

C. SAUER.
WRENCH.

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917,364.

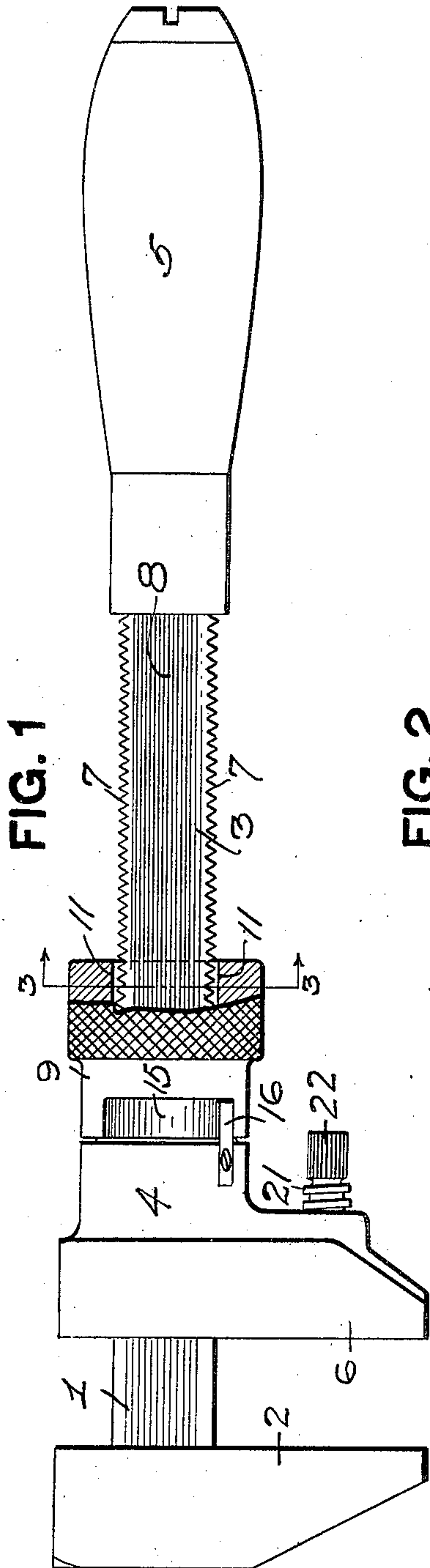


FIG. 1

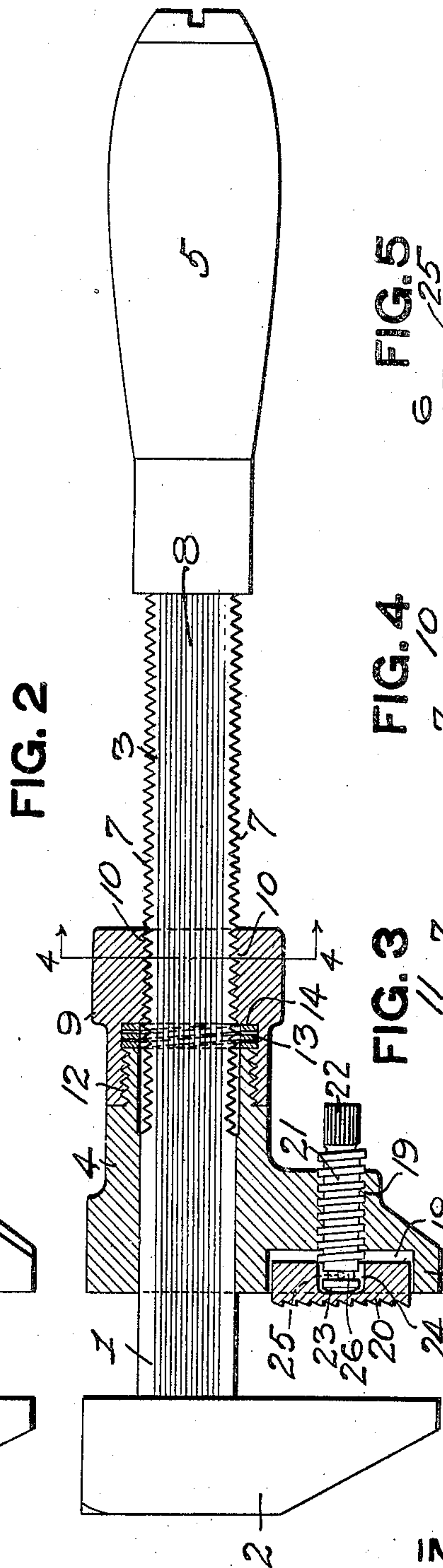


FIG. 2

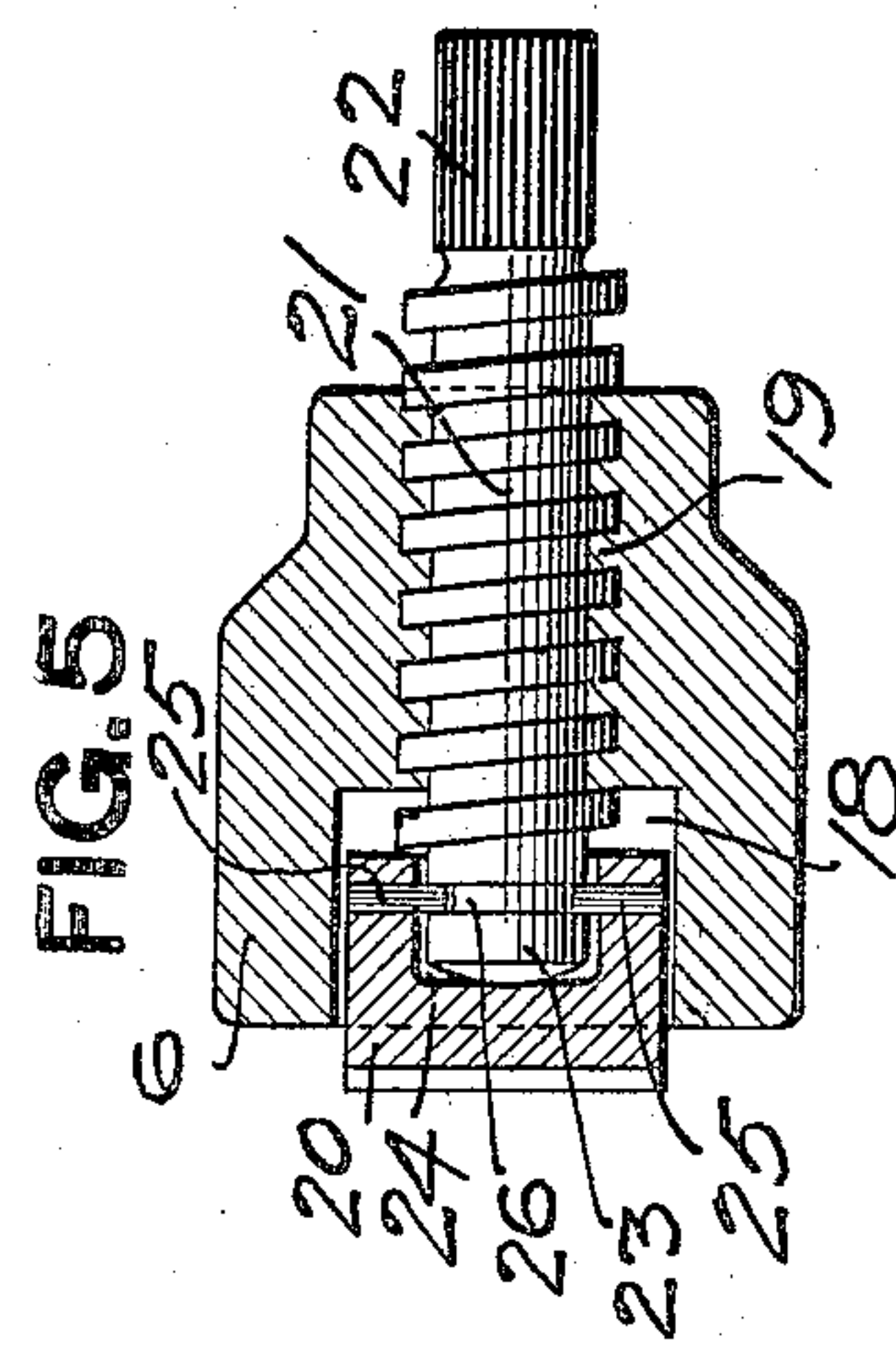


FIG. 5

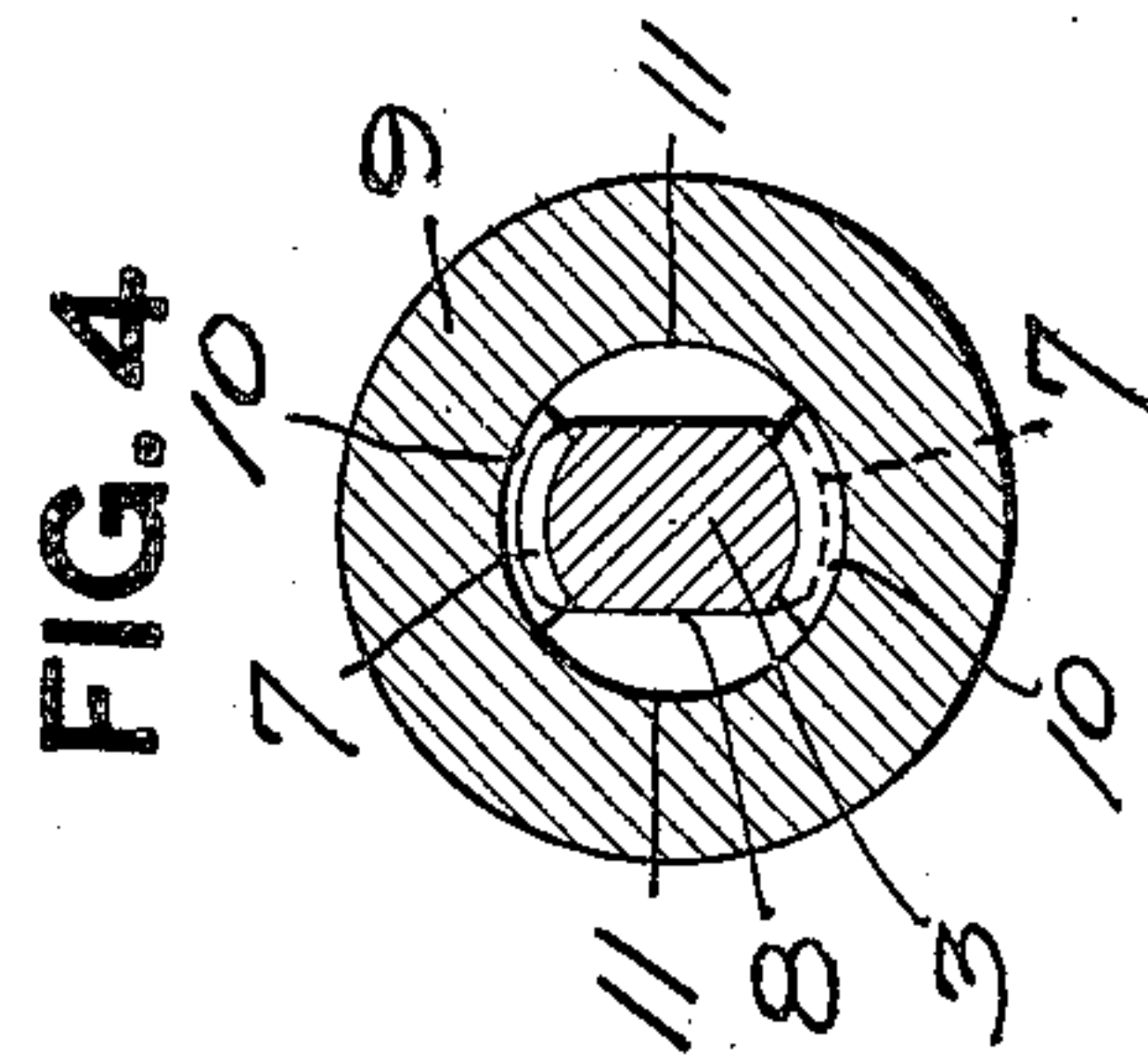


FIG. 4

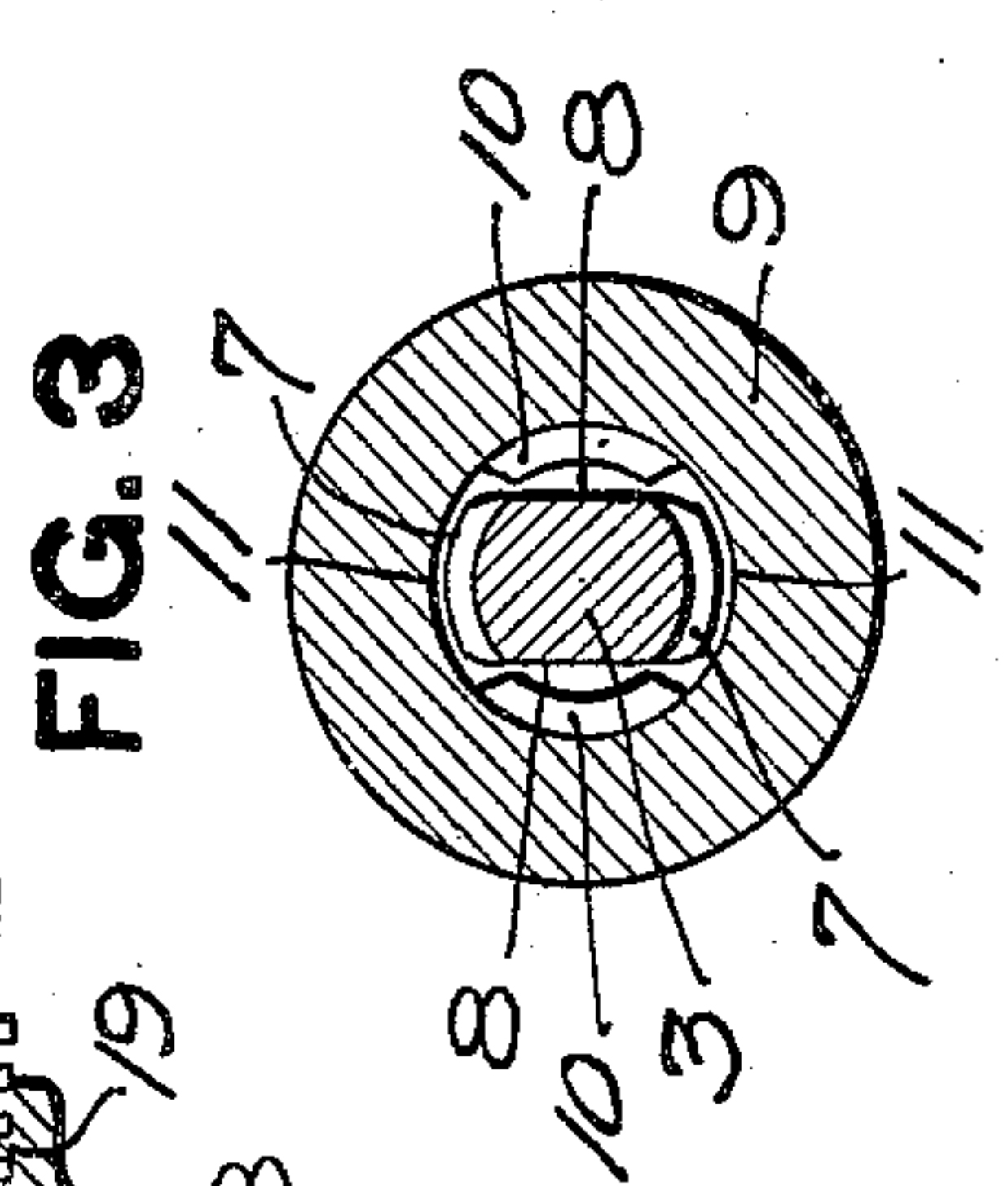


FIG. 3

WITNESSES.

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UNITED STATES PATENT OFFICE.

CONRAD SAUER, OF HOMESTEAD, PENNSYLVANIA.

WRENCH.

No. 917,364.

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To all whom it may concern:

Be it known that I, CONRAD SAUER, a resident of Homestead, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Wrenches; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to