

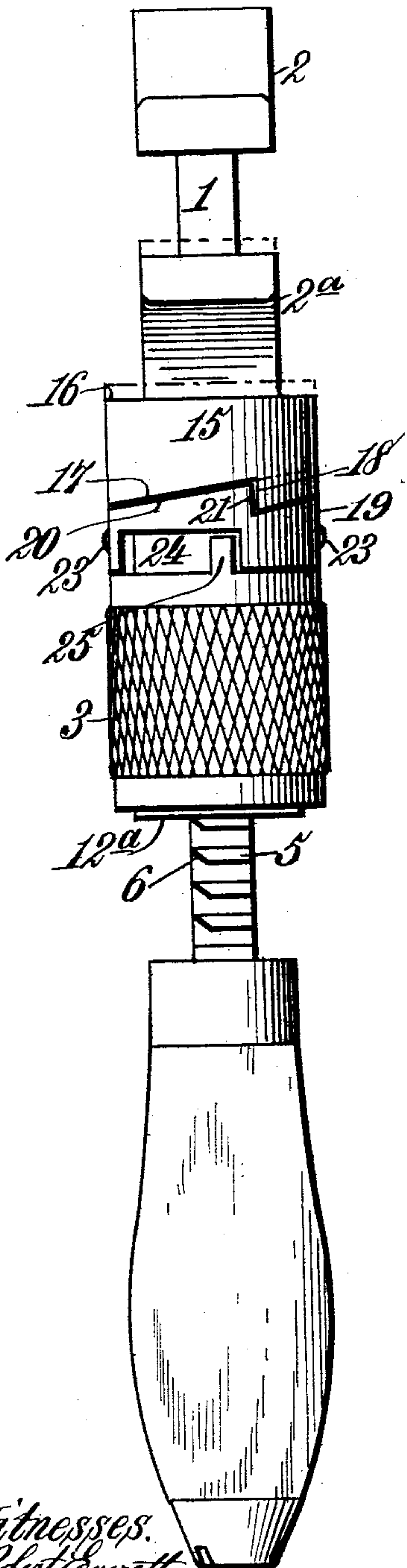
PATENTED JAN. 26, 1904.

APPLICATION FILED MAY 4, 1903.

2 SHEETS—SHEET 1.

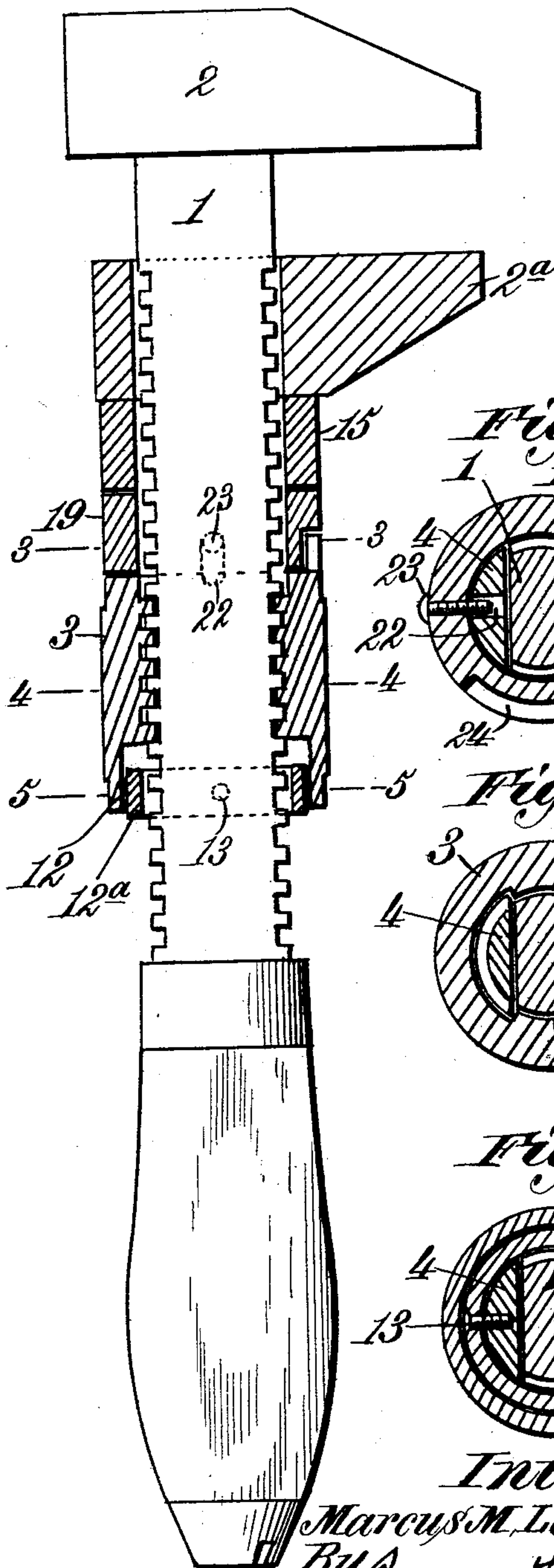
NO MODEL.

Fig. 1.



Witnesses.
Robert Gratt,
James L. Norris, Jr.

Fig. 2.



Inventor:
Marcus M. LeMay.
By James L. Noris.
Att'y.

Fig. 3.

