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H. B. BARNES.

TOOL FOR ELECTRIC WIRES.

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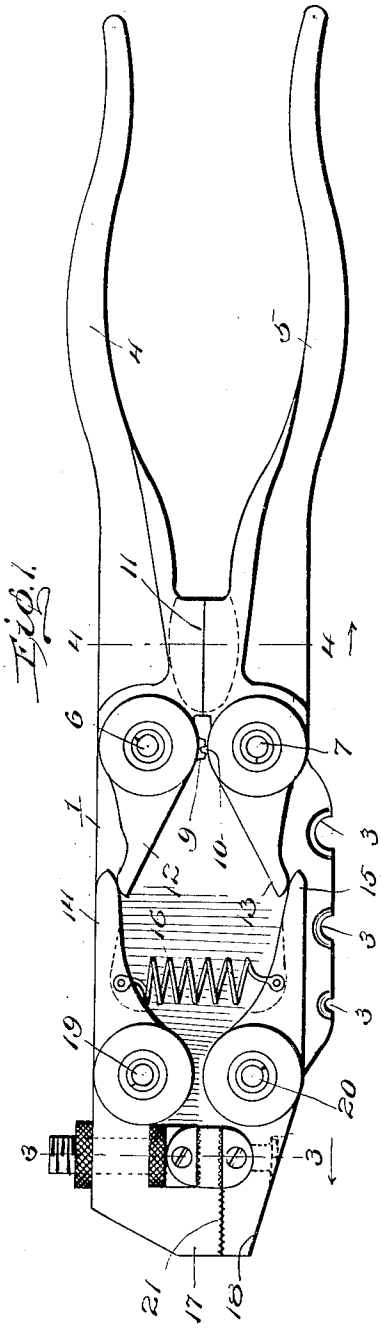

Fig. 1.

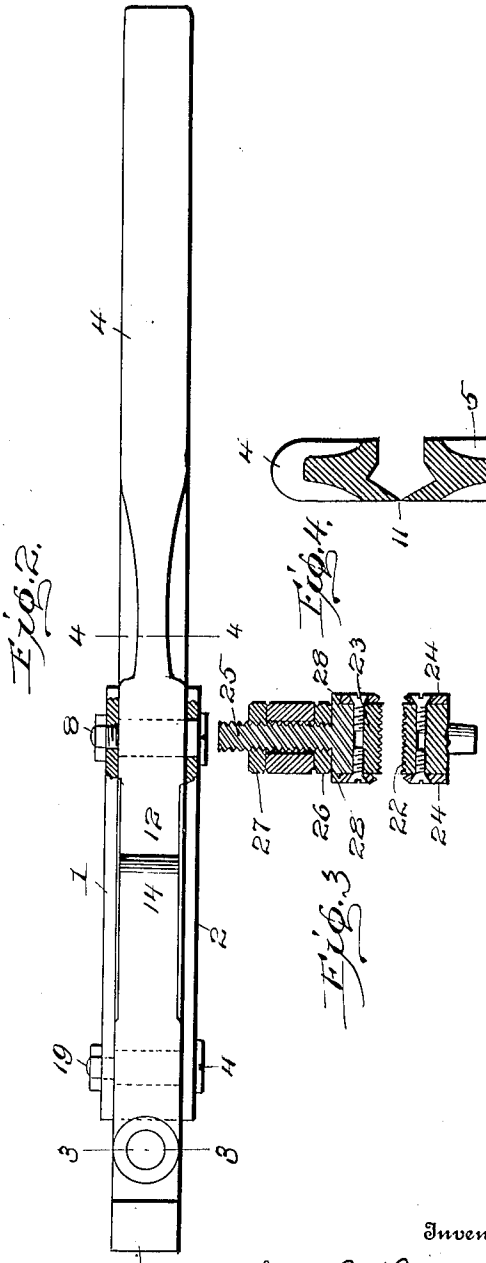

Fig. 2.

