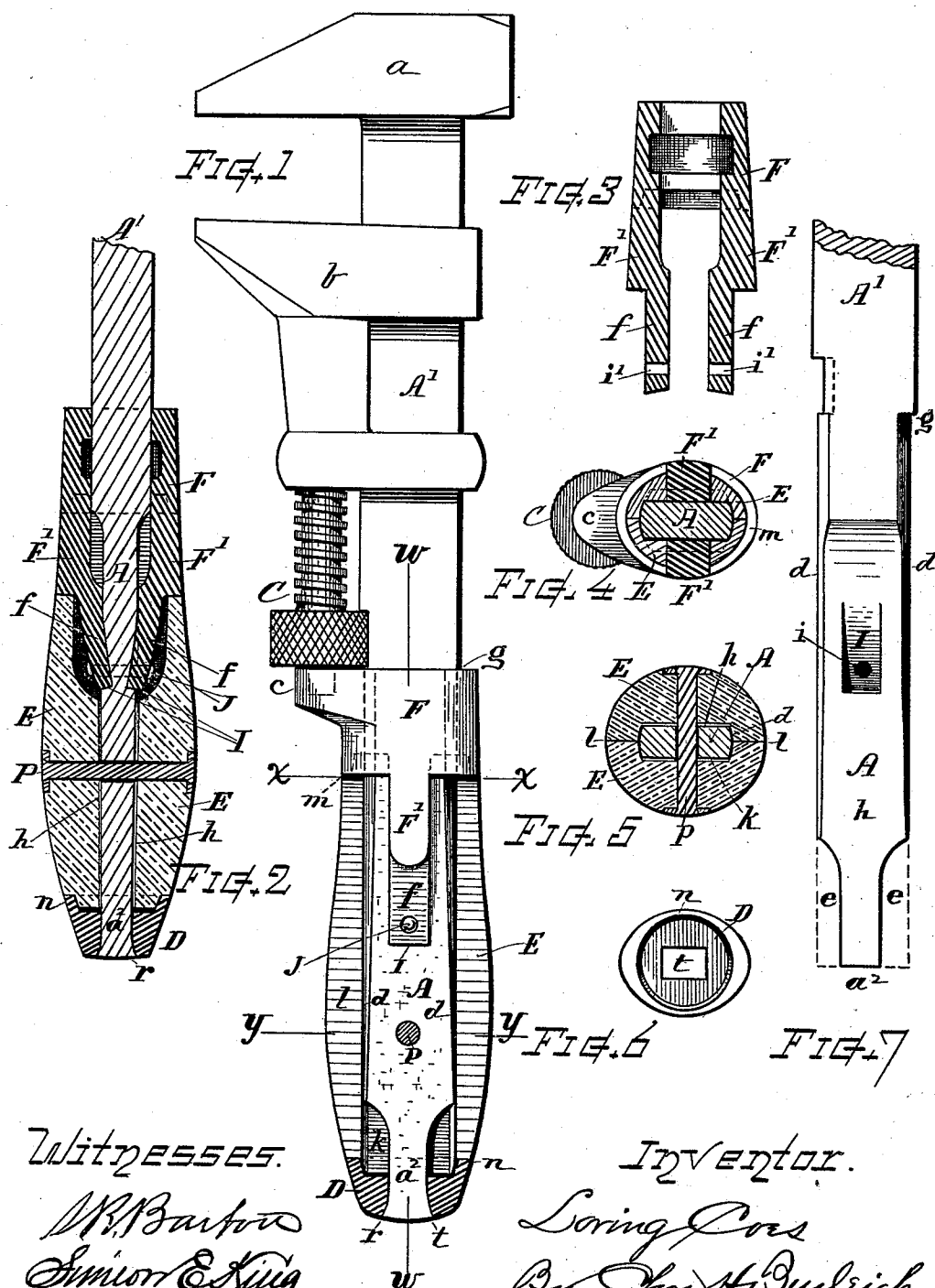


(No Model.)

L. COES.
WRENCH.

No. 465,347.

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. 465,347, dated December 15, 1891.

Application filed October 6, 1891. Serial No. 407,827. (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.

This invention relates to the construction of the handle in that class of tools known as the "Coes wrench," and to the peculiar manner of supporting the ferrule in connection with the bar-shank, the object being to render the handle firm and rigid in its connection with the bar, and to afford a wrench that will be very strong laterally at the junction of the handle, ferrule, and bar. These objects I attain by the peculiar construction illustrated and described, the particular subject-matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a side view of my improved wrench, one side of the wood side plates being removed and the tip shown in section. Fig. 2 is a longitudinal section of the handle on line *ww*. Fig. 3 is a separate longitudinal section of the ferrule before it is placed on the bar. Fig. 4 is a transverse section at line *xx*, looking up. Fig. 5 is a transverse section at line *yy*. Fig. 6 is a top view of the tip separate from other parts, and Fig. 7 is a side view of the bar-shank.

