

No. 713,121.

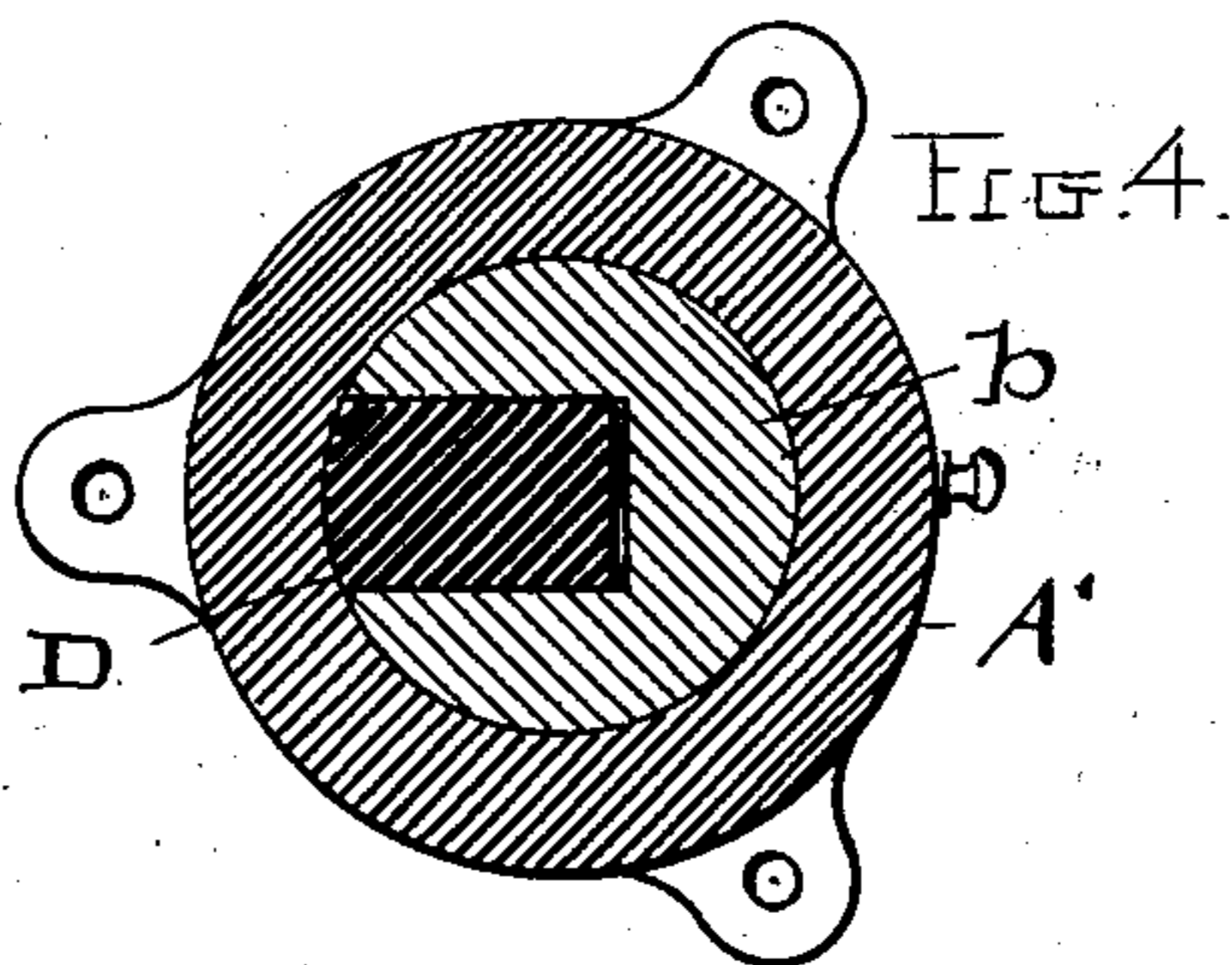
