April 11, 1967 J. K. SHANNON 3,312,988

CUTTER-WRENCH

Filed May 3, 1965

FIG. 1

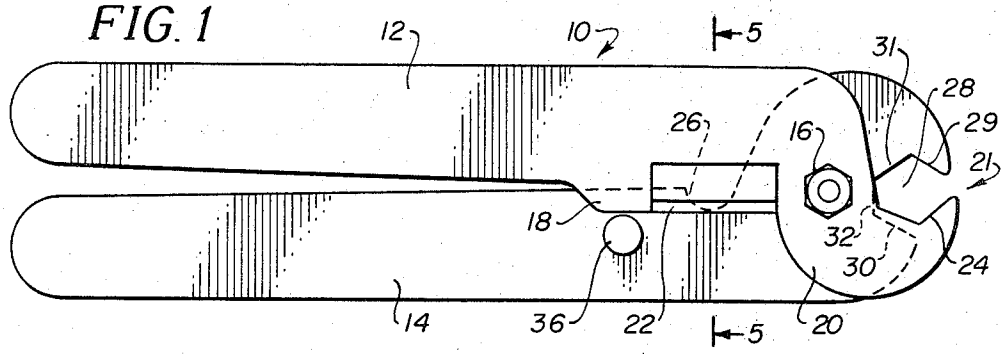


FIG. 2

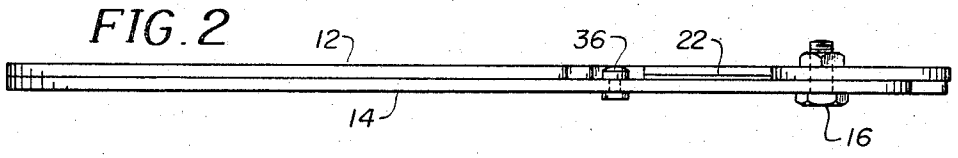


FIG. 4

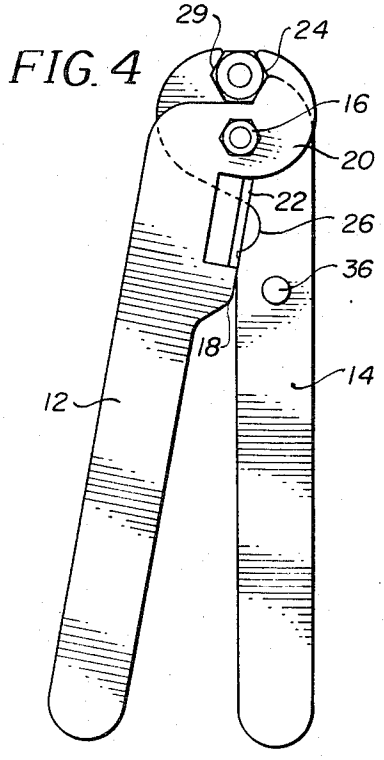
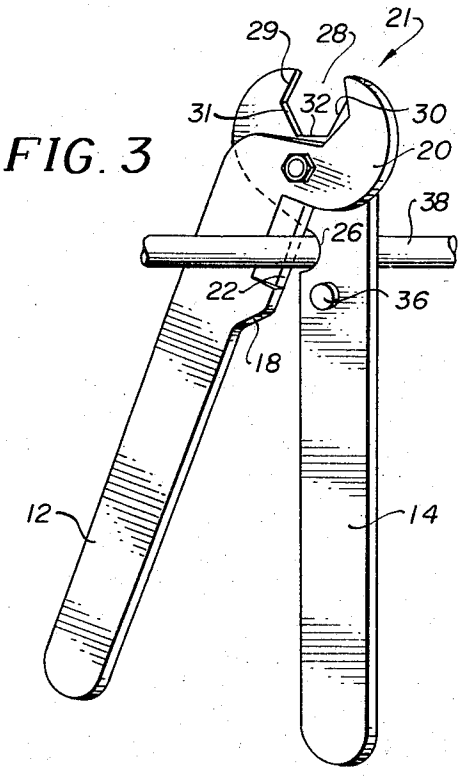


FIG. 3



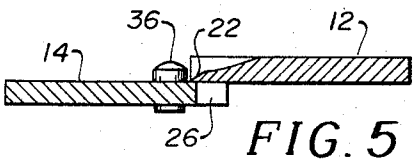


FIG. 5

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CUTTER-WRENCH

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This invention relates to a cutter-wrench combination tool which is particularly adapted for making cables having terminals on the ends thereof, for replacing old terminals, and for securing the terminals to connectors.

