

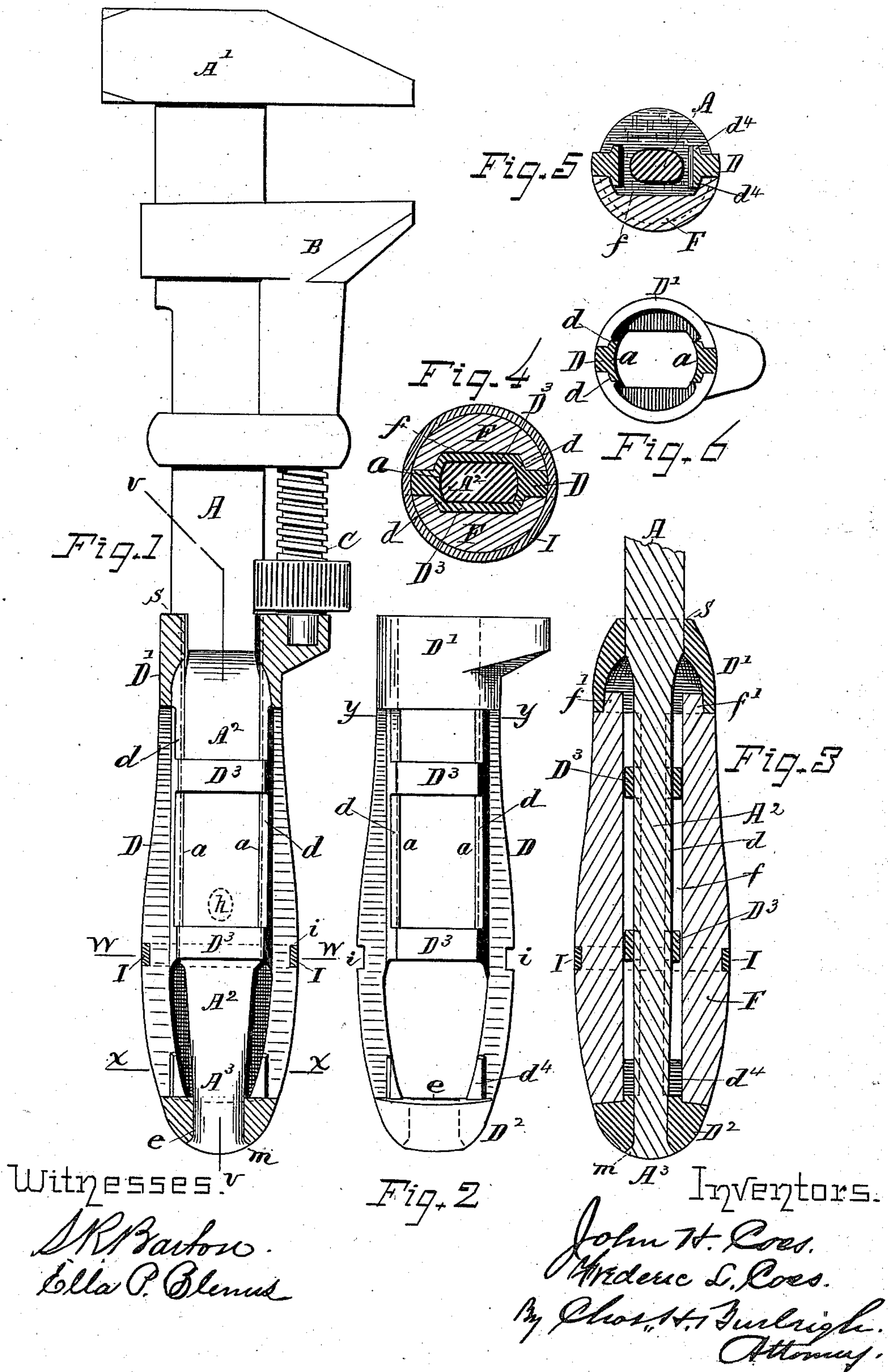
(No Model.)

J. H. & F. L. COES.

WRENCH.

No. 382,138.

Patented May 1, 1888.



UNITED STATES PATENT OFFICE.

JOHN H. COES AND FREDERIC L. COES, OF WORCESTER, MASSACHUSETTS.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 382,138, dated May 1, 1888.

Application filed December 27, 1887. Serial No. 258,946. (No model.)

To all whom it may concern:

Be it known that we, JOHN H. COES and FREDERIC L. COES, both citizens of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Wrenches, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The object of our present invention is to simplify and render more practical and economical the construction of wrenches of that class in which the handle is provided with a metal frame into which the bar is fitted and fastened; and one feature of our invention consists in making the metal frame and bar-shank in the form described, so that the use of a key, and the consequent careful fitting of the parts, is obviated.

Another feature of our improvement consists in providing the handle-frame with longitudinal internal lips, and constructing and fitting the side plates thereto, as explained.

The particular subject-matter claimed is hereinafter definitely specified.

