L. COES.

WRENCH.

No. 186,034. Patented Jan. 9, 1877.

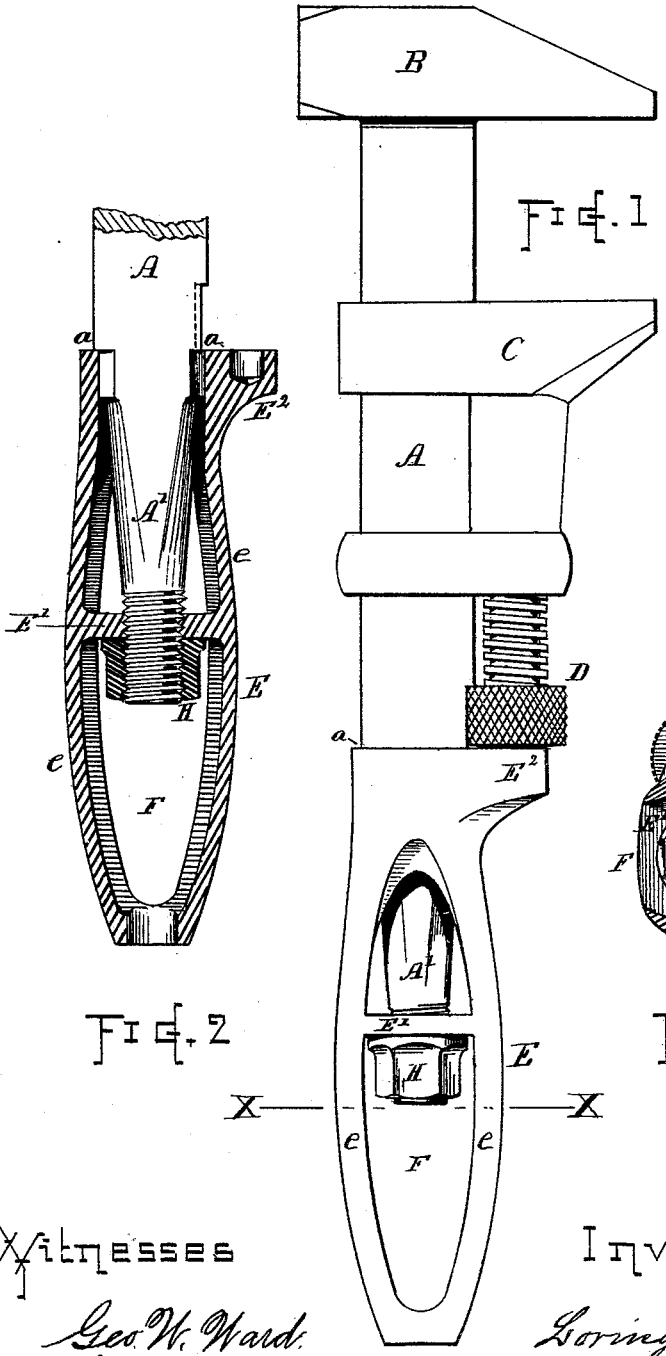

Fig. 1

Fig. 2

Fig. 4

Fig. 3

Witnesses

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LORING COES, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN WRENCHES.

Specification forming part of Letters Patent No. **186,034**, dated January 9, 1877; application filed November 17, 1876.

To all whom it may concern:

Be it known that I, LORING COES, of the city and county of Worcester, and State of Massachusetts, have invented certain new and useful Improvements in Screw-Wrenches; and I declare that the following is a description of my said invention, sufficiently full, clear, and exact to enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 represents a side view of a wrench constructed in accordance with my invention. Fig. 2 represents a longitudinal central section of the handle. Fig. 3 represents a transverse section of the handle at line *x x* on Fig. 1, and Fig. 4 shows a modification in the construction.

This invention relates to that class of wrenches known as the "Coes" screw-wrench; and consists in certain improvements in the construction and method of attaching the handle to the bar-shank, as hereinafter explained.

In the drawings, A denotes the bar; B, the head jaw; C, the movable jaw; D, the rosette and screw; and E the handle. The upper portion of the bar A, the jaws B C, and the rosette-screw D may be of ordinary construction, and, therefore, require no particular description.

The handle E I make from metal, cast with the proper external form, cored out at its interior, and open at the sides, as at F, leaving the metal at the parts *e e* in the form of thin shells or ribs of suitable curvature to be conveniently grasped by the hand.

The parts *e e* join at the upper and lower ends of the handle, and a transverse bar or perforated plate, E^1, is cast across between the parts *e e*, at or near a central position of the handle, and through which the rounded end of the bar-shank extends, while on the upper end of the handle is cast the projection or step E^2, in which the end of the rosette-screw D is supported, thus making the entire handle and step in a single piece.

The shank A′ of the bar A I make quite short, about one-half the length of the handle, more or less. The shank A′ is worked off to form shoulders at *a a*, which closely fit the opening at the upper end of the handle, while the lower end of said shank is tapered to pass through and fit the opening in the plate E^1. A nut, H, is screwed onto the end of the shank A′, and against the cross-plate E^1, which draws the handle firmly against the shoulders *a a*, and retains the parts securely in position.

The handle E and step E^2 being made from metal in a single piece, there is no chance for any looseness, splitting, or wear, as is very liable to occur with the ordinary wooden handles; neither is there any possibility of the handle turning independent of the bar, while all back strain from the jaw C, through the rosette-screw D, is transferred to and borne by the bar A and nut H. The nut H being inclosed within the handle E is not liable to become loosened by the rough usage to which the wrench is subjected.

The portion of the handle E above the nut seat or plate E^1, may, if desired, be made solid, as shown in Fig. 4, but I prefer the form shown in Figs. 1 and 2.

By reducing the length of the bar-shank A′, and the number of parts in the wrench, I effect much saving in the cost of production, without detracting from the efficiency or durability of the wrenches.

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

1. The metal handle E, having the step E^2 and nut-seat or cross-plate E^1, in combination with the bar A A′, rosette-screw D, and nut H, substantially as shown and described.

2. In combination with the bar A, having a short shank, A′, and shoulders *a a*, the metal handle E, made with thin shell or ribs *e e*, and secured to said bar by a separate nut, H, screwed on the end of said shank A′, within the central part or interior of said handle, substantially as set forth.

LORING COES.

Witnesses:

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