(No Model.)

# J. E. WOODBRIDGE.

## SCREW CUTTING DIE.

No. 413,701. Patented Oct. 29, 1889.

Fig. 1

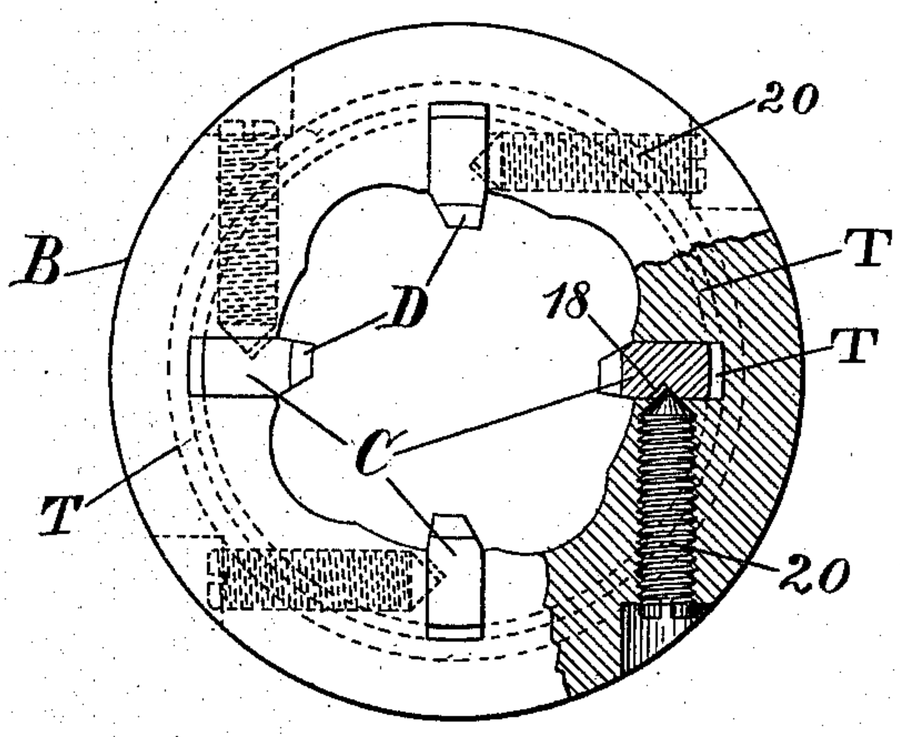
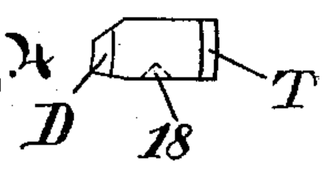



