

(No Model.)

2 Sheets—Sheet 1.

W. C. MARR.

WRENCH.

No. 363,901.

Patented May 31, 1887.

Fig. 1.

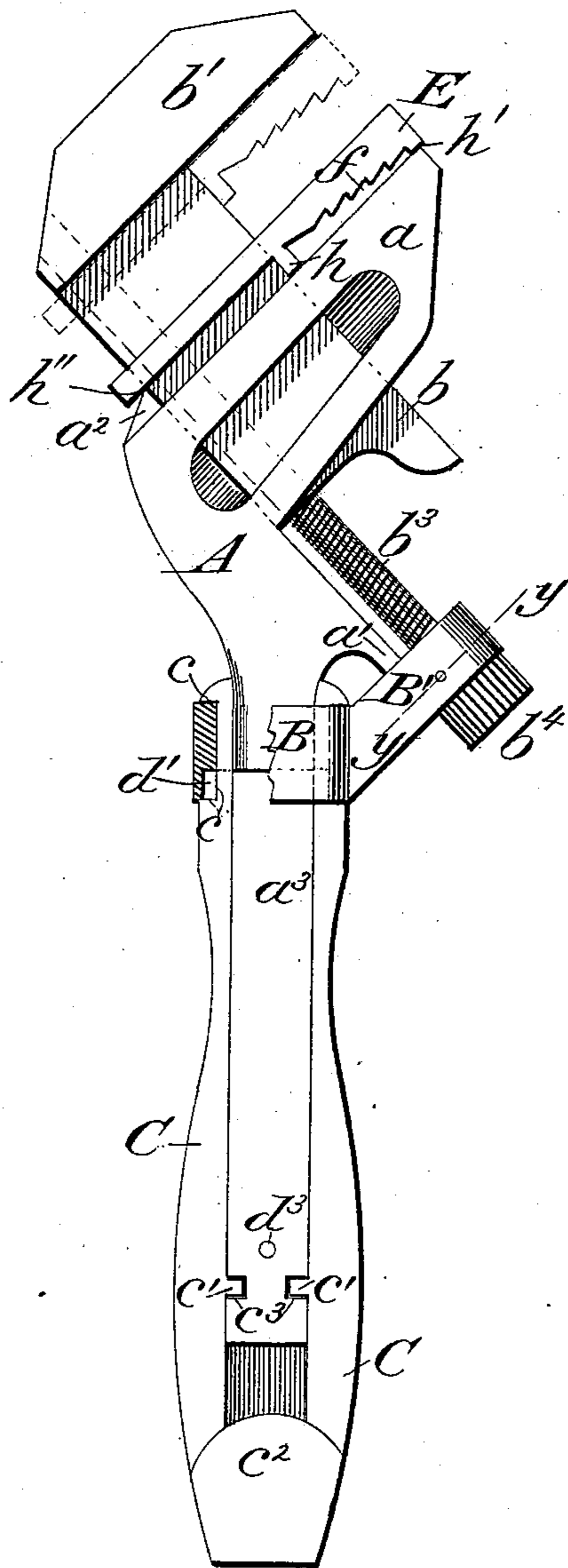
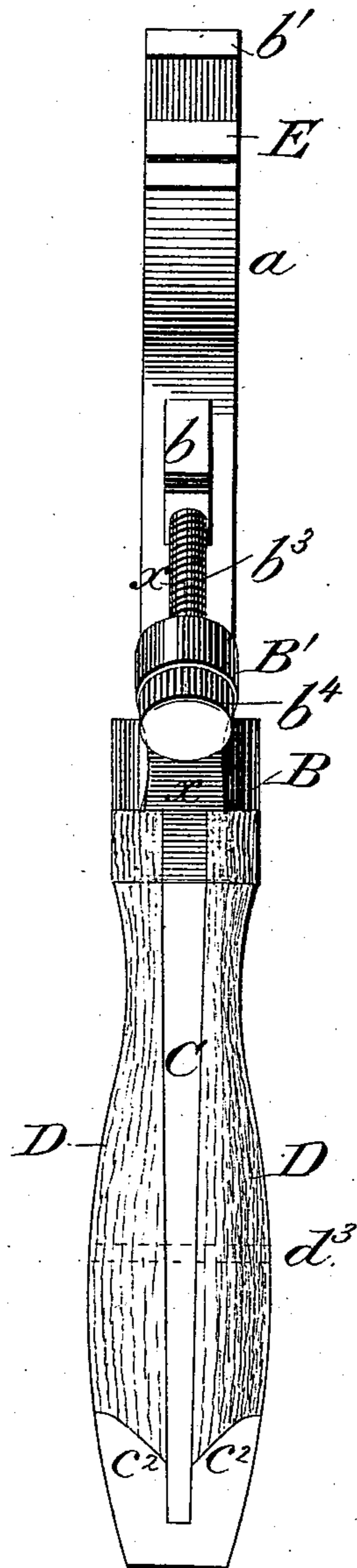


