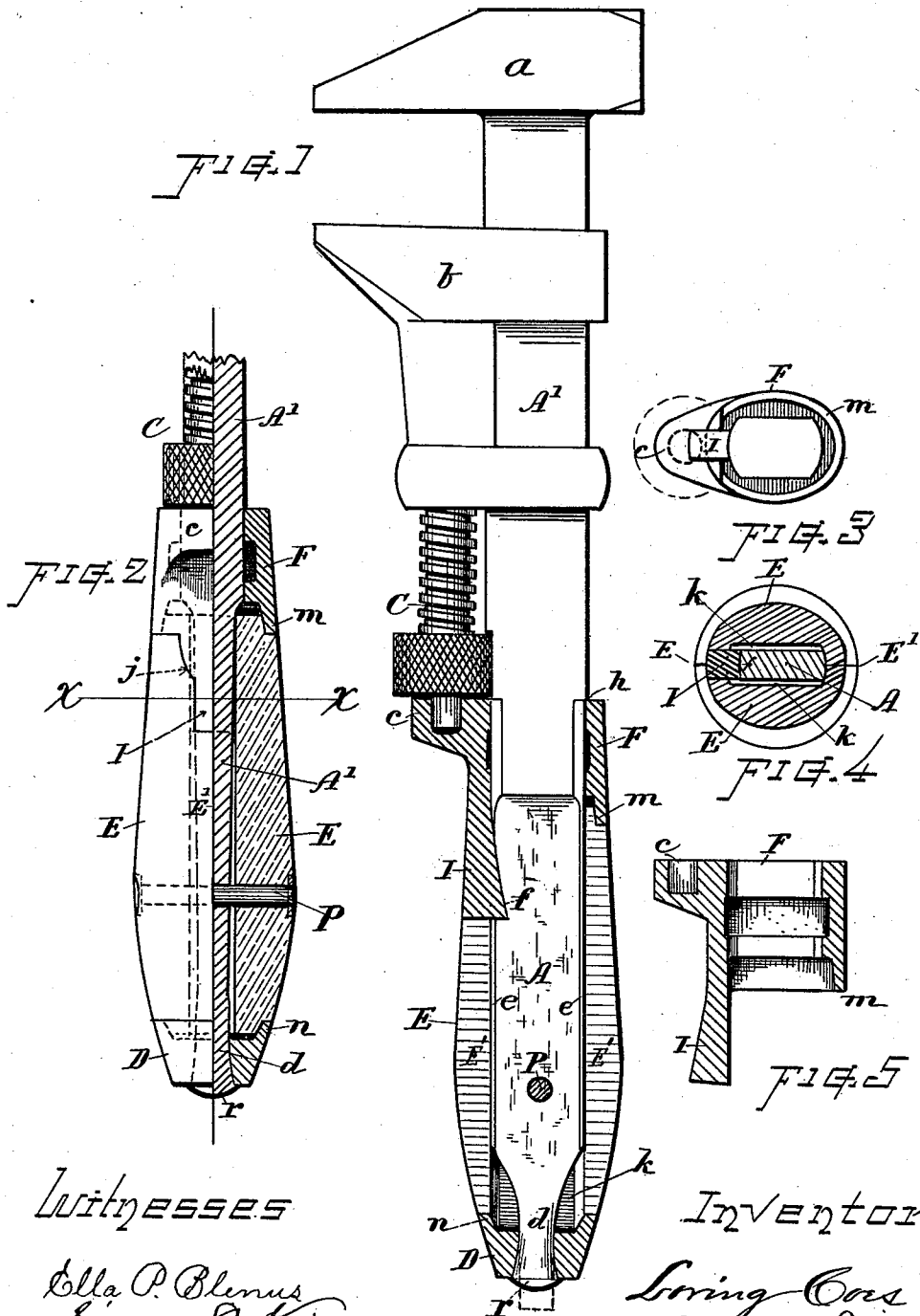


(No Model.)

L. COES.
WRENCH.

No. 465,346.

Patented Dec. 15, 1891.



Witnesses

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LORING COES, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE COES
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WRENCH.

SPECIFICATION forming part of Letters Patent No. 465,346, dated December 15, 1891.

Application filed October 6, 1891. Serial No. 407,826. (No model.)

