

R. J. SCHLOSSER.

WISE.

APPLICATION FILED SEPT. 11, 1909.

962,983.

Patented June 28, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

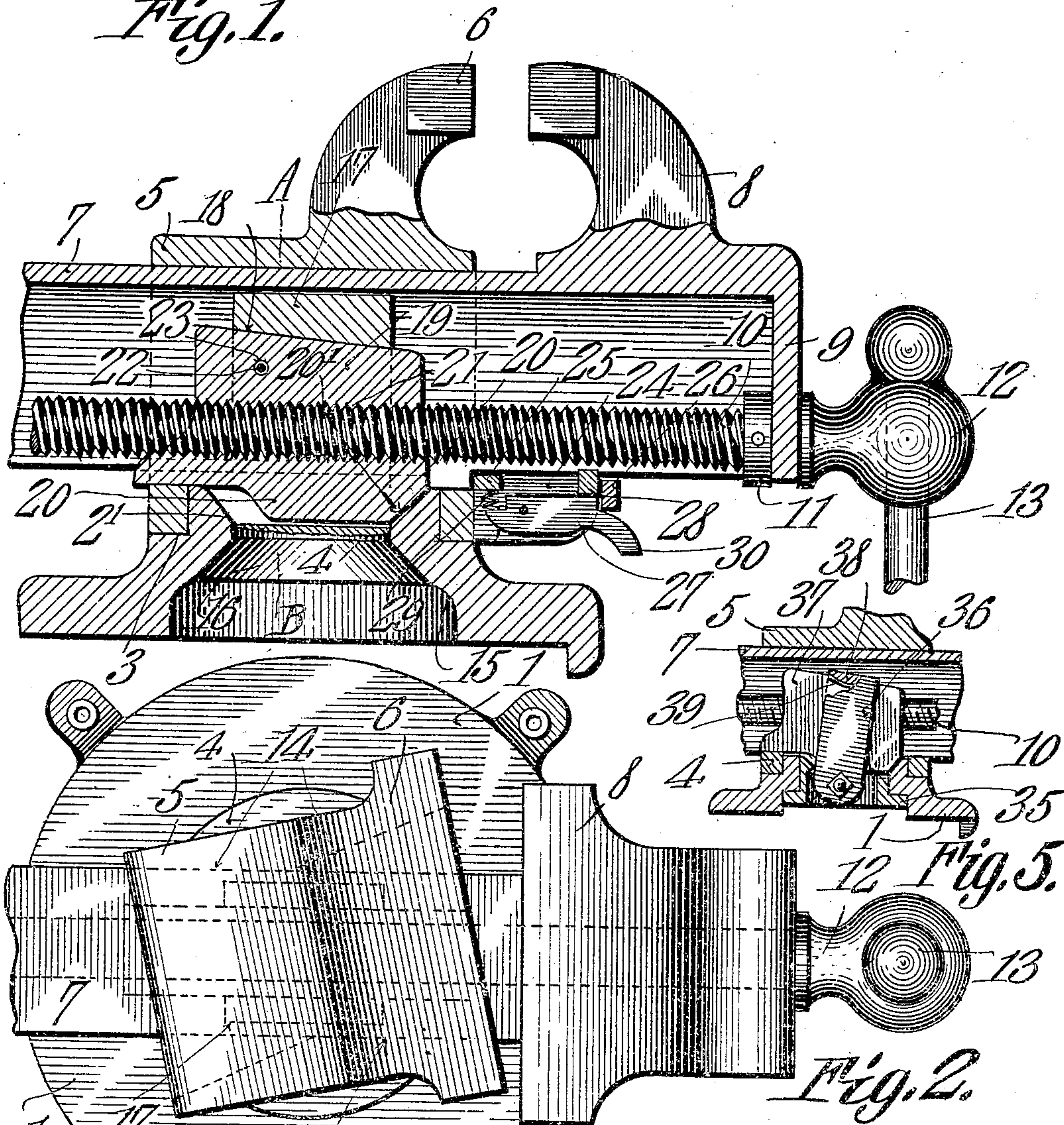
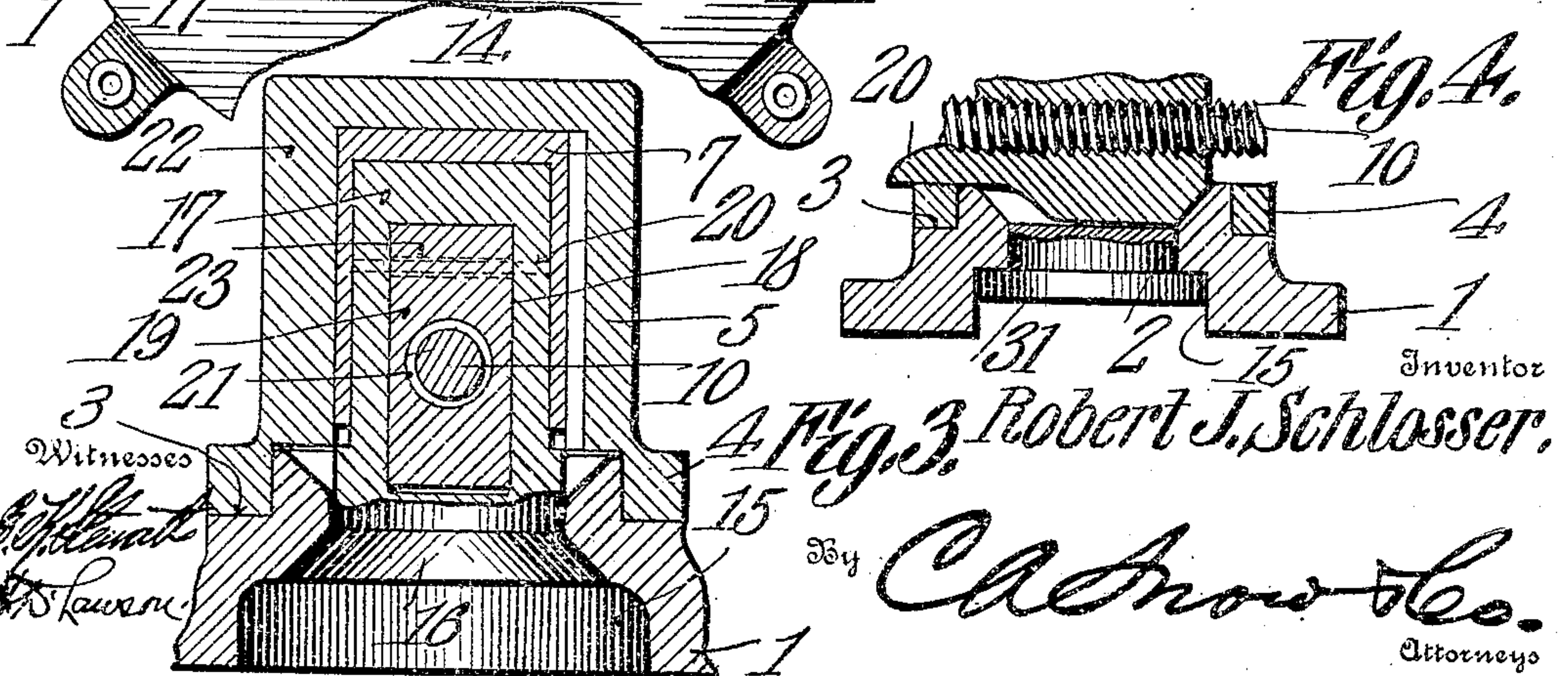


