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PROVISIONAL SPECIFICATION.

A New or Improved Wire Cutter.

I, TOM EMERY, of 26, Marsham Street, in the City of Westminster & County of London, S.W., Engineer, do hereby declare the nature of this invention to be as follows:—

This invention relates to a new or improved wire cutter, and finds particular application as an instrument of warfare in cutting the barbed and like wire used in defences and entanglements.

In its simplest expression the device forming the subject matter of this application consists of a relatively immobile member or members having small motion and having a jaw or plurality of jaws and a cutting member of like formation adapted in the manner hereinafter described to have relative motion to or greater motion than the former member, and to thereby operate to sever any wire or wires that enter the jaws of either member.

The device may be attached to, or form part of a rifle, lance, or like equipment that is carried by troops, or to the wheels of vehicles, or to projectiles, and will operate in any of such or like applications provided the device to which it is attached has sufficient impetus to sever the caught wire under the leverage produced.

The invention in one form is carried out as follows:—

A bar is provided with a deeply notched or jaw-shaped profile on one or both edges; such bar in the case of a rifle is attached to the barrel stock or like part, by pivoting or other means, so that it can be folded thereupon. Pivoted to such bar is a cutting member having cutting jaws arranged by reason of the pivot attaching the one member to the other, that the jaws of the cutting member traverse obliquely or otherwise the jaws of the other member. The cutting member in such case is pivoted to the former or resistance member, a projection remote from the pivot engaging an abutment external to the resistance member so that small movement of the resistance member compels greater movement of the cutting member, such movement being employed in the operation of the device for the jaws of the mobile part to cross the jaws of the less mobile part, and sever any intervening obstruction. This movement may operate against the movement of a spring or springs adapted to return one or both of the members to its or their original position to again operate.

In a modified form, two levers pivoted to the gun barrel stock may be bridged by a short connecting link, to which is attached independent cutting jaws, each of which is slidably pivoted to one of the protruding levers. When in operation the device under spring control would assume approximately a rectangular position, but if the said device were depressed by being brought into engagement with a wire, relative motion would take place between the levers, and between the connecting piece and the cutting jaws, the leverage in this case being very considerable, and a powerful cutting effect produced.

In applying the invention to a vehicle wheel, a circumferentially notched disc is provided, which may be termed the resistance member, and superimposed

[Price 6d.]



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laterally to this resistance member, is a cutting member, continuous or discontinuous over the entire circumference. This cutting member may be operated through the medium of an eccentric connected to the axle carrying the wheel, or the device may be laterally disposed across the front of the vehicle, or in a series of vertical cutters in front of the vehicle, the resistance members in such case being fixed, and the cutting members being operated through their connection to an eccentric lever or the like device. 5

Alternatively, the wire cutters attached to a vehicle may be made to operate automatically by their movement when engaging a wire as previously described in connection with the cutters as applied to a rifle. 10

In applying the invention to a projectile, both the resistance and cutting members are adapted to be folded within the back of the shell and to remain in such position until after the projectile has left the gun, thereafter centrifugal motion by reason of the pivoting of both members, causes them to open out radially, and to tear or cut through lateral movement, any wire obstacles met in the path of the projectile's flight. 15

Dated this 11th day of May, 1915.

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COMPLETE SPECIFICATION.

A New or Improved Wire Cutter.

I, TOM EMERY, of 26, Marsham Street, in the City of Westminster & County of London, S.W., Engineer, do hereby declare the nature of this invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:— 25

This invention relates to wire cutters and is especially adapted for use in warfare in cutting the barbed and like wire used in defences and entanglements.

The object of the invention is to improve upon the class of wire cutter in which a pair of bars are mounted in eccentric relation upon a lance, rifle, or other supporting member, such bars being connected at their outer ends, partial rotation of the bars around their pivots when a wire is engaged by the device causing severance of the wire by cutting jaws formed on one of the bars and on the connecting member which move relatively to one another owing to the eccentric mounting of said bars. 30 35

The present invention comprises a device which may be applied to weapons as above set forth or which may be mounted in the front of a motor driven vehicle, and consists in a pair of bars pivoted eccentrically to a supporting member and disposed in cross relation to one another, a cutting member pivoted to said bars connecting their outer ends, and a resistance member acting in conjunction therewith formed on the end of one of said bars so that on rotation of the latter away from the supporting member when a wire is encountered, severance of the latter will take place between the points at which the cutting member is pivoted. 40

The invention will now be described in connection with the accompanying drawings in which:— 45

Fig. 1. is an elevation of the improved wire cutter.

