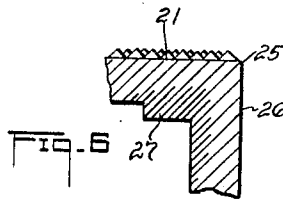
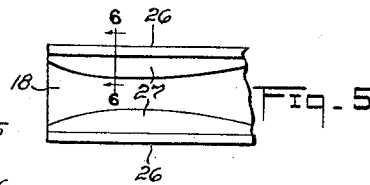
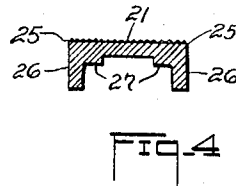
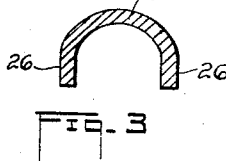
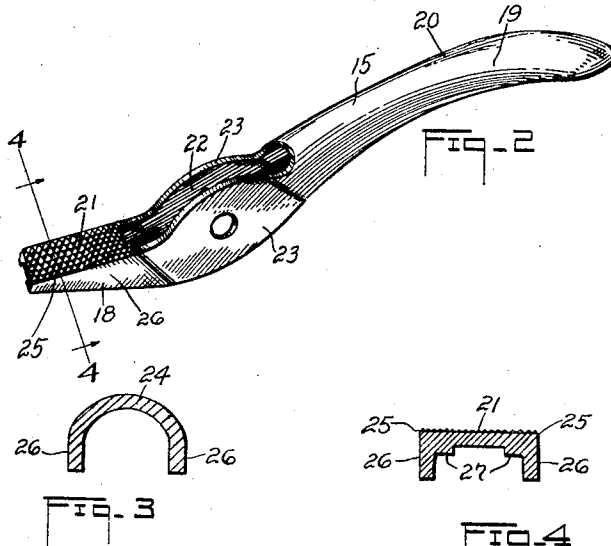
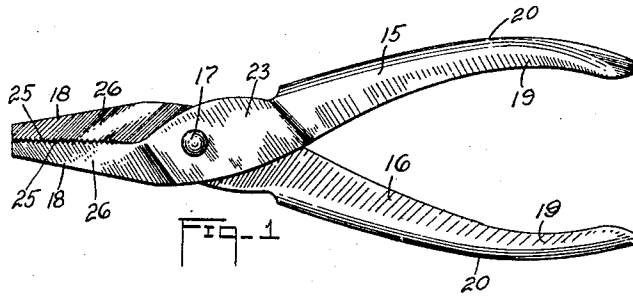


W. F. HOBBS.  
SHEEL METAL PLIERS.  
APPLICATION FILED JUNE 17, 1919.

1,332,726.

Patented Mar. 2, 1920.



WITNESS  
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# UNITED STATES PATENT OFFICE.

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CORPORATION OF CONNECTICUT.

## SHEET-METAL PLIERS.

1,332,726.

Specification of Letters Patent.

Patented Mar. 2, 1920.

Application filed June 17, 1919. Serial No. 304,905.

### *To all whom it may concern:*

Be it known that I, WILLIS F. HOBBS, a citizen of the United States, residing at 593 Clinton Ave., Bridgeport, county of Fairfield, State of Connecticut, have invented an Improvement in Sheet-Metal Pliers, of which the following is a specification.

This invention relates to pliers and to the manufacture thereof from sheet metal blanks, and has for its general objects to provide a simple and inexpensive tool of this character of a generally improved construction which is stronger, more durable, and otherwise more satisfactory than similar tools as heretofore made, and which may be manufactured at a decreased cost by operations which are materially simpler and less numerous than have heretofore been necessary in producing tools of this type.

The more particular objects of the invention, together with means whereby the same may be carried into effect, will best be understood from the following description illustrated in the accompanying drawing, forming a part of the specification.

In said drawing—

Figure 1 is a side elevation of a tool of the type to which the invention relates;

Fig. 2 a perspective view of one of the combined jaw and handle members in its completed form but detached from its companion member;

Fig. 3 an enlarged transverse section, taken through the jaw portion of the blank from which one of the plier members is formed, illustrating the shape of said jaw portion after the first bending operation thereon, but prior to the forming operation resulting in the finished member;

Fig. 4 an enlarged section substantially on the line 4—4, Fig. 2;

Fig. 5 an enlarged plan view of the outer or under side of one of the jaws of the completed tool, and

Fig. 6 is a still further enlarged detail sectional view on the line 6—6 in Fig. 5.

