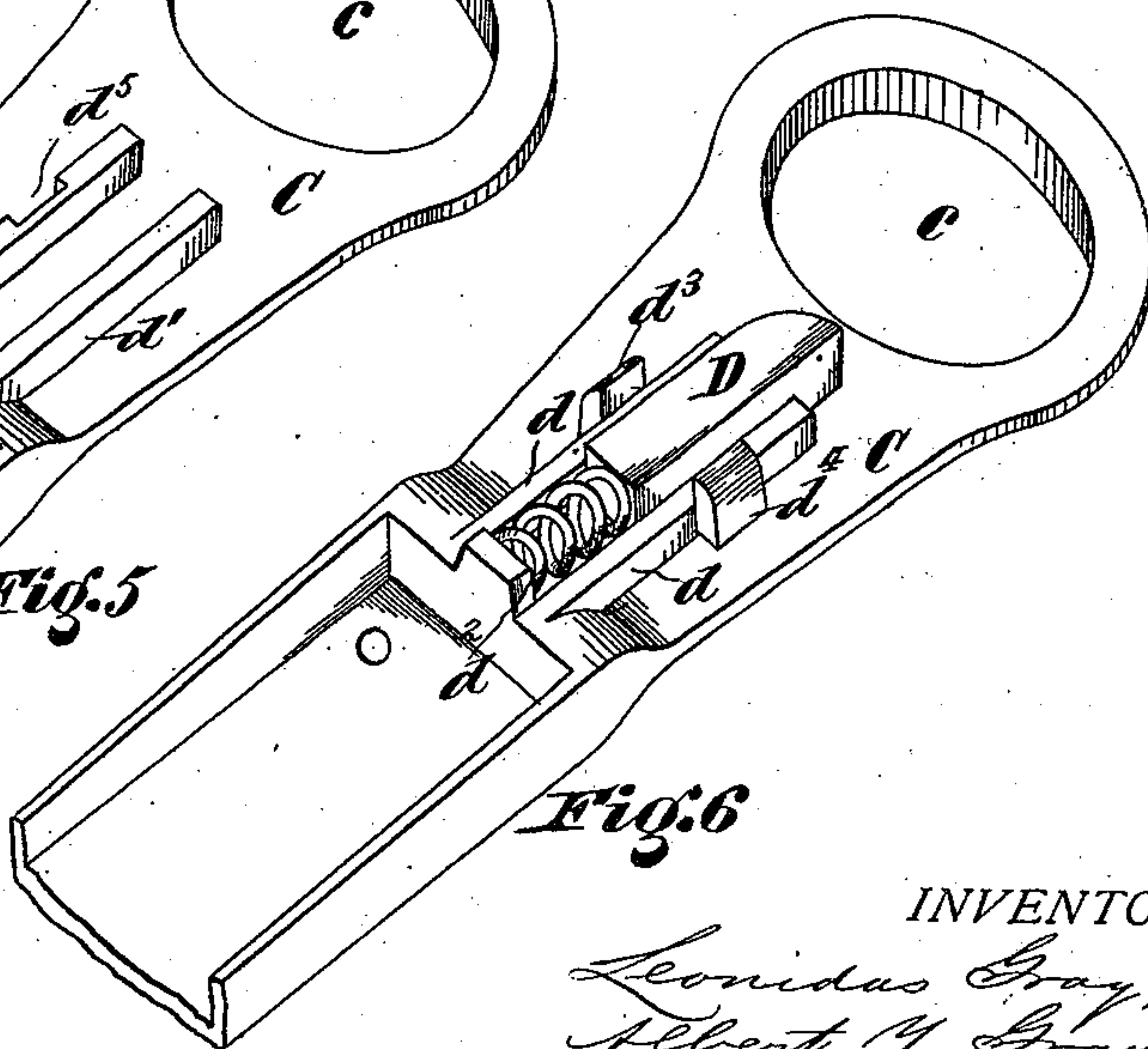
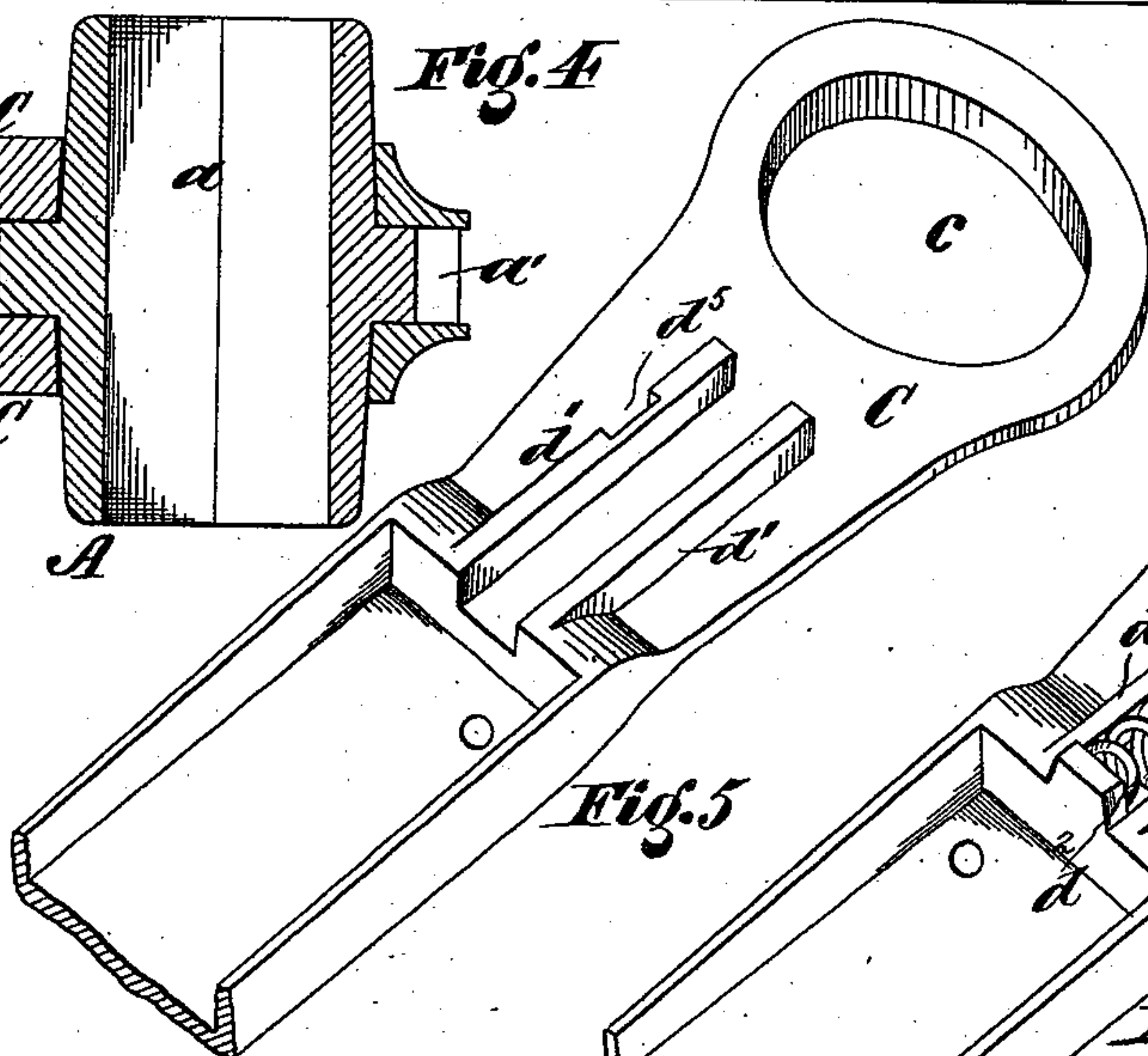