The head *a*, movable jaw *b*, and rosette-screw *C* are made of well-known form heretofore employed in the Coes wrench. The shank *A* of the bar *A'* is formed with parallel front and rear edges *dd*, while its two sides *hh* are reduced and diminished for about two-thirds (more or less) of the length of the handle down to the tip end, the end of the shank being about one-half the thickness of the main bar. The upper part of the shank is made the full thickness of the bar through the ring of the ferrule. The lower corners of the shank are punched out or cut away, as at *ee*, leaving a rectangular tang or riveting end *a'*. The edges *dd* are dressed or milled off up to the shoulder *g* on cylin-

dricar curves. In the two opposite sides of the bar-shank *A'*, centrally of the handle, recesses or depressions *I* are formed, each of which terminates with an offset or shoulder at its lower end and tapers upward to vanish in the side surfaces of the bar-shank at its upper extremity, as indicated. A hole *i* is formed through the bar-shank in the lower part of said recesses.

The ferrule *F* is formed with the usual rosette-screw step *c* and a central opening to fit the bar against the shoulder *g*. At its two opposite sides said ferrule is provided with downwardly-extended tongues or braces *F'*, preferably made of a thickness to correspond with the thickness of the wood handle-plates *E* and about three-eighths inch (more or less) in width. Said braces *F'* are formed integral with the rim of the ferrule, and have at their lower ends tongues or prolongations *f* of less thickness than the part *F'*. These braces or tongues bear against the sides of the bar and respectively fit into the depressions *I* with their ends seated upon or bearing against the offsets or shoulders at the lower ends thereof. (See Figs. 1 and 2.) Holes *i'* are preferably formed in the tongues, and the two opposite tongues secured together by means of a pin or rivet *J*, that passes through the tongues and shank from side to side, and is headed down at its ends onto the tongues. The inner surfaces of these side braces or tongues are originally formed straight, as shown in Fig. 3, so as to permit broachment of the opening and the convenient assembling of the parts. Then when the jaw, rosette-screw, and ferrule have been assembled on the bar the tongues *f* are bent inward or pressed into the depressions *I*, and the pin or rivet *J* is inserted and clinched, thus locking the parts together. The length of the brace-arms *F'* or the thin part of the tongues *f*, in their extension from the rim of the ferrule, can be varied in any instance to suit the size or class of wrench or to the taste of the manufacturer, and, as may be desired in any instance, the entire length of the extension can be made thin to be covered by the wood plate *E*, as is the part *f*, or be made of such thickness as to be exposed on the surface of the handle, as is the portion *F'*. The end of the exposed por-

tion F' of the extension is best rounded, as shown, so that the slot in the wood plate E can be conveniently formed for fitting thereto by means of a revolving cutter.

5 The rivet or pin J may in some instances be omitted, if desired, the opposite tongues being retained in engagement with the bar by the stiffness of the metal after it has been pressed into the depressions. Riveting the
10 tongues together, however, makes a more solid structure, and is therefore deemed preferable.

The handle plates or scales E are properly chambered on their interior k to lie over the
15 shank and tongues f , and match together in halves with a close longitudinal joint at l , and said plates are slotted at their upper ends to fit the braces F' , which latter fill the slots and are exposed at the surface of the handle.
20 The ends of the wood plates are reduced to fit under the lips m and n on the ferrule and tip, respectively. The usual pin rivet or bolt P is fixed through the bar-shank and scales for binding them together, as indicated.

25 When all the parts are assembled, the tip D is put on and the end of the shank is riveted or upset, as at r . The hole t through the tip is best made rectangular to correspond with the end a^2 of the bar-shank. This facilitates
30 the manufacture and also prevents the turning of the elliptical tip out of place about the axis of the handle.

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

35 1. The wrench-bar shank having depressions that afford offsets or shoulders on the opposite sides thereof, and the ferrule provided on its two opposite sides with downwardly-extending arms or braces that are bent inward along the sides of the bar-shank, with
40 their ends set against the shoulder or offset in said depressions, substantially as set forth.

2. The wrench-bar shank having on its two opposite sides inwardly-inclined depressions,
45 with shoulders or offsets at their lower extremities, the ferrule provided at its opposite

sides with downwardly-extending arms having at their extremities perforated tongues that are set into said depressions, and a pin or rivet passing through said tongues and bar
50 and confining them together, substantially as set forth.

3. In a wrench of the class specified, the combination, with the headed bar, the sliding jaw, and rosette-screw, of the ferrule hav-
55 ing the rosette-screw step thereon and provided at its two sides with integral downwardly-extending arms or tongues that embrace the sides of the wrench-bar shank within the handle, the ends of said arms abutting
60 against offsets or shoulders on the sides of said shank, and the wooden side plates of the handle fitted over said bar-shank and matching together in halves, each plate having at the
65 upper part a longitudinal slot corresponding to the ferrule-extension, through which slot a portion of said arm is exposed, substantially as shown and described.

4. The wrench-bar having its shank formed, as shown, with the parallel front and rear
70 edges d , its sides h , having depressions I formed therein and tapering toward the lower end, with the portions $e e$ at the extremity cut away, forming a rectangular tang, in combination with the ferrule having the rosette-
75 screw step c , and the two downwardly-extending braces or tongues fitting into depressions on the bar-shank, with their ends firmly seated against the offset surface, the rivet-pin J , connecting said tongues, the side plates E , over-
80 lying said shank, the oval tip D , having the rectangular opening with the end a^2 of the shank riveted therein, and the rivet-pin P through said plates, all substantially as set forth.

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

LORING COES.

Witnesses:

CHAS. H. BURLEIGH,
JOHN H. COES.