

(No Model.)

C. E. ABRAMS.
RATCHET WRENCH.

No. 395,865.

Patented Jan. 8, 1889.

Fig. 1.

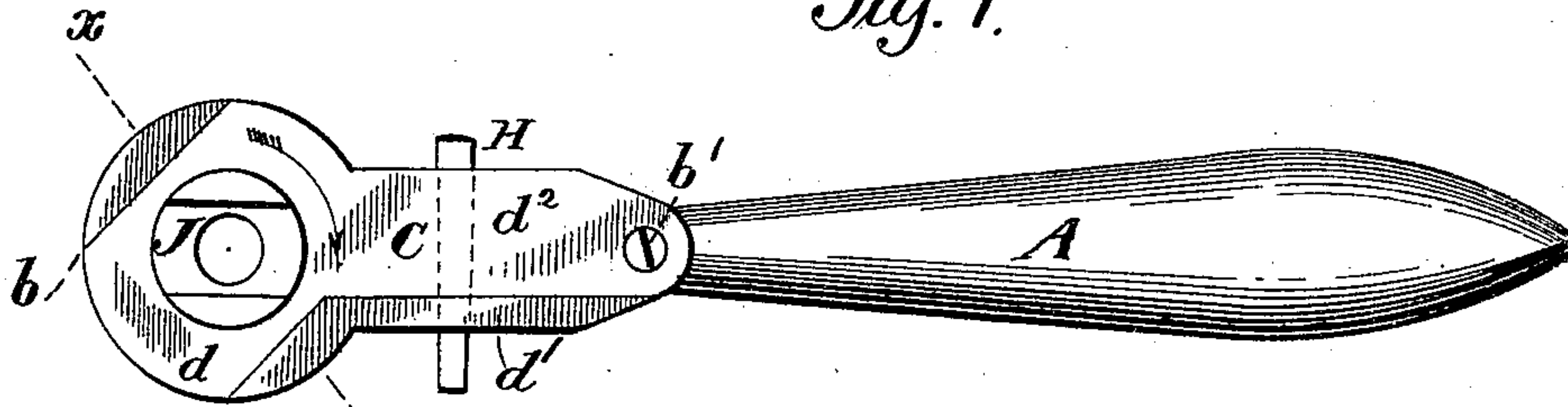


Fig. 2.

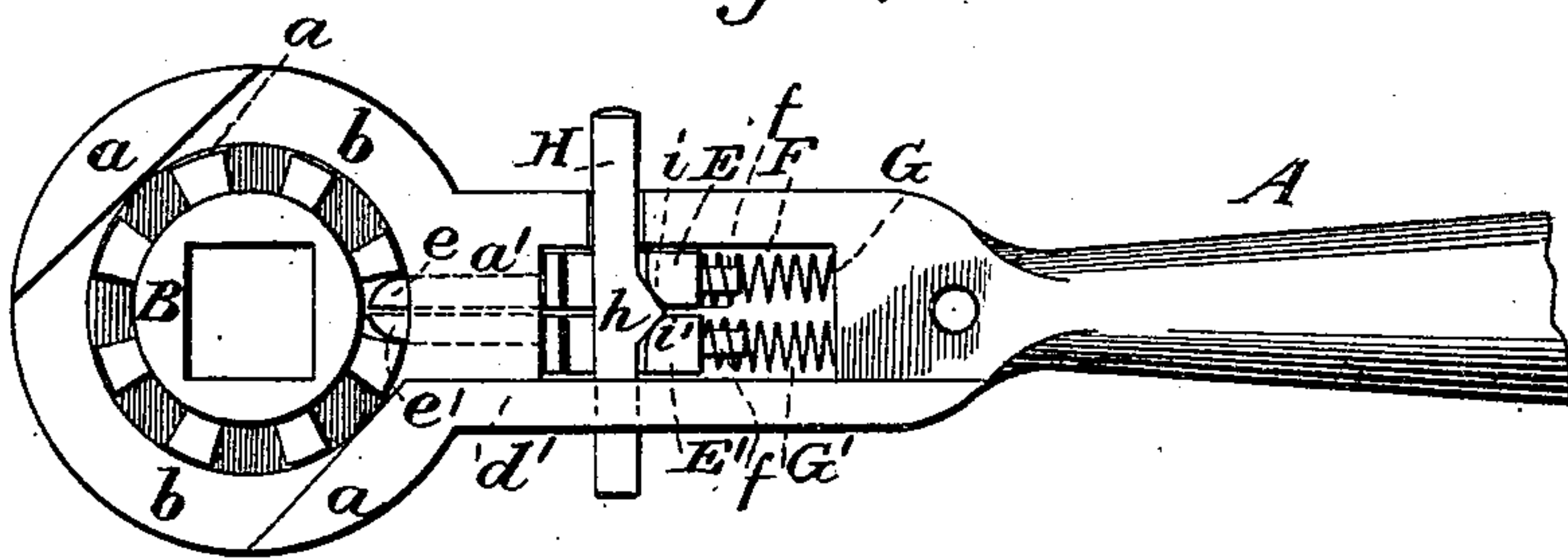


Fig. 3.

