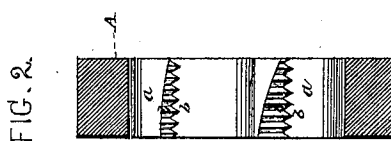
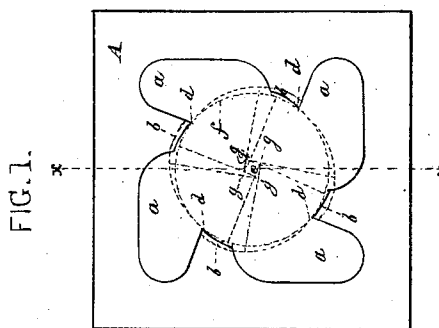
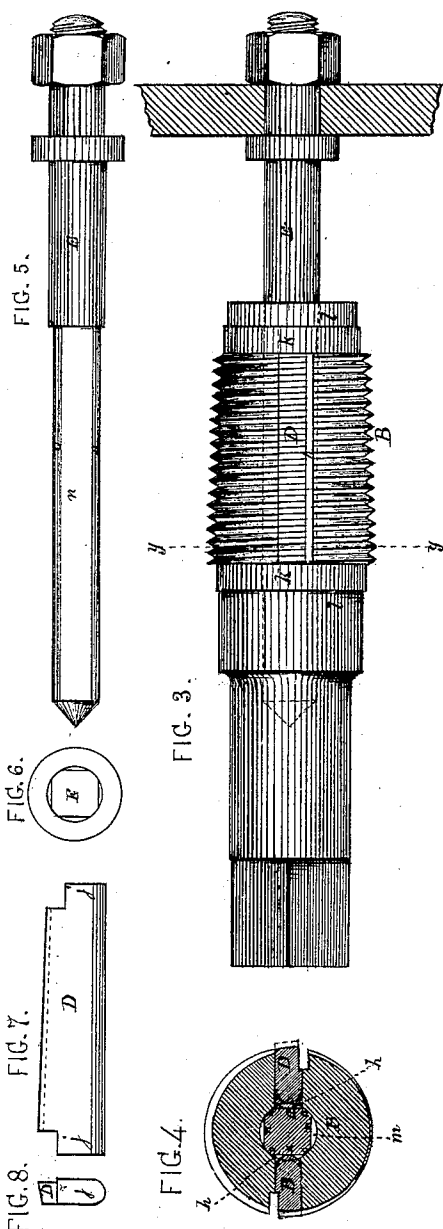


W. NEWSHAM.
TAP FOR AND MODE OF CUTTING DIES.

No. 104,984.

Patented July 5, 1870.



WITNESSES.

Thomas J. Dewley
L. F. Cyren

INVENTOR.

William Newsham
By his Attorney
Stephen Ustick

United States Patent Office.

WILLIAM NEWSHAM, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
MORRIS, TASKER & CO., OF SAME PLACE.

Letters Patent No. 104,984, dated July 5, 1870.

IMPROVED TAP FOR AND MODE OF CUTTING DIES.

The Schedule referred to in these Letters Patent and making part of the same.

I, WILLIAM NEWSHAM, of the city of Philadelphia, and State of Pennsylvania, have invented an Improved Mode of Cutting Dies Eccentrically, of which the following is a specification.

The nature of my invention consists in a novel mode of giving eccentricity to the cutting-edges of dies, for forming screw-threads on bolts, tubes, &c., so as to give relief to the same.

The device consists of a tap, which is provided with movable cutters, which are caused to advance toward its center, and recede therefrom as the tap is rotated by suitable mechanism.

The vibratory movement of said cutters is given by a variable surface of a shaft, centrally arranged within the tap, and around which the latter revolves, as hereinafter described.

To enable others skilled in the art to which my improvement appertains to make and use my invention, I will give a detailed description thereof.

In the accompanying drawing, which makes a part of this specification—

Figure 1 is a face view of a die to be cut.

Figure 2 is a sectional view of the die after it is cut, through the line *x x* of fig. 1.

Figure 3 is a side view of the improved tap B.

Figure 4 is a cross-section, at the line *y y*, of fig. 3.

Figure 5 is a side view of the shaft E.

Figure 6 is an end view of the same.

Figure 7 is a side view of one of the movable cutters D.

Figure 8 is an end view of the same.

Like letters in all the figures indicate the same parts.

A, figs. 1 and 2, is the die, which has recesses, *a a*, between the cutters *b b b b*.

The cutting-edges of the threads, at the points *d d d d*, are struck from a common centre, *e*, as represented by the concentric line *f*.

The eccentricity of the cutters is struck from the centers *g g g g*.

The die-plate A having been formed ready for cutting its screw-thread, it is held in position, by a suitable chuck, to receive the operation of the tap B, represented in figs. 3 and 4, the said tap being arranged

in line with the center of the die, and rotated by suitable mechanism.

The tap is provided with movable cutters, D D, in the radial slots *h h*, the cutters having projections, *j j*, at its ends, over which the bands *k k*, on the concentric parts *l l* of the tap, are slipped, to hold them within the slots, the cutters being removable at pleasure for repairs by slipping the bands outward.

The bands *k* are not essential to the operation of the tap, being only a convenience for holding the cutters in place when not in service, and may be dispensed with, if desired.

The tap has a central hole, *m*, clearly seen in fig. 4, which receives one end of the shaft E, for giving the vibratory movement to the cutters D D.

That part of the shaft in range with the cutters has flat faces, *n n n n*, represented in figs. 4 and 5, to admit of the latter receding toward the center of the tap, as represented in full lines in fig. 4, which shows the rounded and inner edges of the cutters bearing upon said flat faces.

As the tap revolves, and the full faces *o o o o* come in contact with the inner edges of the cutters, the latter receive an outward movement, and come into the position represented by dotted lines, whereby eccentricity is given to the dies.

I do not confine myself to the flat faces *n* on the shaft E, as other formations may be given by means of curves or corrugations, by which a similar effect would be produced.

I am aware that expanding taps for cutting screw-threads in nuts having various sized orifices are not new, and I disclaim such devices; but

What I do claim is—

The device, consisting, essentially, of threaded-body or tap B, removable cutters D, and central shaft E, and the method of using the same to cut the threads of screw-cutting dies, as described and shown.

In testimony that the above is my invention, I have hereunto set my hand and affixed my seal, this 12th day of May, 1870.

Witnesses: WILLIAM NEWSHAM. [L. s.]

THOMAS J. BEWLEY,
JOSEPH C. MILLER.