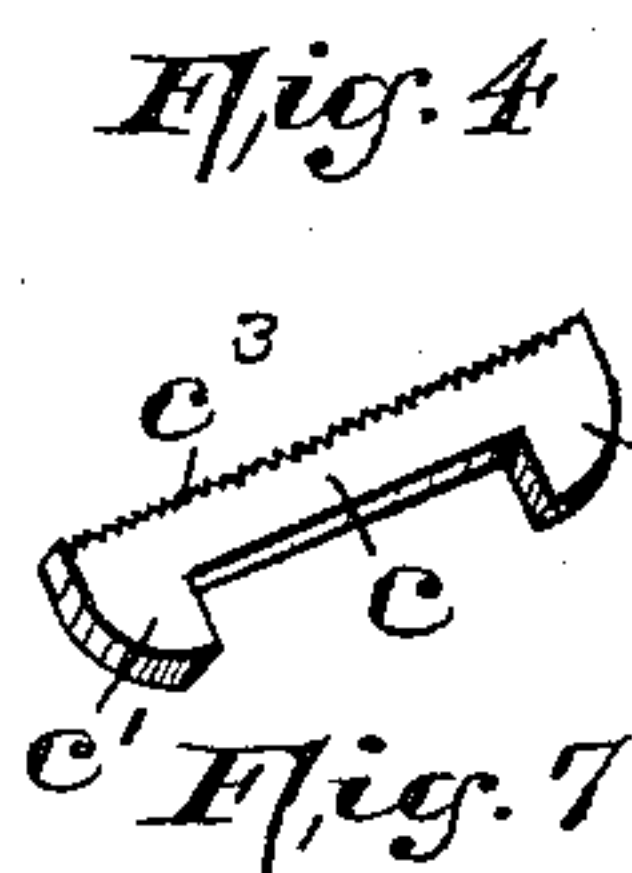
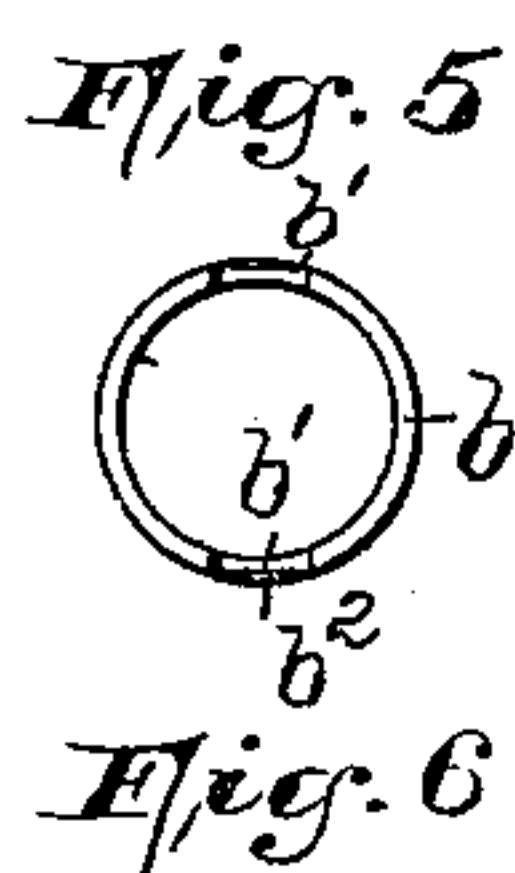
