

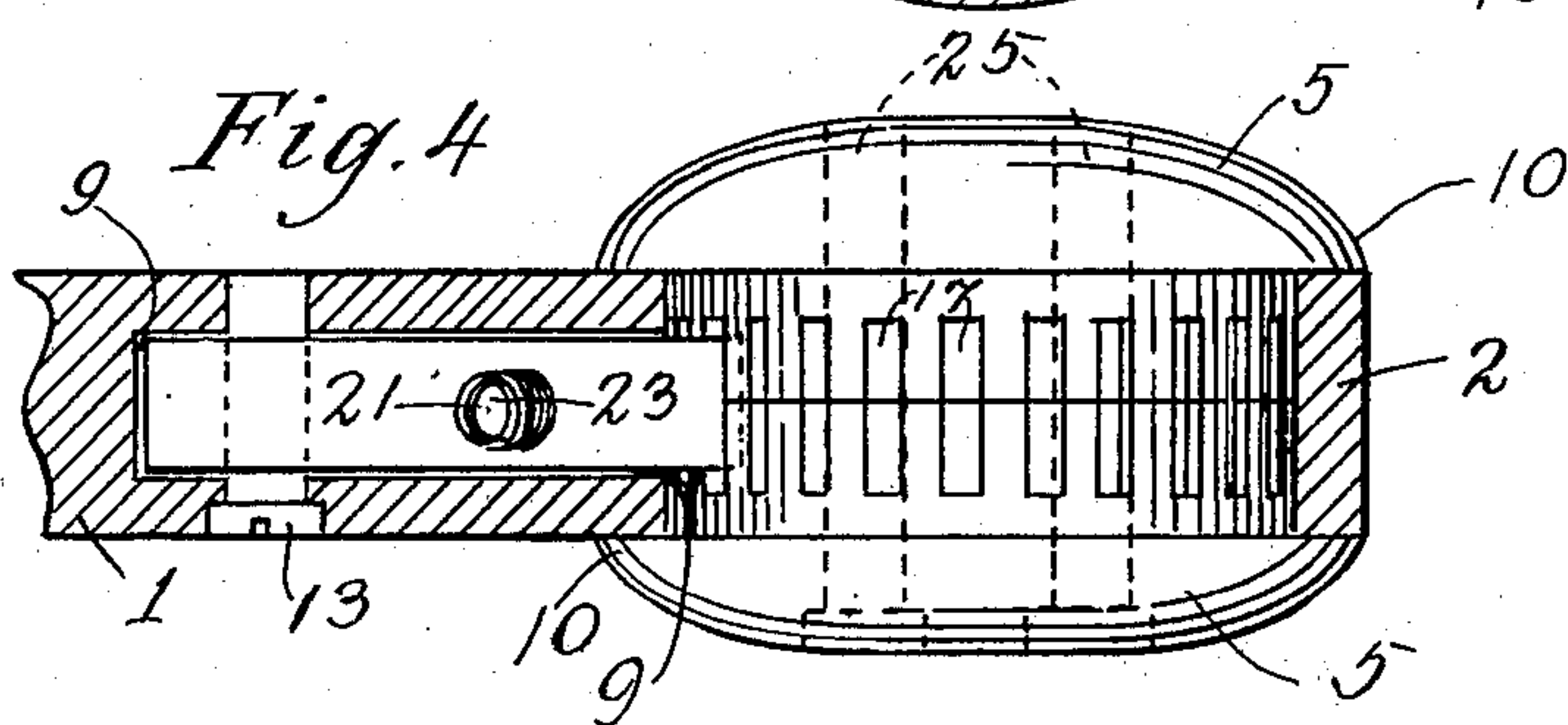
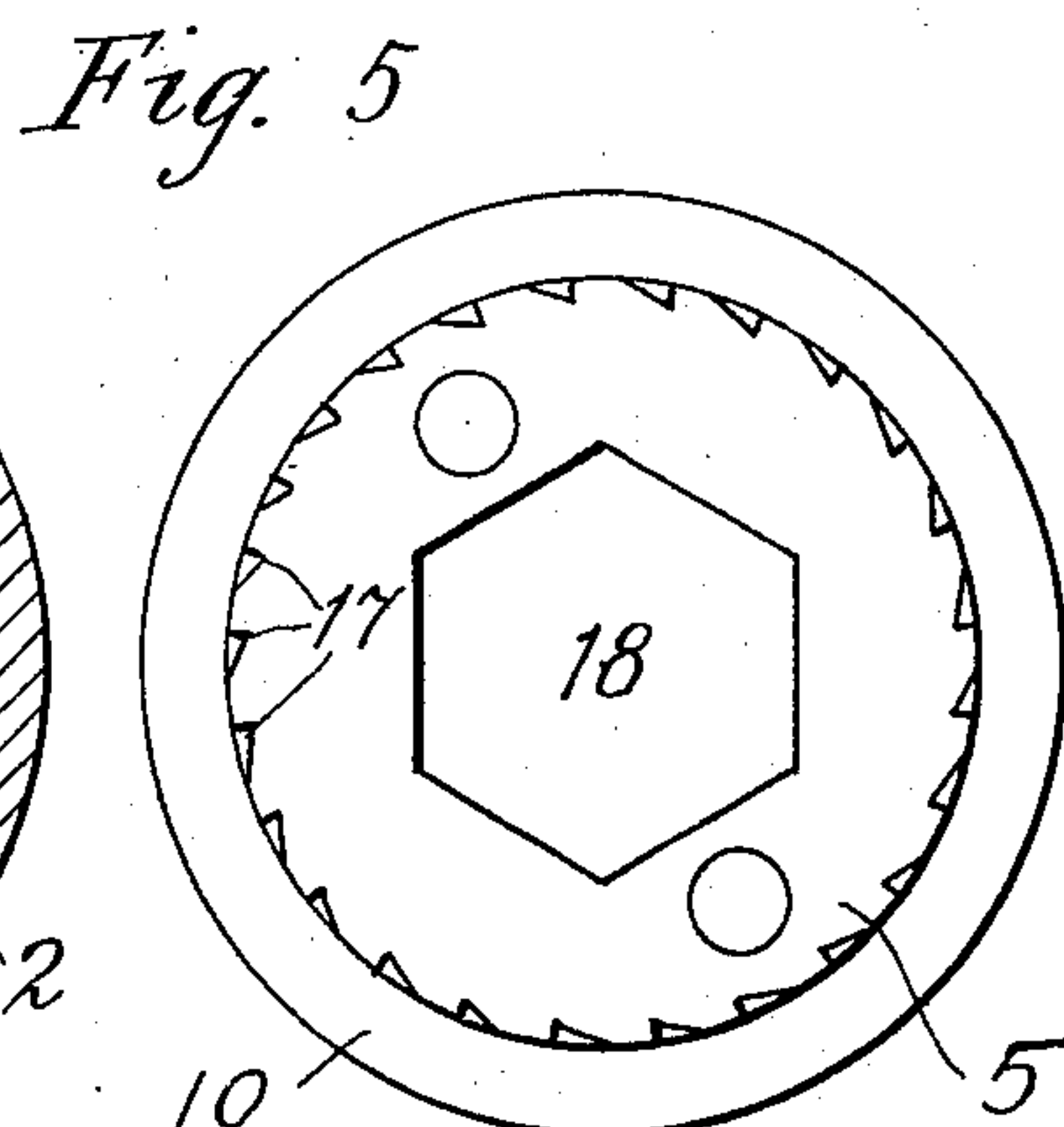