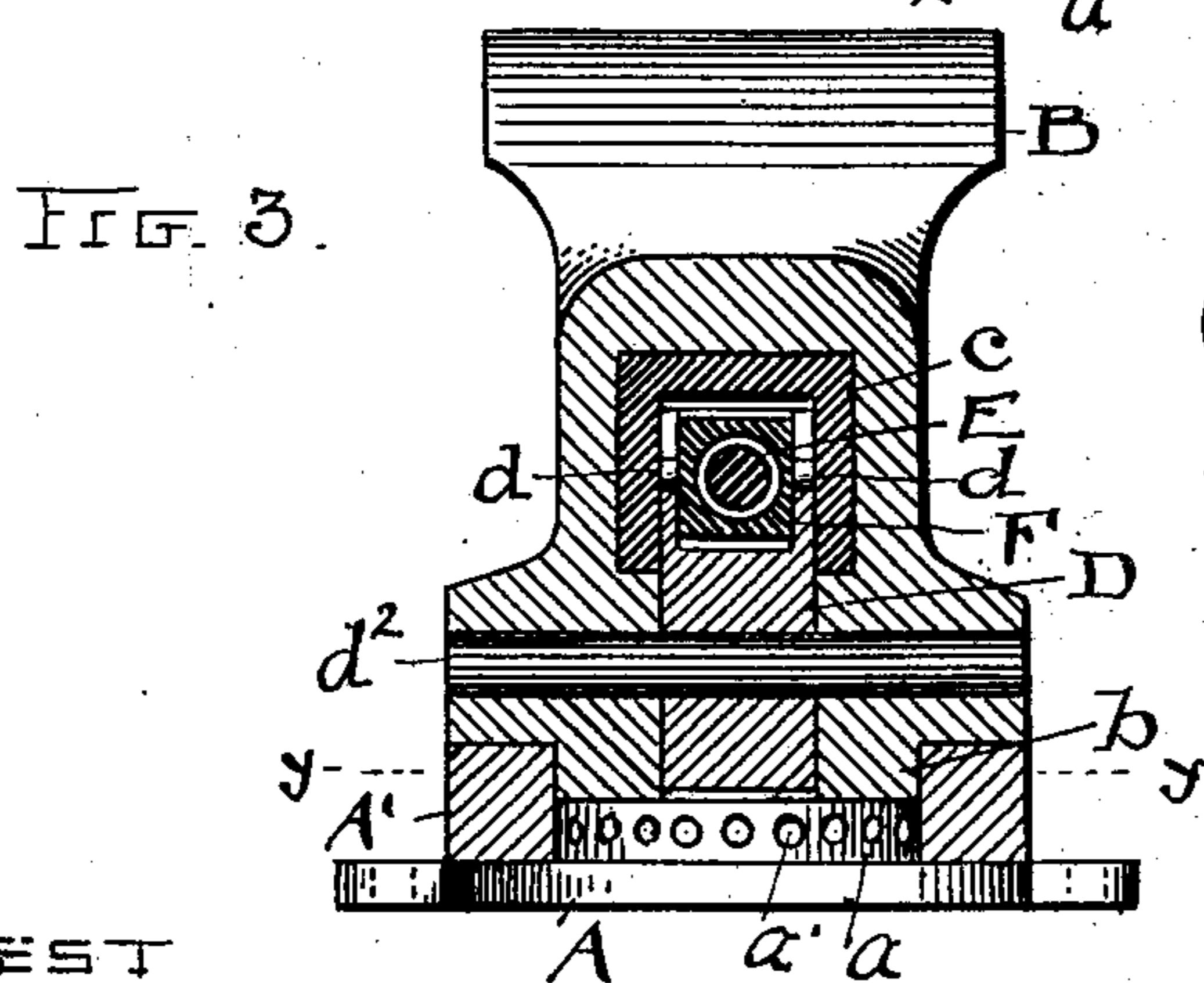
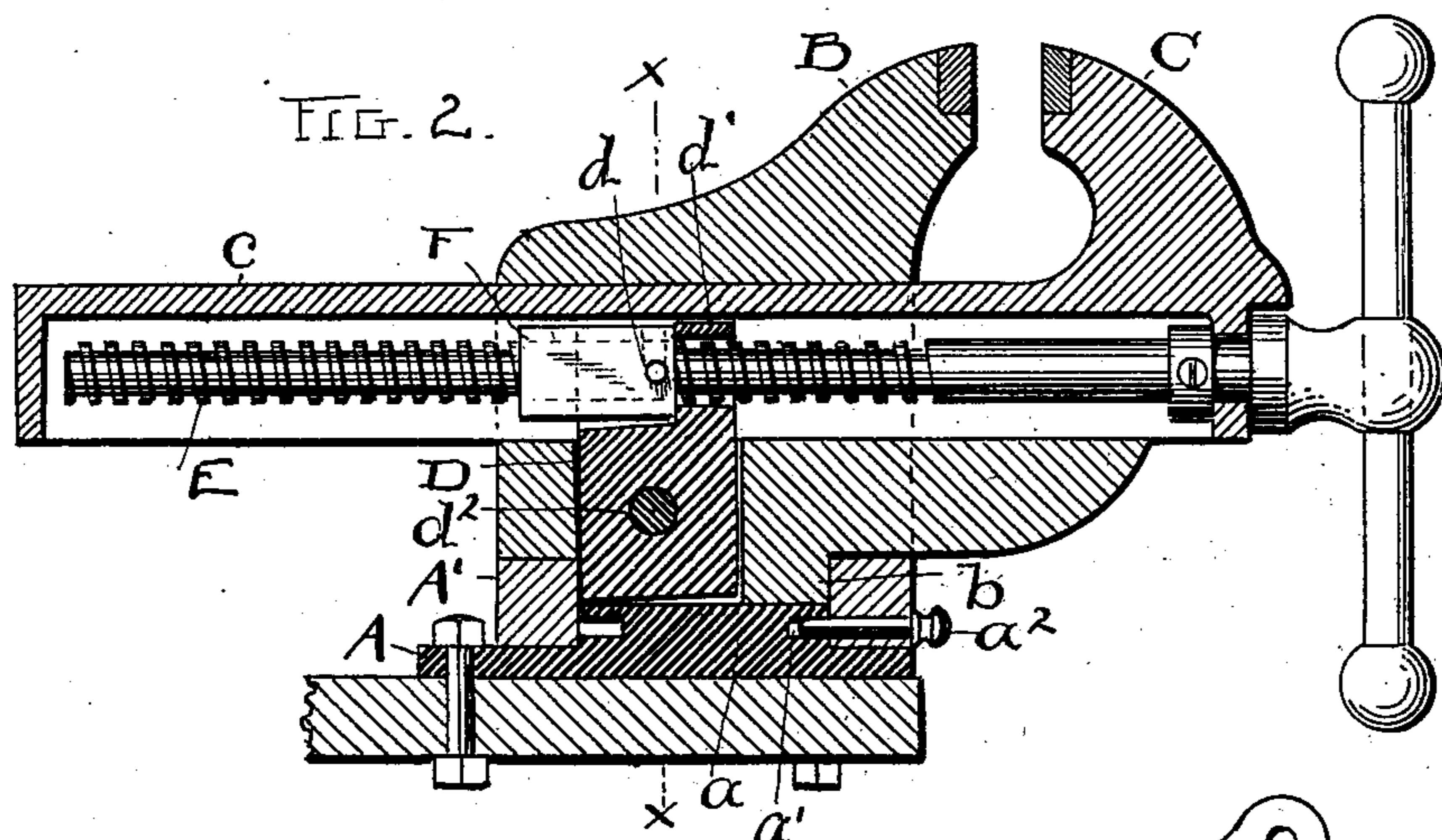
