June 16, 1936. S. WILEY 2,044,024

FLARE

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Fig-1.

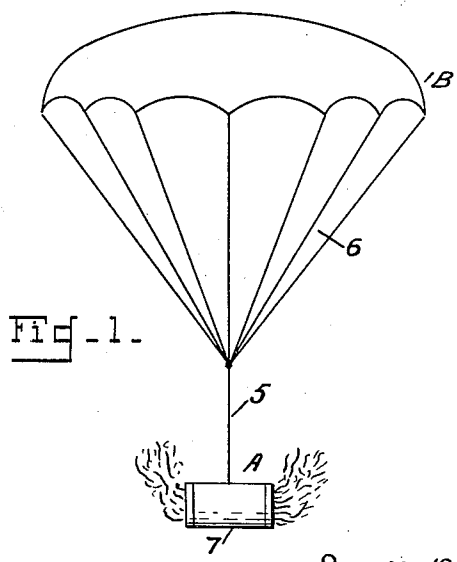



Fig-2.

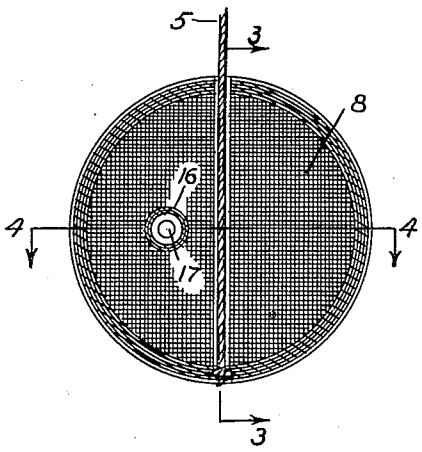



Fig-3.

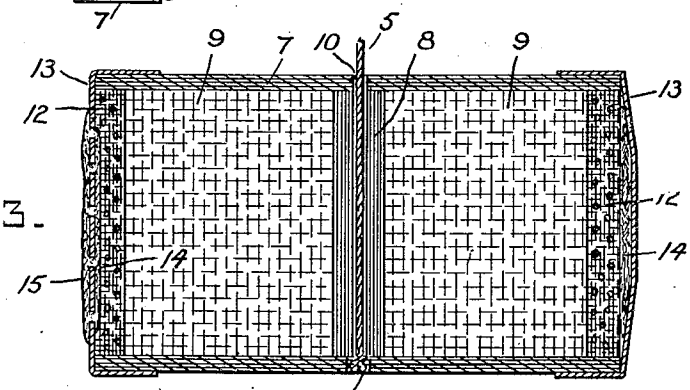
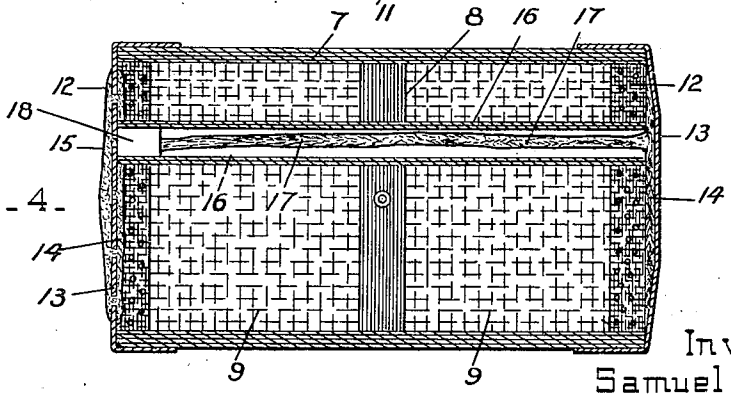



Fig-4.




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Fig. 5.