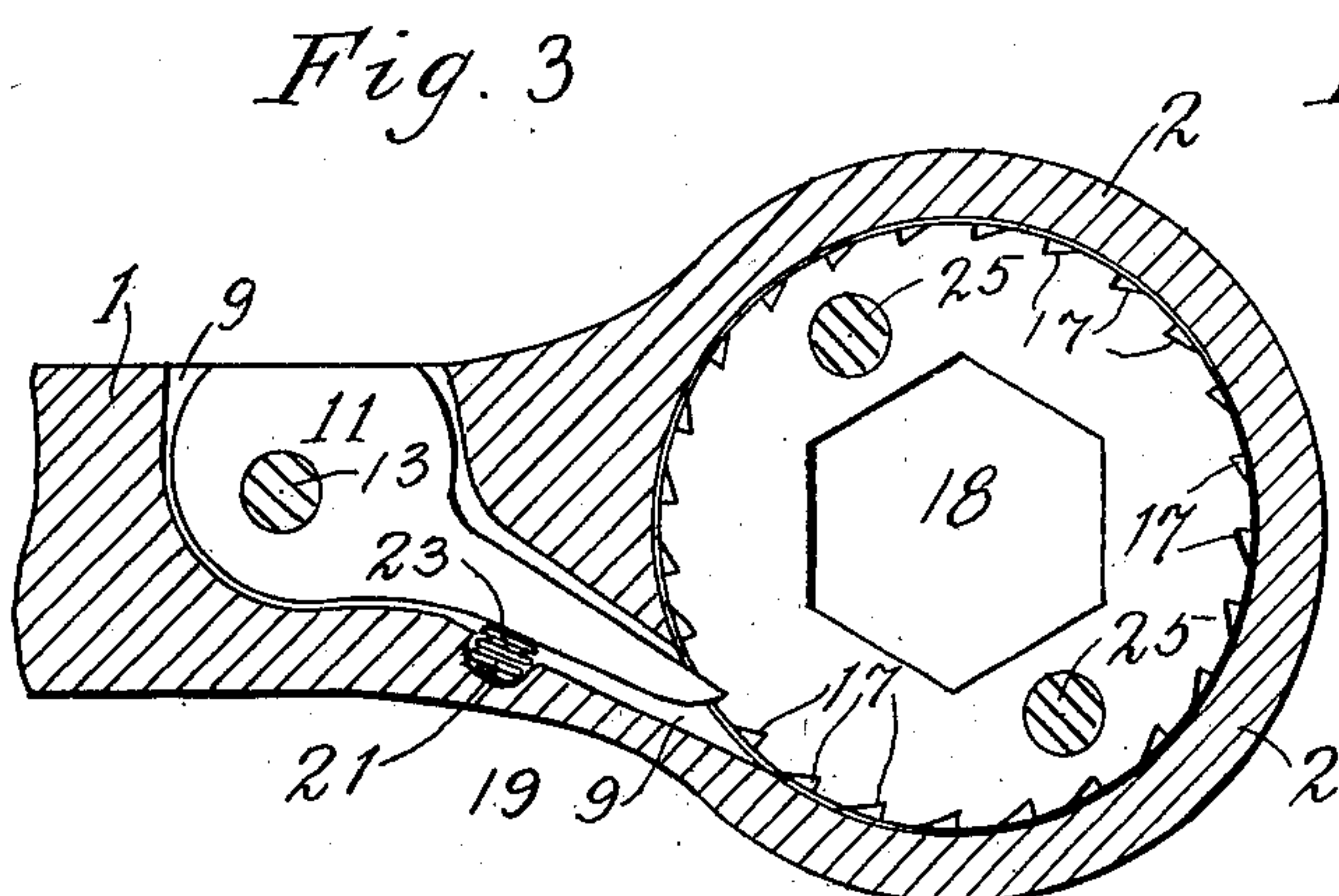
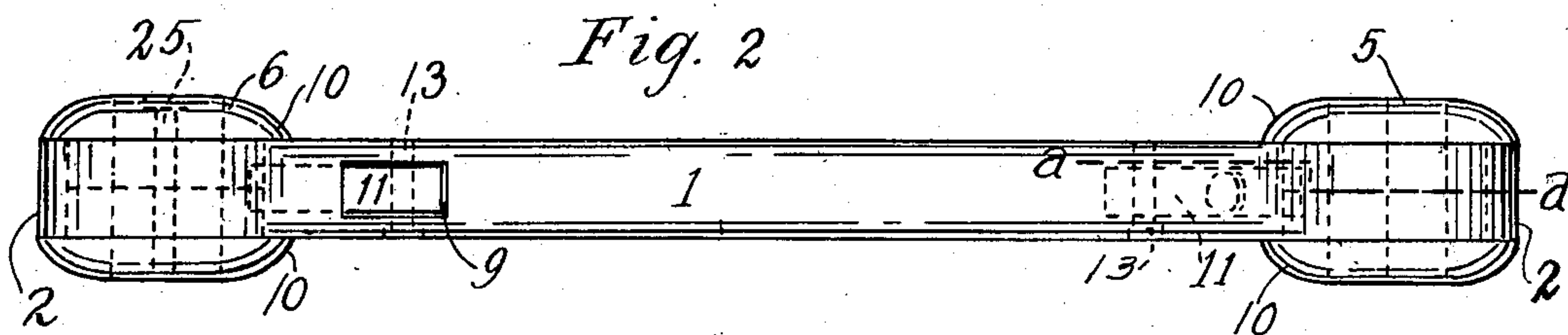