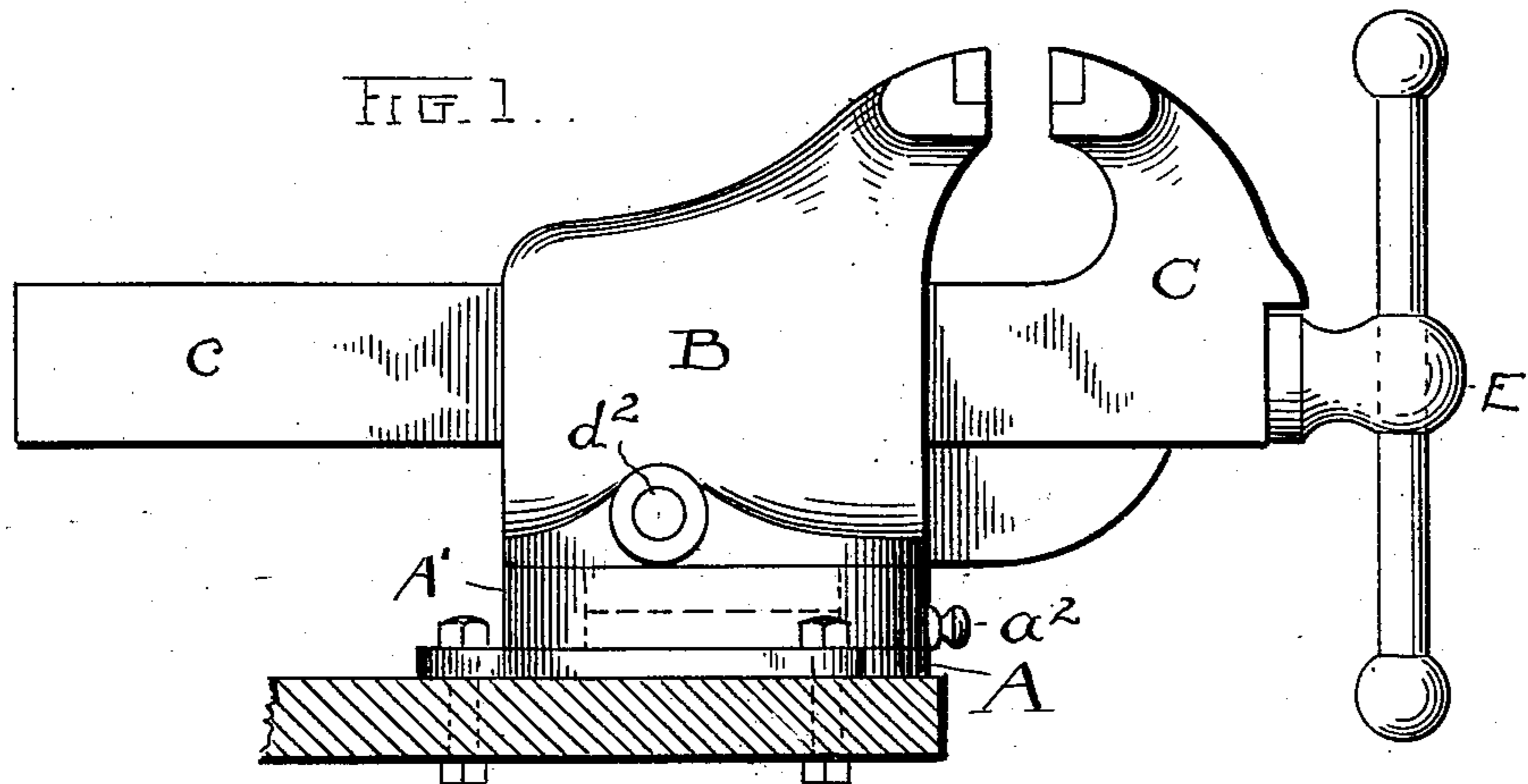
Patented Nov. 11, 1902.