Fig. 2.



Witnesses

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Fig. 3.

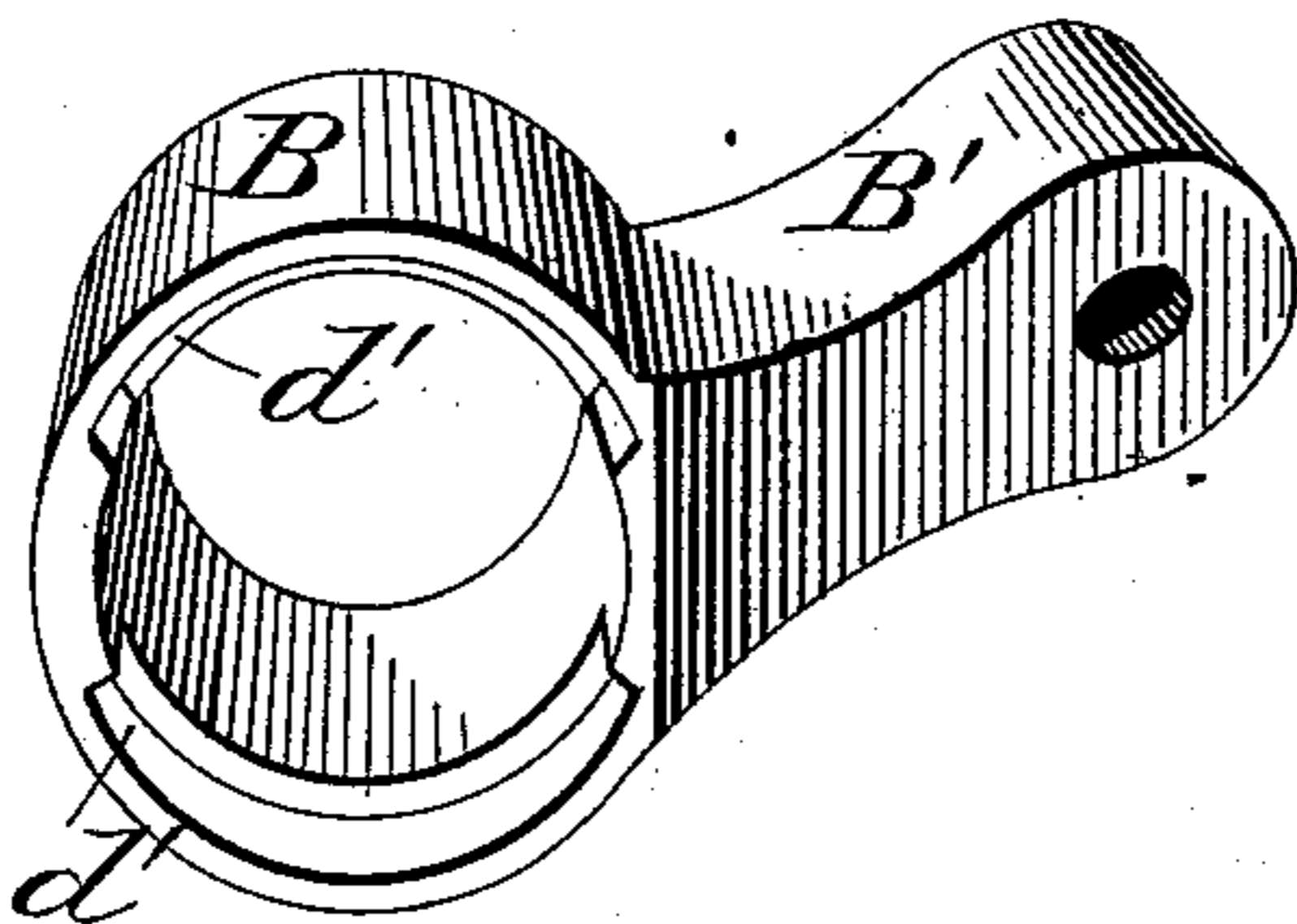


Fig. 5.