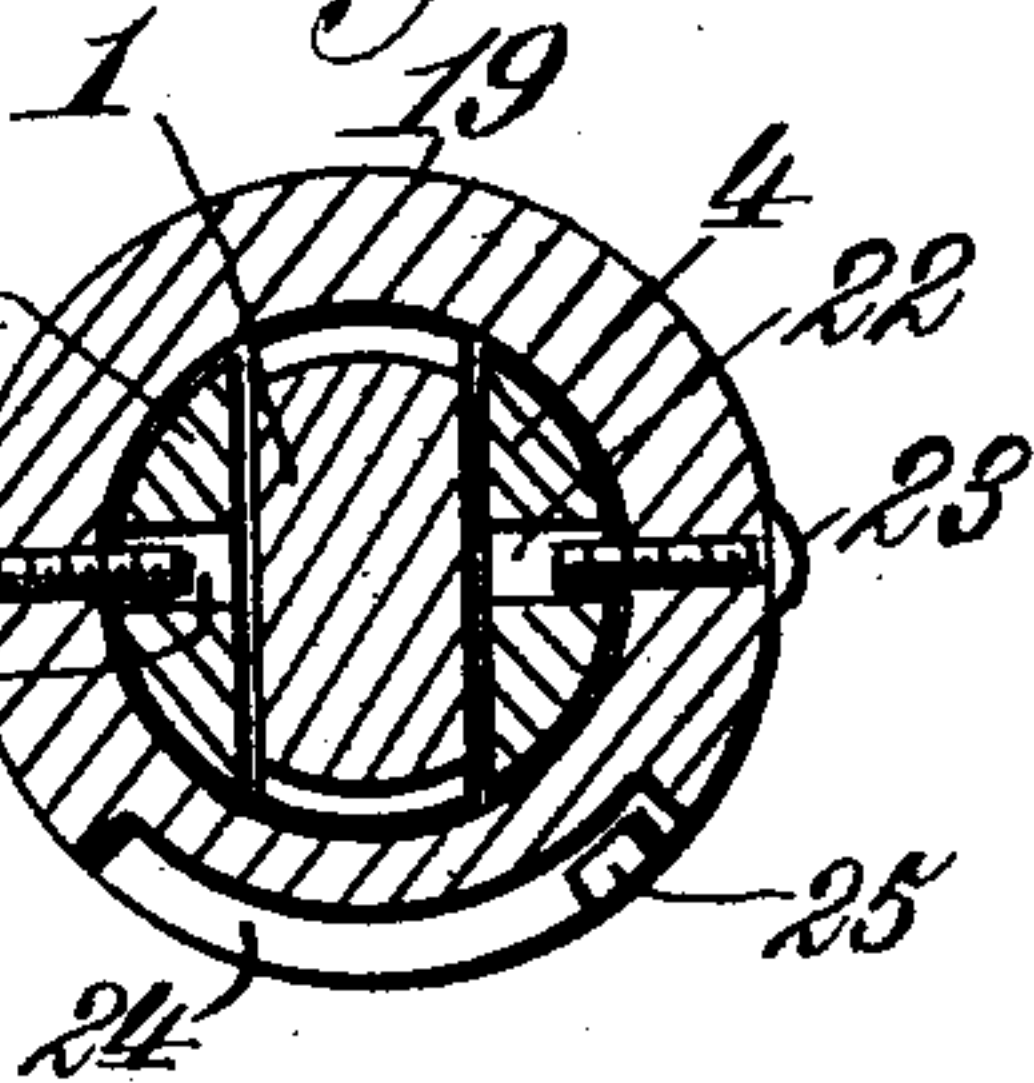


Fig. 4.

