

(No Model.)

J. N. SEVERANCE.  
SCREW THREADING DIE.

No. 415,069.

Patented Nov. 12, 1889.

Fig. 1.

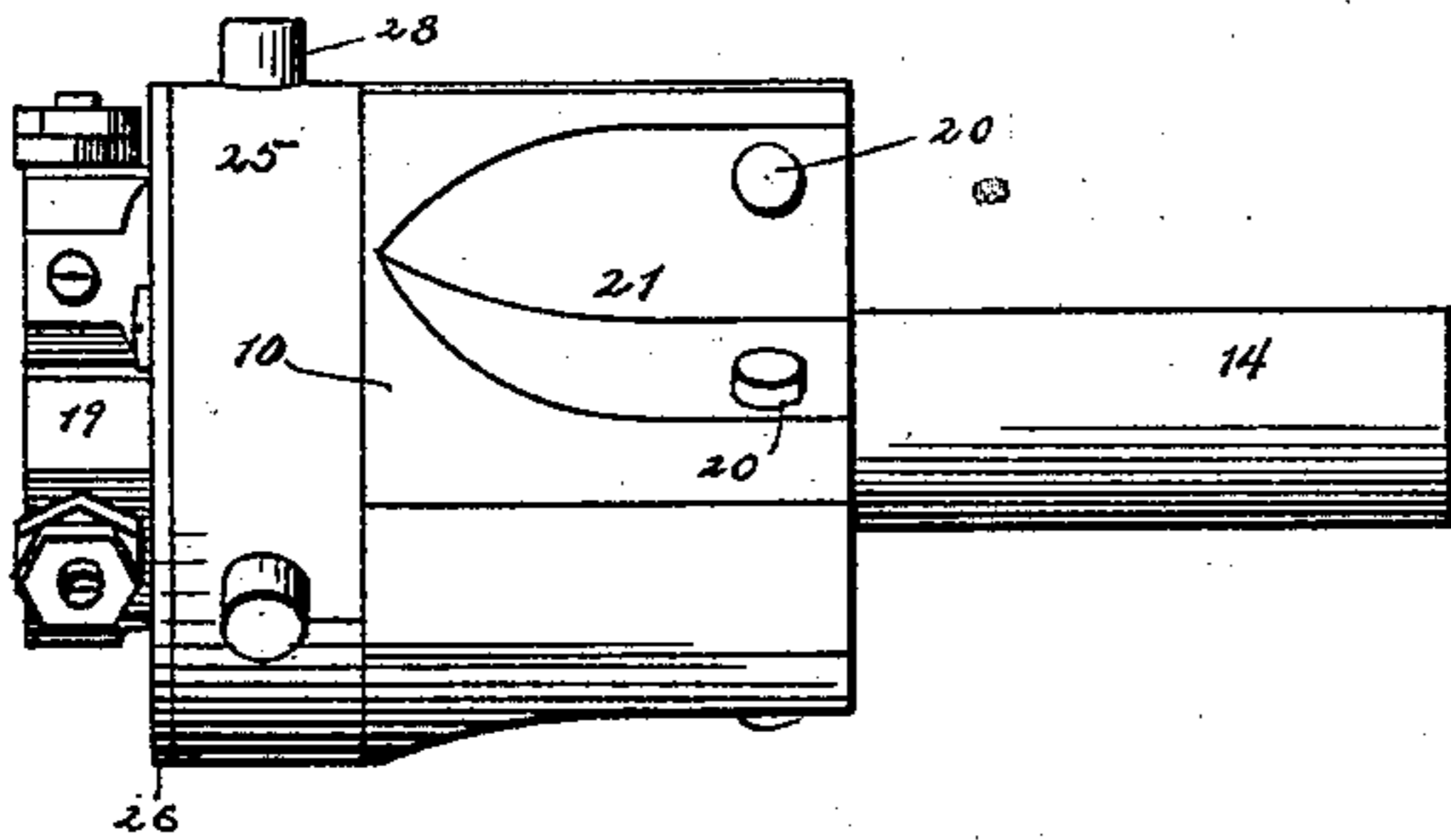


Fig. 2.

