

No. 776,944.

PATENTED DEC. 6, 1904.

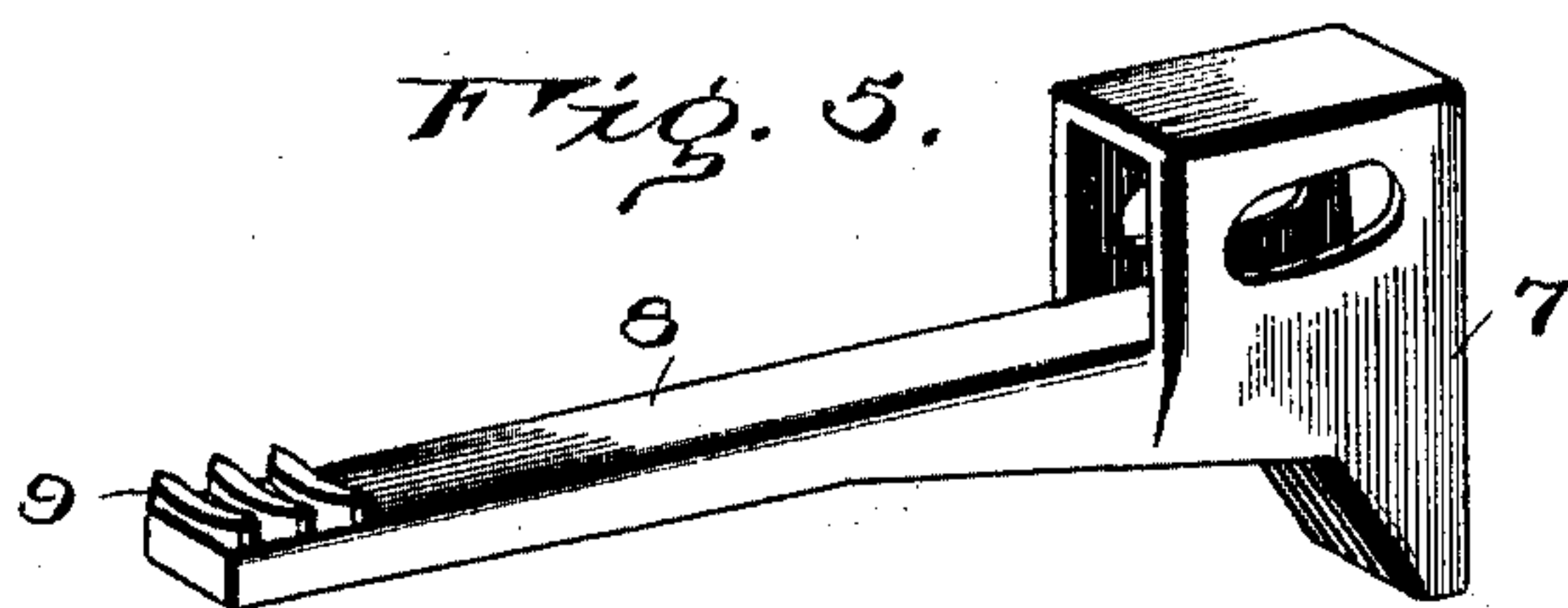
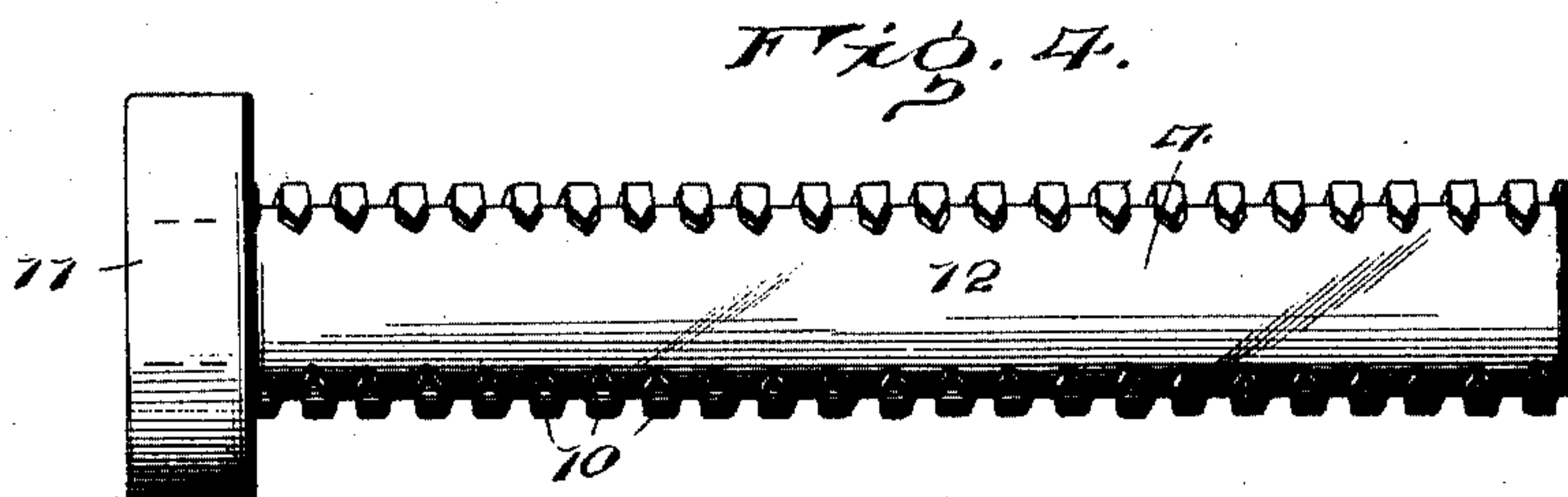