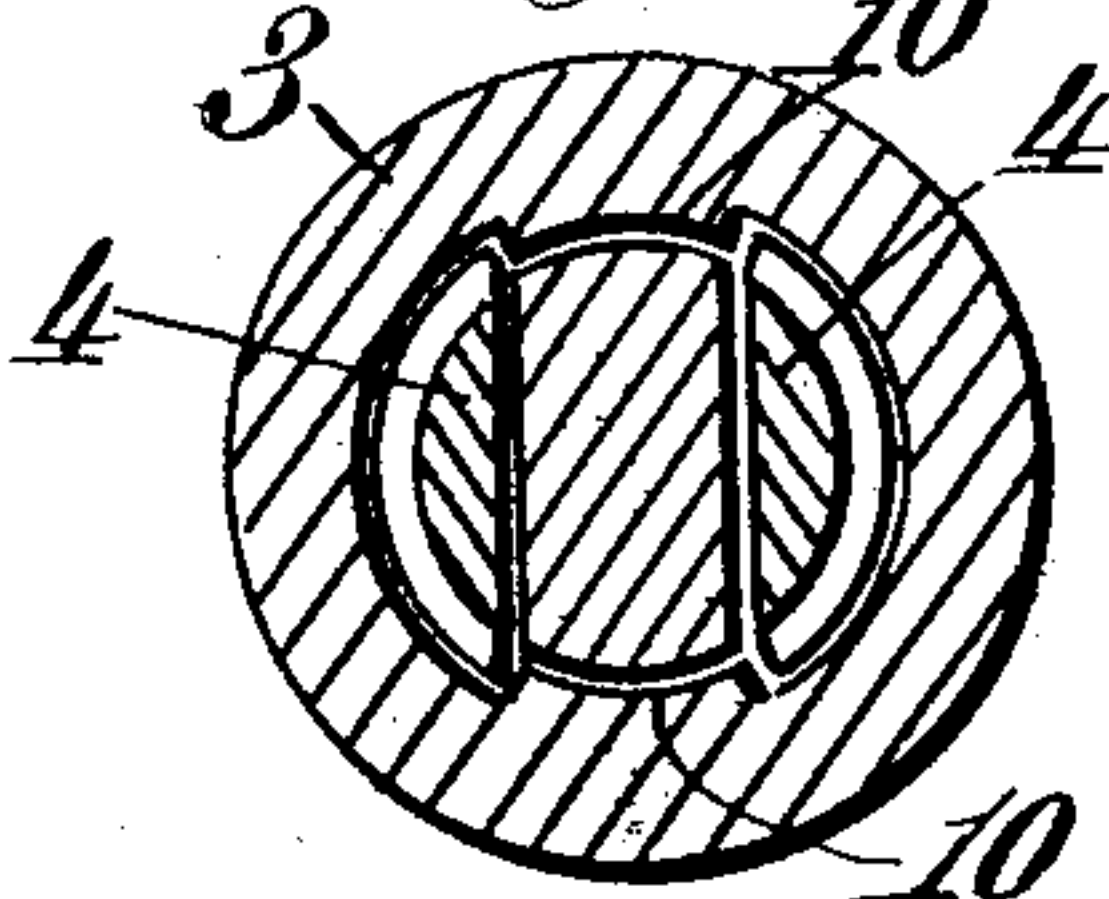
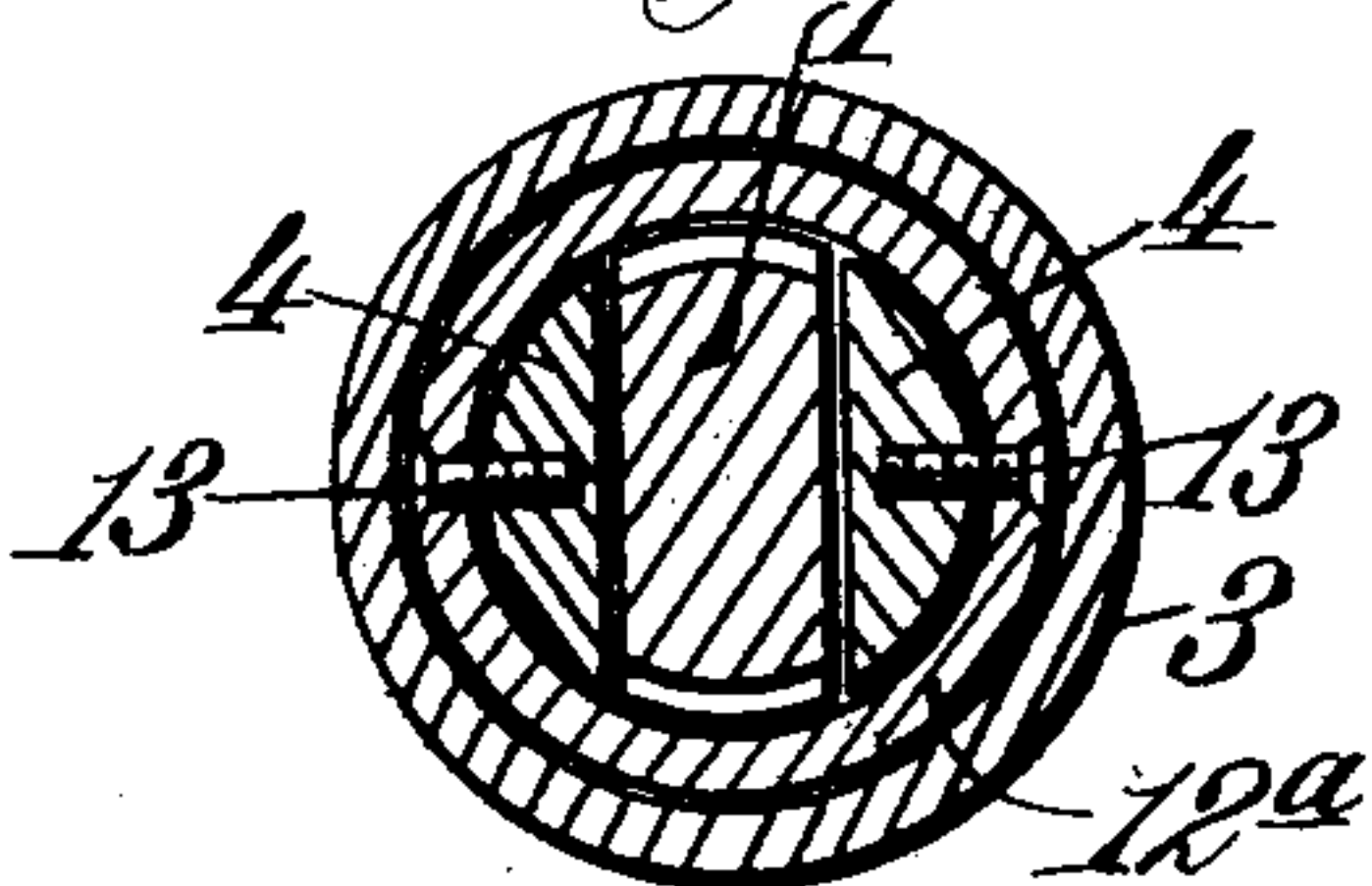


Fig. 5.



No. 750,772.

PATENTED JAN. 26, 1904.

M. M. LE MAY.
WRENCH.

APPLICATION FILED MAY 4, 1903.

2 SHEETS—SHEET 2.

NO MODEL.

Fig. 6.

