No. 610,259. Patented Sept. 6, 1898.

L. COES.

WRENCH.

(Application filed Jan. 17, 1898.)

(No Model.)

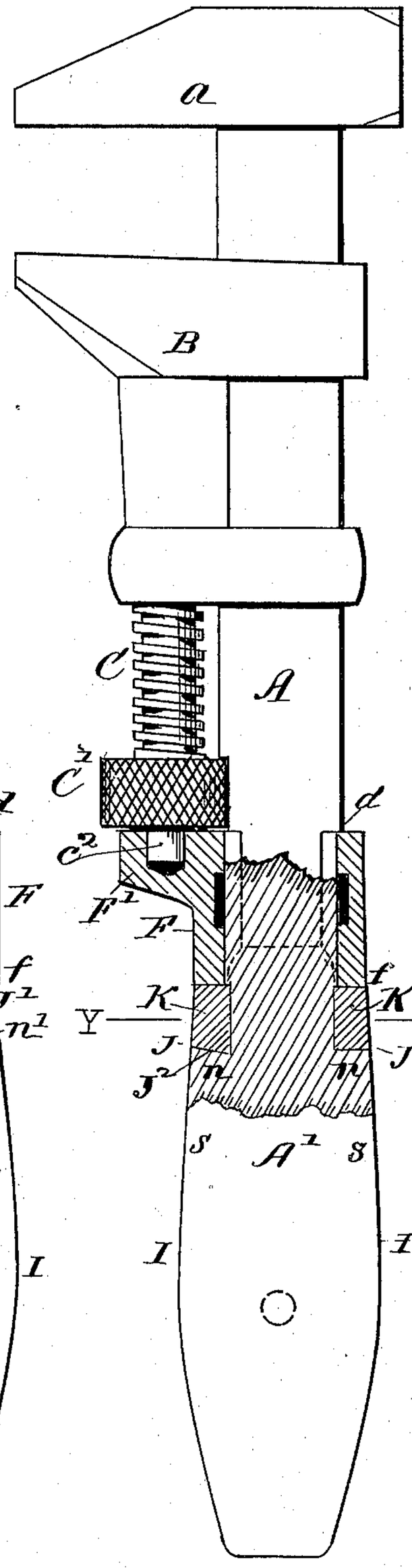


FIG. 1

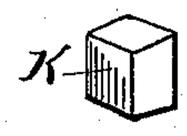


FIG. 5

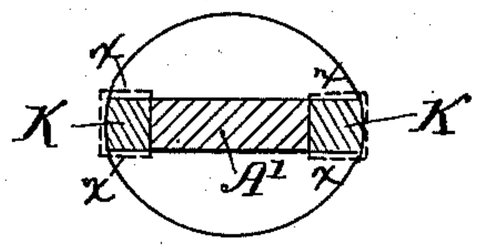
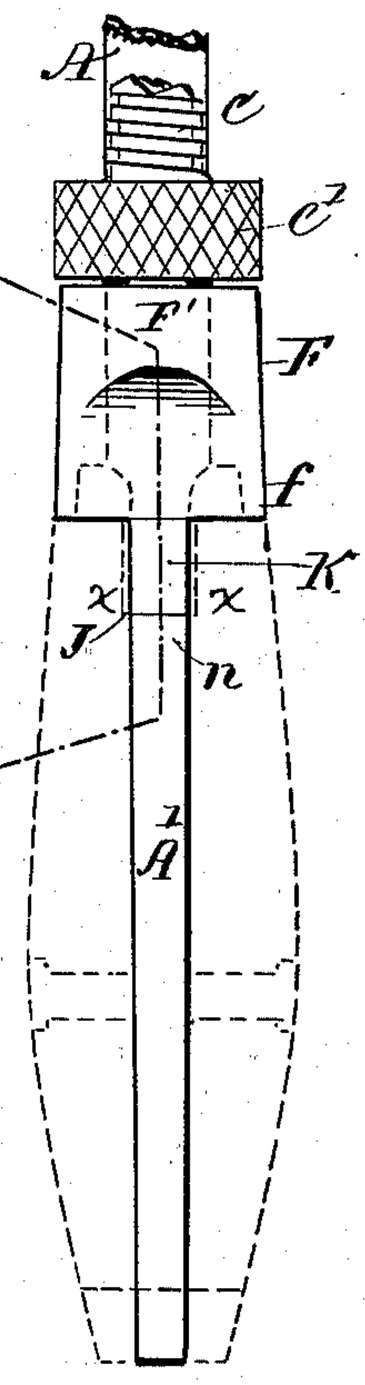


FIG. 4

FIG. 2

FIG. 3



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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. 610,259, dated September 6, 1898.

Application filed January 17, 1898. Serial No. 666,851. (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 peculiar construction of the bar-shank, the manner of its combination with the ferrule, and the means for securing the parts positively rigid and secure in their combined relation, the object being to afford a strong wrench that can be manufactured with practical facility and in which the ferrule is rigidly fixed in position by expanding the bar-shank to the full width and form of the handle and introducing between said expanded portions and the end of the ferrule laterally-inserted chock-pieces, which are arranged, fastened, and condensed as more fully hereinafter explained.

