

No. 710,185.

Patented Sept. 30, 1902.

J. E. DICKIE.  
RATCHET WRENCH.

(Application filed Feb. 24, 1902.)

(No Model.)

Fig. 1.

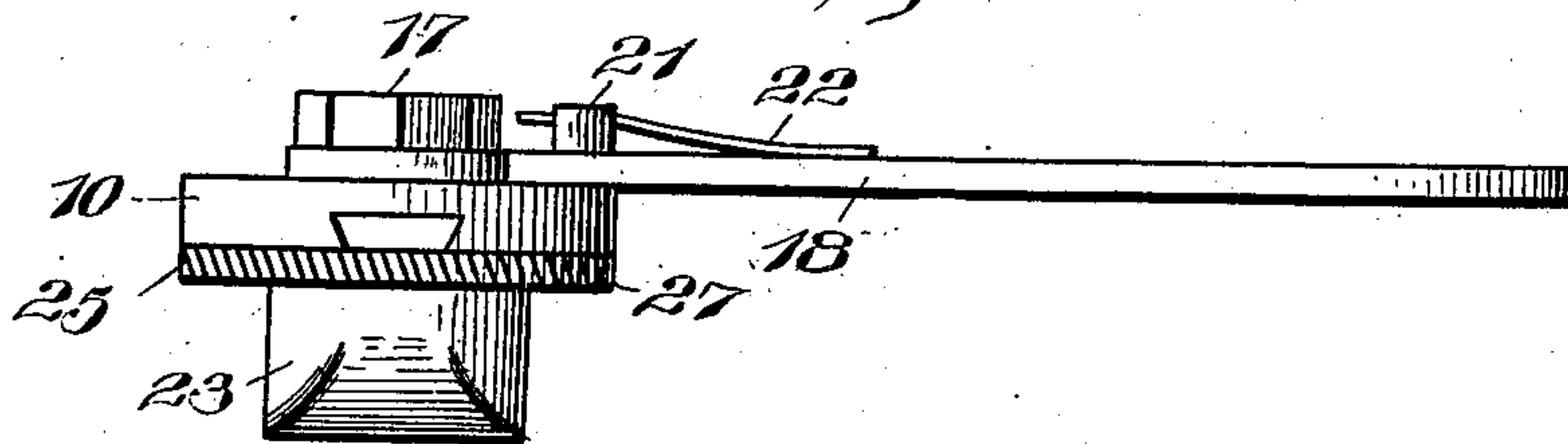


Fig. 2.

