

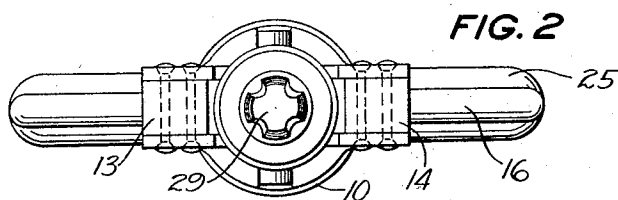
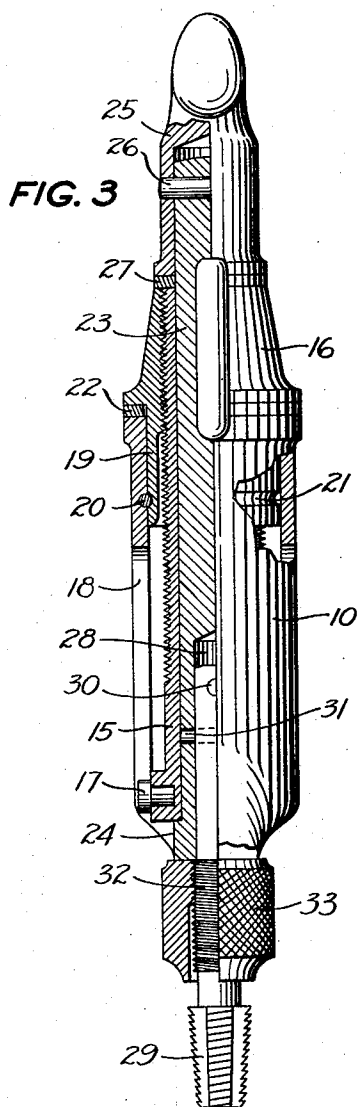
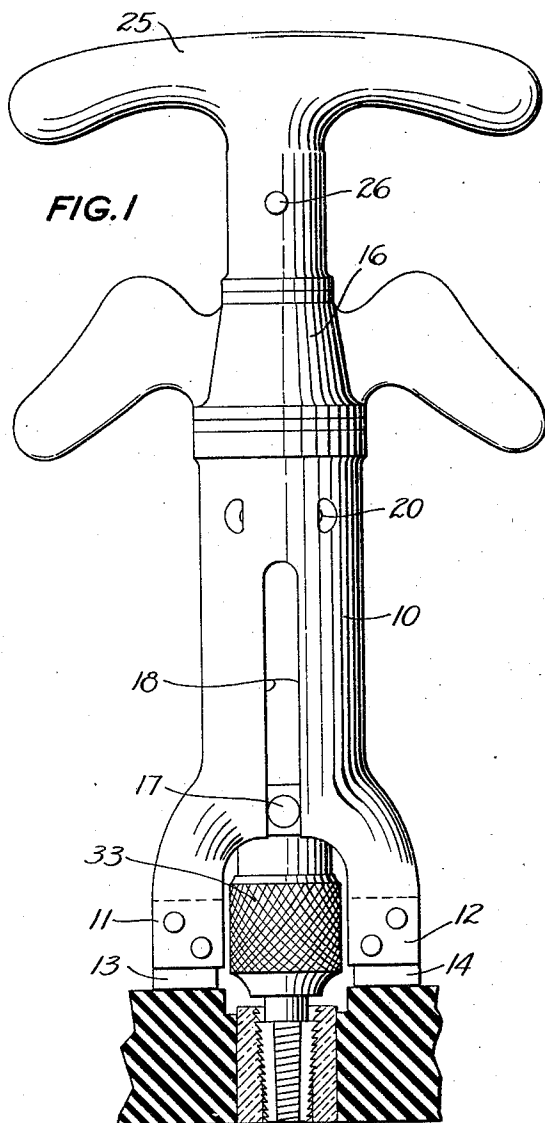
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1,873,250

BUSHING EXTRACTOR

Filed Jan. 5, 1929



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BUSHING EXTRACTOR

Application filed January 5, 1929. Serial No. 330,444.

This invention relates to extracting tools and has particular reference to a type of extracting tool which is well adapted for use for extracting sleeves or bushings from their supports.

In telephone switchboards, for example, a relatively great number of jack sleeves are mounted in insulating bars which are arranged in superposed rows. Each of these sleeves is secured against movement in its insulating bar by a "press fit" adjustment or by a pin of relatively small diameter or both. In such switchboards in order to insure positive contact between the plugs and their associated switching elements, it is necessary that the amount of clearance between the plugs and sleeves be as small as practicable, which necessitates the frequent replacement of the sleeves which have been worn out.

