

(No Model.)

J. ROBINSON.
EXPANSION CHUCK.

No. 599,255.

Patented Feb. 15, 1898.

FIG. 1.

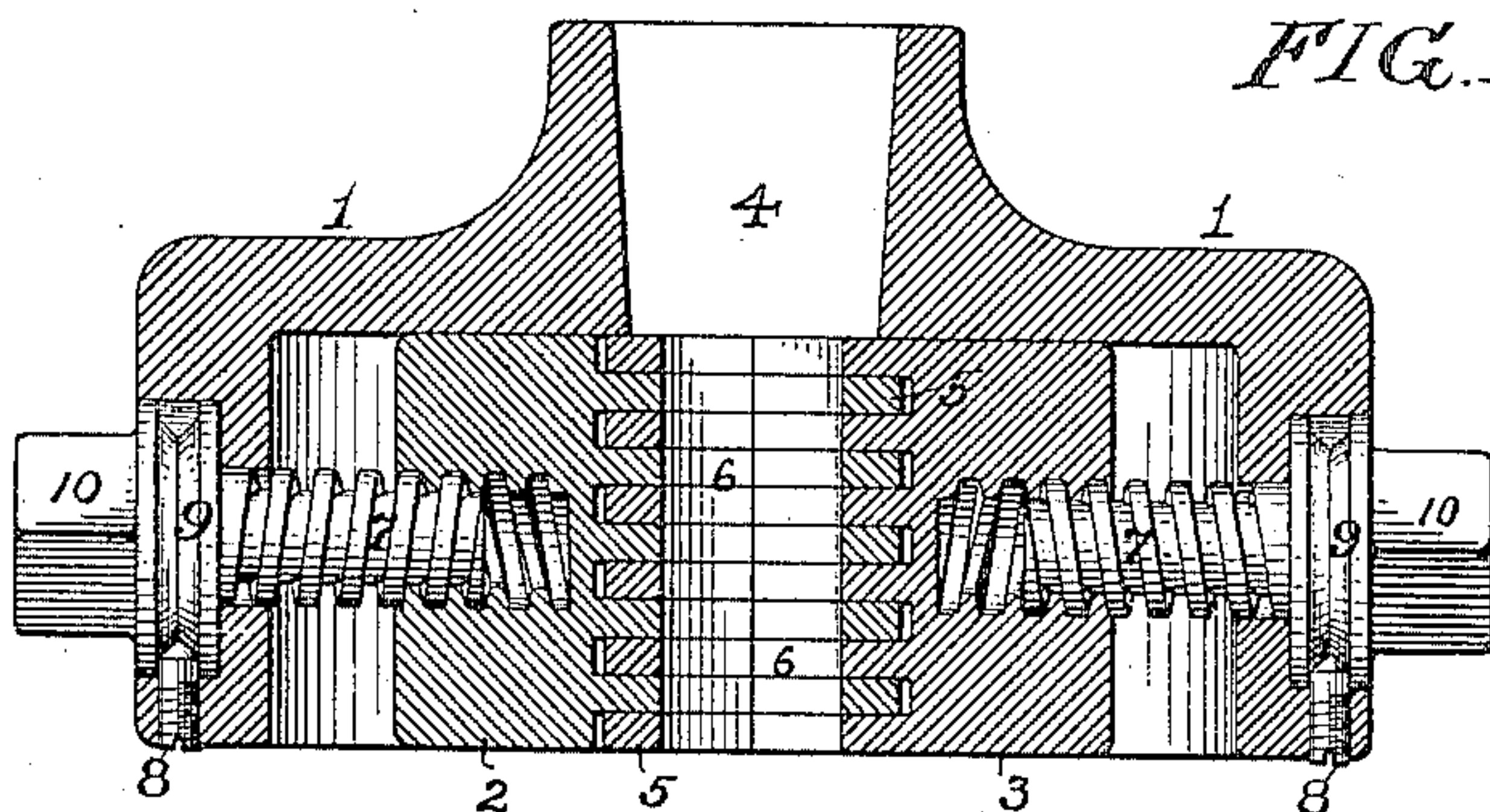


FIG. 2.

