

(No Model.)

E. A. GILBERT & J. S. OLIVER.  
RATCHET WRENCH.

No. 552,121.

Patented Dec. 31, 1895.

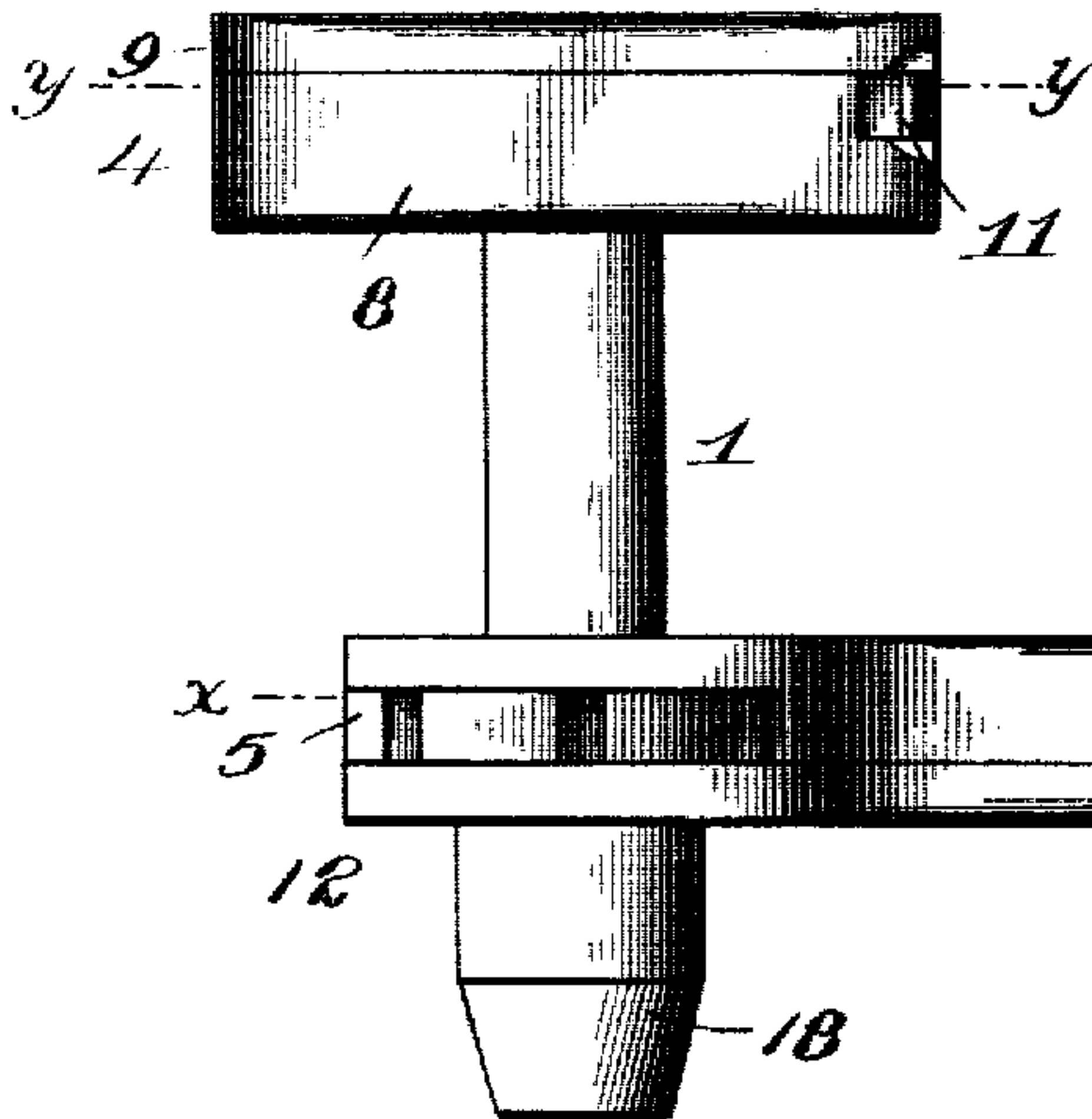


Fig. 1.

