

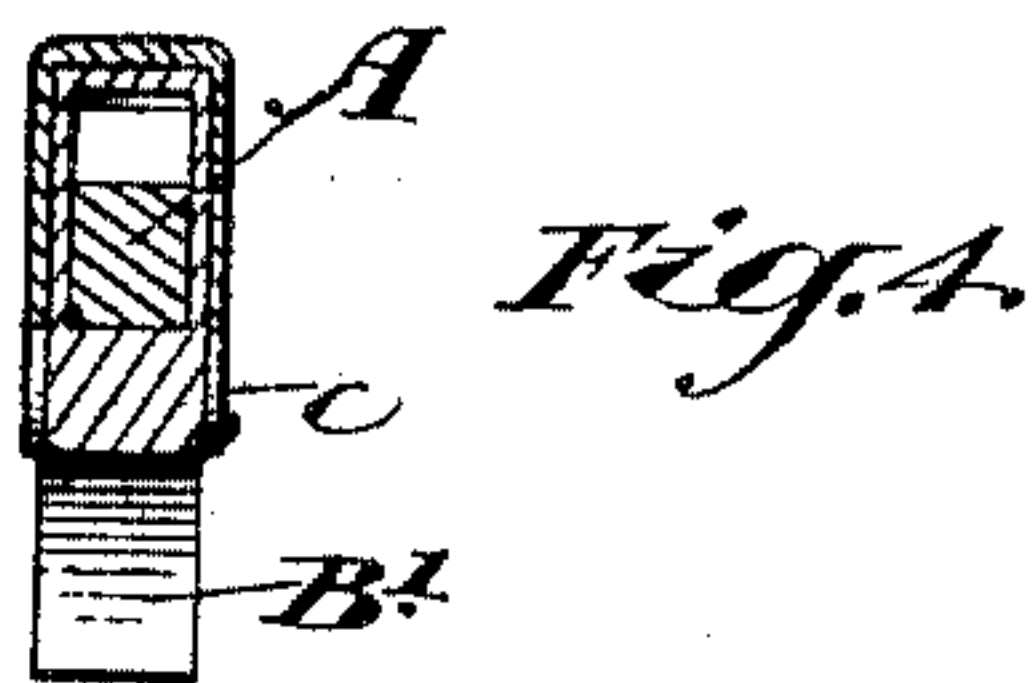