Fig. 2. shows the invention applied to a motor vehicle.

Referring to Fig. 1 of the drawings, the device comprises a pair of parallel plates 1 connected at both ends to which are pivoted in any suitable manner, 50

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two bars 2 and 3, connected at their ends by the cutting member 4 formed as shown and pivotally connected to each of the bars 2 and 3. The outer end of the bar 3 has formed thereon the resistance member 5 of the cutting device adapted to operate in conjunction with the more mobile member 4 as hereinafter described.

Between the plates 1, a pawl 6 is mounted engaging a projection on the inner end of the bar 2, said pawl being also engaged by a spring 7 passing around a pin 8 and a second pin 9 to which it is secured.

The plates 1 are suitably spaced apart and when the cutter is to be used alone a handle 10 is adapted to be secured to said plates 1, the haft 11 of such handle being insulated therefrom and having a notched end as shown to engage the pin 12 serving to secure the bars 1 together, a thumb screw 13 securing said handle 10 in position. The handle is preferably provided with a hand guard 15.

For attachment to a rifle lance or other object, the plates 1 are also provided with two or more sets of spring clips 14.

The operation of this form of the invention is as follows:—

When the device is not in use the bars 2 and 3 are retained by the spring 7 in the position shown in full lines in Fig. 1, one edge of the bar 2 being in engagement with the edge of one of the plates 1. In such position the jaws of the cutter are open to their fullest extent so that when the device is pulled on to any wire or like obstruction 16, the rounded form of the members 3 and 4 will cause such wire to enter the cutting jaws. Once this has taken place continued pulling upon the handle 10, or upon any weapon or the like on which the cutter is mounted, will cause the bars 2 and 3 to move away from the plates 1 towards the position indicated by dotted lines in Fig. 1. From the arrangement of the bars 2 and 3 it will be obvious that the cutting member 4 will, on the outward movement just described, have greater relative movement than the resistance member 5, with the result that the former will be caused to travel across the latter and sever by shearing action the wire or the like 16. At the conclusion of each cutting operation, the spring 7 acting through the pawl 6 returns the bars 2 and 3 to their initial positions ready for the next operation.

For convenience in cutting wire or the like across an intervening obstacle or space, such for example as encountered when pruning trees, the device just described is mounted upon a long rod or pole which by its length and weight renders it difficult for the operator to give the necessary pull to sever the wire. To meet this difficulty a wire or cord 29 may be attached to the cutting member 4 and passed around a pulley (indicated by dotted lines at 30 in Fig. 1) held between the plates 1 and operated in any suitable manner from the remote end of the rod or the like upon which the cutter is mounted. Such an arrangement will provide means for exerting the necessary pull upon the device to cause the cutters to move towards the position indicated in dotted lines to sever any obstacle caught between them.

In the application of the invention shown in Fig. 2 a plurality of devices such as that already described is employed. These cutters are mounted between pairs of cheeks or plates 17 which are mounted at any suitable angle in front of a motor driven vehicle.

The pins 18 by which the members 4 are pivoted upon the bars 2 are elongated and adapted to run in slots 19 in the plates 17. At the entrances to the slots 19 rollers 20 are mounted upon bell crank levers 21 urged by springs 22 to rock about pivots 23, but being normally prevented from performing such function owing to the fact that the cutting member 4 engages the end of the bell crank lever 21 remote from the roller 20 and holds the latter away from the slot 19. The bars 2 and 3 are normally retained in such position by means of the strong spring 24.

Should the plates 17 engage a wire 16 or like obstacle the latter will be caused to enter one or other of the slots 19 with which the cutter jaws 4 and 5 coincide

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whilst in their open position. Continued motion of the vehicle will cause the wire or the like to pass further into the slots 19 taking the cutters with it towards the position indicated in dotted lines and severing the wire thereby.

Movement of the cutters towards the inner end of the slot 19 releases the lever 21 which under the action of the spring 22 closes the mouth of the slot 19 against the entry of any further wires during a cutting operation. 5

The invention is capable of many other applications such as for pruning trees, and cutters constructed on the lines above described may be employed wherever it is necessary to cut wires, cables or bars of metal or other material rapidly and in large quantities. 10

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. An improved device for cutting wires and the like comprising a pair of bars pivoted eccentrically to a supporting member and disposed in crossed relation to one another, a cutting member pivoted to said bars connecting their outer ends, and a resistance member acting in conjunction therewith formed on the end of one of said bars so that on rotation of the latter away from the supporting member when a wire is encountered, severance of the latter will take place between the points at which the cutting member is pivoted. 15 20

2. An improved device for cutting wire as claimed in Claim 1 characterised by the provision of a spring controlled pawl engaging the end of one of said bars remote from the cutters to return the latter to normal position at the conclusion of a cutting operation.

