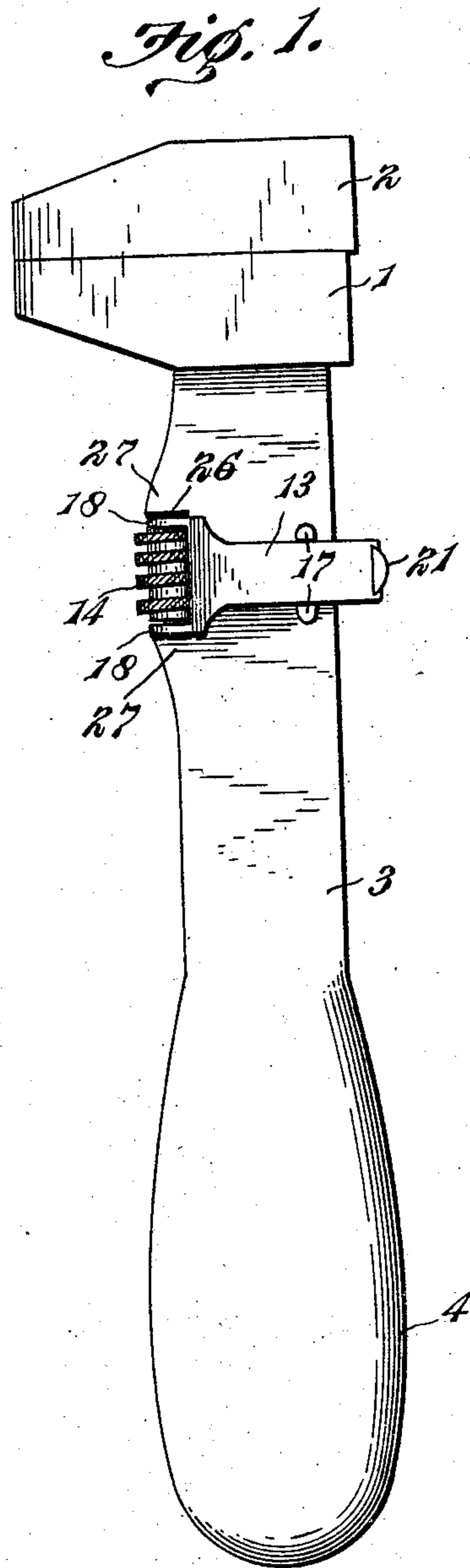
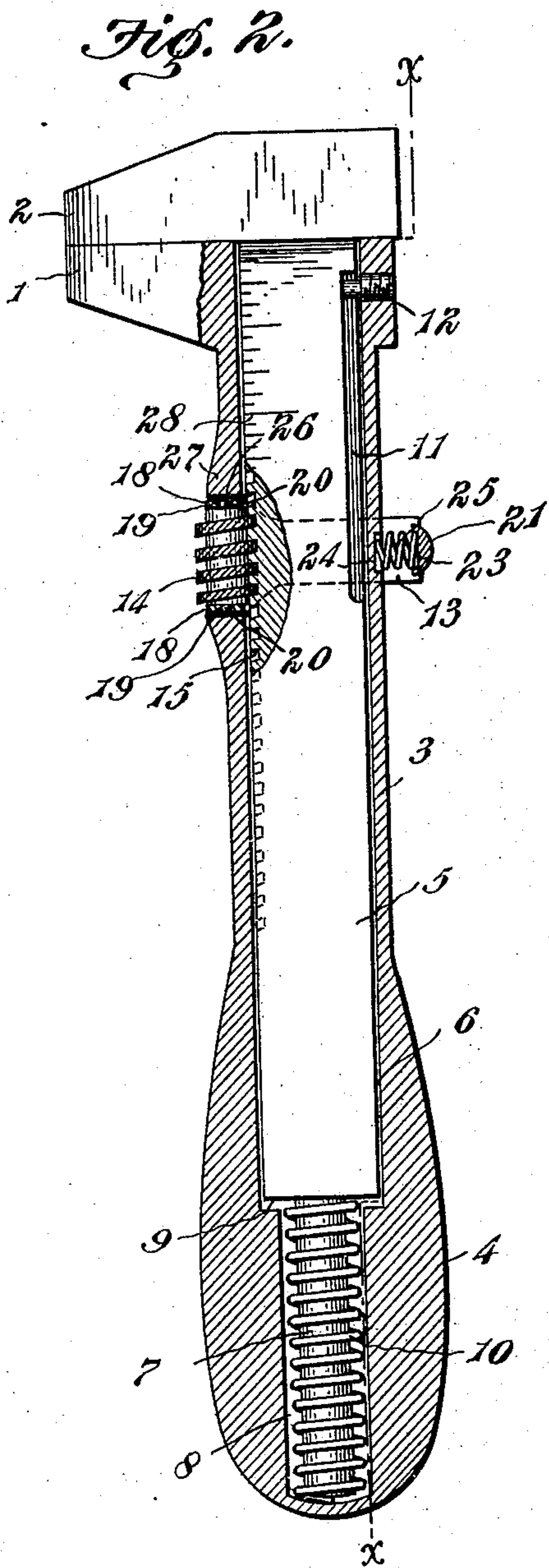


