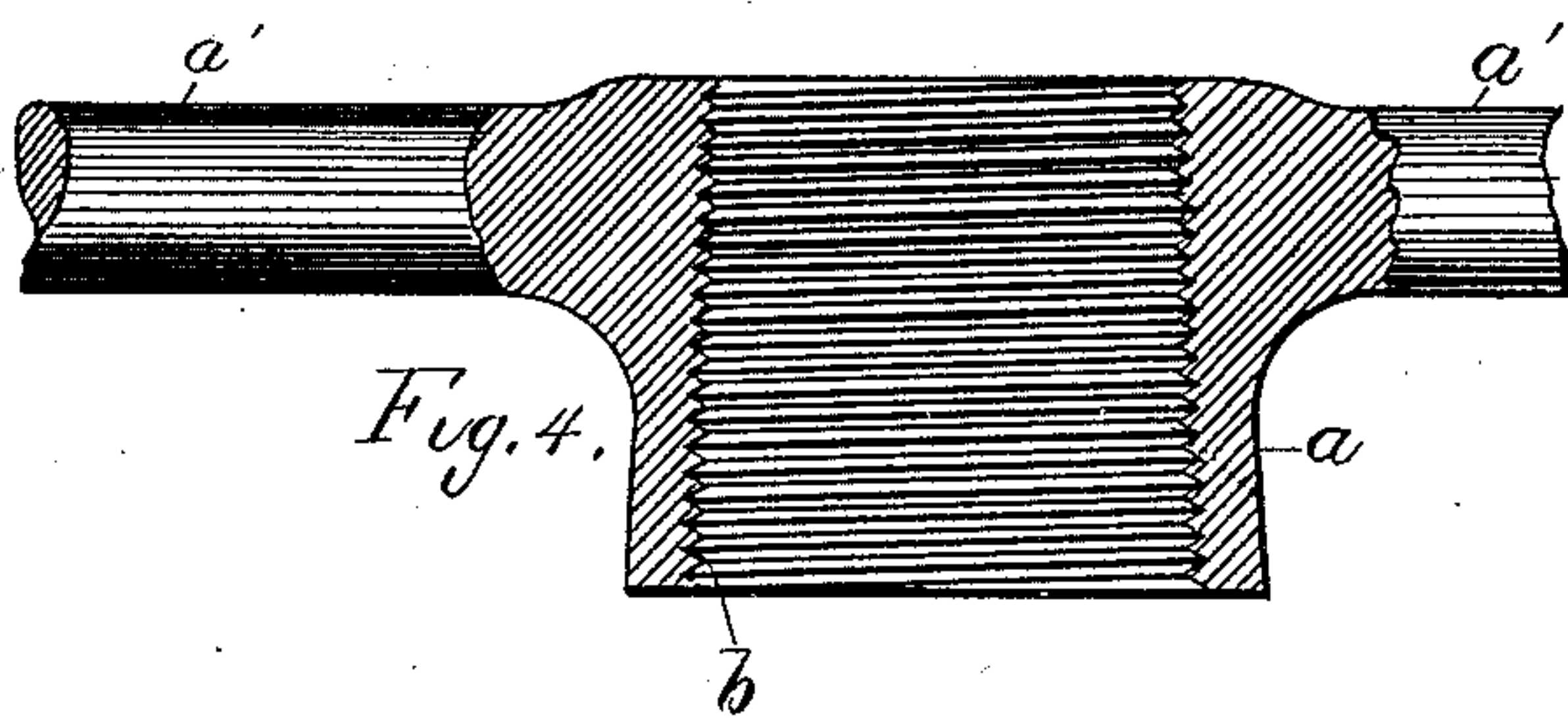
