M. C. JOHNSON.

Dies for Cutting Screw-Threads.

No. 204,048. Patented May 21, 1878.

Fig. 1.

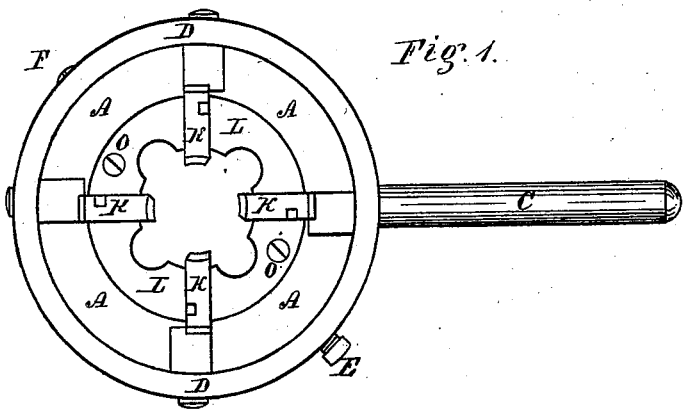


Fig. 4.

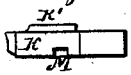


Fig. 5.

Fig. 6.

Fig. 2.

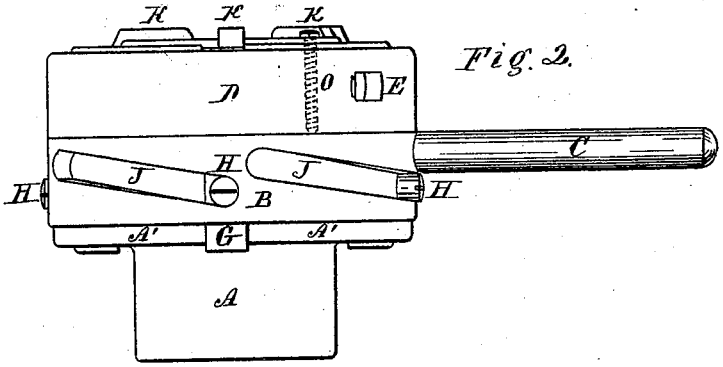


Fig. 7. Fig. 8.

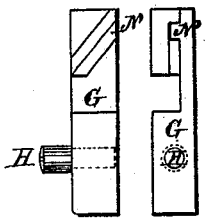
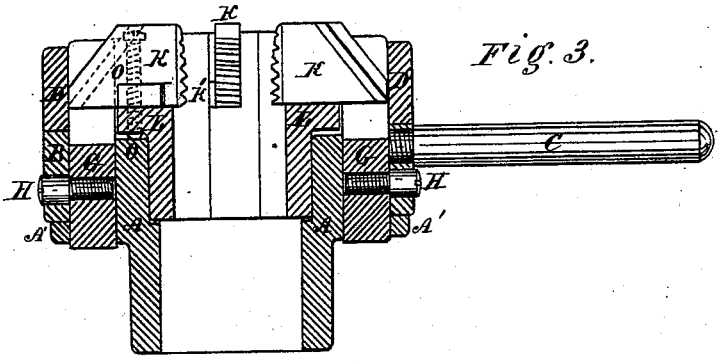


Fig. 3.



Witnesses.

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M. CARLYLE JOHNSON, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN DIES FOR CUTTING SCREW-THREADS.

Specification forming part of Letters Patent No. **204,048**, dated May 21, 1878; application filed February 9, 1878.

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 Dies for Cutting Screw-Threads; 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 drawing, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

My improvement relates to such dies as are usually called "open dies," or those which release the bolt after the thread is cut, so as not to require the motion of the die to be reversed and unscrew it from the thread.

The object of my invention is to provide a better and simpler arrangement of parts for effecting the foregoing operation, to provide for the adjustment of the diameter of the thread cut to the exact size required, and to permit of the cutters being readily removed and others substituted for the purpose of cutting a different thread.

