

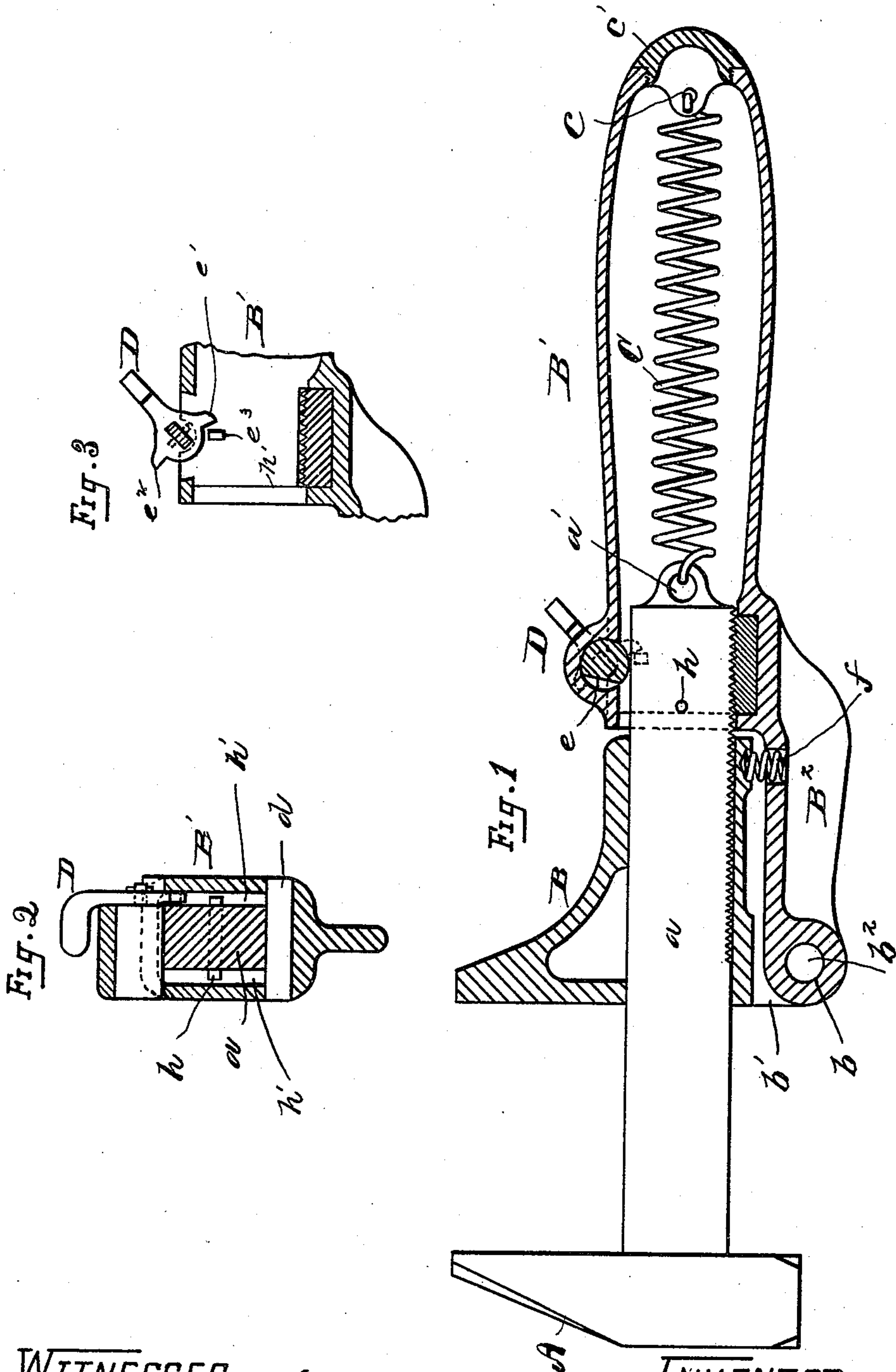
(No Model.)

2 Sheets—Sheet 1.

F. S. COOK.  
WRENCH.

No. 464,751.

Patented Dec. 8, 1891.



WITNESSES  
Frank R. Packham  
Chas. J. Welch.