The cutter-wrench combination tool of the present invention is particularly applicable for making cables of the type used on automobiles, trucks, buses and the like to make connections between the battery and the remaining electrical system. The cable used is generally heavy gage and well protected with insulation so that it is capable of handling large currents and is protected from acid or fumes which would cause it to erode. Consequently, the cable is relatively difficult to cut and a sturdy pair of cutters is normally required. Also, to make good electrical connection thereto, the insulation must be removed. Care must also be taken in removing the insulation so that bare cable is not exposed. After having cut the cable to the proper length and removing the insulation, a terminal is secured thereto, generally by crimping the end of the terminal to provide a tight grip with the cable. The terminal, or terminals, is then secured to a connector such as a threaded post having a nut or a battery terminal. In the past, these operations were normally performed using a cutter to cut the cable, a stripper of some kind to remove the insulation, a pair of pliers to crimp the ends of the terminals and a wrench to secure the terminal to the connector. It is therefore apparent that it would be particularly advantageous to have one tool which could perform each of the operations.

Accordingly, it is an object of this invention to provide a cutter-wrench combination tool capable of performing each of the above-described operations in making a cable and connecting the same to a connector.

It is another object of the invention to provide a cutter-wrench combination tool which is sturdy in construction, yet relatively inexpensive to manufacture. It is further contemplated that the cutter-wrench combination tool be easy to operate.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The above objectives are accomplished with the cutter-wrench combination tool of the present invention which generally resembles a pliers having a pair of legs pivotally secured to one another in a fashion such as to provide a jaw area between one end of the legs which can be used to grip an object therebetween, by applying pressure to the opposite ends of the legs which form a pair of handles. One of the legs at its handle portion is formed with a semi-circular cut-out adapted to partially restrain a cable therein and the other leg at its handle portion is formed with a cutting edge along a portion of its length in working relationship with the above mentioned cut-out so that a cable restrained within the cut-out can be cut by applying pressure to the handles to force them together.

The insulation can also be removed, using the same cut-out and cutting edge, by placing the cable in the cut-out and forcing the cutting edge downward until the insulation is cut through. The tool is then rotated about the cable, to provide a cut about its peripheral edge, and the insulation strip off.

The jaw area of the tool, as will be described more fully hereinafter, is formed so as to provide a hex-shaped wrench for securing the terminal to a connector and to provide a crimper for securing the terminal to the cable.

The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing, in which:

FIGURE 1 is a top plan view of a cutter-wrench combination tool exemplary of the present invention;

FIGURE 2 is a side view of the tool of FIG. 1;

FIGURE 3 is a view illustrating how the tool of FIG. 1 is used to cut a cable and/or to strip the insulation therefrom;

FIGURE 4 is a view illustrating how the tool of FIG. 1 is used as a wrench; and

FIGURE 5 is a cross-sectional view taken through the cutter portion of the tool.

Similar reference characters refer to similar parts throughout the several views of the drawing.

Referring now to the drawing, in FIG. 1 a cutter-wrench combination tool **10** exemplary of the present invention is shown as having a pair of legs **12** and **14** which are pivotally secured to one another in overlying relationship by means of fastening means **16** which may be a bolt and nut, as shown. The leg **12** has a portion **18** which is enlarged in width adjacent the fastening means **16** and a substantially semi-circular portion **20** which forms one-half of the jaw area **21** of the tool **10**. A section of the enlarged portion **18** is tapered, as may be best seen in FIG. 5, by grinding it, to provide a cutting edge **22**. The edge **24** of the semi-circular portion **20** forming the jaw area **21** is shaped so as to partially correspond to the shape of a hex-shaped nut or the like.