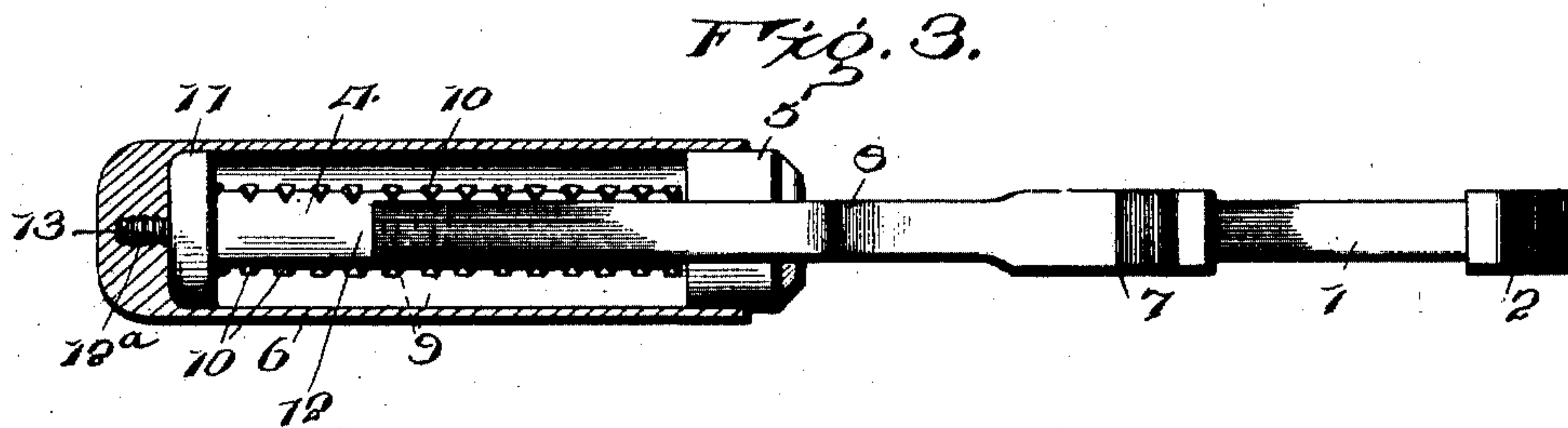
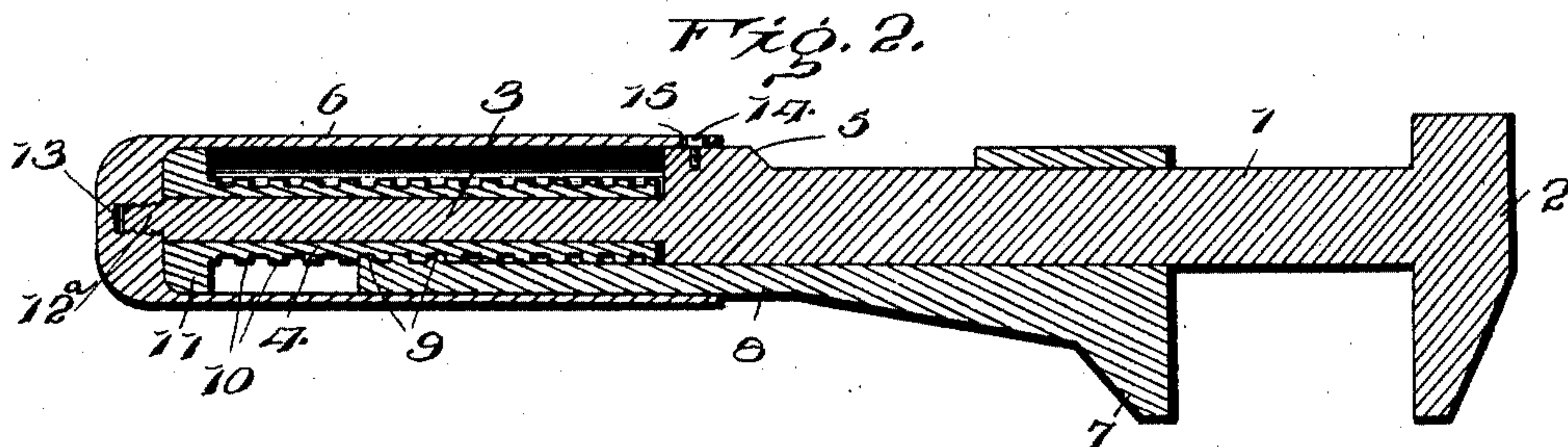
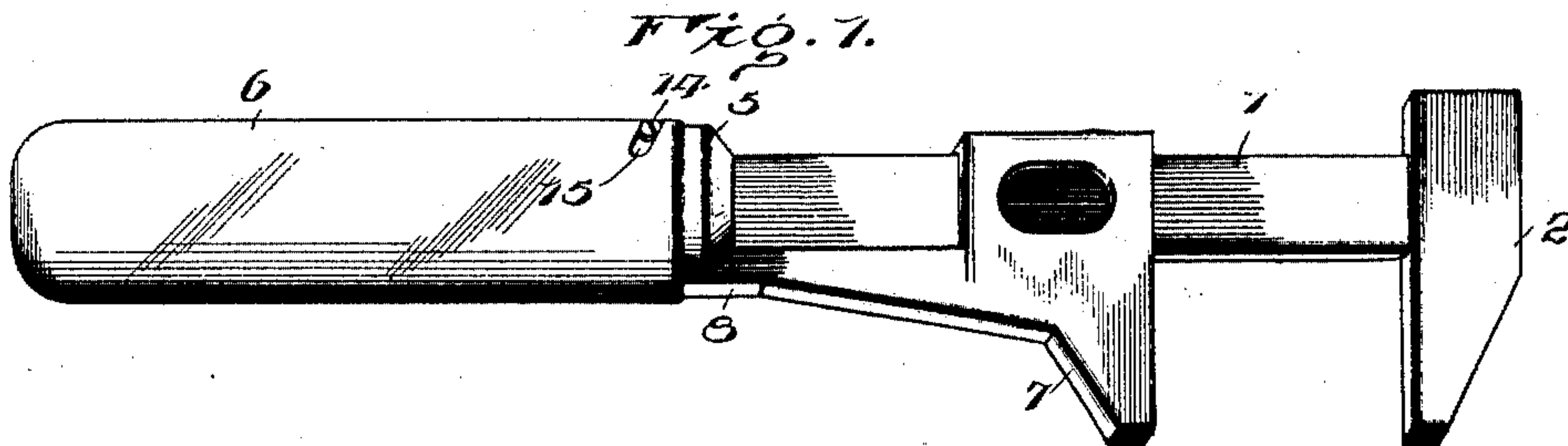
J. E. RICHARDS & H. H. MUGGLEY.

