

(No Model.)

J. M. SILVIS.

WRENCH.

No. 387,456.

Patented Aug. 7, 1888.

Fig. 1.

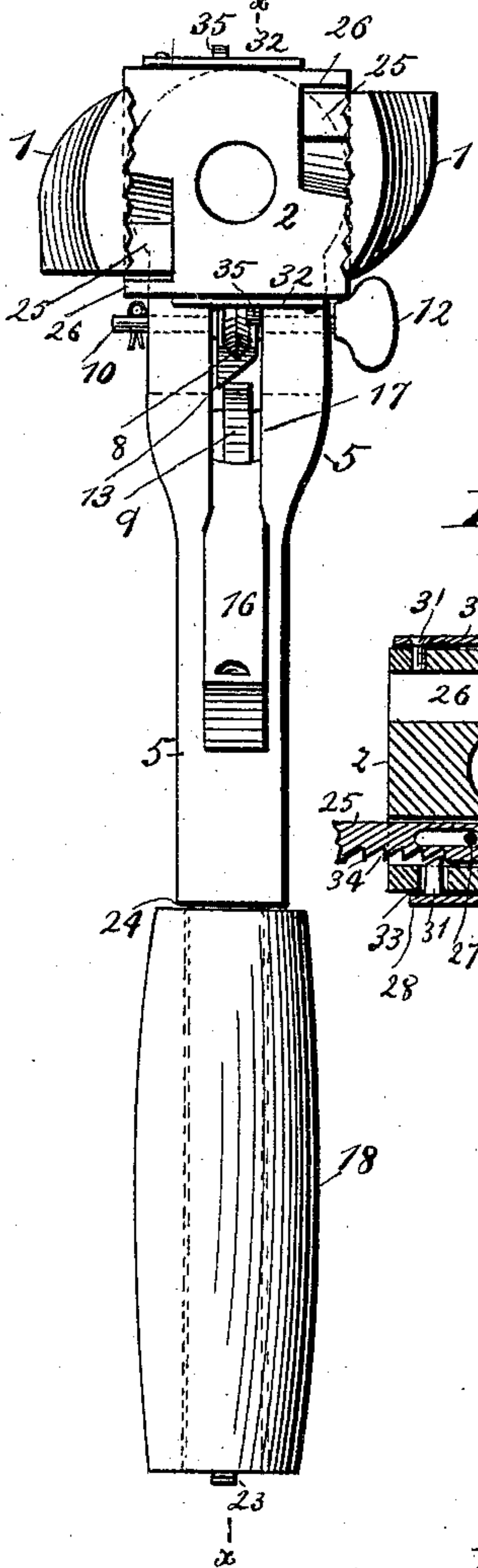


Fig. 2.