Fig. 2.



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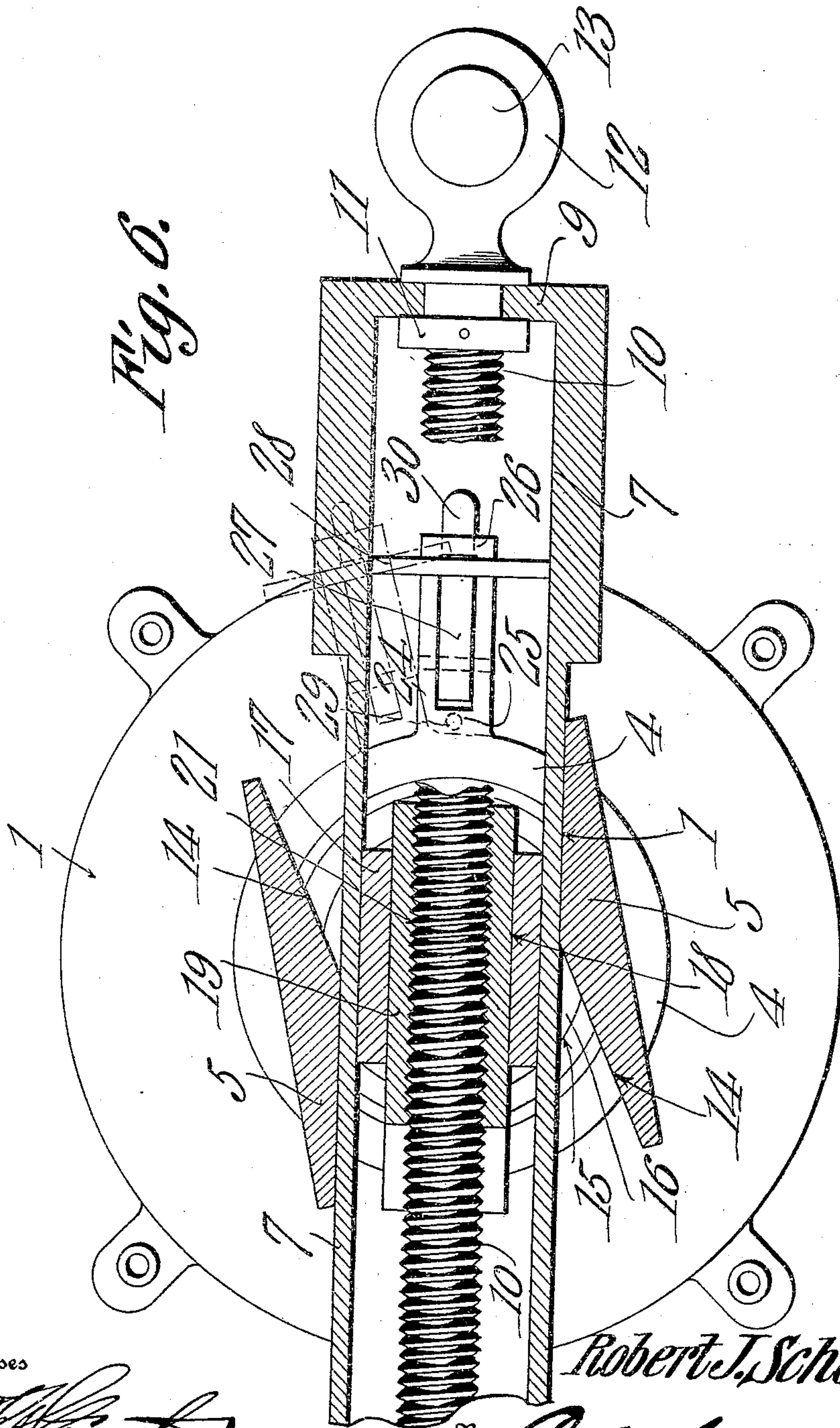
VISE.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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To all whom it may concern:

Be it known that I, ROBERT J. SCHLOSSER, a citizen of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented a new and useful Vise, of which the following is a specification.

This invention relates to vises and one of its objects is to provide a device of this character having coöperating jaws, one of which is mounted to slide with respect to the other jaw while said last mentioned jaw is capable of swinging about an axis extending perpendicularly to the line of movement of the slidable jaw, the vise being thus especially adapted for gripping objects having opposed converging faces.

Another object is to provide improved means whereby the laterally adjustable or swinging jaw can be securely held in any position to which it may be shifted, the means utilized for this purpose being under the control of the shifting screw of the slidable jaw.

A still further object is to provide improved means for positively locking the two jaws with their working faces parallel.

A still further object is to provide a vise the jaws of which can be simultaneously shifted about the axis of the base of the vise without disarranging any of the parts of the mechanism.

With these and other objects in view the invention consists in certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred forms of the invention have been shown.

In said drawings:—Figure 1 is a vertical longitudinal section through a vise embodying the present improvements. Fig. 2 is a plan view thereof, the main jaw being swung laterally out of its normal position. Fig. 3 is a section on line A—B of Fig. 1. Fig. 4 is a longitudinal section through a portion of a modified form of vise. Fig. 5 is a longitudinal section through a portion of another modified form of vise. Fig. 6 is a horizontal section through the vise in a plane with the longitudinal axis of the screw, said screw being shown in plan and partly broken away.

Referring to the figures by characters of

reference 1 designates a preferably circular base designed to be bolted or otherwise secured to a supporting structure and this base has an upstanding tubular portion 2 at the center thereof which is surrounded by an annular shoulder 3 and has its upper end interiorly flared as at 2'. A ring 4 bears upon the shoulder 3 and is designed to rotate around the extension 2, this ring carrying an upstanding arched portion 5 which is integral therewith and has a main jaw 6 formed thereon. A longitudinally channeled slide 7 is mounted within the arch 5 and carries a jaw 8, one end of the slide being closed as indicated at 9 and having an adjusting screw 10 swiveled therein as shown at 11, the projecting end 12 of the screw being provided with a handle 13, preferably in the form of a rod slidably mounted within the end 12 as ordinarily.