Fig. 4



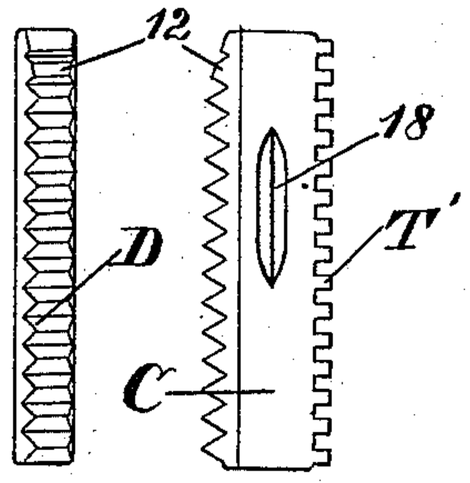




Fig. 2

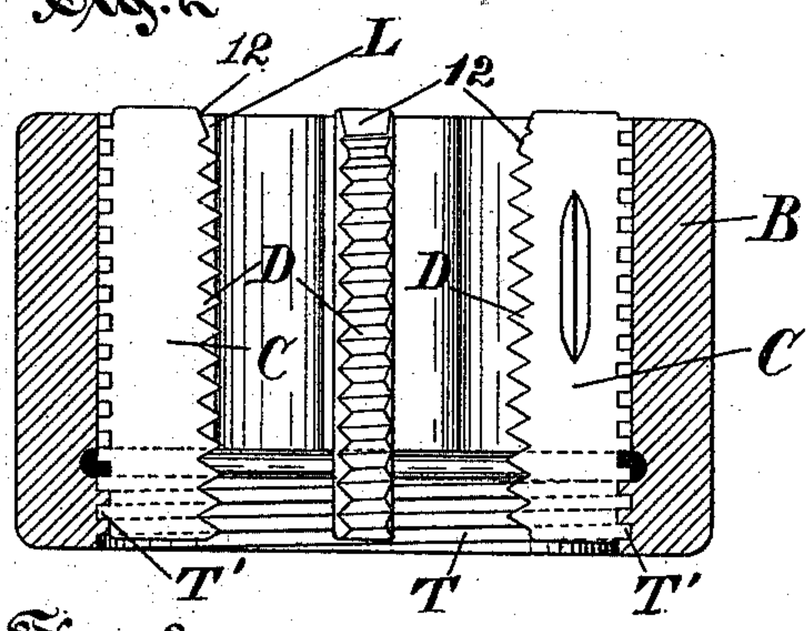



Fig. 6

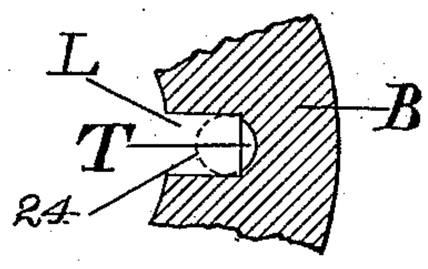



Fig. 3

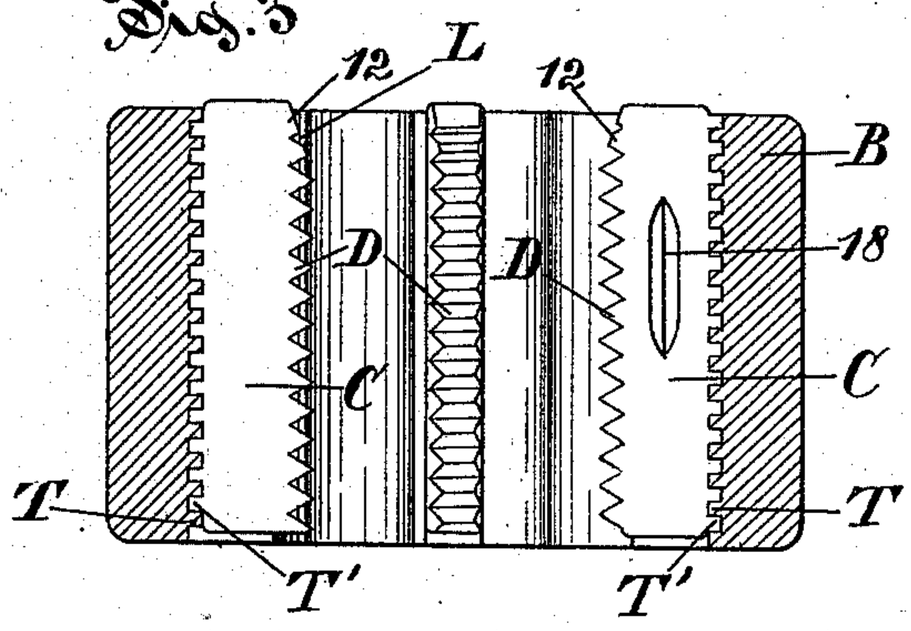
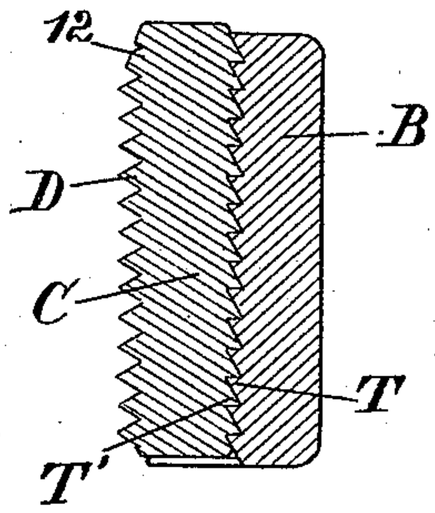



Fig. 5

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# UNITED STATES PATENT OFFICE.