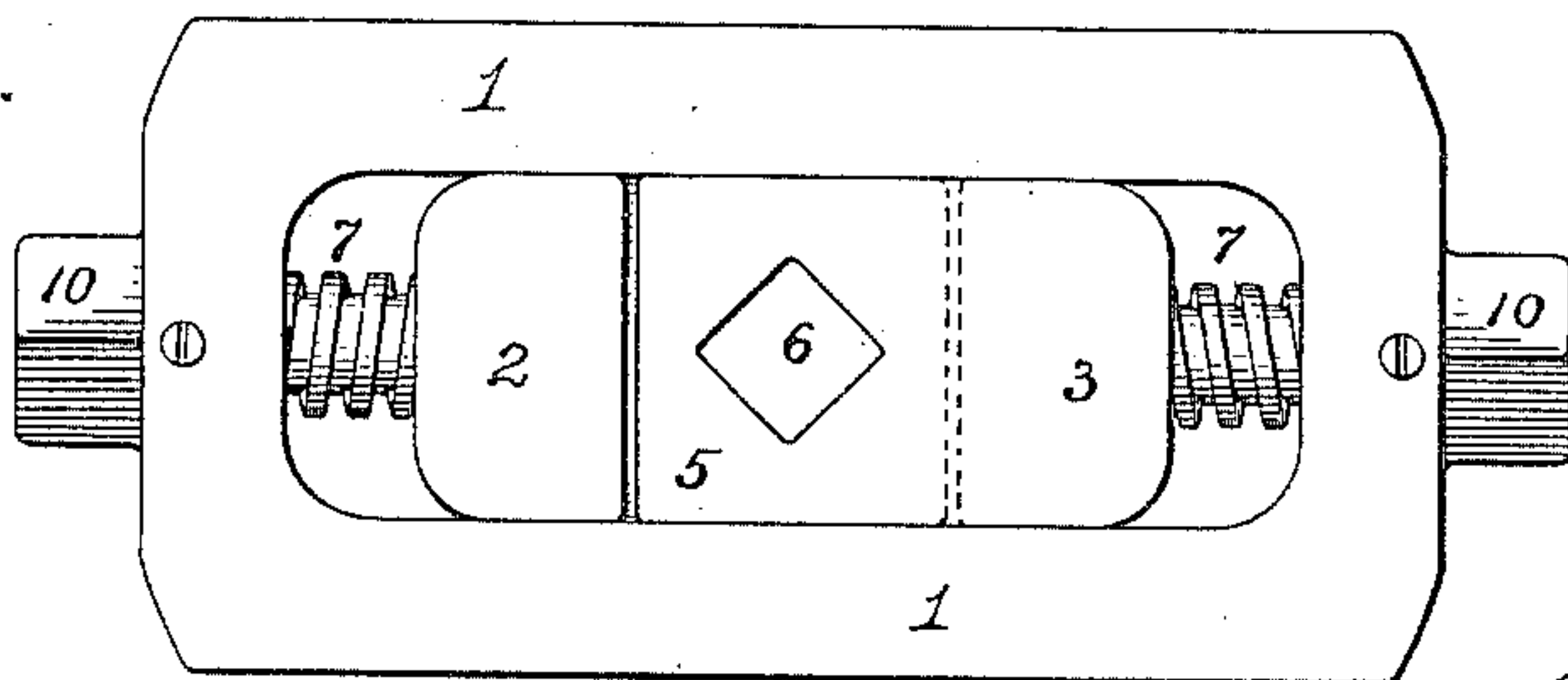


FIG. 3.