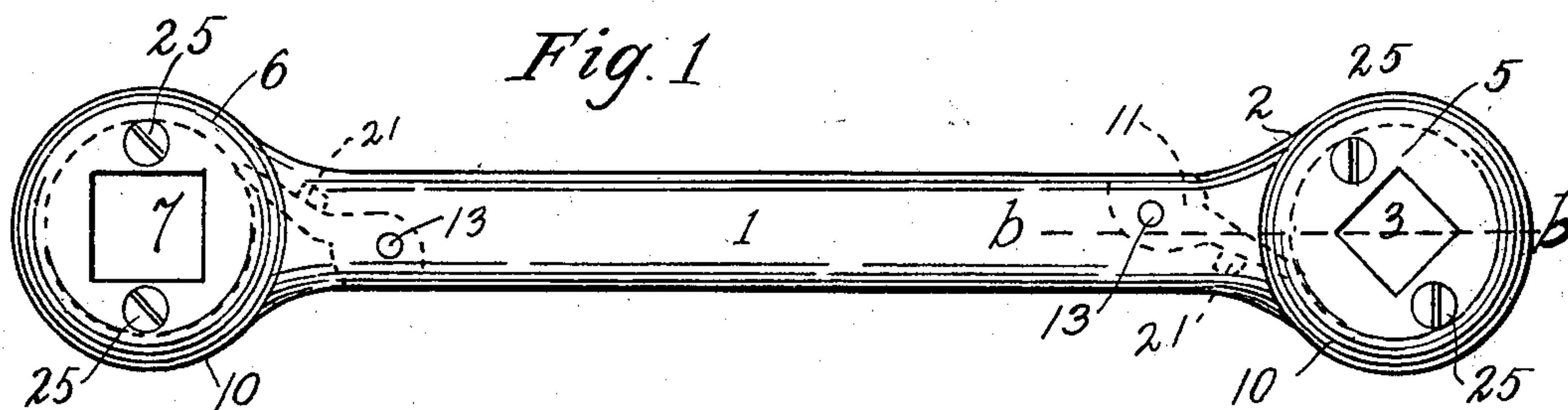
No. 734,408.

