

No. 749,233.

PATENTED JAN. 12, 1904.

E. SHUPE.
VISE.

APPLICATION FILED SEPT. 6, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

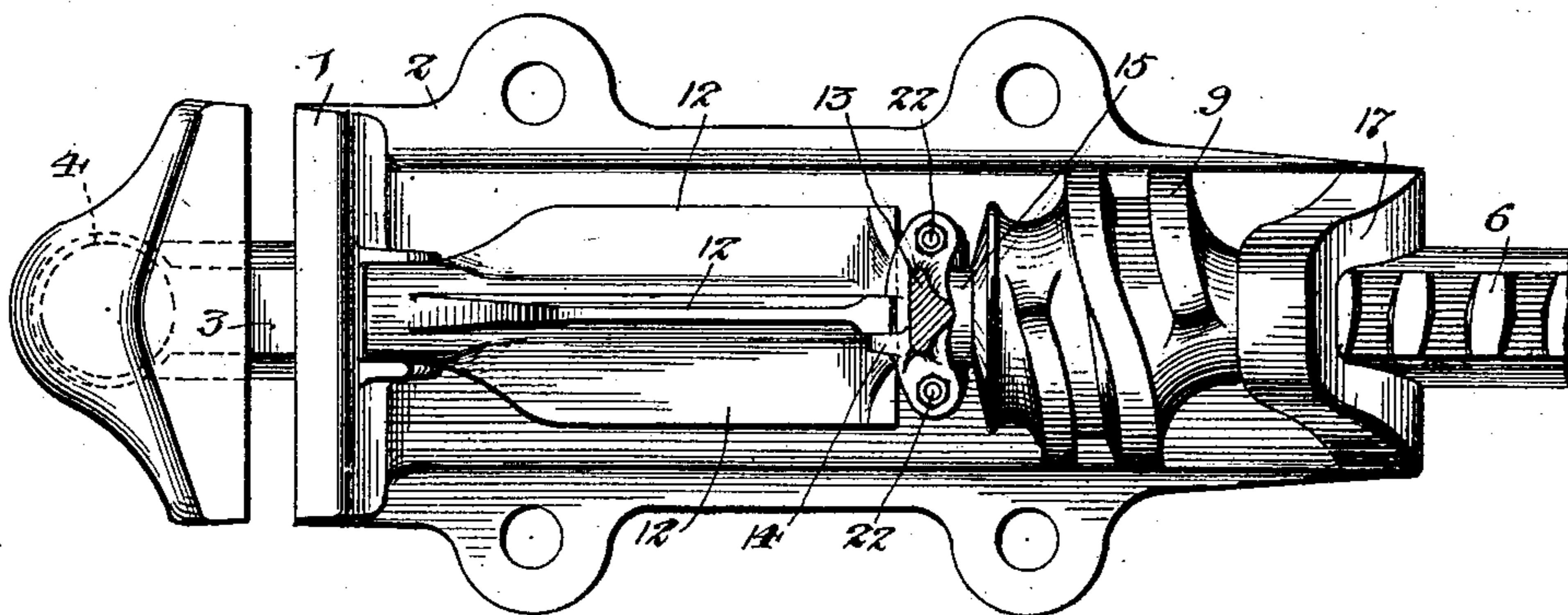


Fig. 2.