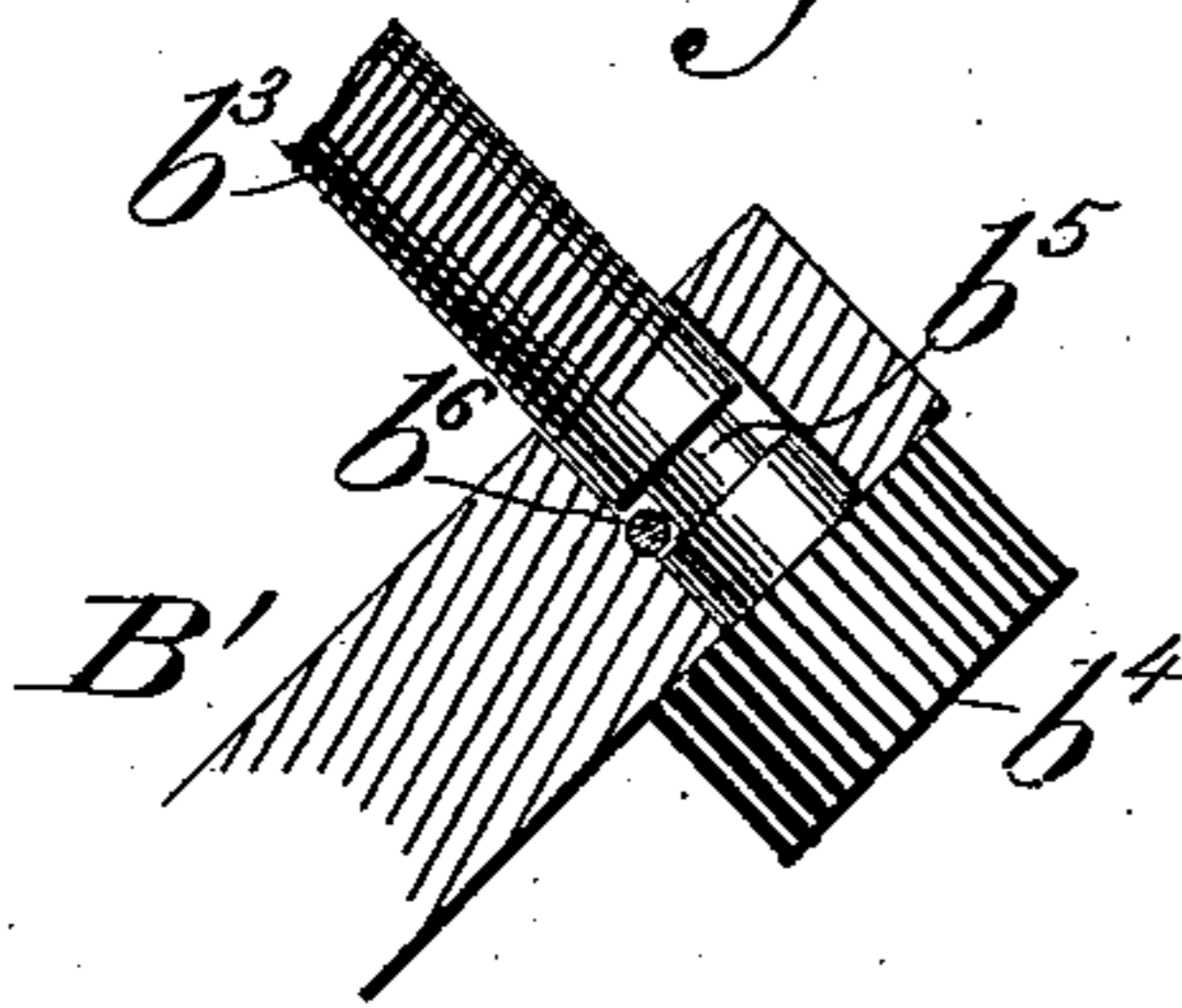


Fig. 4.