Fig. 3.

Fig. 4.

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TOOL FOR ELECTRIC WIRES.

No. 878,493. Specification of Letters Patent. Patented Feb. 11, 1908.

Application filed March 16, 1907. Serial No. 362,747.

To all whom it may concern:

Be it known that HAROLD B. BARNES, a citizen of the United States, residing at Leadville, in the county of Lake and State of Colorado, has invented certain new and useful Improvements in Tools for Electric Wires; and he does hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in tools, and particularly to combination pliers formed with jaws and cutting appliances arranged to operate in conjunction with each other.

The invention comprises the production of a combination tool having handles that are adapted to operate at the same time, and as they are operated to force a pair of auxiliary jaws together for gripping purposes.

The invention further comprises the production of an auxiliary pair of jaws for gripping wire and the like and adjustable crushing jaws secured thereto for gripping or crushing insulation on the wire and the like previous to stripping the same.

The invention still further comprises the production of improved handles formed with means for causing the same to operate together, and also with a cutting edge formed therebetween for use in cutting wires and the like, and an auxiliary pair of jaws provided with a clamping jaw proper and adjustable jaw secured continguous thereto designed for crushing insulation and provided with cutting members for cutting the insulation without injuring the wire to which the same is secured.

The object in view is the production of a combination tool that is adapted to be used as an ordinary plier, and at the same time adapted to be used as an insulation stripper for cleaning insulated wires and the like.

Another object in view is the production of a combination tool that is provided with jaws for crushing insulation, knives for trimming insulation adjacent to the point of crushing, and means for stripping the crushed insulation.

With these and other objects in view the invention further comprises certain novel constructions, combinations and arrangements of parts as will be hereinafter more fully described and claimed.

In the accompanying drawings:—Figure 1 is a side elevation of a combination tool formed according to the present invention, one of the retaining plates being removed to better disclose the construction of the plier. Fig. 2 is a top plan view of a combination tool formed according to the present invention. Fig. 3 is a section through Fig. 1 on line 3—3. Fig. 4 is a section through Fig. 1 on line 4—4.

In constructing a tool according to the present invention, I provide a pair of side plates 1 and 2 in which is inclosed the operating mechanism of the pliers. One or both of the side plates 1 and 2 may be formed with depressions 3 that are sharpened for acting as scrapers for scraping insulation off of wire, or for scraping the wire after the insulation has been removed for cleaning the same in order to provide a better electrical contact. At one end of plates 1 and 2 I pivotally mount or journal a pair of gripping handles 4 and 5 upon suitable shafts or bolts 6 and 7. The bolts 6 and 7 are preferably passed through one of the side plates, as for instance, through side plate 2 and is screw threaded into plate 1 and then locked in position by a suitable nut 8. The gripping members 4 and 5 are formed near their pivot point with intersecting segmental gears 9 and 10 which are designed to intermesh for causing gripping handles 4 and 5 to act together at all times. Gripping handles 4 and 5 are also formed with a cutting edge 11 which is designed to be used in cutting wires and the like as may be desired. The inner end of the gripping handles 4 and 5 are formed with operating levers or segments 12 and 13 which are designed to contact with and operate auxiliary levers or handles 14 and 15. The spring 16 is secured to members 14 and 15 for giving the same a tendency at all times to press upon members 12 and 13 and for normally holding open the jaws 17 and 18, and also the gripping handles 4 and 5. Members 14 and 15 are pivotally mounted or journaled upon suitable bearings as bolts 19 and 20 in plates 1 and 2.

It will be observed that the distance between journals 19 and 20 and the ends of members 14 and 15 which contact with members 12 and 13 is farther than the distance between the outer ends of members 12 and 13 and their pivot points 6 and 7. This will allow considerable leverage by the comparatively short members 12 and 13 upon the comparatively long members 14 and 15. Members 14 and 15 are formed at their outer

ends with jaws 17 and 18 which are preferably roughened as at 21 for more firmly gripping any object that may be placed therebetween. Mounted upon members 14 and 15 to the rear of jaws 17 and 18 are a pair of auxiliary jaws 22 and 23 which are roughened similarly to the jaws 17 and 18 and are designed to be used for crushing insulation on insulated wires previous to the removal of the same.