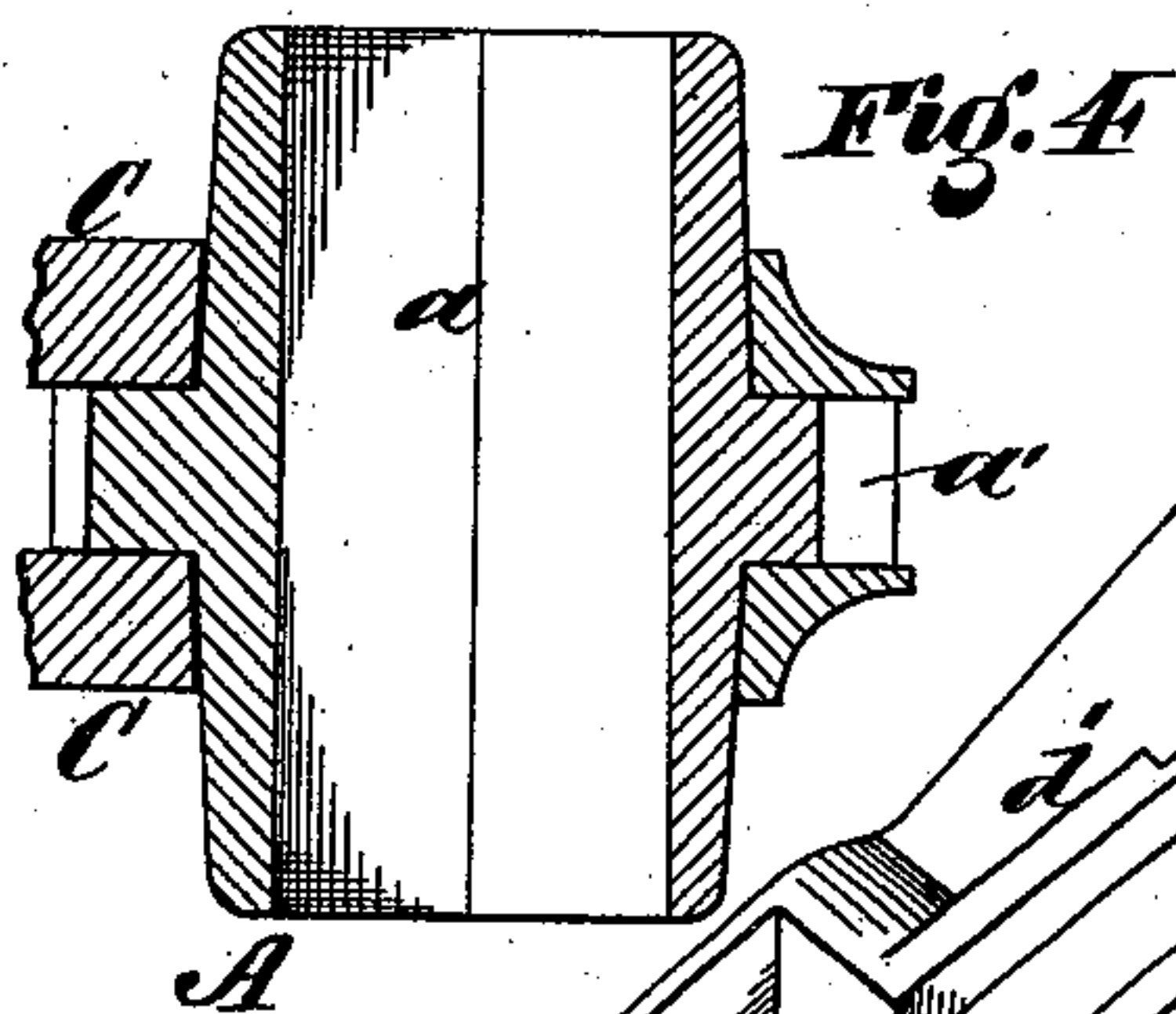