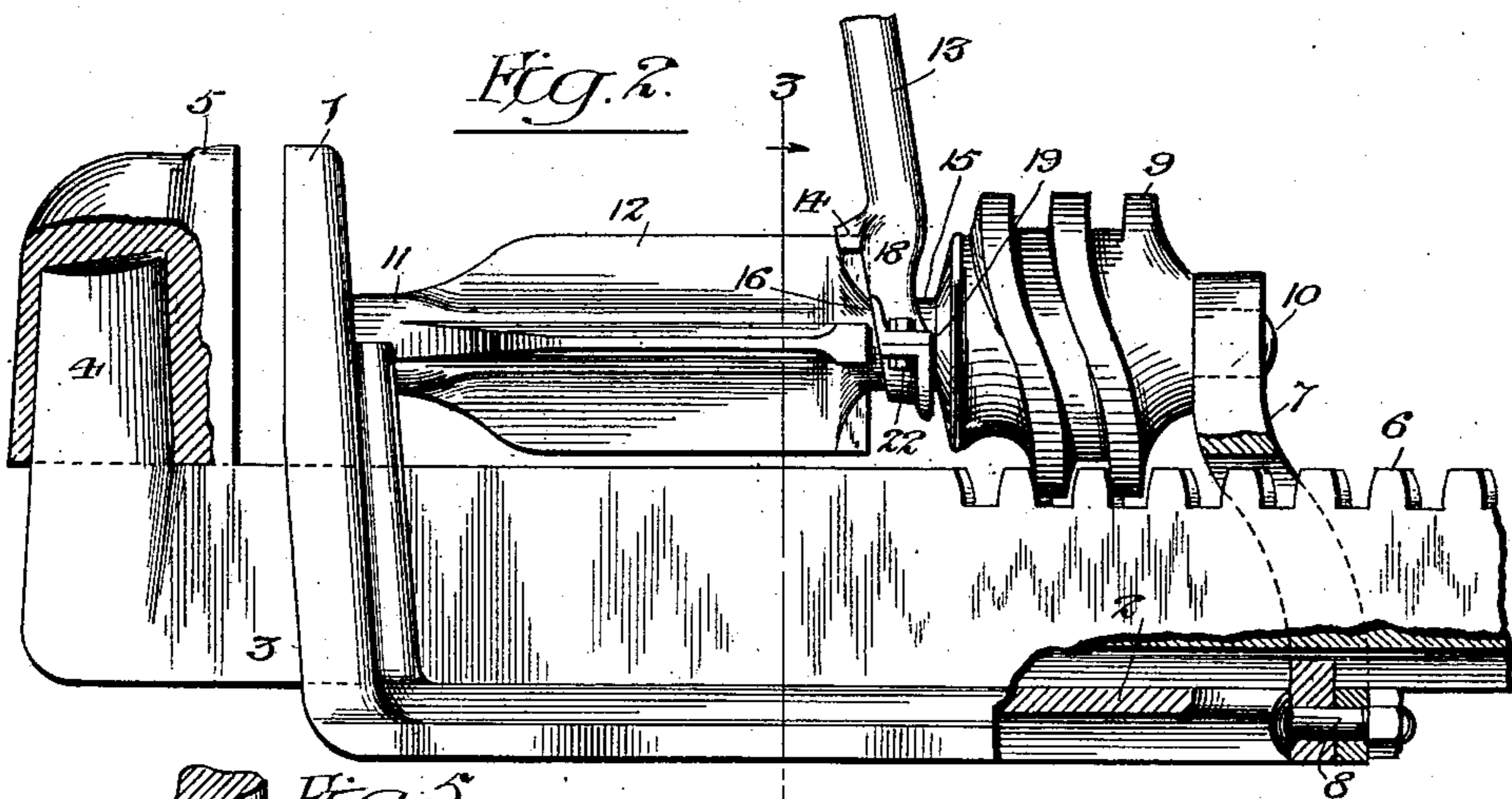


Fig. 3.

