

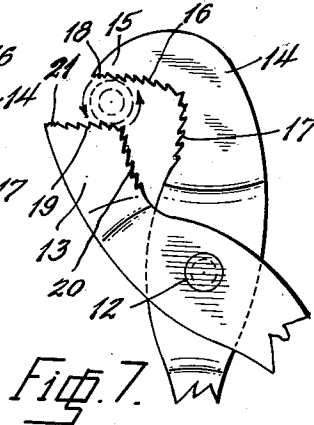
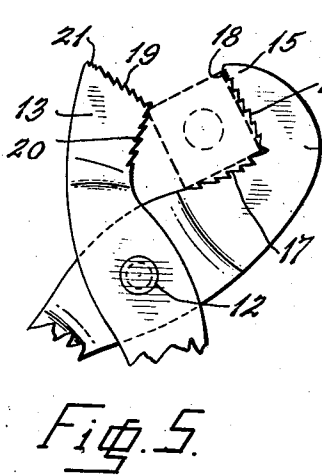
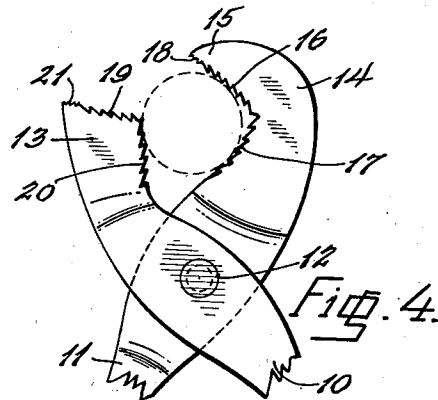
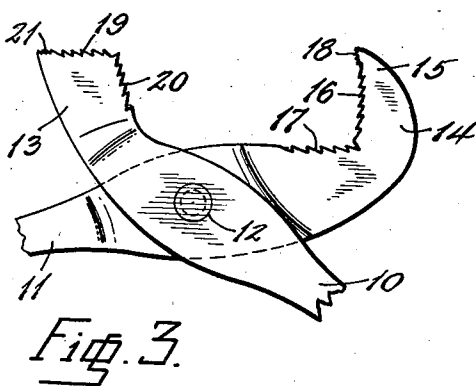
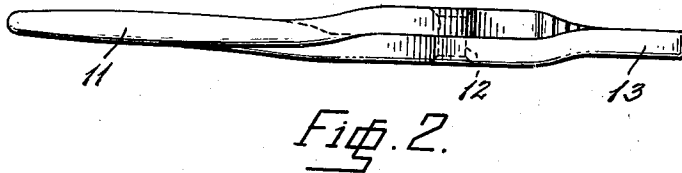
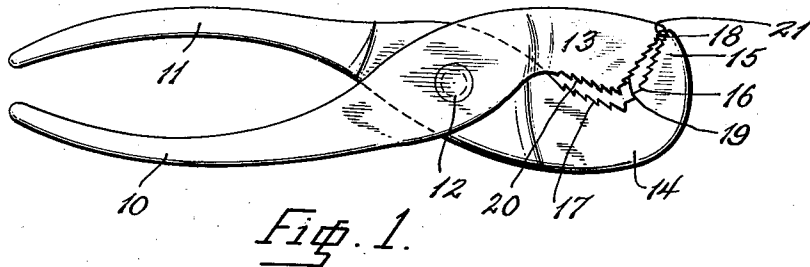
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2,212,801

PLIERS

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PLIERS

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1 Claim. (Cl. 81—51)

This invention relates to pliers and, among other objects, aims to provide a handy small pocket tool having a wide gripping range so that, in addition to the ordinary uses, it can be employed instead of small wrenches. One of the main ideas is to provide novel jaws employing a single pivot and capable of gripping any kind of work within the range of the tool.

Other aims and advantages of the invention will appear in the specification, when considered in connection with the accompanying drawing, wherein:

Fig. 1 is a side elevation of a tool embodying the invention;

Fig. 2 is a bottom edge view of Fig. 1; and

Figs. 3 to 7 inclusive are fragmentary side elevations showing the jaws in different positions and engaging work of different shapes.