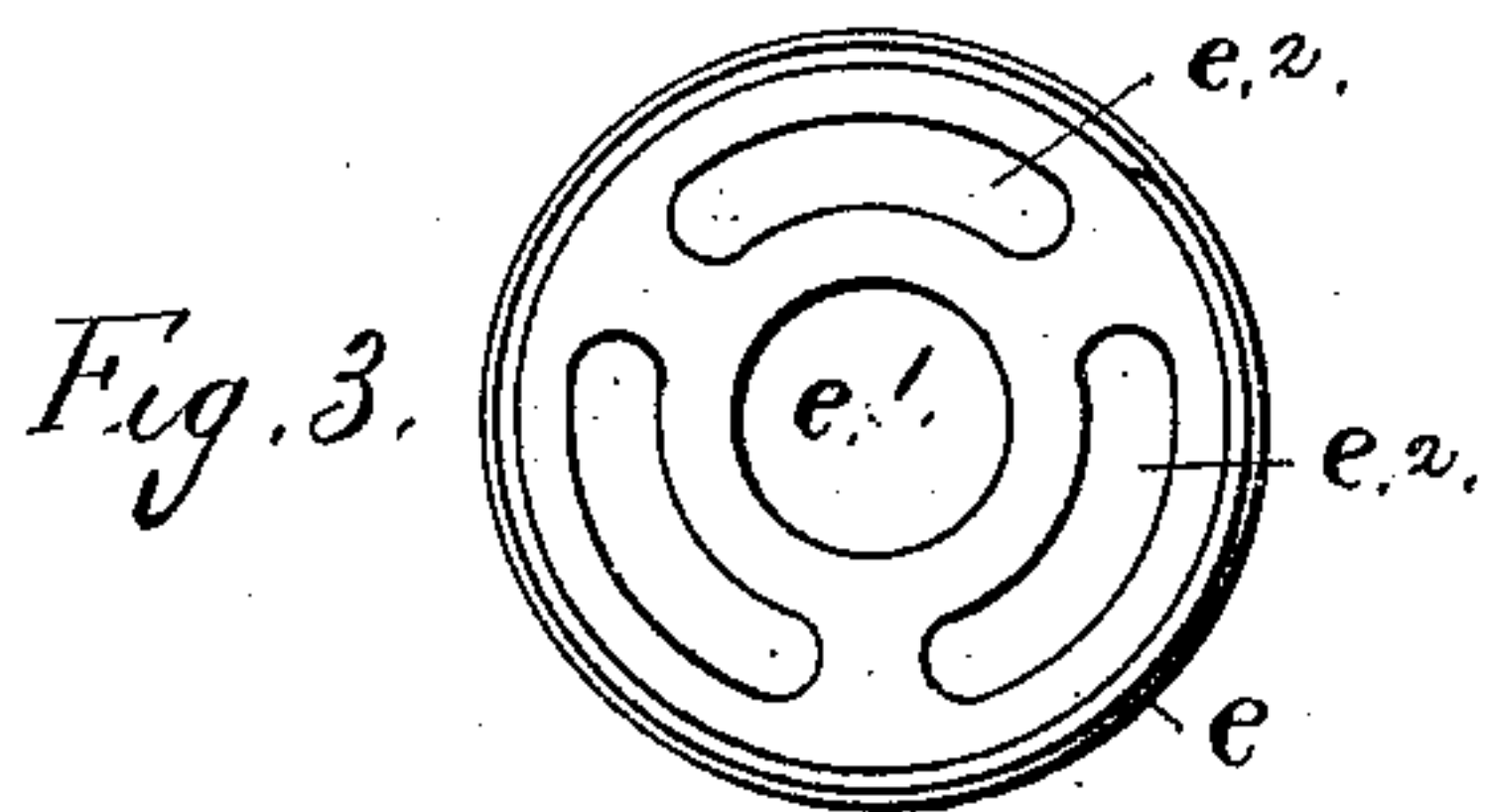
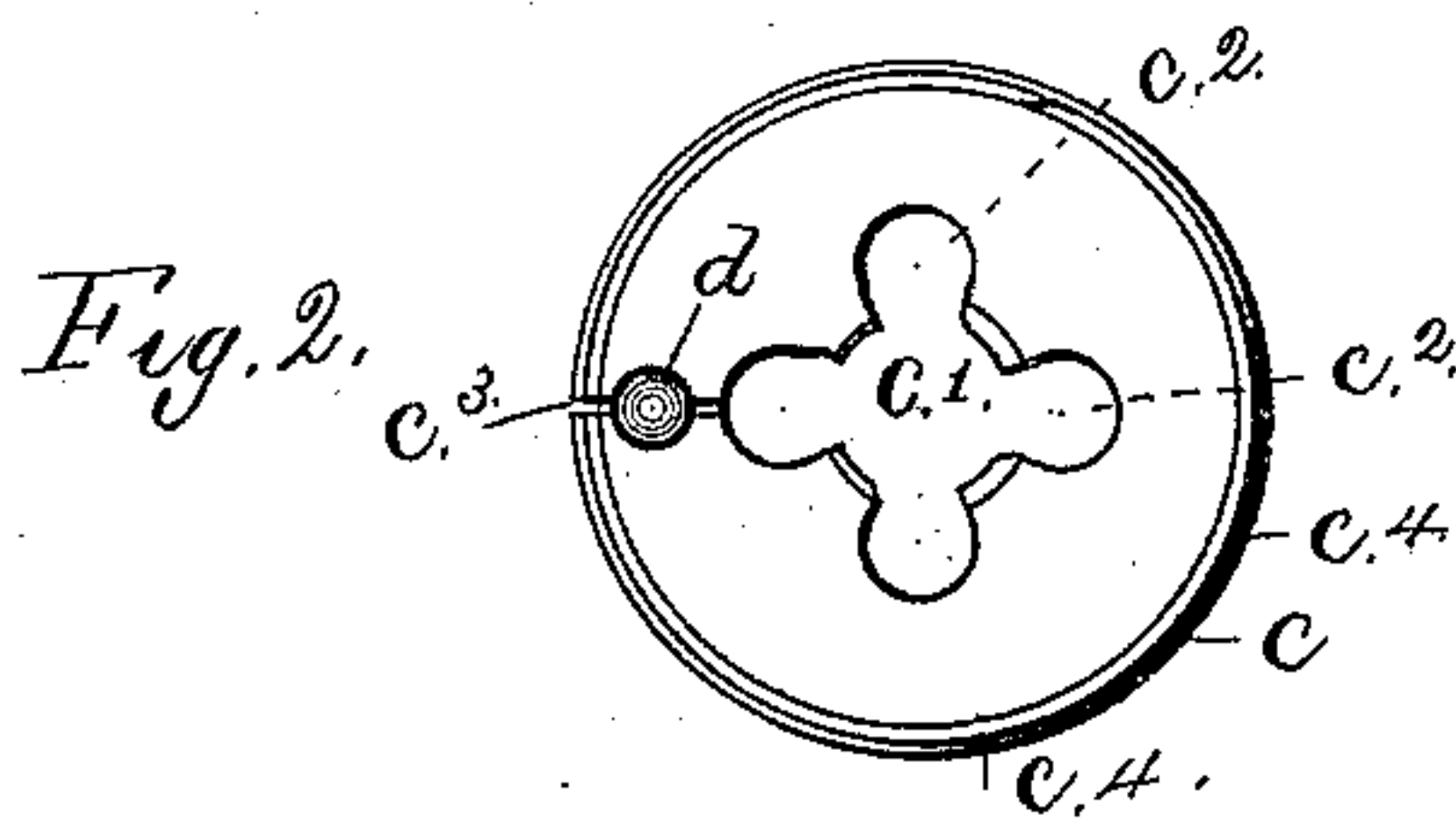
