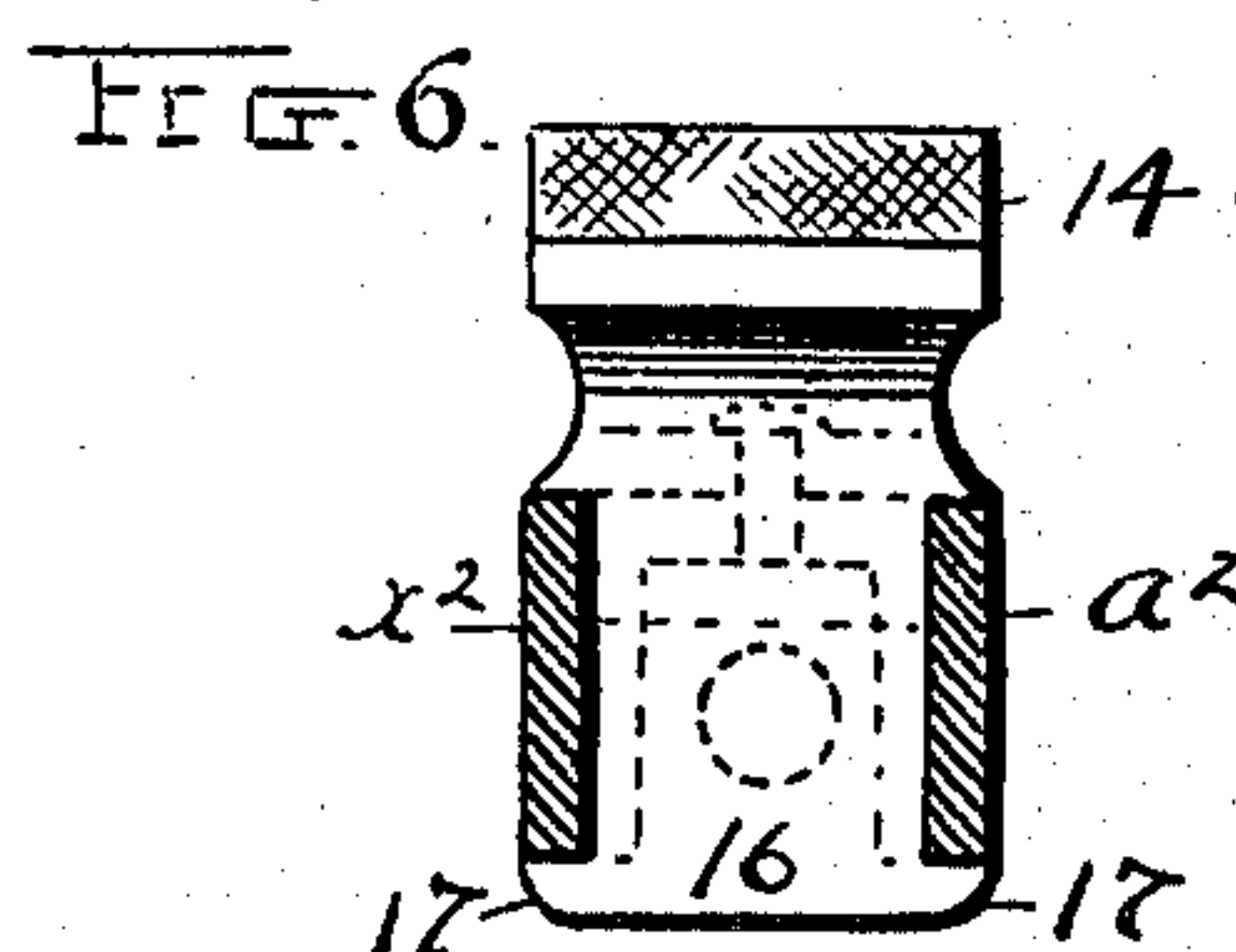