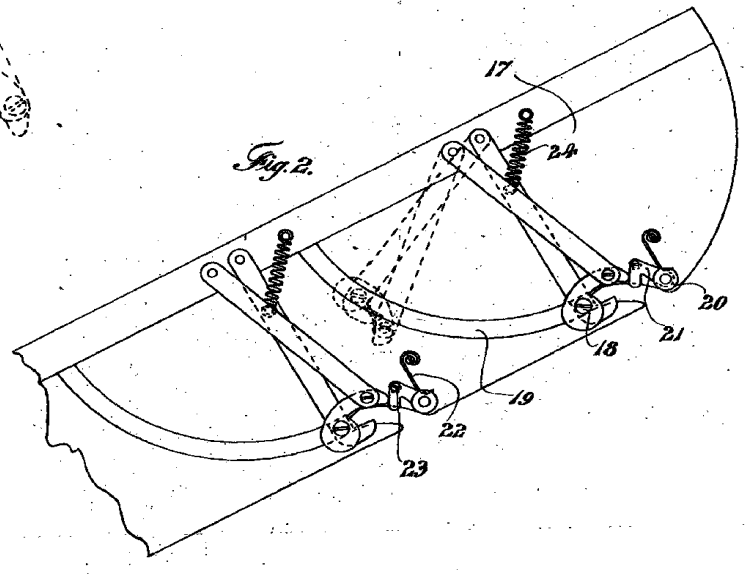
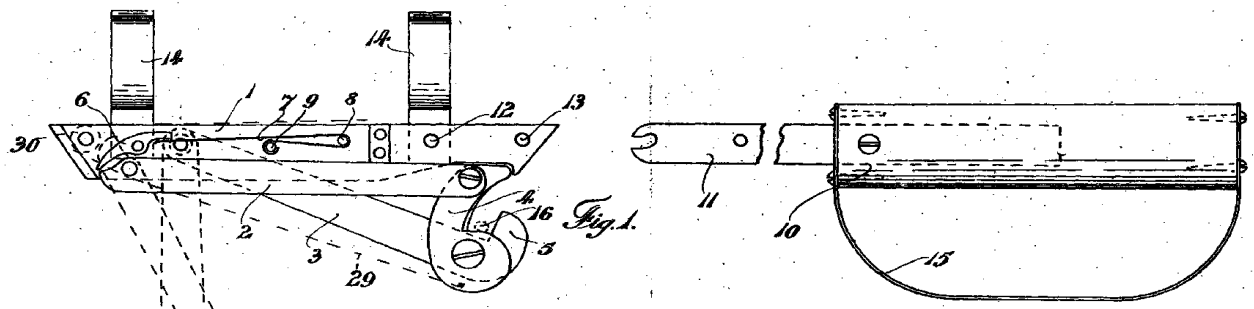
3. An improved device for cutting wire as claimed in Claims 1 and 2 wherein a plurality of cutters are mounted between plates for attachment to a motor propelled vehicle, said plates having slots in which the cutters are guided and means for closing said slot during the severing operation. 25

4. An improved device for cutting wire as claimed in Claim 3 wherein the means for closing the slots comprise a roller mounted upon a bell crank lever and impelled towards the closing position by a spring but normally restrained by engagement of said lever with the cutting member: 30

5. The improved device for cutting wire or the like substantially as described and illustrated in the accompanying drawings.

Dated this 13th day of December, 1915. 35

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[This Drawing is a reproduction of the Original on a reduced scale.]



