Dec. 2, 1947. C. SWARTZ 2,431,970

WIRE-CUTTING PLIERS

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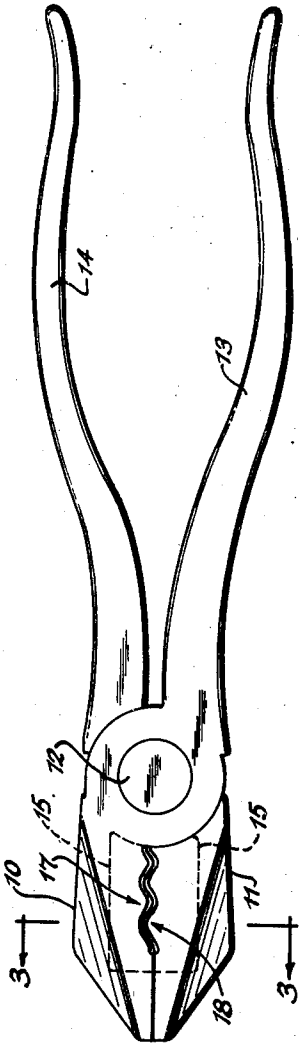


Fig. 1.

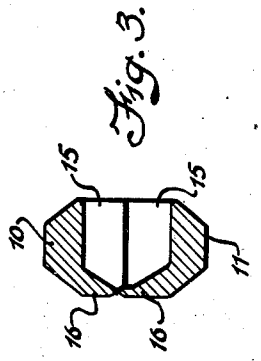


Fig. 3.

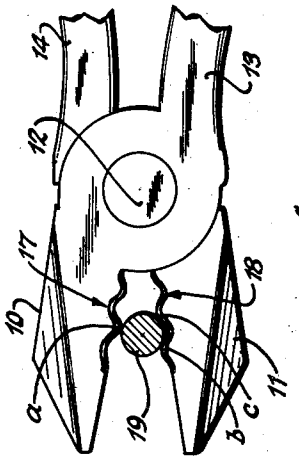


Fig. 2.

Inventor:

Claude Swartz.

By Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

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WIRE-CUTTING PLIERS

Claude Swartz, West Chicago, Ill.

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1 Claim. (Cl. 30—186)

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This invention relates to pliers, and has particular reference to improved pliers of the type designed to be used by electricians for cutting and completely severing wires.

Heretofore, the jaws of wire-cutting pliers have been provided with straight coacting cutting edges that afford initial contact with the wire at only two points adjacent the side of the wire nearest the user of the pliers. As a result of this, a rather inefficient cutting action was had and the cutting edges acted to force the wire from between the jaws. Successful use of such prior pliers accordingly necessitated application of considerable power by the use of one hand to effect the cutting action and the use of considerable force by the use of the other hand to prevent the wire from being forced from between the cutting edges.

An important object of the present invention, therefore, is to provide wire-cutting pliers having cutting edges so formed as to overcome the common objections mentioned above. I attain this object by providing the coacting cutting edges of uniformly undulated form and with the undulations of the cutting edges interfitting so that said edges contact throughout their length when the jaws of the pliers are fully closed. The result of this construction is that a three-point contact of the cutting edges with the wire is had when the jaws of the pliers are separated and the wire is engaged therebetween. Also, two points of contact are afforded by one cutting edge in a manner to retain the wire in place between the cutting edges. As a result, cutting of the wire may be effected without grasping and holding the wire between the cutting edges and by the application of a minimum amount of power for cutting through the wire.

The present invention consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawing and claimed.

In the drawing, wherein like reference characters indicate corresponding parts throughout the several views:

Figure 1 is a side elevational view of wire-cutting pliers constructed in accordance with the present invention.

Figure 2 is a fragmentary side elevational view of the pliers shown in Figure 1, but with the jaws of the pliers separated and a wire positioned between the cutting edges thereof preparatory to being severed.

Figure 3 is a vertical transverse section through

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the jaws of the pliers, taken on line 3—3 of Figure 1.

Referring in detail to the drawing, the present pliers embody jaws 10 and 11 pivotally connected by means of a pivot pin 12 in the usual way, said jaws having crossed handles 13 and 14 extending upon the opposite side of the pivot pin 12 from the jaws 10 and 11, to permit manual operation of the jaws.

The facing edges or sides of the jaws 10 and 11 are cut away or recessed from one side, as indicated at 15 in Figure 3, thereby providing the jaws with relatively thin inner blade portions 16. In accordance with the present invention, the abutting cutting edges 17 and 18 of these blades are of uniformly undulated form and arranged so that their undulations interfit when the jaws are completely closed and the cutting edges then contact each other throughout their length, as shown in Figure 1. This should not be confused with cutters of the shear type in which the cutting blades move past each other. The result of this formation and arrangement is that when the jaws 10 and 11 are separated and a wire 19 is placed therebetween, as shown in Figure 2, the wire will seat in an undulation of the cutting edge of one blade so as to effectively offset tendency of the wire to become wedged out from between the jaws when the latter are forced together. In addition, the cutting edges contact the wire at three points, as indicated at *a*, *b* and *c*, so that severance of the wire may be effected by the application of a minimum amount of power in forcing the jaws together. The user need not employ a hand to hold the wire between the jaws, and the pliers may be operated entirely by one hand so that the user has his other hand free for any other purpose desired. The utility and advantage of the cutting edge formation illustrated and described has been definitely demonstrated in actual practice.

From the foregoing description, it is believed that the construction, operation and advantages of the present invention will be readily understood and appreciated by those skilled in the art.

What I claim is:

In wire-cutting pliers, the combination of a pair of pivoted jaws, each of said jaws having a wide flat-faced outer portion and an inner portion cut away upon one side and face to reduce the thickness thereof through a certain length of its face, the reduced faces of said jaws each having uniformly undulated cooperating cutting edges arranged in the same plane, the undulations of said cutting edges being arranged to

interfit so that the cutting edges abut each other throughout their length when the jaws are completely closed and provide a three-point contact of the cutting edges with a wire disposed therebetween transversely thereof.

CLAUDE SWARTZ.

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