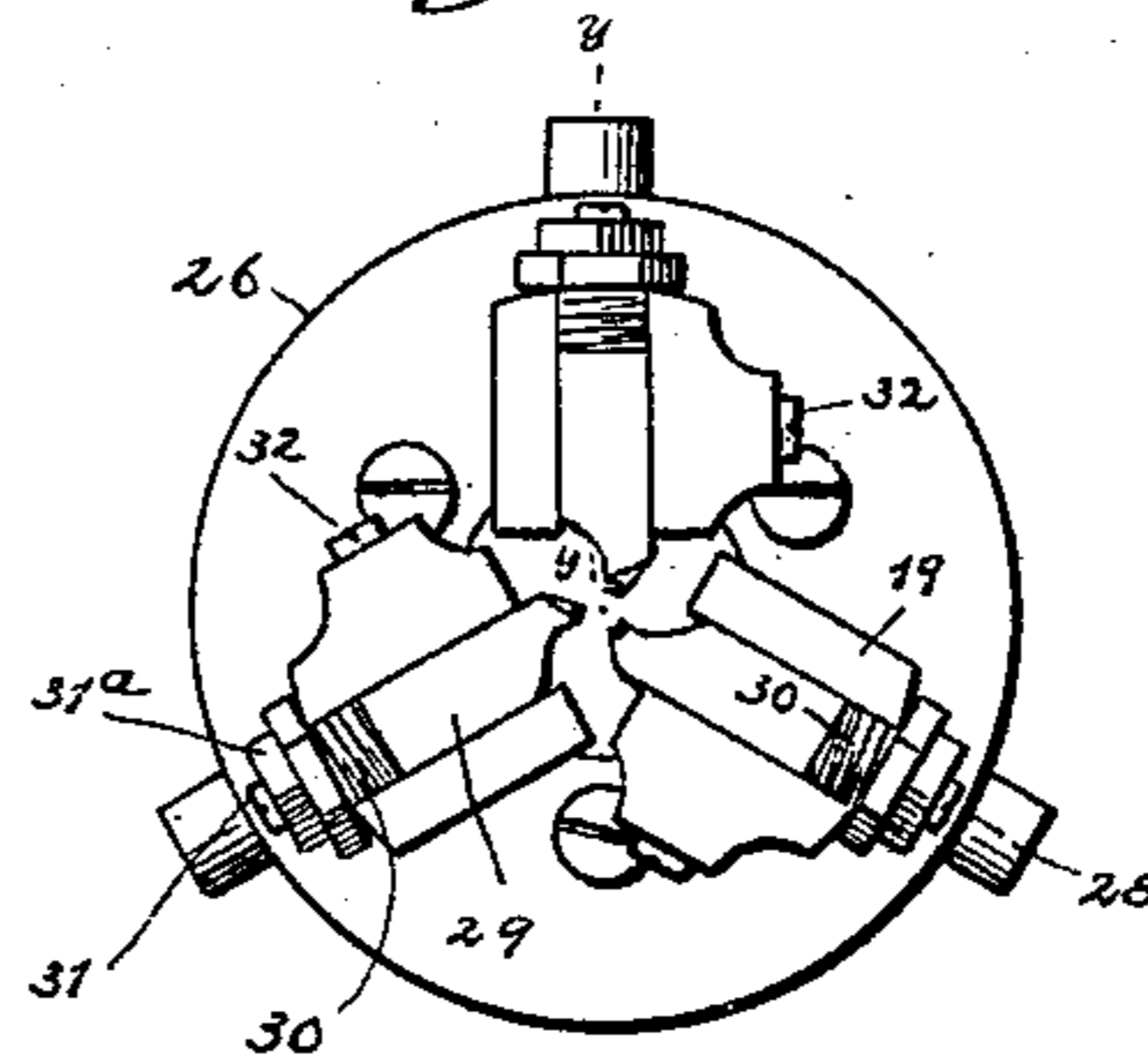


Fig. 3.