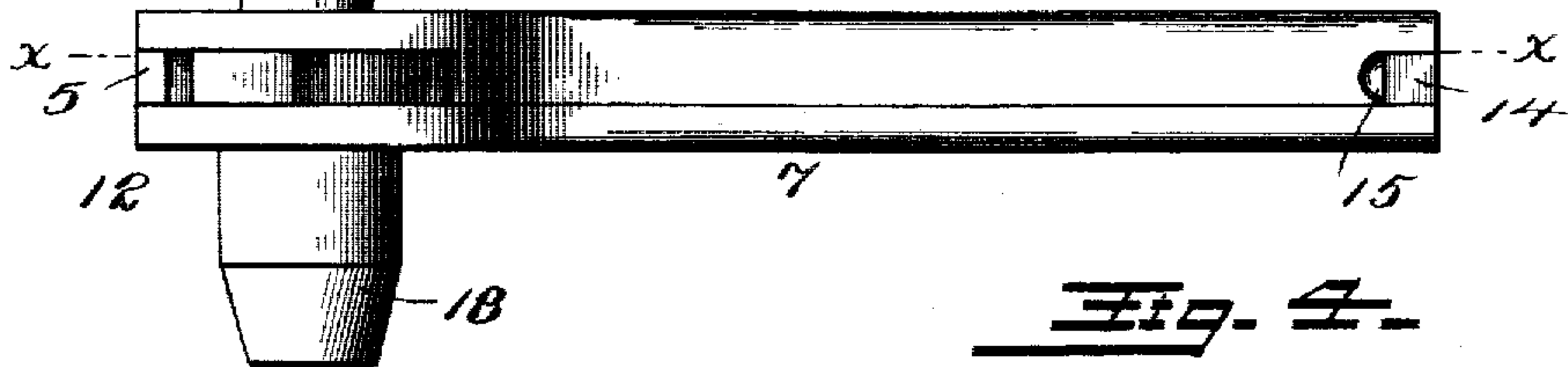


Fig. 2.