JAMES E. WOODBRIDGE, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE PRATT & WHITNEY COMPANY, OF SAME PLACE.

## SCREW-CUTTING DIE.

SPECIFICATION forming part of Letters Patent No. 413,701, dated October 29, 1889.

Application filed February 1, 1889. Serial No. 298,344. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES E. WOODBRIDGE, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Screw-Cutting Dies, of which the following is a specification.

This invention relates to that class of dies used for cutting screw-threads on bolts.

The chief object of the invention is to furnish an improved tool of that class in which the renewable chasers shall be so attached to the tool-body that the same may be readily set forward from time to time as the chaser-point is dulled and reground, and in which said chasers shall be substantially alike, so that one chaser may be substituted for either one of a set of them, all as hereinafter more fully set forth.

In the drawings accompanying and forming a part of this specification, Figure 1 is a front or end elevation (partially in section) of a screw-cutting die embodying my improvements. Fig. 2 is a sectional side elevation of the same drawn in projection with Fig. 1. Fig. 3 is a similar view showing certain modifications described. Fig. 4 shows one of the chasers in three views, which are drawn in projection with each other. Figs. 5 and 6 are sectional views illustrating another modification.

Similar characters designate like parts in all the figures.

My improvements being in the main equally applicable to taps and to dies, I have described both of these adaptations in the order named, and have claimed the same, broadly, in another application, Serial No. 287,337.

I will now particularly describe a screw-cutting die embodying my present invention.

In my improved screw-cutting die the annular body or collet B has formed therein a series of longitudinal slots L for receiving the chasers C. Rearward of said slots (or below in Fig. 2) a guide-thread T is formed, which in this instance is shown as a "square" thread, and is continuous around the interior of said collet B. The chasers lying in slots L extend over said guide-thread and have corresponding notches T′ engaging therewith. For retaining the chasers in place, the chasers each have a groove 18, into which the point of screw 20 projects after a well-known manner, which is illustrated in Fig. 1.

Instead of the continuous thread or guide-notch T, Figs. 1 and 2, I may use the separate square notches T in Fig. 3 or the beveled notches T shown in Fig. 5 formed along the bottom of the slots containing the chasers, and if the latter are used they may be concaved, as in Fig. 6, so that the same may be formed by means of a milling-cutter, (represented by the circle 24.) In either case the said guide-notches are preferably located and arranged on a spiral line around said body, which line is of a pitch corresponding to the thread-cutting teeth D. By means of this construction, whenever it is desired to advance (or withdraw) all of the chasers by a less distance than the space of one cutting-tooth, all of the chasers may be carried around in the proper direction to the next slot and reset on the corresponding notches.

In renewing any chaser of the series the new one is simply substituted for the old one, after which the usual cutting ends 12 of the whole series are reground to have the proper corresponding positions on the tool. As these beveled parts 12 become worn the chasers are set forward on their seats by one thread or notch and all reground to preserve their proper working positions, and whenever any one chaser breaks away at the point, as they sometimes will, such chaser is set forward and reground to correspond with the other chasers.

The operation of my improved die in threading bolts, pipes, and the like is substantially the same as the operation of the ordinary dies of this class heretofore in use, and will be understood from the drawings and preceding description without a more particular explanation thereof.

Having thus described my invention, I claim—

1. The combination, in a screw-cutting die of the class described, of the annular collet having longitudinal slots and circumferentially spirally-distributed guide-notches formed on its inner face, and screw-cutting

chasers seated in said slots and having notches engaging with said guide-notches, all substantially as described.

2. The improved screw-cutting die herein described, it consisting of a collet having slots on the inner surface thereof constructed to receive the chasers, and having spiral guide-notches on which to seat the chasers, and notched screw-cutting chasers seated in said slots, with their notches in engagement with said guide-notches, substantially as described.

3. The combination, with the collet B, slotted to receive the chasers and having the notches T, of the chasers C, constructed to be set in engagement with said notches, and means, substantially as described, holding said chasers in place, substantially as described.

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