INVENTOR  
Frank S. Cook  
By *Emil A. Stutz*

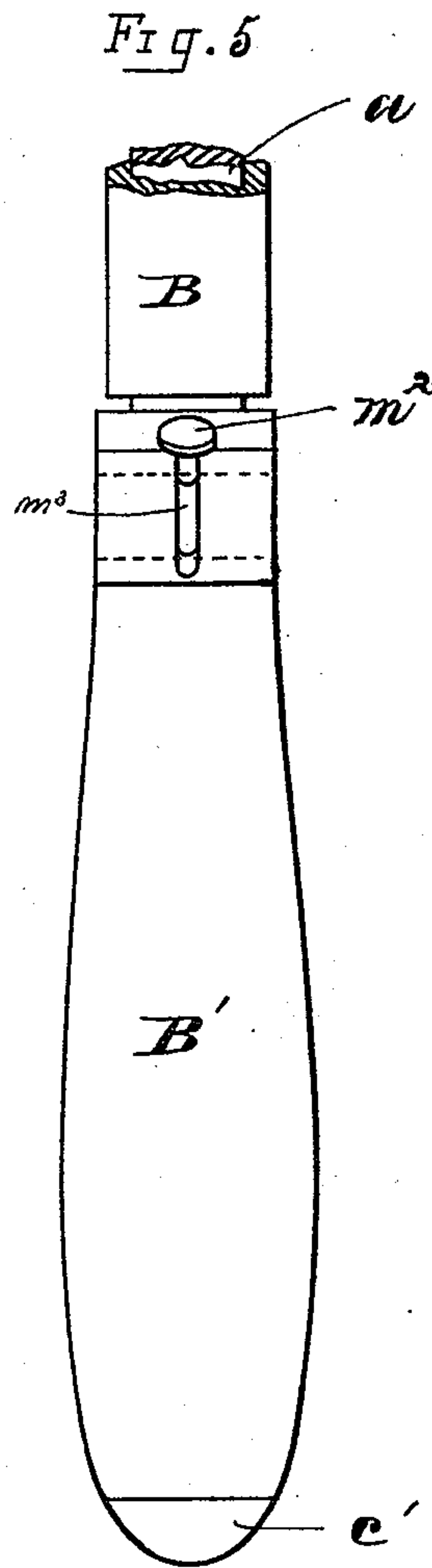
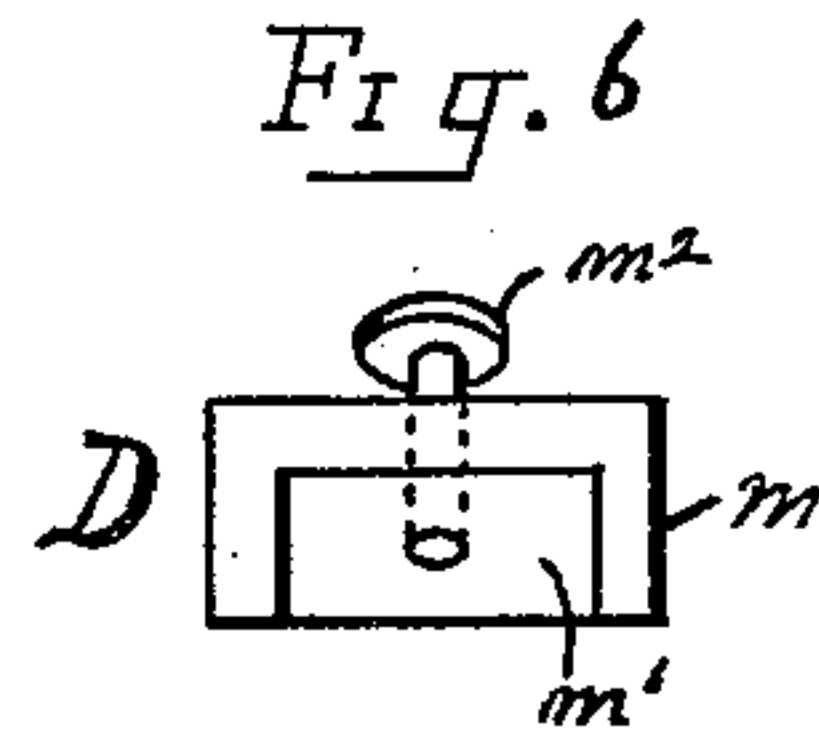
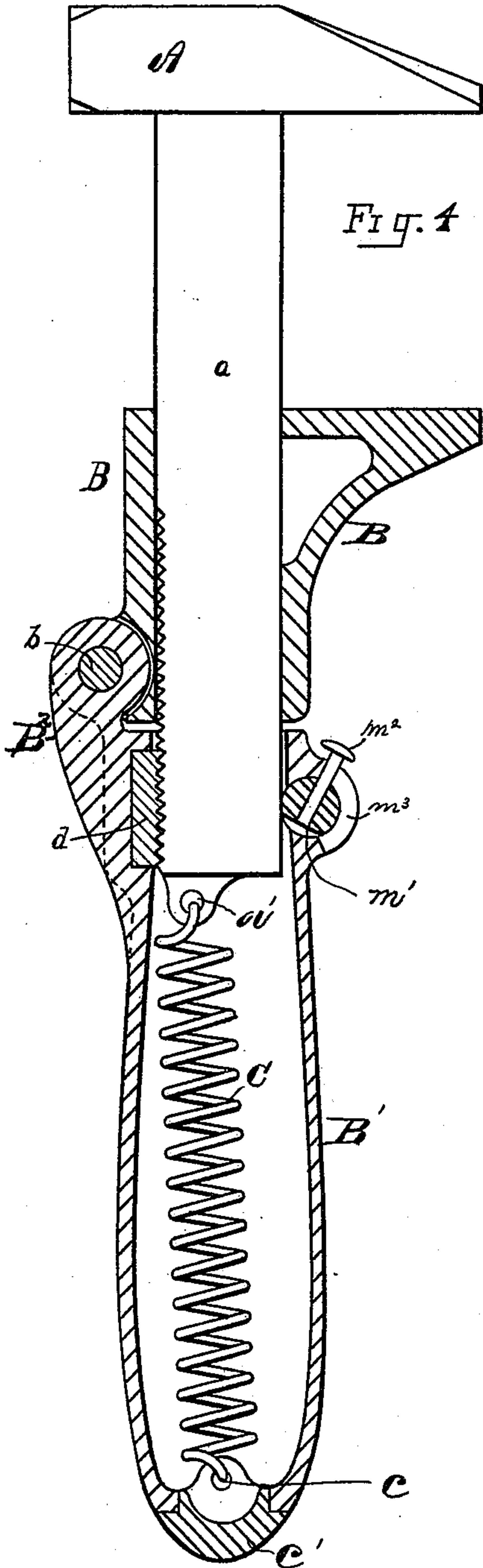
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INVENTOR  
Frank S. Cook  
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# UNITED STATES PATENT OFFICE.