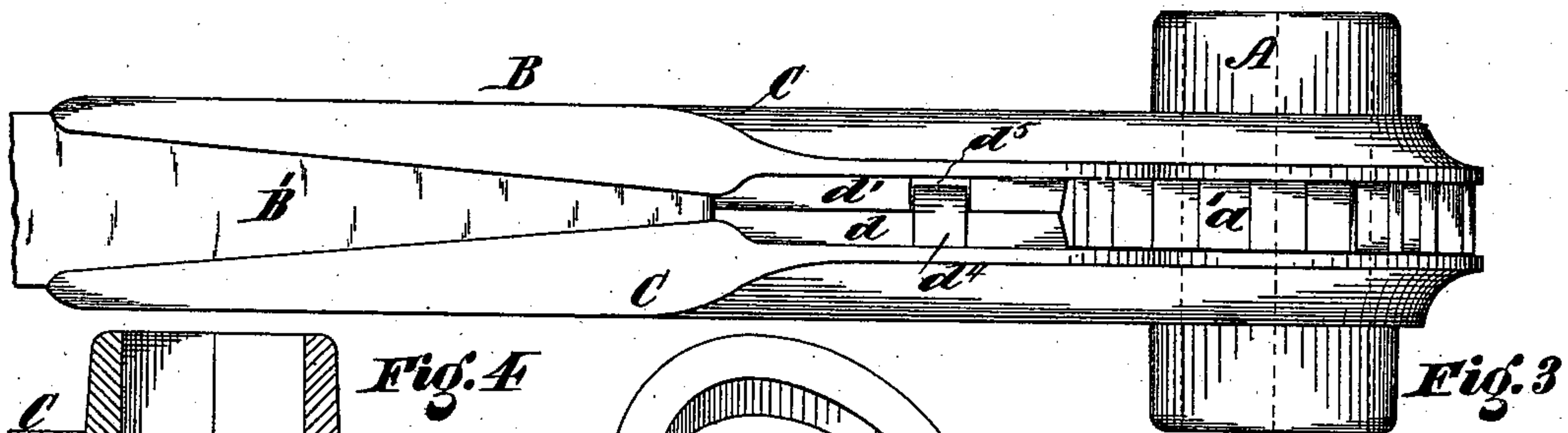
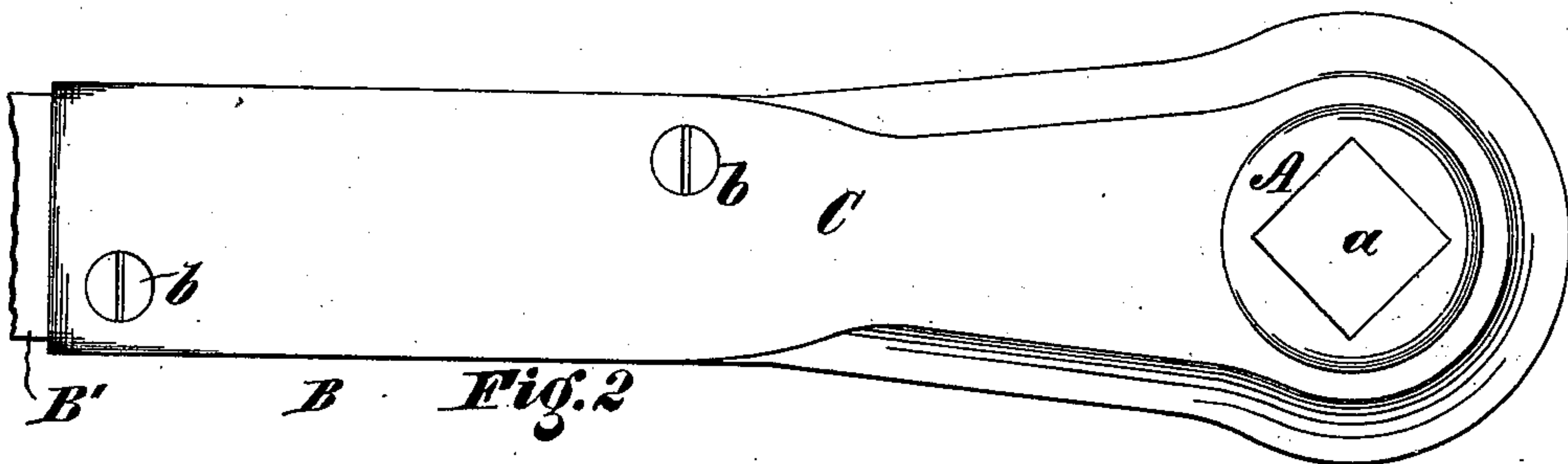