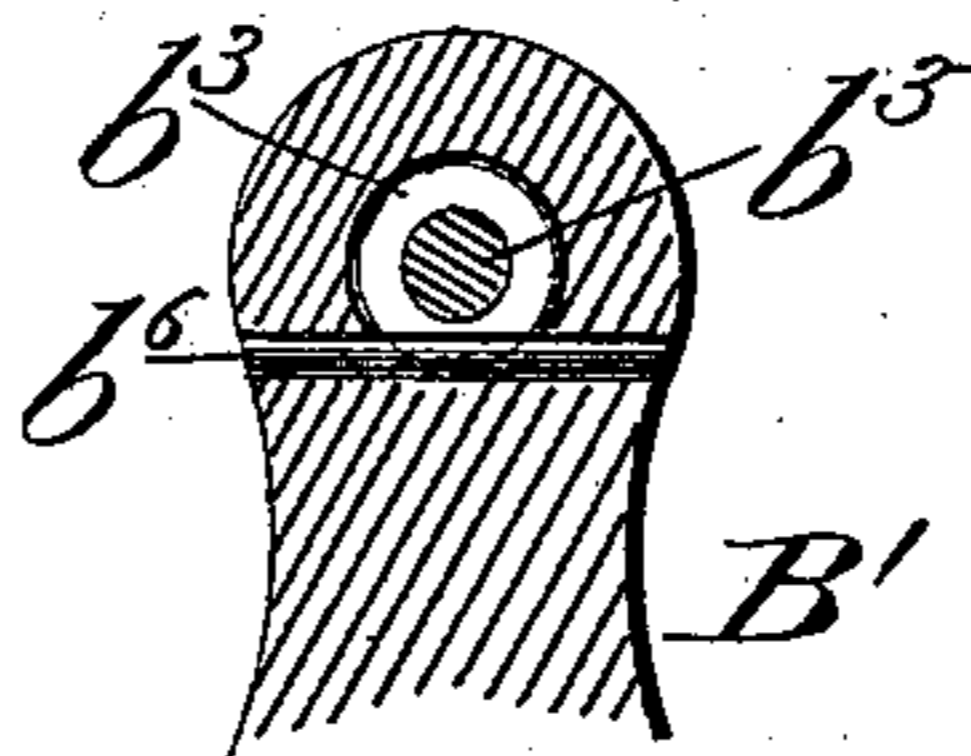


Fig. 6.