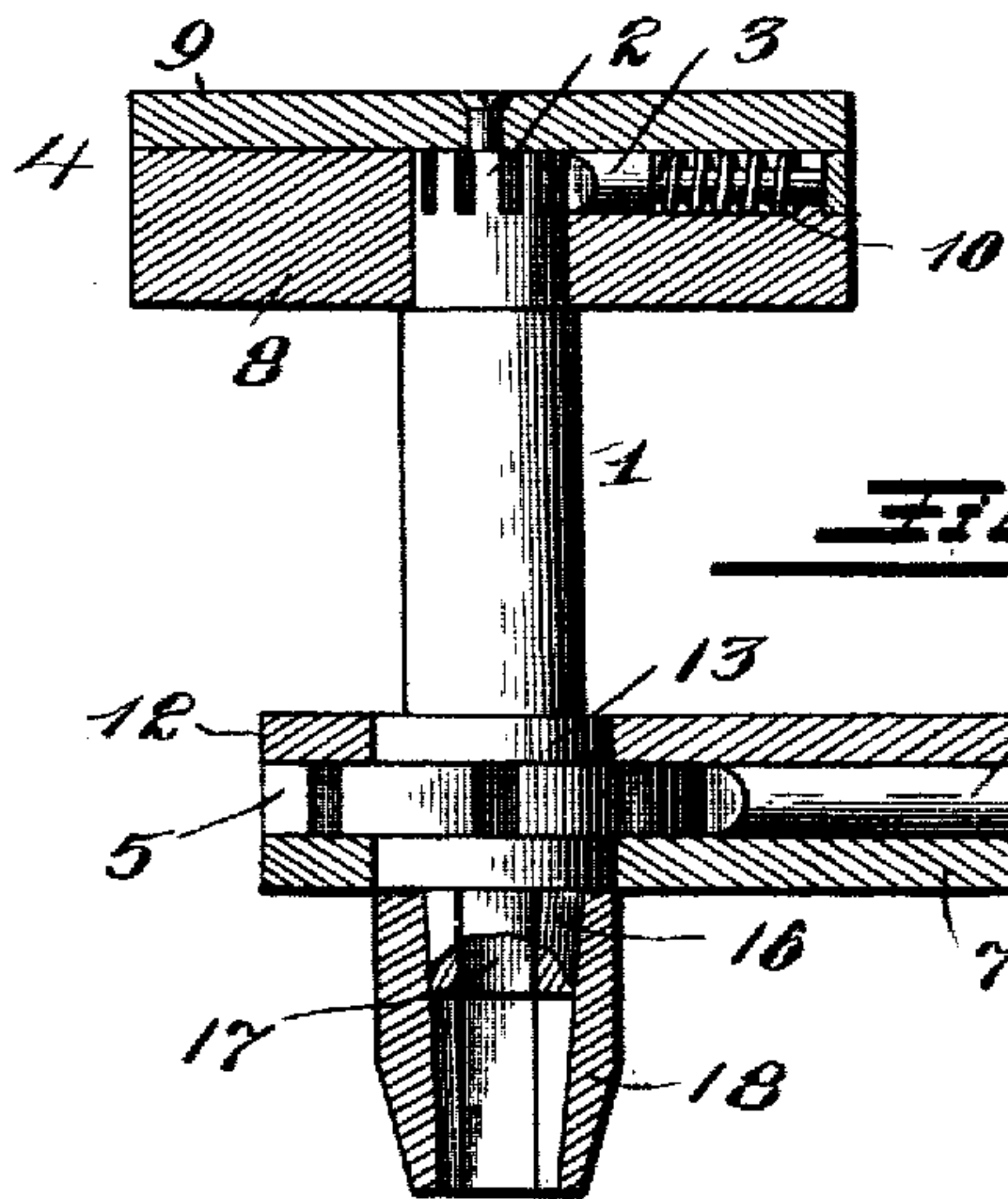


Fig. 3.

