

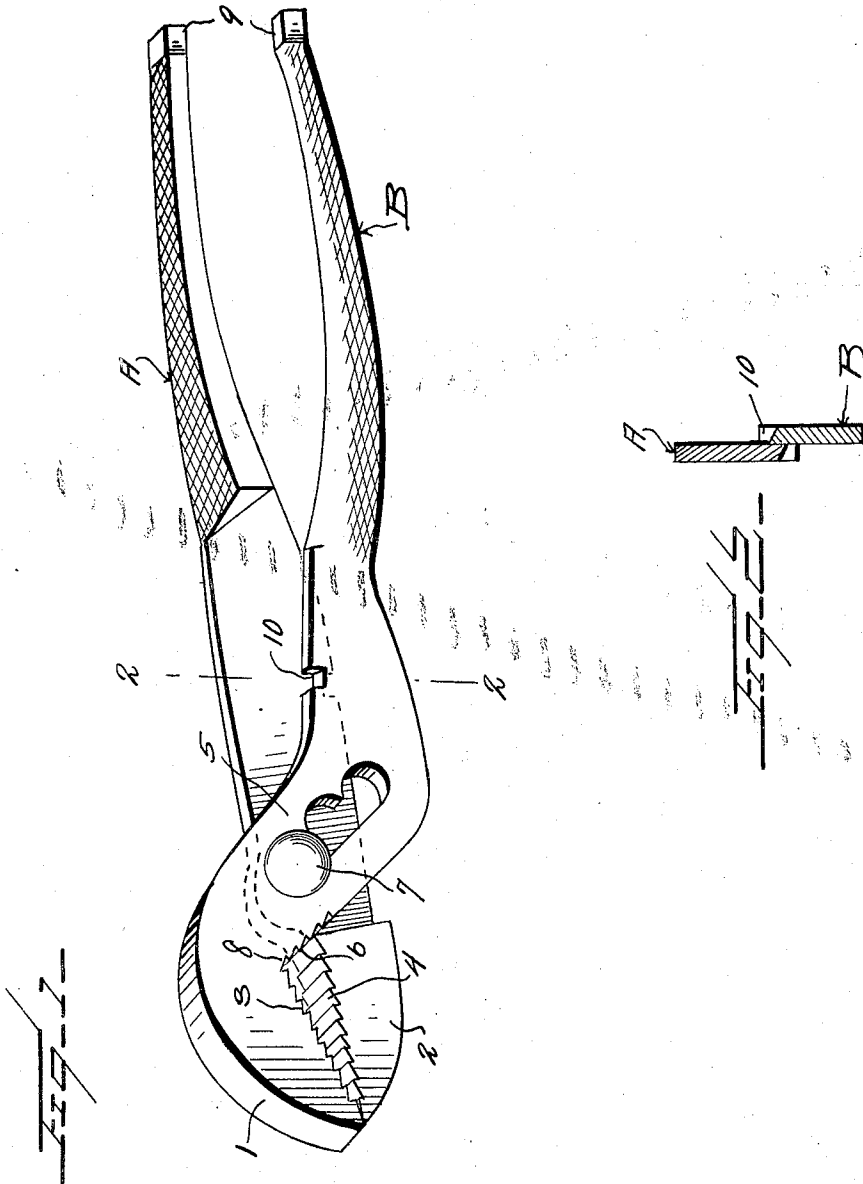
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PLIERS

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PLIERS

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This invention relates to certain improvements in pliers and it is an object of the invention to provide a tool of this kind constructed in a manner to facilitate the removal of nuts, bolts, plugs and the like and which is also particularly effective in facilitating the removal of what are commonly known as "females".

It is also an object of the invention to provide a tool of this kind wherein the contacting jaws are constructed in a manner to provide three gripping faces for engagement with the work.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved pliers whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of my invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawing, wherein:—

Figure 1 is a view in perspective of pliers constructed in accordance with an embodiment of my invention;

Figure 2 is a sectional view taken substantially on the line 2—2 of Figure 1.

As disclosed in the accompanying drawing, A and B denote two elongated handle members terminating in the overlying jaws 1 and 2 respectively. The opposed working or gripping faces of the jaws 1 and 2 are disposed in such relative angular relation in a direction lengthwise thereof that when the outer or free extremities of the jaws 1 and 2 are in contact the working face 3 of the jaw 1 is in such angular relation with respect to the working face 4 of the jaw 2 that said working or gripping faces 3 and 4 are substantially parallel when the jaws 1 and 2 are in substantially fully open position.

