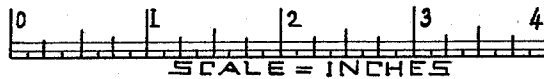
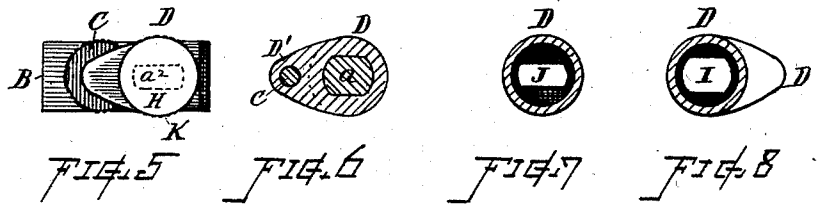
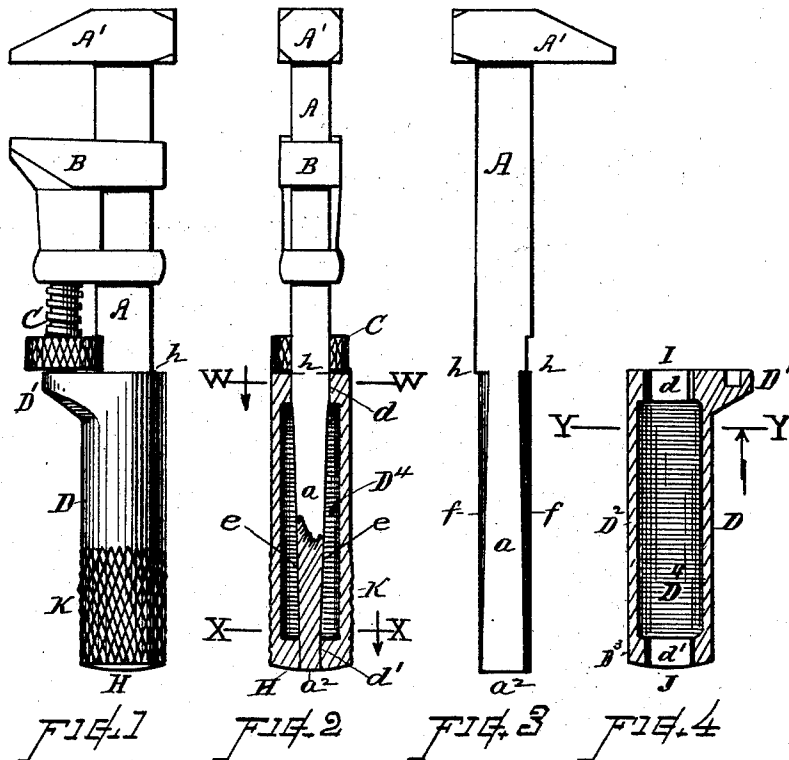


(No Model.)

L. COES.  
WRENCH.

No. 524,574.

Patented Aug. 14, 1894.



Witnesses  
Frank Stone  
Ella P. Blum

Inventor  
Loring Coes  
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# UNITED STATES PATENT OFFICE.

LORING COES, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE COES WRENCH COMPANY, OF SAME PLACE.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 524,574, dated August 14, 1894.

Application filed February 19, 1894. Serial No. 500,608. (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.

The object of my present improvement is to so construct a wrench of the class shown that it can be manufactured with economy and practical facility; and to afford a strong, durable and comparatively inexpensive wrench more especially adapted for the use of bicyclists and for similar uses, where a small but efficient adjustable tool is desired; and my invention consists in the specific construction and arrangement of the handle with the bar-shank and jaw-operating devices, the particular features of improvement being hereinafter definitely specified.

In the drawings, Figure 1 is a side view. Fig. 2 is a back view with the handle in section; Fig. 3 a side view of the bar separately; Fig. 4 a longitudinal section of the handle separately; Fig. 5 an end view; Fig. 6 a section at line *w w*; Fig. 7 a section at line *x x*; Fig. 8 a section of the handle at line *y y*.

Referring to parts, A denotes the bar; A' its fixed jaw or head; B the sliding jaw; C the rosette and screw, and D the handle. The head A', sliding jaw B and rosette screw C are the same in construction and arrangement as heretofore employed in the well known "Coes" wrench.

The bar-shank *a* is formed with a slight reduction or taper at its sides *e e*, but with parallel front and rear edges *f f* extending the full length of the shank, which edges *f* are rounded or formed as segments of a common cylindrical surface, so that the shank can be dressed off to an accurate size for fitting into the handle, at a single operation, by running a hollow milling tool thereonto, from the end *a*<sup>2</sup> to the shoulder *h*.

The handle D is a single piece of metal in-

cluding the ferrule or top end with the rosette supporting step D', the body portion D<sup>2</sup> and the end tip D<sup>3</sup> all integral, and forming a hollow cylindrical casting preferably straight on the exterior and having internally a hollow D<sup>4</sup> at its central part and bearing portions *d* and *d'* at its respective ends, with openings I and J of the form shown to receive the bar-shank A'. The opening J in the lower end is of transversely oblong shape straight at the sides and rounded at front and back (see Fig. 7) to fit the edges *f* and sides *e* of the shank which is inserted through the hollow of the handle and its end *a*<sup>2</sup> externally riveted into the opening J, thereby confining the integral metal step D' and handle D upon the bar-shank between the shoulder *h* and the riveted end *a*<sup>2</sup>, in a manner to form an absolutely rigid and practically solid attachment. After the end *a*<sup>2</sup> is riveted the end of the handle and shank is dressed off to form a smooth, flat or slightly rounded end face H which can, when desired serve as a hammer face for striking or driving articles, with the wrench body held endwise in the hand.

The exterior of the handle is smoothed or polished and a portion thereof is check-roughened or knurled, as at K, by revolving the end of the handle between a series of knurling rollers, thus rendering the metal handle convenient for handling.

The wrench can, when desired, be nickel-plated as a whole before or after completion. By constructing and fitting together the bar-shank and the handle as shown, the practical operations of manufacture are greatly facilitated and economy in structure attained; while a highly efficient and durable wrench for the purposes intended is produced.

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

The metal handle having the cylindrical body with the ferrule or rosette-step integral therewith, said handle formed as a thin casting internally hollow at its central part and provided at its respective ends with internal bearing portions having openings therethrough of transversely oblong shape, straight at the sides and rounded at front and

back, in combination with the bar-shank formed with tapering sides and rounded parallel front and back edges extending its entire length and fitting the bearing portions of the handle at its upper and lower ends, said handle being rigidly confined upon the bar-shank between the shoulder *h* and riveted shank-end *a*<sup>2</sup>, and the end of the handle and bar-shank transversely dressed off to form a striker-face, as shown and described. 10

Witness my hand this 16th day of February, A. D. 1894.

LORING COES.

Witnesses:

CHAS. H. BURLEIGH,  
JOHN H. COES.