Aug. 24, 1948. C. R. WEINERT 2,447,971

TREE SUSPENSION GRENADE DEVICE

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Fig. 1.

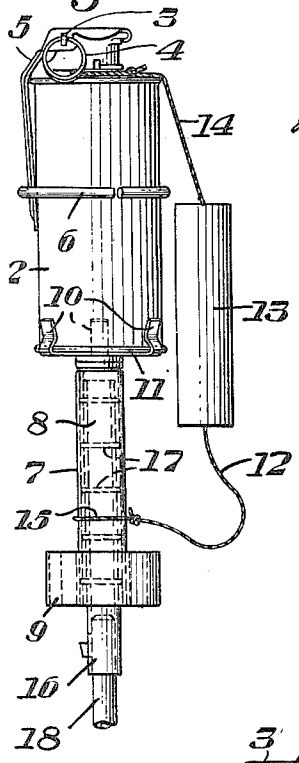


Fig. 2.

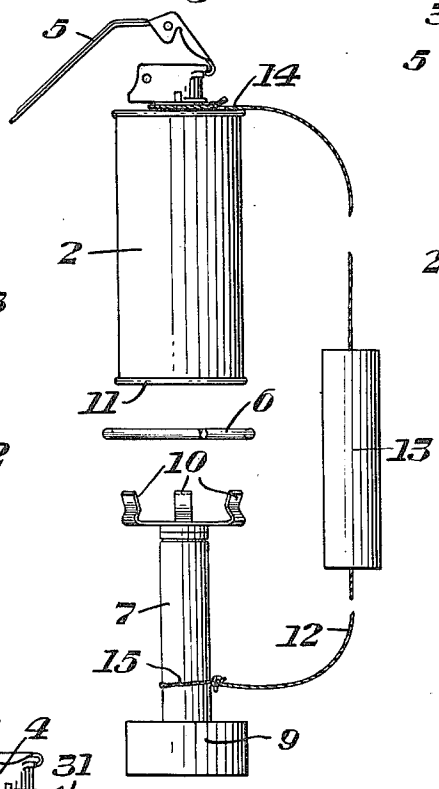


Fig. 3.

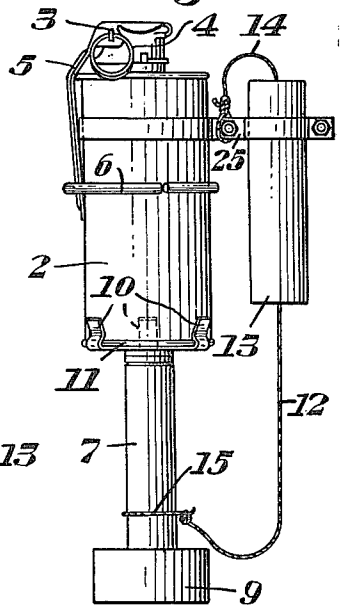


Fig. 4.

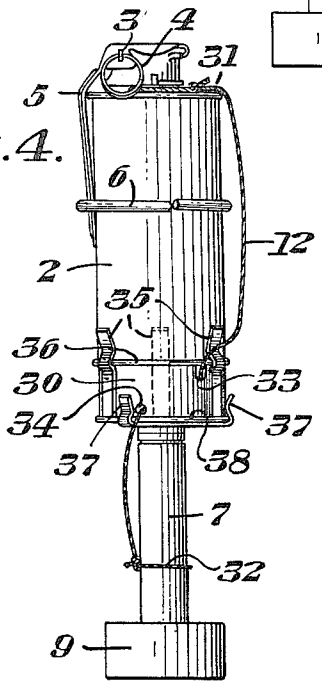
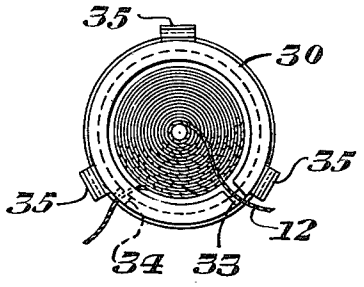


Fig. 5.



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Fig. 6.

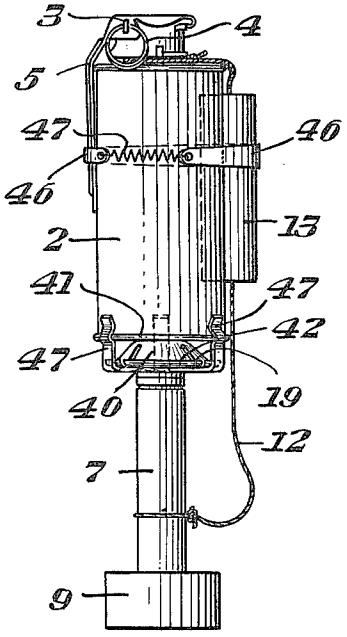


Fig. 7.