FRANK S. COOK, OF ELKHART, INDIANA.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 464,751, dated December 8, 1891.

Application filed March 1, 1890. Serial No. 342,228. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK S. COOK, a citizen of the United States, residing at Elkhart, in the county of Elkhart and State of Indiana, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to adjustable wrenches; and the object of my invention is to provide a wrench of simple construction which partakes of the nature of an ordinary monkey-wrench, the construction being such that it is adapted to act as an ordinary ratchet-wrench.

My invention consists in the various constructions and combinations of parts hereinafter described, and set forth in the claims.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a wrench embodying my invention. Fig. 2 is a transverse sectional view on the line  $xx$  in Fig. 1. Fig. 3 is a detailed view, partly in section, showing the arrangement of the lock or fastening-catch. Fig. 4 is a longitudinal sectional view showing a modification in the constructions. Fig. 5 is a partial side elevation of the same. Fig. 6 is a detailed view showing a modified construction of the lock or fastening-catch.

Like parts are designated by similar letters of reference throughout the several views.

In the said drawings, A and B represent the jaws of the wrench, the general arrangement of which is similar to an ordinary monkey-wrench.

B' is the handle.

The jaw A is formed integral with a shank  $a$ , similar to that employed in ordinary monkey-wrenches. This shank  $a$ , however, is separate and independent from the handle and is adapted to move longitudinally with reference to the same, the handle B' being hollow to receive the shank when the jaws are closed. The jaw B is the stationary jaw—that is, it is stationary with reference to the jaw A, which is the movable jaw. The handle B' is provided with a forwardly-projecting extension B<sup>2</sup>, which is provided at the outer or forward end with a bearing  $b$ , to which the jaw B is connected, the jaw B being preferably constructed with ears  $b'$ , which are connected to the projecting arm B<sup>2</sup> by a connecting-pin  $b^2$ , on which the handle B is adapted to pivot.

It will be understood that the stationary jaw B is hollowed out in the usual manner to receive the shank  $a$ , which slides freely through the same.

The jaws A and B are adapted to be closed by the action of a spring C, located within the hollow handle B', one end of the spring being attached at  $a'$  to the shank  $a$ , and the other at  $c$  to the handle B'. The connecting-point  $c$  is preferably arranged on a removable cap or block  $c'$  in the handle B' to facilitate assembling the parts and to provide for readily removing or replacing the spring C if an occasion should demand it.