J. R. LONG.
BENCH VISE.

Application filed Feb. 13, 1902.)

(No Model.)

2 Sheets—Sheet 1.



ATTEST
T. B. Moore
T. M. Madden.

INVENTOR
John V. Long
BY H. T. Fisher ATTY

No. 713,121.

Patented Nov. 11, 1902.

J. R. LONG.
BENCH VISE.

Application filed Feb. 13, 1902.)

(No Model.)

2 Sheets—Sheet 2.

FIG. 5.

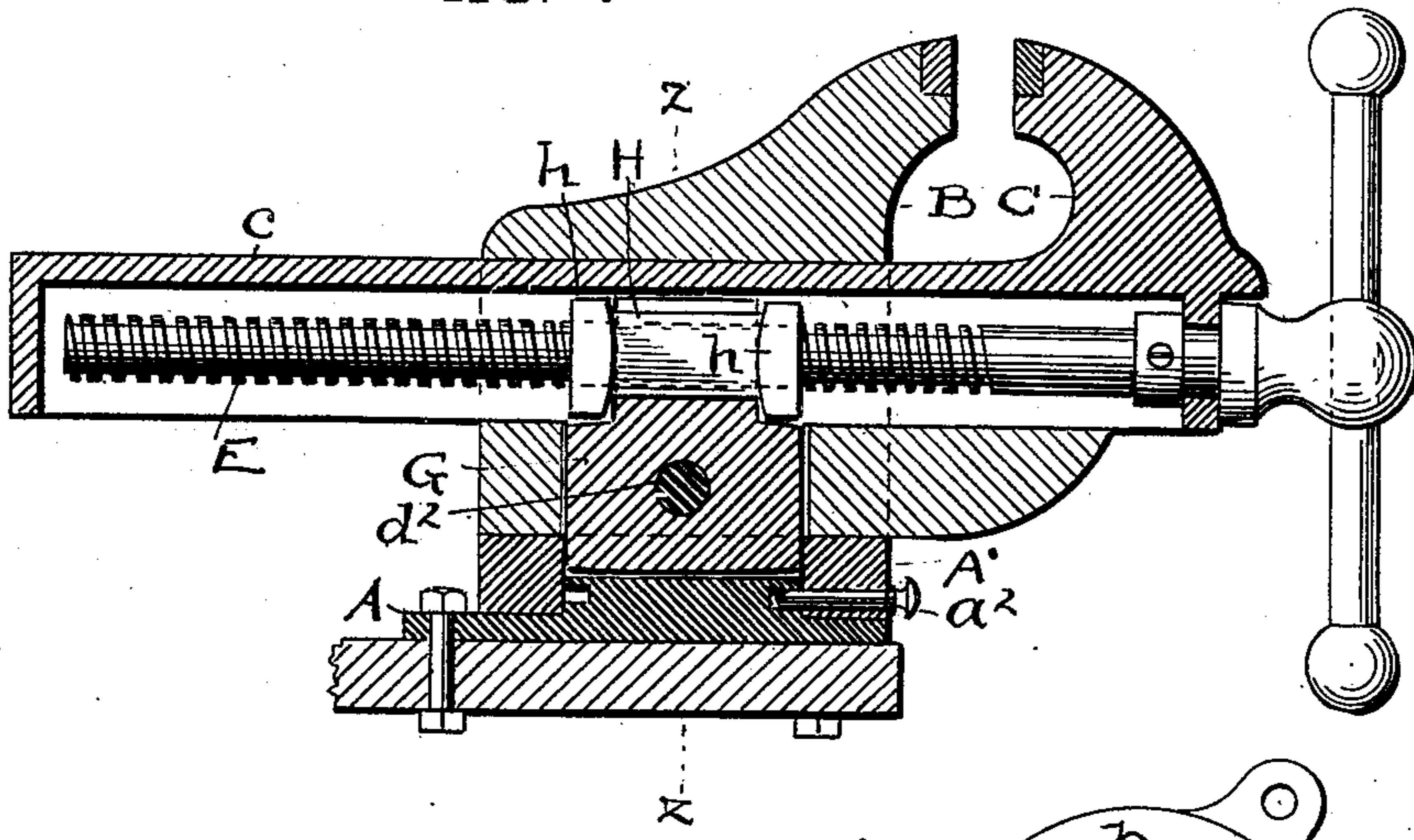


FIG. 7.