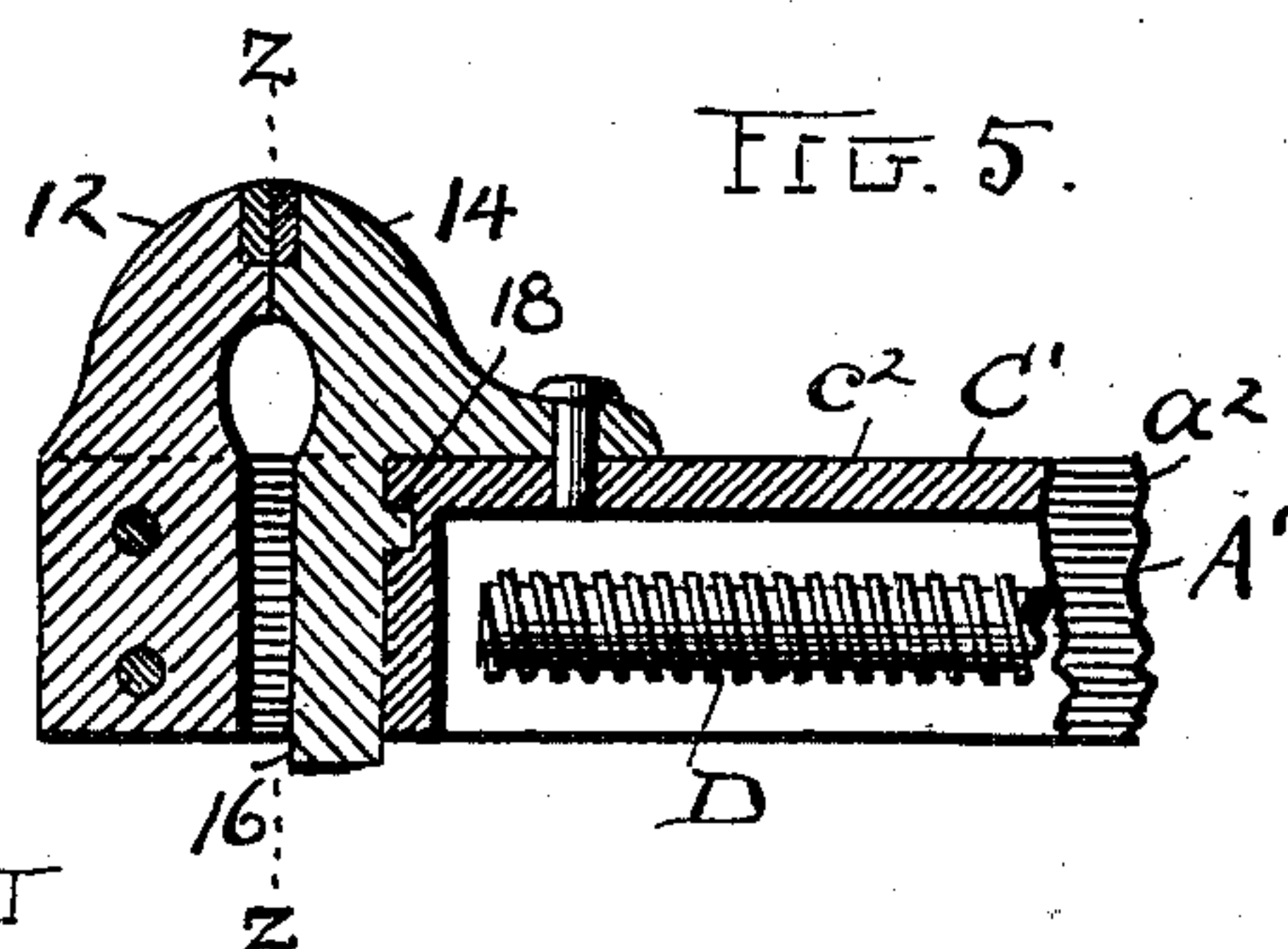