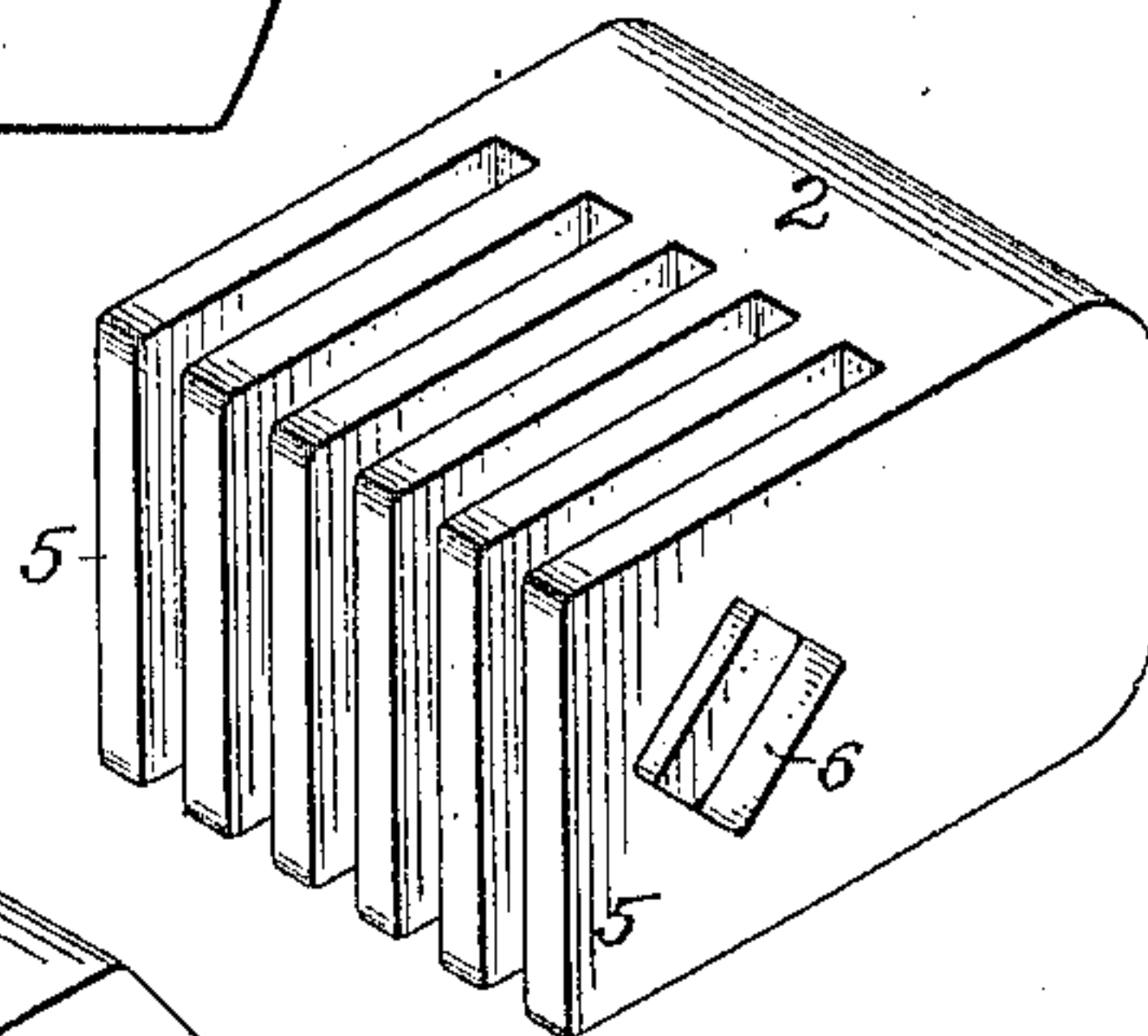


FIG. 5.