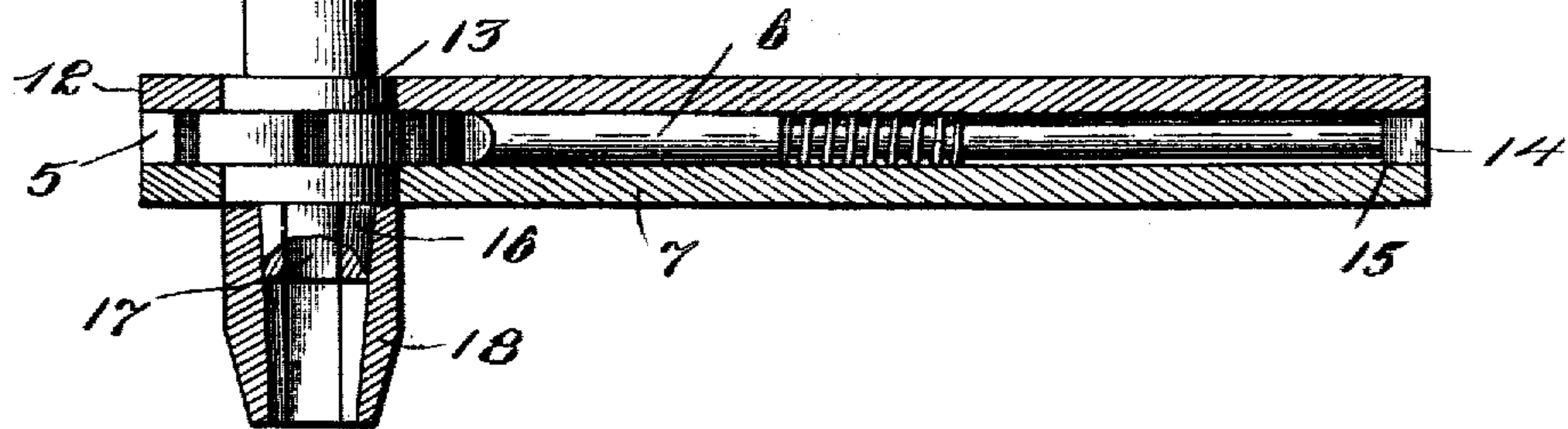
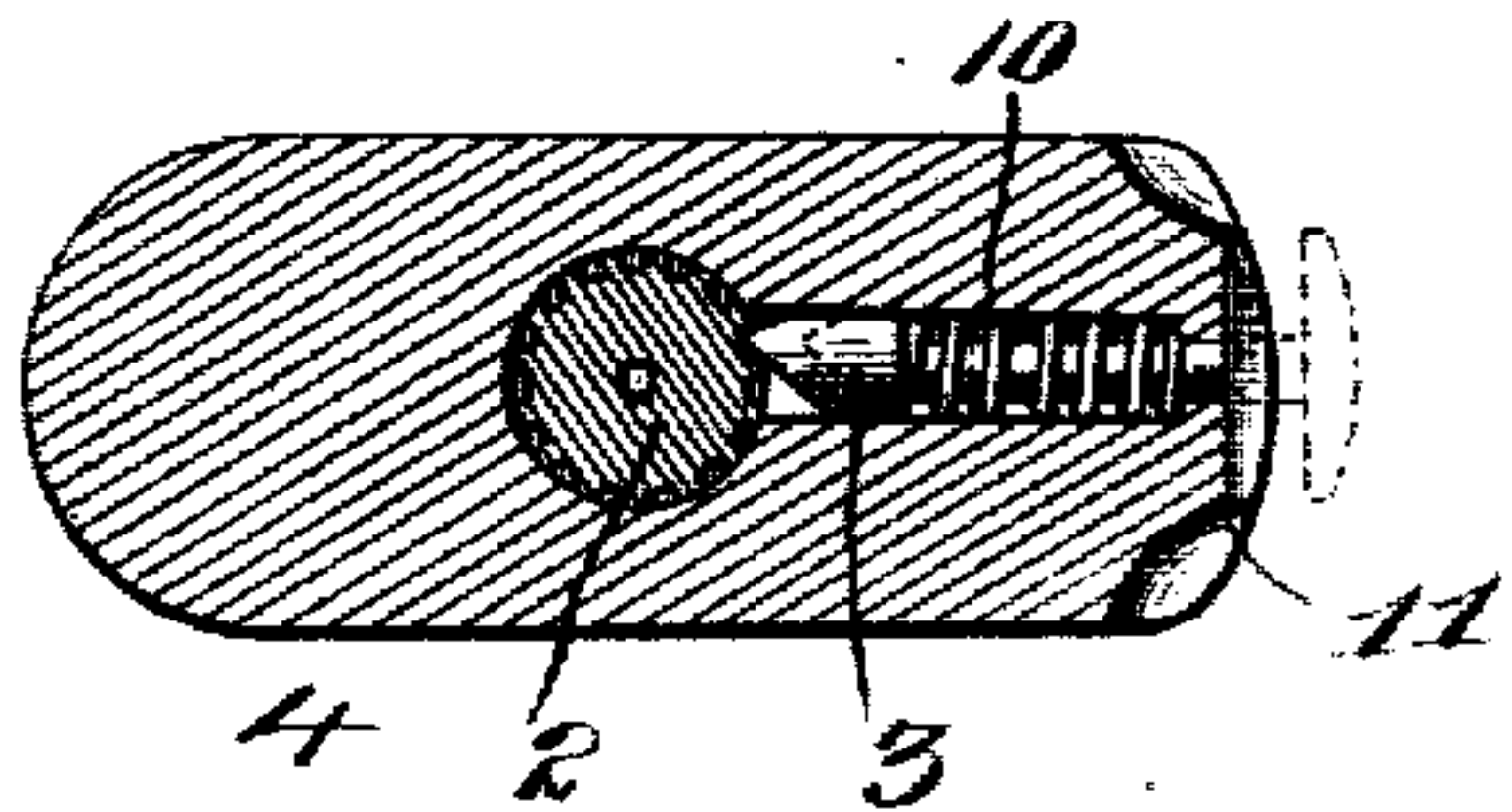


Fig. 5.

