No. 672,673. Patented Apr. 23, 1901.

W. F. HOBBS & E. N. SPERRY.

PLIERS.

(No Model.) (Application filed July 2, 1900.)

Fig. 1.

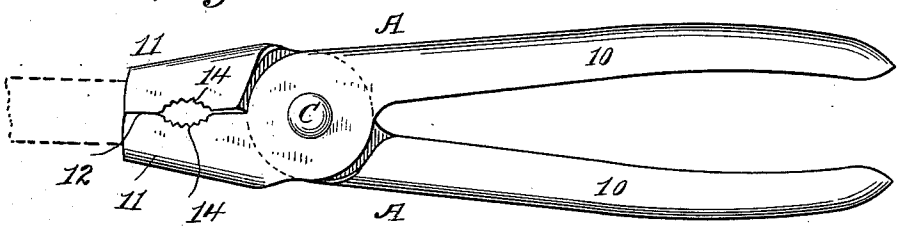


Fig. 2.

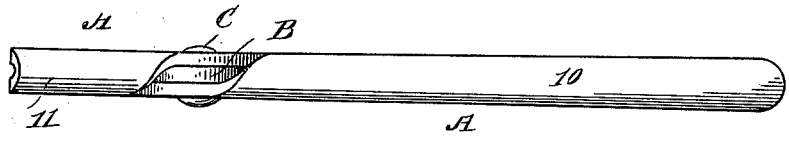


Fig. 3.

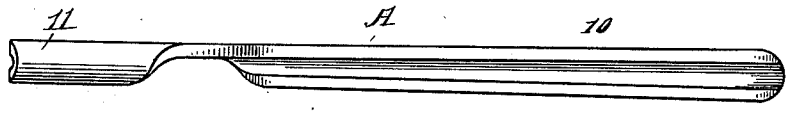


Fig. 4.

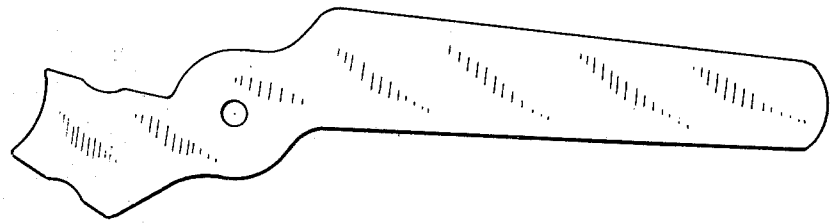


Fig. 5.

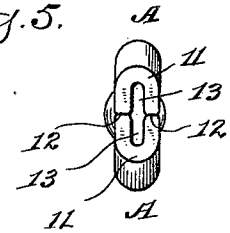
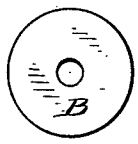


Fig. 6.



WITNESSES.

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UNITED STATES PATENT OFFICE.

WILLIS F. HOBBS AND ELLIE N. SPERRY, OF BRIDGEPORT, CONNECTICUT, ASSIGNORS TO THE BRIDGEPORT MANUFACTURING COMPANY, OF SAME PLACE.

PLIERS.

SPECIFICATION forming part of Letters Patent No. 672,673, dated April 23, 1901.

Application filed July 2, 1900. Serial No. 22,267. (No model.)

To all whom it may concern:

Be it known that we, WILLIS F. HOBBS and ELLIE N. SPERRY, citizens of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented new and useful Pliers, of which the following is a specification.

Our invention has for its object to provide simple and inexpensive pliers adapted to perform the ordinary functions of "flat-nose" pliers and "gas-pliers," so called, and the jaws of which shall be made U-shaped, so as to enable them to grasp a strip of flat metal in the direction of its width, our novel pliers, while relatively light in weight, being especially adapted for heavy work, for the reason that the shape of the jaws gives the greatest possible strength for the amount of metal used; that each jaw has two longitudinal gripping-surfaces instead of one flat gripping-surface, and that owing to the relative thinness of the two longitudinal walls which comprise each jaw we are enabled to temper both of said walls entirely through and with perfect uniformity—that is to say, the metal at the center of each side wall is tempered to the same degree of hardness as the metal at the surface—which is a result exceedingly difficult to accomplish in ordinary plier-jaws having continuous bearing-surfaces. With these ends in view we have devised the novel pliers which we will now describe, referring to the accompanying drawings, forming part of this specification, and using reference characters to designate the several parts.