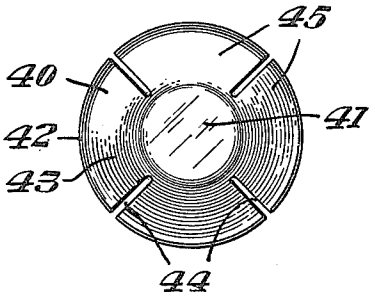
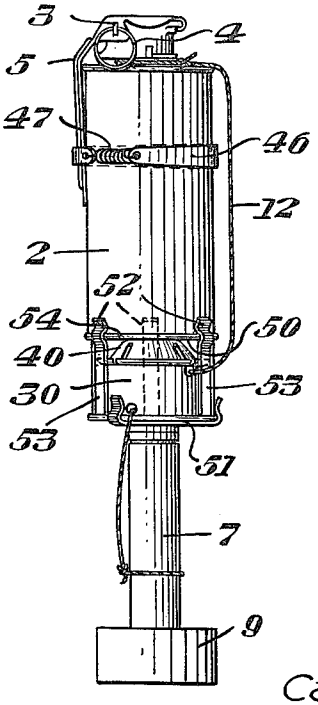


Fig. 8.



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TREE SUSPENSION GRENADE DEVICE

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13 Claims. (Cl. 102—65.2)

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This invention relates to a tree suspension grenade device of the kind wherein a grenade containing a signaling charge or other charge can be launched into the air and entangled in a tree. The invention will be described as employing a smoke grenade which may be launched and entangled in a tree so as to be readily visible to air observers. However the invention is useful in entangling other grenades such as fragmentation grenades, high explosive grenades, white phosphorus grenades, gas grenades, etc., in attaching enemy concealed in trees. Briefly stated, the device comprises a grenade, an adapter releasably connected to the grenade, an extensible cord connected adjacent one end to the grenade and adjacent the other end to the adapter, means for launching the device and means operative upon launching the device to fire the grenade and to separate the grenade and adapter so that the cord is extended and may be entangled in a tree.

In the accompanying drawings which illustrate various embodiments of my invention,

Figure 1 is a side elevation of the signaling device in position on a launcher placed on the end of the muzzle of a rifle and ready for launching into the air;

Figure 2 illustrates the grenade and adapter separated from each other after launching with the cord extended so that the device may be entangled in a trees;

Figure 3 is a view similar to Figure 1 showing a modified construction in which the container for the cord is fastened to the grenade, the launcher and rifle muzzle being omitted from Figure 3;

Figure 4 is a view similar to Figure 3 but of a modified construction in which the cord container is of the general shape of a cup and is interposed between the grenade and adapter;

Figure 5 is a plan view of the cord container of Figure 4;

Figure 6 is a view similar to Figure 3 illustrating a modification in which an expansion disc is used for breaking the connection between the grenade and adapter instead of using a set back ring as is done in Figures 1 through 4;

Figure 7 is a plan view of the expansion disc shown in Figure 6; and

Figure 8 is a view similar to Figures 4 and 6 but illustrating a modification in which both an expansion disc and a cord container are interposed between the grenade and the adapter.

Referring more particularly to the accompanying drawings and for the present to Figures 1

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and 2, the grenade 2 may be of any suitable kind, as for example, a hand grenade containing a smoke emitting charge. The granade has the usual firing mechanism including a safety pin 3 and safety pin ring 4 and a safety lever 5. When the safety pin 3 or the lever 5 is in the position shown in Figure 1 the firing mechanism cannot operate. The lever 5 is held against the grenade by a set back ring 6. An adapter 7 having a tubular body 8 closed at its upper end and an annular stabilizing fin 9 at its lower end is releasably connected at its upper end to the grenade 2 by means of spring clips 10 which fit over a bead 11 on the lower end of the grenade. A cord 12 is folded in a tube 13. One end 14 of the cord is connected to the grenade and the other end 15 is connected to the adapter.

