June 17, 1924. 1,497,969

W. H. ARBOGAST

PLIERS

Filed Nov. 6, 1922

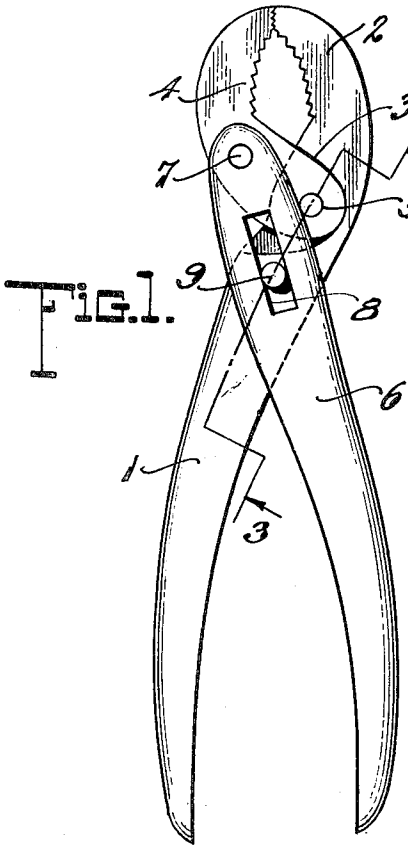

Fig. 1.

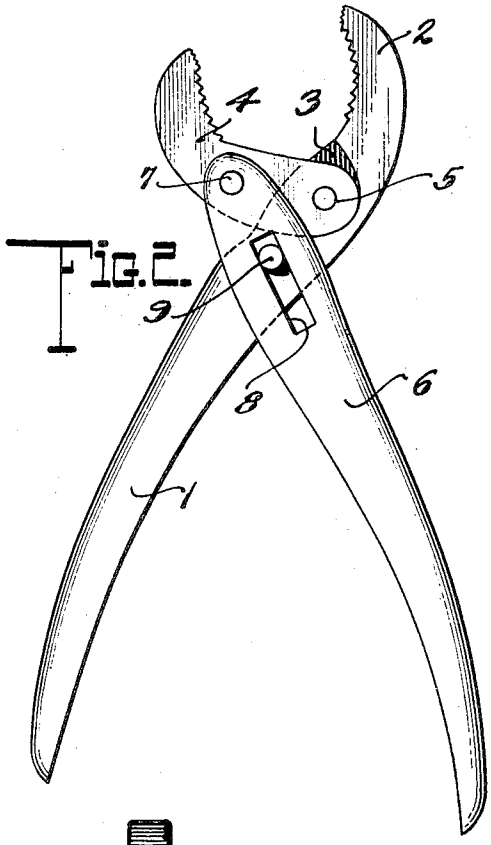

Fig. 2.

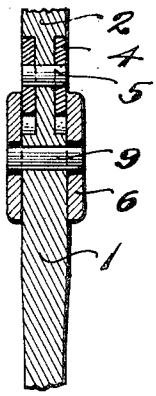

Fig. 3.

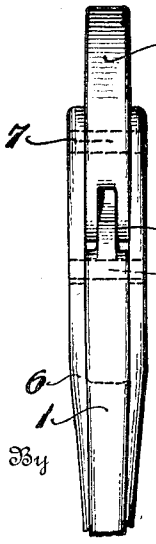

Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM H. ARBOGAST, OF DUNMORE, WEST VIRGINIA, ASSIGNOR TO WINFRED McELWEE, OF DUNMORE, WEST VIRGINIA.

PLIERS.

Application filed November 6, 1922. Serial No. 599,401.

To all whom it may concern:

Be it known that I, WILLIAM H. ARBOGAST, a citizen of the United States, residing at Dunmore, in the county of Pocahontas and State of West Virginia, have invented certain new and useful Improvements in Pliers, of which the following is a specification.

The present invention relates to improvements in tools and in particular to that type of implements known as pliers.

The primary object in view is to provide a novel arrangement of the gripping jaws of the pliers such that for a given size an increased capacity and gripping power is secured as compared with the usual type of pliers in which the jaws form integral extensions of the handle members.

To this end the invention comprises crossed handle members, one of which is provided with an integral jaw and a relatively movable jaw, to the latter of which the other handle member is pivotally connected at a point intermediate the ends of the jaw, the last mentioned handle member having a sliding or slip-connection with a fulcrum upon its cooperating handle member by means of which the variation in the leverage action upon the movable jaw is obtainable.