The jaw 1 is carried by the outer end portion of a laterally offset or inclined part 5 of the handle member B. The longitudinal

axis of the offset or angular portion 5 is disposed on an acute angle with respect to the center line of the tool parallel to the planes of the handle members A and B when the outer extremities of the jaws 1 and 2 are in contact or, in other words, the offset or angular portion 5 is disposed other than on a 90° angle. The working or gripping face 3 of the jaw 1 is also disposed lengthwise on a plane of an obtuse angle with respect to the center line of the offset or angular portion 5. The opposed working or gripping faces 3 and 4 also diverge inwardly when the outer end portions of the jaws 1 and 2 are in contact with the working or gripping face 4 disposed on a lesser angle so that the outer edge face of the offset or angular portion 5 between the jaws 1 and 2 constitutes a third gripping jaw or face 6. The offset or angular portion 5 laps the handle member A at a point in close proximity to the jaw 2 and is pivotally held thereto in a conventional manner, as indicated at 7.

As will be noted from Figure 1 the pivotal pin 7 is secured to the handle A in such position that the axis of the pivot lies substantially in the same plane as the longitudinal axis of the handle A and the serrated surface 4 of the jaw member 2. In order to accomplish this the handle member A is provided rearwardly of the jaw 2 with an offset portion, the pin 7 being disposed in a portion of this offset portion. By mounting the pin 7 as described, it is possible to position the pin 7 in a closer position to the jaw 2 than if the pin 7 were disposed below the longitudinal axis of the handle A. This is of particular advantage in view of the fact that by positioning the fulcrum closely adjacent the gripping surface of the two jaw members it is possible to secure increased leverage without unduly lengthening the handles. In like manner, the gripping surface 3 of the jaw 1 and the gripping surface 6 of the inclined intermediate portion 5 may be disposed more closely adjacent the pintle or pivot 7 by mounting the pivot 7 as above described so that the pressure produced between the three gripping surfaces 3, 4 and 6 is in-

creased immeasurably without increasing the length of the handles or, in other words, it is possible to apply a greater leverage on the jaws of the pliers by mounting the pivot 7 as above described than by mounting the pivot 7 in a plane below the longitudinal axis of one of the jaw members, this jaw member constituting the fixed jaw member.

By disposing the jaw 1 on an angle with respect to the jaw 2 whereby the jaws converge to a point outwardly from the pivot 7, the jaw 1 engages the article positioned therebetween and particularly a round article at a point forwardly of the axis of the article, and thereby constantly forces the article toward the rear or third gripping surface 6.

As herein disclosed the third gripping jaw or face 6 is serrated although if desired the serrations may be omitted.

By having the gripping or working faces 3 and 4 in angular relation and in angular relation to the offset or angular portion 5 of the handle member B, the gripping or working faces 3 and 4 will open substantially parallel and provide a three way grip on any object engaged and, namely, against the working or gripping faces 3 and 4 and the jaw or gripping face 6. The resultant action is such that when an object, if it is square or other than round, is engaged by said three working or gripping faces it is forced and locked in the angle 8 formed at the junction of the gripping or working faces 3 and 6. If the object to be engaged is round, it will be effectively held in a positive grip by these three faces 3, 4 and 6. The pliers as herein constructed facilitate the removal of nuts, bolts, plugs and the like, providing extreme leverage on the work and engaging the work with three gripping faces instead of two as with ordinary pliers.

To facilitate the removal of what are commonly known as female plugs, the handle members A and B at their extremities remote from the jaws are formed to provide the square end portions 9. By inserting either of these portions 9 into such a plug and swinging the other handle member to a position at right angles to the handle member engaged within the plug, an offset wrench of great leverage results.

While in the drawing the working or gripping faces 3 and 4 are shown as serrated these serrations may also be omitted especially when the pliers are of a type to be used in connection with soft material and it is desired to prevent marring. It will also be understood that the square portions 9 may be dispensed with.

The members A and B at desired points intermediate their ends, as herein disclosed, are provided with the conventional notches 10 whereby the tool may also be readily employed as a wire cutter. This feature may also be omitted if desired.

From the foregoing description it is thought to be obvious that pliers constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice except as hereinafter claimed.

I claim:

A pair of pliers of the character described comprising a pair of elongated handles, a serrated jaw secured to one of said handles, said serrated surface being positioned in a plane substantially coplanar with the longitudinal axis of the handle, the serrations of said jaw being inclined rearwardly, a headed pivot secured to said one handle rearwardly of the jaws and having the axis thereof coplanar with the serrated surface of the jaw, the other handle having an angularly disposed forward end portion, and a jaw secured to said forward end portion and angularly disposed with respect thereto, said latter jaw having rearwardly inclined serrations on the inner face thereof, said serrated surface of the latter jaw being angularly disposed with respect to the serrated surface of the first jaw when the pliers are in closed position whereby to cooperate with the rearwardly inclined serrations of each jaw to force the material rearwardly toward the pivot, said inclined portion of said other handle having a serrated surface extending rearwardly from the rear end portion of the serrated surface of said other jaw, the serrations of said inclined jaw being upwardly inclined whereby to cooperate with the serrated surfaces on the two jaw members for holding an article between the jaws, said inclined forward end portion having an elongated slot therethrough, said slot having notches therein whereby to adjustably receive the pivot.

In testimony whereof I hereunto affix my signature.

OTTO P. FRÖESCHL