Sept. 2, 1930. S. WILEY 1,774,535

AERIAL BOMB OR FLARE

Filed June 19, 1929

Fig. 1.

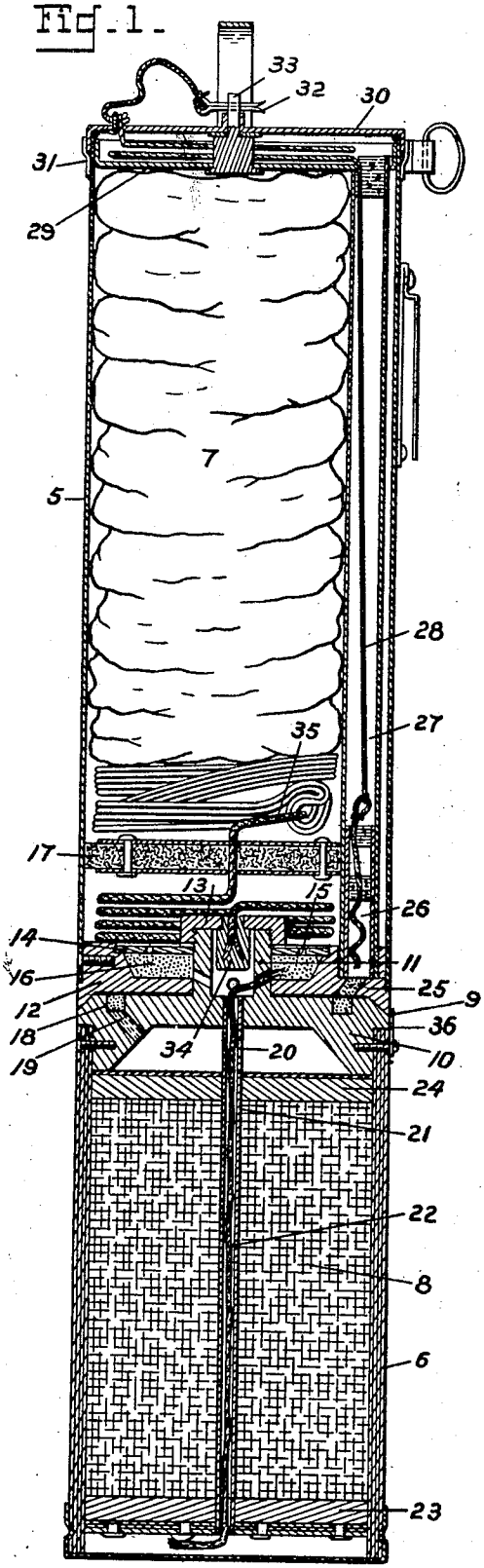
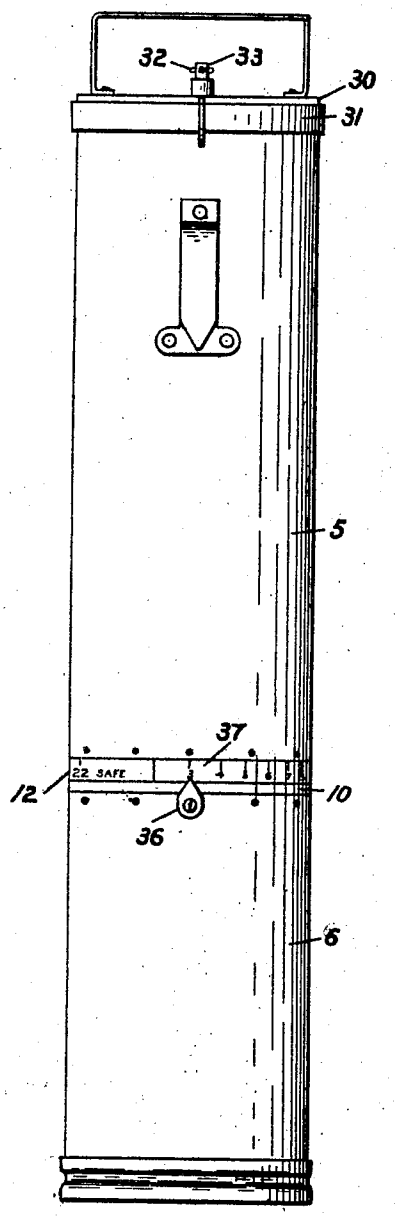



Fig. 2.




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# UNITED STATES PATENT OFFICE

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## AERIAL BOMB OR FLARE

Application filed June 19, 1929. Serial No. 372,060.

(GRANTED UNDER THE ACT OF MARCH 3, 1883, AS AMENDED APRIL 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

The subject of this invention is an aerial bomb or flare.

In order that a bomb or flare may be capable of its most efficient performance, it should be brought into operation at a definite position with respect to the object at which it is directed. Such a missle released from aircraft at varying altitudes must, therefore, be equipped with a time controlling mechanism.