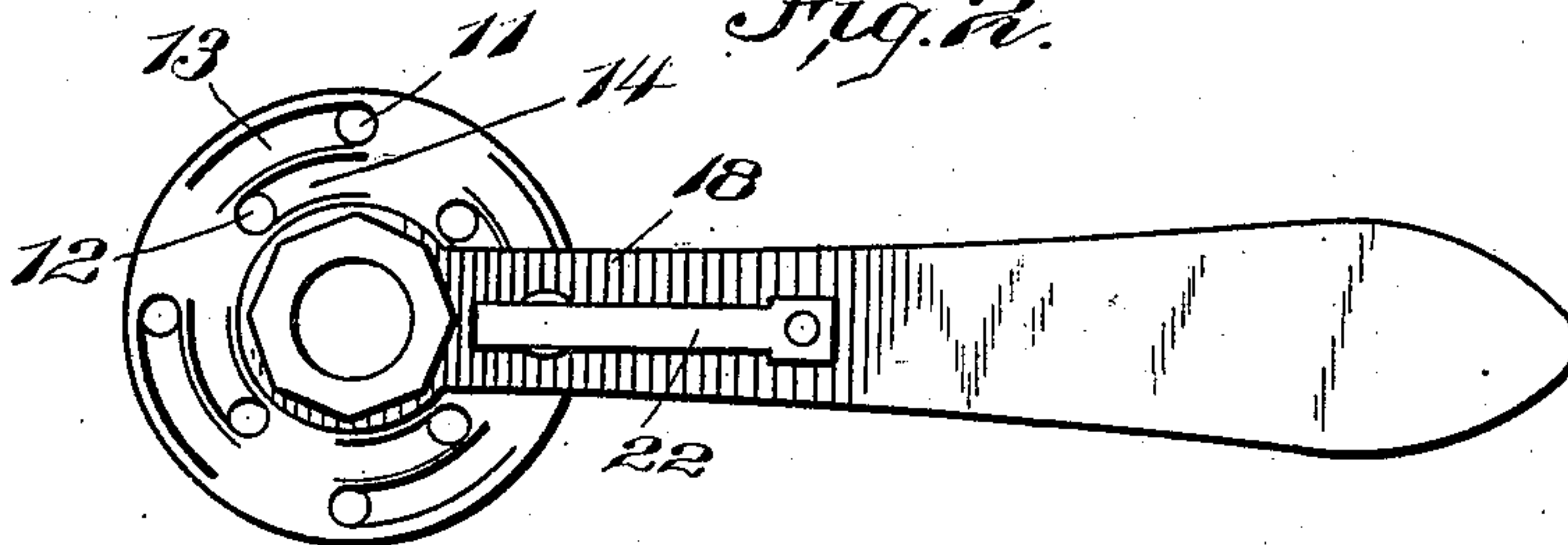


Fig. 3.

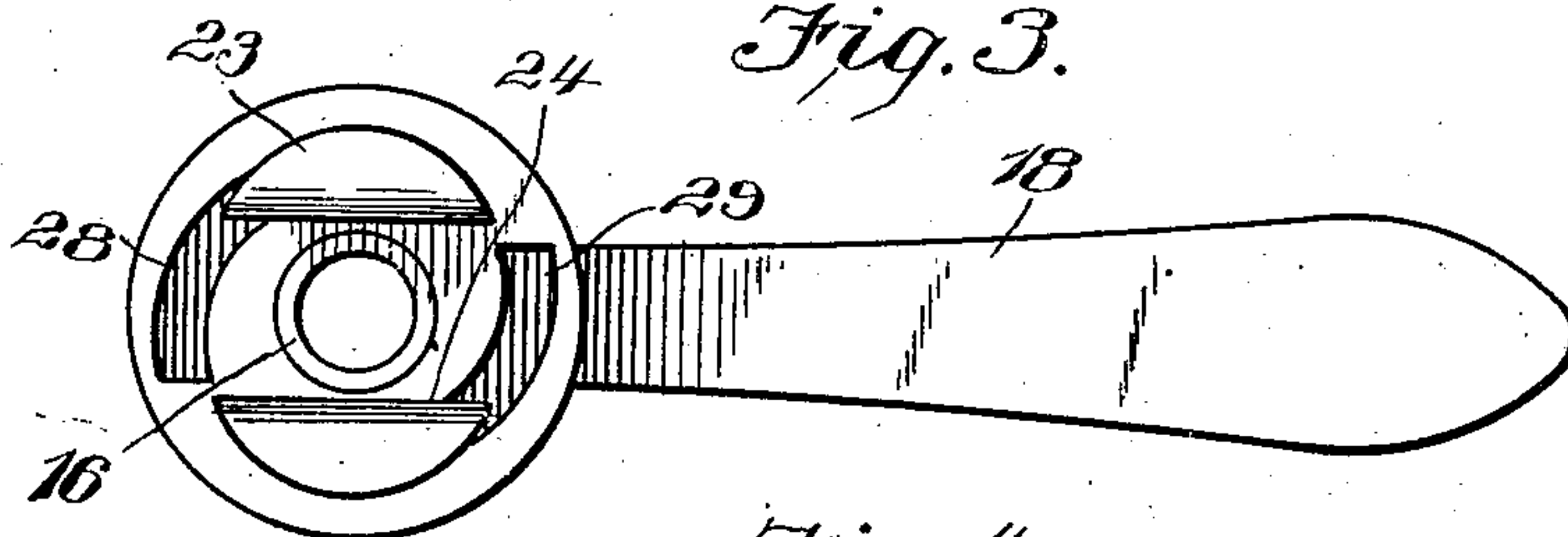


Fig. 4.