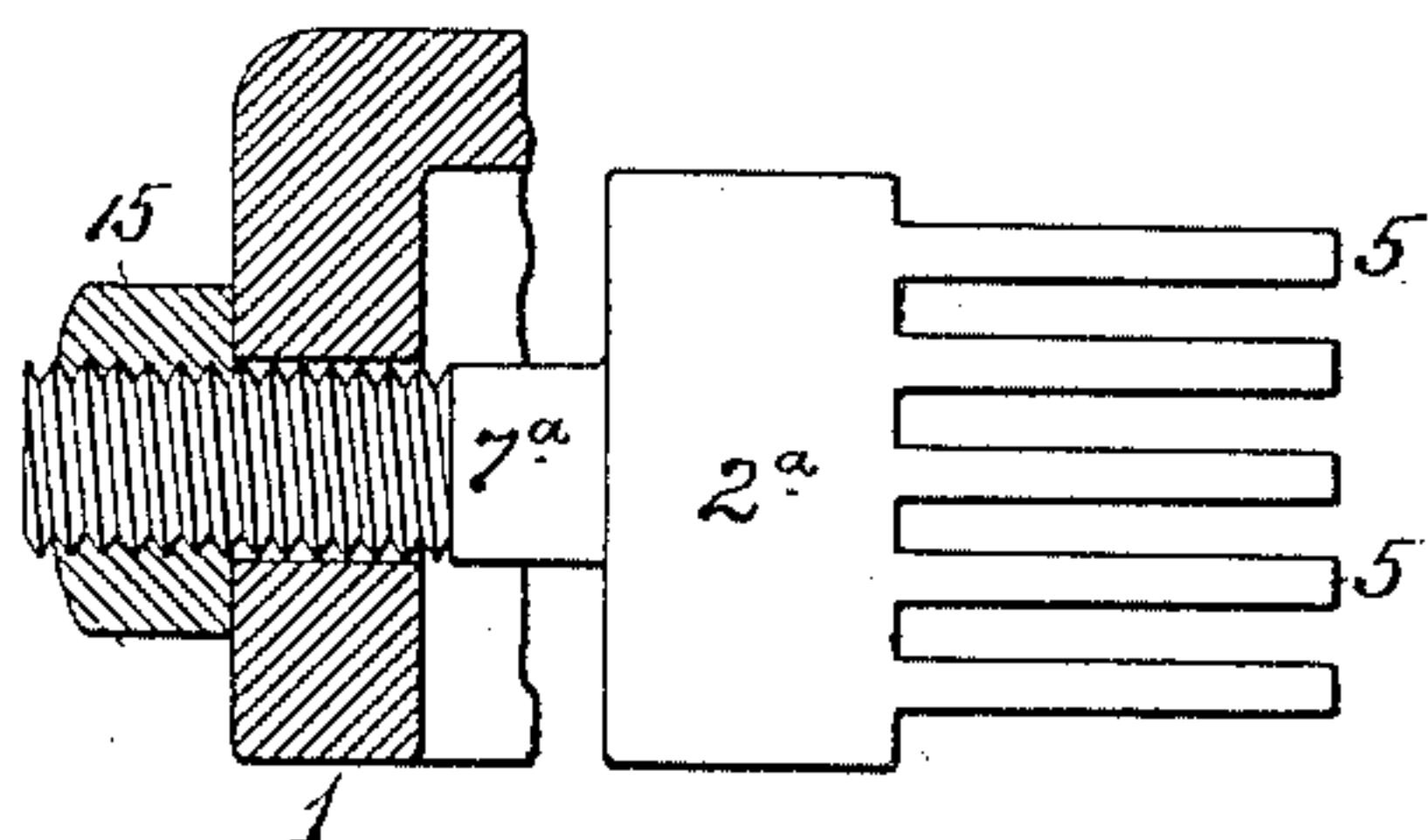


FIG. 4.