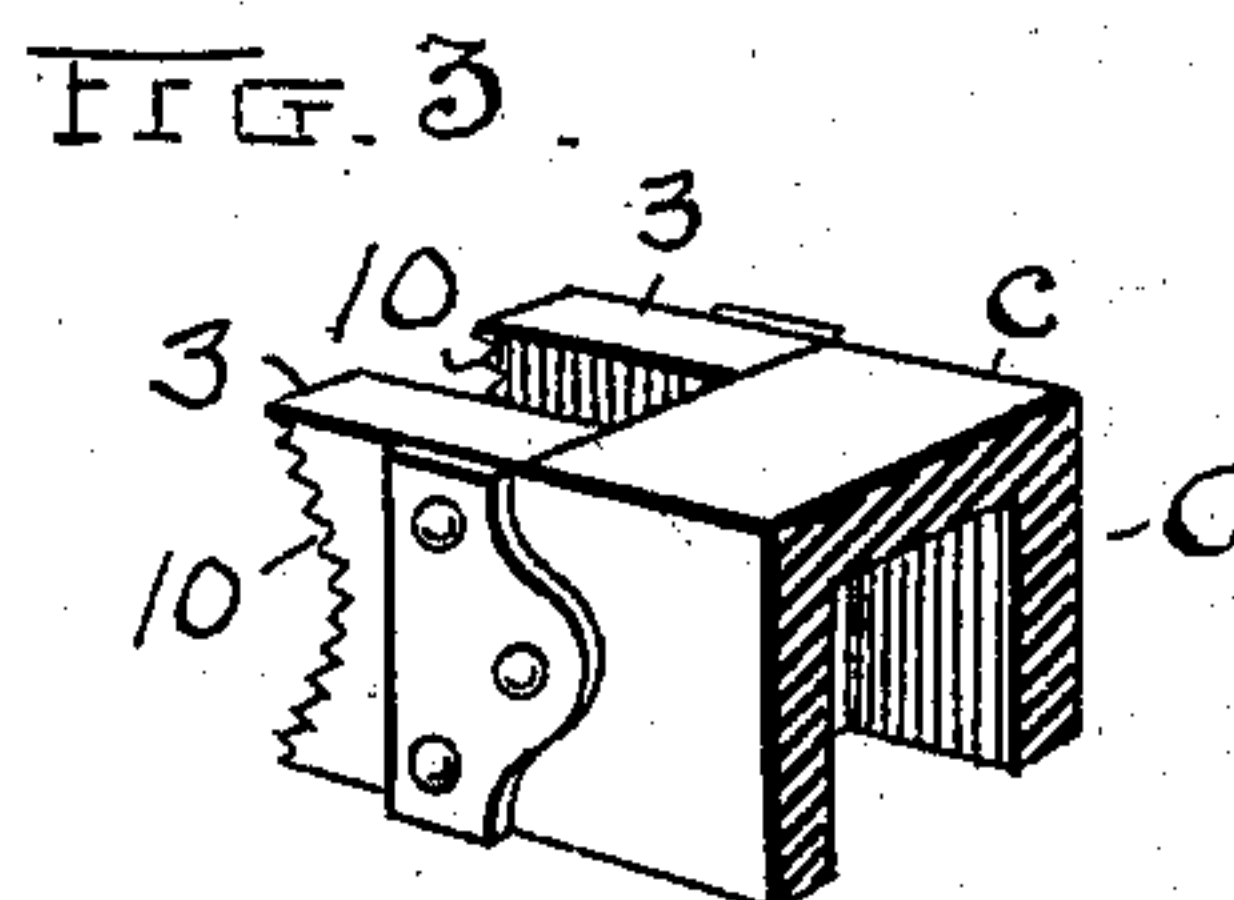
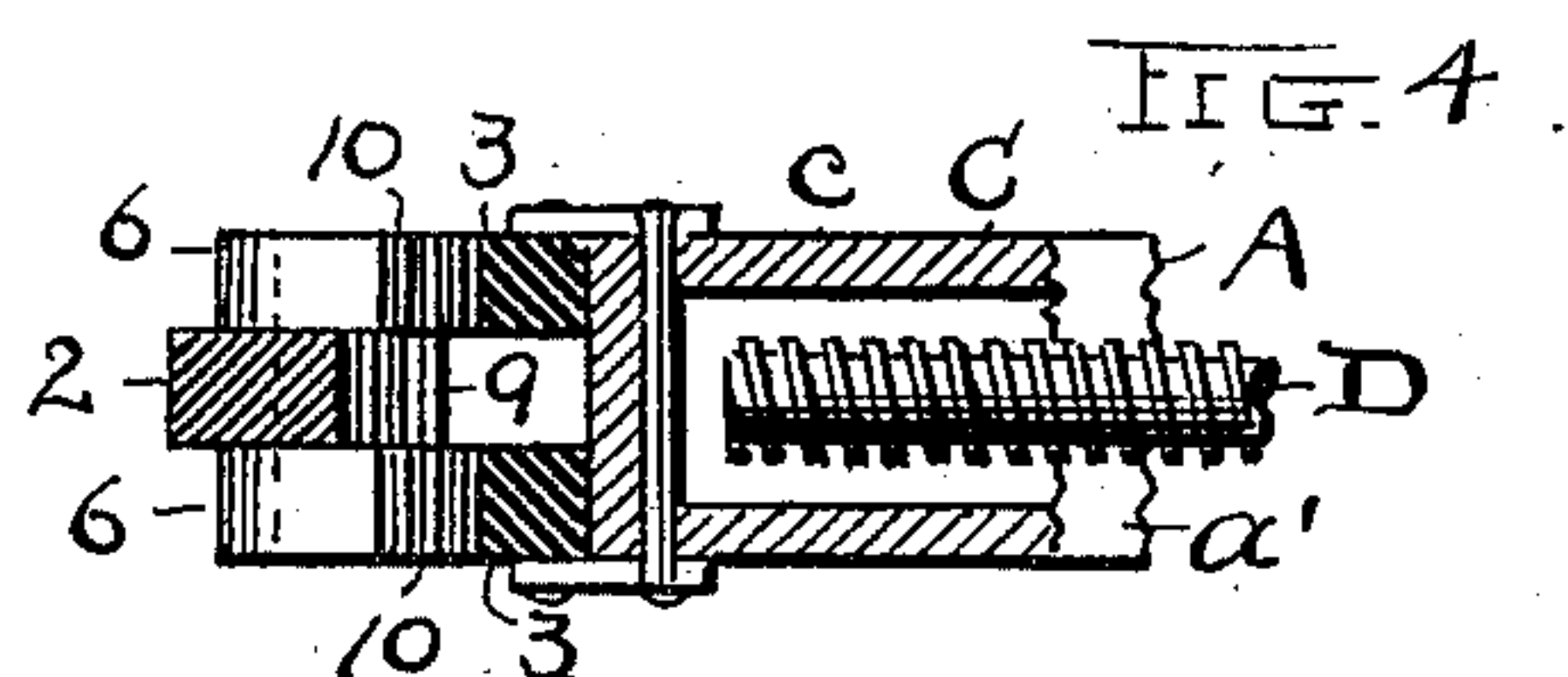