PATENTED JULY 21, 1903.

H. G. DUNSTON.
WRENCH.

APPLICATION FILED JAN. 5, 1903.

NO MODEL.



Witnesses
B. W. Piercy
J. E. Croft

Inventor
Horace G. Dunston
by James R. Rogers
Attorney

UNITED STATES PATENT OFFICE.

HORACE G. DUNSTON, OF SANTA MONICA, CALIFORNIA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 734,408, dated July 21, 1903.

Application filed January 5, 1903. Serial No. 137,968. (No model.)

To all whom it may concern:

Be it known that I, HORACE G. DUNSTON, a citizen of the United States, residing at Santa Monica, in the county of Los Angeles, State of California, have invented and discovered a new and useful Improvement in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in wrenches; and the objects of my improvement are, first, to produce a device that is easily and quickly applied to parts upon which it is intended to operate; second, to provide a construction simple and effective in its operation; third, to improvise a tool designed for operation where little space is afforded; fourth, to devise an instrument consisting of few members devoid of complexity, and, fifth, to construct separately the parts of the device that can quickly assemble—one part substituted for another as occasion requires. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side view in elevation of my improved tool, showing the pawls, the springs for actuating the pawls, and ratchets in dotted lines. Fig. 2 is an edge view in elevation of my improvement, illustrating the end of one of these pawls in full lines, the pivots for the pawls, one of the pawls, and the screw-bolts for fastening the two parts of the two ratchet-dies together in dotted lines. Fig. 3 is a longitudinal sectional view taken on the line *a a* of Fig. 2, a portion of the handle broken away, showing the pawl, spring for operating the pawl, and one-half of the ratchet-die in elevation, and the screw-bolts for fastening the two parts of the die in cross-section. Fig. 4 is a partial longitudinal sectional view of the handle, taken on the line *b b* of Fig. 1, a portion of the handle broken away, illustrating the ring-seat for the die of the handle in section and parts of the pivot and spring for operating the pawl and the edges of the two halves of the ratchet-die in elevation; and Fig. 5 is a view in elevation of one of the half-sections

of the die shown in Fig. 4 removed from the handle and the screw-bolts for securing together the two sections of the die also removed.

Similar reference-numerals refer to like parts throughout the several views.

The numeral 1 upon the drawings represents the handle of my improved wrench.

2 2 refer to the ring-seats of the handle, one in each end thereof and preferably made integral with the handle and are circular in form upon the interior surfaces thereof.

The dies 5 and 6 (illustrated upon Fig. 1 of the drawings) are identical in construction as well as in design, except the rectangular opening 3 in die 5 is smaller than the rectangular opening 7 of the die 6. The opening 3 is of the same dimensions in the two sections that comprise the die 5, and the opening 7 is of the same dimensions in the two sections that compose the die 6. Each of the two sections that make up each of the dies 5 and 6 are securely fastened together by means of perforations 24 24 and the two screw-bolts 25 25, which extend entirely through the two companion sections and within the ring-seat when located therein and in place for operation. Each of the said sections of any one of the dies is desirably made with a flange 10, which rests upon the lateral face of the ring-seat when secured in place upon the handle 1.