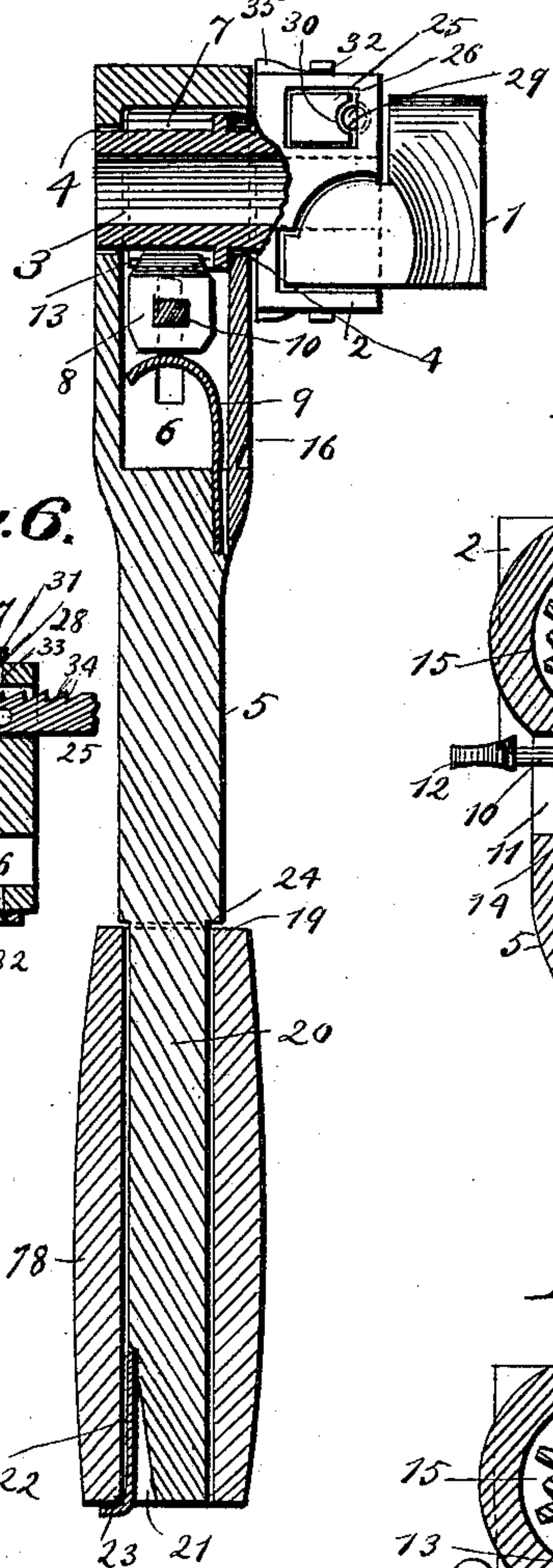


Fig. 6.