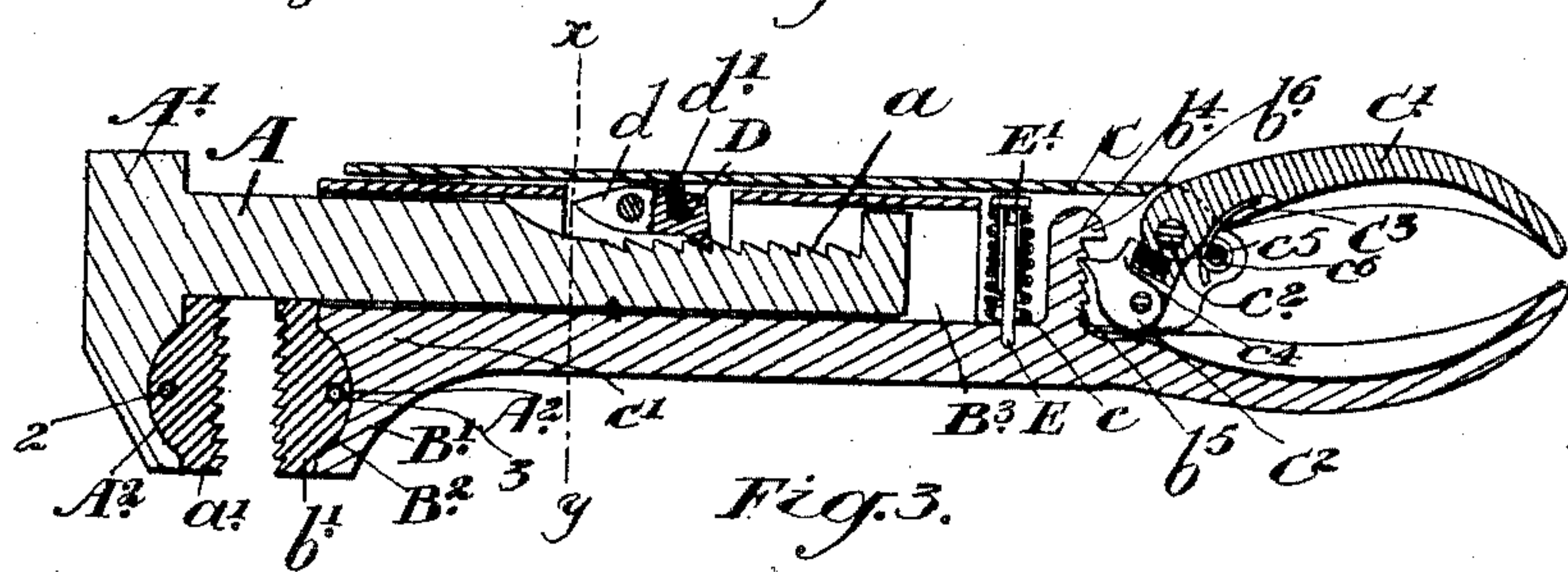
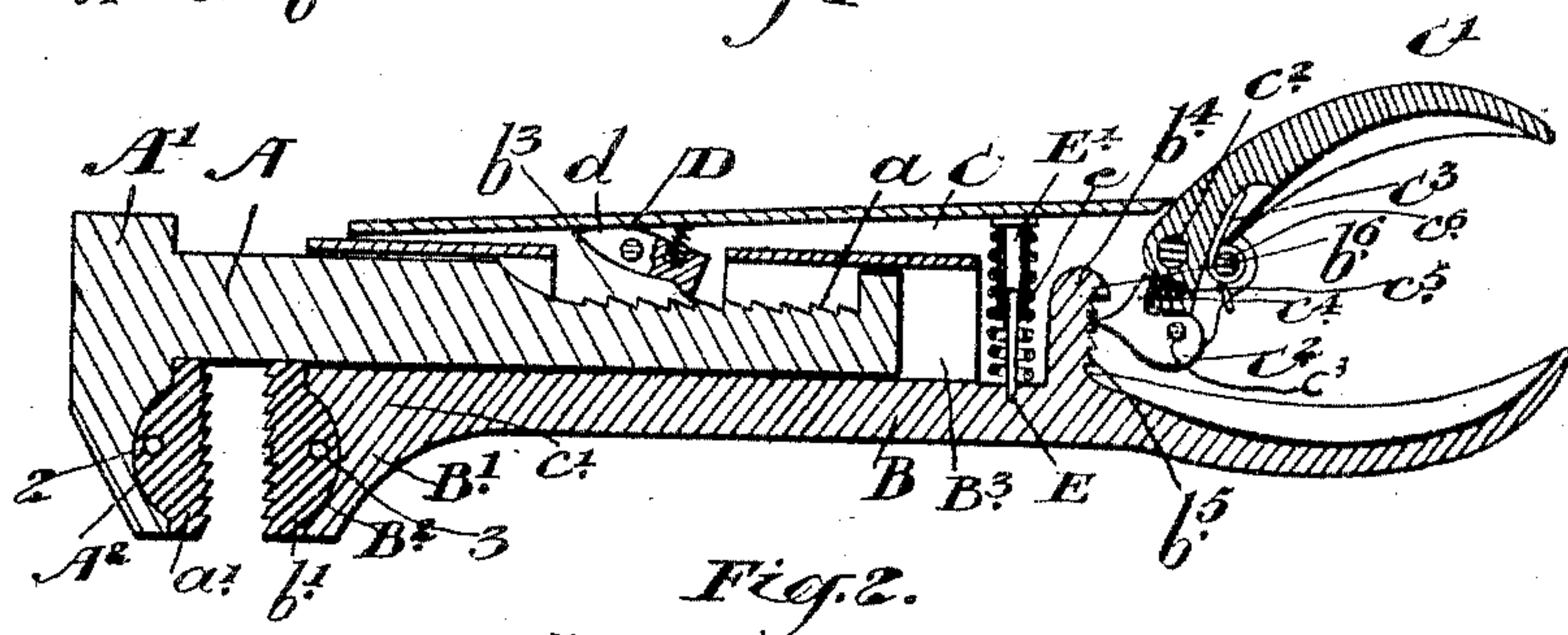