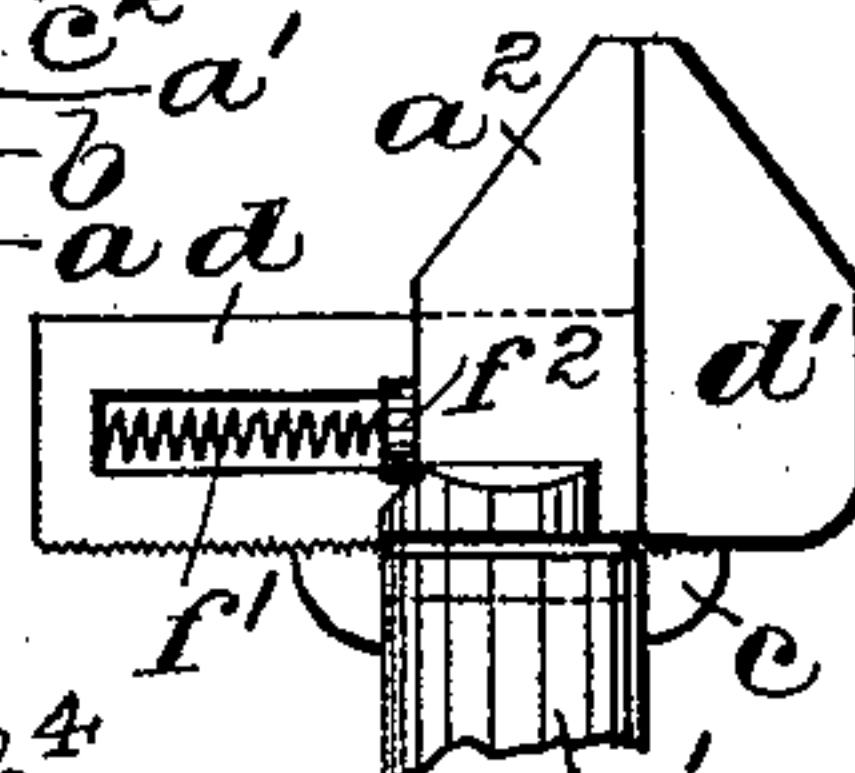
