

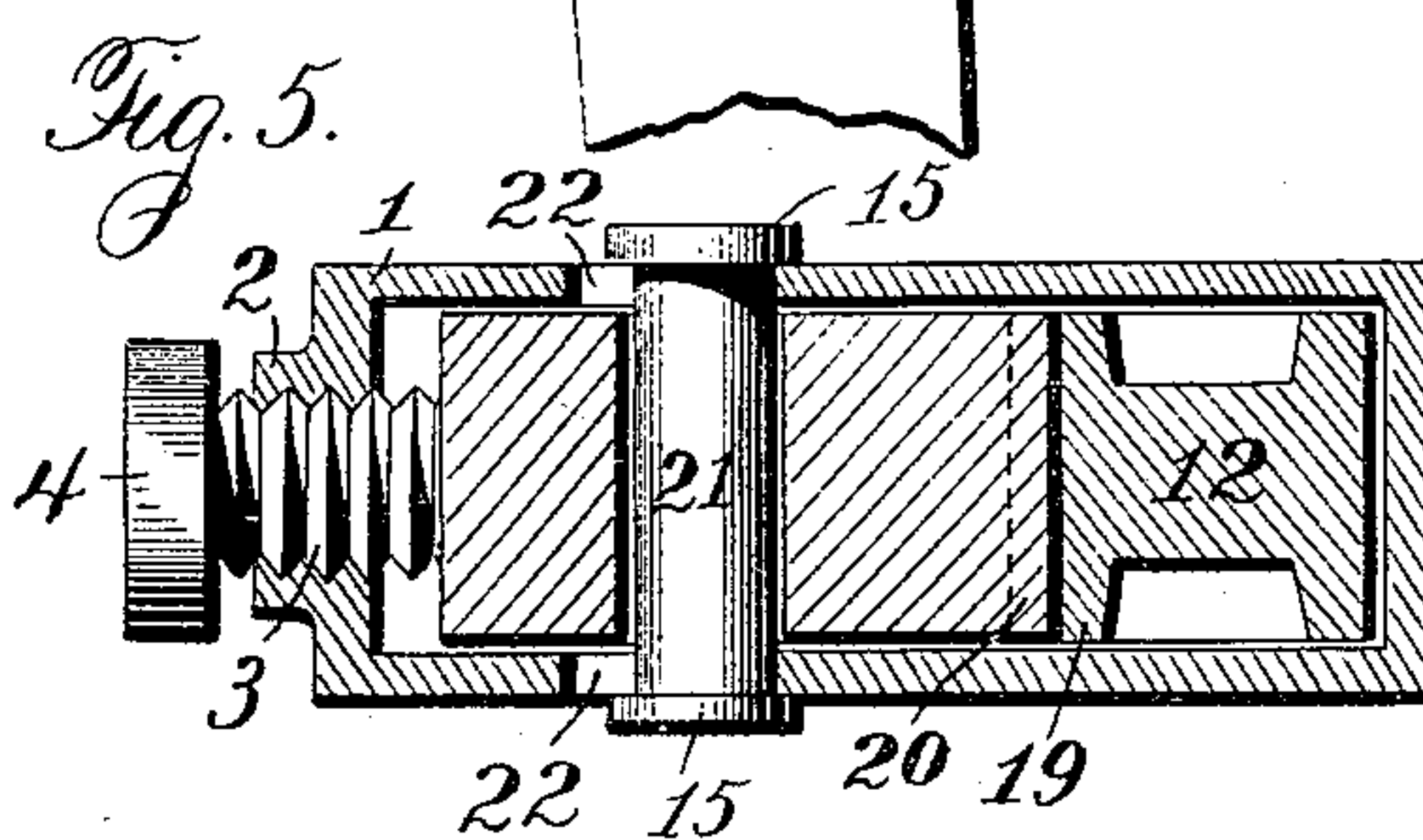
