

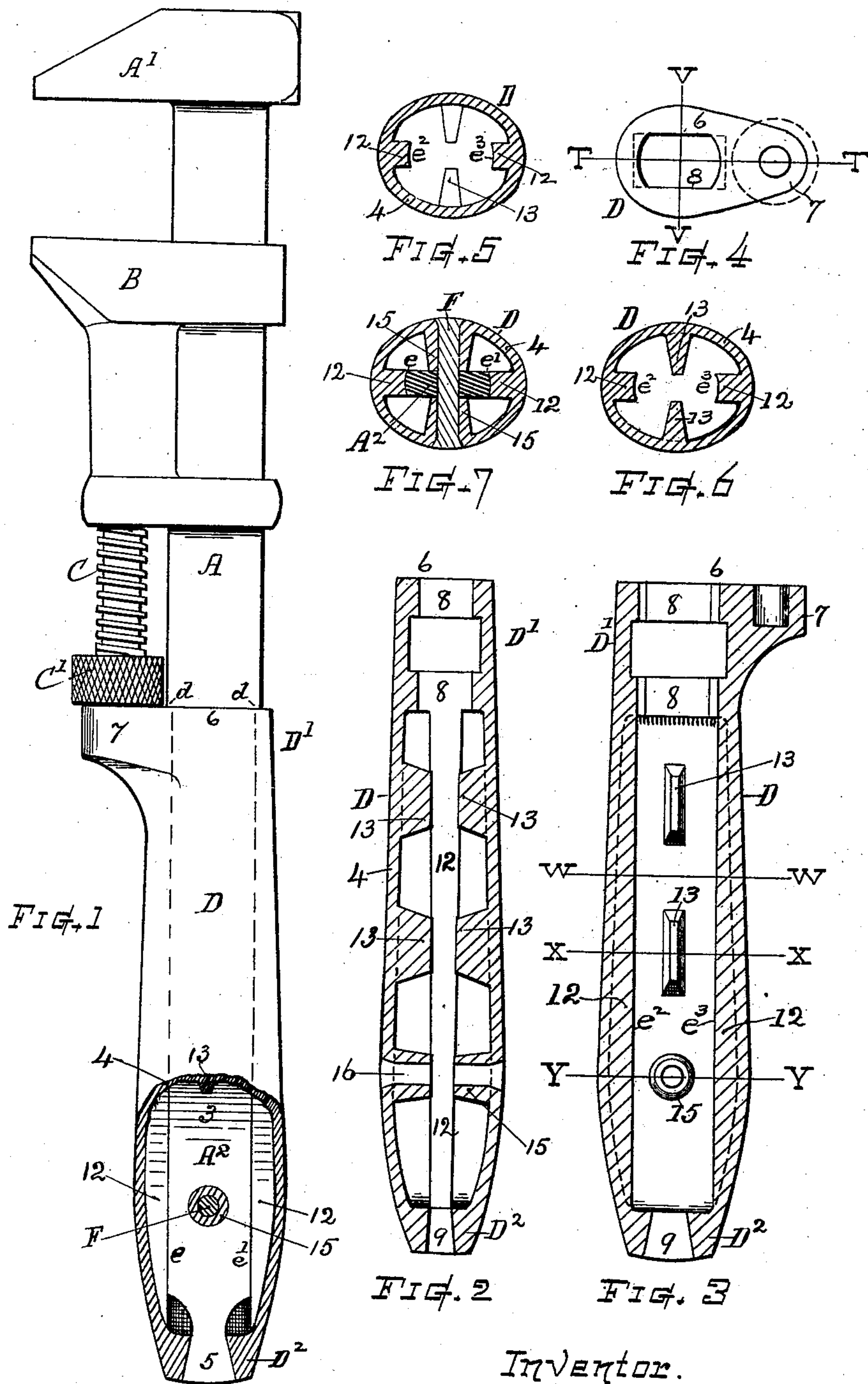
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Patented Dec. 24, 1901.

F. SEARLE.  
CONSTRUCTION OF WRENCH HANDLES.

(Application filed Oct. 28, 1901.)

(No Model.)



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## CONSTRUCTION OF WRENCH-HANDLES.

SPECIFICATION forming part of Letters Patent No. 689,692, dated December 24, 1901.

Application filed October 28, 1901. Serial No. 80,173. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK SEARLE, 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 the Construction of Wrench-Handles, 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 an improved structure of the wrench-handle and manner of its combination with the wrench-bar shank, the objects being to provide an efficient, light, and durable all-metal handle for screw-wrenches, more especially for wrenches of large size, which handle will have a firm and strong connection with the wrench-bar and will withstand rough usage and usage in water or in wet situations without detriment, also to afford a construction and combination that will admit of the wrenches being manufactured with practical economy. For the attainment of these objects my invention consists in the wrench-handle mechanism constructed as hereinafter explained, and illustrated in the accompanying drawings, in which—

Figure 1 represents a side view of a wrench embodying my improvement, a portion of the handle being shown as broken away to reveal the internal structure. Figs. 2 and 3 represent longitudinal sections of the handle at lines V V and T T, respectively, on Fig. 4. Fig. 4 is a top end view of the handle. Figs. 5 and 6 represent transverse sections of the handle-piece at lines W W and X X, respectively; and Fig. 7 represents a transverse section of the handle, bar-shank, and key-pin at the position of line Y Y.

