

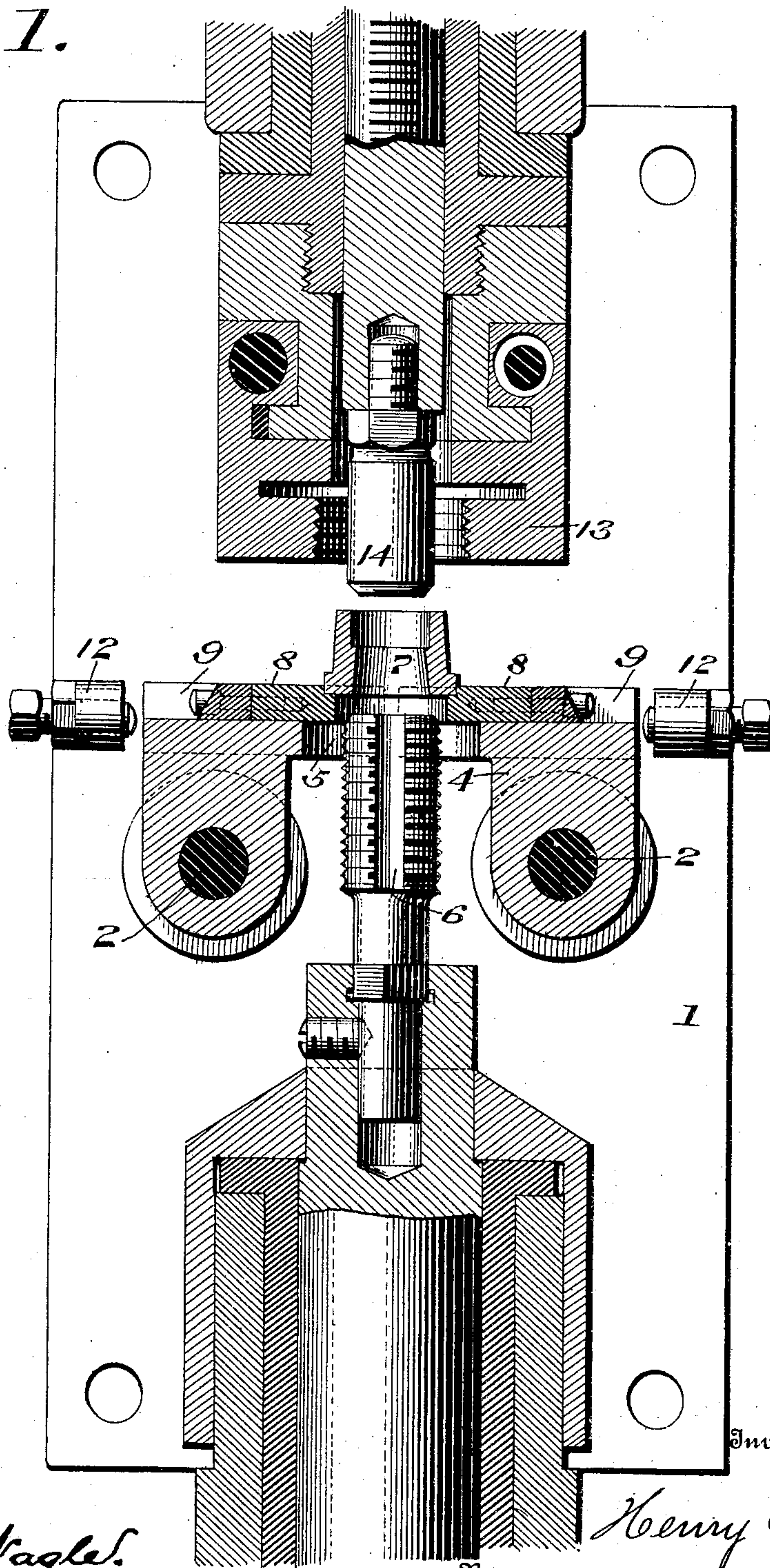
H. O. EVANS.
 AUTOMATIC CHUCK.
 APPLICATION FILED FEB. 10, 1908.

938,996.

Patented Nov. 2, 1909.