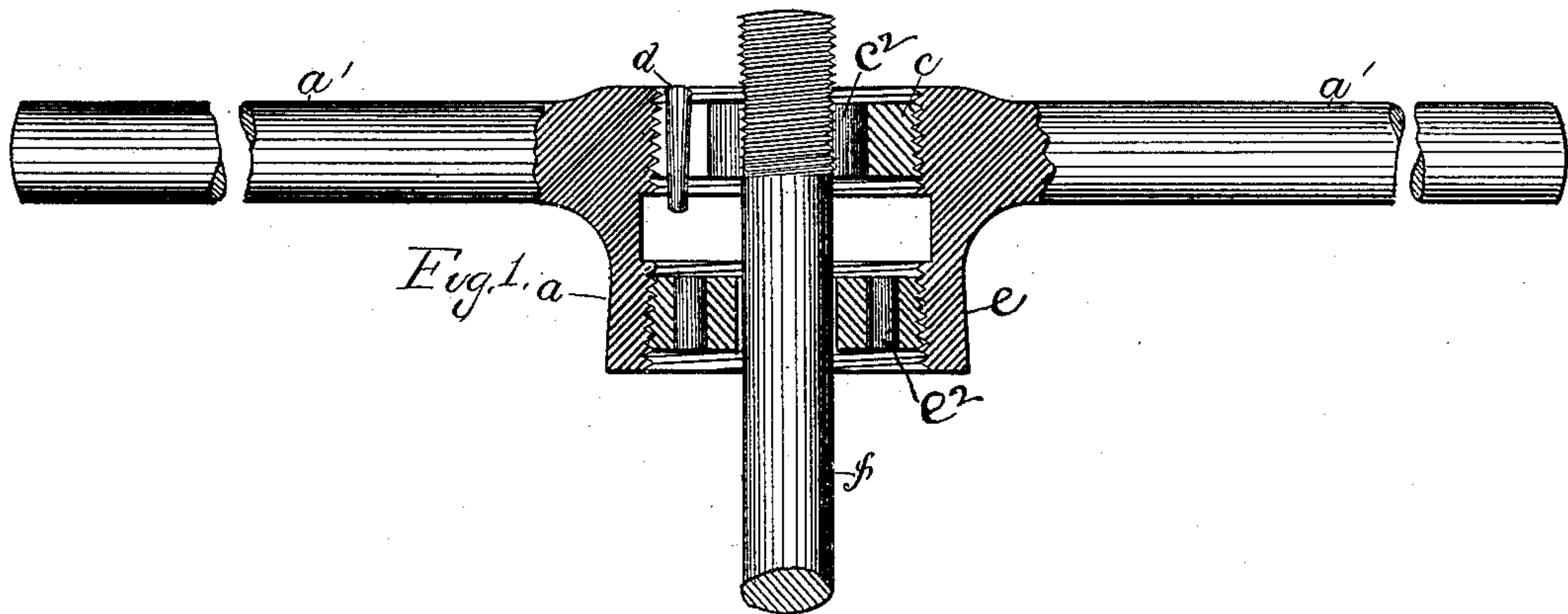


