied in the appended claims.

In the preferred embodiment of our invention shown in the drawings, Figure 1 is a perspective view of the ordinary pigtail carbon brush of a dynamo showing our connection applied thereto; Fig. 2 is a section through 2—2 of Fig. 1 showing the connection more in detail; Fig. 3 is a section of the carbon block through line 3—3 Fig. 2, with the terminal post removed; Fig. 4 is an enlarged fragmentary section of the terminal post and connection and showing a tool in position for upsetting the end of said post.

Referring more particularly to the drawings, 1 indicates a carbon block of the usual pigtail dynamo brush, and 2 is the flexible conductor cable which is to be connected to said block. As shown in Fig. 3, the block 1 has an orifice 12 therethrough with a recess 7 at one side thereof. Extending through the orifice 12 of block 1 is a terminal post 3 having a slotted head 4 at one end thereof and a threaded portion 8 at the other end thereof adapted to receive a threaded cap 5 screwed thereon. As shown in Fig. 4 the threaded end of the post extends slightly beyond the outer face of the cap. Lying within the recess 7 is the terminal 6 of the cable 2 which is securely fastened in this recess by the screw threaded cap 5. As shown more clearly in Figs. 2 and 4, the threaded end of the post 3 adjacent the cap 5 is countersunk or recessed at 8 for a particular purpose which will now be described. After the parts have been assembled as shown in Fig. 2 and the cap 5 is screwed tightly down upon the terminal 6, it is desirable to lock the parts in this position so that they will not become unfastened under the ordinary conditions of use. To do this any round pointed tool is inserted in the countersunk end of the post 3 and tapped with a hammer so as to jam the thin threaded walls of the countersunk portion 8 into the thread of the cap 5 and also upset edge of said threaded walls over the outside face of said cap. The end of the post 3 being thus jammed into the thread of cap 5 and its edge upset as described, the cap will thus be prevented from working loose of itself, but yet when it is desired to disassemble the parts for replacing any particular portion a screw-driver may be applied in the slot of cap 5 and also in slot 11 of head 4 to unscrew said cap, the metal of the wall 8 being soft and pliable enough to permit such action by hand, and without destroying the integrity of the threads of the post.

It will thus be seen that we have provided a terminal connection which will not work loose under ordinary conditions of use yet which can be loosened if necessary without the use of any particular tools.

What we claim as new is:

1. A pig-tail brush comprising a block of easily frangible conducting material, such as carbon, having a hole therethrough, a terminal post having a head bearing upon one side of said block and a threaded shank extending through said hole, a metallic conductor having a terminal portion surrounding said shank, and a nut screwed upon said shank and pressing said conductor terminal tightly against said block, said shank being constructed to be expanded within but not below said nut into locking relation to said nut by pressure exerted within the periphery of said shank, whereby no strains either of vertical or of lateral pressure or shock are left in said block.

2. A pig-tail brush comprising a block of easily frangible conducting material, such as carbon, having a hole therethrough, a terminal post having a head bearing upon one side of said block and having a threaded shank extending through said hole and hollowed out at its end within said threaded portion to provide a relatively thin thread-carrying wall, a flexible conductor having a terminal portion surrounding said shank, and a nut screwed upon said shank and pressing said conductor terminal tightly against said block, said thread-carrying wall being outwardly forced in and above said nut into retaining relation thereto.

3. A pigtail brush comprising a block of easily frangible conducting material such as carbon having a hole therethrough near one end and with a recess in said block larger than said hole at each end thereof and having a lateral hollowed extension from one of said recesses through one side of said block, a metallic terminal post extending through and fitting in said hole in said block and having a head lying in and wholly contained in the recess at one side of said block, said post having a screw-threaded end lying substantially within the recess at the other side of said block, a flexible conductor having a terminal portion lying in said latter recess and the said lateral extension from said recess and surrounding said terminal post, a nut having a threaded hole therein and screwed upon the threaded end of said post over said latter terminal and holding the same upon the bottom of said recess and entirely inclosed within said recess, the threaded end of said terminal post being hollowed out whereby a relatively thin wall is left at the extreme upper edge of said terminal post, the metal of said thin wall at the extreme upper end of said post being outwardly forced whereby the pressure exerted by said outwardly upset end is transmitted to said nut in a direction radial to said post.

4. A pigtail brush comprising a block of easily frangible conducting material such as carbon, having a hole therethrough near one end and with a recess in said block larger than said hole at each end thereof and having a lateral hollowed extension from one of said recesses through one side of said block, a metallic terminal post extending through and fitting in said hole in said block and having a head lying in and wholly contained in the recess at one side of said block, said post having a screw-threaded end lying substantially within the recess at the other side of said block, a flexible conductor having a terminal portion lying in said latter recess and the said lateral extension from said recess and surrounding said terminal post, a nut having a threaded hole therein and screwed upon the threaded end of said post over said latter terminal and holding the same upon the bottom of said recess and entirely inclosed within said recess, said nut having a slot in its upper face communicating with said hole in the nut, the threaded end of said terminal post being hollowed out whereby a relatively thin wall is left at the extreme upper edge of said terminal post, the metal of said thin wall at the extreme upper end of said post being outwardly forced and partly into the said slot in said nut, whereby the pressure exerted by said outwardly upset end is transmitted to said nut in a direction radial to said post and the metal forced into said slot locks the nut from accidental removal.

Signed at New York city, N. Y., this 16th day of January, 1911.

JOHN HETHERINGTON.
CHARLES E. CHAPIN.

Witnesses:
BEATRICE MIRVIS,
ABRAM BERNSTEIN.