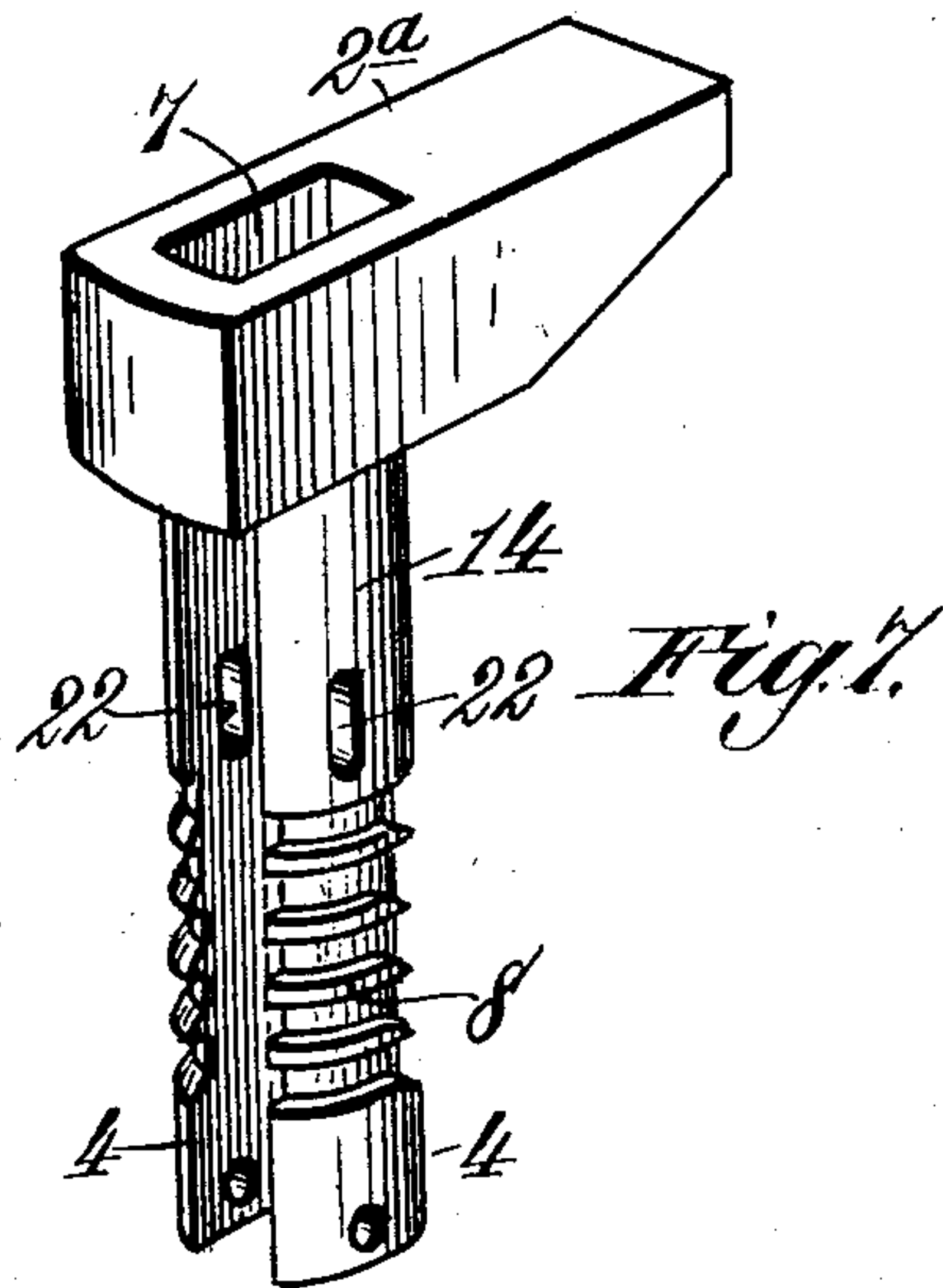
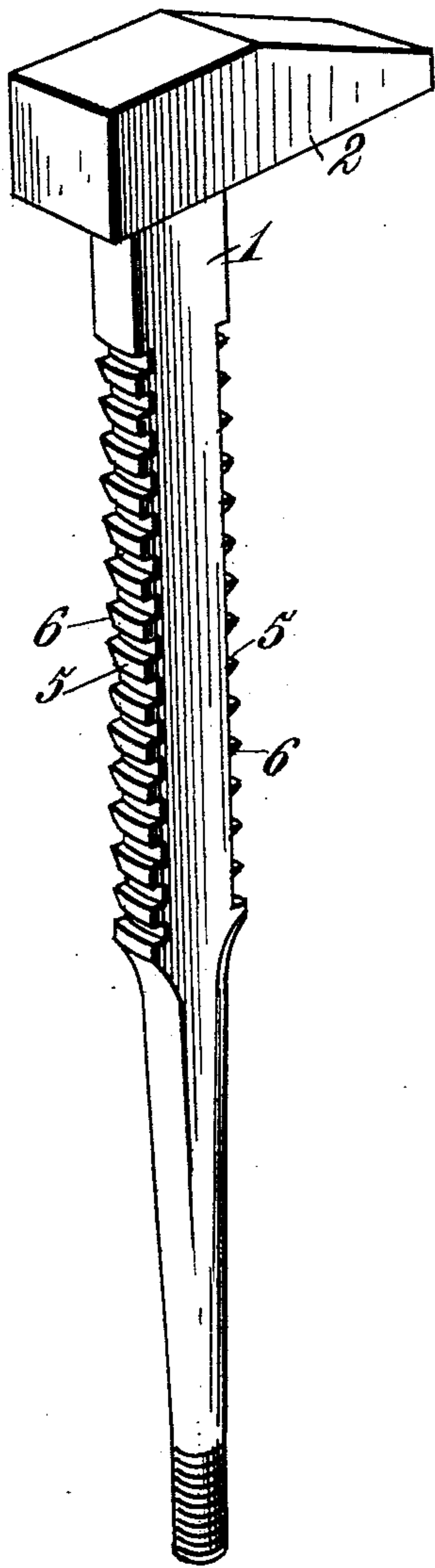


Fig. 7.