In launching the device a tubular launcher 16 having rings 17 on its exterior surface is inserted inside the fin 9 and tubular portion 8 of the adapter. The lower end of the launcher is clamped over the end of a gun muzzle 18. Upon firing a blank cartridge in the gun the gases inside the tube 8 project or launch the grenade and adapter into the air. In this launching, the adapter 7 slides upwardly relative to the launcher 16, the launcher remaining fixed to the gun muzzle. As the grenade and adapter are launched, the set back ring 6 which is of a rather heavy construction slides downwardly relative to the grenade and into contact with the spring clips 10, bending them outwardly and allowing the grenade to separate from the adapter. The downward movement of the set back ring also releases the lever 5 thereby allowing the firing mechanism to operate, it being understood that the safety pin 3 and ring 4 have been removed before the device was launched. Upon separation of the grenade and adapter the cord 12 unfolds and passes out from the container 13 so as to present a length which can easily entangle in a tree. The position of some of the parts is shown in Figure 2 after the device has been launched and the grenade and adapter have separated from each other.

The embodiment shown in Figure 3 is similar to that shown in Figure 1 except that in this case the cord container 13 is connected by a strap 25 to the grenade rather than being unconnected as is the case in Figure 1. Otherwise the construction and operation is the same.

Referring to Figures 4 and 5, the cord 12 is coiled in a cup shaped container 30 which is interposed between the grenade 2 and the adapter 7. One end 31 of the cord is connected to the

grenade and the other end 32 is connected to the adapter. The container 30 is provided with holes 33 and 34 through which the cord extends in making the connections with the grenade and adapter. The grenade 2 is releasably connected to the cord container 30 by spring clips 35 fastened to the container, the upper ends of the spring clips passing over a bead 36 at the bottom of the grenade. The cord container 30 is fastened to the adapter 7 by spring clips 37 engaging a bead 38 at the lower end of the container.

In operating the device shown in Figure 4, when the device is launched the set back ring 6 moves downwardly and spreads the fingers 35 apart thereby separating the grenade 2 from the container 30. The container 30 remains connected to the adapter 7.

In the devices illustrated in Figures 1 through 4, the set back ring 6 is the means which spreads the fingers of the spring clip, thereby separating the grenade from the adapter. In the embodiments shown in Figures 6 through 8 an expansion disc is employed for spreading the fingers of the spring clip and allowing separation of the grenade from the adapter. Referring to Figures 6 and 7, an expansion disc 40 is interposed between the bottom of the grenade 2 and the top 19 of the adapter 7. This disc 40 has a flat top portion 41 which contacts with the bottom of the grenade. It also has a horizontal flange portion 42 connected by a sloping portion 43 to the top portion 41. The disc is provided with slots 44 which in effect form fingers 45 in the disc. The cord container 13 is attached to the grenade by a strap made up of two portions 46 of strip metal connected by a spring 47. The strap and spring not only connect the container 13 with the grenade but also hold the lever 5 against the grenade so that the firing mechanism cannot operate.

Upon launching the device shown in Figure 6, the pressure exerted on the expansion disc 40 by the adapter 7 and grenade 2 causes the disc to be compressed in a vertical direction and expanded in a horizontal direction so that the fingers 45 of the disc press the spring clips 47 outwardly thereby allowing the grenade to separate from the adapter.

In the embodiment shown in Figure 8, a cord container 30, the same as that shown in Figure 4, is employed. An expansion disc 40, the same as is shown in Figure 6, rests on top of the cord container 30. Thus both the expansion disc and the cord container 30 are interposed between the bottom 50 of the grenade 2 and the top 51 of the adapter 7. Spring fingers 52 are fastened adjacent their lower ends 53 to the cord container 30 and at their upper ends engage a bead 54 at the bottom of the grenade. The expansion disc 40 separates the grenade from the adapter in the same manner as pointed out in conection with Figure 6, the fingers 45 of the disc contacting the spring clip fingers 52 and spreading them apart so as to release the bead 54 of the grenade from the fingers. In launching the devices of Figures 6 and 8 the strap 46—47 moves downwardly relative to the grenade thereby releasing the arm 5 so that the firing mechanism can operate to set off the grenade.

The invention is not limited to the embodiments which have been given merely by way of illustration but may be otherwise embodied or practiced within the scope of the following claims.

I claim:

1. A tree suspension grenade device, comprising a grenade, an adapter releasably connected to the grenade by a spring clip, an extensible cord connected adjacent one end to the grenade and adjacent the other end to the adapter, and means operative upon launching the device and movable relative to the spring clip for actuating the spring clip to separate the grenade and adapter, whereby the cord is extended and may be entangled in a tree.

