June 9, 1942. A. W. WOOLLEY 2,285,789

AIRPLANE TRAP

Filed March 1, 1940

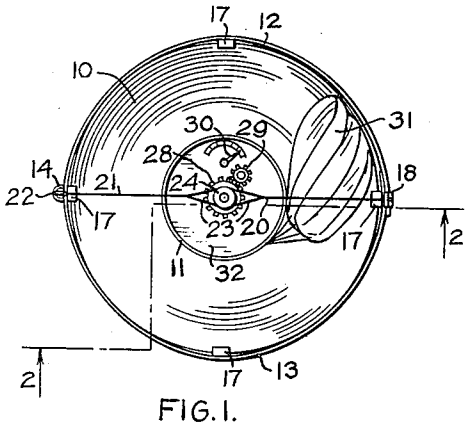



FIG. 1.

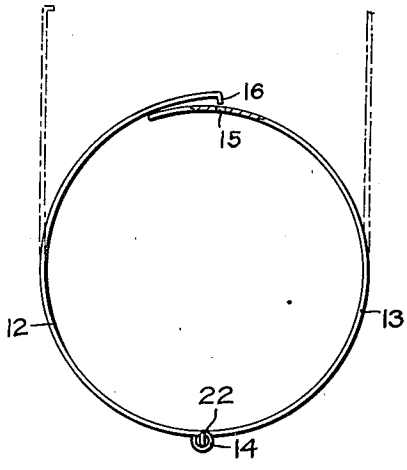



FIG. 4.

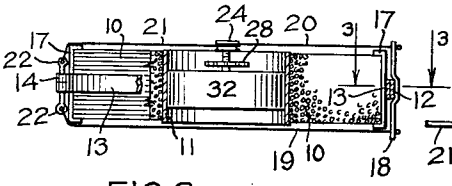



FIG. 2.

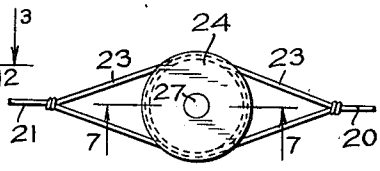



FIG. 6.

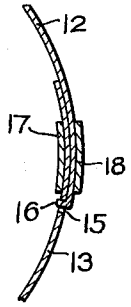



FIG. 3.

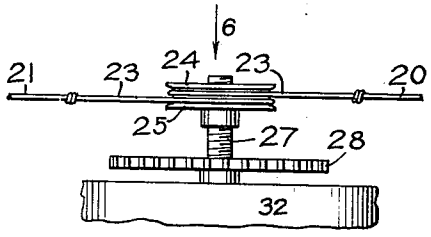



FIG. 5.

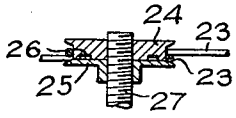



FIG. 7.

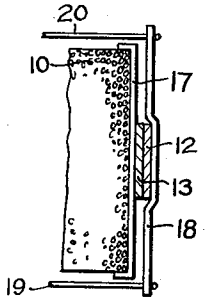



FIG. 8.

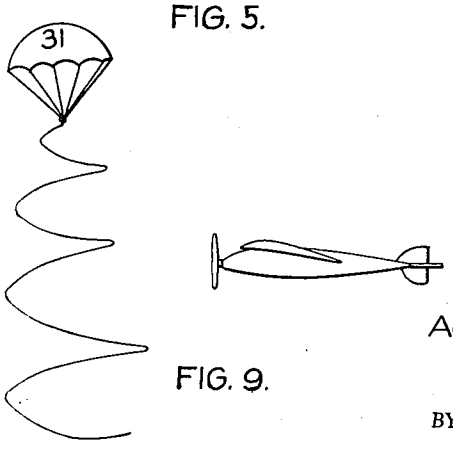



FIG. 9.

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2,285,789

## AIRPLANE TRAP

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Application March 1, 1940, Serial No. 321,699

3 Claims. (Cl. 89—1)

This invention relates to improvements in means for rendering inoperative and thus capturing and destroying airships or aeroplanes and will be referred to hereinafter as "aeroplane traps."

The use of aeroplanes in warfare has become quite common and various means for capturing and destroying aeroplanes or for rendering them ineffective have been proposed.

It is the object of this invention to produce a very simple aeroplane trap that can be released from great heights and dropped into the path of approaching aeroplanes for the purpose of entangling the propellers, thereby rendering the same ineffective and forcing the aeroplanes to land.

This invention, briefly described, consists in a device which may be termed a trap or a bomb and which comprises a coil of resilient wire, such as piano wire, or ordinary steel wire, which coil is held from unwinding by suitable clamping means that can be readily released by a time responsive device. When the means holding the wire coiled is released, the resilient action of the wire will immediately cause the coils to unwind and to fall through the air in the form of a helical spiral. When a number of such devices are released above an approaching aeroplane or aeroplane squadron, the propellers of the approaching aeroplanes become entangled in such coils whereupon they lose their efficiency and cause the aeroplane to become unmanageable.

Having thus briefly described the objects of the invention, the latter will now be described with greater detail, and for this purpose reference will be had to the accompanying drawing in which one embodiment has been illustrated, and in which:

Figure 1 is a top plan view of a device embodying this invention;

Figure 2 is a section taken on line 2—2, Figure 1;

Figure 3 is a section taken on line 3—3, Figure 2 and shows the construction of the latch;

Figure 4 is a plan view of a band which serves to hold the coil of wire in position and shows by means of dotted lines the manner in which this band opens when the latch is released;

Figure 5 is a detail view showing a portion of the time responsive releasing mechanism;

Figure 6 is a plan view looking in the direction of arrow 6 in Figure 5;

Figure 7 is a section taken on line 7—7, Figure 6;

Figure 8 is a section similar to that shown in Figure 2 and shows the holding means to a somewhat larger scale; and

Figure 9 is a diagrammatic view showing the relationship of the coil and an approaching aeroplane.