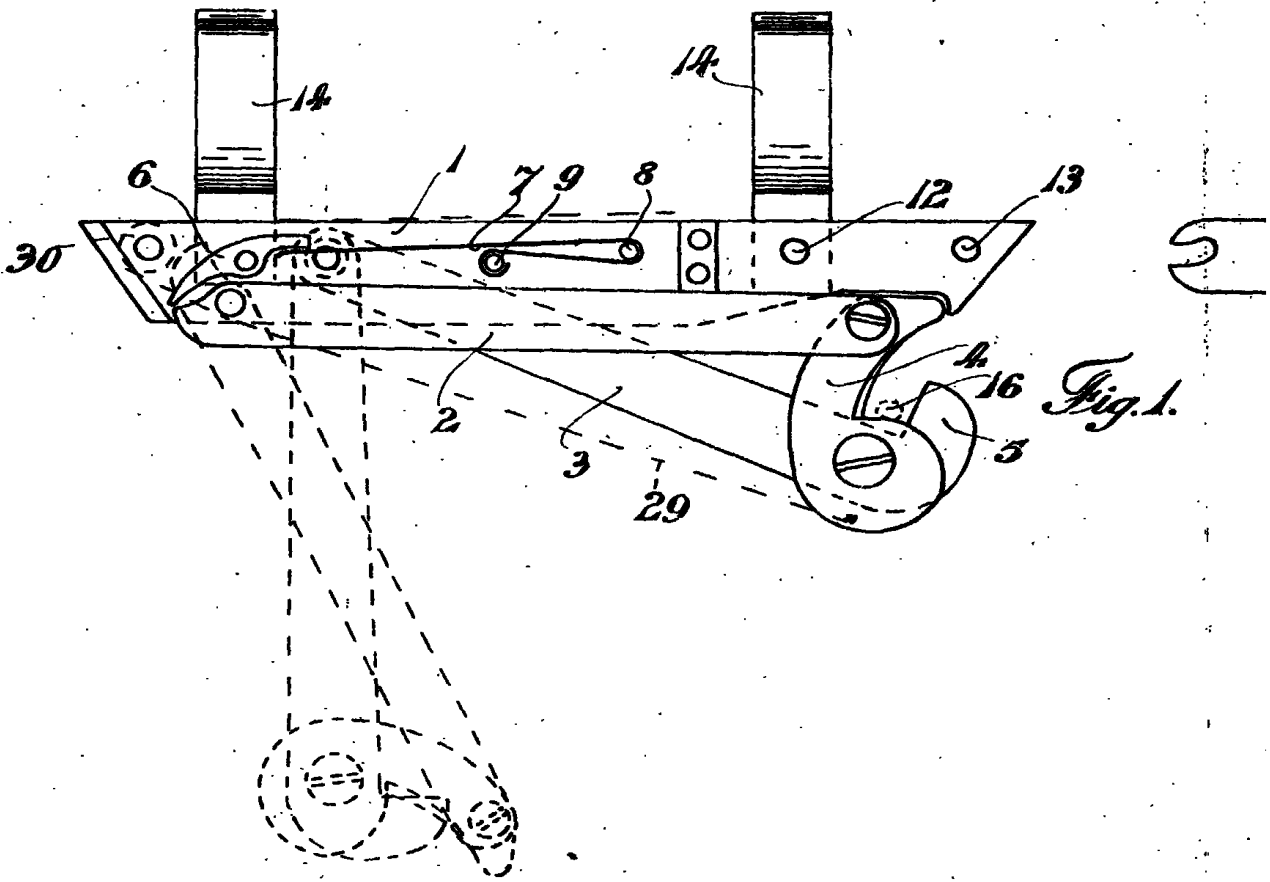


Fig. 1.