WRENCH.

APPLICATION FILED APR. 8, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

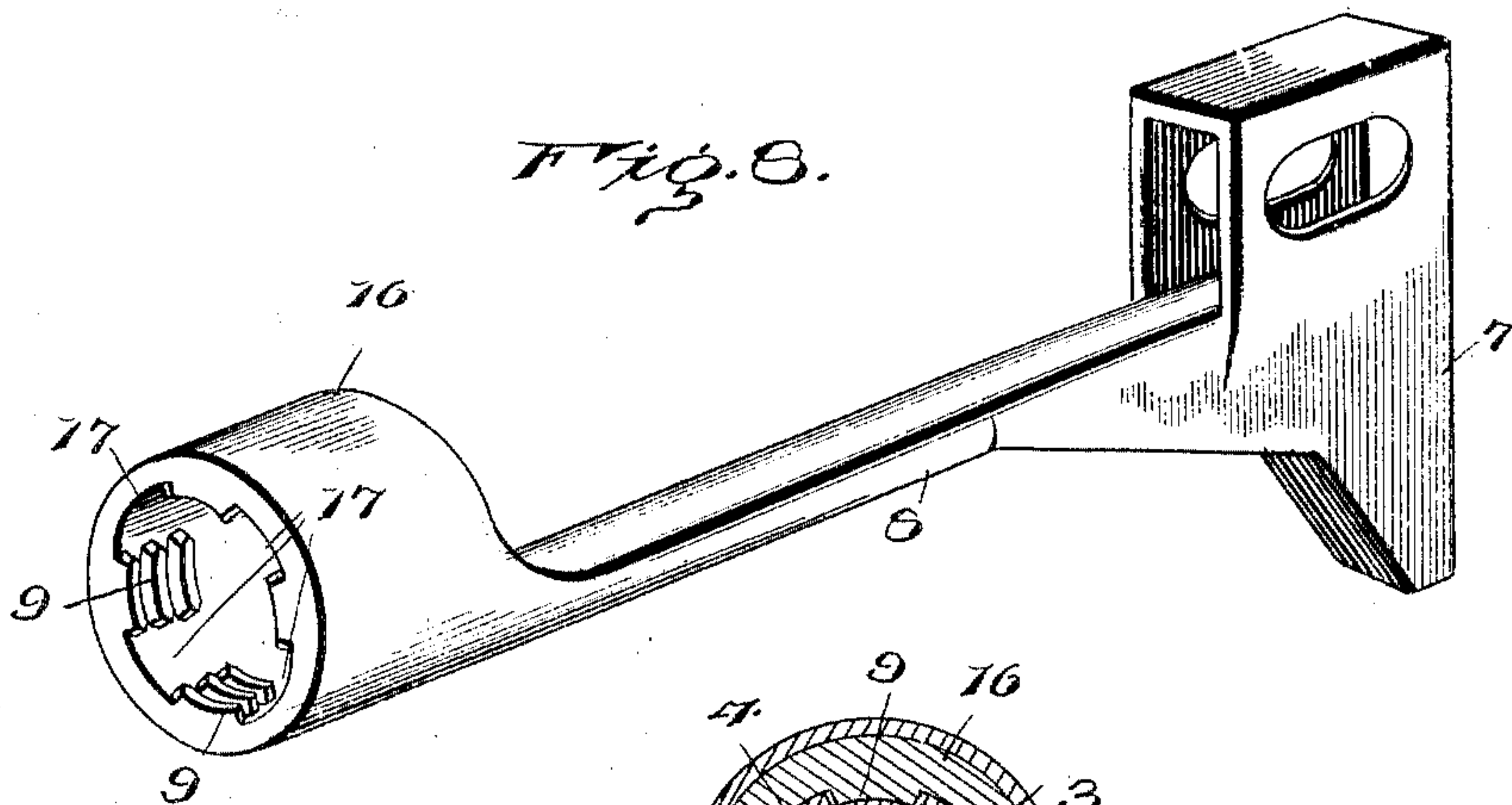
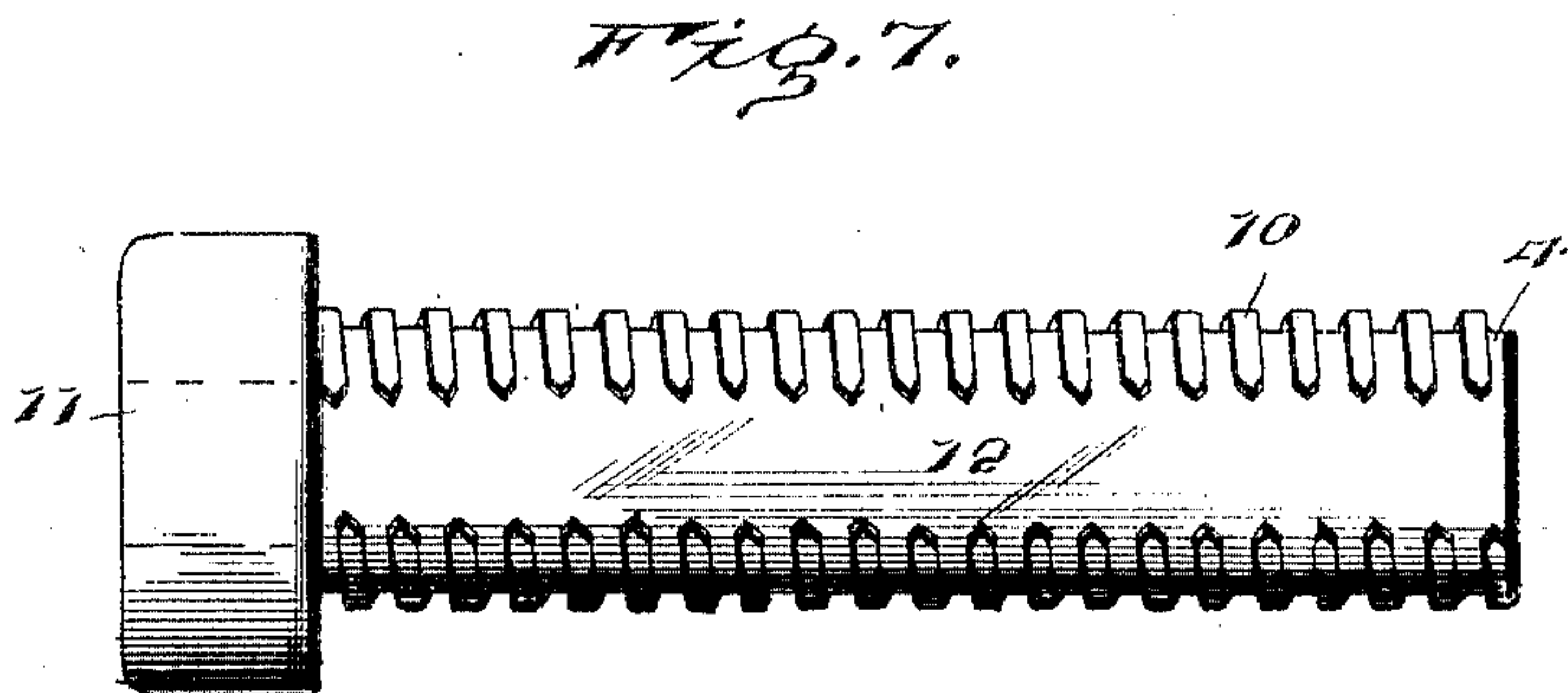