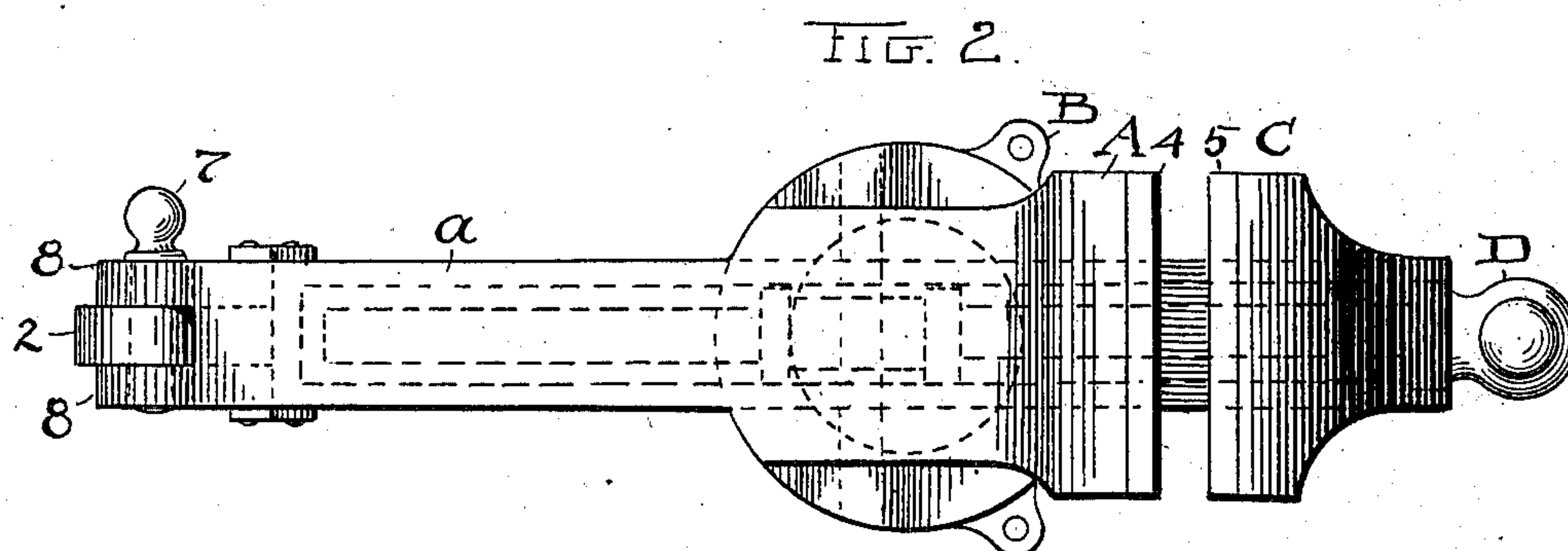