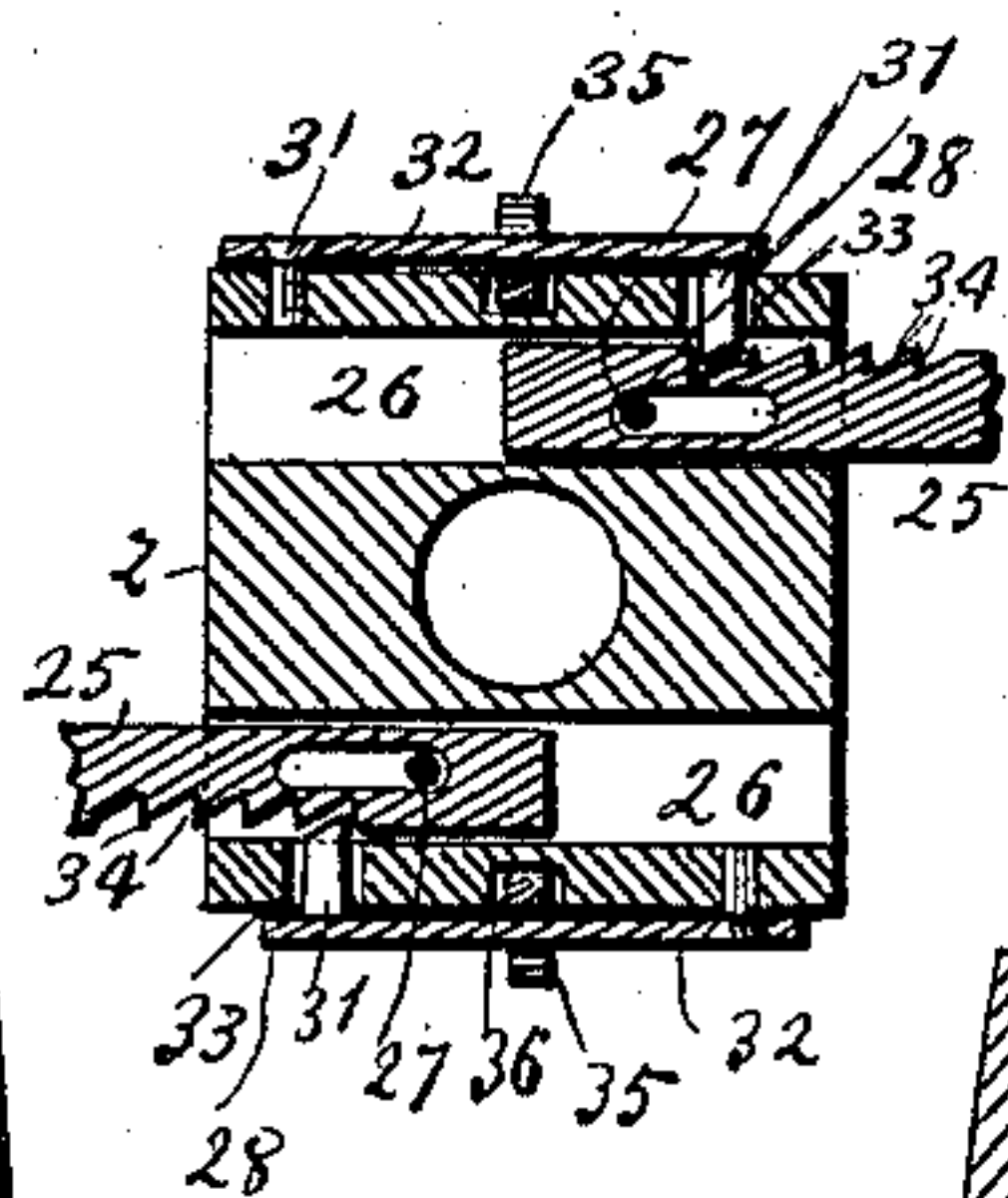


Fig. 3.