To all whom it may concern:

Be it known that I, LORING COES, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement 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.

My present invention relates to the peculiar construction of the wrench-handle and manner of combining the ferrule with the bar-shank, the object being to afford a wrench that can be manufactured with facility and economy, and which will be strong, efficient, and desirable for use. These objects I attain by the construction illustrated in the drawings, wherein—

Figure 1 is a part side, part sectional, view of my improved wrench. Fig. 2 is a view, half front and half longitudinal section, of the handle. Fig. 3 is a separate bottom end view of the ferrule. Fig. 4 is a transverse section of the handle at line *xx*, and Fig. 5 is a separate longitudinal section of the ferrule.

The head *a*, movable jaw *b*, and rosette-screw *C* can be of the usual well-known form. The shank *A* of the bar *A'* is in accordance with my present invention made with a long straight portion reduced in thickness at its sides to about three-fifths, more or less, of the thickness of the main part of the bar and having parallel edges *e e* extending nearly through the length of the handle, but tapering at the extremity into a tang or projection *d*, that will conveniently pass through the central opening in the conoidal tip *D*. (See dotted line, Fig. 1.) The edges *e* on the shank are best milled off or fitted to a cylindrical curve, and in the front edge of the bar-shank there is formed a recess or notch *f*, the upper part of which is made with a long taper, while the lower part is a square shoulder or surface perpendicular, or nearly so, to the longitudinal axis of the bar.

The ferrule *F* is provided with the usual step *c* for the rosette-screw, and beneath said step, integral therewith and prolonged down-

ward from the lower end of the ferrule, I provide a tongue of metal *I*, that is formed of proper shape and dimension for engaging with the notch *f* on the bar-shank *A* in the manner illustrated. The ferrule is formed with the tongue *I* standing outward, as shown in Figs. 3 and 5, so that its central opening can be broached out, and so that it can slip onto the shank. Then when the ferrule has been adjusted upon the bar with its top against the shoulder *h* the tongue *I* is forced into the recess or notch *f* by suitable pressing-dies that bend and crimp the metal of the tongue so as to give it a solid and permanent set into said notch, with its end *i* engaging against the bottom shoulder of said notch (see Fig. 1) for rigidly supporting the ferrule against the backward thrust of the jaw *b* and rosette-screw *C* when the wrench is in use. The sides of the handle are formed or filled out by the wood plates or scales *E*, the inner faces of which come together at *E'* in a close longitudinal joint, their upper front part being cut away or recessed at the edge to fit against the sides of the tongue, as at *j*. The inner faces of the scales *E* are fitted with a longitudinal channel, as at *k*, extending from end to end thereof to afford space for the bar-shank *A* between them, and at their ends are reduced on the outer side to fit under the respective lips *m* and *n* of the ferrule and tip, as indicated. The tang or end *d* of the shank after the handle, ferrule, and tip have been assembled is upset or riveted into the end of the tip, as at *r*, the hole in said tip being somewhat dovetailed to insure a strong connection. This construction provides a very neat, strong, and desirable wrench which can be manufactured with facility and economy.

I claim as my invention herein to be secured by Letters Patent—

1. The ferrule *F*, having the extension or tongue *I* beneath the rosette-screw step, in combination with the wrench-bar having a notch *f* formed in the edge of its shank, into which notch said tongue is set, substantially in the manner and for the purpose specified.

2. A wrench having its bar and ferrule united by means of a recess or notch formed in the edge of the bar and an extension, or

tongue formed integral with the ferrule that engages the bar, said tongue being originally formed outstanding and subsequently bent down or forced into said notch by pressure
5 applied thereto after the ferrule is adjusted on the bar, substantially as set forth.

3. The combination, substantially as hereinbefore described, of the wrench-bar having the straight shank provided with the shoulder *h* and a shoulder or notch in its front
10 edge and a tang at its lower end, the ferrule having the extension or tongue below the ro-

sette-step, set into said notch, the side scales E, fitting over said shank with their ends engaging under lips on the tip and ferrule, and
15 the tip confined to the bar-shank tang by the upsetting of the extremity of said tang, for the purposes set forth.

Witness my hand this 2d day of October,
A. D. 1891.

LORING COES.

Witnesses:

CHAS. H. BURLEIGH,
JOHN H. COES.