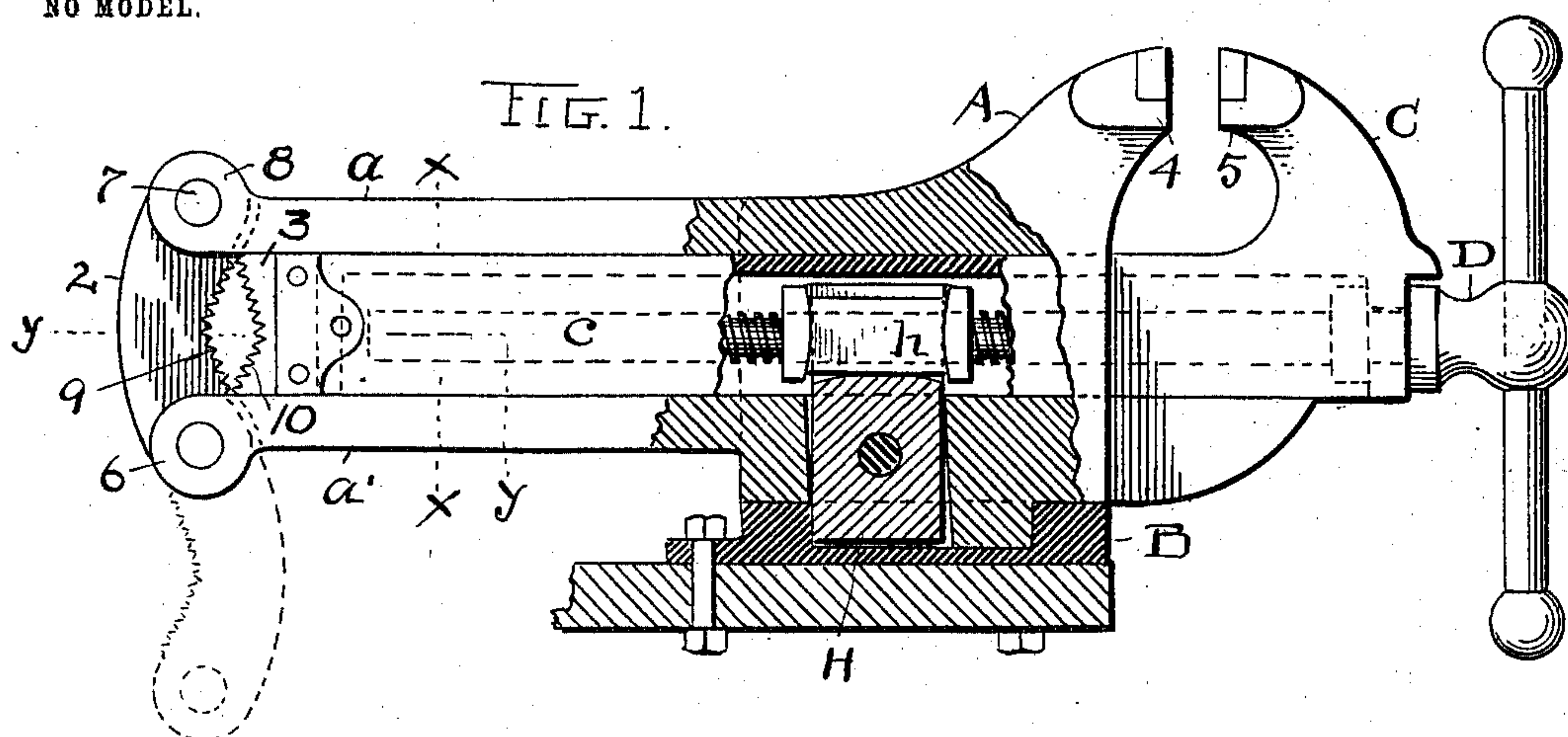