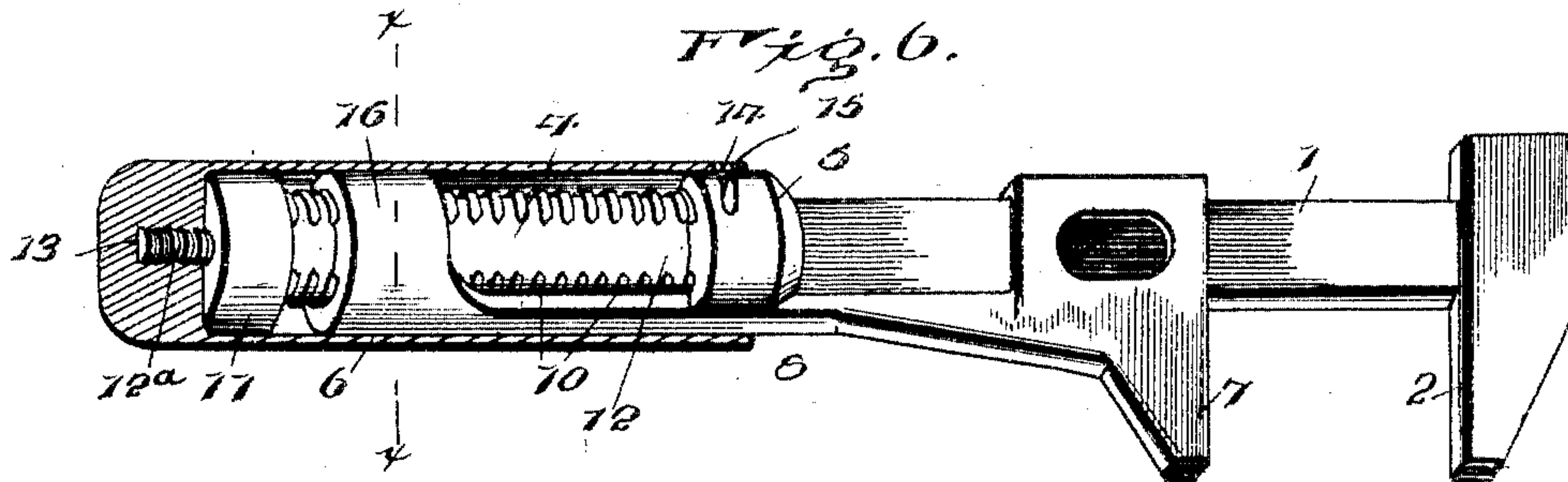
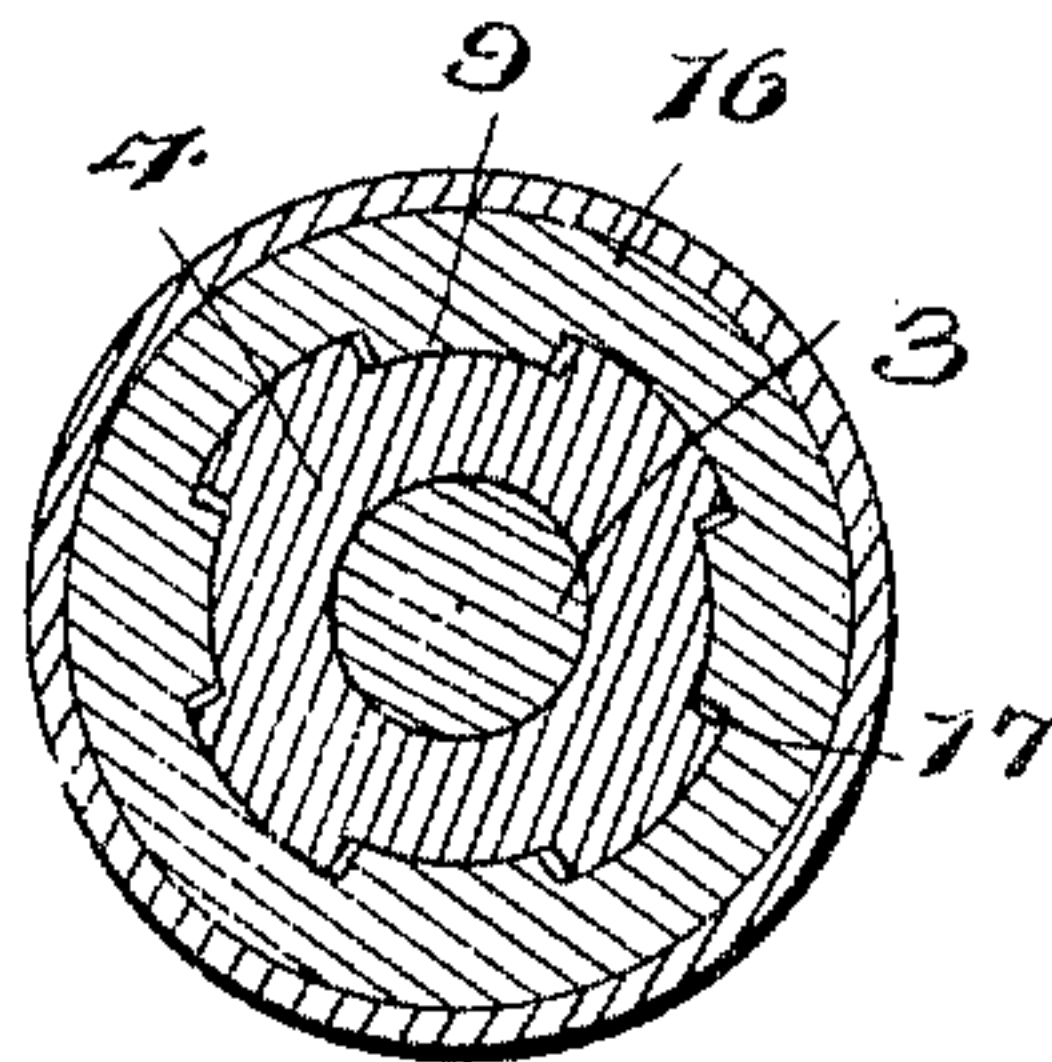