R. A. FERGUSON.
WRENCH.
APPLICATION FILED APR. 2, 1909.

Patented July 27, 1909.

2 SHEETS—SHEET 1.

929,297.



Witnesses

W. Bishop.
H. J. Austin

Inventor
Rufus A. Ferguson.

By

Joshua R. H. Potts.

Attorney

R. A. FERGUSON.
WRENCH.
APPLICATION FILED APR. 2, 1909.

Patented July 27, 1909.
2 SHEETS—SHEET 2.

929,297.

Fig. 3.

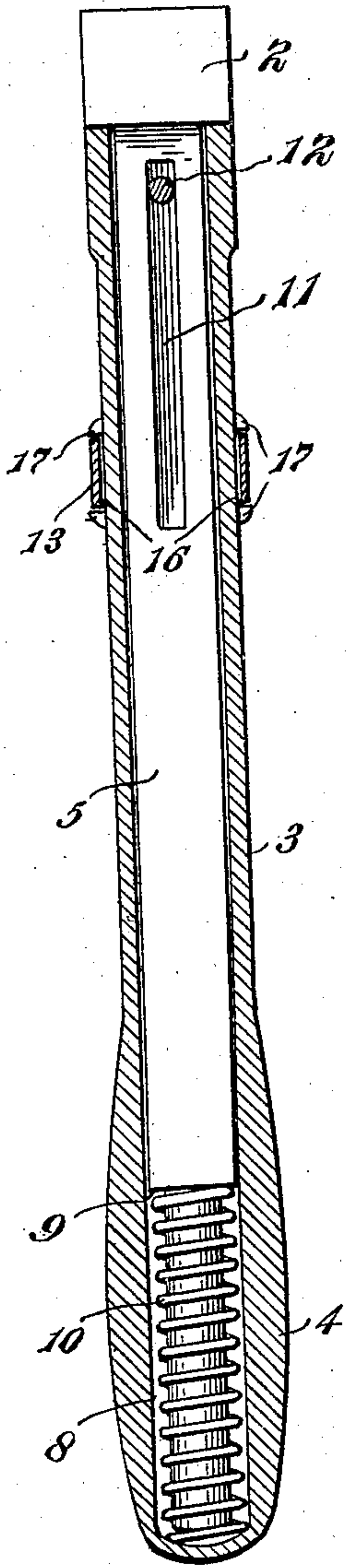


Fig. 4.