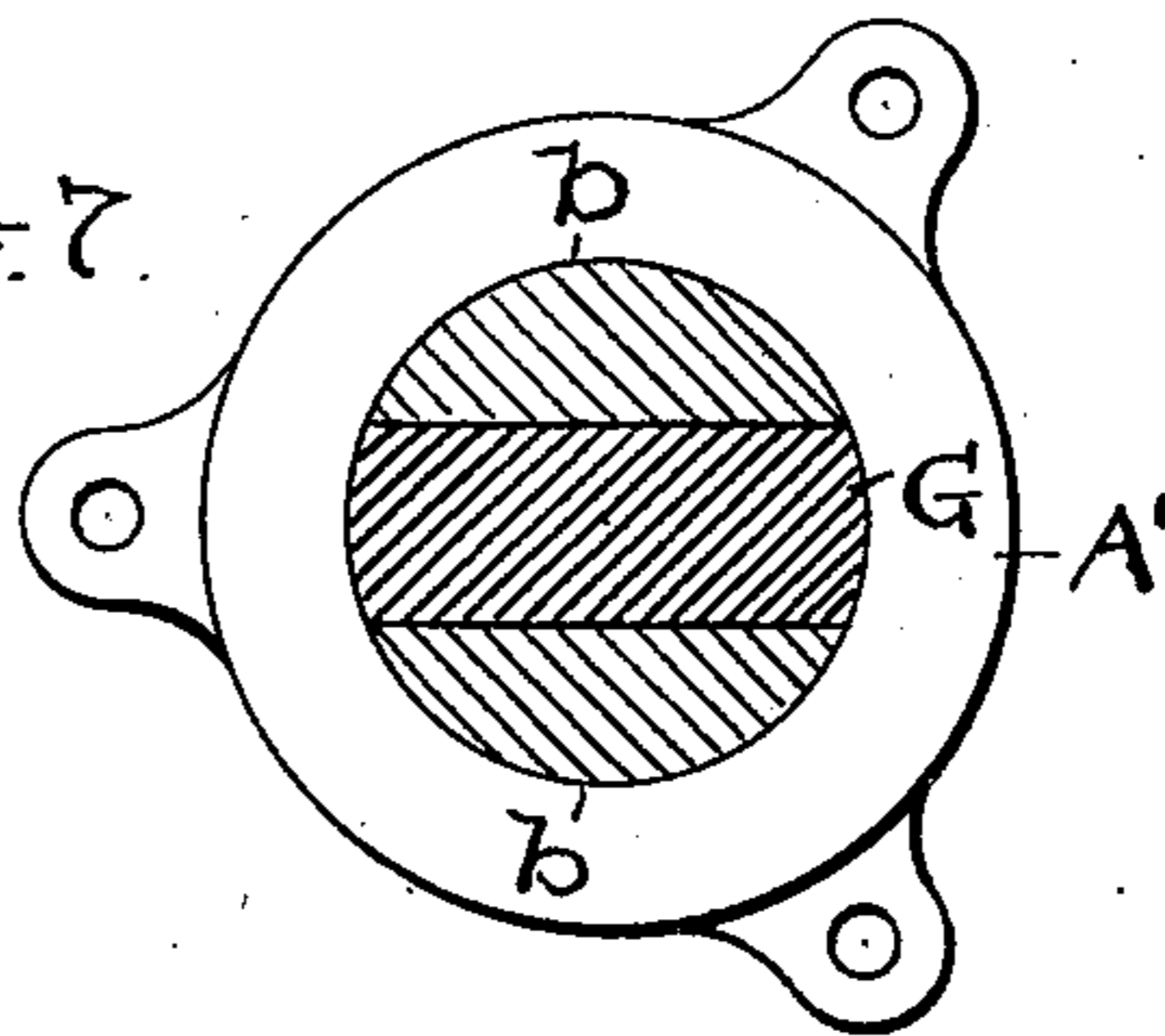