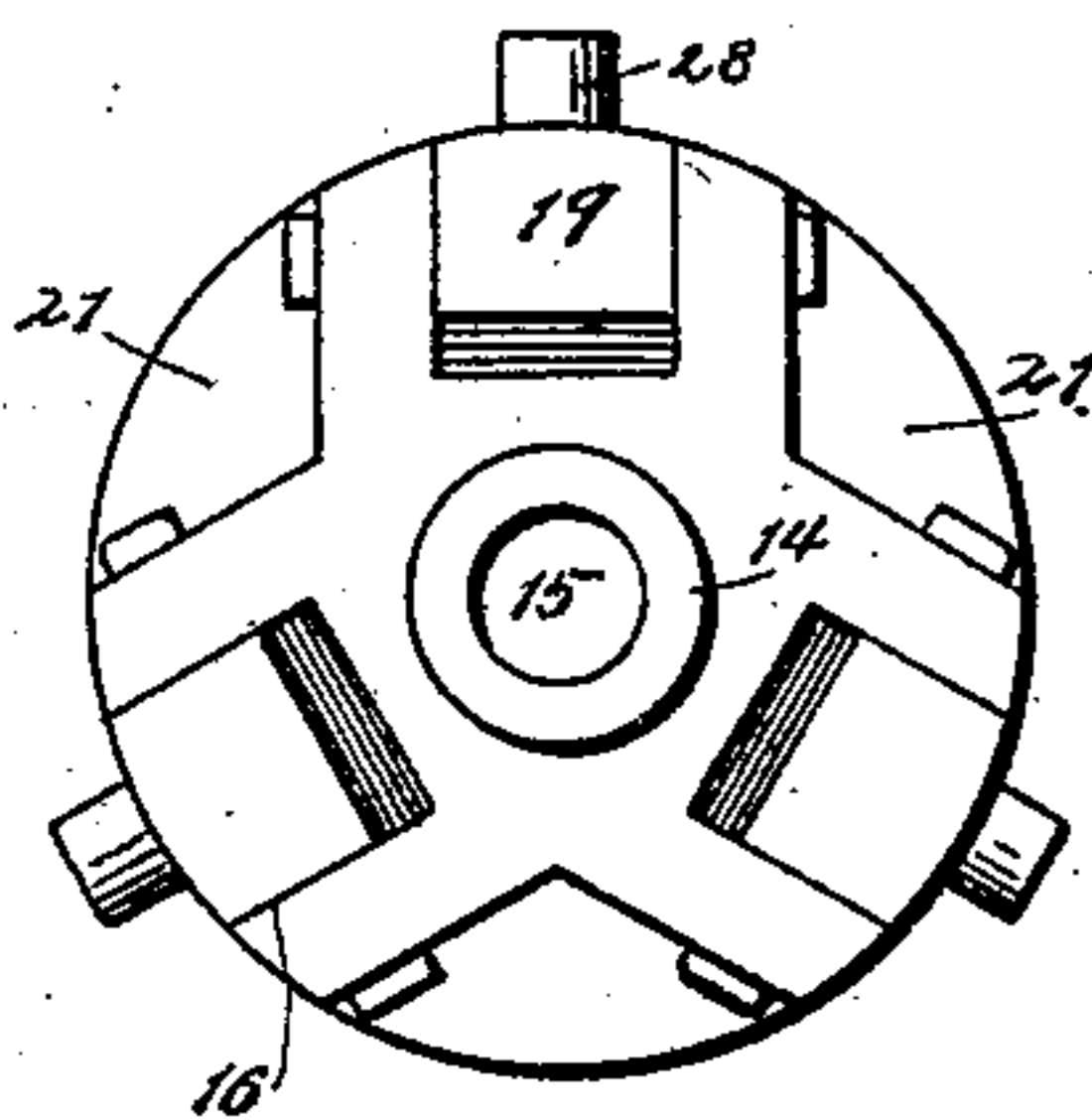


Fig. 4.