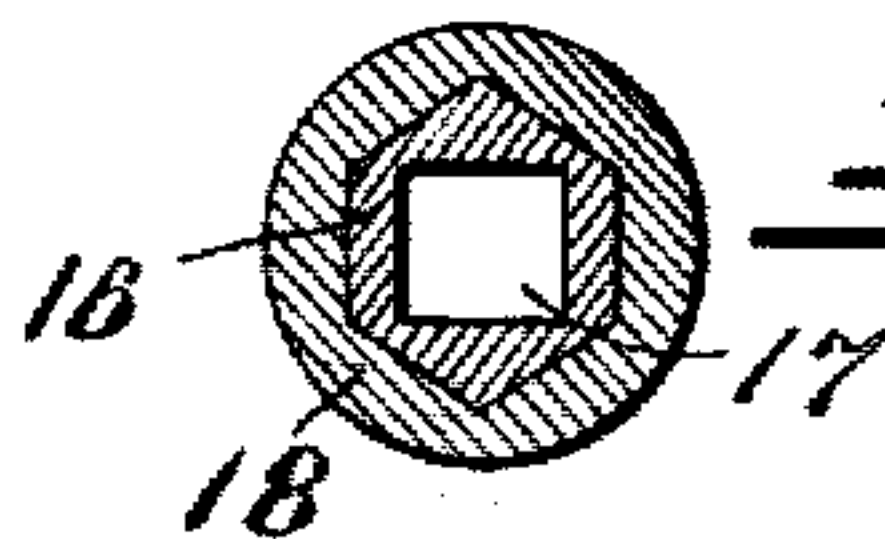
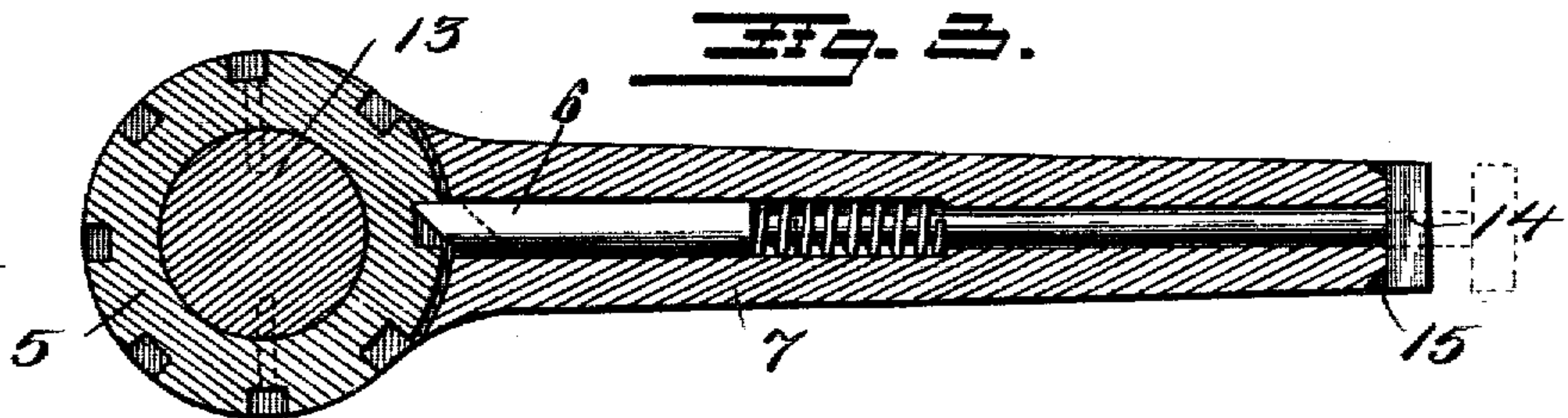


Fig. 7.

Witnesses

*H. J. Loerth.*  
*J. F. Riley*

By their Attorneys,

Inventors  
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*and*  
*Joseph S. Oliver,*

*C. A. Snow & Co.*



# UNITED STATES PATENT OFFICE.

EDWARD ALLEN GILBERT AND JOSEPH S. OLIVER, OF KISSIMMEE, FLORIDA.

## RATCHET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 552,121, dated December 31, 1895.

Application filed October 21, 1895. Serial No. 566,379. (No model.)

*To all whom it may concern:*

Be it known that we, EDWARD ALLEN GILBERT and JOSEPH S. OLIVER, citizens of the United States, residing at Kissimmee, in the county of Osceola and State of Florida, have invented a new and useful Ratchet-Wrench, of which the following is a specification.

The invention relates to improvements in ratchet-wrenches.

The object of the present invention is to improve the construction of ratchet-wrenches, and to provide one which will be especially adapted for operating on the nuts of fish-plate bolts and the like, and which will be adapted for drilling and analogous uses where the ratchet device is most effectual.