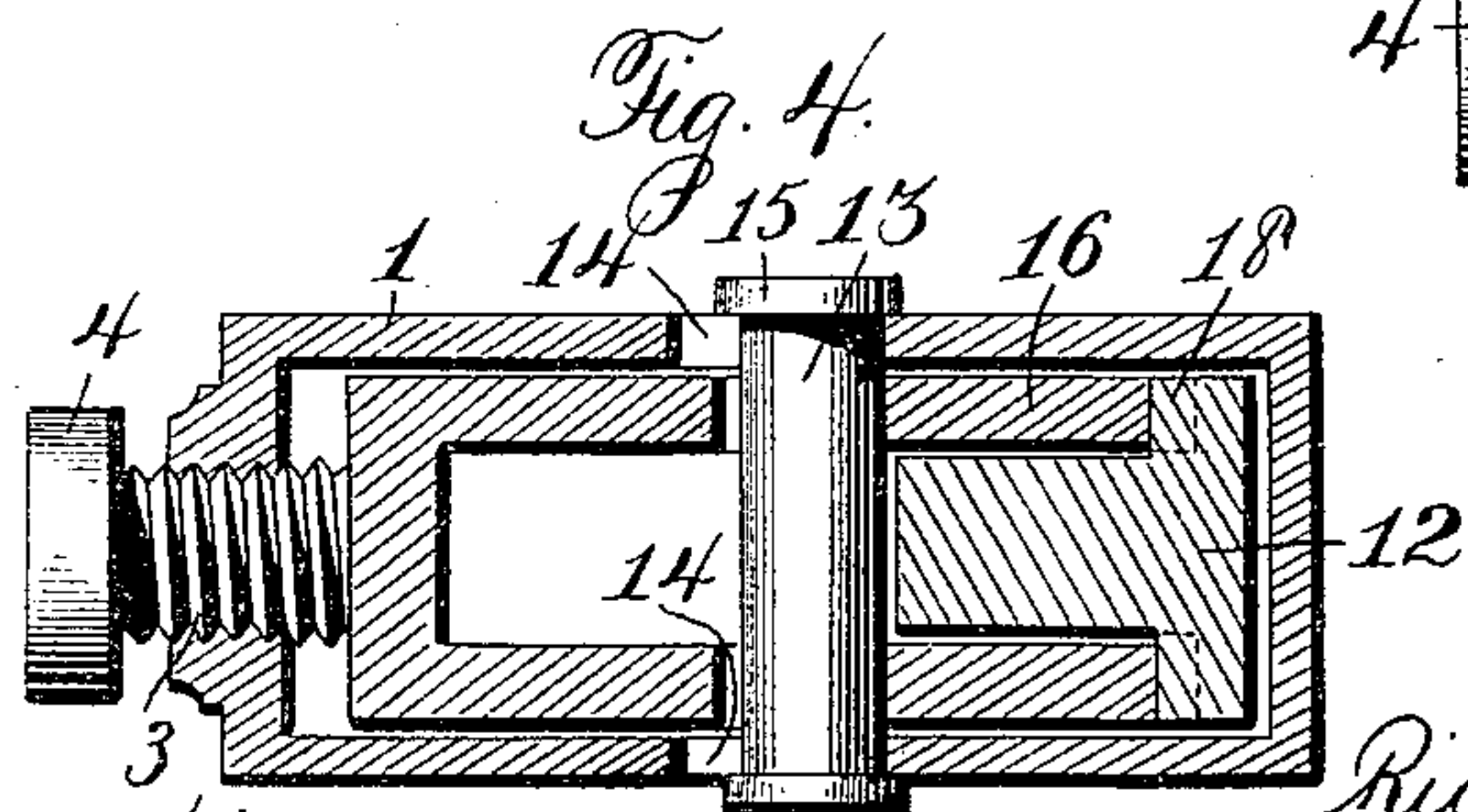
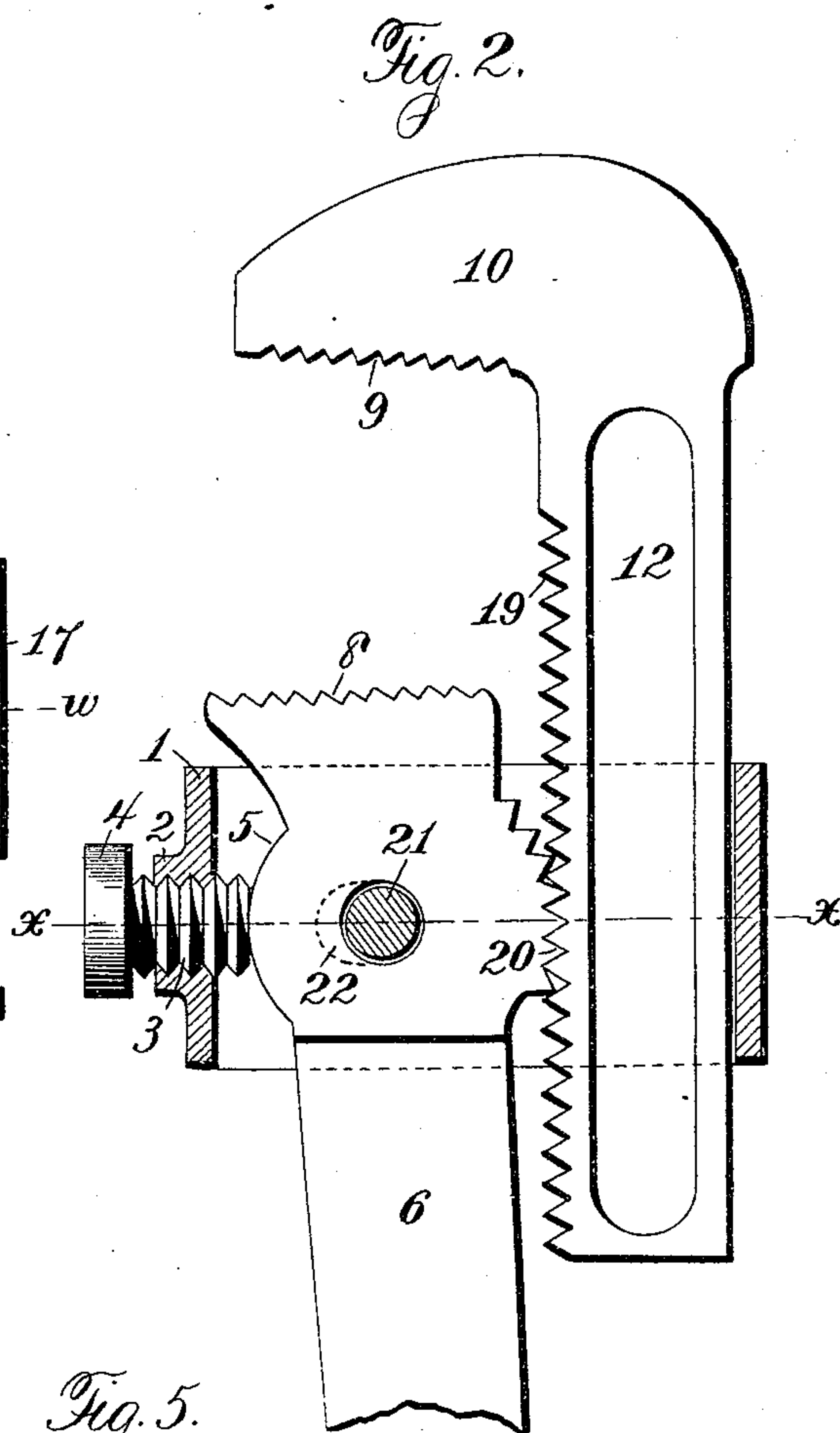