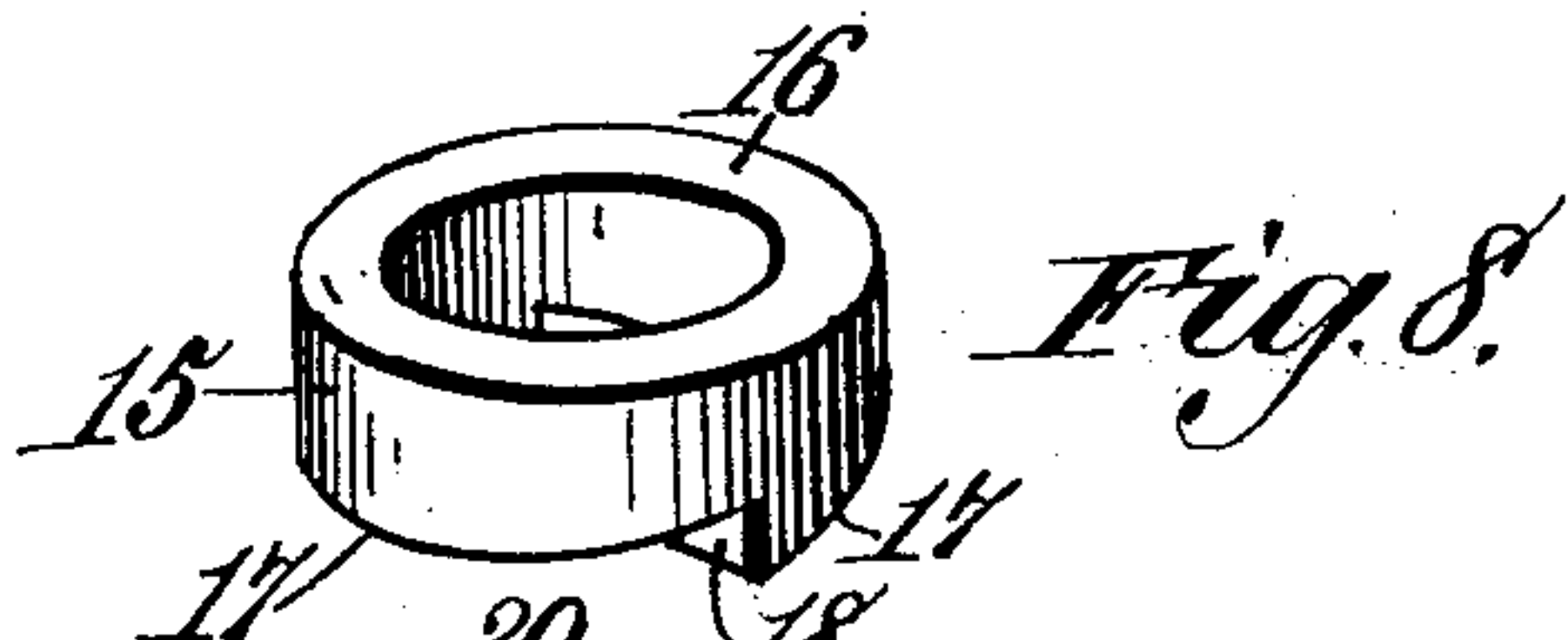


Fig. 8.

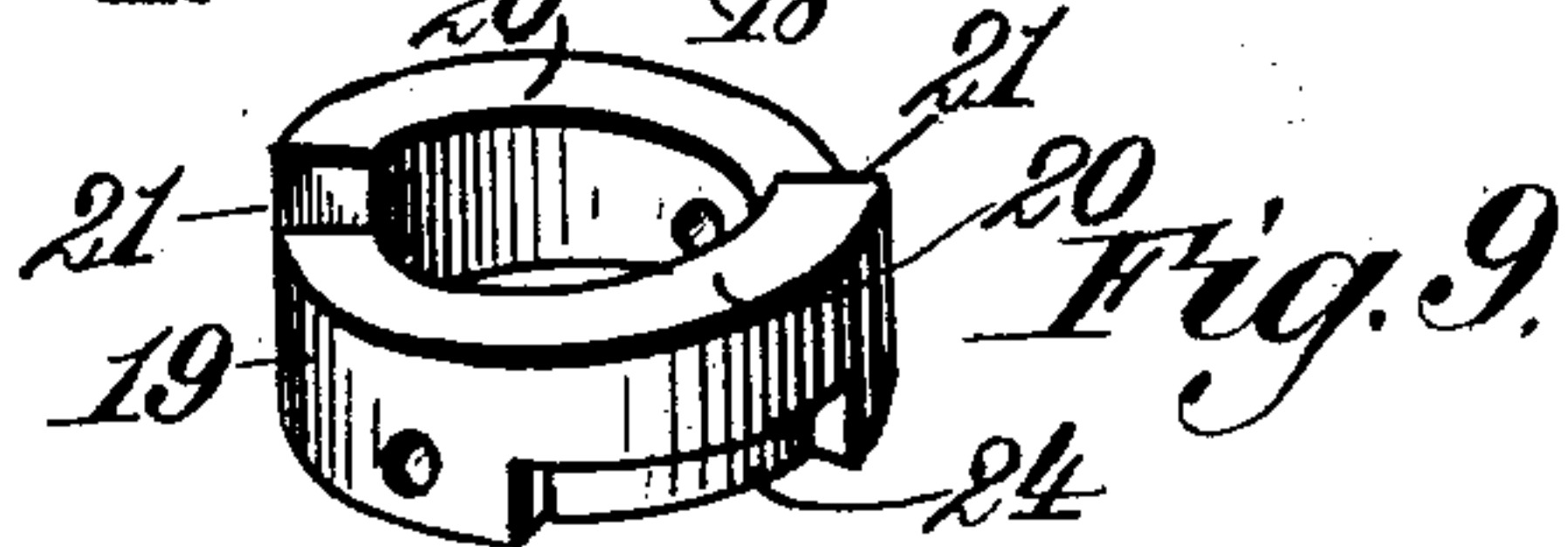


Fig. 9.