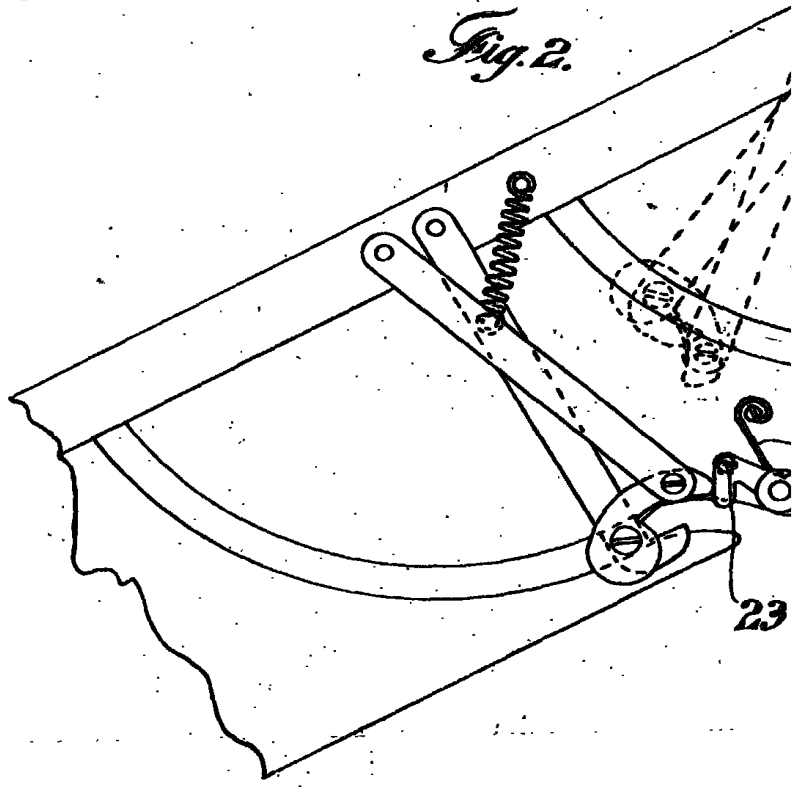
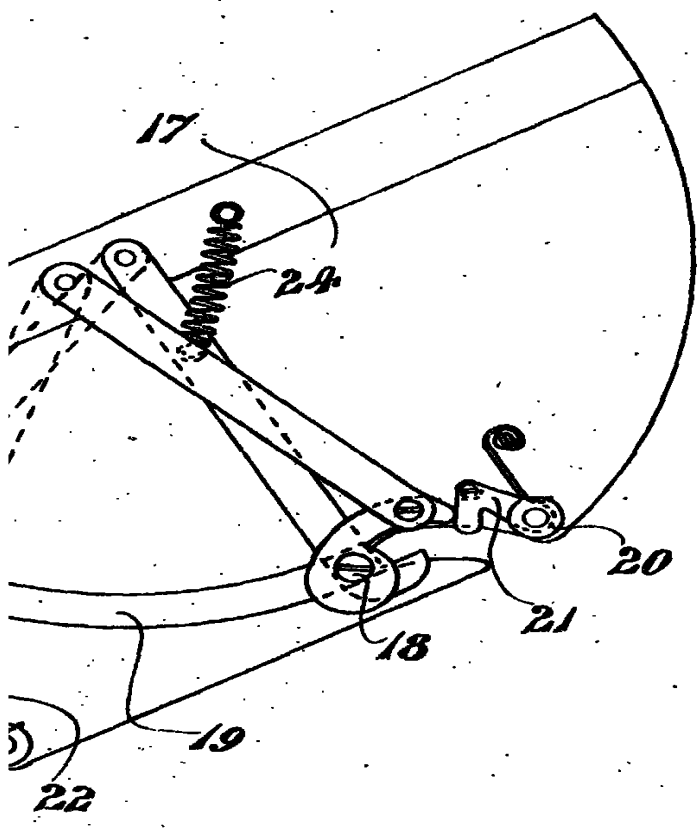
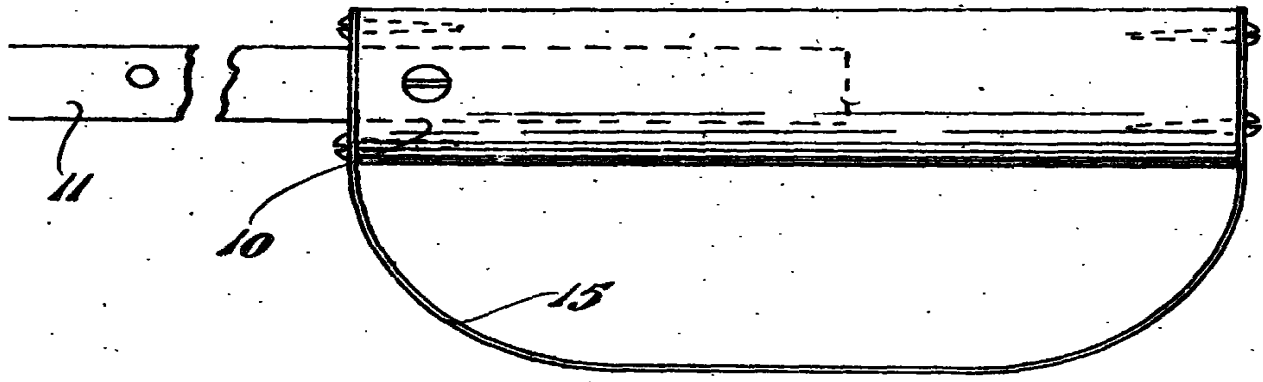


Fig. 2.

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