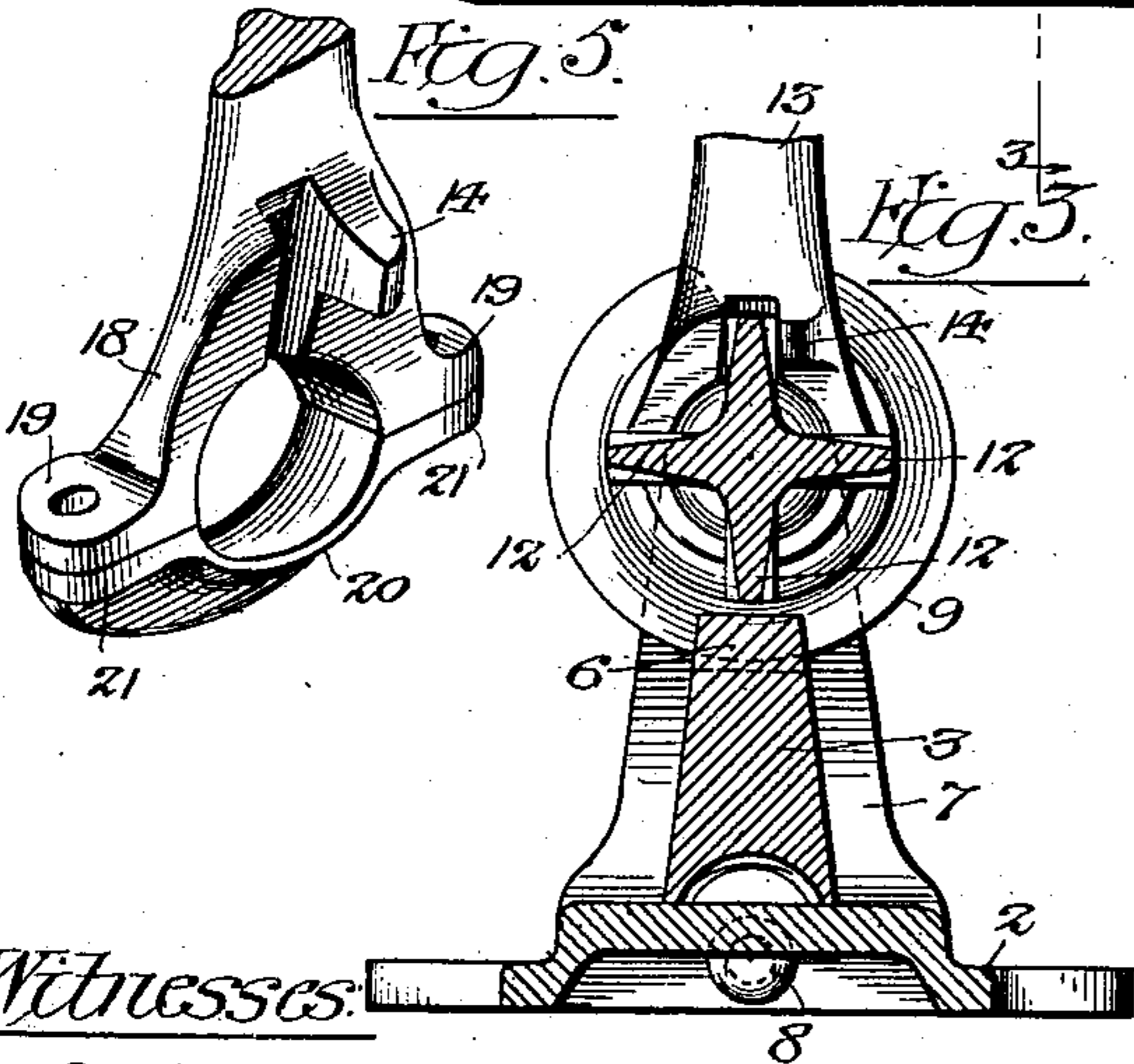