PATENTED JAN. 27, 1903.

APPLICATION FILED FEB. 12, 1902.

NO MODEL.



ATTEST

R. B. Moser
T. M. Madden.

INVENTOR.

John W. Long

BY *W. F. Fisher* ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN R. LONG, OF WARREN, PENNSYLVANIA.

WISE.

SPECIFICATION forming part of Letters Patent No. 719,348, dated January 27, 1903.

Application filed February 12, 1902. Serial No. 93,672. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. LONG, a citizen of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented certain new and useful Improvements in Vises; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in vises; and the invention consists in the construction of a vise substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved vise with a portion of the base-section broken away. Fig. 2 is plan view thereof. Fig. 3 is a perspective elevation of the inner end of the movable member of the vise, taken on a cross-section corresponding substantially to xx , Fig. 1. Fig. 4 is a plan section of the inner ends of both the movable and the fixed members on a line corresponding substantially to yy , Fig. 1. Fig. 5 is a vertical longitudinal sectional elevation of the inner portions or ends of both vise members modified in construction as compared with the foregoing figures; and Fig. 6 is a cross-section of the parts shown in Fig. 5 corresponding to line zz , Fig. 5.

In the construction thus shown I provide for what is properly a double vise or a vise with a double set of jaws, one on each end of the two members A and C. This affords a greatly increased or enlarged capability or working capacity in a vise over a single and necessarily limited set of jaws, as will be seen in the further description.

The main and so-called "fixed" member A is rotatably supported in or upon a suitable base B, and the so-called "movable" member C is supported in or through member A and is movable in respect thereto back and forth and is guided therein, as usual, under control of screw D.

I do not particularize the construction whereby member A is made horizontally rotatable on base B nor the means that are or may be used for possibly providing member A with a temporary lock against said base, for

these features are not of the subject-matter of this invention and may be more or less varied and serve my purpose; but what I do claim as new is the dual character of the vise, whereby work can be done with each or either set of jaws, or what are referred to as "inner" jaws 2 and 3 and "outer" jaws 4 and 5, and which latter agree more particularly with the jaws ordinarily found in vises.

The jaw member A, which is referred to herein as the "fixed" member, has two rearward horizontal projections or arms a and a' , parallel to each other and in the same vertical plane, and on the extremity of the lower of said arms, preferably, though it might be on the upper one, is pivoted the jaw 2, referred to herein as one of the "inner" jaws of the vise. This part is supported on a bolt between ears 6 on the lower arm a' and has a hole in its opposite end adapted to receive a bolt 7, engaged through a corresponding hole in ears 8 on upper arm a , whereby said jaw 2 is supported in working position. Otherwise the said jaw may drop down, as seen in Fig. 1, leaving the space between arms a and a' open at the end to enter an article thus to be clamped. The inner edge of jaw 2 is curved lengthwise thereof and serrated at its engaging portion 9, which comes between arms a and a' .

The extension or arms c of movable jaw member C is constructed and arranged to run between arms a and a' and is hollow from the bottom, as shown in section, Fig. 3, to receive and accommodate screw D, by which the entire action of the movable member C is controlled. The said member C is guided in a walled opening through member A, as above indicated, so that its arm c will hold its proper working position between arms a and a' at all times without other guide or means of support.

The jaw or jaws 3 on arm extension c are shown here as attached parts directly to or upon the end of said arm and in prolongation thereof, and they may be in one or two pieces, as preferred. In this instance they are in two pieces, and jaw 2 is of a thickness corresponding to the space between jaws 3, Fig. 4, and hence the said jaws can be caused to pass each other on their sides more or less, and thus reduce the gripping-space between

them down to the needs of the smallest article. The jaws 3 also are curved lengthwise and serrated on their inner gripping edges 10 to match the curved serrated edge 9 of jaw 2, and thus as said jaws come closer and closer together their gripping-surface is correspondingly reduced until at last a very small article can be engaged and held between them at their middle. In such case the article might possibly be introduced laterally without opening jaw 2, and jaws 2 can be run back to receive a comparatively wide article, as is obvious. I might of course form the jaws 3 directly in or upon the end of extension c ; but effective work suggests separate jaws of suitably-hardened steel, with an open space between their inner sides vertically their full depth to permit the entrance of curved jaws 2 between them.