By the use of the tool of this invention worn out sleeves or bushings are extracted from their supporting members in a convenient and simple manner.

According to this invention a tap is screwed in the sleeve or bushing to be extracted by turning a handle. A counternut on the stem of the tap is provided for locking the jack sleeve with the tap, after which a butterfly nut is screwed against an abutment piece at the end of a tubular shaped shell having prongs which abut against the face of the panel, the continued movement of the butterfly nut being effective to impart an axial movement to the tap and thereby withdraw the jack sleeve from the panel.

Referring to the drawing Fig. 1 is an assembly view of the extracting tool showing the tap in position in the bushing;

Fig. 2 is an end view thereof and;

Fig. 3 is an assembly view of the tool showing a number of operating parts partially in section.

In the drawing 10 represents a tubular shaped shell which is provided at one end with prongs 11 and 12 to which are secured as by rivets the insulating block or pads 13 and 14 respectively. In shell 10 there is slidably mounted a sleeve 15 having one of its ends screw-threaded for engagement with a nut screw 16, the sleeve being held against

rotary movement in the shell by a key 17 engaging a key-way 18 in the shell 10. Nut screw 16 and the sleeve 15 with which it engages are held in position concentric with respect to shell 10 by a ring portion 19 integrally formed with the nut screw 16, a pin 20 which fits a peripheral recess 21 in the ring portion being provided for holding the nut 16 against axial movement in the shell and a friction washer 22 is interposed between the nut screw 16 and the shell 10 for a well-known purpose.

In sleeve 15 there is rotatably mounted a spindle 23 provided at one end with a collar 24 abutting against the end of the sleeve 15 and at the other end with a handle 25 held securely thereon by a pin 26, a friction washer 27 being interposed between the handle 25 and the nut 16. The spindle 23 is provided at one end with an aperture 28 in which a tap 29 is mounted and held securely thereon by pins 30 and 31 disposed at right angles to each other as shown in Fig. 3. The stem of tap 29 has a threaded portion 32 on which a knurled nut screw 33 is mounted. The tap 29 is preferably of the right hand Harvey grip type thread and the threaded portion of the tap stem of the ordinary U. S. standard left hand thread type. This construction permits locking the bushing to be extracted onto the tap positively for permitting the back and forth movement of the handle 25 and the sleeve carried thereby for loosening it from its supporting bar previous to the extraction operation.

In operation the tap 29 is screwed in the bushing to be extracted in position shown in Fig. 1 by turning the handle 25. The counternut 33 is then screwed tight against the bushing for locking it with a tap. Upon the rotation of butterfly nut screw 16 and due to the fact that this nut screw rests against the end of the tubular shell 10, which has its prongs 11 and 12 in abutment against the support of the bushing, the sleeve 15 is thereby forced to move axially for extracting the bushing from its mounting. The insulating pads 13 and 14 are provided for preventing injuries to the bushing supporting member and to prevent the accidental short-circuiting

of other switchboard parts with which it may come into contact during the extraction of the bushing from its support.

What is claimed is:

5 1. In a bushing extractor, a tubular shaped shell, a threaded sleeve slidably mounted in said shell, a nut engaging the sleeve and abutting against the end of said shell, a rod rotatably mounted in said sleeve, a tap carried by said rod, a handle at the other end
10 of said rod, a threaded portion formed adjacent the effective portion of said tap, and a nut engaging said threaded portion for locking the bushing to said tap.

15 2. In a bushing extractor, a tubular shaped shell having prongs, a nut screw rotatably mounted in said shell, a threaded sleeve telescopically mounted in said shell and engaging said nut screw, a rod rotatably mounted
20 in said sleeve and having a shoulder portion abutting one end of the sleeve, a tap secured at one end of said rod, a handle secured at the other end of the rod and abutting the nut screw, the movement of the handle being effective to cause the engagement of the
25 tap with the bushing and the movement of the nut screw being effective to engage the prongs of the shell against the support of the bushing, the continued movement of the nut screw being effective to impart an axial movement
30 to the tap for withdrawing the bushing from its support.

3. In a bushing extractor, a tubular shaped shell, a peripherally disposed pin carried
35 by said shell, a threaded sleeve telescopically arranged in said shell, a tap rotatably mounted in said sleeve, a handle for turning said tap, a rod connecting said tap to said handle, means to prevent relative axial movement of
40 said rod and sleeve, a nut threadedly engaging the sleeve and abutting the shell, said nut having a peripheral groove engaging said pin on said shell, the rotation of said nut causing reciprocation of the sleeve for moving the tap axially.

In witness whereof, I hereunto subscribe my name this 31st day of December, 1928.

WALTER J. ADOLPH.

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