In the drawings, Figure 1 is a side view of a screw-wrench, partly in section at line X X, illustrating the nature of my present improvement. Fig. 2 shows a side view of the bar-shank at an intermediate stage in its construction. Fig. 3 is a front view of the bar-shank and ferrule with dotted lines indicating the outline form of the handle. Fig. 4 is a cross-section at the position of line Y Y on Fig. 1, and Fig. 5 is a perspective view of one of the chock-pieces.

The upper portion of the main bar A, having the fixed jaw *a* thereon, the movable jaw B, the jaw-adjusting screw C, its rosette-head C′, and the ferrule F, having the projection F′ for supporting the step-spindle c^2 of the screw and resisting backward thrust of the jaw, are all preferably formed and disposed in the usual well-known manner as heretofore employed in the "Coes" wrench.

In accordance with my present improvement the shank of the main bar, which is primarily formed straight and of full thickness at its lower end and rounded on the front and rear edges up to the shoulder *d* to fit the interior of the ferrule, is herein provided with broad reduced spaces or cavities D in the opposite sides thereof, as shown. The straight and rounded form of the shank is indicated by the dot-and-dash edge lines *i i* on Fig. 2 and also the position and proportions of the side cavities at D. Upon this bar the movable jaw, the screw, and the ferrule are assembled. The bar-shank A′ is then laterally flattened along that portion below the cavities D and spread or expanded at the front and rear edges, so as to give a plate-like form the full width and contour of the handle, as shown at I I on Fig. 2, the expanded portions *s*, owing to the recesses D terminating a short distance below the ferrule end, leaving irregular spaces J′ and rough shoulders *n*′, which are then milled or dressed out transversely across the edges and closely adjacent to the ferrule end *f*, as indicated at J, Fig. 1, the recesses thus formed being substantially rectangular or preferably somewhat dovetailed at their lower extremities, as shown by the line at J^2. Chock-pieces or key-blocks K, prepared and shaped to fit the recesses J, are then driven thereinto, so as to wedge or jam firmly between the shoulder *n*, formed by the expanded part *s* of the bar-shank, and the squared end *f* of the ferrule, said chock-pieces when finished fitting the spaces flush with the sides of the flattened shank and flush with the outer contour line of the handle, so that when dressed on their edges a complete metal line is shown in the handle-surface from the ferrule to the tip.

The contact-surfaces of the chock-pieces, with the shank and ferrule, are best brazed together, forming a solid integration of the parts, or said chock-pieces can be otherwise permanently secured in position within their respective recesses.

The chock-pieces K are best formed slightly thicker than the dimension of the flattened bar-shank, as indicated by the dotted lines at *x*, Figs. 3 and 4, and then after having been properly inserted in the recesses J they are placed under pressure and compressed laterally to the thickness of the shank, thereby causing the condensation of the chock-piece and the forcing of its abutting edges solidly against the shoulders *n* and ferrule end *f*,

squeezing it firmly into place and squeezing the ferrule firmly up against the shoulder *d*.

For completing the handle suitable side plates and a tip-piece for retaining the same can be applied to the shank, such parts being arranged thereon in the usual well-known manner.

It will be understood that the broad idea of flattening and spreading the shank in a wrench-bar after the jaw, adjusting-screw, and ferrule are assembled thereon is not my invention.

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

1. A wrench having its main bar formed with a shouldered neck and opposite side cavities therein, the ferrule fitted upon the neck of the bar, the extended portion of the bar-shank laterally flattened and expanded at the front and rear edges, and furnished with transverse recesses in said edges adjacent to the lower end of the ferrule, and the key-blocks or chock-pieces inserted in said recesses and respectively filling the spaces between the expanded edge portions of said bar-shank and the end of the ferrule, for the purpose set forth.

2. In a screw-wrench of the character specified, in combination with the main bar, and the ferrule fitting upon the neck of the bar-shank and against a shoulder at its top end, the projecting portion of the bar-shank laterally flattened, and expanded at the front and rear edges to the full width of the handle, and having spaces between the expanded edge portions and ferrule end dressed out to form key-recesses, and the key-blocks or chock-pieces inserted in said recesses and respectively fitting or wedged between the shoulder formed by said expanded edge portion and the ferrule end, and permanently integrated therewith by brazed contact-surfaces, for the purpose set forth.

3. In a screw-wrench, in combination as described, with the main bar and ferrule supported on the neck of said bar; the bar-shank having that portion which projects through the ferrule flattened laterally and expanded at the front and rear edges, and said edges provided with transverse recesses adjacent to the ferrule end, and the key-blocks or chock-pieces shaped to match said recesses, and formed of greater thickness than the recessed portion of the shank, inserted within said recesses between the expanded part of the shank and the ferrule, and therein laterally compressed and condensed to the normal thickness of said flattened bar-shank, substantially as and for the purpose set forth.

Witness my hand this 13th day of January, 1898.

LORING COES.

Witnesses:
CHAS. H. BURLEIGH,
SIMEON E. KING.