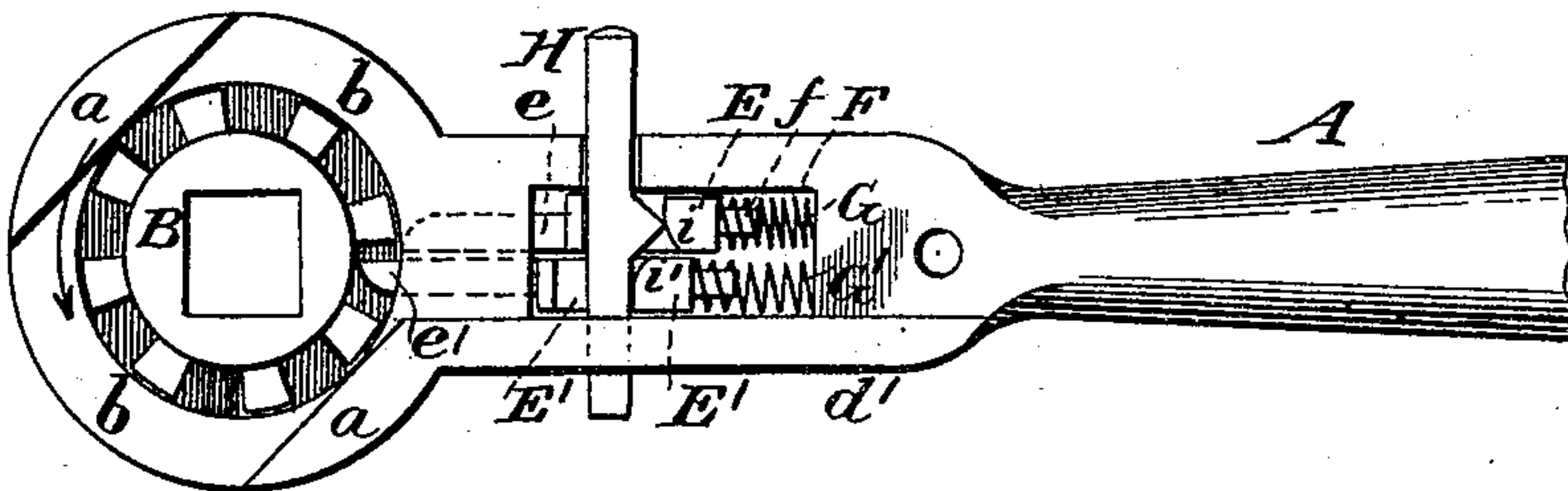


Fig. 4.