Fig. 9.



Witnesses

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UNITED STATES PATENT OFFICE.

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WRENCH.

SPECIFICATION forming part of Letters Patent No. 776,944, dated December 6, 1904.

Application filed April 8, 1904. Serial No. 202,233. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH E. RICHARDS and HENRY H. MUGGLEY, citizens of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention is designed chiefly to improve the general construction of tools of the wrench type having a fixed and a sliding jaw, whereby the latter may be quickly adjusted and tightened when fitted to the work, the operating parts being housed at all times and at every position of the movable jaw within the range of its adjustment.

The improvement consists, in combination with the stock provided with the fixed jaw, of an operating-sleeve externally threaded and having a portion of the thread removed on a straight line, the slidable jaw having its shank provided with cog-teeth for coöperation with the thread of the operating-sleeve and adapted to have free movement in the space formed by cutting away the thread of said operating-sleeve to provide for quick adjustment of the movable jaw, and a protecting-sleeve housing the operating-sleeve and a portion of the shank of the slidable jaw and constituting a grip.

The invention also consists of the novel features and structural details and peculiar combination of parts, which hereinafter will be more particularly set forth, illustrated, and finally claimed.

In the accompanying drawings, forming a part of the specification, Figure 1 is a perspective view of a wrench embodying the invention. Fig. 2 is a central longitudinal section of the wrench. Fig. 3 is a view of the wrench as seen from the lower side, the protecting-sleeve being in section. Fig. 4 is a detail view of the operating-sleeve on a larger scale. Fig. 5 is a perspective view of the slidable jaw and stem. Fig. 6 is a perspective view of a modification, the protecting-sleeve being in section. Fig. 7 is a detail view of the operating-sleeve employed in the modified form, showing the same on a larger scale. Fig. 8 is a detail perspective view, on a larger

scale, of the slidable jaw and stem as embodied in the modification. Fig. 9 is a transverse section on the line X X of Fig. 6 on a larger scale.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In its organization the wrench comprises the stock 1, provided at one end with the fixed jaw 2 and having its opposite end portion reduced to form the stem 3, upon which the operating-sleeve 4 is rotatably mounted. An enlargement 5 is provided at the end of the stock adjacent to the stem 3 and forms a closure for the open end of the protecting-sleeve 6. In the preferable construction the enlargement 5 is an integral part of the stock 1, although this is not essential and will depend upon the convenience of the manufacturer.