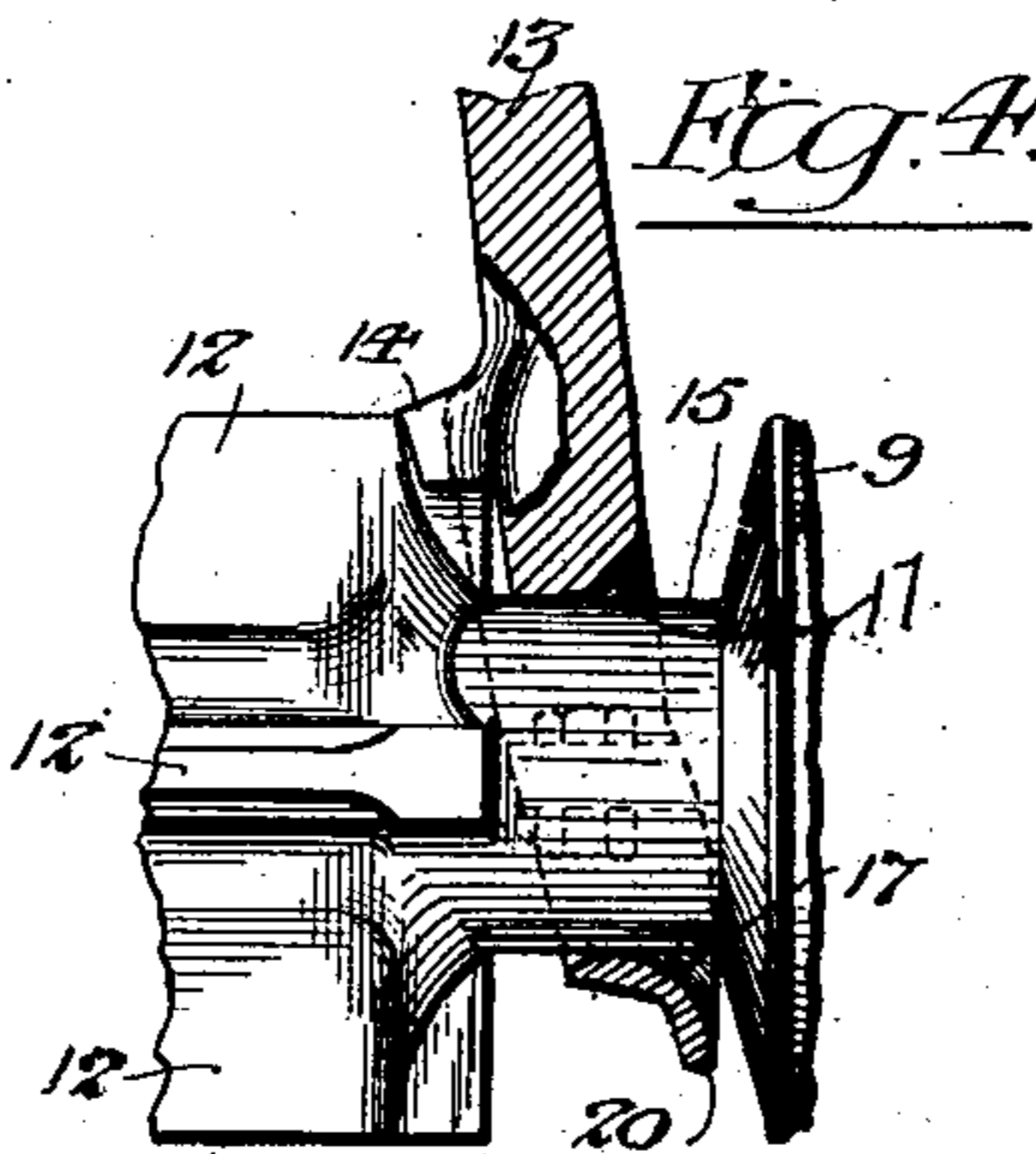