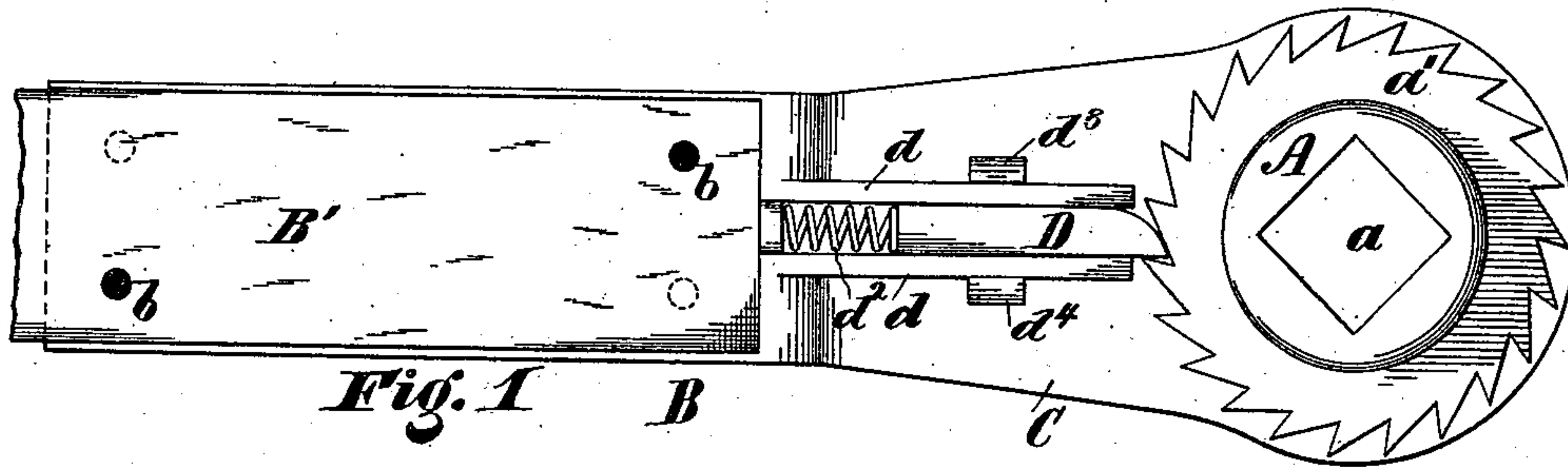