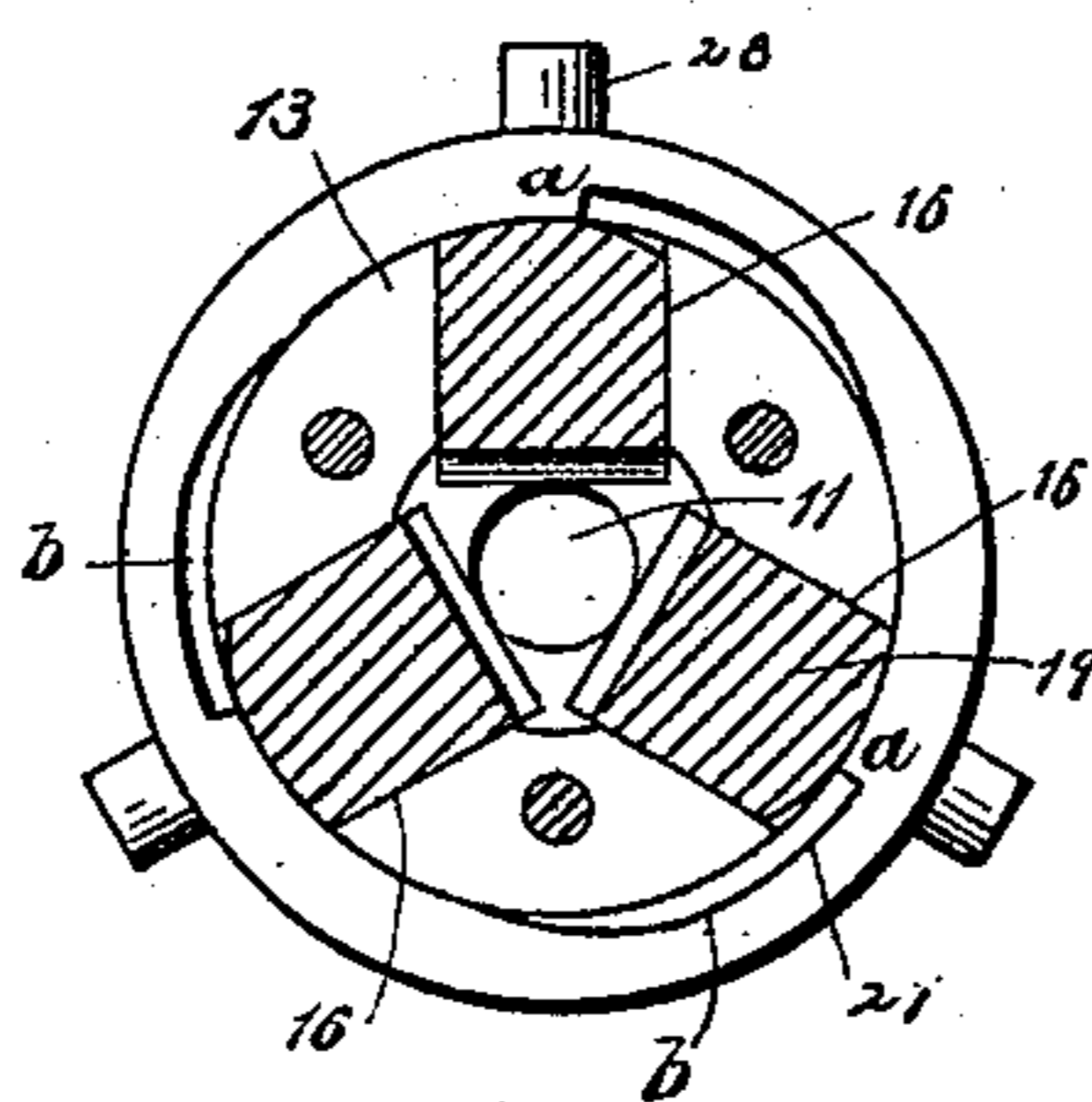


Fig. 5.

