Sept. 11, 1928. 1,683,796

D. PEARCE

BROKEN TAP EXTRACTOR

Filed Oct. 14, 1926

Fig. 1.

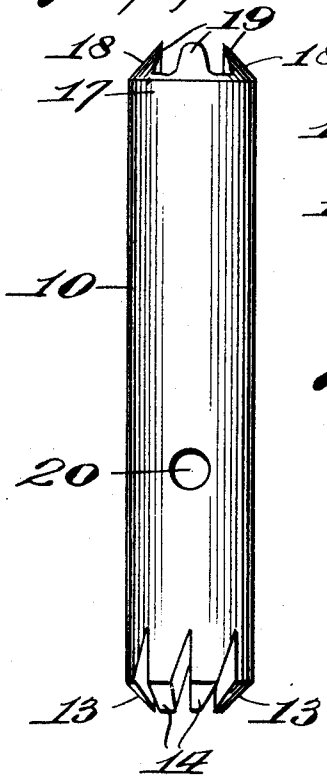


Fig. 2.

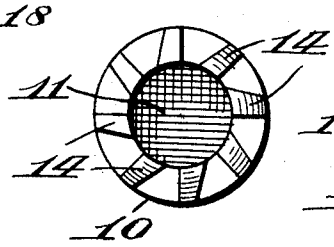


Fig. 3.

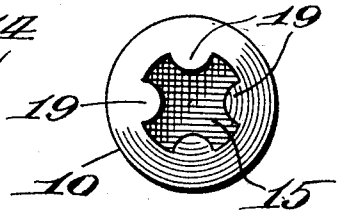


Fig. 4.

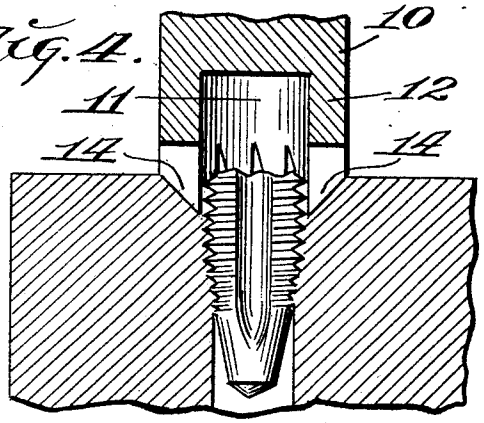
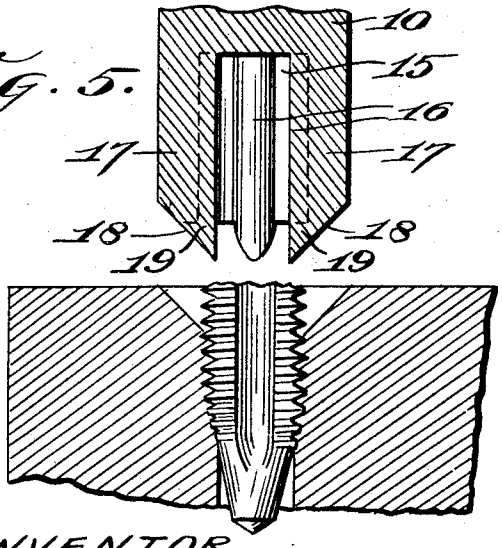


Fig. 5.



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UNITED STATES PATENT OFFICE.

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BROKEN-TAP EXTRACTOR.

Application filed October 14, 1926. Serial No. 141,454

My invention relates to a broken tap extractor and has for its principal object the provision of a relatively simple and practical tool or implement that may be advantageously utilized for the extraction of those portions of broken taps that are embedded in the work.

It will be understood that in threading apertures in metal, the taps used for forming the threads, and particularly the smaller sizes of taps, very frequently break with the result that a portion of the tap is embedded in the metal and the removal of the broken portion involves considerable time and labor.