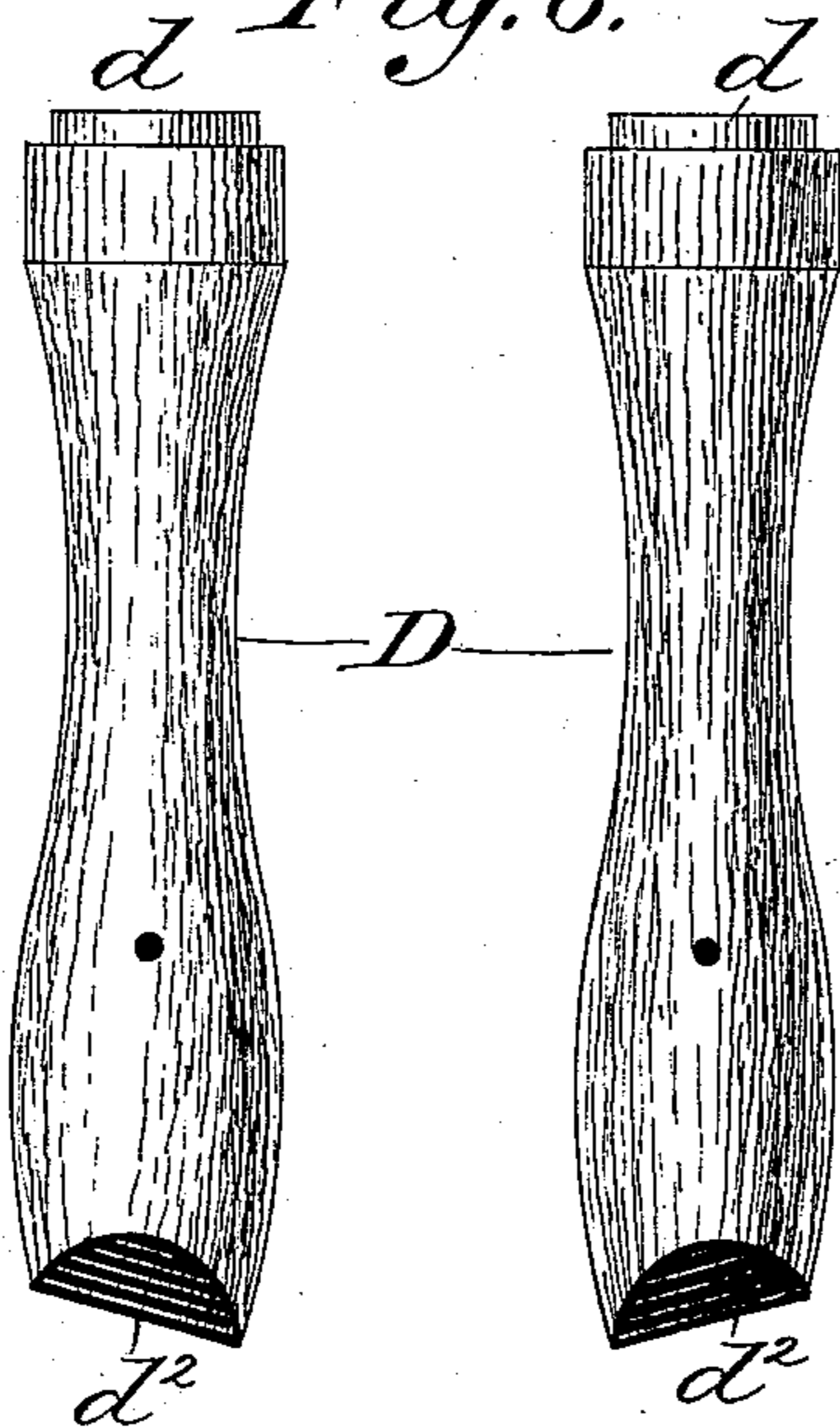
