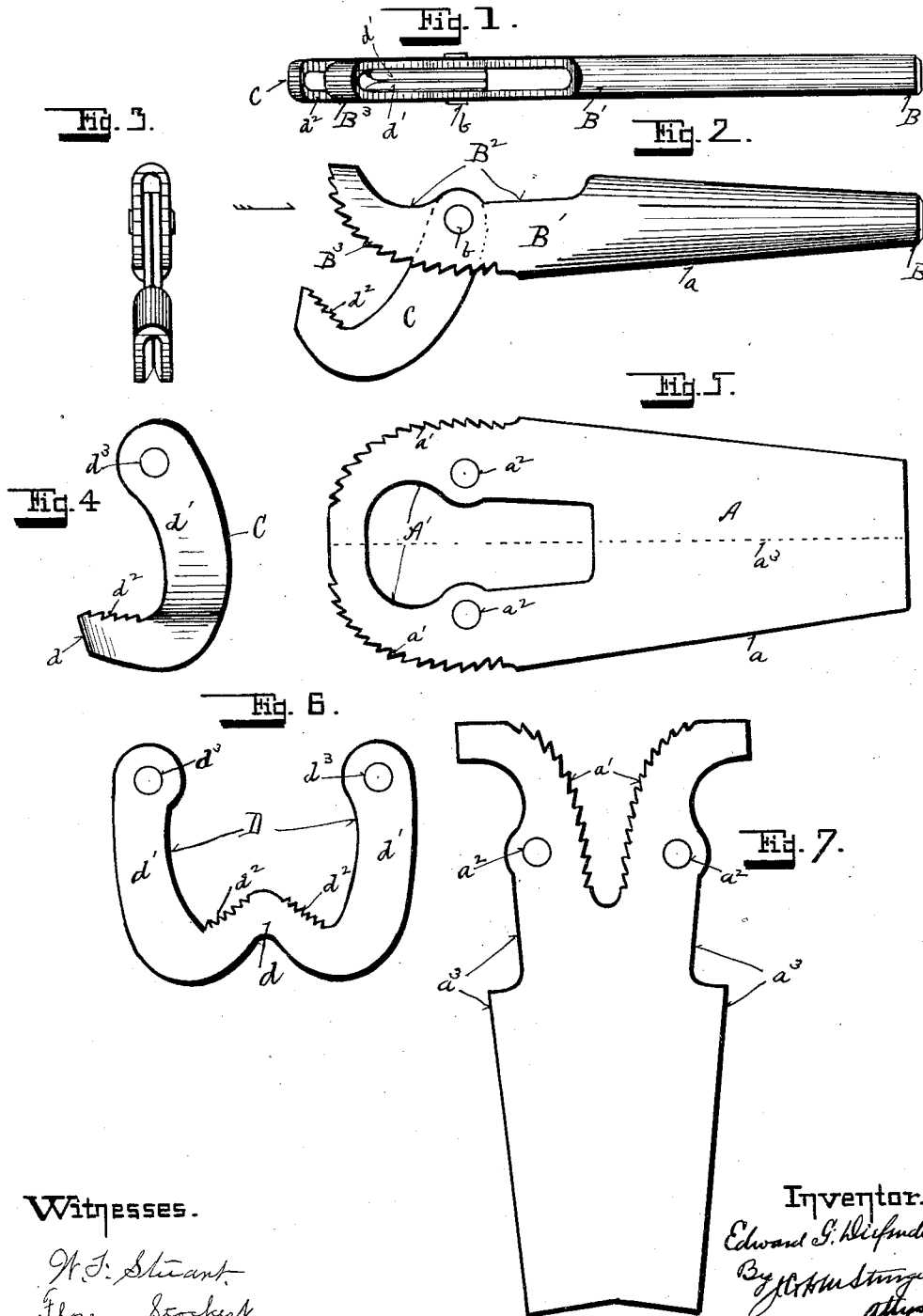


E. G. DIEFENDORF.
PIPE WRENCH.
APPLICATION FILED DEC. 4, 1911.

1,041,978.

Patented Oct. 22, 1912.



Witnesses.

W. F. Stuart.
Florence Brockert.

Inventor.

Edward G. Diefendorf
By J. H. Huntington
Atty.

UNITED STATES PATENT OFFICE.

EDWARD G. DIEFENDORF, OF ERIE, PENNSYLVANIA, ASSIGNOR TO ERIE STAMPING & MFG. CO., OF ERIE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

PIPE-WRENCH.