I propose to provide a relatively small tool having teeth on one end for countersinking the hole in which the broken tap is positioned and the other end of the tool being constructed so as to engage the end of the broken tap and function as a wrench to unscrew the broken portion of the tap.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts that will hereinafter be more fully described and claimed and illustrated in the accompanying drawing, in which—

Fig. 1 is a side elevational view of a broken tap extractor of my improved construction.

Fig. 2 is an elevational view of that end of the extractor that is utilized for countersinking the hole in which the broken tap is positioned.

Fig. 3 is an elevational view of that end of the tool that is utilized as a wrench in removing the broken portion of the tap.

Fig. 4 is an enlarged section showing the tool in position while the hole in the work is being countersunk.

Fig. 5 is a sectional view showing the wrench end of the tool in position adjacent to the end of the broken portion of the tap.

Referring by numerals to the accompanying drawing, which illustrates a practical embodiment of my invention, 10 designates the body of my improved broken tap extractor, which body comprises a short metal rod of hardened metal such as high speed steel. One end of the body of the tool is provided with a short longitudinally disposed recess 11 and the terminal portion of the wall 12 surrounding said recess is beveled off on its outer corner as designated by 13 and the beveled portion of said wall is slotted lengthwise so as to form an annular row of metal cutting teeth 14.

The opposite end of the body of the tool is provided with a short longitudinally disposed recess 15 and formed on the inner face of said recess is a series of longitudinally disposed ribs 16 that are arranged approximately 90° apart so that they correspond with the longitudinally disposed grooves that are formed in the surfaces of the standard forms of taps.

The terminal portion of the wall 17 that surrounds recess 15 is beveled on its outer face as designated by 18 and, as the ribbed portions of the wall are thicker than those portions between the ribs, the beveling of this end of the extractor provides short V-shaped teeth or lugs 19 that project from the end portions of the ribs 16.

Formed through the body 10 of the tool is a diametrically arranged aperture 20 that is adapted to receive a pin or short rod and which latter functions as a handle that may be manually engaged when the tool is utilized for extracting the broken portion of a tap (see Fig. 5).

In the use of my improved extractor, the end of the hole in which the broken portion of the tap is embedded may be readily countersunk or reamed out by placing the tool in a drill press or the like and manipulating the same so that the teeth 14 engage the work directly adjacent the broken end of the tap as shown in Fig. 4, and in a short time the work will be countersunk or cut away so as to leave a short portion of the broken tap projecting upwardly within the center of the countersunk portion.

The extractor is now removed from the drill press and after a pin or key has been inserted in aperture 20, the end of the tool provided with the teeth 19 is positioned over the projecting end of the broken tap with said teeth 19 engaging those portions of the grooves in the tap that project into the countersunk portion of the work and by rotating the tool, the same will function as a spanner wrench to unscrew and remove the broken portion of the tap.

Obviously the extractors contemplated by my invention may be made in various sizes to correspond with the standard sizes of taps and by the use of the extractors, much time and labor may be saved in the removal of those portions of taps that break and remain in the work.

Thus it will be seen that I have provided a broken tap extractor that is relatively sim-

ple in construction, inexpensive of manufacture and which is very effective in performing the functions for which it is intended.

It will be understood that minor changes in the size, form and construction of the various parts of my improved broken tap extractor may be made and substituted for those herein shown and described without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim as my invention:

1. A broken tap extractor comprising a short cylindrical body provided at one end with an axially arranged recess on the inner surface of which recess are formed longitudinally arranged tap groove engaging ribs, the outer ends of which terminate in tapered teeth that project from the end of the cylindrical body.

2. A broken tap extractor comprising a short cylindrical body provided at one end with an axially disposed recess the end of the wall surrounding said recess being provided with a beveled face, and longitudinally arranged tap groove engaging ribs formed on the inner face of the recess in said body.

3. A broken tap extractor comprising a short cylindrical body provided at one end with an axially disposed recess the end of the wall surrounding said recess being provided with a beveled face, longitudinally arranged tap groove engaging ribs formed on the inner face of the recess in said body, and there being an aperture formed through the intermediate portion of the body of said extractor.

In testimony whereof I affix my signature.

DAVID PEARCE.