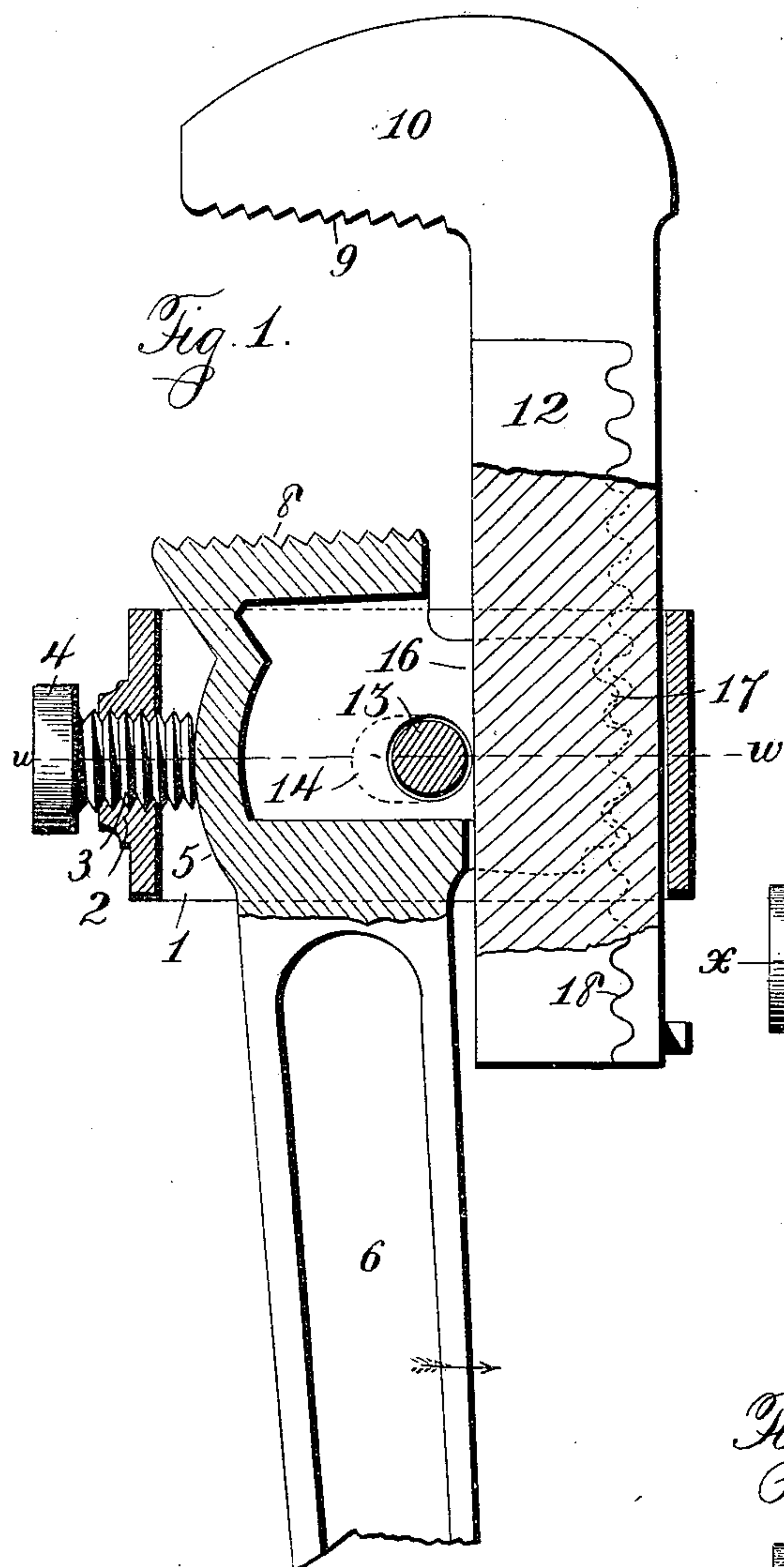
(No Model.)