The leg **14** has a semi-circular shaped cut-out **26** adjacent to and in working relationship to the cutting edge **22** formed in leg **12**. The end of the leg **14** is generally enlarged and circular in shape and has a slot **28** formed therein which has two parallel side edges **29** and **30** and two end edges **31** and **32** that are angled inwardly and joined. The edges **29–32** of the slot **28** in conjunction with the edge **24** of the semi-circular portion **20** form a substantially closed hex-shaped wrench when the handles **12** and **14** are closed, as illustrated in FIG. 4. A hex-shaped nut **34** can therefore be securely gripped in the jaw area **21** of the tool **10**, with relatively little danger, if any, of the tool slipping off of it.

When the handle portions of the legs **12** and **14** are forced toward one another to a greater extent than that shown in FIG. 4, the jaw area functions as a pliers to allow the tool **10** to be used to crimp the end of a terminal tightly against a cable to secure the terminal thereto. An upwardly extending stop **36** can be provided to limit the degree of crimping, to prevent damage to the terminal.

To cut a cable **38**, it is placed in the semi-circular cut-out **26** formed in the leg **14** and the two legs **12** and **14** squeezed to force them together. The cut-out **26** prevents the cable **38** from sliding away from the cutting edge **22**, hence the cable **38** can be easily cut.

To strip the insulation from a cable, the cable is placed in the cut-out **26** in the same fashion as described above when the cable is to be cut. The legs **12** and **14** are only squeezed sufficiently to cause the cutting edge **22** to cut the insulation, but not the cable. When the insulation has been cut through, the tool **10** is rotated about the cable to cut the insulation about the periphery of the cable. Once cut it can be easily stripped off of the cable. It may be noted that this technique provides a clean cut about the cable so that no jagged edges are

left on the insulation and the insulation is therefore less likely to be accidentally stripped off of the cable.

From the above detailed description, it is apparent that the cutter-wrench combination tool **10** is a very versatile tool and provides numerous advantages which heretofore were only obtainable from a number of tools which function for only a single purpose.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above construction without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

Now that the invention has been described, what is claimed as new and desired to be secured by Letters Patent is:

1. A cutter-wrench combination tool for cutting a cable and the like, for stripping the insulation from the cable, for securing a terminal to the cable and for securing the terminal to a connector comprising: a pair of legs pivotally secured to one another in overlying relationship; a cutting edge formed on one of said legs in close proximity to the pivotal connection point, cable retaining means formed in the other one of said legs in a position such that said cutting edge will engage a cable to cut said cable and to cut and strip the insulation from said cable when it is retained by said cable retaining means and said pair of legs are pivoted with respect to one another to a first and a second pivotal position, respectively; a slot formed in the end of one of said legs which is adapted to receive a predetermined shaped fastener, said slot having two parallel side walls and two end walls which are angled toward one another; an edge of the end of the other one of said legs is substantially U-shaped and adapted to substantially enclose and to clamp said fastener within said slot when said pair of legs are pivotally forced toward one another to thereby securely grip said fastener therein to prevent movement and slippage.

2. A cutter-wrench combination tool for cutting a cable and the like, for stripping the insulation from the cable, for securing a terminal to the cable and for securing the terminal to a connector comprising: a pair of legs pivotally secured to one another in overlying relationship; a cutting edge formed on one of said legs in close proximity to the pivotal connection point, cable retaining means formed in the other one of said legs in a position such that said cutting edge will engage a cable to cut said cable and to cut and strip the insulation from said cable when it is retained by said cable retaining means and said pair of legs are pivoted with respect to one another to a first and a second pivotal position, respectively; a slot having a pair of parallel side walls formed in the end of one of said legs for receiving a predetermined shaped fastener; an edge of the end of the other one of said legs being substantially U-shaped, the base of said U coinciding with one of said parallel side walls to substantially enclose and to clamp a fastener within said slot when said legs are pivotally forced toward one another to thereby securely grip said fastener therein to prevent movement and slippage.

3. The cutter-wrench combination tool of claim **2** wherein said cable retaining means comprises a semicircular shaped cut-out formed in said leg.

4. The cutter-wrench combination tool of claim **3** further including stop means on one of said legs which is engaged by the other one of said legs to limit the degree to which said legs are pivotally forced toward one another.

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