Nov. 27, 1923

1,475,569

J. DONDERO

PLIERS

Filed April 10, 1922

Fig. 1 Fig. 2 Fig. 3 Fig. 4

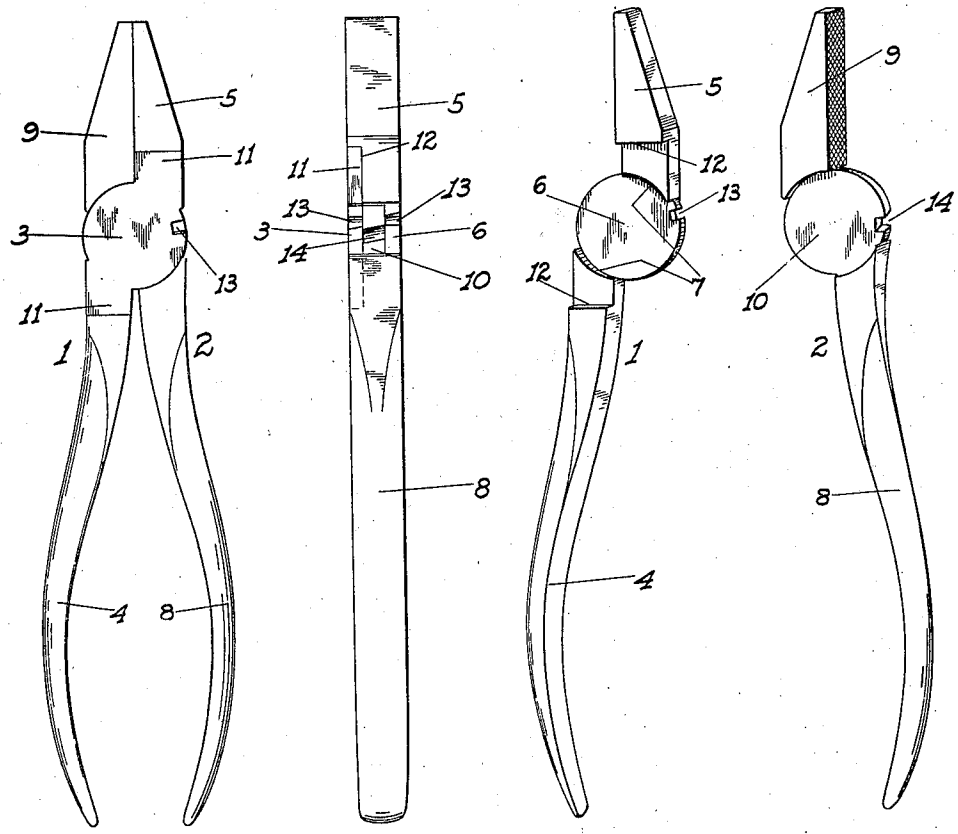
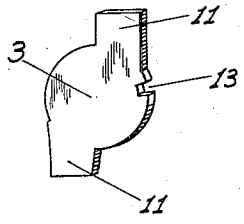


Fig. 5



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UNITED STATES PATENT OFFICE.

JOHN DONDERO, OF STOCKTON, CALIFORNIA.

PLIERS.

Application filed April 10, 1922. Serial No. 550,985.

To all whom it may concern:

Be it known that I, JOHN DONDERO, a subject of Italy, residing at Stockton, county of San Joaquin, State of California, have invented certain new and useful Improvements in Pliers; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this application.

This invention relates to improvements in pliers and similar tools the fundamental features of which comprise a pair of opposed handles and jaw or cutting members connected together for movement toward or away from each other in a fixed plane.

The parts of all such devices, as far as I am aware, are pivoted and held together by means of a screw or rivet. In time the rivet holes wear out of round, or the rivet becomes otherwise loose, resulting in the jaws being able to have undesired lateral movement with respect to each other, and which destroys the efficiency of the tool for holding or cutting purposes.

The principal object of my invention therefore is to construct a tool of the above named character in which the objectionable rivet or similar pivotal member is eliminated, and relatively large bearing surfaces between the two main members of the tool are obtained, provided in such a manner that while perfect freedom of desired movement between said members may be had at all times, they are positively prevented from ever "wobbling" or becoming loose-jointed and having relative lateral play.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purposes for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views.