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 6.

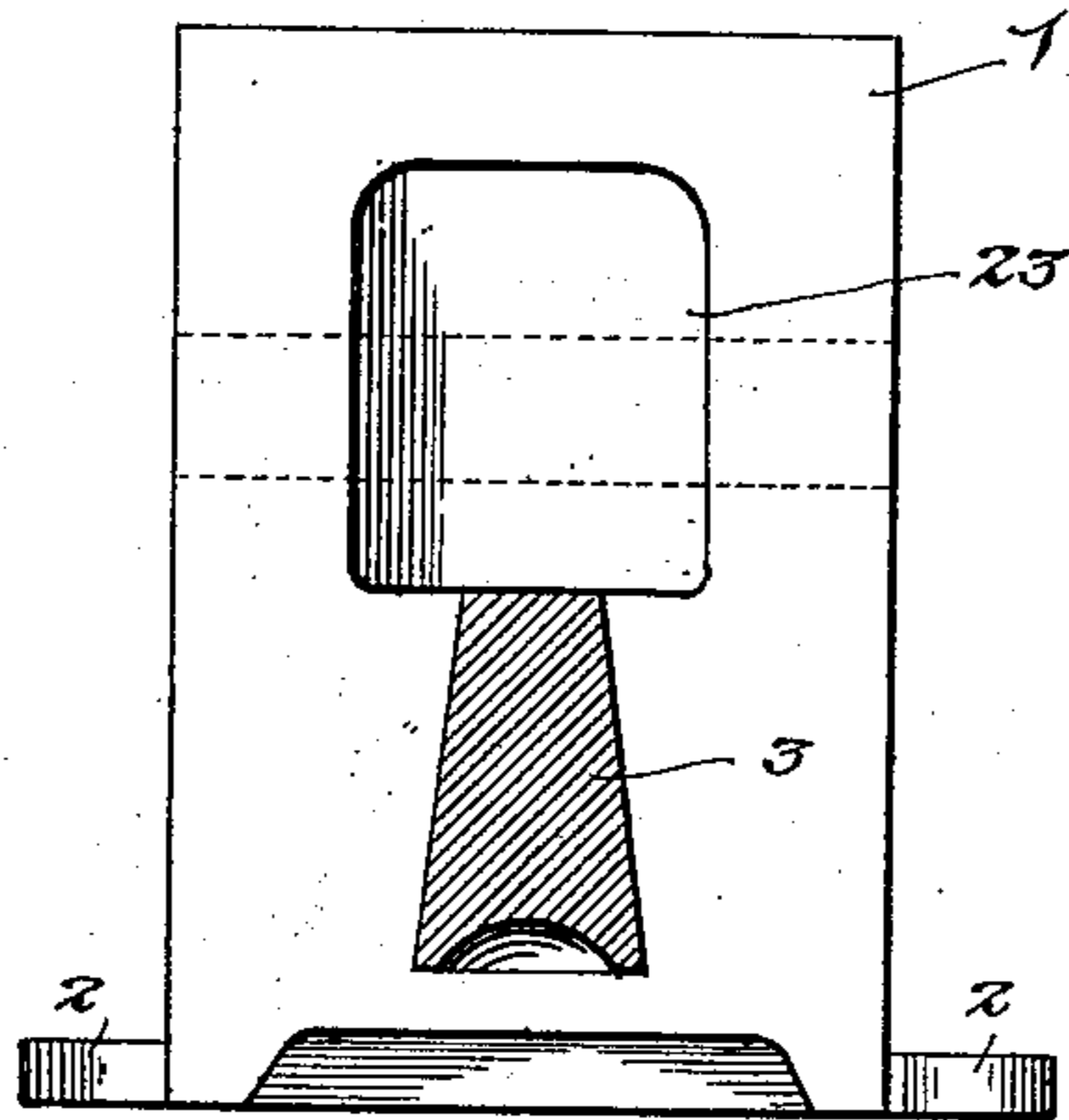


Fig. 7.