3 SHEETS—SHEET 1.

Fig. 1.



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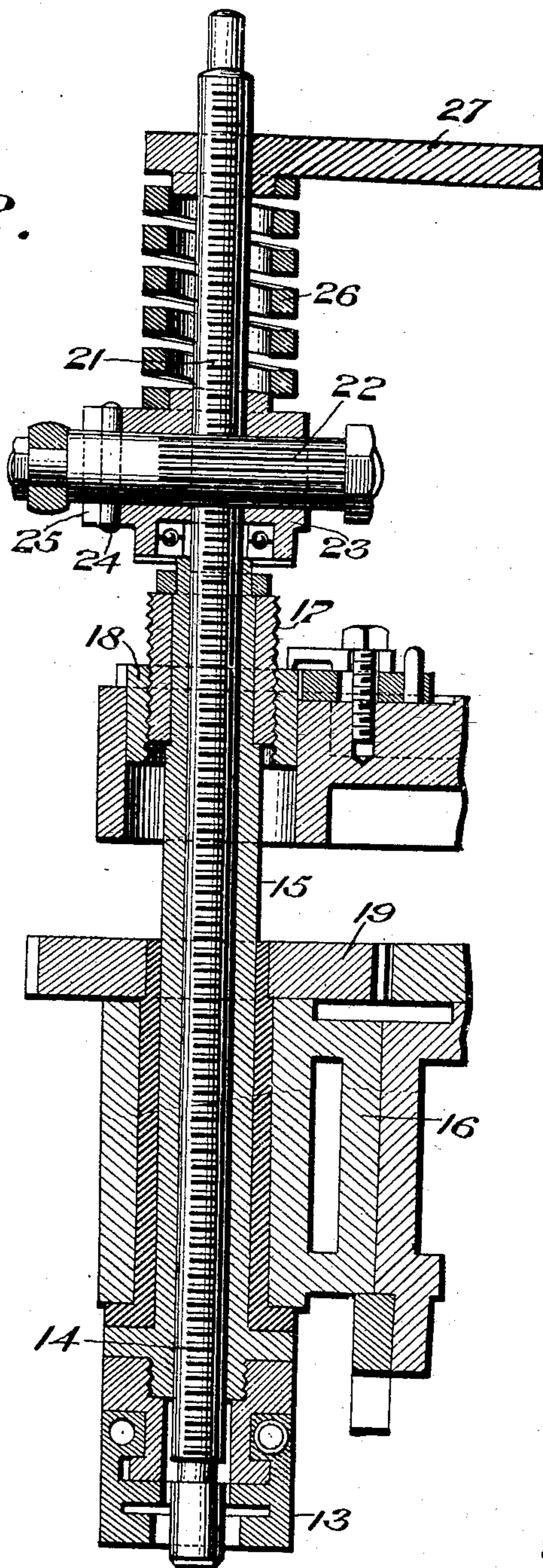
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3 SHEETS—SHEET 2.

Fig. 2.



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 3 SHEETS—SHEET 3.

Fig. 3.