(No Model.)

L. & A. Y. GRAY.  
Wrench.

No. 227,765.

Patented May 18, 1880.



WITNESSES:

S. J. VanStavoren  
V. Connolly.

INVENTORS,

Leonidas Gray,  
Albert Y. Gray,  
By Connolly Bros.,  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

LEONIDAS GRAY AND ALBERT Y. GRAY, OF MIDDLETOWN SPRINGS, VT.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 227,765, dated May 18, 1880.

Application filed March 13, 1880. (No model.)

*To all whom it may concern:*

Be it known that we, LEONIDAS GRAY and ALBERT Y. GRAY, of Middletown Springs, in the county of Rutland and State of Vermont, have jointly invented Improvements in Ratchet-Wrenches, reference being had to the accompanying drawings, forming part of this specification, wherein—

Figure 1 is a plan of a ratchet-wrench with one of the straps removed, embodying our improvements. Fig. 2 is a plan with said strap restored to its normal location. Fig. 3 is a side elevation of the same. Fig. 4 is a detail transverse vertical section through the head of the wrench; and Figs. 5 and 6 are perspective details, showing the interior construction of the straps or helves and the position of the sliding dog or pawl.

Our invention has for its object to provide a ratchet-wrench of simple construction, designed and adapted for the screwing on and unscrewing of nuts or burrs.

Our invention consists in the peculiar construction and combination of parts hereinafter fully set forth, having reference, principally, to a socket-head provided with ratchet-teeth and adapted to rotate in or upon a handle, the latter carrying a spring dog or pawl which engages with said ratchet-teeth.

Referring to the accompanying drawings, A indicates a cylindrical head or roller having an angular bore or socket, *a*, extending through it, or from end to end. Around the middle of said head or roller is a ratchet, *a'*.

B represents the handle or lever, consisting of a wooden hand-piece, *B'*, to which are secured, by screws *b b*, metallic straps or helves C C. Each of these helves is formed with an eye or opening, *c c*, which openings afford bearings for the roller-head A, so that the latter can freely revolve in one direction therein, as hereinafter fully set forth. The opposite

ends of said helves are recessed or countersunk on their inner sides, to form a socket for the hand-piece *B'*, as shown. Between the hand-piece socket and the eyes *c c* are formed ribs *d d'*, which, when the two helves are brought together, furnish a socket for a sliding dog or pawl, D, which rests upon and is impelled outwardly toward the ratchet *a'* by a spiral spring, *d<sup>2</sup>*. One of the helves C is formed with two lugs, *d<sup>3</sup> d<sup>4</sup>*, which embrace the ribs *d'* of the opposite helve, one of said lugs entering a notch, *d<sup>5</sup>*, in one of said ribs.

To screw a nut onto a bolt the wrench is moved in the manner usual with ratchet-wrenches, the nut being in the socket at one end of the roller-head. To unscrew the same nut the wrench is merely turned over or reversed, so as to bring the nut into the opposite end of the socket *a*. The motion of the wrench now being reversed, the nut will be unscrewed.

We have described the socket in the roller-head as extending all the way through; but it is obvious that the center of the roller might be made solid, with independent but like sockets at either end, and that this construction would be equally within the spirit of our invention.

What we claim as our invention is—

The helves C C, constructed, respectively, with the ribs *d* and *d'*, one of said helves having the lugs *d<sup>3</sup> d<sup>4</sup>*, to embrace the ribs *d'*, and one of the latter being notched at *d<sup>5</sup>* for the reception of lug *d<sup>3</sup>*, substantially as described.

In testimony that we claim the foregoing we have hereunto set our hands this 8th day of March, 1880.

LEONIDAS GRAY.  
ALBERT Y. GRAY.

Witnesses:

A. A. GREENE,  
M. C. PARADY.