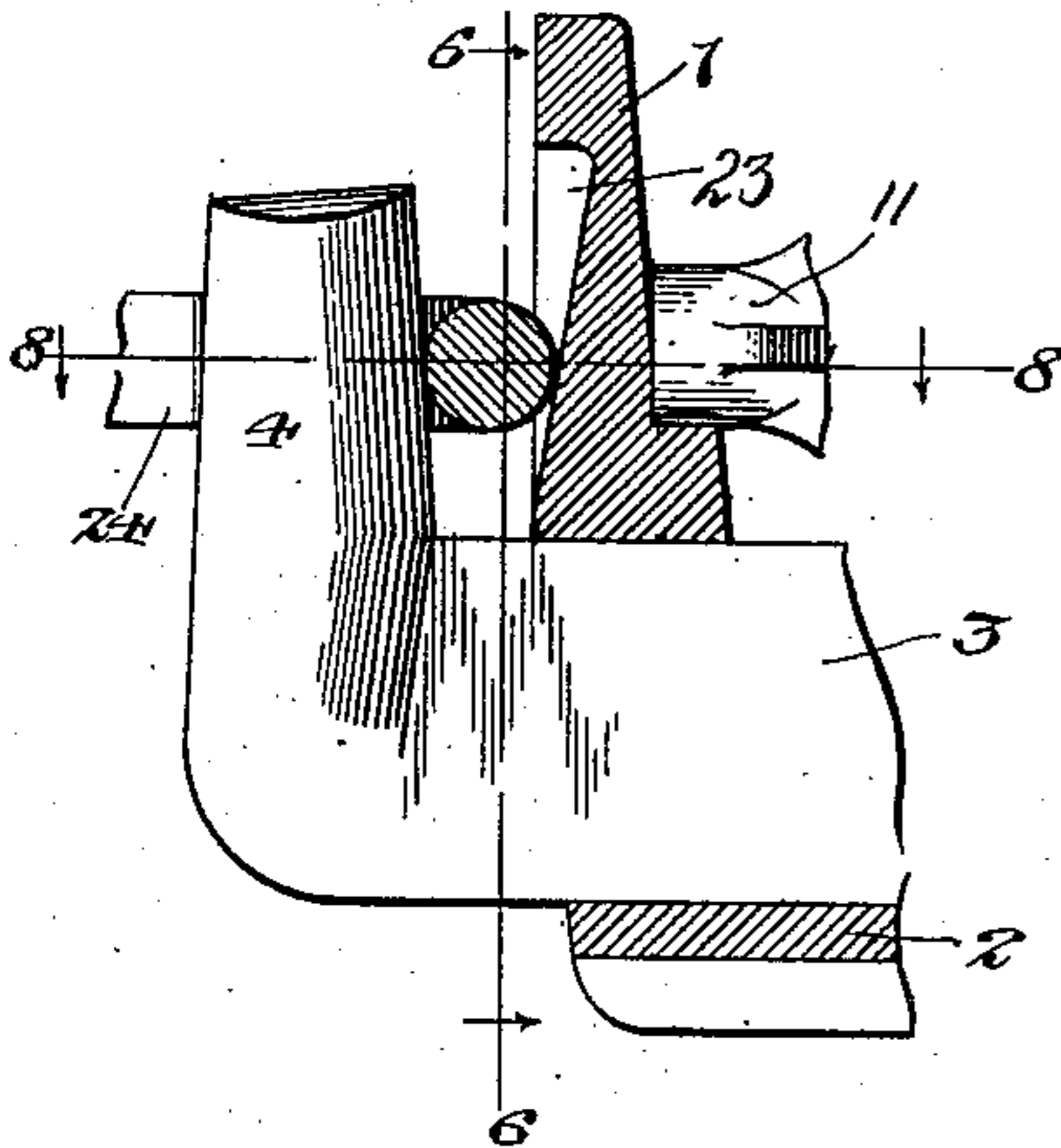
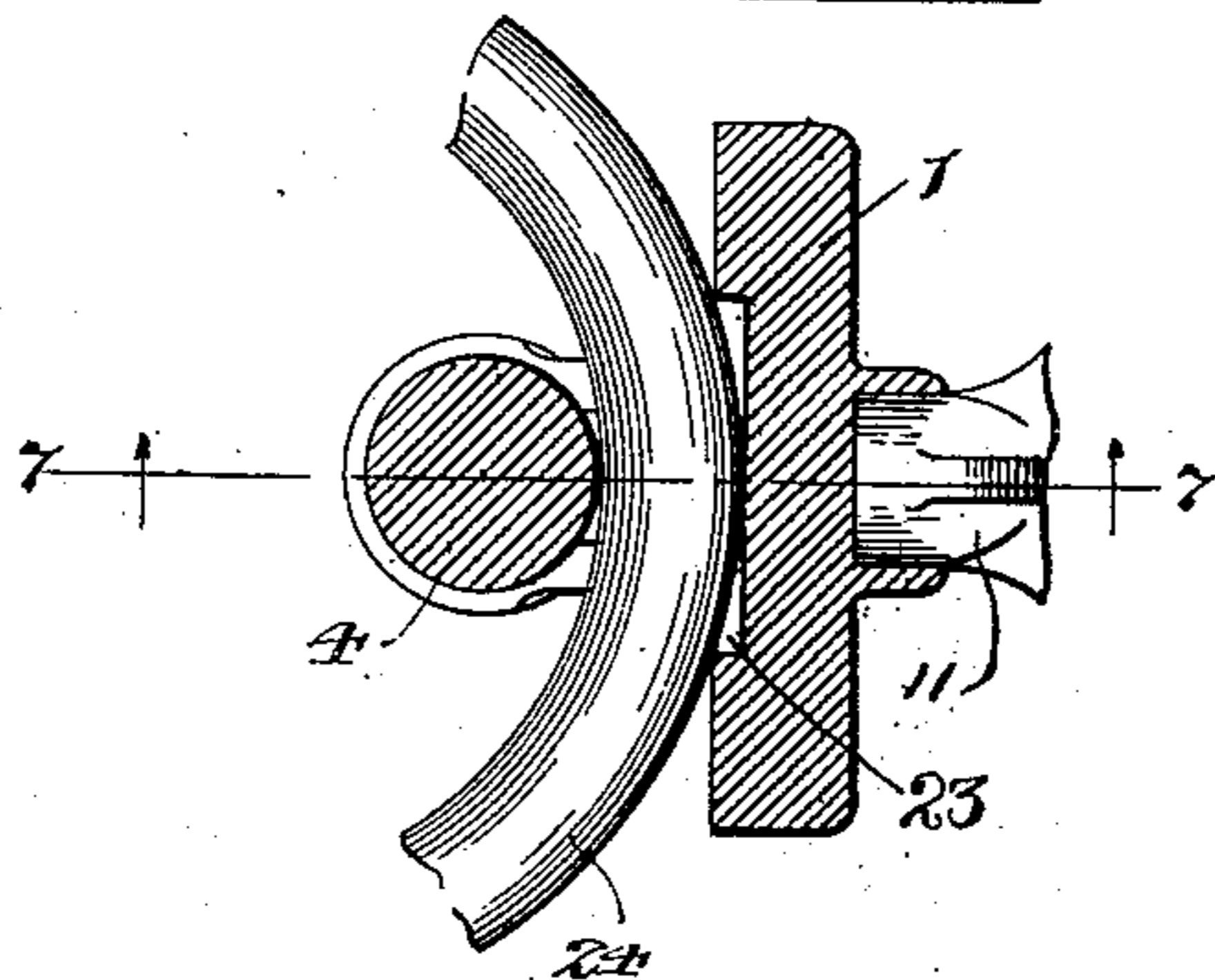


Fig. 8.