2 Sheets—Sheet 1.

R. S. GILLESPIE & H. JAMES.
WRENCH.

No. 481,110.

Patented Aug. 16, 1892.



Inventors.

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Fig. 5.

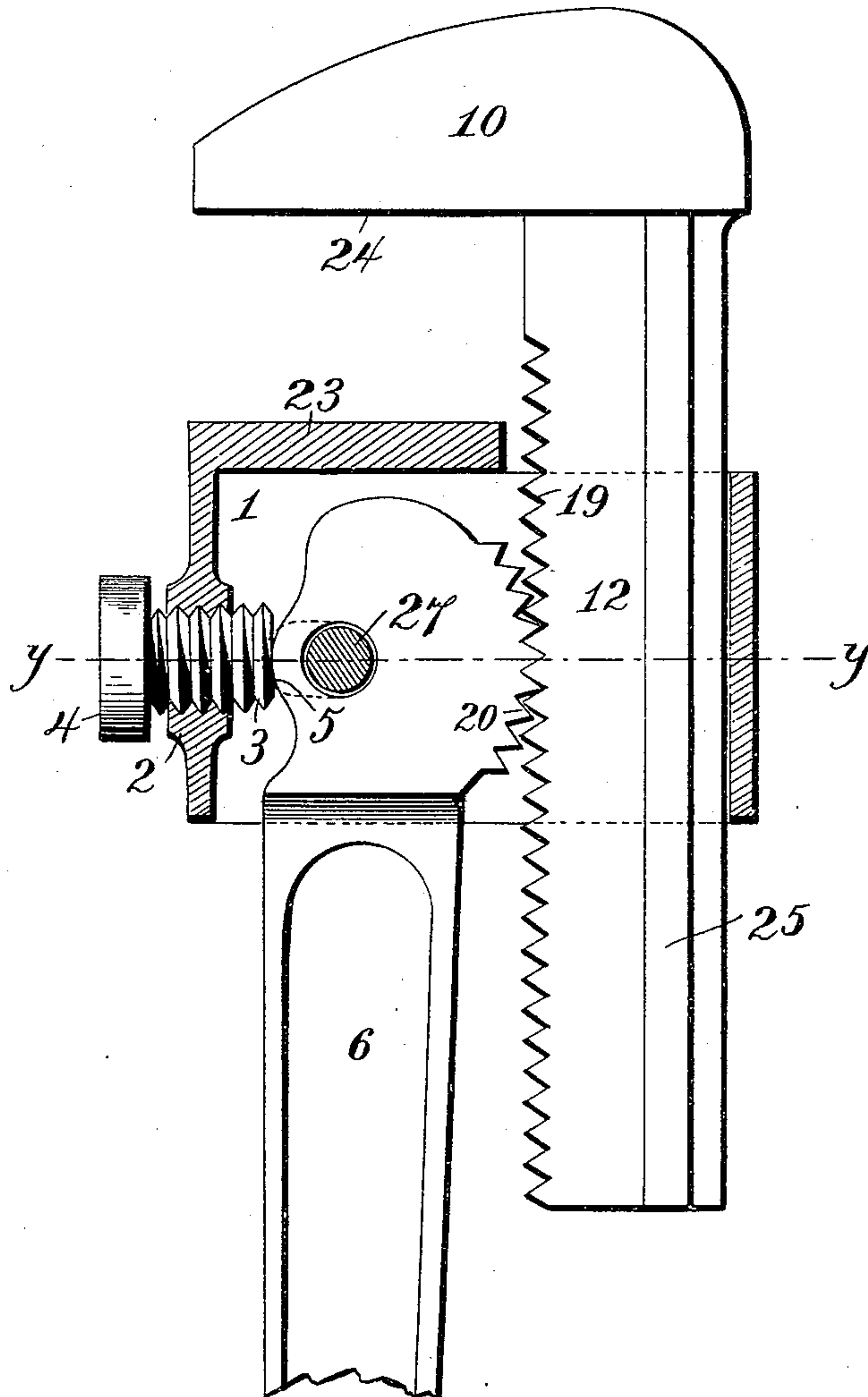
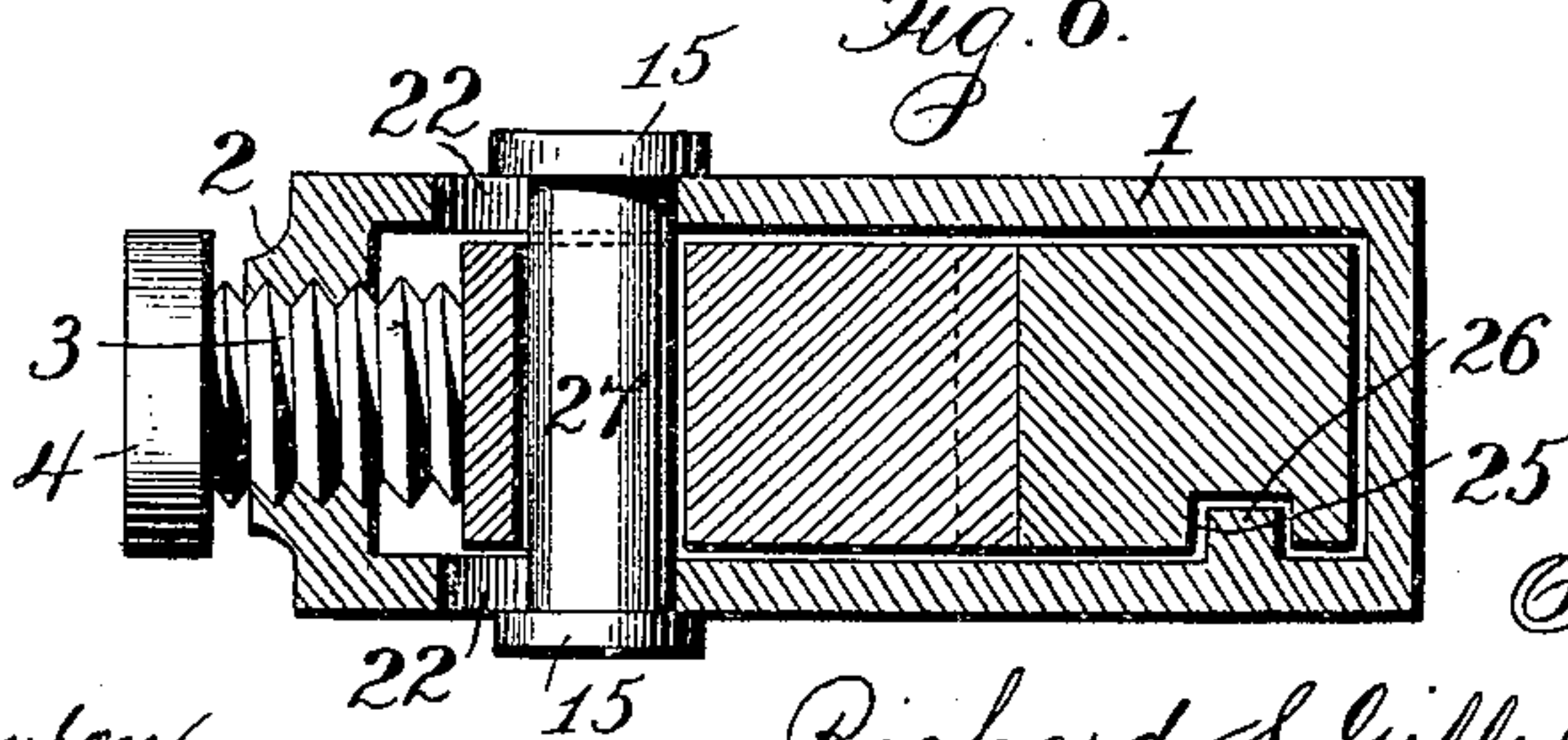