wrenches. Its object is to provide a simple form of wrench by which the jaws can be adjusted to the work to be performed and then quickly and firmly set and as quickly released, as well as to adapt the ordinary, or nut wrench, to use in pipe work, insuring a firm grip of the pipe when applied; and to prevent rattling of the parts and consequent wear and deterioration when the wrench is used as a hammer or the like, and also to hold the wrench against accidental unlocking when in use.

The invention comprises a wrench bar mounted on the body portion of the wrench, and having an extension toothed on opposite sides, and a sleeve mounted on the body portion and having like toothed faces, so that in one position the teeth do not engage, permitting sliding adjustment of the wrench while by a quarter turn the teeth are brought into engagement and hold the wrench firmly, and a spring suitably inserted between the body portion and the sleeve.

It comprises also an improved pipe gripping means in the jaw portion.

In the accompanying drawings Figure 1 is a side view partly broken away showing the wrench in disengaged position; Fig. 2 is a partial vertical longitudinal section showing the wrench in engaged position with the pipe gripping means adjusted to engage a pipe; Fig. 3 is a cross section of the handle portion of the wrench on the line 3—3, Fig. 1; Fig. 4 is a like cross section on the line 4—4, Fig. 2; and Fig. 5 is a detail cross section illustrating the pipe wrench jaw.