My invention consists in the construction and arrangement of the several parts, as will be hereinafter described.

In the accompanying drawing, Figure 1 is a top view of my improved die. Fig. 2 is a side view of the same. Fig. 3 is a cross-section through the middle, showing the working parts. Figs. 4, 5, and 6 are a top, end, and side view of one of the cutters. Figs. 7 and 8 are a front and side view of one of the slides for operating the cutters.

A is the body of the die. B is a ring surrounding the body A and resting upon a flange, A′. C is a handle screwed into the ring B, for the purpose of turning it upon A. D is a collar placed upon the body A, above the ring B, for the purpose of holding it in its position and forming the upper side of the groove in which it turns. This collar D is secured to the body A by means of screws E F, one or more of which also serves another purpose, which will be hereinafter described.

G G, &c., are slides moving up and down in suitable grooves in the body A. They are furnished with the projections H, which extend outward into the grooves J in the ring B, so that when the ring is turned to the right and left the pins or projections H are forced up and down by the inclined grooves and carry with them the slides G.

K K, &c., are the cutters or chasers for forming the screw-thread. They move radially in slots cut in the collet L, the exterior of which fits into the interior cavity of the body A. The tops of the slots are open; but the cutters are prevented from moving upward by means of the flange or feather K′, which fits into a corresponding groove in the collet.

The rear ends of the cutters K are inclined, and pass into the vertical sockets in which the slides G move, the slides being recessed to receive them. The side of the rear part of the cutter is provided with a groove, M, into which fits the tongue N upon the slide G, both being inclined at such an angle that as the slide G moves up or down it moves the cutter out or in.

It will thus be seen that when the handle is turned hard to the left the slides are drawn down and the cutters projected toward the center in the position for cutting a thread, and when the handle is turned to the right the cutters are withdrawn, so as to release the bolt upon which the thread has been cut.

The collet L is loose in the body A; but the rear ends of the cutters, projecting into the sockets in the body, hold the collet firmly from turning while the thread is being cut, and the inclined rear ends of the cutters, acting against the slides G as they are forced outward by the pressure of cutting the thread, press the collet firmly down into its seat.

O O are screws for adjusting the diameter of the thread cut. They pass through hollow threads in the collet, and rest upon a shoulder of the body A, as shown in the drawings, so as to elevate or depress the collet when in its lowest position, as it is when the thread is cut. It will be observed that the effect of raising the collet is the same as that of lowering the slides G. By doing either the cutters are advanced toward the center of the die, so that by this means the diameter of thread cut can be accurately adjusted. Two screws are shown in the drawing; but there may be one or more, as is found most convenient.

Whenever it is desired to change the cutters

so as to cut a different thread, the collet and cutters are simply lifted out of the body of the die and others substituted. In lifting out the collet the cutters slide inwardly, which releases them from the sockets in the slides G.

In substituting another collet and cutters, or replacing the ones taken out, the slides G are raised and the rear ends of the cutters placed in their proper sockets, when the collet can be easily pressed down into its place.

The screw E (shown in Figs. 1 and 2) passes through the collar D, and presses upon one of the segments of the body A between two of the slots for the cutters. This serves for an adjustment for the socket into which the collet L fits. If the collet fits too loosely, the screw is tightened, which presses in the segment of the body A and tightens it. There may be one or more of such screws.

What I claim as my invention is—

1. The combination of the collet L and its contained cutters K with the body A and its vertical slides G, connected in the manner described, so as to permit of the removal and substitution of different collets and cutters, as herein set forth.

2. The screws O, in combination with the collet L, the body A, the slides G, and the inclined backed cutters K, as a mechanism for adjusting the radial position of the cutters, substantially in the manner herein described.

3. The combination of the clamping-screw E with the collar D and the body A, for tightening the socket of the collet L, substantially as herein described.

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Witnesses:
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