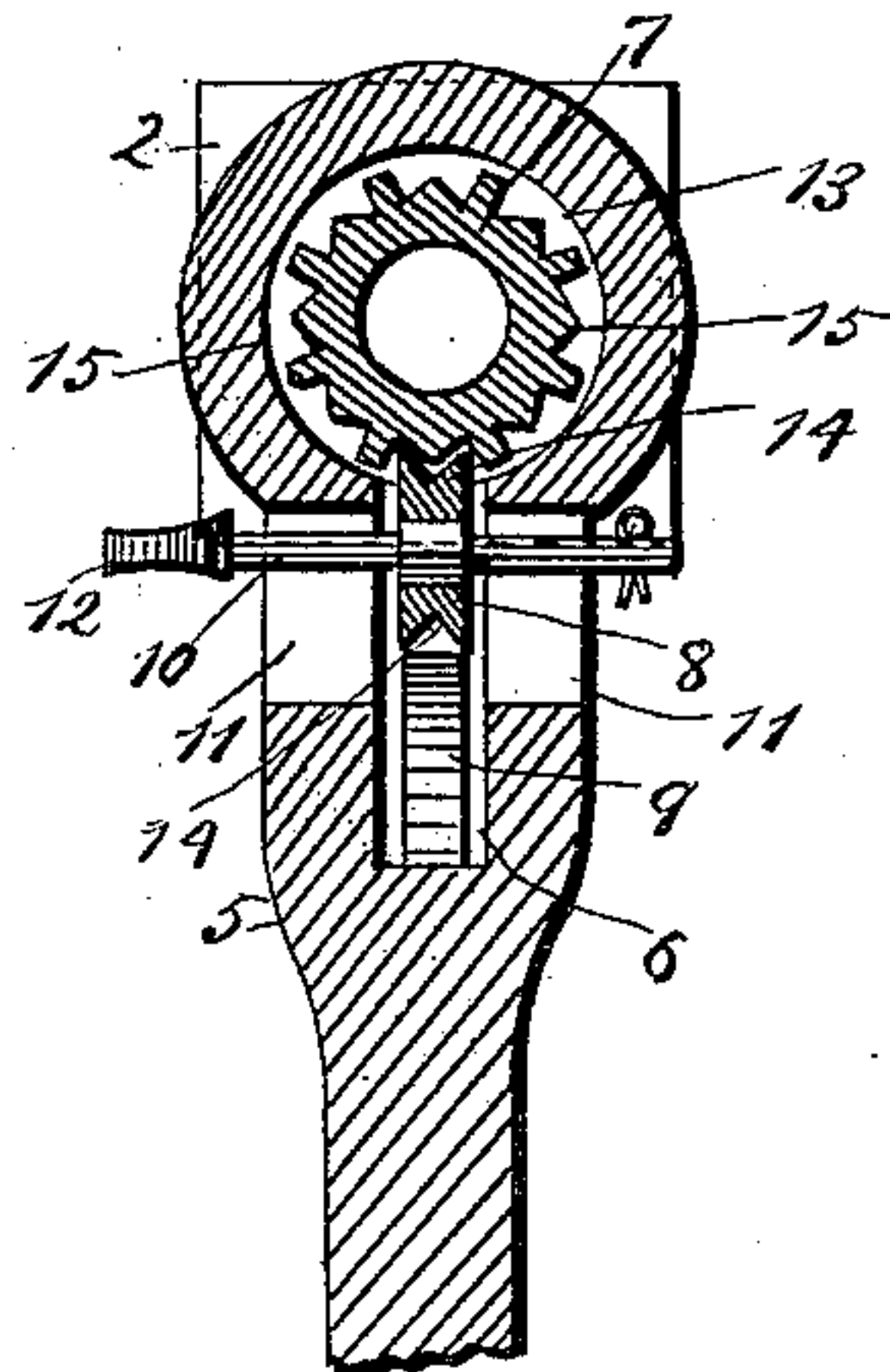


Fig. 4.