2. A tree suspension grenade device, comprising a grenade, an adapter releasably connected to the grenade by a spring clip, an extensible cord connected adjacent one end to the grenade and adjacent the other end to the adapter, and a ring operative upon launching the device and movable relative to the spring clip for actuating the spring clip to separate the grenade and adapter, whereby the cord is extended and may be entangled in a tree.

3. A tree suspension grenade device, comprising a grenade, an adapter releasably connected to the grenade, an extensible cord connected adjacent one end to the grenade and adjacent the other end to the adapter, and expansion means operative to separate the grenade and adapter upon launching the device, whereby the cord is extended and may be entangled in a tree.

4. A tree suspension grenade device, comprising a grenade, an adapter releasably connected to the grenade, an extensible cord connected adjacent one end to the grenade and adjacent the other end to the adapter, and an expansion disc operative to separate the grenade and adapter upon launching the device, whereby the cord is extended and may be entangled in a tree.

5. A tree suspension grenade device, comprising a grenade, an adapter releasably connected to the grenade by a spring clip, an extensible cord connected adjacent one end to the grenade and adjacent the other end to the adapter, and an expansion disc operative upon launching the device for actuating the spring clip to separate the grenade and adapter, whereby the cord is extended and may be entangled in a tree.

6. A tree suspension grenade device, comprising a grenade, an adapter releasably connected to the grenade, a container, a cord folded in the container, the cord being connected adjacent one end to the grenade and adjacent the other end to the adapter, and means operative to separate the grenade and adapter upon launching the device, whereby the cord is extended and may be entangled in a tree.

7. A tree suspension grenade device, comprising a grenade, an adapter releasably connected to the grenade, a container connected to the grenade, a cord folded in the container, the cord being connected adjacent one end to the grenade and adjacent the other end to the adapter, and means operative to separate the grenade and adapter upon launching the device, whereby the cord is extended and may be entangled in a tree.

8. A tree suspension grenade device, comprising a grenade, an adapter releasably connected to the grenade by a spring clip, an expansion disc interposed between the grenade and adapter, and an extensible cord connected adjacent one end to the grenade and adjacent the other end to the adapter, the expansion disc being operative upon launching the device for actuating the spring clip to separate the grenade and adapter, whereby the cord is extended and may be entangled in a tree.

9. A tree suspension grenade device, comprising a grenade, an adapter releasably connected to the grenade by a spring clip, a container interposed

between the grenade and adapter, a cord folded in the container, the cord being connected adjacent one end to the grenade and adjacent the other end to the adapter, and a ring on the grenade movable into contact with the spring clip to separate the grenade and adapter upon launching the device, whereby the cord is extended and may be entangled in a tree.

10. A tree suspension grenade device, comprising a grenade, an adapter releasably connected to the grenade by a spring clip, an expansion disc and a container interposed between the grenade and adapter, a cord folded in the container, the cord being connected adjacent one end to the grenade and adjacent the other end to the adapter, the expansion disc being operative upon launching the device for actuating the spring clip to separate the grenade and adapter, whereby the cord is extended and may be entangled in a tree.

11. A tree suspension grenade device, comprising a grenade, grenade firing mechanism, means for holding said firing mechanism in inoperative position, an adapter releasably connected to the grenade, an extensible cord connected adjacent one end to the grenade and adjacent the other end to the adapter, and means operative upon launching the device to separate the grenade and adapter and to release the means for holding said firing mechanism inoperative and cause the grenade firing mechanism to operate, whereby the cord is extended and may be entangled in a tree.

12. A tree suspension grenade device, comprising a grenade, grenade firing mechanism, means movable relative to the grenade for holding said firing mechanism in inoperative position, an adapter releasably connected to the grenade, an extensible cord connected adjacent one end to the grenade and adjacent the other end to the adapter, and means operative upon launching the device to separate the grenade and adapter and to release the means for holding said firing mechanism inoperative and cause the grenade firing mechanism to operate, whereby the cord is extended and may be entangled in a tree.

13. A tree suspension grenade device, comprising a grenade and firing mechanism therefor, an adapter releasably connected to the grenade, an extensible cord connected adjacent one end to the grenade and adjacent the other end to the adapter, and a ring on the grenade adapted to hold said firing mechanism in inoperative position but movable into contact with the releasable connection upon launching the device to separate the grenade and adapter and release said firing mechanism to cause firing of the grenade, whereby the cord is extended and may be entangled in a tree.

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