In the drawings, Figure 1 is a side view of our improved wrench with the side of the handle removed. Fig. 2 is a side view of the handle-frame separate. Fig. 3 is a longitudinal section through the handle and bar-shank at line *vv*. Fig. 4 is a transverse section at the position of the line *ww*. Fig. 5 is a section at line *xx*, one-half of the wood handle being removed. Fig. 6 is a section at line *yy*, showing the bottom end of the ferrule.

In reference to parts, A denotes the bar, provided with the usual form of head *A'*, and having the shank *A²*, which is formed and fitted as hereinafter specified.

B is the movable jaw, and C the rosette-screw, both made of the ordinary form.

D indicates the metal handle-frame, which is formed integral with the ferrule *D'* and tip *D²*, and having along its side braces internal surfaces, *aa*, that fit the front and rear sides of the bar-shank *A²* closely. Ties *D³* extend across at the respective sides of the bar for connecting the opposite sides of the frame, and lips *d* are formed upon and extend longitudinally along the internal edges of said frame

adjacent to the supporting-surfaces *a*, and, as illustrated at *d⁴*, near the tip. The bar-shank is milled or dressed off on a circle at its front and rear edges, and the handle-frame is broached out along the internal sides, *a*, to fit and support the same.

The bar-shank *A²* is the full length of the handle, and its end *A³*, which is reduced, extends through an opening, *e*, formed in the tip *D²*, and the extremity of the bar-shank is riveted onto the outer end of the handle-frame, as illustrated at *m*.

The wooden side plates, F, are externally turned or formed to give fullness to the handle, and their inner surfaces have a longitudinal channel, *f*, formed therein of a shape that will fit over the tie-bands *D³* and lips *d d⁴*, the edges of the wood resting on the frame and embracing the lips, as in Fig. 4. The side plates are fitted at their upper ends, *f'*, to extend under the rim of the ferrule *D'*. Said side plates are held in place by a metal ring, I, which is crimped or compressed into a groove formed round the handle. Notches *i*, formed in the edges of the handle-frame *D*, receive and support said ring I, which is thus held firmly against endwise displacement while binding the plates against the sides of the frame. The side-plates are retained against lateral displacement at their upper and lower ends by the lips *d* and *d⁴*, the frame showing externally only a narrow strip with straight edges from the tip *D²* to the ferrule *D'*. In some instances, if desired, the side plates may be held by a rivet or bolt passed through them from side to side. In such case the bar-shank *A²* would be provided with an opening or hole through it, as indicated at *h* in Fig. 1, said hole being sufficiently long to allow of the bar being drawn firmly against the shoulder S when riveting its end.

When putting the parts of the wrench together, the handle-frame is slipped onto the bar-shank *A²*, and the end of said shank is riveted or upset at *m*, so as to form a round end outside the tip and draw the bar firmly down to the shoulder S. This makes the handle-frame solid with the bar, as the sides *aa* and bands *D³* embrace the shank closely. The riveted end is then ground off round and smooth. The side plates, F, are then put on, the ring I slipped over the handle, (said ring

being of just sufficient diameter to pass the swell,) and the handle is then placed in a suitable die and the ring I compressed so as to reduce its diameter and force it into the groove
 5 to a degree that will bring its outer surface flush with the surface of the handle when finished.

We are aware that wrenches have heretofore been made with a metal frame in the handle, the bar fitted therein and secured by a key. It will therefore be understood that we do not make claim, broadly, to a wrench-handle having a metal frame with side plates, or
 10 irrespective of the improved construction set forth.

What we claim as of our invention, and desire to secure by Letters Patent, is—

1. The handle-frame composed of the ferrule, tip, and side braces formed integral, and
 20 having the tip end D² provided with an opening, *e*, in combination with the bar A, having the shank A', supported between the internal surfaces, *a*, of said handle-frame, and extending through the opening in said tip, with its end
 25 fastened or riveted at the outer end of the handle-frame, substantially as shown and described.

2. A wrench having its handle constructed as herein described, with the metal handle-frame composed of the ferrule, tip, and con-

necting-braces formed integral and internally fitted to support the shank of the bar at *a a*, and provided with the lips *d* adjacent to the shank-supporting surfaces, in combination with the side plates, F, internally longitudi- 35
 nally grooved or recessed, as described, to fit over and embrace said lips, and means for securing said side plates to the frame, substantially as set forth.

3. The wrench constructed substantially as 40
 shown and described, with the handle-frame D, composed of the integral ferrule, tip, and side braces, having ties D³ and internal surfaces, *a a*, for supporting the bar, an opening through the tip end and side notches, *i*, in com- 45
 bination with the bar having the long shank A', extending through the end of the handle fitted between said internal surfaces and fastened or upset at the outside of the tip end, the side plates, F, fitted to the handle-frame, and 50
 the ring I compressed into the notches *i* and peripheral groove about the side plates, for the purposes set forth.

Witness our hands this 22d day of December, A. D. 1887.

JOHN H. COES.
 FREDERIC L. COES.

Witnesses:

CHAS. H. BURLEIGH,
 ELLA P. BLENUS.