In the drawing reference numeral 10 designates a coil of resilient steel wire of any suitable size. The coil has been shown as of thoroidal form but may be wound in other ways if desired. The coil is preferably wound on a thin core 11 and is held in place by means of a steel band comprising parts 12 and 13 which are hingedly connected at 14. A short distance inwardly from the end of part 13, a hole 15 is provided for the reception of the inwardly extending parts 16 on the end of member 12. Short metal strips 17 extend across the outer surface of the coil and these are held in place by the band which is shown in Figure 4. In order to keep the band from opening a bar 18 is positioned over the end of part 12 adjacent the hook portion 16 and this is connected by means of wires 19, 20 and 21 with eyelets 22 in the ends of the hinge pin that hold the parts 12 and 13 together. The two wires designated by reference numerals 20 and 21 are provided with loops 23 that encircle a round flanged nut 24 in the manner shown in Figures 5, 6 and 7. The flanged nut is made in two parts which are separable. The parts designated by reference numeral 25 is positioned beneath the part designated by reference numeral 24 and these parts are interlocked by projections and recesses 26. When the two parts 24 and 25 are assembled, the central opening is threaded and this permits them to be screwed onto a threaded shaft 27 that is rotated by means of a clock work and train of gears two of which have been shown as designated by reference numerals 28 and 29. A pointer 30 serves both as a lock for the timing mechanism and a means for adjusting the time it will take for the shaft 27 to rotate sufficiently to release the part 24. When this part is released, the ends of wires 20 and 21 will separate, thereby permitting the bar 18 to fall away, whereupon the resilient properties of the band permit the latter to separate as shown in Figure 4. As soon as the band has separated and the metal strips 17 have been released, the wire will begin to unwind and if one end of the wire is held suspended by a parachute 31, or equivalent means, the wire will unwind into a downwardly extending helical spiral like that shown in Figure 9. Since a great length of wire can be incorporated in a coil if desired, the helix formed thereby will be quite long and of consid-

erable diameter which increases the probabilities of its being engaged by the propeller of an aeroplane.

The timing mechanism illustrated is a common alarm clock mechanism and has been designated by reference numeral 32. The specific construction of this mechanism has not been shown because a large variety of such timing elements can be substituted. Among others it is possible to employ a fuse or a powder train like that employed in connection with the timing of shells. Since it is evident that the invention does not reside in the particular timing element, the latter has been shown merely as an element of the combination. The parachute 31 can be folded and held against the surface of the coil somewhat in the manner shown in Figure 1. It is also possible to dispense with the parachute as the unwinding of the wire will cause the latter to assume a shape that produces a considerable retarding effect and such a spiral helix will not fall at the same rate as a solid body.

The method of employing the devices above described is as follows: Upon an alarm being given that hostile aeroplanes are approaching, aeroplanes loaded with large numbers of these devices climb to great heights so as to be above the approaching aeroplanes when the latter come in sight the occupants of the plane begin to release these wire bombs, but before they are released, the timing element is adjusted to release the holding band a certain number of seconds after the wire bomb has been launched into the air. The time is gauged so as to permit the wires to uncoil before the enemy planes arrive. Since this wire can be very fine and the coils are spaced apart a considerable distance, they will be practically invisible to an approaching pilot and when large numbers of them are floating in the air, the chances of some propeller striking these coils is comparatively large. The parachutes, if such are employed, do not need to be very large and can be made of transparent material so as to be practically invisible to approaching pilots.

The specific embodiment shown is illustrative only and it is apparent that many specifically different means for holding the coil against unwinding and for releasing the same can be devised and applicant contemplates the substitution of mechanical equivalents for the elements shown, wherever other forms seem to be indicated.

Having described the invention what is claimed as new is:

1. An aerial bomb, comprising in combination, a resilient wire formed into a hollow coil, means attached to the coil for holding the wire in coiled position, said means comprising a resilient band encircling the coil, the ends of the band having cooperating latch elements, the band being biased to open position, means carried by the coil for holding the latch elements in operative engagement, means comprising a time responsive device positioned in the opening in the coil and operatively connected with the latch for normally retaining the latch in operative position, means for retaining the time responsive device inoperative, and means for releasing the timing device and for determining the time that will elapse between its release and the time the latch is released.

2. An aerial bomb, comprising in combination, a length of resilient wire formed into a hollow coil, means comprising a resilient band for encircling a portion of the coil to resist its tendency to unwind, one end of the band having an opening and the other a hook forming cooperating latching means, means comprising a trigger mechanism for holding the latch in operative position, means comprising a time responsive device positioned in the opening in the coil for operating the trigger and releasing the latch, and means for holding the time responsive device inoperative and for releasing it and determining its time element.

3. An aerial bomb comprising, in combination, a length of resilient wire formed into a hollow coil, means for resisting the tendency of the coil to unwind comprising a band formed from two flat resilient members having a hinged connection, the band sections being normally curved less than 90 degrees, one of the free ends having an opening and the other end a hook adapted to enter the opening, a clock mechanism positioned in the opening in the coil, a wire retainer extending diametrically about the coil and over one of the free ends of the band for holding the band in latched position, and means operated by the clock mechanism for releasing the ends of the retainer to release the band whereby the wire coil can unwind.

ACE W. WOOLLEY.