The movable jaw 7, slidably mounted upon the stock 1, has a shank 8 extended therefrom to lie against the stock 1 and extend parallel with the stem 3. The shank 8 is provided with a series of cog-teeth 9 of a size and pitch to match the screw-thread 10, formed upon the outer side of the operating-sleeve 4. The terminal portions of the cog-teeth 9 are beveled to facilitate their entrance between the matching threads 10 of the operating-sleeve when rotating the latter to secure the jaw 7 after the same has been moved to the adjusted position.

The operating-sleeve 4 is rotatably mounted upon the stem 3 and is externally threaded, as shown at 10, and has a head 11 at its outer end to snugly fit within the sleeve 6. The thread 10 is cut away upon a side of the operating-sleeve, as indicated at 12, to provide a clearance-space to admit of free movement of the slidable jaw 7 when the operating-sleeve is turned to bring the space 12 opposite to the shank 8 and the toothed portion 9 thereof, as indicated most clearly in Fig. 3. The terminal portions of the thread 10, bordering upon the space 12, are beveled to insure ready entrance of the matching parts 9 and 10 when turning the operating-sleeve either to the right or to the left from the position shown

in Fig. 3. If the extremities of the cog-teeth 9 or the thread were left square, they would be liable to abut and necessitate several trials before the parts could be properly positioned, so as to cause the thread 10 to pass between the cog-teeth 9 when turning the operating-sleeve from the position shown in Fig. 3 either to the right or to the left.

The sleeve 6, encircling the operating-sleeve 4 and concentric therewith, forms a housing for said operating-sleeve and the rear portion of the shank 8 and provides a grip, as well as serving the purpose to confine the rear portion of the shank 8 and hold the cog-teeth 9 in positive engagement with the thread 10. This sleeve 6 is connected to the operating-sleeve 4 in any manner so as to rotate therewith and is likewise connected to the stock 1 in any substantial manner to prevent longitudinal displacement. As shown, the outer or rear portion of the stem 3 is threaded, as indicated at 12^a, and enters a threaded opening 13 in the outer end of the sleeve 6. The rotation of the sleeve 6 and operating-sleeve 4 is limited in one direction by means of a stop 14 and slot 15, the stop 14 being let into the enlargement 5 and the slot 15 being formed in the inner end portion of the sleeve 6. Upon turning the sleeve 6 either to the right or to the left as may be determined upon until one end of the slot 15 comes in contact with the stop 14, the space 12 will register with or come opposite to the shank 8, thereby admitting of the jaw 7 being moved quickly upon the stock 1 to the required position, after which a movement of the sleeve in the opposite direction will cause the thread 10 to engage with the cog-teeth 9 and fix the position of the jaw 7. This movement of the sleeves 6 and 4 is such as to cause a slight advance of the jaw 7 toward the jaw 2, depending upon the pitch of the matching parts 9 and 10, so as to firmly grip the work or object received between the jaws 7 and 2.

In the modification the shank 8 of the movable jaw 7 terminates in a collar 16, which is internally threaded to match the thread 10 of the operating-sleeve 4. The thread within the collar 16 is cut away at intervals, as shown at 17, leaving portions corresponding to the cog-teeth 9. The thread 10 upon the operating-sleeve 4 is cut away upon straight lines corresponding in number and position to the groups of cog-teeth 9 within the collar 16, whereby upon turning the operating-sleeve 4 in one direction the series of spaces 12 will register with the groups of cog-teeth 9 and admit of sliding adjustment of the jaw 7 and rotation of the operating-sleeve in the opposite direction will cause the thread upon the operating-sleeve to match with the groups of cog-teeth 9 in the manner stated. This construction more nearly equalizes the strain upon the thread 10, and the collar 16, encircling the operating-sleeve, prevents any pos-

sible displacement of the matching parts 9 and 10 in the operation of the tool. Within the purview of the invention it is contemplated to apply the matching threads between the shank 8 and the sleeve 6.

Having thus described the invention, what is claimed as new is—

1. In a tool of the wrench type comprising fixed and movable jaws, the combination of the stock, an operating-sleeve connected with said stock and externally threaded and having a portion of the thread removed from a side to provide a longitudinal space, and a shank projected from the movable jaw and provided with cog-teeth for cooperation with the thread of the operating-sleeve, substantially as set forth.