The wrench has a main bar 1 carrying at its outer end a jaw head 2 and handle portion 5 at its opposite end. This bar fits within an opening in the body portion 4. The shank portion 3 has teeth formed on opposite sides as at 7, such teeth being preferably formed as sections of threads as illustrated, the plain faces 8 separating said threaded portions 7, the threads being mutilated or stripped as it were to form the plain faces 8.

Mounted on the body 4 is the sleeve 9, said

sleeve having like toothed faces preferably formed of stripped or mutilated threads, that is, having the toothed or threaded faces 10 opposite each other and between them the plain faces 11, so that when the threaded faces 7 of the wrench bar are opposite the plain faces 11 of the sleeve the bar can be moved in and out and adjusted to the desired position without regard to the threads, when by turning the sleeve 9 the threaded faces 10 are caused to engage with the threaded faces 7 and so lock the wrench, as illustrated in Figs. 2 and 4. In such position the plain faces 8 and 11 face each other. The sleeve 9 may be connected to the body portion 4 in any suitable way. I unite the two preferably by means of a threaded joint 12; and locate between the two portions the spring 13 bearing against the end of the body and a shoulder 14 on the sleeve 9 so that any wear between the parts will be taken up by the spring and any tendency of the threaded joint 12 to become loose will be overcome.