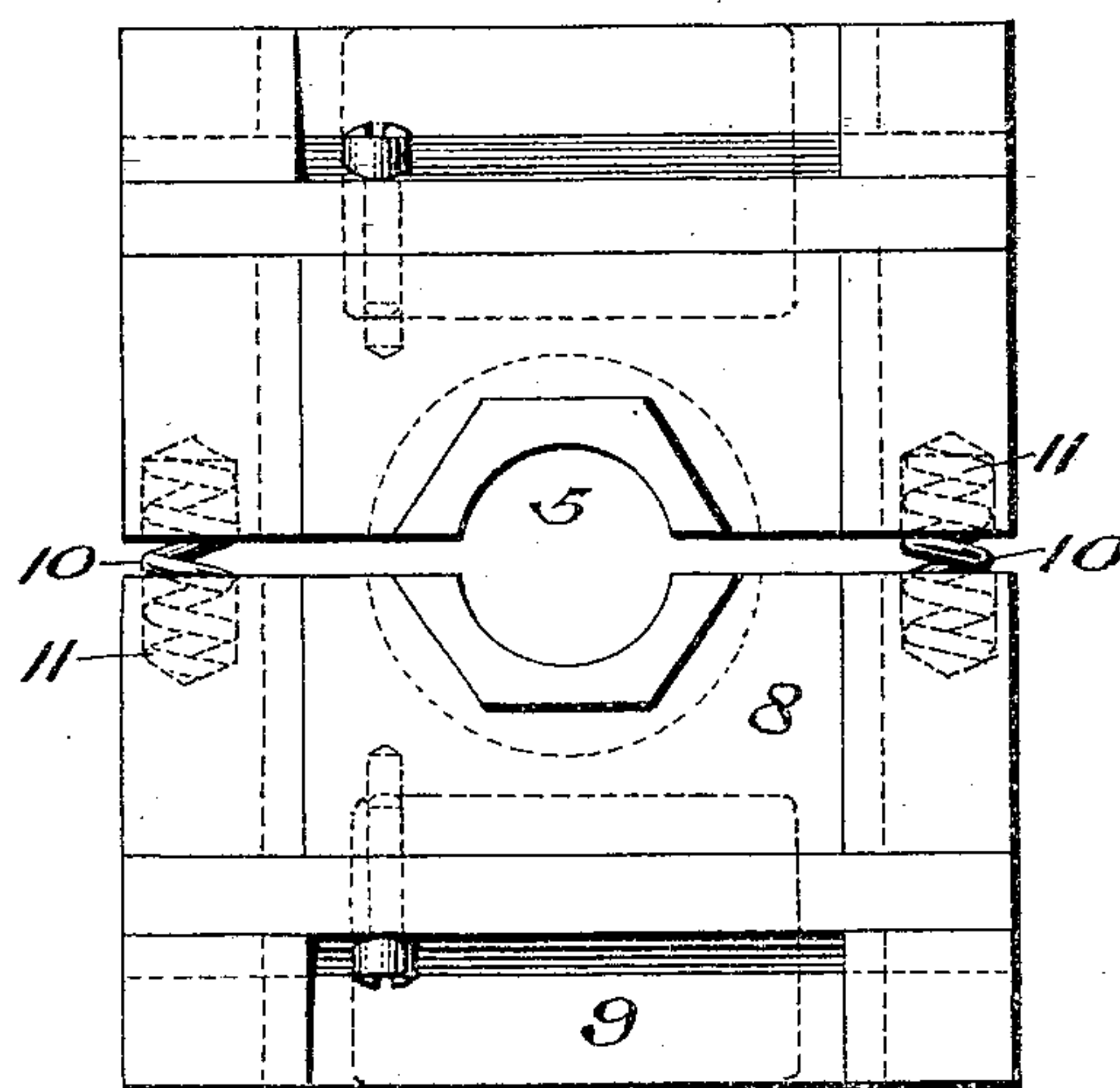
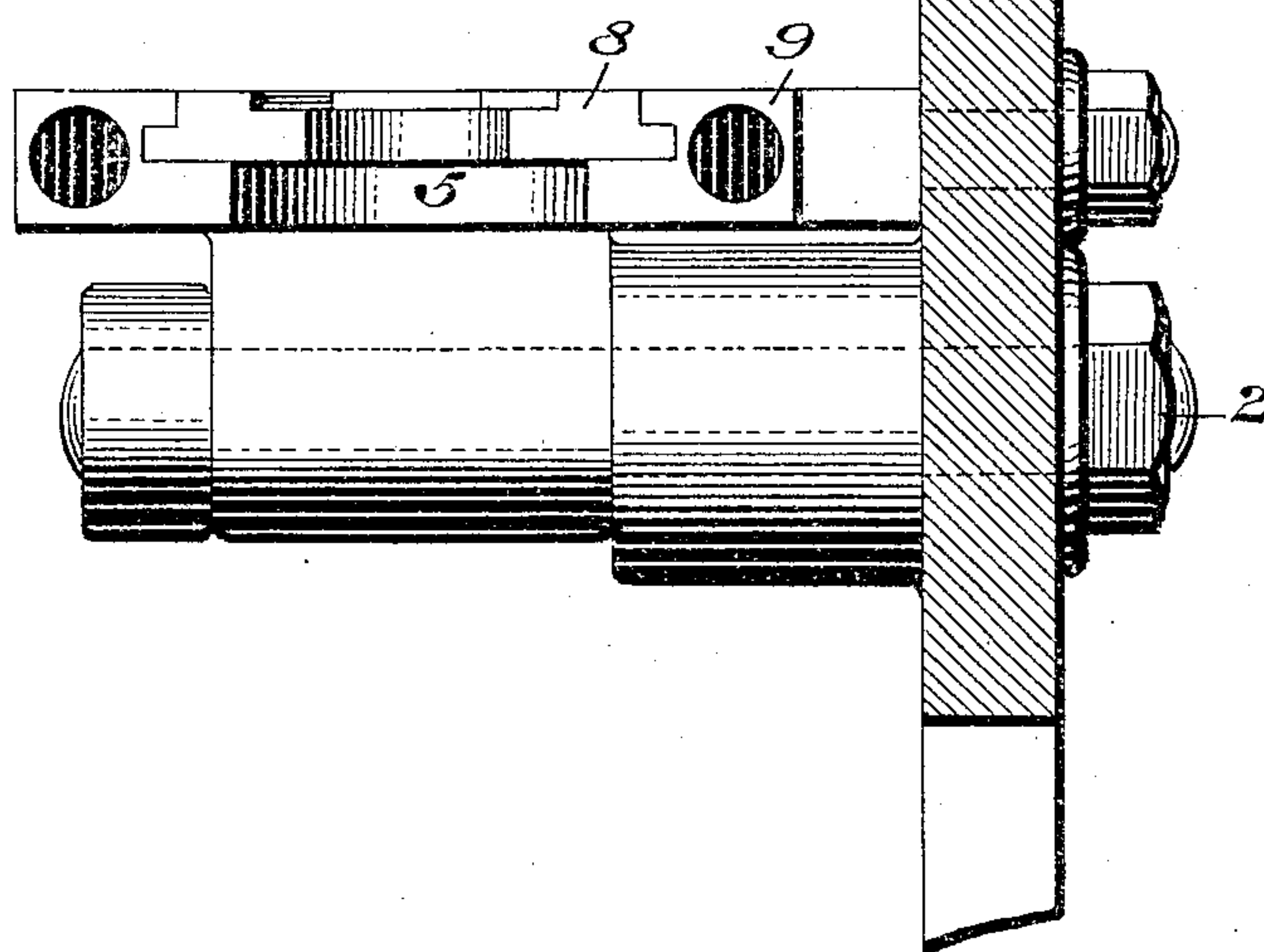