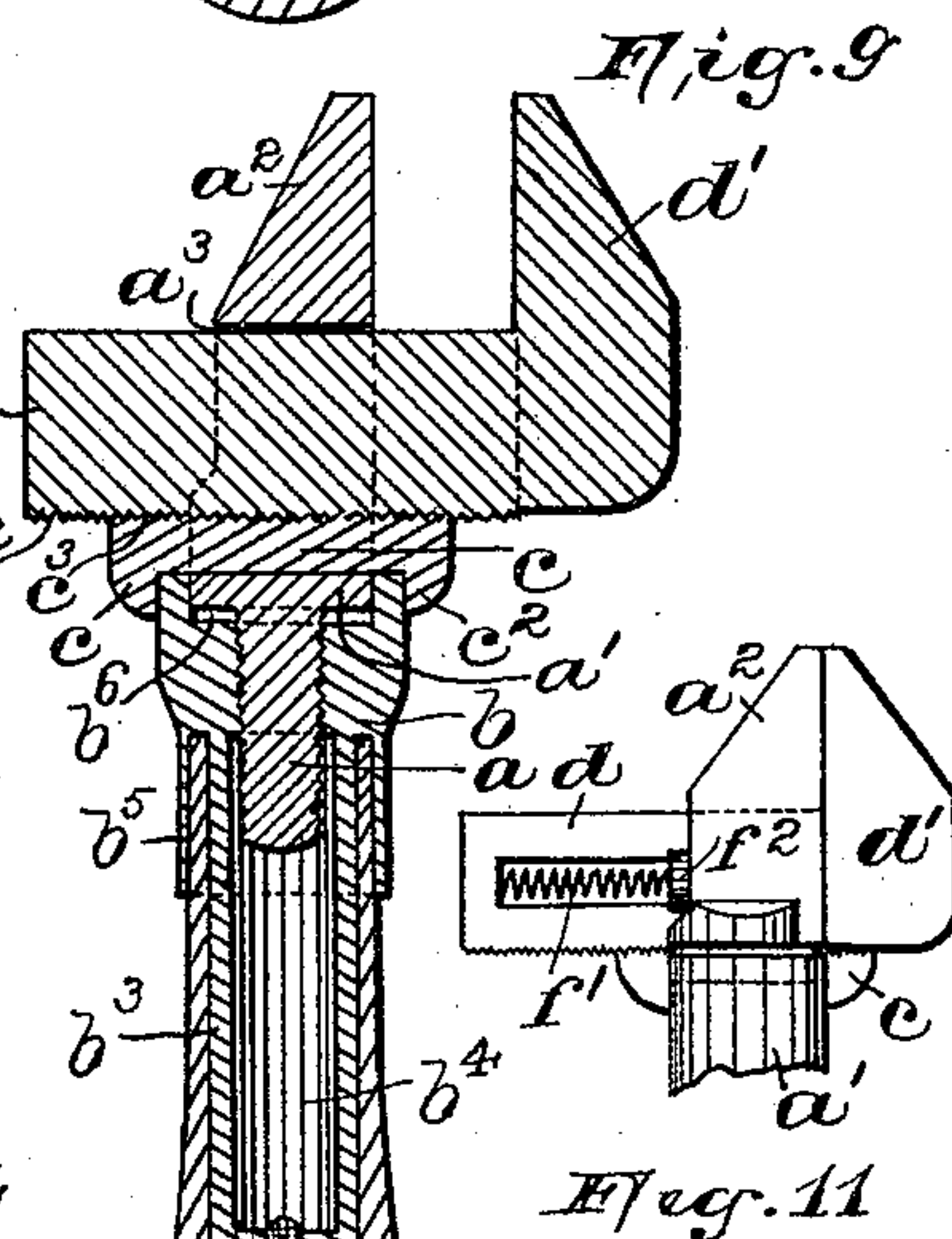
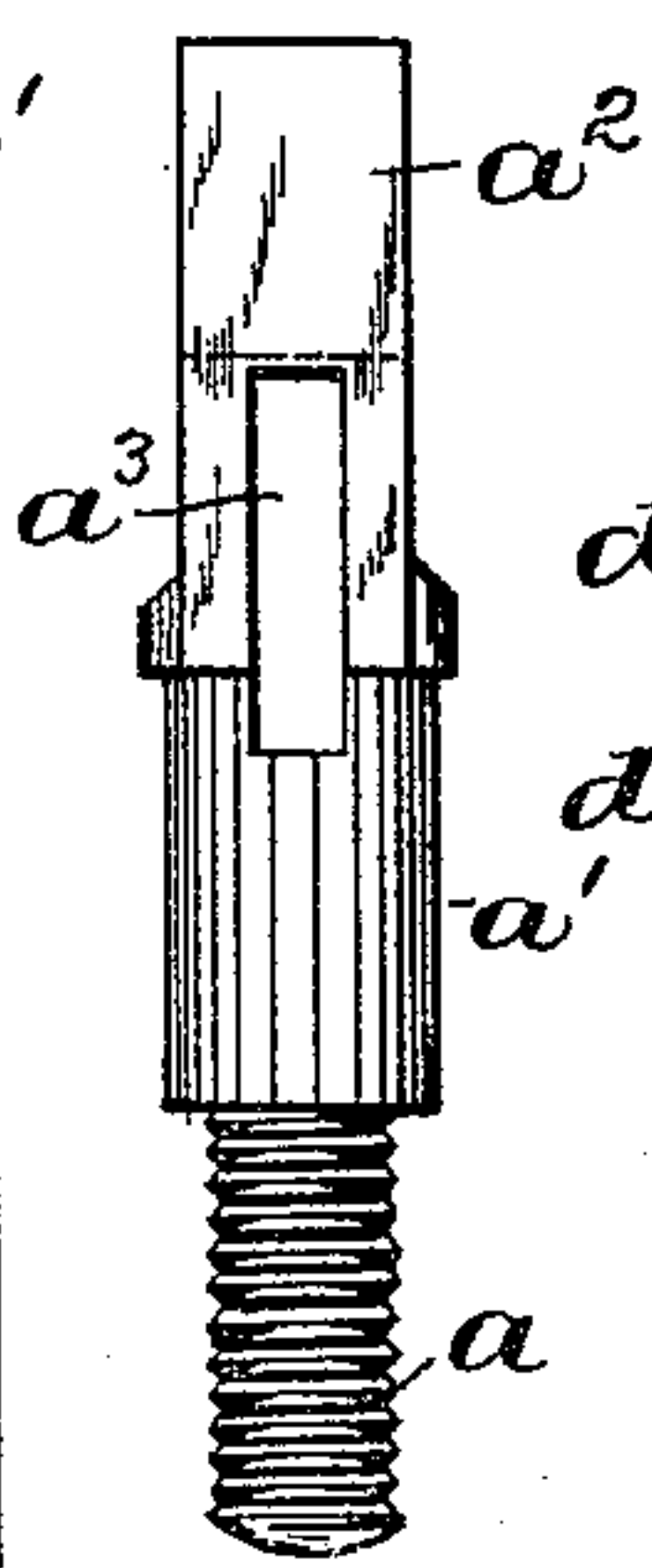