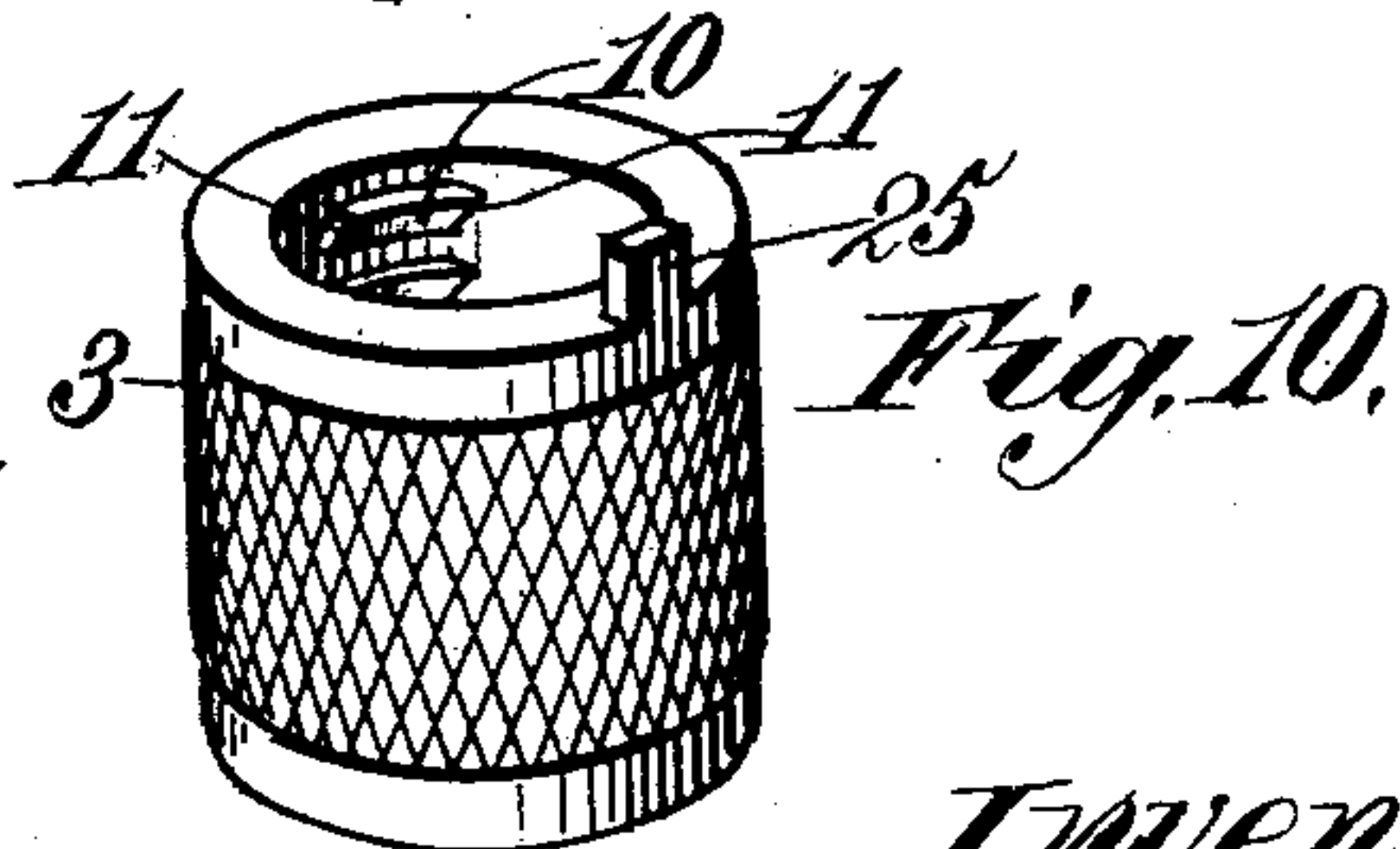


Fig. 10.

Fig. 11.



Witnesses:
Robert Everett,
James L. Norris, Jr.

Inventor:
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UNITED STATES PATENT OFFICE.

MARCUS M. LE MAY, OF LEIGHTON, ALABAMA, ASSIGNOR OF THREE-FOURTHS TO FRANK R. KING, OF LEIGHTON, ALABAMA, ANDREW M. YOUNG, OF FORT WORTH, TEXAS, AND MANOAH B. HAMPTON, OF LEIGHTON, ALABAMA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 750,772, dated January 26, 1904.

Application filed May 4, 1903. Serial No. 155,686. (No model.)

To all whom it may concern:

Be it known that I, MARCUS M. LE MAY, a citizen of the United States, residing at Leighton, in the county of Colbert and State of Alabama, have invented new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates particularly to wrenches adapted to fit nuts or bolts of different sizes; and it has for its object to provide novel mechanism for effecting both a quick and approximately correct adjustment of the sliding jaw relative to the fixed jaw and to also effect a more accurate and close adjustment of the jaws to tightly fit the nut or bolt.