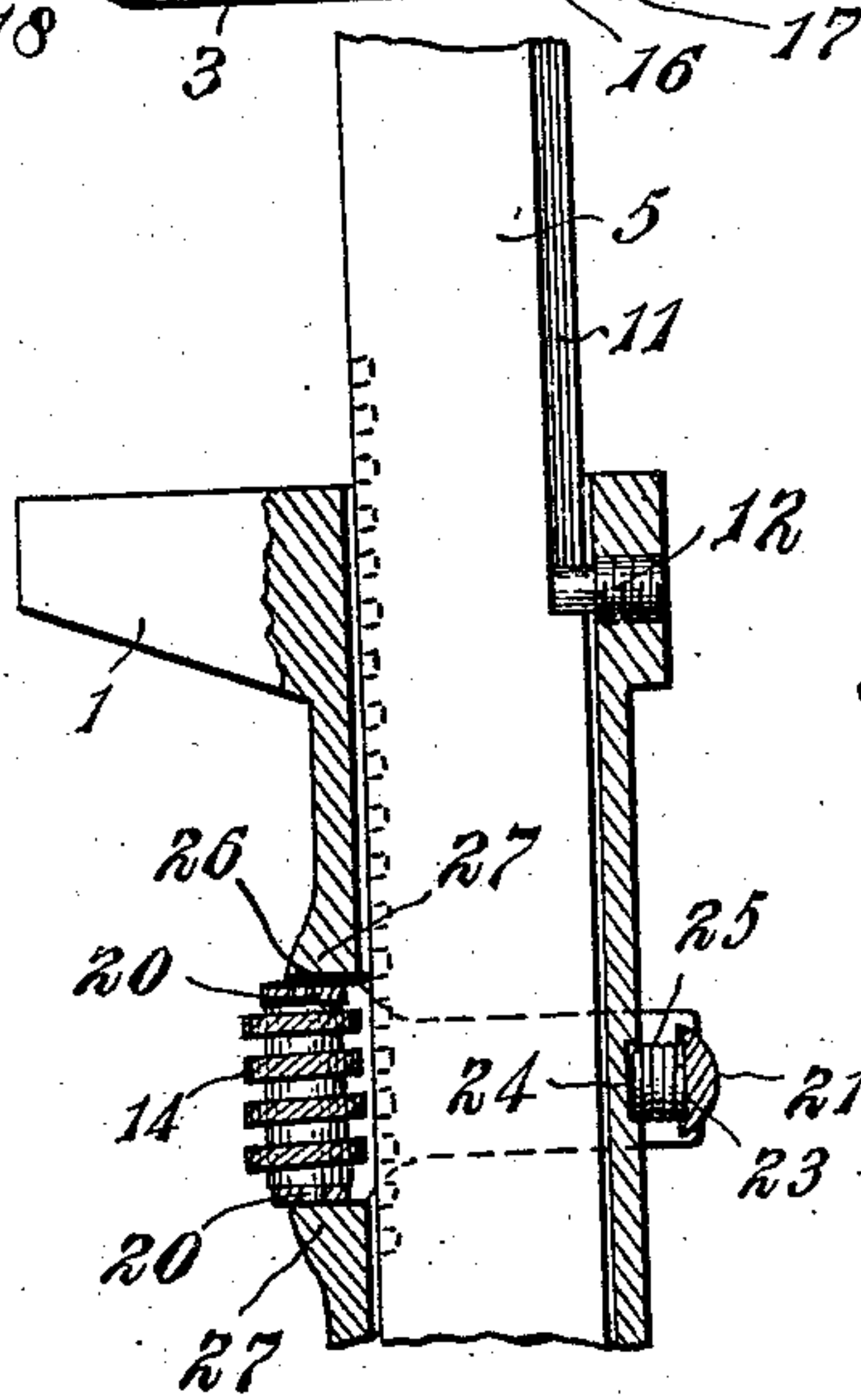
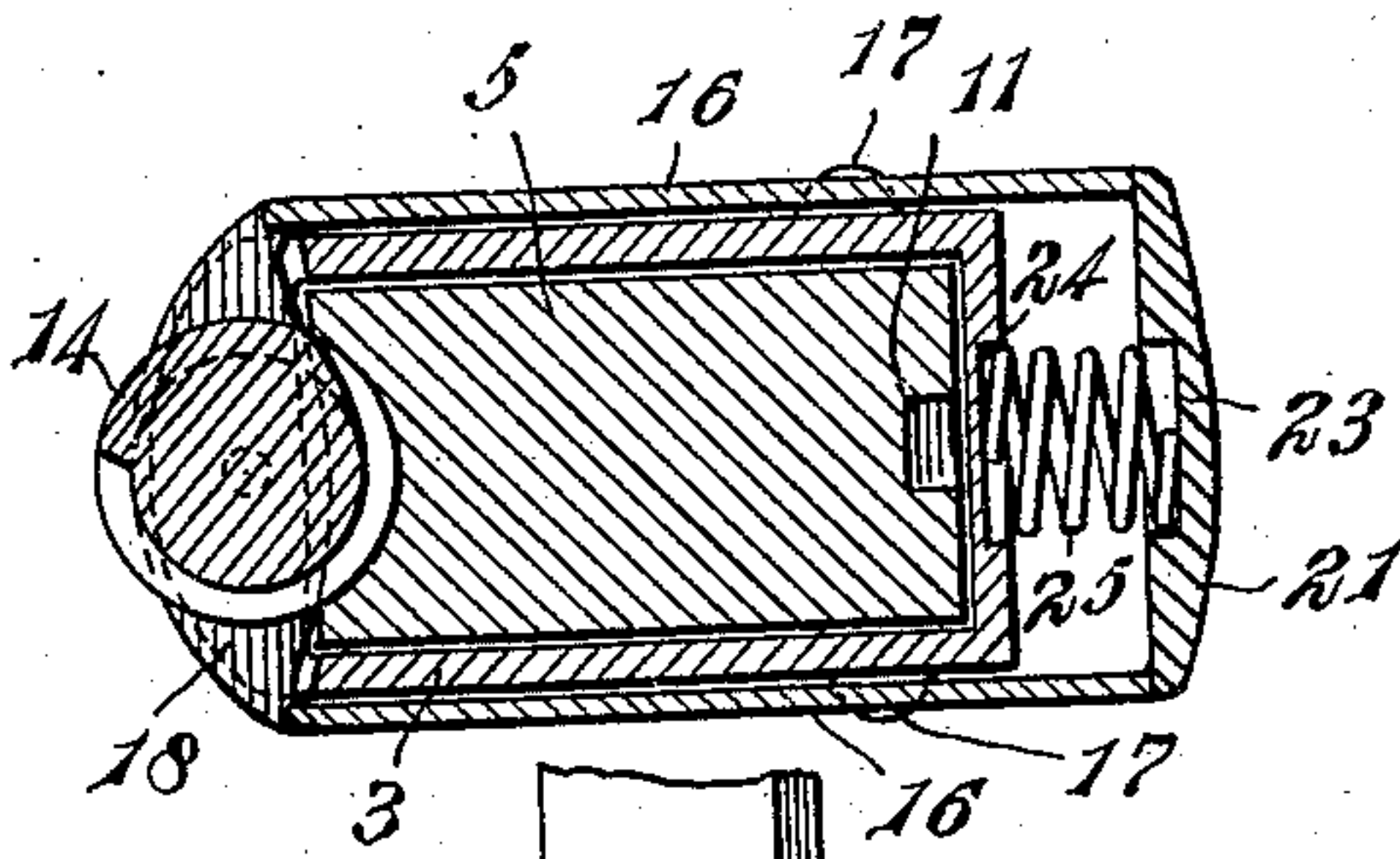