Fig. 6.



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UNITED STATES PATENT OFFICE.

RICHARD S. GILLESPIE AND HARRY JAMES, OF NEW YORK, N. Y.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 481,110, dated August 16, 1892.

Application filed November 12, 1891. Renewed July 16, 1892. Serial No. 440,221. (No model.)

To all whom it may concern:

Be it known that we, RICHARD S. GILLESPIE and HARRY JAMES, citizens of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to that type of wrenches wherein a sliding bar or shank having a jaw is movable in a box or frame provided with an adjustable screw or bolt constituting the fulcrum of a handle or lever which is in toothed engagement with the sliding bar or shank, as in Letters Patent No. 460,007, issued to us September 22, 1891.

The objects of our present invention are to improve the prior construction; to increase its efficiency and usefulness; to render the pipe-gripping teeth of the handle or lever more effective; to provide novel means for preventing displacement of the handle or lever from the box or frame, and to provide means whereby the instrument can be practicably employed for operating on screw-nuts, as well as on pipes or other cylindrical objects.

To accomplish these objects, our invention involves the features of construction and the combination or arrangement of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a sectional elevation of our improved wrench. Fig. 2 is a similar view of a modified construction. Fig. 3 is a similar view of another modification. Fig. 4 is a sectional view taken on the line *w w*, Fig. 1. Fig. 5 is a similar view taken on the line *x x*, Fig. 2; and Fig. 6 is a similar view taken on the line *y y*, Fig. 3.

In order to enable those skilled in the art to make and use our invention, we will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a box or yoke frame, having in one end wall a screw-threaded socket 2, in which is screwed an adjustable set-bolt 3, having its outer portion constructed with a finger or thumb piece 4 and its inner end suitably formed to bear against a convex portion 5, formed in the arc of a circle on the outer edge of the handle or lever.

The upper extremity of the handle or lever in Fig. 1 is formed or otherwise provided with a series of teeth or serrations 8, which co-operate with a series of teeth or serrations 9, formed on the jaw 10 of a bar or shank 12, adapted to slide lengthwise against the internal surface of the rear wall of the box or yoke frame.