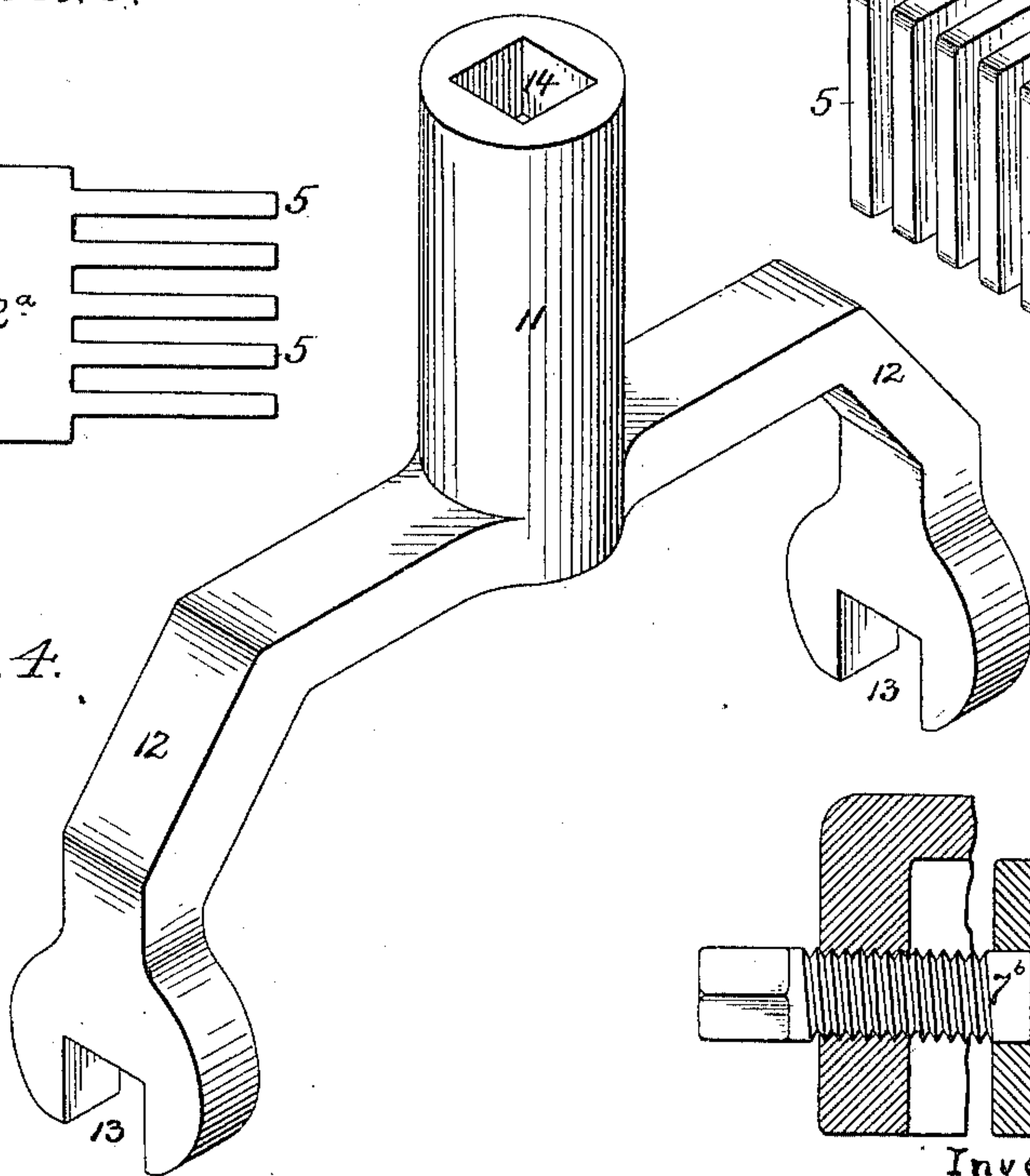
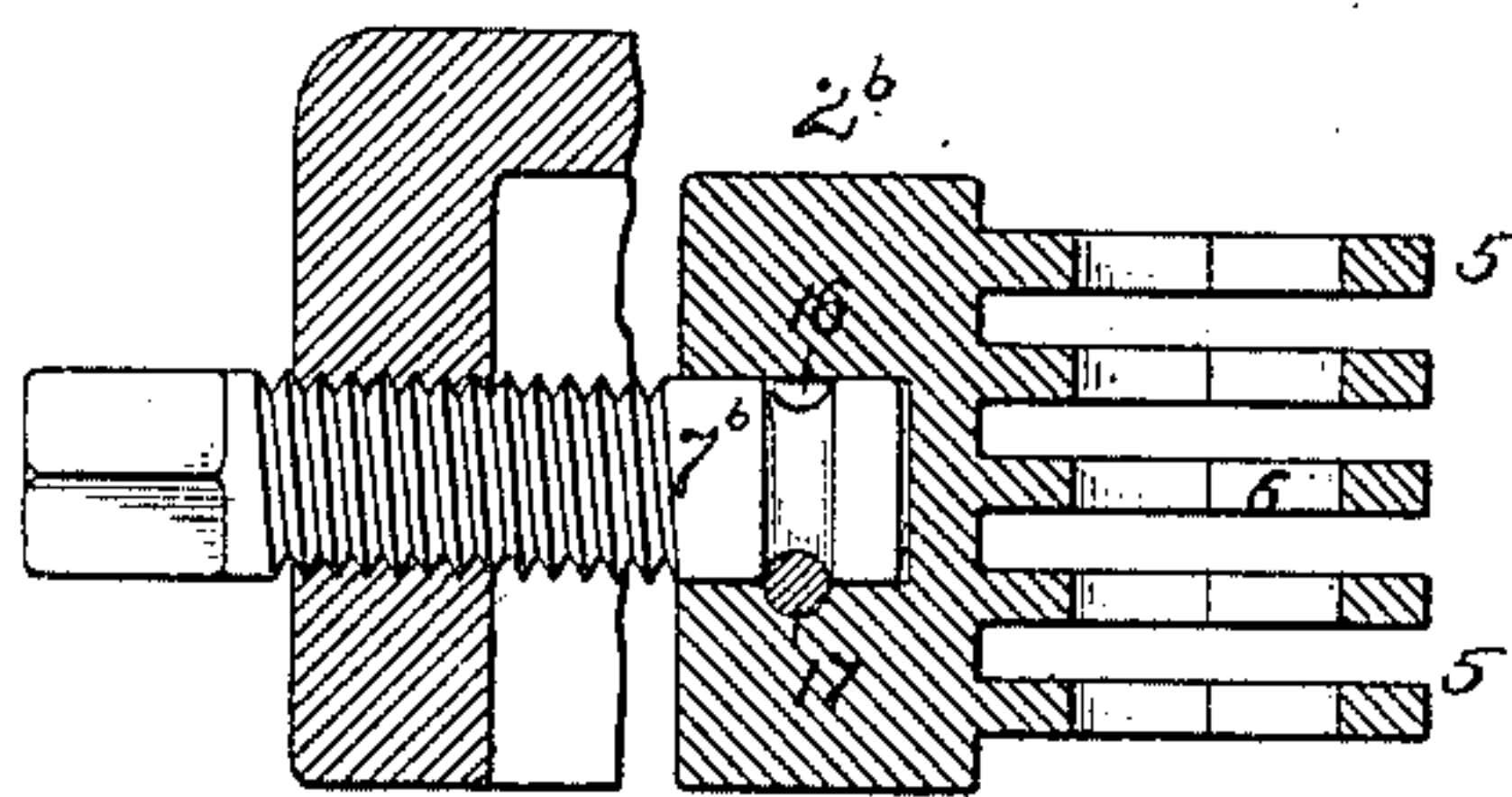