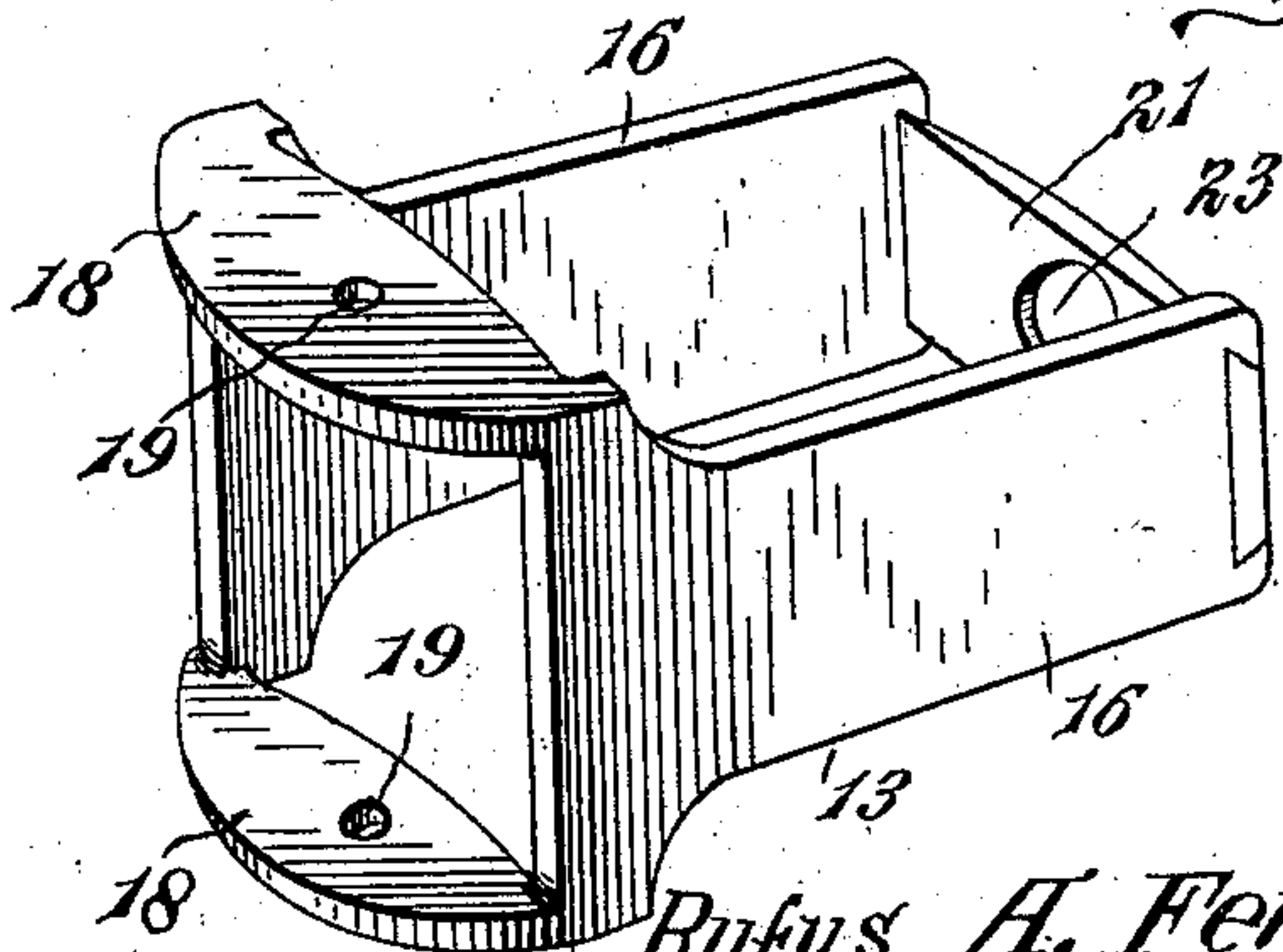