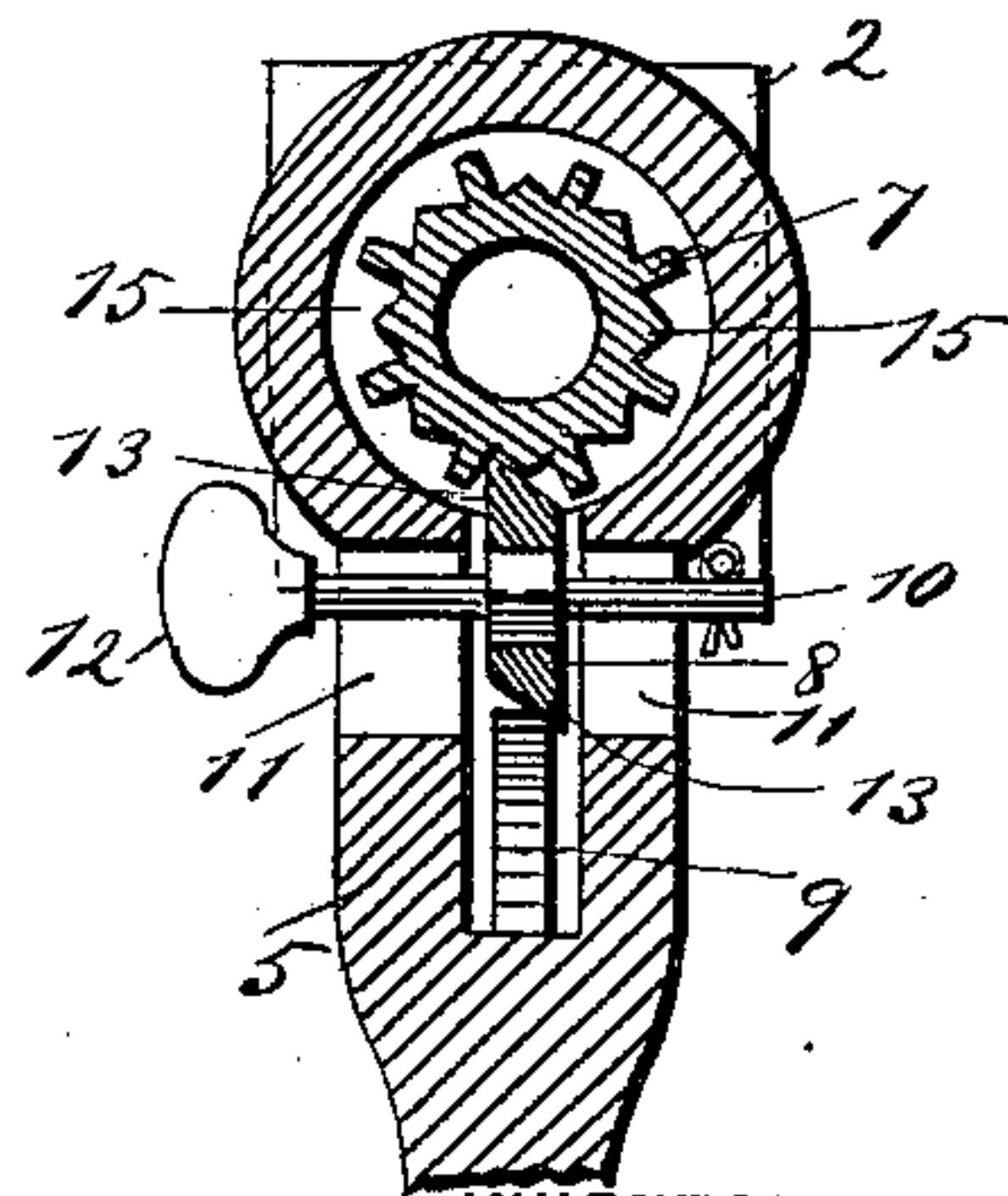
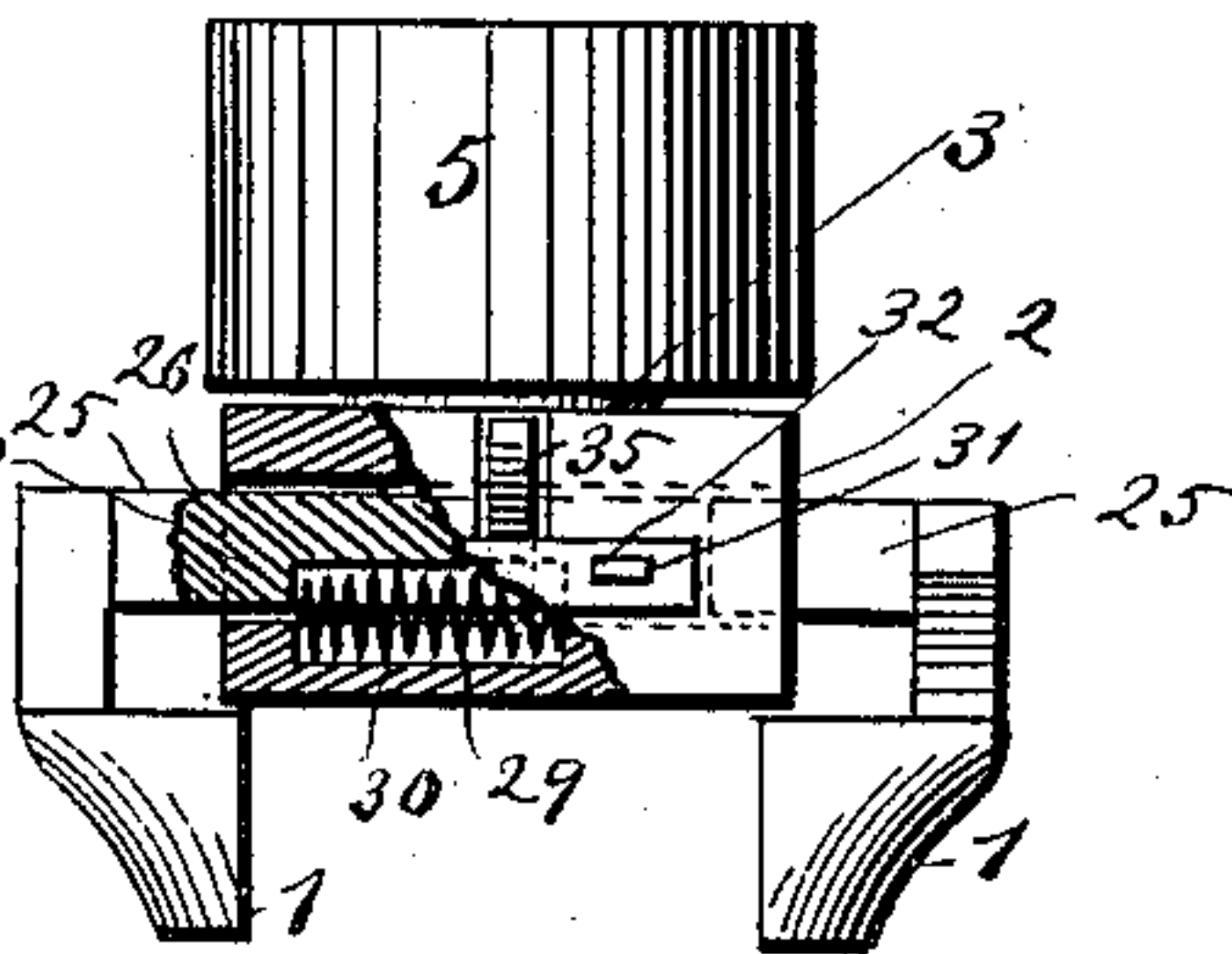