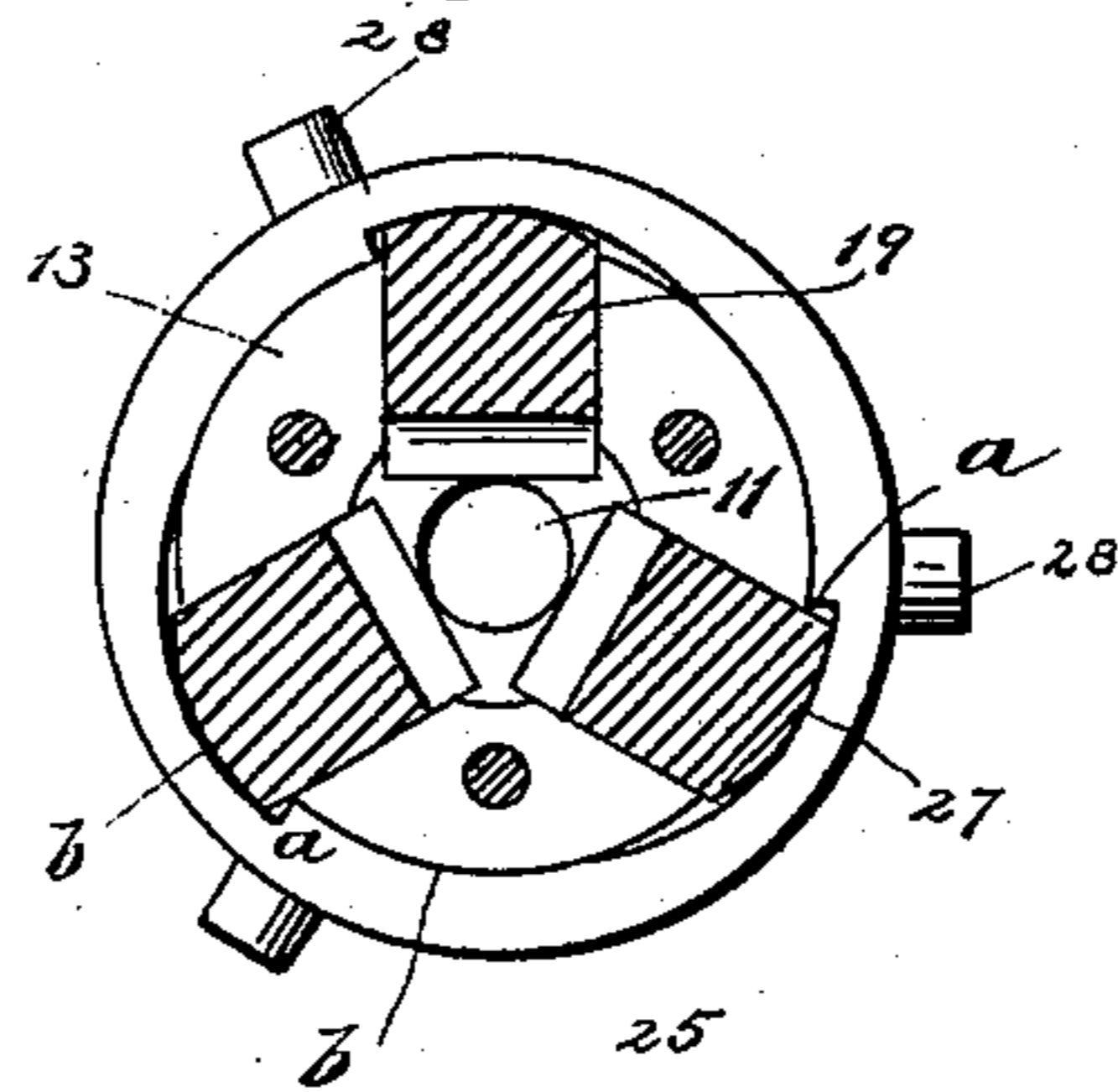


Fig. 6.