To this end my invention consists in the features and in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a view in elevation of my improved wrench. Fig. 2 is a similar view in section. Fig. 3 is a transverse sectional view taken on the line 3 3 of Fig. 2. Fig. 4 is a similar view taken on the line 4 4 of Fig. 2. Fig. 5 is similar view taken on the line 5 5 of Fig. 2. Fig. 6 is a detailed perspective view of the rigid jaw and its shank. Fig. 7 is a similar view of the sliding jaw and its two lugs. Fig. 8 is a detailed perspective view of the rotatable collar. Fig. 9 is a similar view of the fixed collar. Fig. 10 is a similar view of the rotatable sleeve. Fig. 11 is a similar view of the stop-ring.

Referring to the drawings, the numeral 1 indicates the shank carrying the rigid jaw 2; 2^a, the sliding jaw; 3, a rotatable sleeve which is mounted on two pendent lugs 4, which project rearwardly from and are rigid with the sliding jaw. The shank 1 is preferably flat on its opposite sides and is provided on its two diametrically opposite sides with racks or rib projections 5, each of which has one end beveled, as at 6, and said projections are par-

allel with one another for a purpose hereinafter described. The sliding jaw 2^a is provided with an aperture 7, through which the shank 1 is adapted to pass, and the lugs 4 are adapted to lie against the respective opposite flat sides of the shank 1, and the outer curved portions of said lugs are provided with racks or spaced rib projections 8. The said pendent lugs 4 are segmental in cross-section, as are also rib projections 5, so that when said sliding jaw is properly placed on the shank 1 their respective racks or ribbed projections form approximate circles upon which the rotatable sleeve 3 is mounted. The sleeve 3 is provided internally upon diametrically opposite sides with racks or spaced ribbed projections 10, each of which is beveled on one end, as at 11. The racks or projections 10 are adapted to engage the projections 5 and 8, formed upon the shank of the fixed jaw and pendent lugs of the sliding jaw, respectively. Seated in an annular recess 12, formed in the rear end of the sleeve 3, is a stop-ring 12^a, which is rigidly secured to the rear ends of the pendent lugs 4 by screws 13.

The wrench constructed substantially as above described is shown, described, and claimed in Letters Patent of the United States granted to me on the 14th day of December, 1897, and numbered 595,638, and its operation is substantially as follows: It will be evident that when the rotatable sleeve 3 is applied on the shank A the same may be slid on such shank by simply rotating said sleeve, so as to bring its projections 10 out of engagement with the projections 5, formed on the shank 1, and into engagement with the projections 8, formed on the pendent arms or lugs 4 of the sliding jaw. This engagement of the sleeve with the sliding jaw causes the latter to move with said sleeve when the sleeve and sliding jaw are slid along the shank 1. When the sliding jaw has been adjusted to the desired position, which may manifestly be accomplished very quickly, a slight rotation of the sleeve 3 will cause projections 10 to engage the pro-

jections 5 on the shank 1, and thus lock the sleeve and the sliding jaw rigidly in position. The beveled ends 6 and 11 of the respective projections aid in causing said projections to exactly engage when the rotatable sleeve is operated to lock the sliding jaw in position. Stop-ring 12 limits the rearward movement of the sleeve on the pendent lugs of the sliding jaw.

While the foregoing construction permits of the very rapid adjustment of the wrench, it will not always permit of a perfectly accurate and fine adjustment—that is to say, at times the jaws will not fit the nut or bolt to be turned as closely or tightly as desired—and to effect such accurate and fine adjustment I provide the following mechanism: A portion of the two pendent lugs 8 next adjacent to the sliding jaw 2^a is smooth, as indicated at 14—that is to say, said portions of said lugs are not provided with projections 8—and rotatably mounted on said smooth portion of the lugs next to the sliding jaw 2^a is a collar 15, having a perfectly flat side 16, that is adapted to engage the rear side of the sliding jaw 3, and on the other side is provided with two inclined or cam faces 17. The high and low sides of said cam-faces are separated by shoulders 18. A substantially similar collar 19 is arranged on the lugs 4 between the collar 15 and the rotatable sleeve 3. Said collar is provided with two inclined cam-faces 20, the high and low sides of which are separated by shoulders 21. The cam-faces of the collars 15 and 19 are arranged to ride one upon the other as the collar 15 is rotated. Formed in the pendent lugs 4 are two diametrically opposite slots 22, and projecting radially through the collar 19 are two pins 23, which project into the slots 22, and which, while preventing rotation of the collar 19 on the said pendent lugs, permit of a slight movement longitudinally on said lugs. Formed in the periphery of the rear end of the collar 19 is a segment-shaped slot 24, in which is movably seated a projection 25, which is rigid with the rotatable sleeve 3 and projects beyond the forward edge of the latter to engage said segmental slot or recess for the purpose presently made apparent.

After the quick and approximate adjustment of the jaws have been effected in the manner before described should it be discovered that the jaws do not engage the nut or bolt sufficiently tight it is only necessary to move the collar 15 toward the right—that is to say, in the direction in which the hands of a clock move. This will cause the cam-faces of the two collars 15 and 19 to ride over one another, and thus separate said collars, thereby forcing the sliding jaw up toward the fixed jaw and causing said jaws to tightly grasp the nut or bolt, and as this movement is effected the pins 23 will travel in the slots 22 to permit of said movement of the sliding jaws.