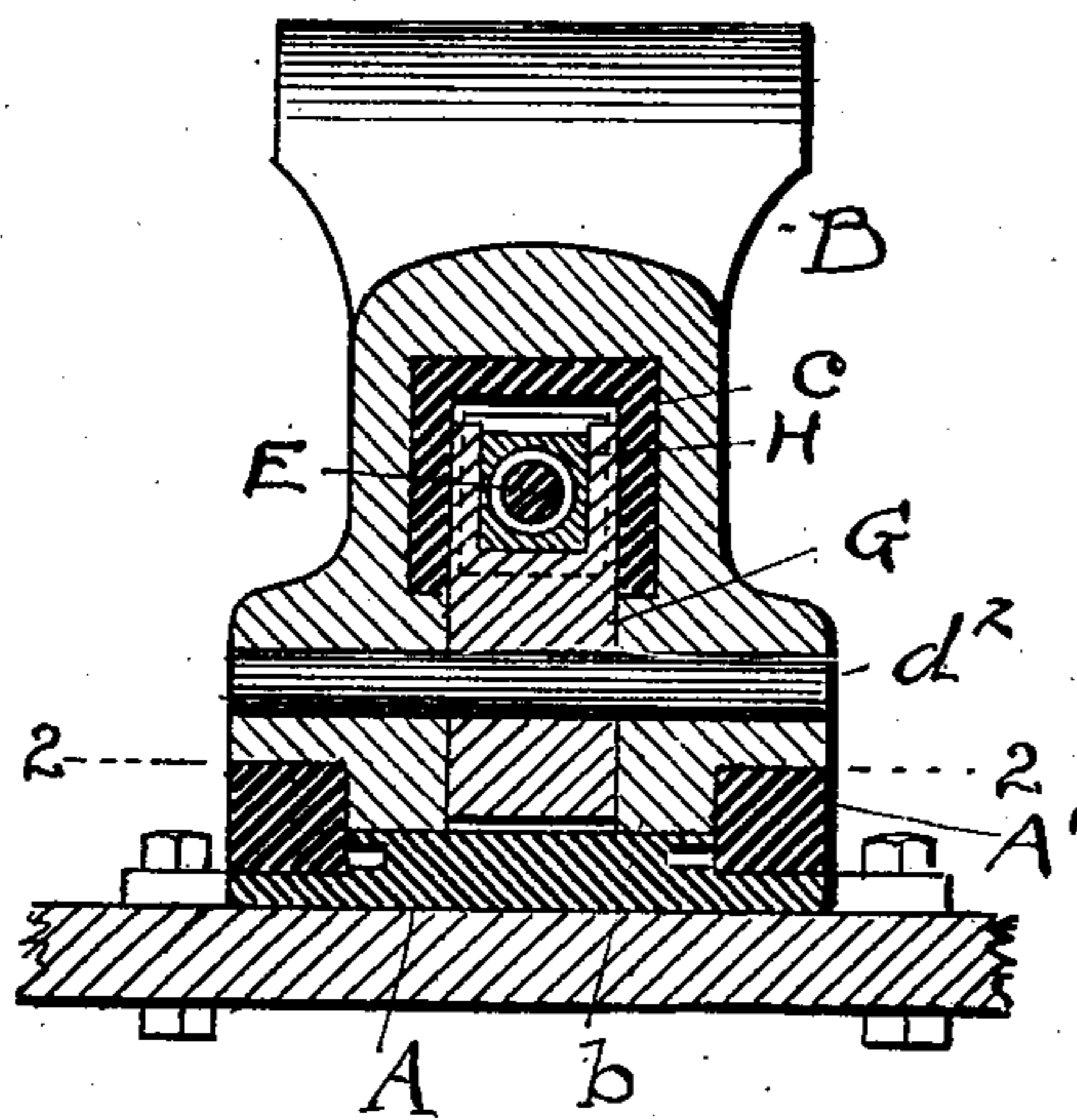