Fig. 1 is a side elevation of my improved pliers.

Fig. 2 is an end view of the same.

Fig. 3 is a detached view of one of the main members.

Fig. 4 is a similar view of the other member.

Fig. 5 is a similar view of the retaining plate.

Referring now more particularly to the characters of reference on the drawings, the device consists of two separate handle and jaw members 1 and 2, and a retaining plate 3. The member 1 comprises a handle 4, jaw 5 and a circular and relatively thin plate 6 intermediate the handle and jaw. This plate lies flush with one transverse edge of the handle and jaw, but the opposite edge of the latter overhang the circular member considerably, and the adjacent transverse faces thereof are curved to conform to that of the portion 6, as shown at 7.

The member 2 consists of a handle 8, jaw 9 and intermediate circular plate 10, these parts, as far as size and general arrangement are concerned being exact duplicates of the parts of the member 1, though oppositely disposed.

The circular plate 10 however, instead of being at one transverse edge of its jaw and handle members, is so located that said members overhang the same on both sides, so that when the members 1 and 2 are assembled by superimposing the plate 10 on the plate 6, the transverse edge-faces of both jaws will lie in alinement with each other, as shown in Fig. 2. The overhanging edges of the jaw and handle members 8 and 9 adjacent the circular plate 10 are curved in the same manner as the similar members of the member 1, so as to conform to and follow the curvature of said plate 10.

The members 1 and 2 are retained in position against lateral movement by the plate 3, which is of the same size as the plates 6 and 10 and circular throughout except for a pair of opposed lugs 11 positioned to seat in recesses 12 cut in the corresponding faces of the jaw and handle 4 and 5 of the member 1, the plate 3 then lying flush with said faces, and bearing snugly against the plate 10, which in turn rests closely against the plate 6. The plate 3 is permanently secured to the parts of the member 1 by welding applied to the lugs and their seats, by rivets therethrough, or by both means if desired.

The total width of the plates together in the present instance is the same as that of the jaws or handles, each plate being preferably one third of such width, but if desired the

proportional widths of the plates individually, or as a whole relative to the jaws and handles, may of course be altered to suit the particular style of implement in which this improved joint is incorporated.

It will therefore be seen that while the two members 1 and 2 may have ample movement relative to each other in the proper direction, they will never have any lateral play, since the wearing or bearing surfaces are so large, assuming of course that the tool is made right in the first place.

I have also included a serviceable wire-cutting means in the tool independent of the jaws, which comprises transverse and alined grooves 13 cut in one edge of the plates 3 and 6, and a transverse but somewhat angled and wider groove 14 cut in the edge of the plate 10 and adapted to be alined with the grooves 13 when the handles are moved to a certain position. When thus alined, a wire is seated in all three grooves, and the handles are brought together, causing the wire to be severed at the point between the groove 14 and one of the grooves 13.

While I have here shown a standard form of plier-jaw, it is to be understood that any form of jaw, whether for holding or cutting purposes, may be applied in connection with the joint structure.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

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

1. A pliers comprising a pair of opposed handle and jaw members adapted to be positioned in opposed but co-operating relation, plates formed intermediate the jaw and handle portions and bearing against each other, and a retaining plate bearing against the outer surface of one of the plates and fixed to the member having the other plate and beyond said first named plates.

2. A pliers comprising a pair of opposed handle and jaw members adapted to be positioned in opposed but co-operating relation, plates formed intermediate the jaw and handle portions and bearing against each other, and means free of said plates for holding them together against lateral movement.

3. A pliers comprising a pair of opposed handle and jaw members adapted to be positioned in opposed but co-operating relation, circular plates formed intermediate the jaw and handle portions and bearing against each other, a circular retaining plate bearing against the outer surface of one of the plates, the jaw and handle members formed with the other plate projecting beyond the first named plate, and lugs projecting from the retaining plate and fixed to the projected portions of the handle and jaw members.

In testimony whereof I affix my signature.

JOHN DONDERO.