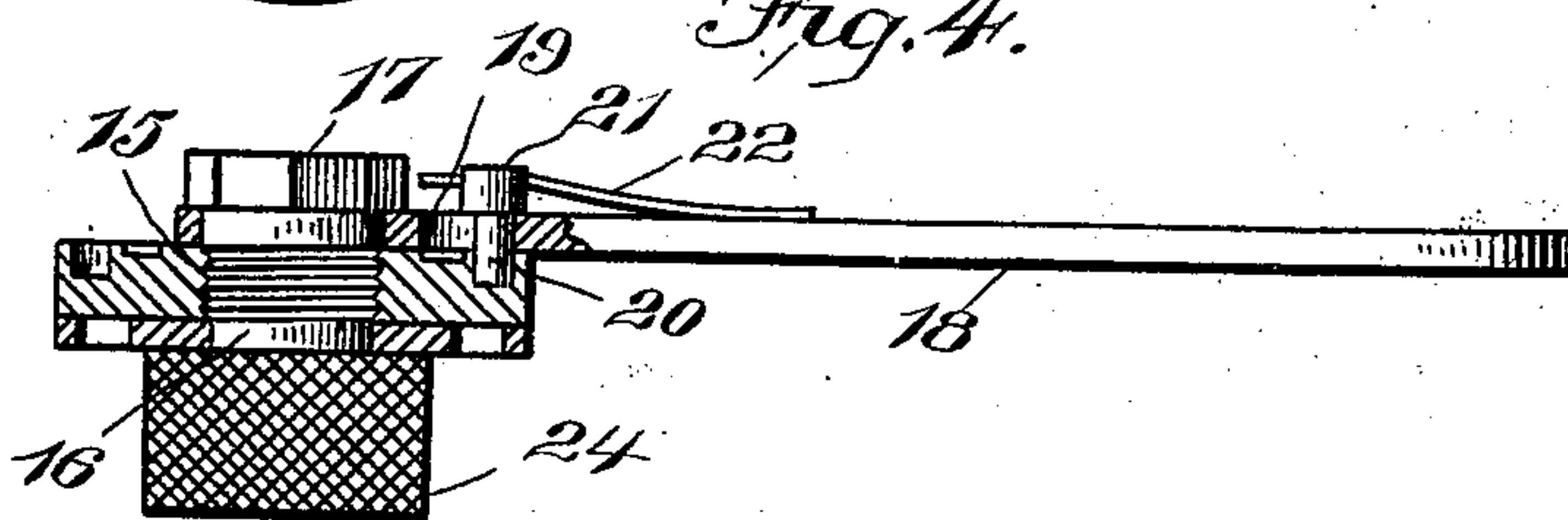


Fig. 5.