FIG 6.



ATTEST

R. B. Moore
T. M. Madden.

INVENTOR

John T. Long

BY *H. T. Fisher* ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN R. LONG, OF WARREN, PENNSYLVANIA.

BENCH-VISE.

SPECIFICATION forming part of Letters Patent No. 713,121, dated November 11, 1902.

Application filed February 13, 1902. Serial No. 93,898. (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 Bench-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 bench-vises; and the invention consists in the construction of a vise substantially as herein shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Sheet 1 represents one form of my invention, and Sheet 2 a modified form thereof.

In Sheet 1, Figure 1 is a side elevation of the vise. Fig. 2 is a longitudinal sectional elevation thereof; and Fig. 3 is a cross-section on line *x x*, Fig. 2. Fig. 4 is a plan view on line *y y*, Fig. 3. Sheet 2, Fig. 5, is a longitudinal sectional elevation of the modifications above referred to; and Fig. 6 is a cross-section thereof on line *z z*, Fig. 5. Fig. 7 is a plan view on line 2 2, Fig. 6.

The style of vise to which this invention relates is that wherein both jaw members are rotatable together horizontally upon a common base and the jaws are automatically locked against rotation on their base when an object is clamped in the vise.

To these ends the invention comprises certain parts, as shown, as in Fig. 1, wherein there is a base A, a solid cylindrical raised portion *a*, provided with a series of holes *a'* horizontally about its side, and about this is a ring or collar A', encircling said base portion *a* and standing upward therefrom a sufficient depth to effectually support and socket what is herein termed the "fixed" member B of the vise. The said member or jaw has its lower portion *b* constructed substantially in the shape of a hub, fitting snugly and yet rotatably within the socket produced by ring A', standing above base A. For convenience of description and reference the part or member B is referred to herein as a "fixed" jaw or member, in contradistinction to the movable jaw or member C, which is adapted to be operated toward and from the member B af-

ter a manner which is now well known. The said jaw or member C has an arm or projection *c* extending horizontally through a corresponding opening in the fixed member B, and this arm or extension *c* is preferably rectangular in exterior outline, as seen in cross-section, Fig. 3, although it is not necessarily limited to this shape, and is hollow from its under side its full length and adapted to operatively receive the screw-threaded shaft E lengthwise therein. The said screw passes through a nut F, which is seated upon the top of dog D and pivotally connected therewith by side pins *d* or their equivalent. Said nut F may have any suitable shape, but is square in cross-section, as here shown, and abuts against the upwardly-projecting portion *d'* of dog D, where it has all its bearing or pressure when the screw E is tightened. The transverse pins *d* or equivalent means serve mostly to confine the nut in working position when the screw is run back in opening the vise; otherwise the nut might be caused to travel with the screw. Then, again, by having this nut separate and free it always accommodates itself to the position of the screw E, whatever the position of the dog on which it rests may be.