The handle or lever 6 is provided with a pivot-pin 13, which, as here shown, extends transversely through the handle or lever and has its end portions arranged to move back and forth in slots or ways 14, formed in the opposite side walls of the box or yoke frame. The extremities of the pivot-pin are suitably constructed or provided with heads 15 for the purpose of preventing lengthwise displacement of the pin.

The head portion of the handle or lever in Figs. 1 and 4 is hollowed out to form cheek-pieces or side wings 16, and the rear edges of these cheek-pieces or side wings are provided with teeth 17, which engage with a series of teeth or rack bars 18, formed at the opposite sides of the bar or shank 12. The construction is such that the bar or shank slides lengthwise between the cheek-pieces or side wings 16, and the pivot-pin 13 is arranged in close proximity to the front edge of the bar or shank, all in such manner that by swinging or oscillating the lever or handle on the transverse pivot-pin the bar or shank is moved lengthwise and its attached jaw is adjusted toward or from the teeth 8 of the handle or lever.

By properly adjusting the screw or set bolt 3 in a direction away from the lever or handle the latter can be moved to disengage its teeth 17 from the teeth or rack bars 18 of the bar or shank 12 for the purpose of adjusting the jaw of the bar or shank to or from the head of the handle or lever to render the instrument susceptible of operating on objects of varying diameter. The screw or set bolt can then be screwed up to act as an abutment or stop for the handle or lever when swung in the direction of the arrow, Fig. 1. The construction described and shown provides simple means for preventing displacement of the handle or lever from the box or yoke frame, and in the action of the wrench as a pipe-wrench the teeth 8 are all effective in the gripping action in that none of these teeth move

away from the object which is to be gripped when the handle or lever is swung in the direction required to grip the pipe or other object.

In the modified construction Figs. 2 and 5 the bar or shank 12 is provided with a series of teeth 19 on its front edge to engage a series of teeth 20 on the rear edge of the handle or lever 6, and the latter is provided with the transverse pivot-pin 21, located at or near its median line, which pin is adapted to work back and forth in slots 22, formed in the opposite side walls of the box or yoke frame. The screw or set bolt 3 is constructed and arranged to operate the same as described with reference to Figs. 1 and 4.

In the modification Figs. 3 and 6 the box or yoke frame 1 is constructed with a flattened top wall 23 to co-operate with the flattened surface 24 of the jaw 10 on the sliding bar or shank 12. The bar or shank in this construction is preferably provided with a longitudinal groove 25 to receive a guide-rib 26, projecting inwardly from one side wall of the box or yoke frame. The pivot-pin 27 and the screw or set bolt 3 are constructed and arranged as hereinbefore described with reference to Figs. 1 and 4.

The flattened top wall of the box or yoke frame and the flattened surface of the jaw 10 renders this construction susceptible of being practically used on screw-nuts, while the construction exhibited by the remaining figures is particularly designed for pipes or other cylindrical objects.

35 Having thus described our invention, what we claim is—

1. The combination of a slotted box or frame, a screw or set bolt adjustable in a part

of the box or frame, a sliding bar or shank having a jaw, and an oscillatory handle or lever arranged in toothed engagement with the bar or shank and having a pin which is capable of working back and forth in the slotted portion of the box or frame, substantially as described. 45

2. The combination of a box or frame having slotted side walls, a screw or set bolt adjustable in a part of the box or frame between the slotted side walls, a sliding bar or shank having a jaw, and an oscillatory handle or lever arranged in toothed engagement with the bar or shank and provided with a transverse pivot-pin, the end portions of which are capable of working back and forth in the slotted side walls of the box or frame, substantially as described. 55

3. The combination of a slotted box or frame, an oscillating handle or lever having a convex projection and a pin which is adapted to work back and forth in the slotted portion of the box or frame, a screw or set bolt adjustable in a part of the box or frame and bearing at its inner extremity against the convex projection of the handle or lever, and a sliding bar or shank having a jaw and arranged in toothed engagement with the handle or lever, substantially as described. 65

In testimony whereof we have hereunto set our hands and affixed our seals in presence of two subscribing witnesses.

RICHARD S. GILLESPIE. [L. S.]
HARRY JAMES. [L. S.]

Witnesses:

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