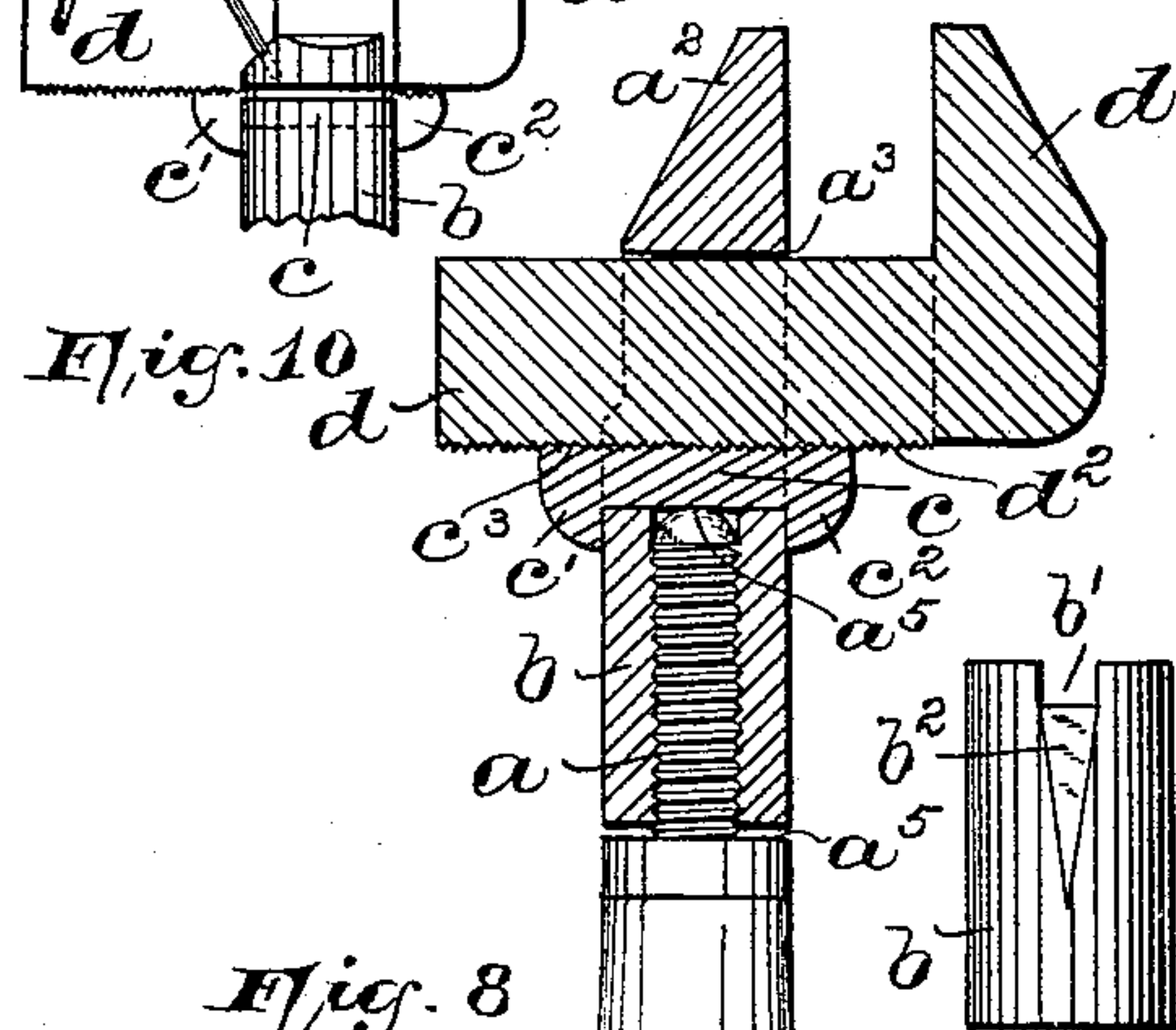