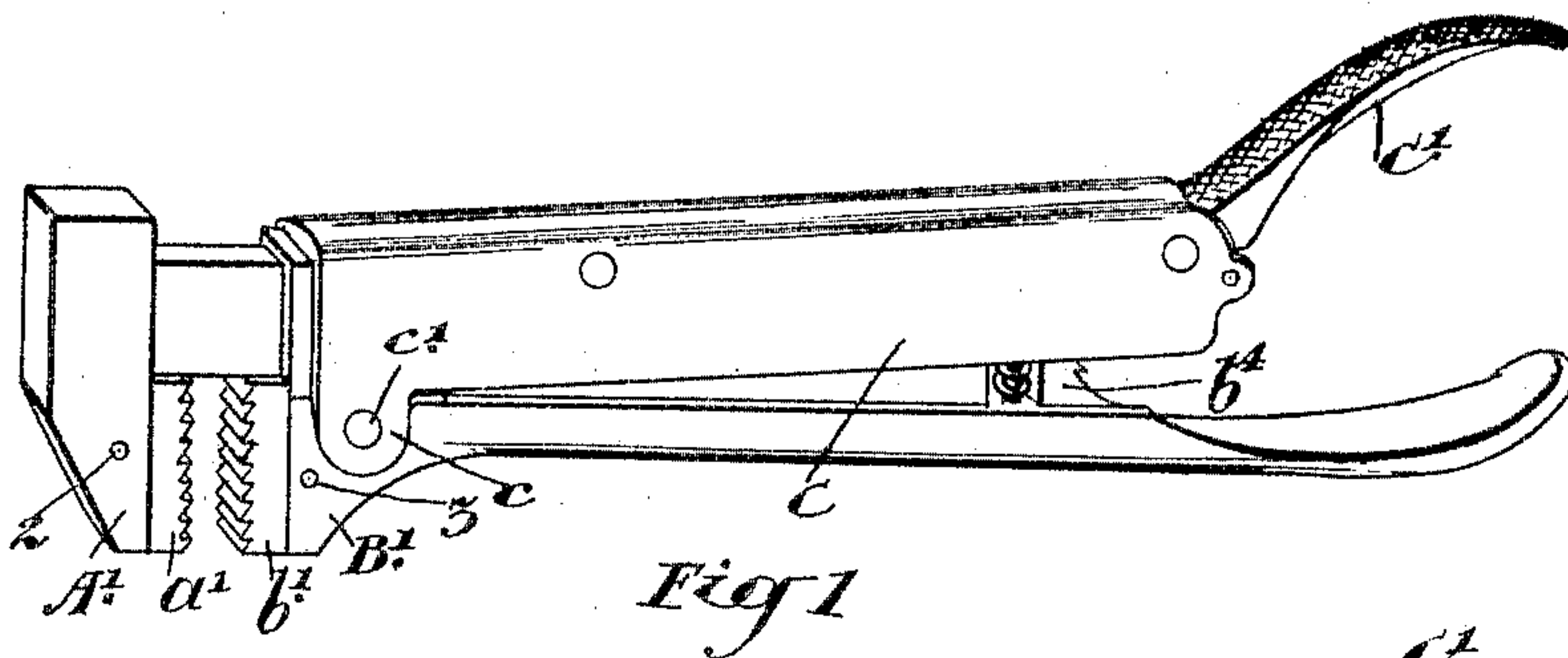
No. 776,060.