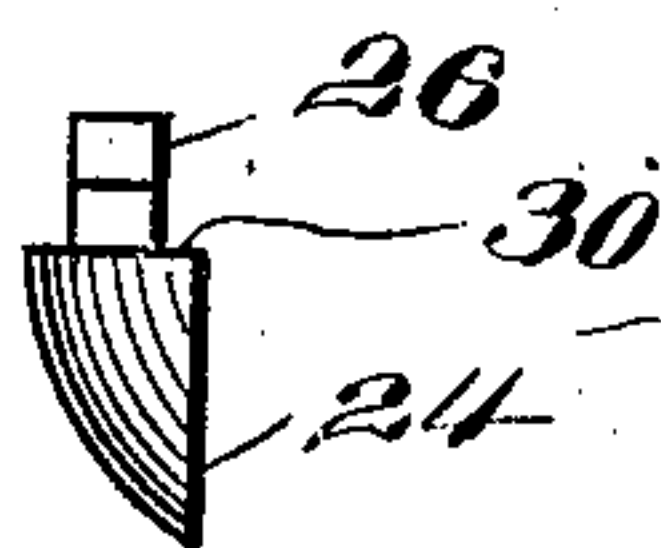
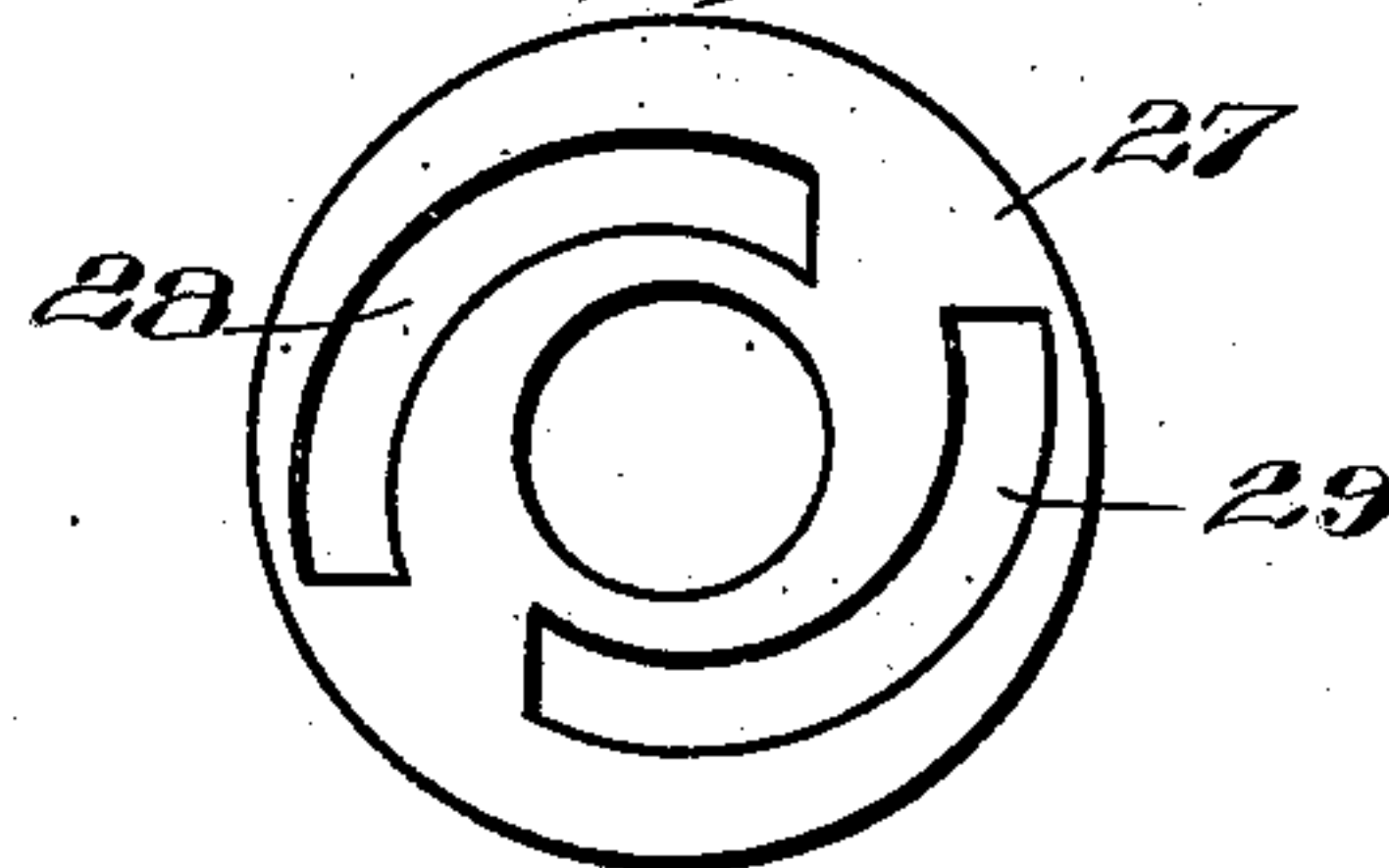


Fig. 6.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## RATCHET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 710,185, dated September 30, 1902.

Application filed February 24, 1902. Serial No. 95,356. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES E. DICKIE, a citizen of the United States, residing at Gillespie, in the county of Macoupin, State of Illinois, have invented certain new and useful Improvements in Ratchet-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 wrenches, and more particularly to the class of ratchet-wrenches; and it has for its object to provide a device of this nature wherein there are provided adjustable means for operating the rotatable head in opposite directions and wherein the parts may be quickly adjusted from one operative position to the other.

A further object of the invention is to provide a construction having but few parts and in which the jaws may be adjusted to grip bodies of different widths and will be held securely in their adjusted position.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a side elevation of the wrench. Fig. 2 is a top plan view of the wrench. Fig. 3 is a bottom plan view of the head of the wrench and showing the gripping-jaws and the cam or adjusting plate. Fig. 4 is a longitudinal section through the head. Fig. 5 is a detailed elevation showing one of the gripping-jaws. Fig. 6 is a plan view of the cam-plate.