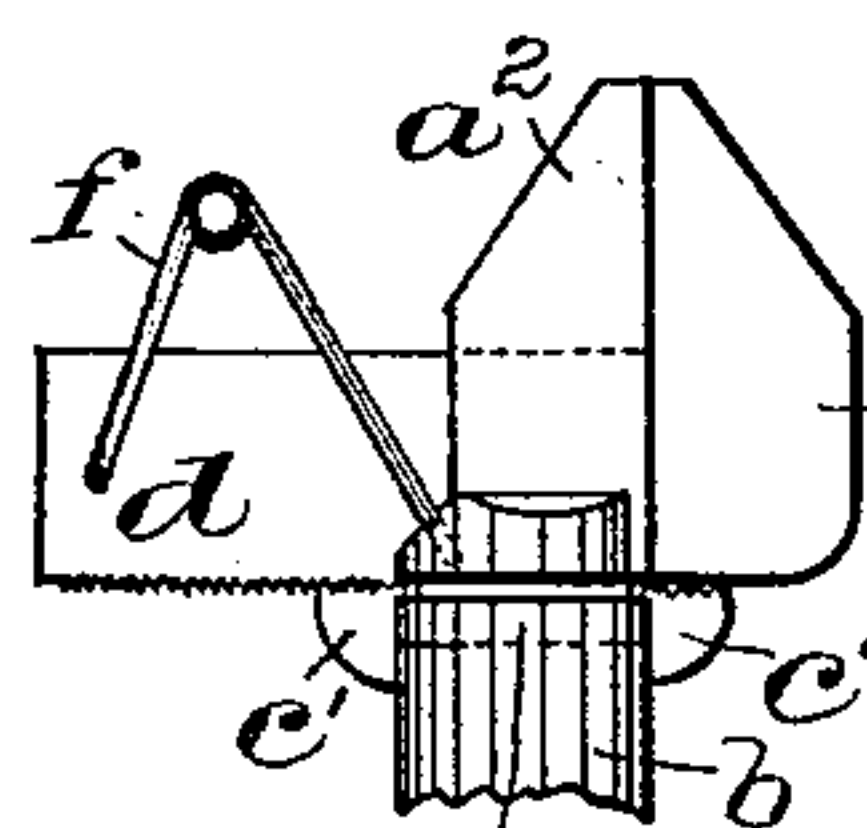
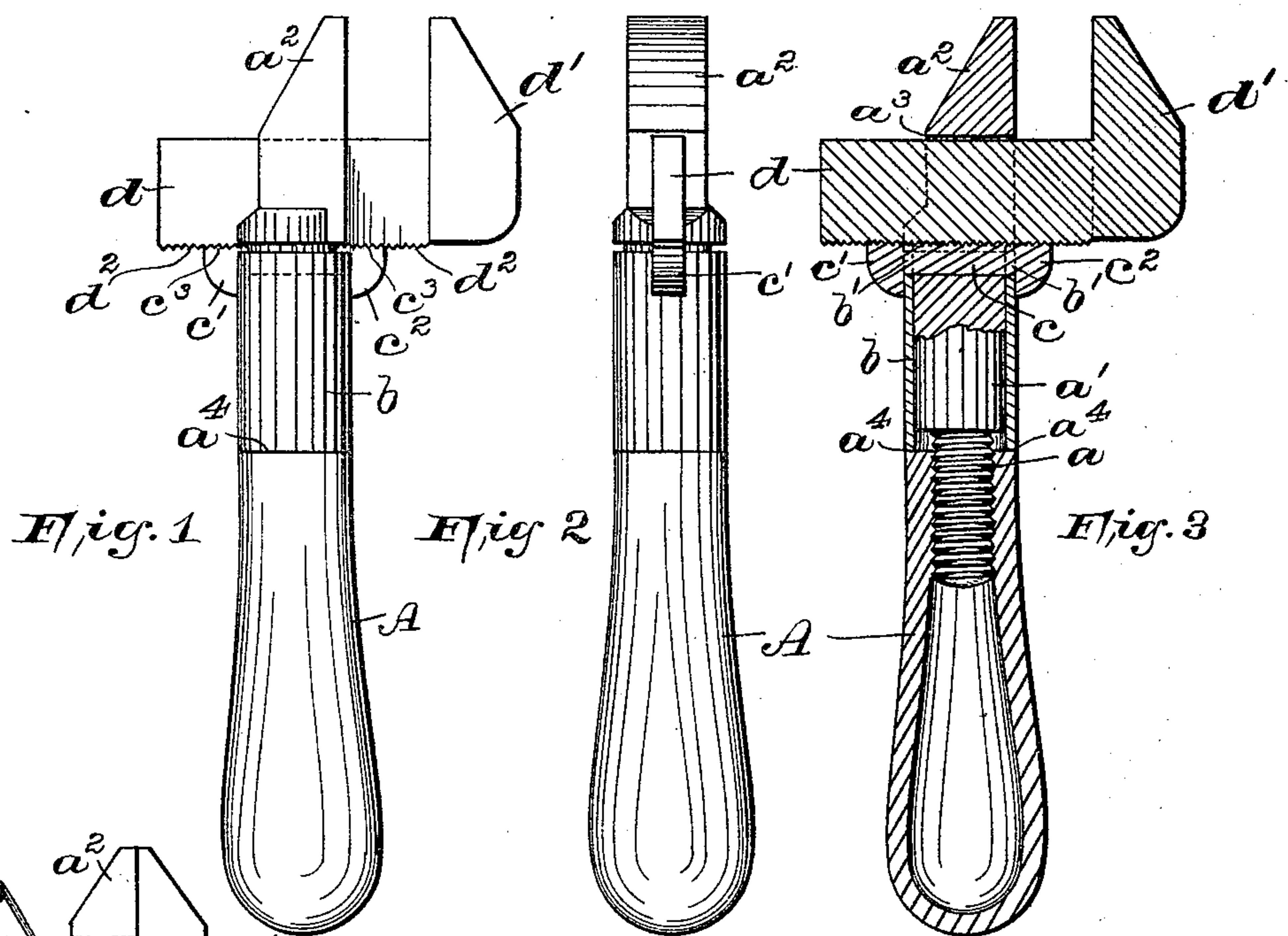