As will be clearly seen in Fig. 3, jaw 22 is provided with a pair of knives or cutters 24 which are preferably positioned with their cutting edges a short distance below the surface of the crushing jaw 22. Jaw 23 is adjustably mounted by having formed thereon an extension 25 which is screw-threaded and adapted to be held in place in member 14 by adjusting and retaining nuts 26 and 27. Jaw 23 is also formed with a pair of cutting knives 28 which are also similar to cutting jaws 24 positioned with their cutting edge slightly below the surface of the jaw. These cutting edges are placed in this position so that when the crushing jaws have crushed the insulation the cutting jaws will barely pass through the insulation and not cut or injure the wire beneath the same. It will be perfectly evident that the jaws 24 and 28 may be made of any desired length, but I find it desirable to make the same of sufficient length to simply pass through the insulation and barely contact with the wire beneath the same after the crushing jaws have crushed the insulation. This will give a clean cut for the insulation that has not been removed, and will not in any way injure the wire. After the insulation has been removed from the wire the same may be thoroughly cleaned by scraping against recess portions 3 previous to connecting the same to a similar wire or the like in order to provide a good electrical connection.

By this construction of combination tool I provide a plier that has an auxiliary pair of levers provided with a plurality of jaws, one of which is adjustably mounted and positioned near the pivot point for receiving a strong pressure for crushing insulation and the like, and a cutter for cutting insulation at the same time together with pliers for operating in any desired way. By the provision of plates 1 and 2 and lever members 12, 13, 14 and 15, a device is provided which is exceedingly strong and yet comparatively small and compact, and it is designed for any of the uses for which ordinary pliers are used, and also for various uses as for stripping insulated wires and the like in addition.

It will be clearly observed that the jaws 24 and 28 may be removed and renewed or sharpened for always providing cutting members for cutting insulation.

One of the important features of the use of cutting members 24 and 28 is that they will cut the insulation at the point between the insulation crushed and the insulation left on the wire and will make a clean ending of insulation which is very desirable when splicing insulated wires.

What I claim is:—

1. A device of the character described, comprising side plates, handles pivotally mounted therein, a plurality of jaws pivotally mounted therein and adapted to be operated by said handles, an adjustable jaw mounted in one end of said pivotally mounted member, said jaw being designed to crush insulation on insulated wires, and means for removing the insulation crushed.

2. In a device of the character described, spaced side plates, jaw members pivoted between the side plates at one end, handle members pivoted between the side plates at the opposite ends and adapted to expand the inner ends of the jaw members, an auxiliary jaw member carried within the recess of the jaw and provided with a roughened face, cutters disposed upon opposite sides of the jaw members and adjustable relative to the face.

3. In a device of the character described, spaced side plates, jaw members pivoted between the side plates at one end, handle members pivoted between the side plates at the opposite ends and adapted to expand the inner ends of the jaw members, an auxiliary member carried within a recess of the jaw and adjustable relative to the opposing jaw, and cutters carried upon opposite sides of the block.

4. In a device of the character described, spaced side plates, jaw members pivoted at one end between the side plates and with one of said jaw members provided with a recess, handle members pivoted at the opposite end of the side plates, an auxiliary jaw member disposed within the recess of the jaw and movable relative to the opposing jaw, cutters carried upon opposite sides of the auxiliary jaw member, and opposed cutters carried by the opposing jaw in alinement with the cutters carried by the auxiliary jaw member.

In testimony whereof he has affixed his signature in presence of two witnesses.

HAROLD B. BARNES.

Witnesses:
L. R. JOHNSTON,
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