PATENTED NOV. 29, 1904.

C. L. HENDERSON.  
WRENCH.

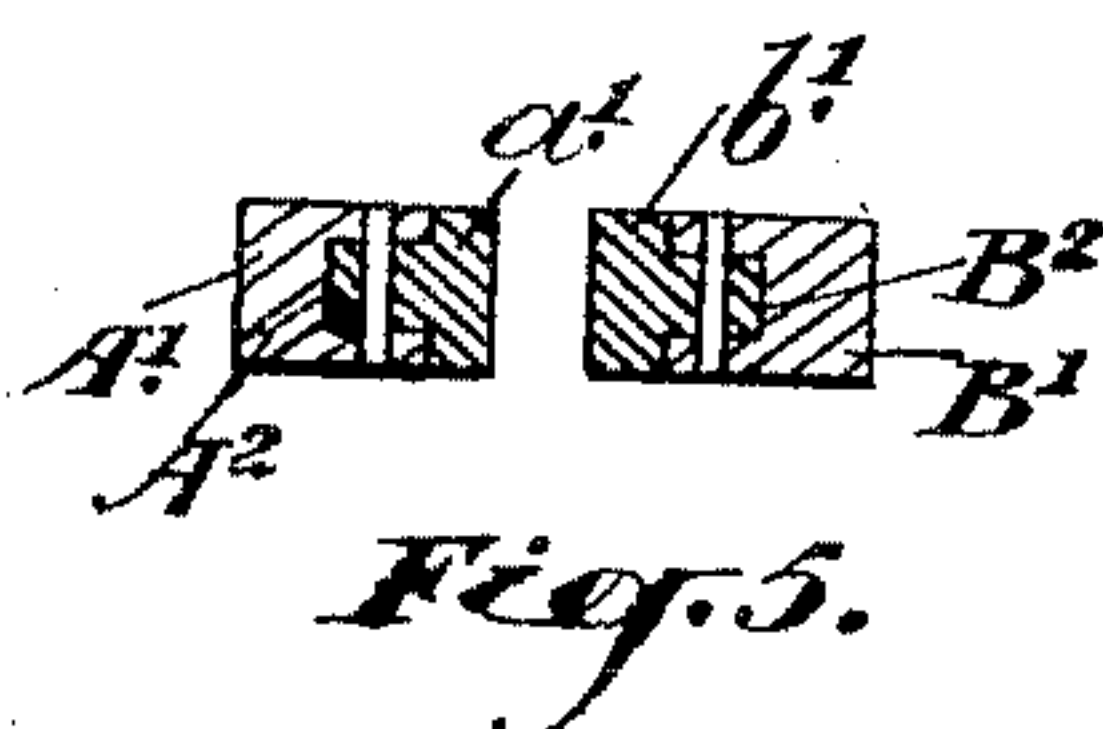
APPLICATION FILED JUNE 2, 1903.

NO MODEL.



Witnesses

*T. Shields*  
*C. Bate*



Inventor.

*C. L. Henderson.*

*by*  
*Fred. B. Jetter*  
*Att'y*



## UNITED STATES PATENT OFFICE.

CHARLES LEWIS HENDERSON, OF BERLIN, CANADA.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 776,060, dated November 29, 1904.

Application filed June 2, 1903. Serial No. 159,785. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES LEWIS HENDERSON, machinist, of the town of Berlin, in the county of Waterloo, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to improvements in wrenches patented to me in the Dominion of Canada under No. 59,844 on the 4th day of May, 1898, and in the United States of America under No. 618,571 on the 21st day of January, 1899; and the object of the present invention is to improve the construction of wrench so that it will be more durable and can be manipulated without having any strain on the hand during the period that the wrench is being utilized and yet may, as formerly, be adjusted to fit the nut by the gripping-hand alone; and it consists, essentially, of an upper jaw and bar and a lower jaw and socket-bar, steel gripping-pieces for the jaw suitably held in same, and the bar of the upper jaw being provided with a ratchet-shaped back, a compression-bar pivoted on the lower jaw and U-shaped in cross-section and provided with a dog designed to engage with the ratchet-teeth on the bar of the outer jaw, a projection attached to the bar of the lower jaw at the gripping end thereof and provided with ratchet-teeth, and a handle pivoted on the gripping end of the compression-bar and provided with a dog designed to engage with the aforesaid ratchet-teeth on the projection during utilization of the wrench, the parts being otherwise arranged and constructed in detail, as hereinafter more particularly explained.

Figure 1 is a perspective view of a wrench constructed in accordance with my invention. Fig. 2 is a longitudinal section of the wrench, showing the swinging handle at the rear end of the compression-bar raised preparatory to adjusting the wrench and gripping the same for use. Fig. 3 is a longitudinal section showing the handle down and the wrench adjusted ready for use. Fig. 4 is a cross-section on the line *xy*, Fig. 3. Fig. 5 is a longitudinal section through the lower portion of the jaws.

In the drawings like characters of reference indicate corresponding parts in each figure.