A further object of the invention is to provide such a ratchet device in which the parts may be arranged to change the direction of the pawls to enable the device to be operated in either direction, to the right or to the left.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a side elevation of a wrench constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view. Fig. 3 is a sectional view on line XX of Fig. 1. Fig. 4 is a similar view on line YY of Fig. 1. Fig. 5 is a detail sectional view illustrating the construction of the removable nut-receiving socket.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a shaft provided at one end with ratchet-teeth 2, which are engaged by a spring-actuated pawl 3 of a head 4, and the shaft has fixed to it adjacent to its other end a ratchet-wheel 5, which is engaged by a similar spring-actuated pawl 6 of an operating lever or handle 7. The head 4 is swiveled to the shaft 1 and is provided with a socket to receive the same, and it is preferably composed of a body 8 and a removable plate 9. The body 8 is provided with a longitudinal recess communicating with the opening or socket, which receives the end of the shaft 1, and the pawl 3 is arranged in the longitudinal recess and has disposed on it a spiral spring 10, which engages

a shoulder of the pawl, and a suitable shoulder or stop of the head, whereby the spring is adapted to throw the pawl inward into engagement with the teeth 2. The pawl is beveled at one side, and is adapted to pass over the ratchet-teeth when the latter are brought against the beveled face of the pawl, and it is capable of checking the rotation of the shaft when the teeth are brought against the shoulder of it, and the outer end of the pawl is provided with a handle, which normally fits within a transverse recess or bifurcation 11 of the head, and is held therein by the spring 10. When it is desired to change the direction of the ratchet, the pawl is drawn outward sufficiently to disengage its handle from the transverse recess 11, and it is given a half-turn, the spring serving to draw the pawl into the transverse recess again to lock it against accidental rotation.

The operating lever or arm 7 is provided with flanges or ears 12, which are arranged on an enlargement 13 of the shaft at opposite sides of the ratchet-wheel, and it is provided with a longitudinal bore or opening in which is arranged the pawl 6, which is actuated by a spring 13 and which is provided at its outer end with a handle or head 14, fitting within a transverse recess or bifurcation 15 of the outer end of the arm or lever. The pawl is adapted to be reversed by withdrawing the handle or head out of engagement with the recess or bifurcation 15 to change the direction of the ratchet, similar to the pawl 3, and its engaging end is beveled in a like manner. The arm or lever is preferably composed of a body portion and a removable plate secured to the body portion, similar to the plate 9 of the head 4.

The shaft 1 is provided with a polygonal end 16, having a rectangular socket 17, and adapted to receive a removable socket 18 or a chuck to enable the device to receive a drill or other tool. By this construction the device is adapted to be employed as a wrench or a drill, and it is adapted to be readily employed for any analogous purpose where a ratchet device is desirable or advantageous.

It will be seen that the wrench is simple and inexpensive in construction, that it is positive and reliable in operation, and that its pawls may be readily reversed to change the



direction of the ratchet. It will also be apparent that it may be conveniently employed as a wrench, drill, or the like, and that it will be found especially advantageous for operating  
5 on nuts or bolts which secure fish-plates to the rails and the like.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any advantages of the invention.  
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What we claim is—

1. In a device of the class described, the combination of a shaft provided at one end with ratchet teeth, a head swiveled to the shaft  
15 and receiving the ratchet teeth and provided with a transverse recess or bifurcation, a reversible spring actuated pawl mounted on the head and provided at its outer end with a handle engaging the said recess or bifurcation and  
20 adapted to be drawn outward to permit the pawl to be reversed, a ratchet wheel fixed to the shaft, an arm or lever journaled on the shaft contiguous to the ratchet wheel and provided at its outer end with a transverse recess or  
25 bifurcation, and a longitudinally disposed spring actuated pawl 6 mounted in the arm or lever and engaging the ratchet wheel and pro-

vided at its outer end with a head fitting in the bifurcation or recess of the arm or lever, said pawl 6 being capable of reversal, when  
30 its head is turned out of engagement with the recess or bifurcation, substantially as described.

2. In a device of the class described, the combination of a shaft provided at one end  
35 with ratchet teeth and adapted to receive a nut socket on its other end, a ratchet wheel fixed to the shaft, a head swiveled to the shaft and receiving the ratchet teeth, an operating arm or lever journaled on the shaft adjacent  
40 to the ratchet wheel, and the reversely spring actuated pawls mounted in the head and the operating arm or lever, and engaging the ratchet teeth of the shaft and the ratchet  
45 wheel, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

EDWARD ALLEN GILBERT.  
JOSEPH S. OLIVER.

Witnesses:

J. W. HARWELL,  
C. A. WALDRON.