Fig. 5.

Fig. 6.



Witnesses

J. H. Bishop.

H. S. Austin

By

Joshua R. A. Foss.

Attorney

UNITED STATES PATENT OFFICE.

RUFUS ANDREW FERGUSON, OF DENISON, TEXAS.

WRENCH.

No. 929,297.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed April 2, 1909. Serial No. 487,562.

To all whom it may concern:

Be it known that I, RUFUS A. FERGUSON, a citizen of the United States, residing at Denison, county of Grayson, and State of Texas, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to wrenches and particularly to that class thereof known as quick adjusting wrenches.

The object of my invention is to provide an improved wrench capable of quick adjustment of the jaws to approximately the desired position and equipped with means for further and more accurately adjusting the same.

A further and particular object of my invention is to provide a wrench as mentioned, the release for quick adjustment being operable by the thumb of the hand holding the wrench, and the whole being of such construction as to obviate the projection of parts of the device to catch the hands or clothing of the operator or to hang in the work.

Other objects will appear hereinafter.

With these objects in view my invention consists generally in a wrench comprising an inner and an outer jaw, the former being provided with a hollow or tubular shank terminating in a grip portion and the latter being provided with a stem or shank telescopically arranged within the tubular shank. A spring is provided for projecting the outer jaw and this is preferably arranged between the base or end of the shank of the outer jaw and the end of the recess in the shank of the inner jaw. A yoke is mounted on the shank of the inner jaw and is adapted to slide transversely thereof. The yoke is provided with a knurled worm wheel which normally meshes with a worm rack formed on the front edge of the shank of the outer jaw, and the tubular shank of the inner jaw is recessed to receive said worm wheel and the adjacent portion of the yoke, the recess being of a size to snugly receive the yoke so that the strain transmitted through the worm wheel will be taken up by the walls of the recess to relieve the yoke of the strain. A spring is interposed between the opposite end of the yoke from that carrying the worm wheel and the adjacent portion of the shank of the inner jaw.

My invention further consists in various details of construction and arrangements of

parts all as will be fully described hereinafter and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification and in which,

Figure 1 is a side elevation of a wrench embodying my invention in its preferred form, Fig. 2 is a similar view, the shank of the inner jaw and the yoke being shown in section, Fig. 3 is a section on substantially the line $x-x$ of Fig. 2, Fig. 4 is a transverse section on the line $y-y$ of Fig. 2 and illustrated upon an enlarged scale, Fig. 5 is a detail view similar to Fig. 2 illustrating the shank of the outer jaw extended and the worm wheel disengaged from the worm rack, and Fig. 6 is a perspective view of the yoke illustrated upon a much enlarged scale.