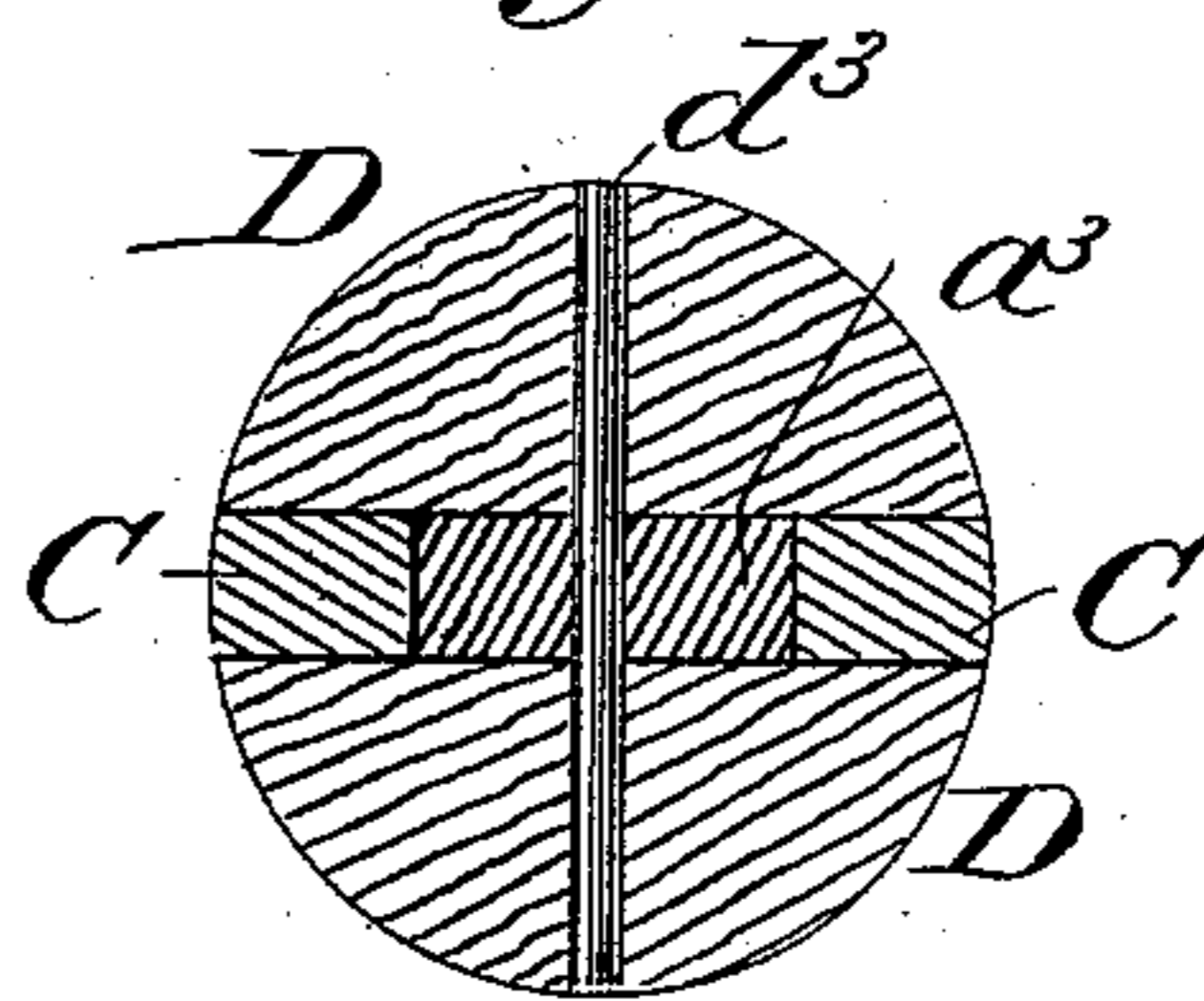