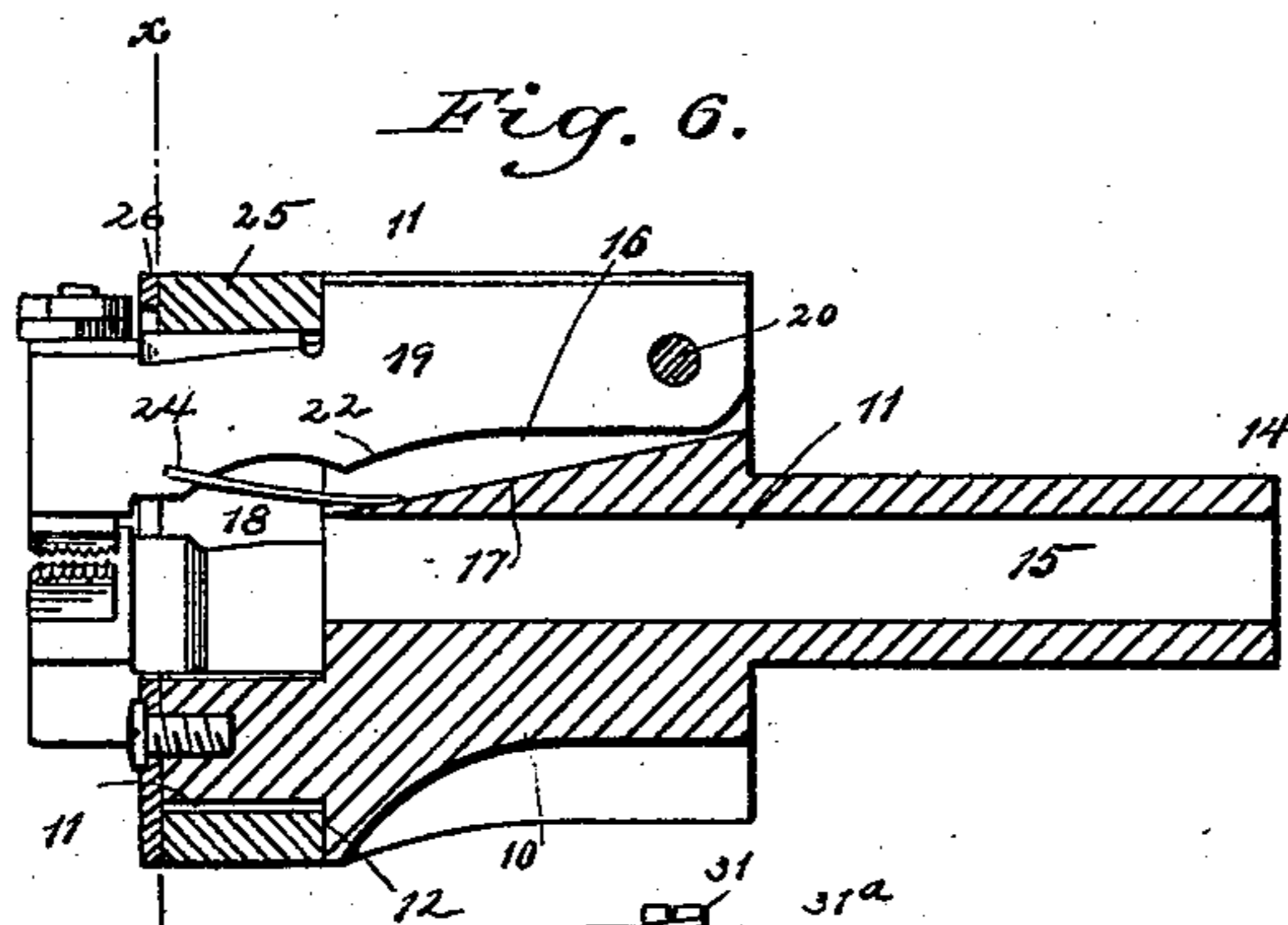
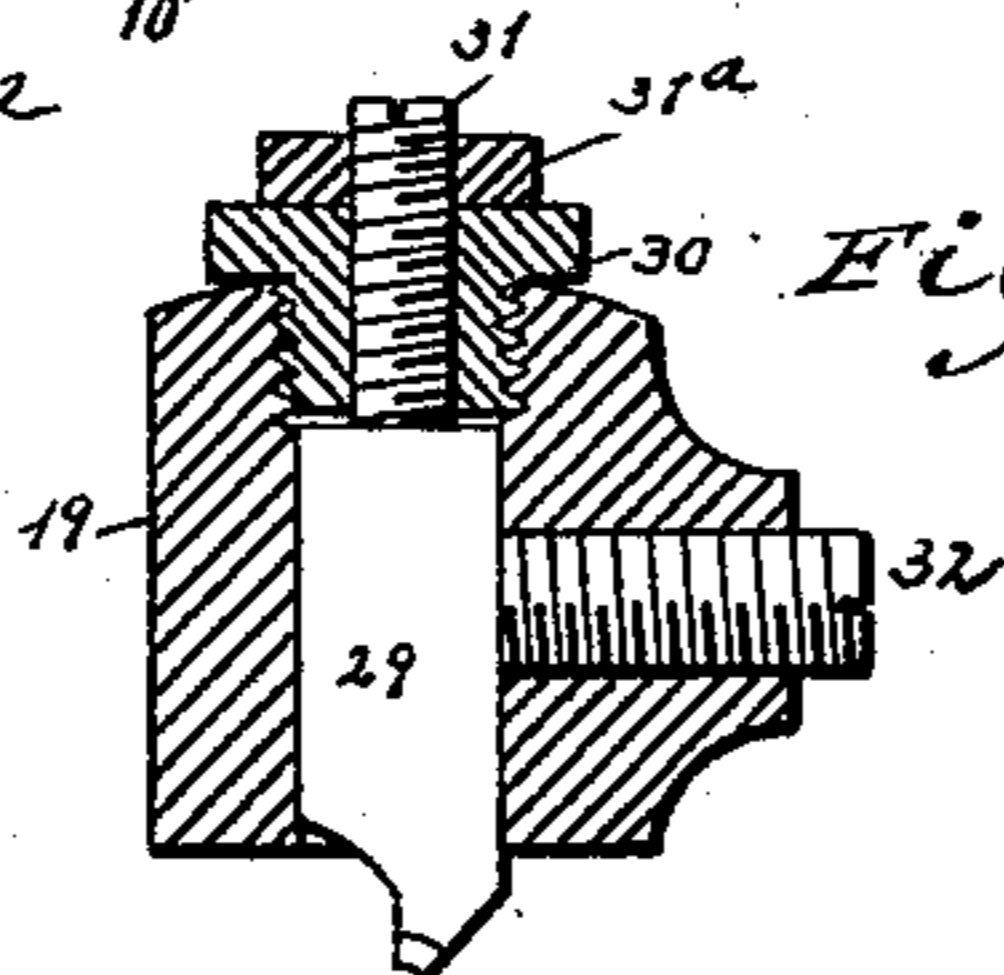