In order to regulate the relative movement of the body 4 and sleeve 9 I form in one of them a depressed seat or notch 15 extending around about one-fourth of the circumference, and secure upon the other member a projecting lip 16 fitting in such depression so that when the sleeve is turned a quarter turn the lip strikes the end wall of the seat and when turned in the opposite direction is limited in like manner. I have shown the depression formed in the sleeve 9 and the lug secured to the body 4. I prefer to make the joint between the body and sleeve and threaded joint as shown, because in the turning of the sleeve to lock the wrench a slight portion of the lost motion will be taken up from said threaded joint, causing the jaws to grip more tightly.

It is evident that the wrench can be very easily applied, it only being necessary to place it upon the nut or other body to be turned, and adjust the jaws 2 and 6 to such work when the teeth 7 and 10 are out of engagement, and then to give the sleeve 9 a quarter turn, bringing the teeth 7 and 10 into engagement and so locking the wrench, after which it can be used as an ordinary wrench. By forming the toothed faces 7 and 10 as sections of threads, after the first engagement and upon further turning they serve to draw the jaws of the wrench together and increase their grip, and the same action

is obtained by using the threaded joint between the body 4 and sleeve 9. To disengage it it is only necessary to turn the sleeve 9 backwardly one-fourth turn, so disengaging the teeth 7 and 10 and leaving the bar 1 free to slide within the wrench body.

It is desirable to make the ordinary monkey wrench serve also as a pipe wrench, and to that end I provide in the jaw 6 an adjustable jaw which can be raised above the jaw 6 or drawn back into and seated therein as desired. To that end the jaw 6 has the recess 18 formed in its upper or bearing face and below that recess the threaded socket 19, such socket being preferably formed with a coarse and strong thread. Fitting into the seat 18 is the pipe block 20 having a serrated or roughened upper surface to grip into the pipe, such pipe block being secured to the screw bar 21 working in the threaded socket 19 so that by the movement of the screw bar the pipe block can be raised above the jaw 6 and in position to engage the pipe in connection with the jaw 2 of the wrench. The threaded bar 21 has the thumb piece 22 for turning the same, and its opposite end forms a pivot head 23 fitting within the seat 24 in the pipe block, such pivot head taking the thrust upon the pipe block and sustaining the heavy strain brought thereon. The pipe block fits such pivot head loosely and swings thereon to adapt its position to the pipe in the wrenching operation. The pipe block is held upon the screw bar 21 by pins 25 on the block fitting loosely into an annular recess 26 at the upper edge of the screw bar and permitting the block to swing as above described. When the wrench is to be used for ordinary purposes, by turning the threaded bar 21 the pipe block is drawn down into the seat 18 and remains out of use, but when the wrench is used upon pipe it is only necessary to turn the threaded bar sufficiently to force

the pipe block above the face of the jaw, bringing it into position for action.

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What I claim is:

1. In a wrench, the combination of a body portion having a jaw, a wrench bar having a jaw and a shank portion provided with a mutilated thread, a rotatable sleeve having means connecting it to said body portion holding it against longitudinal movement relative thereto, and a spring confined between said sleeve and said body portion.

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2. In a wrench, the combination of a body portion having a jaw, a wrench bar having a jaw and a toothed extension beyond the same, and a sleeve having corresponding toothed faces and mounted on the body portion by means of a threaded joint, and a spring confined between the body portion and the sleeve.

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3. An adjustable nut or pipe wrench having a shank portion and a jaw rigid therewith and a body portion having a jaw face substantially parallel to said jaw on said shank, said jaw face having a socket formed therein, a pipe block with a serrated face adjustable in said socket, a threaded bar mounted in said jaw portion and having a substantially flat connection with the pipe block and forming the only support therefor in the socket.

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4. A pipe wrench having a seat in one of its jaws, a threaded bar mounted in the jaw and movable perpendicularly thereto having a pivot head at its upper end adapted to engage a suitable pipe block, and a pipe block in aforesaid seat having a circular pivot recess adapted to receive said pivot head.

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In testimony whereof, I the said CONRAD SAUER have hereunto set my hand.

CONRAD SAUER.

Witnesses:

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