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MEANS FOR CUTTING OFF TOWING CABLES AND THE LIKE

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Fig. 2

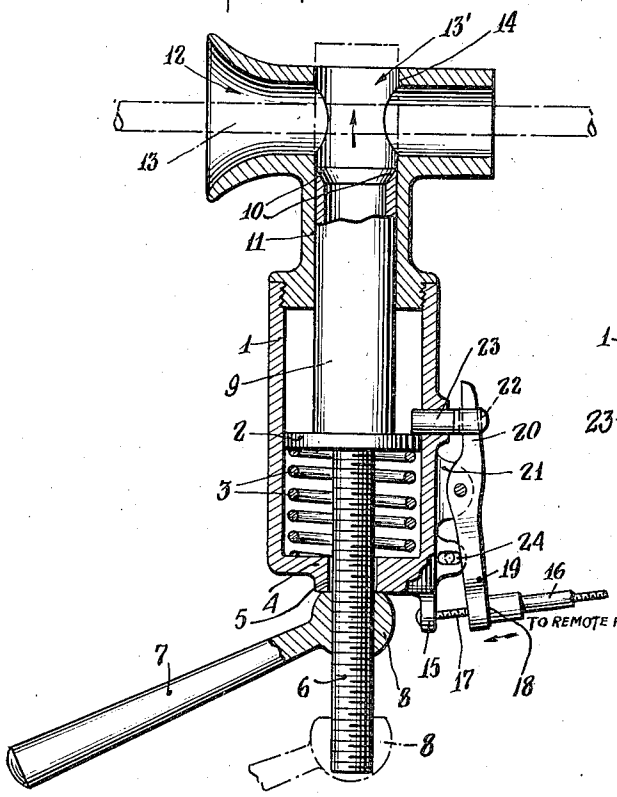


Fig. 1

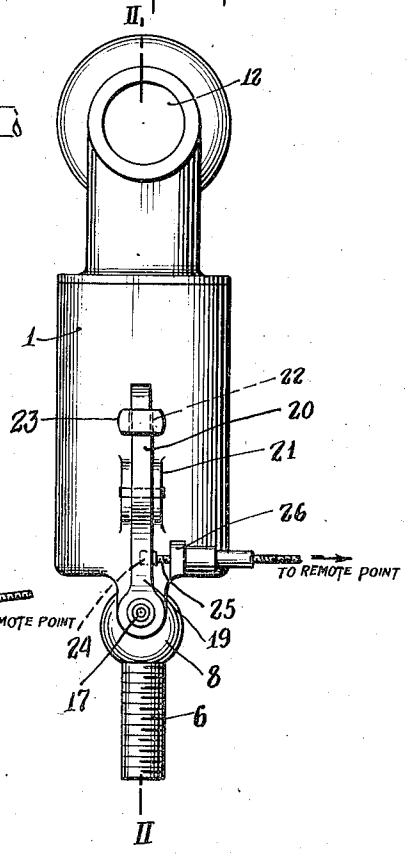
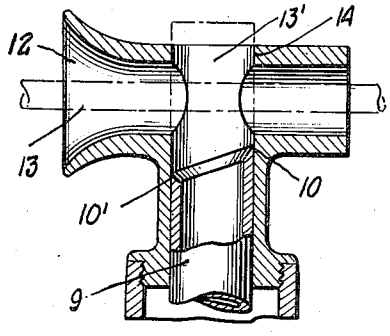


Fig. 3



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MEANS FOR CUTTING OFF TOWING CABLES AND THE LIKE

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5 Claims. (Cl. 164—47)

The present invention relates to a device for cutting off towing cables and the like, in which in the transverse direction of a preferably annular or tubular guide for the cable there is provided a displaceable knife cooperating with the edges of a transverse recess in the said guide.

When gliders are launched by towing, or aerial targets are towed by aeroplanes, accidents may happen because the towing cable at need cannot be disengaged from the aeroplane as rapidly as desired.

According to the present invention this drawback is avoided by use of a device in which the knife is provided with an annular edge or with two parallel edges and is fixed to, or adapted to be actuated by a piston movable in a cylinder, said plunger being by means of a locking pin adapted to be retained in a position in which a spring acting on the plunger is tightened and the edges of the knife are moved aside from the guide of the cable.

The invention is illustrated in the accompanying drawing, in which

Fig. 1 is a lateral view of an embodiment according to the invention, and Fig. 2 is a vertical section on the line II—II in Fig. 1. Fig. 3 is a fragmentary sectional view similar to Fig. 1 showing a form of the cutter.