With the above and other objects in view, the invention consists in certain combinations and arrangements of the parts as will more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claims.

Reference will now be had to the accompanying drawing forming a part of the specification, wherein:

Figure 1 is a front elevation of a pair of pliers constructed in accordance with this invention, showing the jaws in their closed position.

Figure 2 is a view similar to Figure 1, showing the jaws in their maximum opened position.

Figure 3 is a fragmentary sectional view taken on the plane indicated by the line 3—3 of Figure 1.

Figure 4 is an enlarged side elevation of the jaw extremity of the pliers, showing the formation of the movable jaw more particularly.

Corresponding and like parts are referred to in the following description and indicated in all of the views of the drawing, by like reference characters.

Referring to the drawing, 1 indicates what for the purpose of this description I term the relatively stationary handle member which is formed at its extremity with an integral relatively stationary nose or jaw member 2, the particular configuration of which is immaterial so far as the present invention is concerned. At a point approximate the base of the jaw 2 the handle member 1 is recessed from opposite sides as indicated at 3 to receive the bifurcated end of a relatively movable jaw 4 which is pivotally secured to the handle member 1 by the pivot 5. The jaw 4 is given a configuration corresponding to that of the jaw 2, the inner surfaces of the jaw members illustrated being suitably corrugated to increase their gripping action as is customary in pliers of this character.

A relatively movable handle member 6 is slotted for a substantial distance from one end so as to straddle or receive the handle member 1 and this handle member and the handle member 6 referred to, are obviously connected to the movable jaw 4 at a point intermediate the length of the jaw, as indicated at 7, the opposite sides of the handle member 6 being formed with closed slots 8 to receive the fulcrum projections 9 of the handle member 1.

It will be observed by reference to Figures 1 and 2 that the connection between the two handle members 1 and 6, is a shiftable connection. That is to say, in the opening and closing movement of the jaw 4, through the operation of the handle 6, a sliding movement of the handle 6 with respect to the handle 1 takes place. As the jaw 4 is opened the fulcrum shifts toward the upper end of the slots 8, thereby increasing the leverage of the handle 6 to a material extent so that the pliers of this construction obviously have a greater gripping action as the jaws are positioned in a more open relationship. Moreover, by this arrangement the jaws have a greater opening movement for a given size, increasing the capacity of the pliers to a desirable extent.

One of the important features of the arrangement lies in the peculiar action which is imparted to the jaw 4 by its actuating handle 6 which is in the nature of a rotation imparting movement. That is to say, as the

gripping action is produced by pressure upon the handles, the jaw 4 moves about its pivot 5 and tends to impart to the object being gripped a slight rotation. This is especially useful, therefore, in connection with the removal or application of nuts or similar objects having screw-threaded attachment with other objects.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A pair of pliers comprising crossed handle members, one of which is provided with a relatively stationary jaw and a movable jaw, the other handle member having a sliding pivotal mounting upon the stationary jaw and a pivotal connection with the movable jaw at a point spaced from its pivot connection with the first mentioned handle member.

2. A pair of pliers comprising crossed handle members, one of which is provided with a relatively stationary jaw and a movable jaw, the other handle member having pivotal connection with the movable jaw at a point spaced from its pivot connection with the first mentioned handle member, and a fulcrum on the first mentioned handle member cooperating with an elongated slot in its cooperating handle member.

3. A pair of pliers comprising crossed handle members, one of which is provided with a relatively stationary jaw, a movable jaw pivotally connected thereto, the other handle member having a slip fulcrum connection with the first mentioned handle member capable of longitudinal movement thereon and pivotal connection with the movable jaw.

4. A pair of pliers comprising crossed handle members, one of said handle members being provided with fulcrum points with which the other handle member has shiftable connection, a relatively stationary jaw on one of said handle members, and a movable jaw pivoted thereto, the other handle member having a pivot connection to the movable jaw at a point intermediate its length.

5. A pair of pliers comprising a pair of crossed handle members, one of said handle members having an integral jaw at one end, the other of said handle members being slotted longitudinally to receive therebetween the first handle member and being provided with diametrically opposite closed slots receiving fulcrum points extending from the first handle member, and a movable jaw pivotally secured to the first handle member and having connection with the slotted handle member for actuation thereby.

In testimony whereof I affix my signature.

WILLIAM H. ARBOGAST.