Referring now to the drawings, 1 indicates the inner jaw and 2 the outer jaw of the wrench. The former is provided with a hollow or tubular shank 3 terminating in a handle or grip portion 4. The outer jaw 2 is provided with a shank 5 which telescopes within the longitudinal recess or bore 6 of the shank 3, terminating in a cylindrical extension 7 which extends into an extension 8 of the recess or bore 6 in the handle 4. Surrounding the extension 7 and interposed between the shoulder 9, formed on the shank 5 at its junction with the extension 7, and the bottom of the recess 8 is a coiled spring 10 which normally tends to project the shank 5 to open the jaws. The rear edge of the shank 5 is provided with a longitudinal groove 11 and a pin 12 is tapped through the rear end of the jaw 1 to engage said groove to limit the outward movement of the jaw 2.

Mounted on the shank 3 in a position to be readily reached by the thumb of the hand grasping the handle 4 is a yoke 13. This is arranged to slide transversely of the shank and at its forward end carries a knurled worm wheel 14 which normally meshes with a worm rack 15 formed on the outer edge of the shank 5. The yoke comprises parallel side members 16 which lie against the outer faces or sides of the shank 3 and resting between lugs 17 formed on said faces and constituting guides for the same. At the forward ends the members 16 are broadened and connected at their upper and lower forward ends by horizontal bearing plates 18—18 between which the worm wheel 14 is mounted, 19 indicating perforations in

said plates constituting bearings for the trunnions 20 of said wheel. The rear ends of the members 16 are connected by a transverse member 21. To permit assembling of the wrench the member 21 is formed of a separate piece and dove-tailed into the ends of the members 16 as shown clearly in Fig. 6. The member 21 is gradually thickened toward the center and its inner face and the adjacent face of the shank 3 are provided with recesses 23 and 24 respectively to receive the ends of a coiled spring 25 which normally holds the worm wheel in engagement with the worm rack. The forward or front edge of the shank 3 is provided with a recess 26 to receive the forward end of the yoke and the worm wheel carried thereby and is of just sufficient size to permit the members or plates 18 to rest snugly between them so that all strain transmitted from the shank 5 to the worm wheel will be taken up by the walls of said recess, and for this purpose the walls of the shank are thickened as at 27 thereby increasing the bearing surface of the walls of said recess. To facilitate adjusting the wrench the shank 5 is graduated as at 28.

The wrench above described has no projecting parts to catch the hands or clothing or to interfere with the work the worm rack being inclosed within the shank 3 and the worm wheel being protected by the portions 27. The member 21 of the yoke lies normally but sufficient distance from the shank 3 to prevent enough movement to disengage the wheel 14 from the rack and being upon the back of the wrench and well rounded will cause no trouble or inconvenience.

In using the device the handle 4 is grasped and the thumb pressed against the member 21 moving the yoke and disengaging the worm wheel from the rack. The spring 10 will then open the jaws of the wrench as before described and when the jaws are set to

approximately the desired position the yoke is released and the worm wheel locks the jaws from further free movement. Then by turning said wheel the jaws may be more accurately adjusted.

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

1. In a wrench, an inner jaw and a tubular handle formed thereon, an outer jaw, a shank on said outer jaw telescoping within said tubular handle, a worm rack formed in the shank of said outer jaw, a yoke mounted on said tubular handle adjacent its respective jaw and adapted for lateral movement thereon and a worm wheel carried by said yoke and adapted to mesh with said rack, said tubular handle being recessed to receive said wheel and the adjacent portion of said yoke, substantially as described.

2. In a wrench, an inner jaw, a tubular shank thereon terminating in a handle, an outer jaw, a shank on said outer jaw telescoping within said tubular shank, a spring for opening said jaws and arranged within said handle, a worm rack formed on the shank of said outer jaw, a yoke mounted on said tubular shank and adapted to slide transversely thereon, a worm wheel mounted in said yoke and adapted to engage said rack, said tubular shank being provided with a recess to receive said worm wheel and the adjacent portions of said yoke, the walls of said recess forming thrust bearings for said yoke, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RUFUS ANDREW FERGUSON.

Witnesses:

R. O. SIMONSON,
Z. SIMONSON.