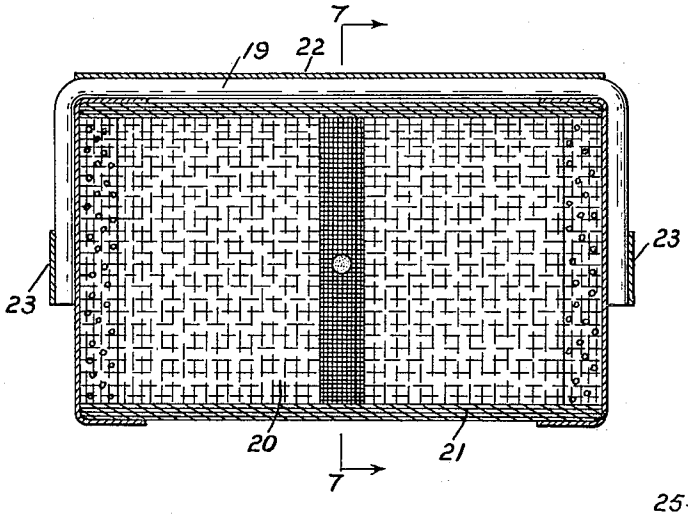



Fig. 8.

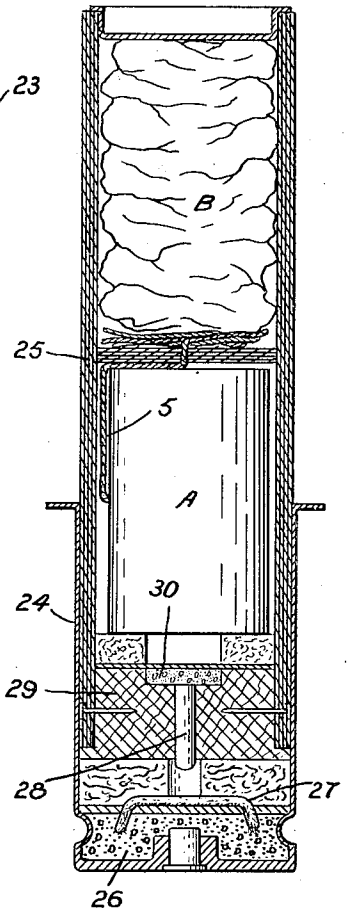



Fig. 6.

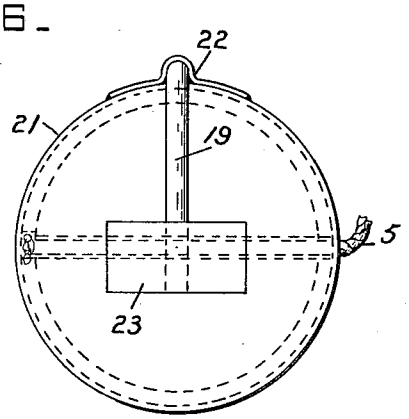
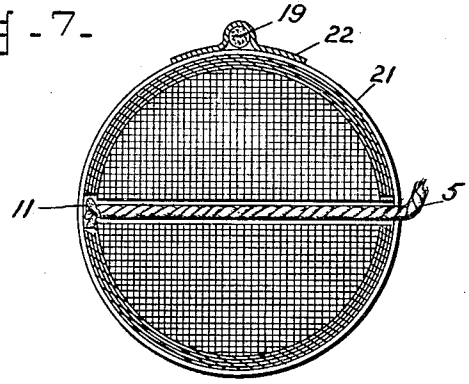



Fig. 7.




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# UNITED STATES PATENT OFFICE

2,044,024

## FLARE

Samuel Wiley, Metuchen, N. J.

Application February 19, 1934, Serial No. 711,931

5 Claims. (Cl. 102—24)

(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.

This invention relates to a flare.

Flares that are designed to be projected into the air and used for signalling purposes are usually suspended by a parachute. When the flare is arranged so that the burning surface is on the under side of the body of illuminant, the distended parachute serves as a screen or mask with respect to observation from above as by the occupants of aircraft, and from such a position it is practically impossible to determine the color characteristic of the flare.