(No Model.)

J. S. FLETCHER.  
DIE STOCK AND DIE.

No. 446,915.

Patented Feb. 24, 1891.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JAMES S. FLETCHER, OF ROGERS PARK, ILLINOIS.

## DIE-STOCK AND DIE.

SPECIFICATION forming part of Letters Patent No. 446,915, dated February 24, 1891.

Application filed May 3, 1890. Serial No. 350,460. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES S. FLETCHER, a citizen of the United States, residing at Rogers Park, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Die-Stocks and Dies, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 shows my improved die-stock and die in vertical central sectional elevation applied to the end of a bolt, the handles of said device being shown in exterior view and a portion broken out of each near its end. Fig. 2 shows the die  $c$  as seen on its under side. Fig. 3 shows the guide  $e$  as seen on its under side. Fig. 4 shows a modification of the interior construction of the hub, the drawings showing a central vertical section thereof with fragments of the handles in exterior view.

Like letters of reference denote like parts.

The object of my invention is to construct an improved die and die-stock wherein the gage of the cutting portion of the die may be varied so as to make a close or a loose fit for a given-sized bolt, and wherein the stock and die, though separable, are to be kept together as one instrument or tool, each die having its own stock, and wherein a guide is provided which has substantially the same structure at its circumference as the die, and is held by the same or like screw-threads or equivalent device, which hold the die; and to attain said ends I construct my improved die and stock substantially as follows, namely: I provide a stock consisting of a long hub  $a$ , provided with arms or handles  $a'$ . Said hub has a conical and screw-threaded opening  $b$ , threaded from end to end, as shown in Fig. 4, or so as to leave a blank space between the ends, as shown in Fig. 1. Into said hub is fitted a correspondingly-tapering die  $c$ , having an exterior thread  $c^4$ , adapted to fit the screw-thread of said hub at the smaller end thereof. The central opening  $c'$  of said die and the chambers or recesses  $c^2$  connecting therewith are made in the usual manner, and from the interior of one of said chambers  $c^2$  is cut an opening  $c^3$  through to the exterior of the threads, as shown in Figs. 1 and 2. Said opening or slot is cut wide enough to give the de-

sired amount of play-room between the ends of the die, and into said slot or cut is cut a space for a tapering plug or pin  $d$ , which lies half-way on each side of the central plane of said cut, as clearly shown in Fig. 2.