1,041,978.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed December 4, 1911. Serial No. 663,770.

To all whom it may concern:

Be it known that I, EDWARD G. DIEFENDORF, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Pipe-Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention relates to pipe wrenches and consists in the improvements in the method of constructing the same hereinafter set forth and described.

The feature of my invention is herein- after set forth and described and illustrated in the accompanying drawings in which:

Figure 1 is an upper edgewise view of a pipe wrench constructed in accordance with my improved method, looking at the upper edge of the same in Fig. 2. Fig. 2 is a side view of the same. Fig. 3 is a front end view of the same looking in the direction of the arrow in Fig. 2. Fig. 4 is a side view of the swinging jaw. Fig. 5 is a plan view of a blank of sheet metal from which I form the handle portion and one jaw of the wrench. Fig. 6 is a plan view of a blank of sheet metal from which I form the swinging jaw thereof. Fig. 7 is a plan view of an alternative form of blank for the handle portion of the wrench.

In these drawings A, (see Fig. 5) indicates a sheet metal blank, preferably of steel, cut with tapering side margins, and of any desired length. At the broadest portion of the blank A, the margins are curved as at $a' a'$ where teeth are cut as shown in said Fig. 5. Within the broad end of the blank A between the curved margins $a' a'$ I preferably cut out the metal so as to leave an opening A' , for the purpose of giving a desirable form to the finished wrench, which opening may extend back a short distance past the curved margins, as shown in Fig. 5. The cutting of this opening A' also serves to lighten the finished wrench somewhat. At each side of the opening A' , I make pivot holes a^2 . This blank A is then rolled up so that the margins $a a$ meet along

the lower side a of the wrench in Fig. 2, where they may be brazed together or not as may be desired, the small end B of the handle (see Fig. 2) being practically round in cross section and the portion B' having the curved margin $a' a'$ and teeth thereon being flattened as shown in Fig. 3, which rolling and flattening brings the pivot holes $a^2 a^2$ opposite and in alinement with each other. The margins of the opening A' in the blank A, now form the line B^2 as shown in Fig. 2, and the toothed, curved margins $a' a'$ form the curved double jaws B^3 thereof. The hooked jaw C is first preferably cut out in the form of a sheet metal blank D as shown in Fig. 6, somewhat U-shaped, with the curved lower portion d of the bow extending upward into the space between the arms $d' d'$ thereof, and in the upper edges of this portion d I cut teeth $d^2 d^2$. In the upper ends of the arms $d' d'$ I provide pivot holes $d^3 d^3$. I then bend the middle portion d of this blank D so that the arms $d' d'$ thereof will be parallel with each other and the pivot holes $d^3 d^3$ in alinement with each other, the said arms $d' d'$ thereof being so pressed together that they may be inserted between the toothed jaws B^3 of the wrench body. A pivot b (see Fig. 1) is then inserted into the pivot openings $a^2 a^2$ and $d^3 d^3$ and secured therein in the usual manner. In bending the blank D to form the hooked jaw C, care is taken to make the two toothed edges $d^2 d^2$ thereof the same distance apart as are the two curved hooked jaws $B^2 B^2$ of the wrench body, as shown in Fig. 3, so that in operation they will coincide.

In the alternative form of blank shown in Fig. 7, instead of having the outside tapering margins, when rolled up, as heretofore described, meet along the rear side a of the wrench handle in Fig. 2 the meeting edges of the blank would be along the front side of the wrench body, and the metal blank would be of the form shown in Fig. 7, the tapering and curved margins $a^3 a^3$ being indicated in Fig. 5 by the broken line a^3 . In this case the curved and serrated jaw faces a' face inward toward each other. The method in both forms of blanks is the same, but in one the seam is along the rear edge of the handle, and in the other along the front edge.

Having thus shown and described my in-

vention so as to enable others to utilize the same, what I claim as new and desire to secure by Letters-Patent is:

5 A method of forming the body of a pipe-wrench consisting of cutting a blank of sheet-metal having pivot-holes adjacent to one end thereof and with curved jaw-surfaces around the end adjacent to said pivot-holes and then rolling said blank up so that
10 the side margins meet along the front of

said wrench body with said pivot-holes in alinement and flattening the jaw-end thereof, substantially as set forth.

In testimony whereof I affix my signature, in presence of two witnesses.

EDWARD G. DIEFENDORF.

Witnesses:

H. M. STURGEON,

CHARLES A. MERTENS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