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM C. MARR, OF ONAWA, IOWA.

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SPECIFICATION forming part of Letters Patent No. 363,901, dated May 31, 1887.

Application filed February 7, 1887. Serial No. 226,850. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. MARR, a citizen of the United States of America, residing at Onawa, in the county of Monona and State of Iowa, have invented certain new and useful Improvements in Wrenches, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to furnish a wrench which will combine all the useful elements and serve all the purposes of the ordinary monkey-wrench, the S-wrench, the pipe-wrench, and a hand-vise; and the invention consists of the construction and combination of the parts of such an improved wrench, as hereinafter fully described and claimed.

In the drawings, Figure 1 is a side view of my improved wrench, with the wooden portion of one side of the handle removed and a portion of the ferrule broken away. Fig. 2 is a front edge view. Fig. 3 is a perspective view of the ferrule and set-screw bearing arm, detached. Figs. 4 and 5 are sectional views on lines *x x* and *y y* of Figs. 1 and 2, respectively. Fig. 6 shows the wooden sides of the handle, detached. Fig. 7 is a cross-section of the handle.

A designates the head of the wrench, provided with the fixed jaw *a*, the supporting-lugs *a'* *a''*, and a tongue, *a'''*, forming the central portion of the handle. The fixed jaw is provided with a slot, extending entirely through the jaw and constructed to receive the sliding plate *b*, which is constructed to fit neatly and slide freely in the slot, and upon the outer end of this plate is formed or rigidly attached the movable jaw *b'*, placed at right angles to the plate, which is provided with a threaded hole to receive the adjusting-screw *b''*.

B designates a ferrule, provided with an inclined arm, *B'*, having a hole, through which is extended and in which is swiveled the set-screw, which is provided with a serrated bearing-head, *b'''*, having a hole to receive a lever for operating the set-screw when a very strong grip of the wrench is required. The screw is swiveled to the arm by means of an annular groove, *b''''*, in the screw, and a pin, *b'''''*, inserted through the arm and the groove, as shown.

The handle of the wrench consists of the above-named metallic tongue *a'''*, the metallic

bifurcated frame C, and the wooden sides D. The upper portions of the two arms of this frame are provided with recesses *c* to receive the ferrule, and the lower portion of the frame is provided with lugs *c'* and bearing-flanges *c''*, beveled laterally and inclined inwardly, as shown. This inward inclination of these flanges requires the wooden ends of the sides to be beveled, so as to form obtuse outer angles, which are less liable to be abraded or splintered off than sharp angles, and when the sides are in place these beveled ends are thoroughly protected by the inclined flanges. The lower portion of the tongue is provided with notches *c'''* to receive the lugs on the frame. The upper ends, *d*, of the wooden sides are recessed to fit in the recesses *d'*, formed in the ferrule, and the lower ends, *d''*, of these wooden sides are beveled, as shown, to enable them to be inserted in place and to fit closely against the beveled bearings at the ends of handle-frame, as shown. These wooden sides are secured in place laterally by a pin, *d'''*, inserted through a hole through the sides and tongue, as shown in Fig. 7 of the drawings.

E designates an intermediate jaw, provided with a slot constructed to fit neatly and enable the jaw to slide freely over the plate *b*. This loose jaw is provided with a lug, *h*, and an inwardly-inclined corrugated face, *f*, and is designed to adapt the tool for use as a pipe-wrench, and in holding round bolts or rods in forcing nuts on or off of them, and other purposes for which corrugated tongs may be used.

The corrugated face of the intermediate jaw is inclined inward, as set forth, to prevent a pipe or other round substance from "flying off" from the tool, which is a well-known tendency in the use of wrenches having outwardly-inclined or parallel jaws when the tool is first applied and before the teeth take effect upon such round substances. In applying this improved tool to such round substances their tendency is to move inward into the wider space between the jaws instead of flying off out of the tool.

In using the tool as a nut-wrench the loose jaw is placed against the fixed jaw and the plane face of the loose jaw is placed against the nut to be operated upon. In this position of this jaw it will be seen that its plane face is parallel with the face of the movable

jaw b' , the corrugated face being supported by the lugs $a^2 h$ and the bearing-surfaces $h' h''$.

When the tool is used as a pipe-wrench or in operating upon round bolts or rods the plane face of the jaw E is placed against the movable jaw, so that the corrugated face may be placed upon the pipe or round bolt.

In the construction of an ordinary monkey-wrench the jaws are placed at right angles to the line of the handles; and it is well known that in many places it is difficult and in some cases impossible to apply such a wrench to the nut or other article to be operated upon; and in such wrenches the head or nut by which the set-screw is adjusted is too close to the handle to be readily operated, especially with a lever. To avoid these difficulties the jaws of my improved wrench are inclined preferably at an angle of about forty-five degrees to the line of the handle. It is evident that the inclination may be varied, making it more or less, as required. A wrench having its jaws thus inclined is adapted to be applied in any place where the ordinary S-wrench may be applied, and where an ordinary monkey-wrench with right-angled jaws cannot be used, and the head of the set-screw of my improved wrench is placed far enough from the handle to be readily operated by hand or lever. The lug a' on the wrench-head is constructed to form a firm support for the set screw arm, and the lug a^2 on the head supports the back end of the loose jaw, as shown.