Into the lower and larger end of the hole in the hub  $a$  is placed a guide  $e$ , having a central opening  $e'$  large enough to just pass freely over the rod or bolt  $f$ . Said guide has a tapering and round screw-threaded exterior surface adapted to fit the larger end of the screw-threaded hole in the hub  $a$ , in which it may work so loosely that it may be turned easily by hand, or it may be driven up toward the smaller end of said hole so far that it may require the use of an appropriate wrench to move it. There are also slots  $e^2$  cut through said guide, which serve a treble purpose, first, to receive a wrench to turn it with; second, to pass the chips which drop from the cutting-die above, and, third, to pass a punch upon the pin or plug  $d$  to drive it out.

The object of the slot  $c^3$  is to allow play-room for the ends of the die formed by said cut, which may now be forced together, the die yielding at the weak parts formed by cutting out the chambers  $c^2$ .

The object of the conical hole in the hub is to enable the operator of it to cause the sides of the slot  $c^3$  to approach each other when the die is forced into the smaller end of the hub and thereby reduce the gage of the opening  $c'$ , and the object of the conical pin or plug  $d$  is to hold the ends of the die from further approach after the proper gage has been attained by driving the said plug and conical outer walls so as to press strongly against each other, and thus hold all the parts securely in their place and the die from changing its gage, no matter how strongly the die may be driven into the smaller end of its chamber.

The threads in the hub are of the same description as those of the die, both right or left-handed, as the case may be. By this arrangement the die will always be tightened in the hub in work instead of becoming loose, as would be the case if the threads were of contrary descriptions.

Although a threaded hub, as here shown, is the most convenient and practical, such arrangement is not indispensable, because it is



evident that the bore of the hub may be smooth, and the exterior surface of the die may be smooth also; then both die and guide may be driven to their places by any other well-known means, and, if necessary, the die might be kept from slipping when at work by the well-known means of a groove and key or spline.

With a long hub and a guide in it, as here shown and described, there will be no trouble whatever to start the threads properly on a bolt, even by the most inexperienced person, and by means of this construction the necessary parts of my device are reduced to the fewest and simplest possible, all the working parts being concentric with each other and incapable of getting out of such adjustment.

What I claim is—

1. In combination with a die-stock provided with a hub having a conical hole through it, a conical die concentric with the conical wall of said hole, substantially as specified.

2. In combination with a die-stock provided with a hub having a conical and screw-threaded hole through it, an exteriorly-screw-threaded conical die concentric with the conical wall of said hole and adapted to fit the threads of said hub, substantially as specified.

3. In combination with a die-stock provided with a hub having a screw-threaded hole through it, an exteriorly-threaded conical and adjustable die concentric with the wall of said hole and adapted to fit the threads of said hub, substantially as specified.

4. In combination with a die-stock provided with a hub having a conical and screw-threaded hole through it, an exteriorly-threaded conical and adjustable die adapted to be set to different gages by means of a slotted and yielding die, and a wedge acting on the ends of said slotted die, substantially as specified.

5. In combination with a conical die cut by a slot, provided with a wedge and adapted to cut varying gages, a die-stock having a hub provided with a conical hole adapted to receive said die, substantially as specified.

6. In combination with a conical die cut by a slot, provided with a wedge and adapted to cut varying gages, and a conical guide provided with a central hole adapted to freely pass a bolt, a die-stock provided with a hub having a conical hole concentric with the conical periphery of said die and adapted to receive said die and guide, substantially as specified.

7. In combination with a conical die cut by a slot, provided with a wedge and adapted to cut varying gages, and a conical guide provided with a central hole adapted to freely pass a bolt, and slots to pass the chips cut by said die, a die-stock provided with a hub having a conical hole adapted to receive said die and guide, substantially as specified.

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Witnesses:

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