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY O. EVANS, OF PHILADELPHIA, PENNSYLVANIA.

AUTOMATIC CHUCK.

938,996.

Specification of Letters Patent.

Patented Nov. 2, 1909.

Application filed February 10, 1908. Serial No. 415,016.

To all whom it may concern:

Be it known that I, HENRY O. EVANS, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Automatic Chuck, of which the following is a specification.

This invention relates to an improved form of chuck or other holding means for bushings, collars and like parts adapted to be tapped, threaded or otherwise machined and consists of gripping jaws so constructed as to automatically engage and securely hold the parts during an operation.

It further consists of a chuck in which a part to be machined may be inserted without any adjustment, such as loosening set screws, clamping members or the like means usually employed.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

Figure 1 represents a section of a portion of a machine embodying my invention. Fig. 2 represents my holding plunger with adjacent parts in section. Fig. 3 represents a plan view of my gripping jaws. Fig. 4 represents a side elevation of the same showing a pivotal connection with the frame of the machine.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates a supporting plate secured to or formed integral with the frame of a machine in which my invention is adapted to be used. Pivotaly mounted on bolts 2 secured to the frame 1 are gripping jaws 4 which along their meeting edges are provided with a recess 5 adapted to allow movement of the tool 6 therethrough and also receive a bushing or other like part 7.