Located within the handle B', just back of the jaw B and below the shank  $a$ , is a serrated block  $d$ , preferably formed of steel and normally inserted into the handle B', which may be cast in malleable iron or any other suitable and desirable material. This serrated block  $d$  is adapted to engage in a series of serrations  $a^2$  on the bottom of the shank  $a$ . The handle B' at the forward end, where the shank  $a$  enters, is preferably fitted close to the sides of the shank  $a$  to prevent lateral movement thereof, but is made slightly larger than the breadth or greatest thickness of said shank, which will permit under certain conditions an independent movement of said handle about the pivotal point  $b^2$  to permit the serrated plate  $d$  to engage or disengage the ratchets  $a^2$ .

A locking-lever D is located within the handle B' at the opposite side from the plate  $d$  and is adapted when in one position to bear against the shank  $a$  and hold it into engagement with the serrated plate  $d$ , as shown in Fig. 1, the said locking-lever D being constructed in the nature of a cam provided with a reducing or cut-away portion  $e$ , which, when turned opposite to the shank  $a$ , permits the handle B' to move with reference to said shank to disengage the serrated plate  $d$  from the serrations  $a^2$ . Suitable stop projections  $e'$  and  $e^2$  on the locking-lever D are adapted in the different positions of said locking-lever to come against a stop  $e^3$  on the handle B', and thus limit the movement of said locking-lever when in the proper position to hold the shank  $a$  into engagement with the plate  $d$  or to permit it to be disengaged therefrom.

Located between the stationary jaw B and



the projection  $B^2$  of the handle  $B'$ , preferably at a point near the rear end of said stationary jaw  $B$  and close to the forward end of the handle proper  $B'$ , is a small spring  $f$ , adapted to press the handle  $B'$  away from the shank  $a$  and normally hold the serrated plate  $d$  out of engagement with the shank  $a$ , a movement of the locking-lever  $D$  to the position shown in Fig. 1 being adapted to compress said spring and force the said parts into engagement.

The operation of the device is as follows: The parts being in the position shown in Fig. 1, a nut or other article adapted to be engaged thereby is inserted into the jaws. The locking-lever  $D$  is thrown forward until the shank  $a$  is released from the serrated plate  $d$  by the operation of the spring  $f$ , when the cut-away portion  $e$  of said locking-lever comes opposite to said shank. When thus released the spring  $C$ , acting on the movable jaw  $A$ , will close said jaws upon opposite sides of the article to be engaged thereby. In this position a movement of the handle  $B'$  in the direction of the jaws will cause the spring  $f$  to be compressed and the plate  $d$  to engage with the serrations in the shank  $a$ . The jaws will thus be firmly locked in their relative positions and the strain upon the handle  $B'$  will be transmitted to the article engaged thereby. If, however, the movement is reversed and the handle  $B'$  moved in the direction away from said jaws, the serrated plate  $d$  will be removed from engagement with the shank  $a$ , and the jaw  $A$ , through the medium of the spring  $C$ , will be permitted to yield outwardly sufficiently to turn about the article engaged thereby, the said jaw being brought automatically to its proper position against said article when the movement of the handle  $B'$  is stopped or reversed.

In a wrench as thus described it will be seen that the jaws  $A$  and  $B$  may be adjusted to and held in any desired position by the locking-lever  $D$  and thus be used as an ordinary monkey-wrench. By releasing the locking-lever  $D$  a ratchet-wrench is secured.

By using the jaw  $B$  as the stationary jaw and by pivoting the handle to said jaw on the opposite side of the shank  $a$  from the engaging faces of said jaws the ratchet feature of the wrench is adapted to be brought into operation on any sized nut or article which may be engaged by said jaws, no matter how large or how small.

By the arrangement described of the plate  $d$  and the serrations  $a^2$  the said serrations are located on the opposite side of the shank from the working faces of the jaws, and thus are at all times protected from dirt or from outside abrasions or other influences which would tend to destroy their usefulness in their proper capacity, the jaw  $B$  being preferably of such length that the said serrations are at all times inclosed within said jaw or within the handle.

A stop-pin  $h$  is preferably employed to

limit the outside movement of the jaw  $A$ , the said pin being preferably inserted through the shank  $a$ , with projecting ends sufficient to engage with a shoulder or flange  $h'$  within the handle  $B'$ . (See Figs. 2 and 3.)

