Oct. 23, 1928. 1,688,460

E. L. FOWLER

EXTRACTOR FOR REMOVING BUSHINGS AND THE LIKE

Filed Dec. 14, 1927

Fig. 1.

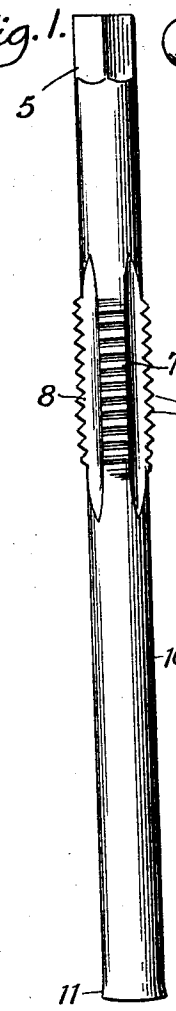


Fig. 2.

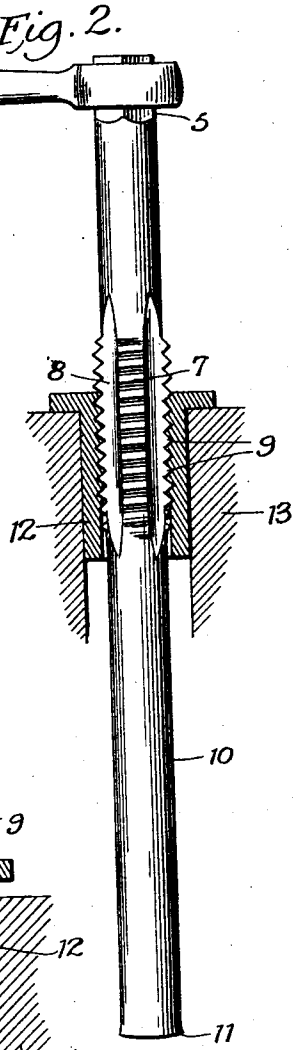
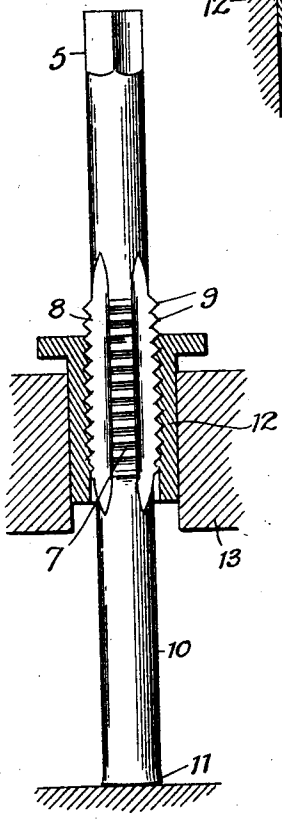


Fig. 3.



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UNITED STATES PATENT OFFICE.

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EXTRACTOR FOR REMOVING BUSHINGS AND THE LIKE.

Application filed December 14, 1927. Serial No. 240,009.

This invention relates to extractors for removing bushings and the like and its object is to provide means to tap or screw into the inner walls of a bushing, thimble or tube and to secure sufficient purchase therein so that the tool and the bushing may be forced outward by pressure or a blow.

A further object of the invention is to provide means to guide the extractor into the bushing so that the thread cutting will be done in the proper direction and into the bore of the bushing, and to provide a stem and head to the tool to enable it to be forced outward with the bushing.

These and other objects and details of the invention are more fully described in the following specification, set forth in the appended claims and illustrated in the accompanying drawing, wherein:

Figure 1 is a side elevation of the improved extractor.

Figure 2 is a similar view of the extractor showing its method of operation.

Fig. 3 shows how a blind bushing is extracted.

In the removal of worn or damaged bushings and similar articles considerable difficulty is experienced in accomplishing same because of their being forced and jammed into sockets or bores prepared for them. The dividing of the bushing by means of a saw is laborious and takes much time while the forcing outward of the bushing by means of a chisel is also difficult and laborious.

The present invention provides a tool that may be quickly tapped into the bushing and struck by a few blows and driven out.

With all of these methods of removal the bushing is practically destroyed, although in the first instance it has to be removed because of its worn or injured condition.

In the drawings a bar of hard steel is shown having a polygonal upper end 5 for the reception of the handle 6 or a wrench by which it is turned.

Towards the middle of the tool screw threading means 7 is provided and consists of the grooves 8 and mutilated cutting threads 9 while the lower end of the extractor is a stem 10 terminating in a head 11 to which force is applied to perform the operation of removing the bushing.

In Fig. 2 the bushing 12 is shown located in its member 13 and the extractor is tapped into the same. The bronze bushing being so much softer than the steel tool the threads 9 will readily cut into the bushing and it is thus screwed down a sufficient depth to get enough purchase to carry it out of its bore when the head 11 is struck with necessary force.

In cases where the tool is to operate on blind bushings and where access to the lower end of the stem is not possible the tool is screwed into the bushing and the stem finally reaches the interior bottom wall below the bushing and as the tool is rotated and supported by said bottom, the threads force the bushing upward and out of its socket.

To enable the tool to get its initial start in the bushing, as the threading is not tapered, the lower threads are blunted or mutilated and reduced in diameter so that they will cut their way at the beginning of the operation with more ease and gradually work up to the threaded portion of uniform diameter. This construction obviates the costly tapering of the threaded tool heretofore used and answers the same purpose as the blunted threads have been found in practice to readily cut their way into the comparatively soft metal bushing.

No blow on the head of the tool is therefore necessary and it is the action of the screw that forces the bushing out.

It is obvious that the device may be otherwise arranged or modified without departing from the essential features above described or from the scope of the appended claims.

What I claim as new is:

1. In extractors for bushings; a metal bar of uniform diameter throughout its length and having between its ends mutilated cutting threads above the surface of the bar having blunted and reduced-diameter threads at their lower end and separated by longitudinal grooves depressed below the surface of said bar.

2. In extractors for bushings, the combination of a metal bar having plain surfaces at each end, a polygonal end for manipulation, an opposite end for contact, and cutting threads of uniform diameter and pitch

between the said ends and separated into independent groups by longitudinal grooves in the bar, the lower threads being blunted to effect the initial cutting into the bushing.

3. In extractors for bushings, the combination of a metal bar of uniform diameter having rotating means at one end and a contact head at the other end; initial tapping means, and cutting threads located above the initial tapping means and between the ends of greater diameter than said bar and separated by grooves in said bar.

In testimony whereof I hereunto affix my signature.

EMMETT L. FOWLER.