To connect together the parts of the wrench, the recessed ends of the frame C of the handle are sprung inward so as to be inserted through the ferrule in position to have their bearings between the ends of the recesses d' in the ferrule. The tongue a^3 is then inserted through the ferrule between the sides of the frame, the lower portion of the tongue being sprung outward beyond the frame to allow the end of the tongue to pass the lugs on the frame and to place the lugs in range with and to insert them in the notches in the tongue, as shown. The wooden pieces D of the handle are then adjusted in place by first inserting their recessed ends into the recesses in the ferrule, and then the beveled ends are readily moved laterally into place against the beveled inclined bearings at the end of the handle-frame, and the sides are then secured in place by the pin inserted through the sides and tongue. The set-screw is then inserted through and secured in the arm, and its end screwed into the threaded hole in the sliding plate, which is inserted through the slot in the fixed jaw.

To disconnect the parts of the wrench, the screw must be disconnected from the sliding plate and also from the arm. Then remove the pin d^3 from the handle, allowing the wooden sides to be removed; and the lower portion of the tongue is then sprung beyond the frame, so as to disconnect it from the lugs on the frame and allow it to be withdrawn through the ferrule. The recessed ends of the sides of

the frame may then be sprung together and withdrawn from the ferrule.

It is well known that it often happens that a fixed wrench will not turn a nut, because the wrench does not fit the nut exactly, and hence it is manifest that a wrench having adjustable jaws, inclined as set forth, possesses advantages over any ordinary S-wrench, and having the head of the adjusting-screw placed far enough away from the handle to permit the use of a lever, and having the loose corrugated jaw, the tool is adapted for use wherever an ordinary monkey-wrench may be used and where an S-wrench may be applied, and as a pipe-wrench, and in place of a hand-vise.

I am aware that wrenches having inclined jaws and intermediate corrugated jaws are not new, and I do not claim either, broadly; but

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

1. The combination, with a wrench-handle, constructed substantially as set forth, of the ferrule B, the inclined arm B' , formed on or rigidly attached to the ferrule and adapted to form the bearing for the adjusting-screw, the head A, provided with the lug a' , adapted to support the screw-arm, the fixed jaw a , having a central slot extending entirely through the jaw, the plate b , fitted to slide freely through the slotted jaw and provided with a threaded hole to receive the adjusting-screw, the movable jaw b' , formed on or rigidly attached to the sliding plate, and the adjusting-screw b^3 , swiveled in the bearing-arm, substantially as and for the purposes described.

2. The combination, with the wrench-head A, having the supporting-lug a' , and the tongue a^3 , provided with the notches c^3 , the fixed and movable jaws $a b'$, the ferrule B, the inclined arm B' , and the adjusting-screw b^3 , swiveled in the arm, of the bifurcated frame C, having the recesses c , lugs c' , and flanges c^2 , beveled laterally and inclined inwardly, and the wooden sides D, having the ends d^2 , beveled to fit the inclined flanges of the frame, substantially as and for the purposes described.

3. The combination, with the head A, having the lug a^2 , the fixed jaw a , having a slot extended through it, the plate b , constructed to fit in and slide freely through the slot in the jaw, and the movable jaw b' , formed on or rigidly attached to the sliding plate, of the intermediate jaw, E, provided with a slot constructed to fit and slide freely over the sliding plate, and having the bearing-surfaces $h' h''$ and the corrugated face f , inclined inward, substantially as and for the purposes described.

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

WILLIAM C. MARR.

Witnesses:

H. E. MARR,

J. S. MAUGHLIN.