FIG. 6.



Witnesses:
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Inventor
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UNITED STATES PATENT OFFICE.

JOHN ROBINSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO GEORGE H. BECK, OF SAME PLACE.

EXPANSION-CHUCK.

SPECIFICATION forming part of Letters Patent No. 599,255, dated February 15, 1898.

Application filed January 9, 1897. Serial No. 618,611. (No model.)

To all whom it may concern:

Be it known that I, JOHN ROBINSON, a subject of the Queen of Great Britain and Ireland, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Expansion-Chucks, of which the following is a specification.

The object of my invention is to so construct an expansion-chuck as to provide for the firm and rigid hold of work of any size within the capacity of the chuck which may be subjected to its action. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional plan view of an expansion-chuck constructed in accordance with my invention. Fig. 2 is a front view of the same. Fig. 3 is a detached perspective view of one of the jaws of the chuck. Fig. 4 is a perspective view of a wrench employed for loosening, tightening, or adjusting the chuck; and Figs. 5 and 6 are views illustrating modifications of the invention.

1 represents the casing of the chuck, which is socketed or recessed for the reception and guidance of the sliding jaws 2 and 3, the casing shown in the drawings having at the rear a tapered opening 4, whereby it may be applied to a spindle or other suitable form of holder. It should be understood, however, that the casing of the chuck may be modified in any way which its desired use may suggest without departing from the main feature of my invention.

Each of the sliding jaws 2 and 3 of the chuck has projecting fingers 5, the fingers of the two jaws alternating and fitting between each other in the manner shown in Fig. 1.

In each of the fingers of each of the sliding jaws of the chuck is formed an opening 6, preferably of rectangular or other polygonal form, and when the jaws are moved inward to their full extent these openings register with each other and form an opening extending completely through the jaws, as shown in Fig. 1.