The tool shown in Fig. 1 comprises two crossing or intersecting members 15 and 16 connected intermediate their ends by a pivot stud 17, said members being formed at their forward ends with cooperating jaw portions 18 and being shaped at their rearward ends to provide suitable handles 19. The members 15 and 16 are formed from sheet metal

blanks folded upon themselves, the central or folded portion of each blank constituting, at one end of the member, the outside gripping portion 20 of the handle, and, at the other end of the member, constituting a flat jaw face 21, which, as is usual in such tools, is preferably roughened to provide a gripping surface, said blank being cut away at its central portion, as indicated at 22, to permit the assembling of the parts. The two plier members are exactly alike with the exception that one of said members, herein the member 15, is slightly expanded at its central portion, as indicated at 23, to permit the insertion of the member 16 through the opening 22 thereof.

In the operation of manufacturing tool members of this character, a sheet metal blank of a suitable form is first bent upon itself into a roughly U-shaped section, the curved portion thereof, at the handle end of the member, constituting the gripping surface 20 of the handle. At the jaw end of the member, however, the curved portion of the bent blank, indicated by the numeral 24 in Fig. 3, must subsequently be reshaped or flattened to provide the required gripping face 21 of the jaw.

It is essential in a tool of this character that a sharp and clean-cut edge 25 be provided at the junction of the gripping face 21 with each of the side faces 26 of the jaw, and the curved portion 24 of the jaw blank, when flattened out, must be so shaped as to provide such an edge. In the former process of manufacture the curved portion 24 of the blank was usually flattened to the desired plane surface by the pressure of a die or plunger applied thereto, the effect of which was to cause the blank to bulge or bend outwardly at its upper edges in such a manner as not only to tend to form a line of weakness at the interior angle of the jaw, but also to form a bulge or projection at the outer side thereof, which bulge or projection, must, in order to provide the desired sharp angular edge 25, subsequently be trimmed off or otherwise removed, the resulting surface being afterward ground or polished in order to give a finished appearance to the completed tool.

In accordance with the present invention, the necessity of the two last named operations, *i. e.* that of removing the projection

and finishing the resulting surface are dispensed with, the finished tool being completed with the formation of the flat gripping face 21 of the jaw. To this end the lateral faces 26 of the blank may be confined in a suitable holder or die, so that, when the curved portion 24 of the blank is flattened to form the jaw gripping face 21, the surplus metal, being unable to expand outwardly is forced inwardly into the interior angle, thereby forming an interior bulge which constitutes a reinforcing or strengthening fillet 27 at said interior angle in place of the line of weakness at this point resulting from the former method of manufacture. As the flattening of the portion 24 of the blank usually takes place between an upper die and a lower die having a portion entering between the side portions of the jaw, the inward bulge will be somewhat flattened out to form a strengthening fillet of substantially the form shown in Figs. 4, 5 and 6. This flattening of the fillet, as also the inward forcing of the metal in the flattening of the jaw face, results in a compression or consolidation of the metal, as indicated by the shade lines in Fig. 6, so that the interior angle of the jaw is strengthened, not only by the reinforcing fillet, but by an increased density of the material itself at this point.

Having thus described my invention, I claim:

1. A tool jaw of the character described having a central portion providing a gripping face and side portions having lateral faces forming sharp edges with said gripping face, the interior angles at the junction of said top and side portions being formed with reinforcing means.

2. A tool jaw of the character described comprising a central portion having a gripping face and side portions having lateral faces forming sharp edges with said gripping face, the interior angles at the junction of said central and side portions being strengthened by reinforcing fillets.

3. A tool jaw of the character described comprising a central portion having a gripping face and side portions having lateral faces forming sharp edges with said gripping face, the interior angles at the junction of said central and side portions being strengthened by consolidation of the metal.

4. A tool jaw of the character described comprising a central portion having a gripping face and side portions having lateral faces forming sharp edges with said gripping face, the interior angles at the junction of said central and side portions being strengthened by reinforcing fillets, and the material in and adjacent to said fillets being consolidated to an increased density.

5. The herein described method of forming sheet metal tool jaws comprising central portions having gripping faces and side portions having lateral faces forming sharp angles with said gripping faces, which consists in flattening the central portion of a substantially U-shaped blank to form the gripping face of a jaw, while confining the lateral faces of said blank and causing the surplus metal to be forced inwardly at the interior angles formed at the junction of the intermediate and side portions of the jaw.

6. The herein described method of forming sheet metal tool jaws comprising central portions having gripping faces and side portions having lateral faces forming sharp angles with said gripping faces, which consists in flattening the central portion of a substantially U-shaped blank to form the gripping face of a jaw, while confining the lateral faces of said blank and causing the surplus metal to be forced inwardly at the interior angles formed at the junction of the intermediate and side portions of the jaw to form reinforcing fillets, and compressing and consolidating the material in and adjacent to said fillets to increase the density thereof.

In testimony whereof I affix my signature  
WILLIS F. HOBBS.