As shown particularly in Figs. 2 and 6 the yoke 5 has its side walls diverging from their centers toward their outer ends, the width of the contracted portion of the opening within the yoke being substantially equal to the width of the slide 7. It will be apparent therefore that the yoke is capable of swinging laterally with relation to the slide, so as to bring the working face of the jaw 6 to any desired angle with relation to the corresponding face of the jaw 8. The diverging faces of the yoke 5 have been indicated at 14.

A central opening 15 is formed within the base 1 and communicates with the interior of the tubular extension 2, this opening 15 being designed to receive the head 16 of a stud 17 designed to fit within the channel in the slide 7. This stud has a tapered opening 18 extending therethrough and in which a wedge 19 is slidably mounted. Said wedge has its bottom portion 20 extending into the flared portion 2' of extension 2 and provided with an inclined face 20', designed to bear on said flared portion 2', there being a screw-threaded bore 21 formed longitudinally within the wedge and in which is mounted a portion of the adjusting screw 10, heretofore referred to. A holding screw or pin 22 extends transversely into or through the stud 17 and wedge 19, so as to prevent accidental displacement of the wedge, but in order to permit a slight relative movement of the wedge within the stud, the opening 23 in said wedge and within which the pin 22 is mount-

ed, is slightly greater than the diameter of the pin 22.

Parallel ears 24 extend radially from the ring 4, said ears being connected at their inner and outer ends by means of cross-pieces 25 and 26, and a dog 27 is pivotally mounted between the ears and has a laterally extending head 28 at its free end, the length of this head being substantially equal to the width of the channel within the slide 7, so that when the head is seated within the lower portion of the channel said slide 7 and the ring 4 are held against independent lateral movement. A spring 29 is preferably interposed between one end of the dog 27 and the cross-piece 25, so as to hold the head 28 normally seated within the channel in the slide 7. A finger-piece 30 preferably extends from the dog 27 to a point where it can be conveniently reached for the purpose of moving the dog downwardly out of engagement with the slide.

It is to be understood that when the device is to be used in the ordinary manner the head 28 of the dog 27 is seated within the channel in slide 7 and the working faces of the two jaws 6 and 8 are thus maintained parallel during all adjustments of the jaws. By turning the screw 10 in one direction the jaw 8 and its slide 7 can be moved away from the jaw 6, this action also resulting in the shifting of the wedge 19 so as to loosen its grip upon the extension 2. The frictional engagement of the head 16 with the base 1 is also correspondingly reduced, and it therefore becomes possible for the two jaws and their supports to be moved about the axis of the tubular extension 2. When the movement of the screw 10 is reversed the jaw 8 is shifted toward the jaw 6 and will finally clamp upon an object inserted between the jaws. As soon as this clamping action begins the screw 10 operates to draw the wedge 19 toward the closed end 9 of the channel within the slide, and said wedge therefore operates to bind upon the extension 2 and pull upwardly to a slight extent upon the stud 17, thus causing the head 16 of the stud to clamp upon the wall of the opening 15 and hold the vise against rotation upon the base.

Should it be desired to clamp the jaws upon a tapered object, the dog 27 is depressed so as to disengage the head 28 from the slide 7, and the yoke 5 can then be swung laterally so as to bring the jaw 6 to any desired angle with relation to the jaw 8. The object to be clamped can then be placed between the jaws, and when said jaws are tightened thereon the screw 10 will shift the wedge 19 so as to cause it to bind against the extension 2 with sufficient pressure to hold the wedge and the ring 4 against rotation, it being obvious of course that this action of the parts will result in the head 16 of the

stud 17 binding against the wall of opening 15, so as to prevent the stud from rotating.

As shown in Fig. 1 the head of the stud is preferably frusto-conical, so as to bear against a correspondingly tapered portion of the opening 15. If preferred, however, said head can be in the form of an annular flange, as indicated at 31, Fig. 4. Another arrangement has been disclosed in Fig. 5, wherein a cup-like washer or disk 35 constitutes the head and has a yoke 36 pivotally connected to it and straddling the wedge 37, there being a rounded projection within the top portion of the yoke, as indicated at 38, which projects loosely into a recess 39 formed within the top of the wedge, there being sufficient play between the wall of the recess 39 and the projection 38 to permit the slight movement of the wedge necessary in order to bind upon or to release the ring during the adjustment of the parts as heretofore explained.