Fig. 5.



WITNESSES:

Phil. C. Dietrich,
C. Sedgwick.

INVENTOR.

J. M. Silvis,
BY Munn & Co.

ATTORNEY.

UNITED STATES PATENT OFFICE.

JONATHAN MOORE SILVIS, OF KITTANNING, PENNSYLVANIA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 387,456, dated August 7, 1888.

Application filed May 17, 1888. Serial No. 274,184. (No model.)

To all whom it may concern:

Be it known that I, JONATHAN MOORE SILVIS, of Kittanning, in the county of Armstrong and State of Pennsylvania, have invented a new and Improved Wrench, of which the following is a full, clear, and exact description.

This invention relates to wrenches, and has for its object to provide a wrench so constructed and arranged as to be easily adjusted and operated.

The invention consists in a wrench constructed as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the figures.

Figure 1 illustrates a wrench constructed in accordance with this invention, with a portion partly removed, disclosing a portion of the internal mechanism. Fig. 2 is a vertical section thereof on the line *x x*, Fig. 1. Fig. 3 is a detail, with parts in section and broken away, of the head of the wrench, showing the ratchet and pawl locked in position. Fig. 4 is a similar view showing the ratchet mechanism unlocked. Fig. 5 is a plan view of the head of the wrench, and Fig. 6 is a horizontal section thereof.

In the construction of this invention sliding jaws 1 are mounted in a support, 2, having a tubular shank, 3, located in correspondingly-shaped openings 4 in the end of the shank 5. The shank 3 extends across the upper end of a chamber, 6, in the end of the shank 5, and is formed with a ratchet, 7, with which a pawl, 8, is held in engagement by means of a spring, 9, secured to the bottom of chamber 6. The pawl 8 is mounted on a rod, 10, extending through openings 11 in the sides of the chamber 6, and provided with an operating handle or button, 12. By means of this construction the pawl 8 is permitted to have a vertical yielding movement, to allow the ratchet-teeth 7 to slip over it in rotating the jaws 1 with their support 2. The pawl 8 is formed with two oppositely-beveled sides, 13, and two oppositely V-shaped notched sides, 14, and the ratchet 7, with projections 15, corresponding to the notches of sides 14, and alternating with the teeth of ratchet 7.

By rotating the rod 10 a quarter of a turn a notched side, 14, is brought into engagement with a projection, 15, as in Fig. 3; or a beveled side, 13, is projected into the path of the line of movement of ratchet 7, as shown in Fig. 4. In the former case the pawl 8 locks the ratchet, thereby preventing the wrench from acting as a ratchet-wrench, and in the latter case the pawl and ratchet are permitted to act when it is desired to use the wrench as a ratchet-wrench. Access is had to the chamber 6 by means of a detachable slide, 16, covering an opening, 17, in the side of the chamber 6.

The handle 18 of the wrench is preferably formed with a square hole, 19, in which is located the square end 20 of shank 5, having at its lower end a recess, 21, in which is a spring-catch, 22, having a bent end, 23, which engages the end of handle 18 and secures it in shortened position, with its upper end resting against the shoulder 24 of shank 5. By means of this construction the handle of the wrench may be lengthened by disengaging the bent end 23 from the end of handle 18 and extending the latter on the square end 20 of shank 5 to any distance desired.