The handle 1 in opposite edges thereof and at each end is provided with an irregular angular and tapering slot 9, in which the pawl 11 is pivoted to the handle. The larger end of the pawl 11 is shown in Figs. 2 and 3 of the drawings. The free end of the pawl when brought in contact with the ratchet-teeth 17 of the die oscillates upon the pivot 13 swinging within the end of the slot leading to the ring-seat 2 of the handle. The irregular angular and tapering slot 9 extends from the outer edge of the handle 1 into the ring-seat 2 of the handle, into which the smaller and free end of the pawl 11 projects in order to catch and firmly hold the ratchet-teeth 17 of the die, as illustrated in Figs. 1, 3, and 4 of the drawings.

Within the irregular slot 9 is a recess 19, in which one end of the spring 21 is pressed

and securely held therein from displacement while the pawl presses upon the opposite end of the said spring.

Upon the pawl 11 is cast or otherwise constructed a nib or projection 23, which securely holds the pawl end of the spring from displacement upon the pawl. The nib or projection 23 upon the pawl 11 and the recess 19 within the handle 1 keep the spring 21 in its true position relative to the oscillating end of the pawl.

The two half-sections of the dies illustrated upon Figs. 1 and 2 of the drawings, forms thereof shown upon Figs. 3 and 5 of the drawings, are identical in construction, except that the openings 3 and 7 are rectangular in form in Figs. 1 and 2, while the openings 18 shown upon Figs. 3 and 5 are hexagonal in form, adapted to receive hexagonal-shaped nuts or other devices of like shape. The only difference between the two die-sections illustrated upon Figs. 1 and 2 of the drawings is that the openings 3 and 7 are of different sizes, adapted to receive nuts or devices that will be admitted therein desired to be operated upon.

It will readily appear from Fig. 2 of the drawings that in operation if the die 7 be placed upon a nut the opposite end of the handle can only be moved to the left hand, whereas if the now upper side of the handle be turned down and the under side of the handle uppermost, or in the opposite position, the end of handle can only be moved from left to right. The same will be true, as above described, should the end of the handle containing the two half-dies 5 be placed upon a nut of the proper size, the same conditions of things as above described relative to the movement of the opposite end of the instrument will appear.

The operation of this invention will be readily understood from the foregoing description, taken in connection with the drawings hereto appended.

It is obvious that many variations and changes in the details of construction and arrangement of my invention would readily suggest themselves to persons skilled in the art and still be within the spirit and scope of my invention.

I do not desire to confine this invention to the specific construction, combination, and arrangement of parts herein shown and described, and the right is reserved to make all changes in and modifications of the same as come within the spirit of this invention; but I do desire to secure as my invention all fea-

tures of construction and equivalents thereof that come within the scope of my improvement as herein shown and described and illustrated upon the drawings appended hereto.

Having described my invention, what I do claim, and desire to secure by Letters Patent, is—

1. A wrench comprising a handle provided with a ring-seat in the end thereof made integral therewith, the handle and ring-seat provided with an angular tapering slot extending from the outer edge of the handle to the ring-seat and terminating therein, the longer opening being in the edge of the handle and the smaller opening communicating with the ring-seat, the said slot having a recess in the handle communicating therewith, a spring, one end of which is located in the recess, a tapering-ended pawl provided with a projection for securing the spring in place thereon, a die formed in sections each having a central rectangular opening and circumferential perforations therein adapted to register with each other, bolts passing through the ring-seat and through the perforations for securing the sections together, the sections provided upon their peripheries with ratchet-teeth coinciding with each other in which the tapering end of the pawl engages to revolve the sections of the die in opposite directions to screw or unscrew nuts or bolts.

2. A wrench comprising a handle having a ring-seat forming a part of the handle the handle and ring-seat having an irregular angular, tapering slot extending from the outer edge of the handle to the ring-seat and having the larger opening in the handle of the wrench and the smaller opening in the ring-seat, a pawl provided with a projection thereon made a part thereof and pivoted within the slot to the handle of the wrench, a spring located upon the projection within the slot, a perforated die formed in sections each provided with registering ratchet-teeth upon the periphery thereof, circumferential flanges adapted to rest upon one edge of the ring-seat, bolts extending through the ring-seat securing the sections of the die together, whereby nuts may be turned off or on by turning over or reversing the end of the wrench.

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

HORACE G. DUNSTON.

Witnesses:

AMELIA GUEST,
J. E. CROFT.