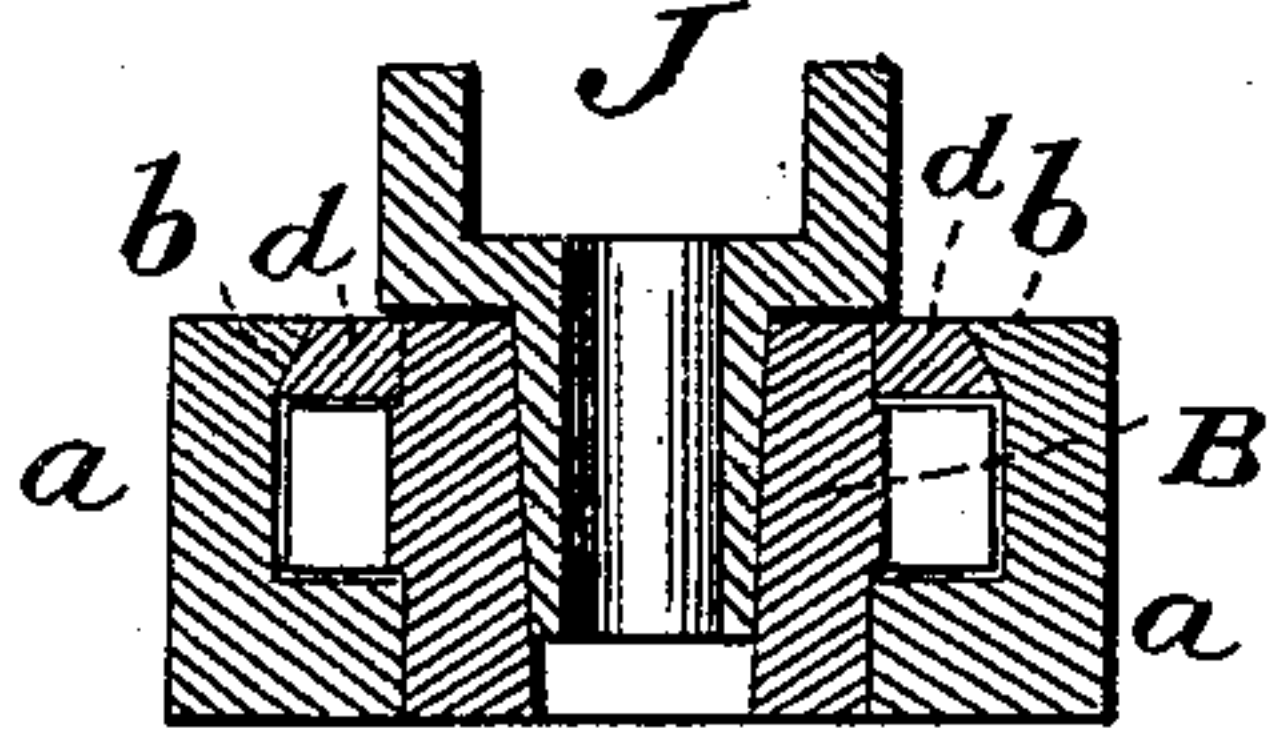
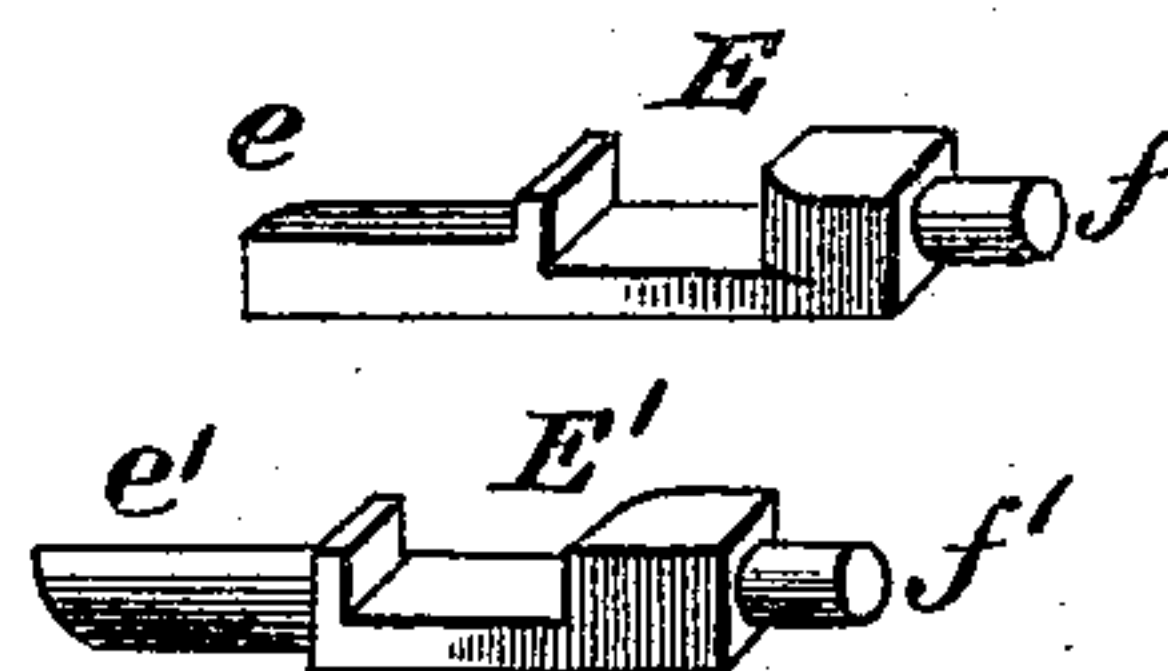


Fig. 5.



Witnesses.

A. Ruppert.

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UNITED STATES PATENT OFFICE.

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RATCHET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 395,865, dated January 8, 1889.