In order that several sizes of bushings may be inserted between the jaws, it is preferable to provide detachable jaw members 8 seated in a slotted portion 9 of the jaws. The jaws 4 are normally held a slight distance apart by means of springs 10 seated in a counterbore 11, while to prevent rotation of the jaws in a reverse direction stops 12 are located at either side of the support 1 and in a position to engage the jaws. These jaws are so positioned on the supporting plate as to center the bushing relative to the operating tool which, in the present instance, is shown as a tap 6 and a die 13, the same

forming a part of a thread and tap machine.

In connection with the seating of the bushing 7 in the jaws a holding plunger 14 is provided adapted to be advanced to engage and press the bushing securely against the jaws during the cutting operation. Various means may be used to perform this action, the one preferred being as shown in Fig. 2, to provide a rack 21 on the plunger 14 meshing with a pinion stud bolt 22 mounted for sliding action in a spring pressed follower 23 and prevented from rotating by a locking pin 24 seated in a slot 25 of the follower 23. To adjust the plunger 14 the bolt 22 is pulled outwardly until the locking pin 24 is free of the slot 25 when the bolt may be rotated and through the pinion 22 and rack 21 move the plunger 14 either up or down.

It will of course be understood that the plunger 14 is suitably guided in an extension 27 on the main frame of the machine, the same in the present instance forming an abutment for one end of the spring 26 so that proper coöperation between the adjacent parts is made possible.

It will be seen that as soon as the spindle 15 moves downward in the thread cutting operation, the spring 26 pressing on the follower 23 holds the plunger 14 securely against the bushing by which action the pivoted jaws 8 are advanced toward each other and grip the bushing tightly between them.

The operation of the device is as follows:— The bushing 7 is slipped between the spring pressed jaws 8 and the machine started, thus feeding the sleeve 15 downward, the follower 23 holding the plunger 14 tightly pressed through the spring 26. The plunger 14 engages the bushing 7 pressing it against the seat in the jaws 8 and forces them together and the chuck is closed tight on the bushing which is centered and ready for the tap and die to cut the thread. Should the plunger 14 be out of operative adjustment with the bushing 7 at the beginning of the operation, it may be adjusted by withdrawing the stud 22 until the locking pin 24 disengages the slot 25 and then rotating it to lower or raise the plunger 14 by means of the rack and pinion connection. It will be noted that after the plunger 14 is once properly adjusted for a certain size of bushing, the machine may be started in operation and the rotating parts carrying the die and tap will cut a thread externally and

internally thereon and as the machine makes the reverse movement the chuck will release the bushing and it may be immediately removed and another one substituted for the
 5 next operation. Thus any number of bushings may be tapped without stopping the machine during the operation, since the chuck requires no adjustment whatsoever and there is ample time for the operator to
 10 remove one bushing and insert another before the die makes its return movement.

It will be apparent that I have provided a simple and novel form of chuck which requires no set screws or clamps to be adjusted
 15 in the gripping of the part to be machined and one that besides holding absolutely firm, may be released from gripping action by the automatic action of the machine.

From the above it will be understood that
 20 my device is simple in construction and positive in its action and in the drawings I have shown one form which will operate successfully in practice, although the arrangement of the parts may be varied and
 25 other instrumentalities may be employed which will come within the scope of my invention and I do not therefore desire to be limited to the exact construction as herein shown and described.

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

1. In a device of the class described, a

plurality of gripping jaws pivotally mounted to seat a member to be machined and recessed to allow movement of a tool there-
 35 through, means normally holding said jaws apart, a holding plunger, means for advancing the same to press the article operated upon securely against said jaws, a follower,
 40 and a spring arranged to act on said follower to hold the plunger securely against the article being operated upon.

2. In a device of the character described, a plurality of pivoted jaws to seat a mem-
 45 ber to be machined, means for normally holding said jaws apart, a plunger for engagement with said member, a spring pressed follower cooperating with said plunger to hold the same in operative position,
 50 and a sleeve on said plunger adapted to return said plunger to inoperative position.

3. In a device of the character described, a plurality of pivoted jaws adapted to seat
 55 a member to be machined, means for normally holding said jaws apart, a plunger for engagement with said member, a spring pressed follower cooperating with said plunger to hold the same securely against said member, and means for adjustment of the
 60 plunger with relation to said follower.

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