Fig. 7.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN N. SEVERANCE, OF READVILLE, ASSIGNOR TO THE LECKIE BUTTON  
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## SCREW-THREADING DIE.

SPECIFICATION forming part of Letters Patent No. 415,069, dated November 12, 1889.

Application filed February 16, 1889. Renewed October 21, 1889. Serial No. 327,634. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN N. SEVERANCE, of Readville, in the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Die-Heads, of which the following is a full, clear, and exact description.

My invention relates to an improvement in die-heads adapted for use in connection with lathes, screw-machines, bolt-cutters, and similar machinery, and has for its object to provide a head of simple construction, great power, durability, and compactness, and wherein the dies will be held with extreme rigidity when engaged with the work.

A further object of the invention is to provide a head which will obviate the necessity of reversing the motion of the spindle of the machine to which it is applied while cutting threads upon screws or bolts.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the die-head. Fig. 2 is a front elevation, and Fig. 3 is a rear elevation, of the same. Fig. 4 is a section on line *xx* of Fig. 6, illustrating the dies in position to engage with the work. Fig. 5 is a similar section illustrating the dies as in an open and disengaged position. Fig. 6 is a longitudinal central section through the die-head, and Fig. 7 is a detail sectional view on the line *yy* in Fig. 2.

The body 10 of the head is preferably cylindrical, and provided at the outer end with a peripheral recess 11, whereby a shoulder 12 is obtained, and the reduced front face 13, as best shown in Figs. 4 and 6. A stem 14 is formed centrally with the inner end and rear face of the body, and a longitudinal bore 15 is produced in the center of the latter, which bore is continued through the stem. Three or more, preferably three, longitudinal equispaced recesses 16 are cut in the exterior of the body 10, extending from the front to the

rear face, the inner or base wall 17 of said recesses being inclined from the rear inward to unite with the periphery of the bore 15, as best illustrated in Fig. 6, whereby a central triangular core is formed, the face of which is in diametrical alignment with the shoulder 12, the forward end of the central bore 15 being counterbored to the same point to receive the exterior recesses, as shown at 18 in Fig. 6. A jaw 19 is held in each of the recesses 16, the outer longitudinal faces of which jaws are made to conform to the exterior contour of the body 10. A hinged connection of the jaws with the body is effected by passing a pin 20 through the latter and also through the former at or near the inner end when in the recess, the body to that end being provided with an angular cavity 21 in the upper face, as best illustrated in Figs. 1 and 3.