Application filed September 11, 1888. Serial No. 285,144. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. ABRAMS, a citizen of the United States, residing at Chatham, in the county of Columbia and State of New York, have invented certain new and useful Improvements in Ratchet-Wrenches; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to ratchet-wrenches which are susceptible of being set to operate to the left or to the right, as required. Heretofore various means have been employed to reverse the operation of the wrench, most of which have been cumbersome and expensive.

The object of the present invention is to simplify the reversing devices and to contrive a means for retracting one pawl and projecting the other in the path of the teeth of the ratchet-wheel at one and the same operation of a sliding bar.

The improvement consists in a bar arranged to move transversely across the handle and provided with a double inclined cam which is adapted to ride on and depress one or the other of the two pawls which are provided to operate on the ratchet-wheel and throw it in and out of the path of the ratchet-wheel, and which will at the same time permit the other pawl to be projected within the path of the teeth of the ratchet-wheel to operate it. The ends of the reversing-bar project beyond the sides of the handle, to be struck by a hammer or other instrument when reversing the wrench.

The improvement further consists in the novel features, which will be more fully hereinafter described and claimed, and shown in the accompanying drawings, in which—

Figure 1 is a front view of a wrench embodying my invention. Fig. 2 is a front view of the head of the wrench having the cap-plate removed. Fig. 3 is a front view showing one of the pawls projected and the other retracted. Fig. 4 is a cross-section on line *xx* of Fig. 1, and Fig. 5 is a perspective view of the two pawls detached from the handle.

The handle or stock A of the wrench is pro-

vided with the usual recessed head, *a*, in which is fitted the ratchet-wheel B, of well-known construction, in the ordinary manner. The oblique recess *b*, formed in the face of the head *a*, receives the head *d* of the cap-plate C, and the flange *d'* on one side of the handle forms a stop for the tongue *d²* of the said cap-plate C. The upper edge of the head of the cap-plate is beveled outward, and the upper wall of the recess *b* is undercut or correspondingly beveled inward to overlap the said edge of the head *d* and hold it in position. The tongue *d²* is held to the handle by a screw, *b'*, or other fastening device. The pawls E and E', arranged parallel with the handle, are fitted in the recess F in the handle and have their ends *e* and *e'* reduced and working through an opening in the solid portion *a'* between the head *a* and the recess F. The lower ends of the pawls have guide-extensions *ff'*, which receive the upper ends of the springs G and G', that are interposed between the lower ends of the said pawls and the lower end of the recess F. The reversing-bar H, placed transversely across the handle and fitted in recesses in the sides of the pawls E and E', is provided with the double cam *h*, which is adapted to bear on the lower walls of the recesses in the said pawls and retract one or both of the pawls. One end of the bar works through an opening in the side of the handle having the flange *d²*. The other end is fitted in a notch in that part of the handle opposite the flange *d²* and to one side of the recess F. When the cap-plate is detached, the bar H can be removed by lifting the end fitted in the notch and drawing it endwise, which disengages its other end from the opening in the flanged side of the handle.

The operation of the wrench is as follows: The reversing-bar being set so that the cam *h* thereon comes midway between the opposing sides of the pawls, both ends of the pawls will project within the path of the ratchet-wheel and lock it against rotation in either direction. This will be understood when it is observed that the inner corners, *i* and *i'*, of the pawls are beveled to receive the end of the cam *h*, which fits in the space formed thereby. By tapping the bar to the left the pawl E will be depressed and the pawl E' will be in an operative position and the wrench can be used as a right-hand wrench. By tapping the bar H

to the right the pawl E' will be depressed and the pawl E will be projected by the spring G, and the wrench is changed from a right-hand to a left-hand wrench. The outer ends of the
5 pawls are oppositely beveled to permit them to ride the teeth of the ratchet-wheel when the handle is moved back to obtain a free sweep therefor on its forward movement.

The ratchet-wheel has its usual angular
10 opening through it, in which the shank of the stock J is fitted. This stock is adapted to fit the heads of taps, and different stocks may be provided to adapt the wrench to a variety of uses for different-sized drills, nuts, taps, &c.,
15 as will be readily comprehended.

What I claim to be new, and desire to secure by Letters Patent, is—

In a ratchet-wrench, the combination, with the handle, the ratchet-wheel, and the pawls having recesses in their sides and having the
20 corners *i* and *i'* beveled, of the reversing-bar having the double cam fitted in the said recesses and adapted to have the cam fit in the space formed between the beveled corners *i* and *i'*, substantially as described. 25

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES E. ABRAMS.

Witnesses:

JOHN H. KELSO,
JOHN B. TRAVER.