Referring to the drawings, the part marked A represents the wrench-bar, carrying the fixed jaw A' and having the partially-rounded neck, with handle-positioning shoulders at d, and the laterally-reduced bar-shank A<sup>2</sup>, having the flattened broad sides 3, the slightly-rounded front and rear edges e e', and termi-

nating at its end with a flattened tang or riv-  
etable end 5.

B indicates the movable jaw, sliding on the bar A in well-known manner, and C the jaw-adjusting screw, having the thumb-rosette C' for operating the said jaw in usual manner.

D indicates the handle, which according to my present invention consists of a single all-metal piece formed, preferably, of cast metal and constructed with a thin hollow shell 4, formed externally of the desired shape for the hand to conveniently grasp, its internal form corresponding in general to the external form, but provided with bearing-surfaces and other internal features, as hereinafter explained. At its upper end the handle is formed as a collar portion D', squared off at the end 6 and having the projection 7, that serves as a step bearing or support for the end of the rosette-screw C. The collar portion has an interior opening, with bearing-surfaces 8, of the proper shape to closely fit the neck of the bar-shank when the end 6 is against the shoulders d. At its lower end D<sup>2</sup> the handle is provided with a longitudinal dovetailed opening 9 for receiving the tang 5 of the bar-shank.

The shell 4 is provided internally at front and rear with integral inwardly-projecting longitudinal ribs 12, the inner edge faces e<sup>2</sup> and e<sup>3</sup> of which are disposed in continuation of the neck-opening surfaces 8, affording an approximately parallel width of space between the ribs for the reception and support of the bar-shank, said ribs being approximately the same thickness as the bar-shank. Formed integral upon the shell 4, at positions intermediate to its bearing ends, I provide opposite inwardly-projecting brace lugs or fins 13 and key-supporting bosses 15, which reach inward from the shell sufficiently far to impinge or seat at their inner ends against the flat sides 3 of the bar-shank A<sup>2</sup>. The brace-lugs 13 are preferably made as longitudinally oblong thin projections having narrow bearing-surfaces at their ends, and the ribs 12, brace-lugs 13, and bosses 15 are formed within the handle-casting with such projection that their faces can be dressed off by means



of a suitable broaching-tool forced into the handle through the neck-opening, thereby forming accurate bearing-surfaces on said lugs, ribs, and bosses for receiving and fitting against the wrench-bar shank and giving a firm and rigid support of the handle thereon.

When the parts of the wrench are assembled, the collar end of the handle is forced solidly against the positioning-shoulders *d* and closely embraces the neck of the bar, while the tang 5 or small end of the shank is firmly upset and riveted into the dovetailed opening 9 in the lower end of the handle, thus forming water-tight joints at both ends of the handle and closing the interior hollow from external influence. A pin or key *F* is driven laterally through the handle and bar-shank, passing through an opening 16 within the bosses 15, and riveted at its ends flush with the exterior surface of the handle, thereby clamping the opposite bosses and brace-lugs 13 solidly against the flat sides of the bar-shank. The edges of the inwardly-projecting ribs 12 take firm bearing against the edges *ee'* of the bar-shank *A*<sup>2</sup> when the latter is inserted or driven into the handle, while the brace-lugs 13 and bosses 15 take firm bearing upon the sides of the bar-shank and prevent liability of the shell 4 being indented or crushed in laterally, even when made comparatively thin. The upsetting of the tang 5 into the dovetailed opening 9 rigidly secures the parts together.

Since metal handles of different construction have heretofore been employed in wrenches, it will be understood that I do not herein broadly claim a metal handle for wrenches irrespective of the construction thereof; but my invention has reference to the specific construction and combination of the character defined.

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

1. A handle for wrenches, comprising a hollow handle-form or metal shell having openings adapted to fit upon the wrench-bar shank, said shell provided with inwardly-projecting integral longitudinal ribs, the inner faces of which are adapted for support against the edges of the wrench-bar shank, substantially as set forth.

2. The within-described wrench-handle, consisting of a hollow metal shell of complete handle form, provided at one end with the screw-step projection and neck-fitting opening, and at its other end with a tang-receiving opening, said shell provided internally with longitudinal inwardly-projecting bar-supporting ribs, at front and rear, and having upon its interior sides integral, inwardly-projecting brace-lugs, and key-supporting bosses, substantially as and for the purposes set forth.

3. The combination, with the wrench-bar having the handle-positioning shoulders, reduced neck, and laterally-flattened bar-shank; of an all-metal handle-piece consisting of a hollow shell externally of the handle shape, one end thereof fitting the neck of the bar-shank against said shoulders, and the other end fitting the tang end of the bar-shank, said handle-shell being internally provided with integral inwardly-projecting ribs that seat against the edges of the bar-shank, the inwardly-projecting fins or brace-lugs that impinge laterally against the flat sides of said bar-shank, the opposite key-supporting bosses, and a key-pin passing through said bosses and bar-shank, substantially as set forth.

Witness my hand this 26th day of October, 1901.

FREDERICK SEARLE.

Witnesses:

CHAS. H. BURLEIGH,  
FRANK L. COES.