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UNITED STATES PATENT OFFICE.

ELI SHUPE, OF RACINE, WISCONSIN, ASSIGNOR OF TWO-THIRDS TO RUPERT A. NOURSE AND GILBERT N. PRENTISS, OF RACINE, WISCONSIN.

VICE.

SPECIFICATION forming part of Letters Patent No. 749,233, dated January 12, 1904.

Application filed September 6, 1902. Serial No. 122,309. (No model.)

To all whom it may concern:

Be it known that I, ELI SHUPE, a citizen of the United States, residing at Racine, in the county of Racine and State of Wisconsin, have
 5 invented certain new and useful Improvements in Vises, of which the following is a full, clear, and exact specification.

My invention relates to that class of vises employing a fixed and a movable jaw with operating mechanism whereby the latter may be
 10 moved toward and from the former at will; and the invention has for its object to provide improved and simple means whereby this action of the movable jaw may be accomplished
 15 with despatch and when desired with greater power.

With these ends in view my invention consists of certain features of novelty in the construction, combination, and arrangement of
 20 parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

25 In the said drawings, Figure 1 is a plan view of my improved vise, the operating-handle being shown in section and a part of the rack-bar being broken away. Fig. 2 is a side elevation thereof, partly broken away. Fig.
 30 3 is a vertical transverse section taken on the line 3 3, Fig. 2. Fig. 4 is an enlarged detail view of the operating handle or lever and the adjacent parts, showing the lever in section. Fig. 5 is a detail perspective view of the lower
 35 end of the operating-lever. Figs. 6, 7, and 8 illustrate a modification hereinafter described, Fig. 6 being a face view of the fixed jaw with the sliding bar of the movable jaw shown in section on the line 6 6, Fig. 7, illustrating a
 40 cavity in face of the jaw for holding round or curved surfaces, Fig. 7 being a vertical sectional view thereof on the line 7 7, Fig. 8, showing a ring held in the vise, and Fig. 8 being a plan section thereof on the line 8 8, Fig. 7.

45 1 is the fixed jaw, which is formed on or secured to a base 2 of any suitable construction provided with the usual means or any suitable means whereby it may be attached to the bench or other object on which the vise is

to be supported, and supported upon the base 50 2 and sliding through the fixed jaw 1 is a bar 3, which carries a pivot or post 4 at its outer end for the support and attachment of the movable jaw 5, which has a socket in its lower side fitting accurately over the pivot 4, where-
 55 by the jaw 5 may oscillate in a horizontal plane with relation to the jaw 1, the pivot 4 being tapered upwardly, so that its connection with the jaw 5 will be free from lost motion, while at the same time the jaw 5 will be free
 60 to oscillate. The opposite end of the bar 3 on the upper side is formed with a series of teeth or cogs 6, constituting a rack-bar which slides through the lower end of a bracket 7, secured
 65 by bolts 8 or other suitable means to the base 2, and with this rack-bar engages a worm 9, having a journal 10, supported in the upper end of bracket 7. Secured to the worm 9 is a winged
 70 shaft 11, the wings of which are shown at 12 and are four in number, preferably arranged on the diameters of the shaft and extending longitudinally thereof throughout a substantial part of its length. This shaft 11, if desired, may
 75 constitute a continuation of the journal 10 and worm 9, and its end opposite the journal 10 is journaled in the back of the fixed jaw 1 in any suitable way, so that by rotating the shaft in
 80 the proper direction the worm 9 and rack-bar 6 will effect the movement of the jaw 5 toward or away from the jaw 1, as desired. When
 85 this movement is to be accomplished quickly, the rotation of the worm 9 may be effected by the hand of the operator applied to the wings 12, which afford a convenient grip and enable the operator to rotate the shaft rapidly by
 90 passing his hand back and forth over the wings. When the jaw 5 is to be moved toward the fixed jaw with great force, however, the rotation of the worm 9 is effected by an
 95 operating-lever 13, which may be of the desired length and is provided on one side with a tooth 14, adapted to engage with the ends of the wings 12. The lower end of the lever 13 is journaled upon a neck 15, situated between the worm 9 and the wings 12 and constituting, if desired, a continuation of the shaft 11. The lever 13 is so mounted upon this neck 15 as to be capable of rotation independ-