Figure 1 is an elevation of our novel pliers, a strip of sheet metal grasped in the direction of its width being indicated by dotted lines; Fig. 2, an edge view corresponding with Fig. 1; Fig. 3, an edge view of one of the members; Fig. 4, a plan view of a blank for a member; Fig. 5, a front end elevation of our novel pliers, and Fig. 6 is a plan view of the washer detached.

A denotes the members as they are formed from blanks of sheet metal, B a washer that is placed between the members at their pivotal point, and C the pivot. Each member comprises a shank 10 and a jaw 11, made U shape in cross-section. The shanks are formed and bent as shown and as hereinafter described; but the chief features of advantage in our invention are due to the U-shaped jaws having parallel inner walls, it being this special shape of jaw which enables us to provide sheet-metal pliers equal in strength to the highest grade of forged pliers of corresponding size and weight and at a mere fraction of the cost of forged pliers. This equality in strength is due to the fact that the parallel side portions of each jaw are backed up and strengthened by the curved outer portion, the said parallel side portions of the two jaws being in line with each other, and are therefore not liable to be spread laterally when subjected to heavy strain on a piece of metal grasped between the meeting edges of the jaws.

12 denotes the gripping-surfaces, there being two gripping-surfaces on each jaw, and between said gripping-surfaces a longitudinal channel 13, which in use is adapted to receive a strip of flat metal or any flat article, so that said strip or article may be gripped in the direction of its width.

14 denotes serrated or toothed recesses in the jaws to adapt them for use as gas-pliers.

We find in practice that the U-shaped jaws of our novel pliers, in addition to the fact that the construction enables us to make sheet-metal pliers of equal strength with forged pliers and at much less expense, give all the advantages of ordinary flat-nosed pliers, in many cases give a distinct advantage in that there are two independent gripping-surfaces on each jaw instead of one flat gripping-surface, and, moreover, that they enable us in tempering the jaws to get much better and more uniform results than is ordinarily possible with flat-nosed pliers, as owing to the relative thinness of the side walls comprising each jaw we are enabled to temper each wall of each jaw inward from both sides and to secure a perfectly-uniform temper entirely through the walls.

The four flat gripping-surfaces 12 are in planes radial to the pivot, so as to abut throughout their length, excepting for the recesses 14, when the jaws are closed. Therefore said four flat gripping-surfaces are

adapted to firmly grasp a thin article in the manner of the ordinary flat-nosed pliers.

The washer B is preferably made the full width of the members at the pivotal point, so as to provide as wide a bearing as possible, and thereby render springing of the pivot impossible. We find in practice that when the pliers are used upon heavy work the wide bearings for the members formed by our washer B are a decided advantage.

Owing to the fact that the inner side walls of the longitudinal channels 13 are parallel with each other, a strip of flat metal fitting in said channels, as above described, may be grasped with the utmost force and even twisted with considerable strain without tending to spring the jaw of one member laterally relatively to the other, for the reason that the flat sides of the strip bear equally against the flat parallel sides of the channels of the jaws and serves to steady said jaws against lateral strain tending to weaken the pivot. This advantage, as is obvious, is aided by the washer B, which holds the two members of the pliers so that the side walls of the channels therein will remain in parallelism or alinement.

The two members of the pliers are identical in form both when in the blank form, as in Fig. 4, and when bent to the form shown in Fig. 3, ready for assembling, said members being blanked alike from sheet metal. This results in considerable economy in the manufacture, because the same die and bending mechanism used for one member is also used for the other. Furthermore, any two members, as indicated in Fig. 3, may be taken from a large quantity and united by the rivet instead of having to select complemental members, as is the case in the manufacture of many forms of pliers. All portions of the pliers are smooth externally, the handles, as well as the jaws, being externally rounded in cross-section, and while the metal forming the jaw portion is bent over in one direction the metal forming the handle portion is bent over in the opposite direction, the continuous side of the completed member being practically in a uniform plane and the free edges after being bent over being parallel with the continuous side and with each other.

Having thus described our invention, we claim—

1. Pliers, each member of which comprises a piece of sheet metal having a jaw portion bent to U shape in cross-section, a handle portion bent longitudinally to form a rounded smooth exterior, and an intermediate flat portion at the pivotal point.

2. Pliers, each member of which comprises a piece of sheet metal having a jaw portion bent to U shape in cross-section, a handle portion bent longitudinally to form a rounded smooth exterior the edges of the jaw and handle portions facing in opposite directions each of said members having an intermediate flat portion, a washer interposed between the flat portions of the two members, and a pivot extending through said flat portions and the washer.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIS F. HOBBS.
ELLIE N. SPERRY.

Witnesses:
A. M. WOOSTER,
R. R. DAVISON.