G. F. HALL.
WRENCH.

No. 451,183.

Patented Apr. 28, 1891.



WITNESSES:

INVENTOR:

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UNITED STATES PATENT OFFICE,

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WRENCH.

SPECIFICATION forming part of Letters Patent No. 451,183, dated April 28, 1891.

Application filed February 25, 1891. Serial No. 382,723. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. HALL, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Wrenches; and I do hereby 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 letters of reference marked thereon, which form a part of this specification.

The present invention relates to improvements in wrenches, and has for its object to provide a tool in which the clamping mechanism forming the means for holding the parts which are adjustable toward one another holds said parts more securely in their proper relation when adjusted.

The present invention therefore consists in certain arrangements and combinations of parts, as will be hereinafter more fully described, and finally embodied in the clauses of the claims.

In the accompanying sheet of drawings, in which similar reference-letters are employed to indicate like parts in the several views, Figure 1 is a side elevation of my improved wrench. Fig. 2 is an end view of the same, and Fig. 3 is a vertical section of the wrench. Fig. 4 is an end view of the fixed jaw removed from the handle. Figs. 5 and 6 are a side view and a plan of a sleeve used in the present form of construction, and Fig. 7 is a perspective view of a cotter employed and provided with teeth or serrations. Figs. 8 and 9 are vertical sections of modified forms of constructions of the wrench embodying my invention. Figs. 10 and 11 are side views of the upper end of the handle and the jaws provided with means for automatically closing said jaws when the clamp has been released.

In the above-described views, A indicates the handle, which in the construction illustrated in Figs. 1, 2, and 3 is of metal and preferably hollow, the end of the handle being provided with a threaded perforation. Into this threaded perforation is arranged a screw-threaded stem a , provided on its upper end with a cylindrical portion a' , formed at

its extreme free end into a holding-jaw a^2 , and provided with a hole, preferably rectangular, as a^3 , as will be seen from Fig. 4. The cylindrical portion a' is of smaller diameter than the perforated end of the handle, whereby a shoulder a^4 is formed for a sleeve b , provided with the recesses or cut-away portions b' and the slightly-flattened portions b^2 directly beneath said recessed portions. Thus the lower end of said sleeve is in contact with the shoulder a^4 on the handle, upon which the sleeve is placed, so that its recessed portions coincide with the hole a^3 in the holding-jaw a^2 . Within said hole and upon said sleeve in the recesses or cut-away portions thereof is placed a cotter c , provided with downwardly-extending ears or lugs c' and c^2 , which fit in close contact with the flattened ends b^2 of the sleeve. Above said cotter and sliding within the rectangular hole a^3 is an adjustable bar d , provided with a holding-jaw d' . The sides of said bar and the cotter, which are in contact, are preferably provided with teeth or serrations d^2 and c^3 , respectively, fitting into each other, and thereby forming a secure means for preventing the sliding movement of the bar d and its jaw when the same has been set and clamped by the clamping mechanism and while tightening up a nut.

In order to adjust the jaws, the handle A is slightly turned to permit the bar to be moved either backward or forward upon the cotter and adjust the same according to the size of the nut to be tightened, after which by turning the handle the longitudinal thrust of the screw will cause the shoulder a^4 to force the sleeve upward, which jams the cotter tightly against the bar, causing the locked or holding engagement of the serrations or teeth on the cotter and bar d and securely holding said bar and its jaw in the adjusted position. A slight turn of the handle in the opposite direction will release the bar, which can then be moved in or out, as will be evident.