In the drawing, the reference numeral 1 indicates a cylinder in which a plunger 2 is displaceable. One end of a strong spring 3 abuts against said plunger, the other end of the spring is engaged against the cylinder bottom 4 which is provided with a central aperture 5 through which a threaded rod 6 fixed to the plunger 2 is freely movable. A nut 8 provided preferably with a handle 7 is screwed on to said rod 6. To the plunger 2 there is fixed a cutter 9 with an annular or preferably two substantially parallel edges 10, said knife being displaceable in a guide 11 fixed to the cylinder 1. Said guide extends transversely to an annular or tubular guide 12 for the cable 13, said guide 12 being provided with a transverse recess 13', the edges 14 of which cooperate with the cutter edges 10.

Naturally, the plunger need not be fixed to the cutter. It may also be adapted to strike against the cutter.

On the outer side of the cylinder wall an inner member 17 of a Bowden cable 16, leading for example to the pilot's cock-pit, is fixed to a projection 15, the end surface 18 of the sheath of the Bowden cable resting against one end 19 of a two-armed lever 19—20 which is swingably mounted in a projection 21 on the cylinder 1, the other lever arm 20 traversing an aperture 22 of a locking pin 23 or the like for the plunger 2, said pin passing through the wall of the cylinder 1. Thus, the lever 19—20 and the Bowden cable constitute a distant control device for moving the pin 23 aside.

To prevent an unintentional moving aside of the locking pin, the device is provided with a safety device consisting for example of a stop member 24 fixed to the inner member 25 of a Bowden cable leading for example to the pilot's cock-pit. The sheath of said Bowden cable is fixed to a projection 26 on the cylinder 1 and the stop member is in locking position inserted in the path of the lever 19—20 and prevents the same from moving.

Of course, the stopping of the lever 19—20 can also be obtained in any other suitable way.

The device operates in the following manner:

The nut 8 is turned in such a manner by means of the handle 7 in relation to the cylinder 1 that the threaded rod 6 is drawn out and thereby tightens the spring 3 until the locking pin 23 can be inserted behind the piston 2 and retain the same in such position that the edges 10 of the cutter 9 fixed to the piston have been moved aside from the guide 12 and the cable 13 can be passed through said guide. Then the stop member 24 is inserted between the lever arm 19 and the cylinder 1 and the nut is screwed to the position indicated in dot and dash lines in the figure, whereafter the device is ready to operate.

When the cable 13 is to be cut off, the stop member 24 and then the locking pin 23 are moved aside, whereafter the cutter 9 is flung by the spring 3 so that the edges 10 of said cutter cut off the cable in cooperation with the edges 14.

It might be suitable that one edge 10 of the cutter is higher than the other 10' (as shown in Fig. 3) so that the cable is first cut off by the first-mentioned edge, the other edge acting as a reserve edge.

The invention is not limited to the shown embodiment. Thus, the locking pin for retaining the piston may for example be arranged so as to engage a recess of the threaded rod 6. Although the invention has been described as a device for cutting a towing cable for aircraft it will of course be understood that it is capable of use for cutting any cable, rope, twine, etc.

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

1. A device for cutting off towing cables and the like, comprising a tubular cable guide having

a transverse recess, a cutter having a pair of substantially parallel edges respectively cooperating with the edge of said recess, means mounting said cutter for movement through said recess transversely of said guide, a cylinder, a plunger movable in said cylinder for driving said knife, a spring for driving said piston, and locking means for releasably restraining said piston against driving movement.

2. The combination claimed in claim 1, said cutter having a pair of substantially parallel edges which are parts of a circular edge and respectively cooperating with the edges of said recess, said cutter being affixed to said plunger.

3. Means for cutting off towing cables and the like comprising a tubular guide for the cable, a transverse recess in said guide, a cylinder having its longitudinal axis in alignment with said recess and at a right angle to the axis of said tubular guide, a plunger in said cylinder, a spring in said cylinder, a locking pin engageable with said piston to hold same in position to compress said spring, a cutter having two edges located between said plunger and said tubular guide in a position to be propelled by said plunger into said recess when the locking pin is removed, and means for removing said locking pin to release said plunger.

4. Means for cutting off towing cables and the like comprising a tubular guide for the cable, a transverse recess in said guide, a cylinder having its longitudinal axis in alignment with said recess and at a right angle to the axis of said tubular guide, a plunger in said cylinder, a spring in said cylinder, a locking pin engageable with said plunger to hold same in position to compress said spring, a cutter having a circular cutting edge located between said plunger and said tubular guide in a position to be propelled by said plunger into said recess into cooperative cutting relation with an edge thereof when the locking pin is removed, and means for removing said locking pin to release said plunger.

5. A device as claimed in claim 1 having one of said cutter edges at a higher level than the other.

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