The dog D is shown in cross-section, Fig. 4, wherein the hub *b* of the fixed jaw is shown as having a recess to receive the dog, and a transverse pivot-pin *d²* supports the dog at or near its middle in the said hub in position to lock against the ring or collar A at its lower extremity and to bear against the fixed dog D at its upper and rear extremity when locking occurs. To this end also the recess for the dog is of such size as to permit a slight tilting movement of the dog on its pivot-pin, and thus the said dog rotates or turns more or less when locking occurs, with the pivot *d²* as its fulcrum and support. I have found that by employing a pivot *d²* for the dog and a rocking movement therefor on the pivot I obtain a much more effectual locking of the parts against rotation and with considerably less work on screw E than is possible by any other construction known to me, and it is much more effectual than it would be if the said pivot were omitted and I relied simply upon upper and lower engagements of the dog to do the locking. With this pivoting

of the dog the need of having nut F loosely supported thereon becomes obvious, because the nut must hold to the plane of the screw while the dog turns or tilts in respect thereto more or less on its pivot.

The modifications shown in Figs. 5, 6, and 7 conform in the main to the construction and principle of operation set forth in the foregoing views, and the same reference letters and characters are applied thereto excepting as to dog G and nut H. In this instance the dog is set into a recess in the hub *b*, extending entirely across the hub, and has a pivot d^2 centrally therein, on which it is supported and adapted to tilt more or less, as in Fig. 1. The nut H rests loosely in a trough in the upper portion of said dog and has heavy rims or flanges *h* at its ends, which bear against the edges of the dog and take all the pressure of the screw E when in operation. The said nut is thus confined within or upon the upper portion of the dogs, in which, however, it has relatively the same freedom of action when the dog tilts as the nut F in the other form, so that the dog is sure to lock against the collar A' at its lower portion and against the fixed member B diagonally at the front thereof at its upper portion, and thus prevent rotation of the parts on the base A when the vise is in use, and collar A' is locked by pin a^2 . By this construction of nut I avoid the necessity of fastening the nut directly to the dog to confine it against travel with the screw.

Ordinarily the jaws are locked against horizontal rotation on hub *b* of member B when an article is clamped therein; but sometimes it occurs that such rotation of both jaws together is desirable, especially to do certain kinds of work. To this end I have provided for rotation, even when the vise is carrying an article, by means of ring A' turning horizontally about the central raised portion *a* of base A, and said ring is equipped with a pin a^2 , adapted to be engaged in any one of holes a' , and thus adjustably fix the parts in any desired position. When ring or collar A' is locked, it serves the purpose of a fixed or rigid part on the base, the same as if it were integral therewith.

By fastening the recesses in the hub or lower portion of the fixed jaw, as shown, and making one edge of the dog to engage the collar A' and the other the back of said recess in the jaw I get locking connection through to base A, which is a stationary or permanently-fastened part.

If the dog were to engage only against the collar A' and not directly against the fixed jaw, except through or by its pivot d^2 , a fairly good hold would be obtained, but not as good as with engagement by or at the edge of the dog.

What I claim is—

1. In a vise of the kind described, a base and an annular upwardly-projecting collar thereon forming a socket portion, a fixed jaw having a hub rotatably seated within said collar, and a dog pivotally supported between its ends in said jaw and adapted to frictionally engage said collar, in combination with the movable jaw and a screw thereon operatively engaged with said dog to tighten and loosen the same, substantially as described.

2. The fixed jaw and the base-support therefor, and a dog to lock the jaw in respect to the base pivoted in the said jaw in combination with the movable jaw, a screw therein, and a nut on the screw loosely engaging the upper portion of said dog, substantially as described.

3. The fixed jaw and the base and a collar overlapping a portion of both base and jaw and providing a socket for the jaw, the movable jaw and the binding-screw therein, and a dog to lock said parts against rotation pivoted between its ends in the fixed jaw and loosely connected with said screw, substantially as described.

4. The base and the collar thereon, the fixed jaw having a hub rotatably socketed in said collar, and having a recess open to said collar, a dog pivotally supported in said recess and having its outer edge constructed to making locking engagement with said collar, in combination with the movable member of the vise, and a screw therein operatively connected with the top of said dog, whereby the said dog bears against said collar at one edge and against the said fixed jaw with its opposite edge when in locking position, substantially as described.

5. In bench-vises, a fixed base having a cylindrical upwardly-projecting portion and a collar rotatably adjustable thereon and projecting above the same, in combination with a fixed member of the vise seated within said collar on said base and means to lock said collar and fixed member together, substantially as described.

6. A vise comprising a base and a collar rotatably supported thereon and extending above the base, in combination with the fixed and the movable members of the vise, said fixed member having its lower portion engaged within said collar, a dog to lock said fixed member and collar together, and means to lock said collar on the said base, 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.