J. T. HAYDEN.

Tap.

No. 226,067 Patented Mar. 30, 1880.

Fig. 1

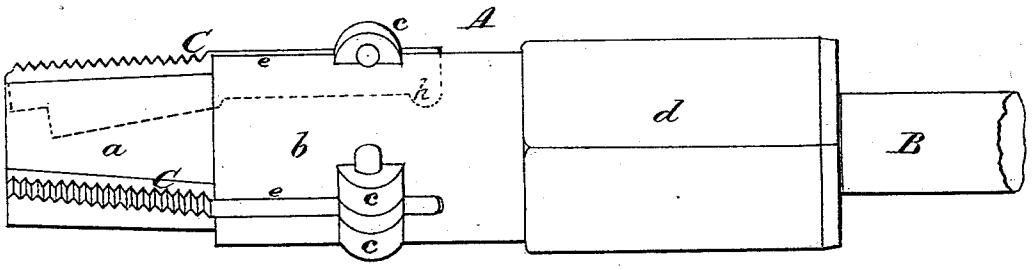


Fig. 2

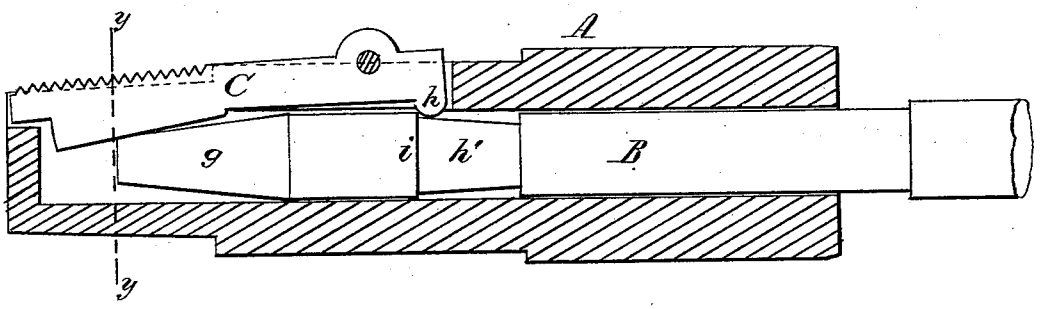


Fig. 4

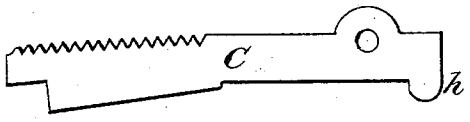
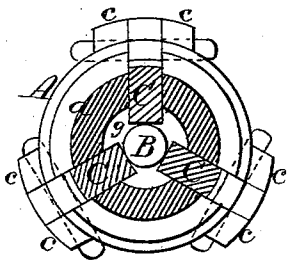


Fig. 3



Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES T. HAYDEN, OF CAMBRIDGEPORT, MASSACHUSETTS.

TAP.

SPECIFICATION forming part of Letters Patent No. 226,067, dated March 30, 1880.

Application filed January 30, 1880.

To all whom it may concern:

Be it known that I, JAMES T. HAYDEN, of Cambridgeport, in the county of Middlesex and State of Massachusetts, have invented a new and valuable Improvement in Taps; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is an external view of my improved tap. Fig. 2 is a longitudinal section. Fig. 3 is a cross-section in line *y y*. Fig. 4 is a side view of one of the toothed cutting-levers detached from the stock.

Similar letters of reference indicate corresponding parts in the several figures.

This invention is designed for tapping female screw-threads in "fittings" and other objects wherein the tap is adapted to work with a continuous rotary motion in the same direction both in entering an object and in retiring therefrom.

The nature of my invention consists of toothed cutting-levers of peculiar construction, which are inserted in and pivoted to a hollow stock, in combination with an internal endwise-movable rod having wedges or conical portions formed on it in such manner that they can be made to expand and contract the said cutting-levers by positive movements, as will be understood from the following description.

In the annexed drawings, A designates the stock of my improved tap, the part *a* of which is tapering, the part *b* is cylindrical and has ears *c c* formed on it, and the part *d* is prismatic. This stock is hollow, and inside of it is a rod, B, which is allowed to receive a limited endwise movement, and which will allow the stock freedom to turn around it. There are three longitudinal slots, *e e e*, made in the stock A, equidistant from each other, and in these slots are loosely fitted levers C, the longest arms of which have screw-thread-cutting teeth formed on their outer edges.

The levers C are pivoted between their respective ears *c*, and the inner edges of their longest arms are inclined longitudinally to the axis of the stock A, as shown in Fig. 2. These inclined edges of the levers impinge on the conical or wedge-shaped end *g* of the rod B.

The short arms of levers C have toes *h* formed on them, which impinge on the cone or wedge *h'* on rod B, back of the annular shoulder *i* on this rod, which shoulder limits the amount of protrusion of the serrated thread-cutters by arresting the backward movement of rod B.

It will be seen that the wedge or cone *g* will protrude (expand) the serrated arms of levers C and hold them in position positively for cutting a thread in a fitting or other object, and that after this work is done the cone or wedge *h'* is used for contracting the serrated levers or thread-cutting portions thereof and at once freeing them from the thread which was cut, thus allowing the stock to be withdrawn from the fitting without reversing the rotation of the stock.

I do not claim any particular means for operating the tapping-tool herein described; neither do I limit myself to its use for or combination with any one of the well-known tapping-machines.

Having described my invention, what I claim is—

1. The serrated cutting-levers C for female-screw tapping, pivoted to a stock, A, in combination with the endwise-movable rod B, having the wedges or cones *g h'* formed on it, substantially as described.

2. The stock A, having a tapered part, *a*, a cylindrical part, *b*, and a prismatic part, *d*, in combination with cutting-levers C and the actuating-rod B, with its cones *g h'*, substantially as described.

JAMES T. HAYDEN.

Witnesses:
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JOSEPH L. HAYDEN.