In connection with the structure shown in Figs. 1, 2 and 3, it might be further explained that while that portion of the stud 17 which is located within the slide 7 is substantially rectangular, that portion of the stud located within the tubular extension 2 is cylindrical. This is, of course, necessary in order to permit the stud to rotate during the swinging movement of the vise jaws about the axis of the extension 2.

It is, of course, to be understood that various changes may be made in the construction and arrangement of the parts without departing from the spirit or sacrificing the advantages of the invention.

What is claimed is:—

1. A vise including a base, a main jaw pivotally mounted upon the base, a slide within the main jaw, a jaw carried by the slide, a slotted member mounted for rotation within the base and extending into the slide, said member having a bottom portion extending under a portion of the base, a clamping member slidably mounted within said slotted member, and a slide-adjusting device engaging the clamping member for binding the base between the two members.

2. A vise including an apertured base, a jaw-carrying member pivotally mounted on the base, a jaw-carrying slide mounted in said member, a slotted stud mounted for rotation within the aperture in the base and bearing upwardly against said base, a clamping element slidably mounted within the stud, and a slide-actuating device engaging said element to shift the element and stud and bind the base therebetween.

3. A vise including a base having an aperture, a jaw-carrying member mounted for rotation upon the base, a hollow slide within said member and carrying a jaw, a stud mounted for rotation within the aperture in the base and having a head bearing up-

wardly against said base, said stud having a tapered opening, a wedge slidably mounted within said opening and bearing downwardly on the base and slide-adjusting means engaging and designed to actuate the wedge.

4. A vise including a base, main and slidable jaws movably mounted on the base, means for actuating the slidable member, and means operated by said actuating means for locking the jaws against movement with relation to the base when said jaws are clamped upon an object, said means including a clamping element mounted for rotation and for minute vertical sliding movement within the base and a second clamping element slidably mounted transversely within the first-mentioned element and engaged by said actuating means, said slidable element operating to shift the revoluble element upwardly to bind upon the lower face of the base, said slidable element simultaneously binding upon the upper face of said base, the two elements cooperating to hold the jaws against rotation on the base.

5. A vise including a base, a slotted stud mounted for rotation within and extending beyond the base, said stud having a head designed to bear upwardly against the base, a jaw-carrying member movably mounted on the base, a wedge shiftable within the stud and bearing downwardly upon said base and member, a jaw-carrying slide mounted within said member and upon the stud, and a slide-shifting device engaging the wedge, said device constituting means for shifting the wedge to clamp the base between the wedge and head of the stud.

6. A vise including a base, a stud mounted for rotation therein and extending therebeyond, said stud having a head bearing in one direction against the base, a ring mounted for rotation upon the base, a jaw-carrying member upstanding from the ring, a jaw-carrying slide movably mounted within said member and upon the stud, a wedge movably mounted within the stud and bearing upon the ring, and a slide-adjusting screw engaging the wedge.

7. A vise including a base, a stud mounted for rotation therein and having an end portion bearing upwardly against the base,

a jaw-carrying member mounted for rotation upon the base, a jaw-carrying slide guided within said member and upon the stud, a wedge movably mounted within the stud and normally bearing downward upon said member, means for limiting the movement of the wedge within the stud, and a slide-actuating screw engaging and disposed to shift the wedge, said wedge and the end portion of the stud cooperating to bind upon the base.

8. A vise including a base having an opening therein, a jaw-carrying member mounted for rotation upon the base, said member having an opening therethrough the side walls of which diverge from their centers to their outer ends, a jaw-carrying slide mounted to slide and swing laterally within said member, means carried by said member for engaging the slide to hold it against lateral swinging movement, a slotted element mounted for rotation within the base and bearing upwardly thereagainst, a clamping wedge slidably mounted within said element and bearing downwardly on the base, and slide-adjusting means engaging the wedge for actuating the wedge to bind the base between the wedge and slotted element.

9. A vise including a base having an opening, a jaw-carrying member mounted for rotation upon the base, a jaw-carrying slide mounted to slide and to swing laterally within said member, a slotted stud mounted for rotation within the opening in the base and having a head normally bearing upwardly against the base, a wedge slidably mounted in the stud and normally bearing downwardly upon the base, a slide-adjusting device engaging the wedge and adapted to shift the wedge and stud to bind the base therebetween, and means carried by the jaw-carrying member for engaging the slide to hold said slide against lateral swinging movement relative to said member.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ROBERT J. SCHLOSSER.

Witnesses:

CHARLES BERRY,
LEON G. BALL.