In Figs. 1, 2, and 3 of the drawings I have illustrated that construction of the various parts which I have found preferable to accomplish the object desired. It is evident, however, that these constructions are not the only ones which may be employed to produce the same functions.

If desired, the spring  $f$  may be dispensed with, in which case the bearing  $b$  may be placed at the rear end of the jaw  $B$  and the extension  $B^2$  of the handle thus considerably shortened, as shown in Fig. 4. In this case I preferably connect the spring  $C$  at one side of the center of the shank  $a$ , as shown. By this construction it will be seen that the spring  $C$  serves the double purpose of closing the jaws and separating the shank  $a$  and plate  $d$ .

In Figs. 5 and 6 I have shown a modification of the locking-lever  $D$ , the cam or operative portion in this case being formed of a straight cylinder  $m$ , adapted to extend transversely through the handle immediately above the shank  $a$ , the handle being correspondingly bored out to form a bearing therefor. A cut-away portion  $m'$  is formed in the cylinder, which, when turned opposite to the shank, permits it to move in relation to the handle. The cylinder or cam  $m$  is held in position by a pin  $m^2$ , provided with a suitable handle or head and adapted to extend through a slotted opening  $m^3$  in the side or front of the handle, the ends of said slotted opening being adapted to form stops for the cam when turned to different positions of adjustment.

It is obvious that other modifications in the constructions of the different parts may be employed without departing from the spirit of my invention. I do not therefore limit myself to the exact constructions set forth; but

I claim, broadly, as my invention—

1. In a wrench, a stationary jaw and a movable jaw, a serrated shank connected rigidly to one of said jaws, and a serrated plate pivotally connected to the other jaw, the pivotal connection being on the opposite side of the shank from the faces of said jaws, said serrated plate being adapted to engage and disengage said serrated shank when the wrench is turned in opposite directions, substantially as specified.

2. In a wrench, a stationary jaw and a movable jaw, a shank on one of said jaws having a series of serrations on the opposite side from the face of said jaw, a serrated plate pivotally connected to the other jaw and adapted to engage with the serrations on said shank, the pivotal connection being on the opposite side of said shank from the operating-face of said jaw, and a spring for normally holding said plate out of engagement with the shank, said spring being adapted to be compressed to



permit said plate to engage with said shank when the wrench is moved in one direction, substantially as specified.

3. The combination, with a hollow handle and a stationary jaw pivoted thereto, of a movable jaw having a shank extending through said stationary jaw into said handle, a spring in said handle adapted to normally close said movable jaw against said stationary jaw, a serrated plate in said handle adapted to engage in a series of serrations in said shank, and means for holding said serrated plate normally out of engagement with said shank, substantially as specified:

4. The combination, with a hollow handle and a stationary jaw pivoted thereto, of a movable jaw having a serrated shank adapted to extend through said stationary jaw into said hollow handle, a spring within said handle adapted to normally close said movable jaw against said stationary jaw, serrations in said handle adapted to engage and disengage with the serrations in said shank, means for holding said serrations normally out of engagement with said shank, and a locking-lever adapted to force said serrations into engagement with said shank and thus hold the jaws in any desired position, substantially as specified.

5. The combination, with a stationary jaw and a movable jaw, said movable jaw being provided with a shank adapted to extend through said stationary jaw, of a handle connected to said stationary jaw, and a spring within said handle connected at one end to said shank and at the other to a removable cap in said handle, substantially as specified.

6. The combination, with a stationary jaw and a handle pivoted thereto, of a movable jaw having a shank extending into said handle, and means within said handle for engaging and disengaging said shank by a limited movement of said handle about its pivotal connection, and a locking-lever to hold said handle into engagement with said shank in any desired position, substantially as specified.

7. The combination, with a stationary jaw and a handle pivoted thereto, of a movable jaw having a shank extending into said handle, a spring adapted to normally close said jaws, and means within said handle for engaging and disengaging said shank by a limited movement of said handle in opposite directions about its pivotal connection, substantially as specified.

8. The combination, with a wrench having a stationary and removable jaw, one of said jaws being provided with a serrated shank, with the serrations on the opposite side of said shank from the face of said jaw, of a pivoted handle connected to the other jaw on the opposite side thereof from the face of said jaw, said handle being provided with a removable serrated plate adapted to engage said serrated shank to lock the jaws together, substantially as specified.

In testimony whereof I have hereunto set my hand this 17th day of February, A. D. 1890.

FRANK S. COOK.

Witnesses:

FRED C. KAISER,  
CHAS. M. KESSLER.