In lieu of the construction shown in Figs. 1, 2, and 3, the handle portion A can be provided with the screw formed directly thereon, as shown in Fig. 8, in which case the sleeve is threaded upon the inside. When the handle is turned, the space between the shoulder a^4 of the handle and the lower part of the

sleeve allows of enough movement to tightly jam the free end a^5 of the screw against the under side of the cotter, which locks the bar d in the same manner as has been previously described. The handle A may be made of wood and provided with a ferrule, upon which the screw portion has been formed.

In Fig. 9 is illustrated still another modified form of construction, in which the handle is made of wood, being socketed and the sleeve b being formed with a downwardly-extending portion b^3 , which is also provided with a cylindrical bore b^4 , extending down into the socket in the handle, and a portion b^5 , serving as a ferrule to the end of the handle. A bolt e serves to secure said sleeve to the handle, as will be seen from said Fig. 9. The upper end of the sleeve is of larger diameter than the bore b^4 , forming a pocket b^6 for the cylindrical portion a' of the screw-plug or stem a , which is secured and upon which turns the upper and threaded end of the sleeve b . The construction of the remaining parts is similar to that described in connection with Figs. 1, 2, and 3, and the operation of adjusting the jaws and clamping the same is precisely similar in all the constructions illustrated.

In Figs. 10 and 11 I have shown a means for automatically closing the jaws when the clamp mechanism has been released, the serrations being small enough to allow the bar d to slide freely on the serrated side of the cotter.

The means for automatically returning the jaw, as shown, is a spring f , either of the construction shown in Fig. 10, one end of which is attached to the fixed jaw and the other to the bar d . Said bar may be slotted, as shown in Fig. 11, and provided with a spiral spring f' , working against a slide f^2 in said slot. The operation will be evident from said figure.

The essential feature of the present invention consists in the sleeve and the threaded stem, provided with a jaw, and the recesses in the sleeve and the hole in the stem adapted to be arranged coincident with each other and adapted to receive the cotter and the transverse sliding bar, and the whole carried by a handle having a screw-thread for pressing the stem or the sleeve longitudinally against the cotter to clamp the transverse bar in the desired position.

In my present form of construction, by the employment of the cotter I have obtained a greater holding-surface, and hence there is less danger of the bar d and its jaw from slipping and becoming loose, and another great advantage is that the several parts can be

provided with serrations or teeth, which serve to firmly retain the bar d in its adjusted position, while the cotter cannot slip on account of its downwardly-projecting ears, which engage with the flat surfaces e^2 .

The invention herein shown does not only apply to a wrench, but is capable of application to other tools.

Having thus described my invention, what I claim is—

1. In a tool, the combination, with the handle, of a stem and a sleeve carried by the same, recesses in said sleeve and a hole in said stem adjacent to each other, a wrench-jaw formed upon the outer end of the same, a cotter arranged in said hole and in the said recesses, provided with ears for holding the same in position, a cross-bar movable on said cotter and provided at its outer end with a jaw, and the handle provided with a screw-thread to actuate the sleeve, for the purposes set forth.

2. In a tool, the combination, with the handle, of a stem and a sleeve carried by the same, recesses in said sleeve and a hole in said stem adjacent to each other, a wrench-jaw formed upon the outer end of the same, a cotter arranged in said hole and in the said recesses, provided with ears for holding the same in position, extending down the sides of said sleeve and provided in its upper side with teeth or serrations, a cross-bar movable on said cotter, provided with teeth or serrations adapted to engage with the teeth or serrations on the cotter and provided at its outer end with a jaw, and the handle provided with a screw-thread to actuate the sleeve, for the purposes set forth.

3. In a tool, the combination, with the handle, of a stem and a sleeve carried by the same, recesses in said sleeve and a hole in said stem adjacent to each other, a wrench-jaw formed on the outer end of the stem, a cotter arranged in said hole and said recesses, provided with ears for holding the same in position, a cross-bar movable in said hole in the stem, provided with a jaw, a spring connecting said stem with the movable cross-bar, and a handle provided with a screw-thread to actuate the sleeve, for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 24th day of February, 1891.

GEORGE F. HALL.

Witnesses:

FREDK. C. FRAENTZEL,
WM. H. CAMFIELD, Jr.