The sliding jaws 1 are adjustable on the support 2 for different-sized nuts by the following-described means: The jaws 1 are formed with shanks 25, which are located in sockets 26 in the support 2, and limited in their outward movement by means of pins 27 in the sockets 26, engaging slots 28. The jaws are automatically moved into extended position by means of coiled springs 29, located in the recesses 30, formed in the shanks 25 and the adjacent side of the sockets 26, and are held in adjusted position by means of a pin, 31, on the end of a spring, 32, secured to the support 2, the pin 31 passing through a hole, 33, in the latter and engaging a series of teeth, 34, on the shank 25. The pin 31 is released from engagement with the teeth 34 by means of a projection, 35, located in a recess, 36, in support 2, and bearing against the spring 32.

The jaws 1 may be set to the desired adjusted position by first releasing their shanks, the springs 29 thereupon moving them into extended position, and then pushing the jaws

toward each other until the nut is clamped, when, the pins 31 engaging the teeth 34, the jaws will be held in position for turning the nut. The latter may be done either by the
 5 pawl-and-ratchet movement or with the ratchet and pawl locked, as hereinbefore set forth. The jaws 1 are readily disengaged from the nut by pulling out the springs 32 by means of the projections 35.

10 By means of this invention a wrench is provided which can be readily changed to operate as a ratchet-wrench or plain wrench, and the jaws thereof easily adjusted to and released from a nut. The wrench will work between
 15 bars or in close quarters where other forms of wrench cannot be used. By means of the tubular shank of the jaw-support, the head of the wrench may go over the end of the bolt.

20 While I have described a specific construction of parts, I do not intend to limit myself thereto, as they may be varied without departing from the essential features of the invention.

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

1. In a ratchet-wrench, the shank 5, having its head formed with a chamber, 6, provided with slots 11 in its sides, the pawl 8, formed with alternating beveled sides 13 and notched
 30 sides 14 in said chamber, the rod 10, extending through slots 11 and having a handle, 12, and carrying said pawl, and the spring 9, mounted in chamber 6 and bearing on said pawl, in combination with the supports 2, having tubu-
 35 lar shank 4 extending through chamber 6, the ratchet 7, with projections 15, alternating with ratchet-teeth and located in chamber 6 adjacent to pawl 8, and the spring-actuated sliding jaws 1 in said support 2, substantially
 40 as shown and described.

2. In a ratchet-wrench, the shank 5, having its head formed with a chamber, 6, provided with slots 11 in its sides, the pawl 8, formed with alternating beveled sides 13 and notched
 45 sides 14 in said chamber, the rod 10, extending through slots 11 and having a handle, 12, and carrying said pawl, and the spring 9, mounted in chamber 6 and bearing on said pawl, in combination with the supports 2, having tubu-
 50 lar shank 4, extending through chamber 6, the ratchet 7, with projections 15, alternating with ratchet-teeth and located in chamber 6 adjacent to pawl 8, and the spring-actuated sliding
 55 jaw 1, having shanks 25, with teeth 34, located in sockets 26 in support 2, and springs 32, provided with pins 31 and having projections 35, the pins 31 engaging the teeth 34, substantially as described.

3. In a wrench, the combination, with the shank 5, provided with tubular openings 4 in
 60 its upper end, the supports 2, having tubular shanks 3, fitting in the openings 4, said supports having sockets 26, provided with stop-pins 27 and spring-actuated pins 31, of the ad-
 65 justable sliding jaws 1, having shanks 25 adapted to slide in the sockets 26, said shanks provided with slots 28, engaging with the pins 27, whereby the outward movement of the jaws is limited, said shanks provided with teeth
 70 34, engaged by the pins 31, and the spring 29, entered in the socket 26, and a socket, 30, formed in the end of the shank 25, all arranged substantially as and for the purposes described.

JONATHAN MOORE SILVIS.

Witnesses:

S. H. McKEE,
 SIMON TRUBY, Jr.