2. In a tool of the wrench type, the combination of a stock provided with a fixed jaw, and a stem, a movable jaw slidable upon said stock and having a shank provided upon its inner side with cog-teeth, an operating-sleeve mounted to turn upon the stem of the stock and externally threaded to match the said cog-teeth and having a portion of the thread cut away upon a side to provide a longitudinal space, and connecting means between the operating-sleeve and stock to prevent longitudinal displacement, substantially as set forth.

3. In combination, a stock provided with a fixed jaw, a second jaw slidably mounted upon the stock and having a shank provided upon its inner side with cog-teeth, an operating-sleeve connected with the stock and externally threaded and having a portion of the thread removed from a side to provide a longitudinal space, and a sleeve concentric with the operating-sleeve and housing the latter and the rear portion of the shank and constituting a grip, substantially as described.

4. In combination, a stock provided with a jaw, a companion jaw movable upon the stock and having a shank provided with cog-teeth, an operating-sleeve threaded to match with the cog-teeth of said shank and having a portion of the thread cut away to provide a longitudinal space, and a second sleeve concentric with the operating-sleeve and connected therewith and with the stock and housing the operating parts and forming a grip, substantially as set forth.

5. In combination, a stock provided with a jaw and an enlarged portion, a companion jaw movable upon said stock and having a shank provided with cog-teeth, an operating-sleeve threaded to match with said cog-teeth and having a portion of the thread omitted to form a longitudinal space, and a sleeve housing the operating parts and connected to the operating-sleeve for rotation therewith and closed at its inner open end by means of the said enlargement of the stock, substantially as specified.

6. In combination, a stock provided with a

jaw and an enlarged portion, a companion jaw movable upon the stock and having cog-teeth, an operating-sleeve threaded to match with said cog-teeth and having a portion of the thread omitted to provide a longitudinal space, a sleeve housing the operating parts and closed at its inner end by means of the said enlargement of the stock, and a pin-and-slot connection between the housing-sleeve and said enlargement to limit the turning of both sleeves in one direction to properly position the longitudinal space of the operating-sleeve with reference to the shank of the movable jaw, substantially as set forth.

7. In combination, a stock provided with a jaw and an enlarged portion, a companion jaw movable upon the stock and having cog-teeth, an operating-sleeve threaded to match with said cog-teeth and having a portion of the thread omitted to provide a longitudinal space, a sleeve housing the operating parts and closed at its inner end by means of the said enlargement of the stock, a pin-and-slot connection between the housing-sleeve and said enlargement to limit the turning of both sleeves in one direction to properly position the longitudinal space of the operating-sleeve with reference to the shank of the movable jaw, and a screw-thread connection between the housing-sleeve and stock, substantially as described.

8. In combination, a stock provided with a jaw at one end and a stem at the opposite end, a companion jaw movable upon the stock and provided with a shank having cog-teeth upon its inner side, an operating-sleeve rotatably mounted upon said stem and externally threaded to match the cog-teeth and having a portion of the thread omitted to form a longitudinal space, and a protecting-sleeve inclosing the working parts and connected to said stock to prevent longitudinal displacement, substantially as set forth.

9. In combination, a stock provided with a jaw at one end and a stem at the opposite end, a companion jaw movable upon the stock and

provided with a shank having cog-teeth upon its inner side, an operating-sleeve rotatably mounted upon the said stem and externally threaded to match the cog-teeth and having a portion of the thread omitted to form a longitudinal space, a protecting-sleeve inclosing the working parts and connected to said stock to prevent longitudinal displacement, a screw-thread connection between said protecting-sleeve and stem, and a pin-and-slot connection between said protecting-sleeve and stock, substantially as set forth.

10. In combination, a stock provided with a jaw, an enlargement and a stem, a companion jaw movable upon the stock and having a shank provided with cog-teeth, an operating-sleeve mounted upon the stem and externally threaded, a portion of the thread being omitted to provide a longitudinal space, a protecting-sleeve housing the working parts and closed at its inner end by the enlarged portion of the stock and connected to the operating-sleeve for movement therewith, a screw-thread connection between the protecting-sleeve and stem, and a pin-and-slot connection between the protecting-sleeve and the aforesaid enlargement, substantially as specified.

11. In combination, a stock provided with a jaw, a companion jaw movable upon the stock and having a shank provided with a collar having cog-teeth upon its inner side, an operating-sleeve externally threaded and having the thread omitted at different points to provide a series of longitudinal spaces corresponding in position and number with the spaces between the cog-teeth of the aforesaid collar, and a sleeve housing the working parts and connected with the operating-sleeve and with the stock, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH E. RICHARDS. [L. S.]

HENRY H. MUGGLEY. [L. S.]

Witnesses:

E. S. HAYDEN,

GEO. A. PERKINS.