In the forward end of the jaws, which extends beyond the front face of the body, a transverse groove is formed extending through from the outer to the inner face. The inner rear edge of the jaws is rounded off to facilitate their movement in the recesses, and the inner face 22 of said jaws is formed in a series of grooves, and made tapering from a point near the said groove to the inner end, or otherwise shaped to prevent the entire inner surface of the jaws from being brought in contact with the inclined wall of the recesses 16 when thrown in working position. The jaws are normally held out of contact with the said inclined recesses of the walls 17 by springs 24, one end of which springs is rigidly secured in the inner face of the jaws near their forward extremity, the opposite end of the said springs being made to bear upon the recess-walls 17, as best illustrated in Fig. 6.

A cam-ring 25 is held to revolve upon the reduced forward periphery of the body, which ring is held in position by a cap-plate 26, screwed upon the front face of the body and slotted to admit the passage of the jaws, and also centrally apertured to expose the counterbore 18. The cam-ring is provided upon the inner side with three recesses 27, so spaced as to each simultaneously receive one of the jaws. One end of the said recesses is defined by a shoulder *a*, and the other end or interior

surface of the ring is inclined to meet the next shoulder, as illustrated at *b* in Figs. 4 and 5. Opposite each shoulder *a* a stud 28 is secured upon the outer periphery of the ring.

The dies 29 may be secured in the groove of the jaws in any approved manner, but preferably as shown, in which a screw 30 is entered into the outer end of each groove to form a back-stop for the die. Each screw 30 is provided with a head and a centrally-threaded bore. A set-screw 31 is passed through the screw 30 to a bearing upon the die, and a jam-nut 31<sup>a</sup> on the screw 31 is held in contact with the screw-head. A set-screw 32 is passed through the side of each jaw to an engagement with one side of the die, as best shown in Fig. 2.

It will be observed that in operation, by turning the cam-ring in one direction when the recesses therein are brought in registry with the jaws, the latter are forced into the said recesses by the springs 24 and the dies are withdrawn from contact with the work, permitting the same to be readily removed or shifted. In the further revolution of the cam-ring the inclined surfaces *b* gradually force the jaws inward until a point near the shoulder *a* is reached, as shown in Fig. 4, whereupon if the revolution of the ring is stopped the dies are firmly and rigidly held in a cutting position. The cam-ring is preferably manipulated automatically by means of mechanism adapted to engage the studs 28, for which mechanism I have made application for Letters Patent of an even date herewith.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a die-head provided with a series of longitudinal recesses in the outer face, of a die-carrying jaw hinged in each recess and having a cylindrical outer face, and a cam-ring held to revolve upon the head in contact with the jaws, substantially as shown and described.

2. The combination, with a die-head provided with a series of longitudinal recesses in the outer face, of a spring-actuated die-carrying jaw hinged in each of the recesses and having their outer faces conformed to the exterior contour of the head, and a cam-ring

held to revolve upon the head in contact with the jaws, substantially as shown and described.

3. The combination, with a die-head provided with a series of longitudinal recesses in the outer face having an inclined base-wall, of a spring-actuated die-carrying jaw hinged in each recess, having the outer face conformed to the exterior contour of the head and the inner face essentially beveled from the forward end rearward, and a cam-ring held to revolve upon the body in contact with the jaws, substantially as shown and described.

4. The combination, with a die-head provided with a reduced forward end and a series of longitudinal recesses in the outer face having an inclined base-wall, of a spring-actuated die-carrying jaw hinged in each recess, having an outer face conformed to the exterior contour of the head and an inner face essentially beveled from the forward end rearward, a cam-ring held to revolve upon the reduced portion of the head in contact with the free end of the jaws, and means, substantially as described, for securing the dies in said jaws, as and for the purpose specified.

5. The combination, with a die-head provided with a series of recesses in the outer face, and a spring-actuated die-carrying jaw hinged at one end in each recess, of a cam-ring held to revolve upon the head in contact with the free end of the jaws, said ring being provided with a number of internal recesses corresponding to the number of the jaws, defined at one end by a shoulder, and an inclined surface extending from the opposite end of the recesses and meeting the next advance shoulder, substantially as shown and described.

6. The combination, with the die-carrying jaws of a die-head, of a cam-ring adapted to engage the exterior surface of the jaws, said ring provided with a number of internal recesses corresponding to the number of the jaws, defined at one end by a shoulder, and an inclined surface extending from the opposite end of the recesses and meeting the next advance shoulder, substantially as and for the purpose specified.

JOHN N. SEVERANCE.

Witnesses:

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