In Figs. 5 and 6 I show a modification of the foregoing invention in which there are two raised inner jaws 12 and 14, the jaw 12 being affixed as a separate part to arms a^2 , forming an extension of fixed member A' , and the jaw 14 affixed to the extension c^2 of movable member C' ; otherwise members A' and C' , respectively, correspond to members A and C above; but in this modification the arms a^2 of member A' are parallel horizontally side by side instead of being one over the other and the extension c^2 is supported between them. Jaws 12 and 14 are adapted to clamp closely together at their inlaid biting edges after the manner of jaws 4 and 5 in both styles of the vise. Thus a double vise is formed by means of comparatively small addition to the vise structure, and the range of its adaptability and usefulness is greatly enhanced over a vise with a single set of jaws.

The main jaws 4 and 5 are referred to as being at or upon the front of the members A and A' and C and C' , respectively, and the jaws 2 and 3 and 12 and 14, respectively, as upon the rear of said parts, because main jaws 4 and 5 are in the usual place of such jaws and the others are to the rear thereof from this view; but by reason of the free rotation of fixed members A and A' the so-called "inner" or "auxiliary" jaws may be turned horizontally to the front for use. Arms a and a' are defined as two parts for convenience of description; but practically they are one in effect and operation and are so considered in the claims unless otherwise designated.

It will be observed that single screw D serves for both sets of jaws, front and rear, because it alone actuates the movable member C or C' .

In Figs. 5 and 6 the jaw 14 is shown as having a depending flange 16 across the front of arm c^2 , on which are lugs 17 at its bottom, engaging upwardly against side arms a^2 . This gives the said dog firmness of grip on arms a^2 , and it may also have a rib 18, as shown, engaged in a transverse groove in the end of

said arm to give it a firmer hold. In this instance a locking-dog H is set into the bottom of fixed member A and adapted to engage against the edge of the base at its bottom and against the member A at its top when tilted, and thus frictionally lock the part A against rotation. The screw D passes through a nut h , engaged loosely with the top of the said dog, so that the dog may be automatically tilted to lock when the screw is tightened.

What I claim is—

1. In a vise, a stationary base, a fixed member on said base having a jaw in front thereof and a rearward extension with a jaw thereon in the rear of said base and a movable member having front and rear jaws, respectively, to cooperate with the jaws on the said fixed member, in combination with a screw having threaded connection with said fixed member and free rotatable operative connection with said movable member, substantially as described.

2. In vises, a suitable base, a fixed member supported between its ends on said base and horizontally rotatable thereon, and provided with a jaw on each end, in combination with a movable member having two jaws matching those on the fixed member, means to lock said fixed member against rotation and a screw connected with said means and rotatable in said movable member, substantially as described.

3. In a vise, a set of members having each an inner and an outer jaw, a base on which said members are rotatable to reverse the position of said jaws, a dog to lock said members against rotation on said base, and a single screw engaging both jaw members and having a bearing operatively connected with said dog, substantially as described.

4. A vise comprising an integral fixed member having a main jaw at one end and an auxiliary jaw at its other end, in combination with an integral movable member having a fixed and an auxiliary jaw matching the corresponding jaws of the fixed member, one of said auxiliary jaws being independently pivoted to swing open to enter an article to be clamped and a clamping-screw lengthwise of said members and engaged with both, substantially as described.

5. The fixed member having a main jaw and a set of arms extending rearward therefrom and provided with an auxiliary jaw, in combination with a movable member having a main jaw and an arm between the arms of the fixed member and an auxiliary jaw on its extremity to cooperate with the auxiliary jaw on the said fixed member, substantially as described.

Witness my hand to the foregoing specification this 27th day of January, 1902.

JOHN R. LONG.

Witnesses:

R. B. MOSER,
T. M. MADDEN.