The primary object of this invention is to arrange the elements of a parachute flare so that a powder time fuse of simple construction may serve to rotatably connect the two components of the flare casing.

With the foregoing and other objects in view, the invention resides in the novel arrangement and combination of parts and in details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

A practical embodiment of the invention is illustrated in the accompanying drawings, wherein:

Fig. 1 is a longitudinal sectional view of the improved flare;

Fig. 2 is a view in elevation thereof.

Referring to the drawings by numerals of reference:

The flare casing consists of two cylindrical containers 5 and 6, the former enclosing a parachute 7 and the latter carrying an illuminating composition 8. The adjoining ends of the containers are firmly secured to relatively rotatable elements of a fuse 9. One of such elements, constituting a fuse body 10 to which the container 8 is secured, is in the form of a disk having a central tubular extension 11 on which is mounted the other fuse element consisting of a ring 12 to which the parachute container 5 is attached. A nut 13 threaded on the extension 11 bears against a plate 14 seated marginally on the ring and regulates the frictional resistance which is to be established between the rotatable elements of the fuse. The plate 14 is formed with vents 15 so that the gases produced upon combustion of an expelling charge 16 loaded in a recess in the outer face of the ring may build up pressure behind a movable diaphragm 17 which separates and protects the parachute from the flame.

The inner face of the fuse body carries an interrupted annular powder train 18 which at one end is in communication with the recessed outer face by means of a powder pellet 19. The pellet is inclined so as to direct its flame towards the apertures 20 in a central tube 21 enclosing a quick match 22 which leads to the expelling charge 16 and to the specially primed outer or bottom face 23 of the illuminating composition 8. A cover 24 is placed over the inner face of the composition 8 to prevent its ignition.

A relay pellet 25 carried by the ring 12 in position to transmit its flash to the powder train 18 is ignited by a friction firing mechanism 26 mounted in a tube 27 threadedly secured to the margin of the ring and extending to the outer end of the parachute container. The actuating wire 28 within the tube 27 passes through a parachute retaining disk 29 and is attached to a cap 30 secured to the container by means of a tear strip 31 and further secured to the container by means of a pin 32 inserted through a projecting member 33 on the disk 29.

The tubular extension 11 of the fuse body and the nut 13 house and retain an anchor 34 whereby the suspension cord 35 of the parachute carries the complete flare casing. The relative rotation of the containers 5 and 6 will not affect the position of the anchor or re-

sult in entanglement of the suspension cord.

As in the conventional powder time fuse for artillery projectiles, the setting of the fuse is accomplished by positioning the relay pellet 25 with respect to the pellet 19, the relative movement of the containers being indicated by a pointer 36 and scale 37 provided externally thereon.

In releasing the flare from aircraft the cap 30 is secured either manually or mechanically and when the tear strip 31 and the pin 32 are removed to permit the descent of the flare casing, the retention by the cap of the actuating wire 28 will cause the firing mechanism to function the time train whose setting controls the moment at which the parachute will be expelled and the illuminating composition ignited.

I claim:

1. In a flare, a parachute container, an illuminant container, relatively rotatable time fuse members to which the adjoining ends of the containers are attached, a parachute expelling charge carried by one of the fuse members, means for anchoring the parachute centrally in the other fuse member, a closure for the parachute container and firing mechanism operable on removal of the closure.

2. In a flare, a parachute container, an illuminant container, relatively rotatable time fuse members to which the adjoining ends of the containers are attached, a parachute expelling charge carried by one of the fuse members, and means for anchoring the parachute centrally in the other fuse member.

3. In a flare, a parachute container, an illuminant container, relatively rotatable time fuse members to which the adjoining ends of the containers are attached, and a parachute expelling charge carried by one of the fuse members.

4. In a flare, a parachute container, an illuminant container, relatively rotatable time fuse members to which the adjoining ends of the containers are attached, and means for anchoring the parachute centrally to one of the fuse members.

5. In a flare, a parachute container, an illuminant container and relatively rotatable time fuse members to which the adjoining ends of the containers are attached.

6. A flare embodying a parachute container, an illuminant container, means for joining the containers to rotate with respect to each other, an element carried by said means for expelling the parachute, and means for initiating action of said element after a predetermined period of time, the timing of said latter means controlled by the relative rotation of the casings.

7. A flare embodying a parachute container, an illuminant container, means for joining the containers to rotate with respect to each other, an element carried by said means for expelling the parachute, and means for initiating action of said element and igniting the illuminant after a predetermined period of time, the timing of said latter means controlled by the relative rotation of the casings.

8. A flare embodying a parachute container, an illuminant container, means for joining the containers to rotate with respect to each other, and means for igniting the illuminant after a predetermined period of time, the timing of said latter means controlled by the relative rotation of the containers.

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