C. HERRMAN.

TAP.

APPLICATION FILED AUG. 23, 1918.

1,317,624. Patented Sept. 30, 1919.

Fig. 1.

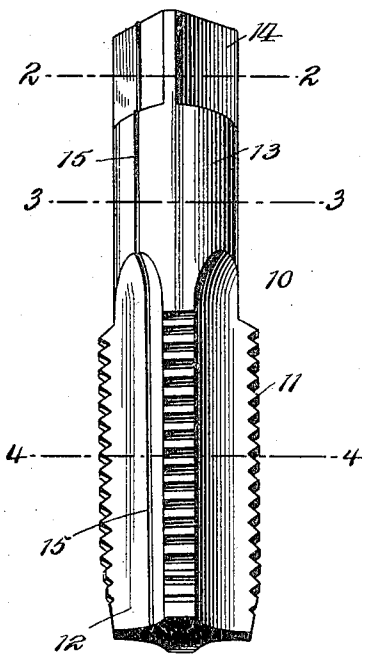


Fig. 5.

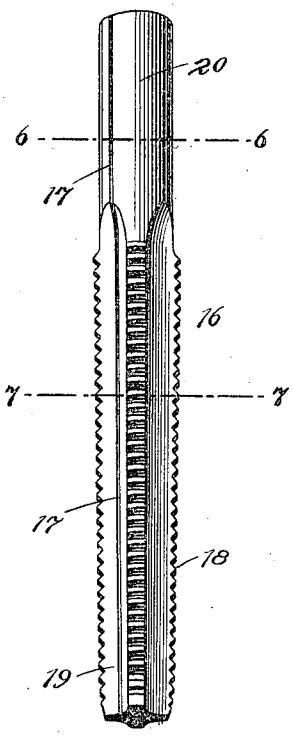


Fig. 3.

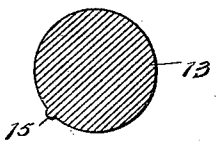


Fig. 2.

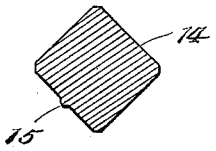


Fig. 6.

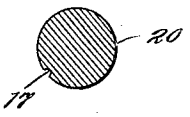


Fig. 4.

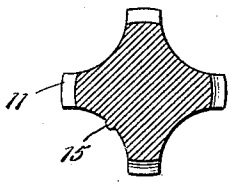
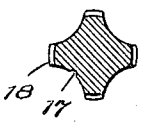


Fig. 7.



WITNESSES

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TAP.

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To all whom it may concern:

Be it known that I, CHARLES HERRMAN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Taps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to taps, the object thereof is to provide means for indicating whether or not a used tap has been, or an in-use tap is being, overstrained.

To the accomplishment of the recited object, the preferred embodiment of my invention resides in the construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings and embraced within the scope of the appended claims.

In said drawings,

Figure 1 is a perspective view of a conventional form of a tap embodying my invention.

Fig. 2 is a transverse sectional view along lines 2—2 of Fig. 1.

Fig. 3 is a similar view taken along lines 3—3 of Fig. 1.

Fig. 4 is a similar view taken along lines 4—4 of Fig. 1.

Fig. 5 is a perspective view of another conventional form of tap, showing a slight modification of the indicating means.

Fig. 6 is a transverse sectional view taken along lines 6—6 of Fig. 5, and

Fig. 7 is a similar view taken along lines 7—7 of Fig. 5.

Referring particularly to Figs. 1 to 4 inclusive, 10 denotes a tap provided with the usual thread cutting portion 11, groove 12, shank 13 and squared head 14. A straight ridge or projection extends the entire length of the tap; it is disposed preferably in any one of the grooves 12 paralleling the edges of the adjacent thread cutters 11, and is continued on the surface of the shank 13 and head 14.

Figs. 5, 6 and 7 relate to a slightly different form of tap, wherein a groove 16, instead of a projection, is illustrated as a modification of the idea shown in the remaining figures. This groove, however, occupies the same relative position with respect to the thread cutters 18, grooves 19 and shank 20 of the tap.

The indicating mark just described, whether it be in the form of a projection, a groove, or a line, is formed on the tap when it is manufactured. If, during subsequent use, the tap is overstrained or subjected to undue torsion, such overstrain or undue torsion will be instantly indicated by the curvature of the mark. If the overstrain is considerable, the curvature of the mark may be very readily detected; if the curvature is slight, its degree may be expeditiously ascertained by sighting down the mark. Manifestly, a disposition of the indicating mark in parallelism with the axis of the tap, and more particularly for the major portion of its length at a point equidistant from the edges of the adjacent thread cutting portions, assists materially in concentrating the line of vision.

Advantages of considerable magnitude result from this invention. Heretofore, no means have ever been devised for guarding against and preventing tap breakage. It is true, in the use of hand taps, the skilled mechanic intuitively feels the near approach of the breaking point, but if the tap has already been overstrained just short of this breaking point, the very next user will, most likely, twist it off, and possibly delay or damage his job. In this way, the burden of a fault not his falls upon him.

Additionally, though the larger taps are less likely to be broken than the smaller ones, it should be noted that the larger the tap, the greater, proportionately, the hand-wrench leverage or the machine power used. Breakage of the comparatively larger tap, though less frequent, is proportionately more expensive and troublesome. All of these contingencies are eliminated by the use of my caution-detector mark.

Furthermore, in the case of machine-driven taps, owing to the lack of even the sense of touch, freedom from breakage is very much a matter of luck. When it is borne in mind that heavy duty, power-driven taps, owing to their innate requirements, are rotated to a very slow cutting action, it will readily be seen that the torsion-detector mark can be watched for any sign of undue stress as the tap cuts. Addi-

tionally, the invention enhances longevity of the tap by constantly and visibly advising care and patience in its use. It will inculcate the proper use of perfect taps, and thereby prolong their usefulness. And, most important, the tap torsion-detector line will prevent, by its warning, the inadvisable use of weakened taps on rush, expensive or difficult, tough material work.

Obviously, a groove, a ridge, a line, and a mark, all four are equivalents within the spirit and scope of this invention.

Furthermore, the word "mark" as herein used, can apply to a minimized groove, preferably, suitablv colored, said coloring being had by either chemical action, heat treatment or direct coloring matter application. An etched mark would be of this nature.

Having thus described this invention, I claim:

1. A tap provided with a clearly distinctive sight line mark extending the entire length thereof and which is totally disassociated from the structural essentials of the tap-edges.

2. A tap provided with a torsion indicator comprising a substantially continuous mark extending in a line substantially from end to end of the tap, said mark lying along the longitudinal surface in a plane co-incident with the tap's axis so as to appear straight longitudinally, the mark following the tap's exterior configuration in the said axial plane and being a feature in addition to the other inherent features of the tap.

3. A thread-cutting tap having a torsion detector comprising a mark extending along the longitudinal surface of the tap and lying in an axial plane and being in addition to the usual tap features, and which by its very presence indicates its function and facilitates the detection of the tap's circumferential distortion by reason of the attraction of the operator's attention.

In testimony whereof I affix my signature.

CHARLES HERRMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."