In each jaw is formed a threaded opening to which is adapted a threaded stem 7, having a flange or collar 9 seated in a recess in the outer face of the casing 1, and having beyond it a squared or other polygonally-shaped

head 10, whereby the stem may be turned, so as to move the jaw controlled by it either inward or outward in the casing.

The flange or collar 9 of each screw-stem 7 is preferably grooved for the reception of the inner end of a retaining-screw 8, whereby outward movement of the screw-stem in the casing is prevented.

In using the chuck the jaws are first moved inward to their full extent, and the object to be held is then inserted into the openings of the jaws and the latter are drawn outward simultaneously by turning at the same time and to the same extent the screw-stems of both of the jaws. By this means the size of the opening through the chuck is gradually reduced until the object to be grasped is firmly held between the fingers of the two jaws.

It will be observed that the opening in each finger of each jaw is surrounded by a strong body of metal, so that there is not that tendency to spring or spread the jaw when subjected to excessive strain which is a defect of jaws having open notches therein and adapted to be forced against instead of being drawn onto the object to be clamped.

In order to insure simultaneous and equal movement of the two jaws of the chuck, I use a suitable wrench, such as shown in Fig. 4, this wrench consisting of a stem 11, with forked end, having in the end of each of the legs 12 a notch 13 of a size and shape adapted to the head of the screw-stem 7, the spread of the forked end of the wrench being equal to the width of the chuck-casing 1, so that the heads of both screw-stems 7 may be simultaneously engaged by the wrench, thus insuring the turning of both screw-stems at the same time to the same extent.

In order to provide for independent operation of either screw-stem, the central stem 11 of the wrench has in one end a socket 14, adapted for the reception of the head of either screw-stem.

I do not here claim the wrench which I have shown and described, as claims based upon this wrench structure form part of an application filed by me on the 29th day of December, 1897, Serial No. 664,279.

While I prefer to provide the jaws of the chuck with threaded openings adapted for

the reception of threaded stems mounted so as to rotate in the casing of the chuck, this construction is not absolutely essential to the proper carrying out of my invention. For instance, in the modification shown in Fig. 5 the jaw 2^a is provided with a rearwardly-projecting threaded stem 7^a, which passes through an opening in the casing 1 and is engaged by a nut 15, bearing on the outer face of said casing, while in the modification shown in Fig. 6 the jaw 2^b has formed therein an opening for the reception of the inner end of a threaded stem 7^b, that portion of the stem within said opening having an annular groove 16 for the reception of a transverse pin 17, whereby the stem is confined longitudinally to the jaw, but is free to turn therein, the threaded portion of the stem being adapted to a threaded opening in the casing 1 and the outer projecting end of the stem being squared or otherwise shaped so as to provide for the ready turning of the same.

It will also be evident that my invention is not limited to a chuck having a single pair of jaws, as the jaws may be multiplied to any desired extent without departing from my invention.

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

1. An expansion-chuck consisting of a casing having therein a pair of jaws with interlocking fingers having openings therein, and screw-stems engaging with openings in the jaws laterally beyond the fingers whereby said jaws may be moved together or drawn

apart so as to increase or diminish the size of the aperture formed by the openings of the interlocking fingers, substantially as specified.

2. An expansion-chuck consisting of a casing, a pair of jaws therein having interlocking fingers with openings therethrough, in combination with screw-stems seated on the casing so as to be free to turn, and adapted to threaded openings formed in the jaws laterally beyond the fingers of the same, substantially as specified.

3. An expansion-chuck having as elements a casing and clamping-jaws sliding therein, and having inwardly-projecting and interlocking clamping-fingers, in combination with screw-stems carried by one of said elements and engaging with threaded openings in the other laterally beyond said clamping-fingers, substantially as specified.

4. An expansion-chuck consisting of a casing, a pair of interlocking jaws therein, each of said jaws consisting of a block with fingers projecting therefrom and having formed therein inclosed openings, with means for moving said jaws toward and from each other, whereby the clamping action may be secured by moving said jaws from each other, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN ROBINSON.

Witnesses:

CHAS. H. BANNARD,
F. E. BECHTOLD.