A is the upper bar, which is provided with an end jaw A'. *a* represents ratchet-shaped teeth formed on the back of the upper bar, which is recessed, as shown. B is the lower bar, which is provided with the end jaw B'. The jaws A' and B' are preferably provided with steel gripping-jaws *a'* and *b'*, having ratchet-shaped gripping edges, such jaws being at the inner side arc-shaped in form and fitting into corresponding recesses A<sup>2</sup> and B<sup>2</sup> in the jaws A' and B', respectively.

2 and 3 are pins which extend through the jaws A' and B' and the gripping-jaws *a'* and *b'*, and thereby securely hold them in place.

C is a straddle-bar, U-shaped in cross-section and provided with depending lips *c* at the end near the jaw, through which and the bar B extend the connecting-pins *c'*.

D is the dog, having a tail *d*, which normally holds it away from the interior of the straddle-bar a sufficient distance to normally clear the ratchet-teeth *a*.

*d'* is a spiral spring extending between the dog D and the top of the straddle-bar and designed to hold such dog in its normal position.

It will be noticed that the bar B has a socket B<sup>3</sup> attached to or forming part of the same, and it is through a recess *b*<sup>3</sup> in this socket that the bar A of the upper jaw extends.

E is a pin fitting into the lower bar B and extending upwardly into a socket E' in the straddle-bar.

*e* is a spiral spring which encircles the pin E and socket E' to normally hold the compression-bar C up at the rear, and consequently the dog D normally from engagement with the ratchet-teeth *a* of the bar A.

*b*<sup>4</sup> is an upwardly-extending projection provided with ratchet-teeth *b*<sup>5</sup> and a stop *b*<sup>6</sup>.

C' is a handle which is pivoted on a pin *c*<sup>2</sup> at the rear end of the straddle-bar C.

C<sup>2</sup> is a dog pivoted on a pin *c*<sup>3</sup> between jaws formed on the inner end of the handle C'. The dog C<sup>2</sup> is provided with a projecting stop *c*<sup>4</sup>, which abuts a spiral spring *c*<sup>5</sup>, held in a recess in the handle C'.

C<sup>3</sup> is a spring encircling the pin *c*<sup>6</sup> and hav-



ing one end pressing against the free end of the straddle-bar C and the other end pressing against the inner end of the handle C'. The spring C<sup>3</sup> is a light spring and just sufficient to raise the handle.

In order to fit the jaws upon the nut, it is necessary to draw out the jaw the requisite distance or slightly greater.

By pressing down repeatedly upon the handle C', so as to bring the straddle-bar C downwardly, the dog D will gradually feed the jaw A' inwardly until the end is securely gripped, and then by pressing the handle C' closed the dog C<sup>2</sup> will become engaged with the ratchet b<sup>5</sup>, and thereby take the strain on the jaw b<sup>2</sup>, the only strain on the hand being the slight strain of the spring, which has a tendency to hold the handle C' upwardly. The strain upon the jaw A' will of course be taken by the dog D engaging with the ratchet a. It will thus be seen that I provide a simple means whereby the strain of the jaw may be relieved from the hand, and yet the wrench may be manipulated every bit as readily as in my former applications.

What I claim as my invention is—

1. In a wrench, the combination with the stationary jaw and bar and the movable jaw and bar provided with a recess at the back provided with ratchet-teeth, of the straddle-bar provided with a spring-actuated dog co-

acting with the ratchet-teeth on the back of the movable jaw-bar, spring means for holding the straddle-bar from the stationary jaw-bar, a projection attached to or forming part of the lower jaw-bar, a handle pivoted in the end of the straddle-bar, and means for engaging the inner end of the handle with a projection, so as to take up the strain on the end of the straddle-bar as and for the purpose specified.

2. In a wrench, the combination with the stationary jaw and bar and the movable jaw and bar provided with a recess at the back provided with ratchet-teeth, of the straddle-bar provided with a spring-actuated dog co-acting with the ratchet-teeth on the back of the movable jaw-bar, spring means for holding the straddle-bar from the stationary jaw-bar, a projection provided with ratchet-teeth at the rear end thereof, a handle pivoted in the end of the straddle-bar, a spring designed to normally hold the handle upwardly, a dog pivoted in jaws on the end of the handle, and spring-held therein and designed to coact with the ratchet on the projection extending inwardly from the stationary jaw-bar as and for the purpose specified.

CHARLES LEWIS HENDERSON.

Witnesses:

BLANCHE I. FREEMAN,  
C. BITZER.