M. C. JOHNSON.

SCREW-TAP.

No. 188,466. Patented March 20, 1877.

Fig. 1.

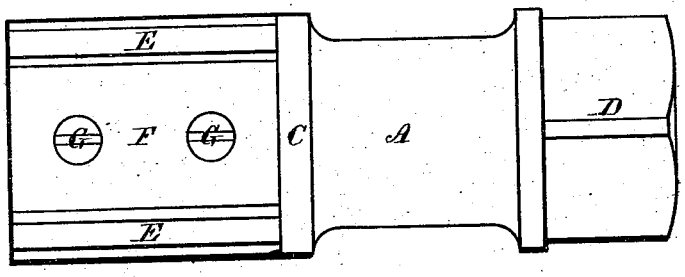


Fig. 2.

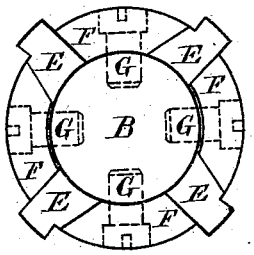


Fig. 3.

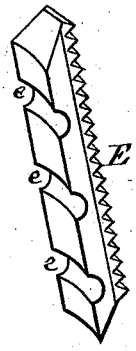
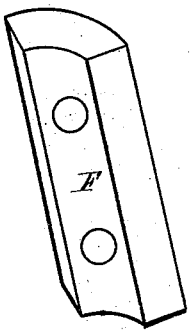


Fig. 4.



Witnesses.

Wilmot Horton

John J. Peters.

Inventor.

M. Carlyle Johnson

by Theo. G. Ellis, Attorney.

UNITED STATES PATENT OFFICE.

M. CARLYLE JOHNSON, OF HARTFORD, CONNECTICUT, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN R. REYNOLDS, OF SAME PLACE.

IMPROVEMENT IN SCREW-TAPS.

Specification forming part of Letters Patent No. **188,466**, dated March 20, 1877; application filed February 16, 1877.

To all whom it may concern:

Be it known that I, M. CARLYLE JOHNSON, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Screw-Taps; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

My improvement relates to such taps for cutting interior screw-threads as are made with removable cutters or chasers, intended to be replaced when injured or worn out.

It has for its object a better method of holding the cutters than has heretofore been in use, and to provide a method of securely fastening them in place without making the body of each cutter of an exact form and size, as is necessarily the case when they are inserted into slots in the customary manner.

My invention consists in the mechanical construction of the several parts, which will be hereinafter described.

In the accompanying drawing, Figure 1 is a side view of my improved screw-tap. Fig. 2 is an end view of the same, with the interior parts shown by dotted lines. Fig. 3 is a perspective view of one of the cutters removed from the tool. Fig. 4 is a perspective view of one of the segmental pieces which hold the cutters in place.

A is the stock, to which the other parts are attached. It is furnished with a cylindrical portion, B, upon which the cutters rest, and into which the screws for holding the parts in place enter. It has the neck or collar C, against which the ends of the cutters abut to give them the proper longitudinal position. At the end D it is formed into a square, by which the tool is turned in the customary manner.

E, &c., are the cutters, which are arranged around the central part B at the desired intervals. Four of these cutters are shown in the drawings; but any other number ordinarily used can be equally well applied.

F, &c., are segmental pieces, which are inserted between the cutters E, and act as wedges to hold them in place. The body of the cutter is made of a dovetailed form, and the sides of the segments are made with the same inclination, so as to bear fairly and evenly against the sides of the cutters. These segments are secured to the part B by means of the screws G, &c.

The segments are made of such a size that when the several parts are placed around the central stock B, the interior curved face of the segments, or of a part of them, does not come in contact with the circumference of B. They therefore wedge in between the cutters, and, by means of the inclined sides, press them firmly against the central stock, and at the same time hold them in place laterally.

In the drawing, Fig. 2, the top and bottom segments are shown as being screwed down to the stock B, and the two side segments are slightly removed from B, so that when their screws are turned in they securely clamp the cutters in place.

In the manufacture of the cutters for the class of taps to which my invention relates, it has been found that after they have been properly formed and cut, the process of tempering often causes them to bend. To obviate this difficulty, and to make the cutter sufficiently yielding to allow of its being pressed evenly down upon the interior stock B, I construct it with grooves or channels *e e e* upon its under side, as shown in Fig. 3 of the drawing. These grooves permit of the bending of the cutters when they are pressed by the inclined sides of the segments; and although they may have been warped in the tempering, they are made to lie flat upon the surface of the interior stock, which brings the cutting-edge into its original position, and straight as it was before being tempered.

It will be observed that my improved construction is equally applicable to the purposes of a reamer. By omitting the screw-thread upon the cutters, and forming them with a simple cutting-edge, the tool becomes a reamer.

I claim—

1. The combination of the cutters E and

the segments F, arranged around a central stock, B, to which the segments F are attached by means of screws, substantially as herein described.

2. The combination of the collar C with the cutters E and the segments F, substantially as and for the purpose herein described.

3. The channels or grooves *e* in the cutters E, substantially as and for the purpose herein described.

M. CARLYLE JOHNSON.

Witnesses:
THEO. G. ELLIS,
WILMOT HORTON.