Referring now to the drawings, the wrench includes a head consisting of a rack-plate 10, having two angular series of perforations 11 and 12, to which lead the channels 13 and 14, respectively, having inclined bottom walls, the channels of one series extending from the perforations in the direction opposite to the extension of the channels of the other series. Centrally of the rack-plate is a perforation 15, with which is engaged a tubular stud 16, which is screwed into the perforation and at one end of which is a flange 17, between which and the channeled face of the rack-plate is disposed the end of the handle 18, this handle having an opening in its end through which the stud is passed and the handle being held by the flange close against

the rack-plate or ratchet-plate in such manner as to permit it to rotate, while preventing outward movement. In the handle and adjacent to the tubular stud is a longitudinally-extending slot 19, and in this slot is slidably engaged a pin 20, having an enlarged head 21, which rests against the upper face of the handle to limit the movement of the pin through the handle, and the head of this pin is slotted to receive the end of a spring-finger 22, which is fastened to the handle, the spring-finger permitting the pin to be slid through the slotted handle and into position for engagement with the series of perforations interchangeably. Each series of perforations with its communicating channels forms an annular ratchet, so that in whichever position the pin may be if the handle be rocked the pin will move from one perforation up the inclined bottom of the groove and will drop into the next perforation as the handle is moved in one direction and will lie in the perforation to lock the rack-plate or ratchet-plate to the handle for rotation therewith as the handle is moved in the opposite direction, the ratchet-plate being given an intermittent motion.

In order to engage a nut or other body to be rotated with the ratchet-plate, two jaws 23 and 24 are provided, and these jaws have dovetailed stems 25 and 26, which are engaged with the dovetailed radial grooves in the under face of the ratchet-plate. To move the jaws toward and away from each other, a cam-plate 27 in the form of a disk is provided and is disposed against the under face of the ratchet-plate, and this cam-disk has the arcuate slots 28 and 29, through which the stems of the jaws are passed. The slots at one end are in close proximity with the center of the cam-plate and gradually recede therefrom in the direction of their opposite ends, and the cam-plate has a central perforation forming a bearing, which engages the protruding end of the tubular sleeve above referred to. By rotating the cam-plate the inner sides of the slots or the outer sides thereof will press against the stems of the jaws to move the jaws outwardly or inwardly, depending upon the direction of rotation of the plate. It will be noted that the shoulders 30 of the jaws bear directly against the



lower face of the cam-plate and that the jaws are of such width that there is sufficient bearing-surface to permit of the jaws holding the cam-plate from displacement from the tubular stud. With this construction it will be seen that to adjust the jaws it is only necessary to rotate the cam-plate upon the stud, and for this purpose the periphery of the cam-plate is milled, and when the jaws have been properly adjusted a body may be engaged and rotated in one direction or the other, depending upon the position of the pin which forms a pawl for coöperation with the ratchet-disk.

It will be understood that in practice modifications of the specific construction shown may be made and that any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

What is claimed is—

1. A ratchet-wrench comprising a ratchet-plate having oppositely-disposed annular ratchets lying one within the inclosure of the other and a central stud, a handle rotatably mounted upon the stud and provided with a longitudinal slot, a reciprocatory pin slidably mounted in the slot for movement radially of the ratchet-plate into coöperative relation with the ratchets interchangeably said

pin having a slotted head, and a spring attached to the handle and engaged loosely in the slot of the head of the pin to permit of movement of the pin from one ratchet to the other and to hold the pin yieldably in engaging position.

2. A ratchet-wrench comprising a ratchet-disk having annular ratchets on one face and provided with a central stud projecting at opposite sides thereof, a handle rotatably mounted upon the stud and having a pawl for engagement with the ratchets interchangeably, said ratchet-disk having radial grooves in its opposite face, a disk mounted upon the stud at the opposite side of the ratchet-plate from the handle and having cam-slots therein, and jaws having stems and adjacent shoulders, the stems of the jaws being passed through the slots of the cam-disk and into the slots of the ratchet-plate with the shoulders of the jaws against the outer face of the cam-disk to hold the latter upon the stud.

In testimony whereof I hereunto sign my name in the presence of two subscribing witnesses.

JAS. E. DICKIE.

Witnesses:

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