

J. FLOWER.
Screw-Taps.

No. 140,128.

Patented June 24, 1873.

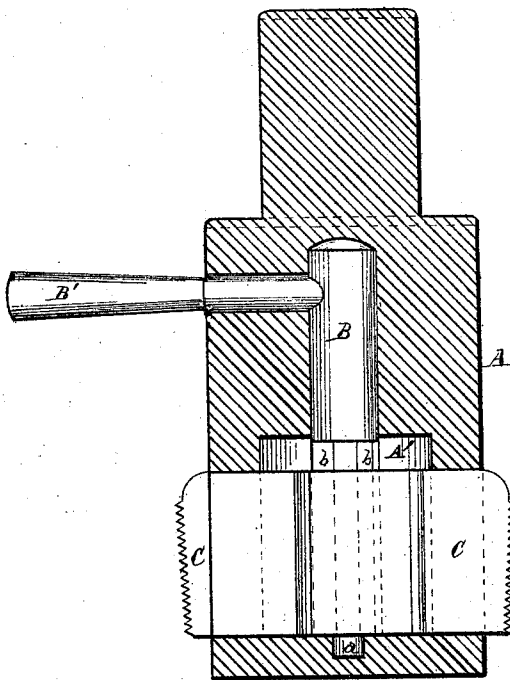


FIG. 1.



FIG. 3.



FIG. 4.

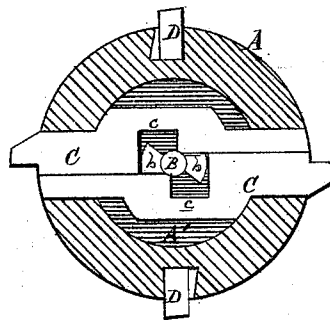


FIG. 2.

Attest:

H. F. Chubb.
Theo. S. Day

INVENTOR.

James Flower
per attorney
Thos S Sprague

UNITED STATES PATENT OFFICE.

JAMES FLOWER, OF DETROIT, MICHIGAN.

IMPROVEMENT IN SCREW-TAPS.

Specification forming part of Letters Patent No. **140,128**, dated June 24, 1873; application filed April 8, 1873.

To all whom it may concern:

Be it known that I, JAMES FLOWER, of Detroit, in the county of Wayne, and State of Michigan, have invented a new and useful Improvement in Shell-Taps; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and being a part of this specification, in which—

Figure 1 is a vertical section of my tap. Fig. 2 is a cross section of the same on the line *y y* in Fig. 1. Fig. 3 is an elevation of the cam-spindle. Fig. 4 is an elevation of the lower end of the same.

Like letters refer to like parts in the several figures.

The nature of this invention relates to a device for tapping and reaming, at one operation, the fittings for steam and other pipes, so constructed that the screw-taps may be retracted when the tool is to be withdrawn from the work, and thus avoid the "overrunning" of the tap-threads. The invention consists in the peculiar construction and arrangement, in a cylindrical shell, of a cam-spindle and two cutters, so arranged that by turning the spindle in one direction the cutters will be retracted into the shell, and by a reverse movement of the said spindle they will be forced out and locked in place; also in the combination with said shell of two reamers, for cleaning off the scale of the casting to be tapped, and reaming it to the required diameter, as more fully hereinafter set forth.

In the drawing, A represents a cylindrical plug, with a cylindrical cavity, A', in its lower part, and a shank at the upper end for insertion in the socket of a drill-spindle. B is a spindle inserted in a vertical cavity in the center of the shell, with a lever, B', tapped into it near the upper end, the said lever playing in a radial slot in the shell, so as to enable the lever to oscillate the spindle on its

axis. The lower end, *d*, of the spindle is stepped in a plate screwed or otherwise secured to the bottom of the shell, and that part of the spindle which lies in the cavity A carries two wings or cams, *b*. C C are two cutters lying side by side in a transverse slot in the shell, each cutter having an offset or recess, *c*, formed in its inner face. The cutting edges of the cutters project from opposite sides of the shell, and their general conformation is fully shown in Fig. 2 of the drawing.

By rotating the spindle in one direction, the cutters will be retracted into the shell, or rather to its periphery, sliding on each other, thus enabling the tool to be lifted out of the work without overrunning the threads of the cutters to their detriment, as well as causing a delay in removing the tap. A counter-movement of the lever partially rotates the spindle and cams, which latter, in turn, throw out the cutters to the position shown in Fig. 2, and in this position the cams serve as locks, to prevent the retraction of said cutters.

D D are two reamer-bits, inserted and secured in vertical dove-tail grooves in the periphery of the shell. These reamers enlarge the diameter of the fittings to the diameter of the tap, as measured from the base of the thread in one cutter to that of the other, leaving the cutters to cut a thread of full depth.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The construction and arrangement with relation to the shell A A', of the spindle B, cams *b b*, lever B', and cutters C C, substantially as and for the purpose set forth.

2. The combination, with the adjustable shell-tap constructed as described, of the reamers D D, as and for the purpose set forth.

JAMES FLOWER.

Witnesses:

ALEX. MCKAY,
H. F. EBERTS.