ently thereof when the tooth 14 is out of engagement with the wings 12, and in order that it may be oscillated longitudinally of the shaft 11 for thus alternately engaging and disengaging the tooth 14 and the wings 12 the lower end of the lever is beveled, as shown at 16, so that its upper end may be pushed away from the jaw 1 to disengage tooth 14 from wings 12, and in order that it may thus rock on the neck 15 while being free from undue lost motion its bearing upon the neck is rounded, as shown at 17. The lower end of the lever is in the form of a collar constituted of two parts, one of which is indicated at 18 and preferably constitutes a continuation of the lever proper and is provided with flanges 19 on both sides. The other member is shown at 20 and is provided with flanges 21, secured to flanges 19 by bolts 22.

In the modification shown in Figs. 6, 7, and 8 the face of the fixed jaw 1 is provided with a recess 23, which is deepest at its upper end and tapers outwardly to the face of the jaw at its lower end, as shown in Fig. 7. With the fixed jaw thus constructed and the movable jaw detachable or removable from its pivot 4 round or curved surfaces may be held in the vise, it being understood that the cavity 23 in the fixed jaw gives the jaw two points of bearing against the curved surface, whereas without such cavity the jaw would have but one point of bearing, and as the pivot 4 has but one point of bearing against the object the object would have a tendency to tip or teeter, as on a pivot. It is also understood that the cavity 23 being graduated in depth objects of various curvature may be securely held by the pivot 4 without danger of bending or breaking them, the objects of greater radius being placed nearer the bottom or shallower part of the recess, so that it would bear at the back of the recess as well as at both sides thereof, and thus prevent the pivot 4 from bending or crushing it.

In Figs. 7 and 8 of the drawings I have shown a ring 24 thus held by the vise.

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

1. In a vise the combination of a fixed jaw, a rack-bar, a jaw secured to said rack-bar and movable therewith, a worm engaging said rack-bar for reciprocating the same, a hand operating device for said worm, a lever for also operating said worm, and means for disengageably connecting said worm and lever, substantially as set forth.

2. In a vise the combination of a fixed jaw, a rack-bar, a jaw secured to said rack-bar, a worm engaging said rack-bar for reciprocating the same, means for rotating said worm rap-

idly by hand, and a lever having disengageable tooth connection with said worm for also rotating it, substantially as set forth.

3. In a vise the combination of a fixed jaw, a rack-bar, a jaw secured thereto, a worm engaging said rack-bar, a lever pivotally supported in line with the axis of said worm and movable independently thereof, and means for imparting the oscillation of said lever to said worm, substantially as set forth.

4. In a vise the combination of two jaws, a rack-bar secured to one of said jaws for moving the same, a worm engaging said rack-bar for reciprocating it, a winged shaft secured to said worm for rotating it, and an operating-lever pivotally supported between the wings of said shaft and said worm and having means for engagement with the wings of said shaft, substantially as set forth.

5. In a vise the combination of two jaws, a rack-bar secured to one of said jaws for moving the same, a worm engaging said rack-bar, a winged shaft secured to said worm, an operating-lever oscillatory both longitudinally and transversely with said shaft and having means for engagement with the wings thereof, substantially as set forth.

6. In a vise the combination of two jaws, a rack-bar secured to one of said jaws, a worm engaging said rack-bar for reciprocating the same, a winged shaft, a neck of smaller diameter than said worm connecting said worm and shaft together, a lever having a collar embracing said neck and being oscillatory both transversely and longitudinally with said shaft, and means on said lever for engagement with the wings of said shaft, substantially as set forth.

7. In a vise the combination of two jaws, a rack-bar secured to one of said jaws, a worm engaging said rack-bar for reciprocating the same, a base to which one of said jaws is secured, a bracket secured to and rising from said base and through which bracket said rack-bar passes, a worm journaled at one end in said bracket and engaging said rack-bar, and a winged shaft secured at one end to said worm and journaled at its other end in a fixed support, substantially as set forth.

8. In a vise, the combination of a fixed jaw, a rack-bar, a jaw secured to said rack-bar, a stationary worm engaging said rack-bar for rotating the same, and a longitudinally-elongated shaft for rotating said worm having a plurality of wide longitudinally-elongated wings radiating therefrom and extending from end to end thereof and adapting the shaft to be rotated by the palm of the hand.

ELI SHUPE.

Witnesses:

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