In order to remedy this condition the flare of this invention is arranged to be suspended in a horizontal position so that both ends may burn simultaneously to produce increased candle power, smoke or color effect.

With the foregoing and other objects in view, the invention resides in the novel arrangement and combination of parts and in the 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 view in side elevation of the improved flare as it appears floating in the air.

Fig. 2 is a transverse sectional view of the illuminant body.

Figs. 3 and 4 are sectional views taken on the respective lines of Fig. 2.

Fig. 5 is a longitudinal sectional view of an illuminant body showing a modification of the ignition relay.

Fig. 6 is an end view of Fig. 5.

Fig. 7 is a sectional view on the line 7—7 of Fig. 5, and

Fig. 8 is a longitudinal sectional view of the flare cartridge.

Referring to Figs. 1 to 4 the flare consists generall of a body of illuminant A connected by means of a cord 5 to the shrouds 6 of a parachute B.

The body of illuminant A comprises a casing 7 conveniently formed of a rolled paper tube and preferably having a central partition 8 of fire-clay or other inert material to provide two compartments for receiving a combustible illuminating or signalling composition 9—9. The cord 5 is attached midway of the body A, preferably passing through a diametral opening 10 therein and having a knotted end 11.

A first-fire charge 12 is loaded in each end of the casing 7 to facilitate ignition of the main charge 9. Each end of the casing is closed by a cloth drum-head 13 confining a priming charge 14. An initiating charge 15 is provided on the outer side of one of the drum-heads. A tube 16, extending longitudinally of the casing and eccentrically with respect thereto to avoid interference with the cord 5, houses a quick-match 17 for relaying ignition from one end of the casing to the other. A delay-charge 18 is preferably interposed in this relay and disposed in the end of the tube 16 adjacent the initiating charge 15.

Referring to the modification shown in Figs. 5, 6, and 7 a quick-match 19 for relaying ignition from one end to the other end of a flare 20 is secured to the outside of the flare casing 21 by means of an adhesively secured tape 22. The ends of the quick-match overlie the ends of the flare and are secured by tape 23.

Referring to Fig. 8 a cartridge comprises a cartridge case 24 and a projectile consisting of a container 25 housing the body of illuminant A and parachute B. The projectile is propelled from the case 24 by a charge 26 and a quick-match 27 ignited by the flame from the charge 26 transmits ignition to a delay or time charge 28 in the base 29 of the container 25.

During the flight of the projectile the time charge 28 sets off a charge 30 which expels the flare from the container and ignites the initiating charge 15 on one end of the flare. Ignition is relayed to the other end of the flare by the match 17. The delay afforded by the charge 18 provides a time interval during which the parachute may be opened and relatively moved a safe distance from the burning composition 9 as shown in Fig. 1. When the body A is suspended by the parachute its opposite burning faces are on an axis perpendicular to the suspension cord 5.

I claim:

1. In a flare, a casing having a central partition, a combustible composition on each side of the partition, a tube extending longitudinally of the casing and eccentrically with respect thereto, an ignition relay in said tube and including a delay charge, said relay available to opposite faces of the combustible composition, and a parachute for suspending the casing.

2. In a flare, a casing having a central partition, a combustible composition on each side of the partition, a tube extending longitudinally of

the casing and eccentrically with respect thereto, an ignition relay in said tube and including a delay charge, said relay available to opposite faces of the combustible composition.

3. In a flare, a casing having a central partition, a combustible composition on each side of the partition, a tube extending longitudinally of the casing and eccentrically with respect thereto, an ignition relay in said tube, said relay available to opposite faces of the combustible composition.

4. In a flare, a body of a combustible composition, means for igniting opposite faces of said body, and a parachute connected to the body centrally between said opposite faces.

5. In a flare, a body of a combustible composition, means for igniting opposite faces of said body, a parachute and a connection between the parachute and said body whereby the body is suspended with its opposite burning faces on an axis perpendicular to the connection.

SAMUEL WILEY.