In order to restore the parts to their normal

positions, it is first necessary to rotate the collar 15 in the reverse direction to that before mentioned in order to make the combined thicknesses of the two collars as small as possible, so that the pendent lugs of the sliding jaw may be moved relatively to the rotatable sleeve 3, for it will be obvious that as the jaw is moved toward the fixed jaw the projections 8 on the pendent lugs 4 are very apt to be thrown out of alinement with the projections 5 on the shank 1, and hence it is necessary to move the pendent lugs back within the rotatable sleeve 3 to cause the said projections to register in order that the rotatable sleeve may be turned to disengage its projections 10 from the projections 5 on the shank 1 to permit of the parts to be moved back to normal position, and before this can be done it will be evident that collars 15 and 19 must be moved to the position described to permit of the pendent lugs of the sliding jaw being moved backward within the rotatable sleeve.

As has been set forth, when it is desired to adjust the sliding jaw of the wrench the rotatable sleeve is simply rotated until the stop lug or projection 25 on said sleeve has been moved as far as possible to the left-hand end of the slot 24. When this has occurred, the projections 10 on the sleeve will have been thrown out of engagement with the projections 9 on the shank 1 and into engagement with the projections 8 on the pendent lugs 4 of the sliding jaw. The sliding jaw, the pendent lugs, and the rotatable sleeve may then be quickly slid to any point on the shank 1 that may be desired, and then by rotating the rotatable sleeve in the reverse direction until its stop-lug 25 arrives at the other end of the segmental slot 24 the projections 10 of the sleeve will be thrown into engagement with the projections 5 of the shank 1 and the parts will thus be locked in their adjusted position. If a closer, finer, or tighter adjustment is desired, it is merely necessary to rotate the collar 15 in the manner before described, whereby the sliding jaw may be adjusted toward the fixed jaw.

Having described my invention, what I claim is—

1. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed upon opposite sides of said shank, a sliding jaw mounted on said shank and provided on opposite side with racks, a rotatable sleeve mounted on said sliding jaw and provided internally upon opposite sides with racks, said sleeve being adapted to lock either with the racks on the shank carrying the rigid jaw, or the racks of the sliding jaw, and means carried by the sliding jaw for effecting an independent and more accurate adjustment of the sliding jaw toward the rigid jaw.

2. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed upon opposite side of said shank, the sliding jaw

mounted on said shank and provided upon opposite sides with racks, a rotatable sleeve mounted on said sliding jaw and provided internally upon opposite sides with racks, said sleeve being adapted to lock either with racks on the shank carrying the rigid jaw or the racks of the sliding jaw, and collars having coacting cam-faces arranged on the shank of the sliding jaw between said jaw and rotatable sleeve, one of said collars being rotatable to effect an independent and more accurate adjustment of the sliding jaw toward the rigid jaw.

3. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed upon opposite sides of said shank, a sliding jaw mounted on said shank and provided upon opposite sides with racks, a rotatable sleeve mounted on said sliding jaw and provided internally upon opposite sides with racks, said sleeve being adapted to lock either with the racks on the shank carrying the rigid jaw or the racks of the sliding jaw, collars having coacting cam-faces arranged on the shank of the sliding jaw between the sliding jaw and rotatable sleeve, one of said collars being rotatable to effect an independent and more accurate adjustment of the sliding jaw toward the rigid jaw, and means for preventing the rotation but permitting a limited longitudinal movement of the other collar relatively to the sliding jaw.

4. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed upon opposite sides of said shank, a sliding jaw mounted on said shank and provided upon opposite sides with racks, a rotatable sleeve mounted on said sliding jaw and provided internally upon opposite sides with racks, said sleeve being adapted to lock either with the racks on the shank carrying the rigid jaw or the racks of the sliding jaw, collars having coacting cam-faces arranged on the shank of the sliding jaw between said jaw and rotatable sleeve, one of said collars being rotatable to effect an independent and more accurate adjustment of the sliding jaw toward the rigid jaw and the other collar being fixed against rotation, and means for limiting the rotative movement of the rotatable sleeve relatively to the fixed collar for the purpose specified.

5. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed on opposite sides of said shank, a sliding jaw mounted on said shank and provided with pendent arms having racks formed thereon, a rotatable sleeve mounted on said pendent arms and

formed with racks adapted to engage the racks of the shank or the racks of the pendent arms, a stop-collar mounted on the pendent arms and adapted to limit the rotation of the first-mentioned sleeve so as to cause the engagement of its racks with the engagement of the racks of either the shanks or the pendent arms, and a rotatable collar mounted on the pendent arms between the stop-collar and the sliding jaw, the adjacent faces of said collars being provided with coacting cam-faces for independently adjusting the sliding jaw toward the rigid jaw, and means for preventing the rotation but permitting longitudinal movement of the stop-collar on the pendent arms.

6. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed on opposite sides of said shank, a sliding jaw mounted on said shank and provided with pendent arms having racks formed thereon, a rotatable sleeve mounted on said pendent arms and formed with racks adapted to engage either the rack of the shank or the racks of the pendent arms, a stop-collar mounted on the pendent arms and adapted to limit the rotation of the first-mentioned sleeve so as to cause the engagement of its racks with the engagement of the racks of either the shanks of the pendent arms, the said stop-collar being splined on the pendent arms, and a stop-ring rigidly fixed on the rear ends of the pendent arms and loosely seated in the adjacent end of the rotatable sleeve to prevent disengagement of the latter from said pendent arms.

7. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed on opposite sides of said shank, a sliding jaw mounted on said shank and provided with pendent arms having racks formed thereon, a rotatable sleeve mounted on said pendent arms and formed with racks adapted to engage either the racks of the shank or the racks of the pendent arms, a stop-collar mounted on pendent arms and adapted to limit the rotation of the rotatable sleeve so as to cause the engagement of its racks with the racks of either the shanks or pendent arms, the said stop-collar being splined on the pendent arms.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

MARCUS M. LE MAY.

Witnesses:

THOMAS LILE,
J. H. BEAVER.