Referring more particularly to the drawing, the pliers there shown are designed to be carried as a handy pocket tool, the overall length being such that they may be carried crosswise in the bottom of an ordinary pocket. They may be made of forged or cast metal. In this example, the pliers have short, inwardly bowed handles 10 and 11 pivoted together by a pivot pin 12 and presenting complementary inner and outside jaws 13 and 14, respectively. The jaws are shown as being bent or offset to present opposed gripping faces and each jaw has a pair of angular gripping surfaces.

In the illustrated example, the jaw 14 is shown as being concave and is L-shaped, having a bill or nose portion 15. It has toothed faces 16 and 17 with teeth pointing toward the rear on both faces. These faces are substantially at right angles to each other and the tip or extreme end of the face 16 is shown as having small teeth 18.

The inner jaw 13 is shown as being convex and is generally V-shaped, having a pair of faces 19 and 20 with teeth pointing forwardly. These faces make an obtuse angle which is slightly greater than that between the opposed faces 16 and 17, thereby providing a narrow open gap between the opposed faces when the jaws are closed. The tip or forward end of the face 19 has a few small teeth 21 coacting with the complementary opposed small teeth 18 on the face 16. The outer edges of the jaws are preferably rounded as shown so that, when they are closed, they do not present any pointed or sharp ends which will punch holes in pockets. Also, the ends of the handles are rounded or smooth for the same reason.

Referring to Fig. 3, showing the jaws wide

open, it will be noted that the faces 16 and 20 are substantially parallel with each other. This arrangement enables the jaws to grasp a large object without any tendency to slip off. In fact, the jaws will tend to pull the work toward the pivot or into the jaws, as will be evident from Fig. 4, wherein a round or cylindrical object has been gripped by three point contact, the closing movement of the jaw 13 having moved the work inwardly against the inner face 17 of the jaw 14. Thus, the jaws firmly grip large objects without slipping off and marring or defacing their surfaces.

In Fig. 5, the jaws are shown engaging a square nut. In this case, it will be noted that the face 20 engages one corner of the nut and the opposite faces 16 and 17 engage two sides of the nut. This provides a very firm grip which cannot easily be loosened.

Fig. 7 illustrates the manner in which the jaws firmly grip small work which is very difficult to hold. In this instance, the outer jaw faces 16 and 19 engage the work. Their gripping surfaces are substantially parallel. Closing movement on the work therefore tends to feed it into the jaws and the tendency of the work to turn relative to the jaws as indicated by the arrows will force the inside jaw toward the outside jaw and thus make the grip more secure.

Referring to the arrangement of the teeth on the opposed jaw faces, it will be noted that they always tend to bite into the work as the pliers are turned. In Figs. 4 to 7, inclusive, the jaws happen to be so engaged as to turn the work clockwise. It will be understood, however, that the jaws will be engaged with the teeth reversed to turn the work in the opposite direction.

From the foregoing description, it will be seen that the improved pliers are very compact and simple in construction. They have an adequate gripping range for a wide variety of work. Moreover, the shape of the gripping jaws insures a positive grip on the work without marring or defacing its surface. Also, the faces have at least a three point bearing on practically all ordinary work. They have a wider gripping range than most ordinary pliers having slots in one handle to increase their gripping ranges.

Obviously, the present invention is not restricted to the particular embodiment thereof herein shown and described.

What is claimed is:

A pocket tool of the class described comprising a pair of pivoted handles presenting integral

outer and inner gripping jaws, the outer jaw being L-shaped and having two toothed gripping faces at substantially right angles to each other, the outer face being slightly concave and the inner jaw being V-shaped presenting straight faces at substantially right angles to each other, having transverse, saw-shaped teeth thereon opposed to the faces on the outer jaw and the teeth on the coacting pairs of faces of the opposed jaws pointing in opposite directions, whereby the inner jaw will tend to feed gripped work into the outer jaw and the tips of the outer pair of gripping faces engaging each other to limit the closing movement of the jaws. 5

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