June 22, 1943. A. G. VENN 2,322,329

FLARE

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FIG. 1.

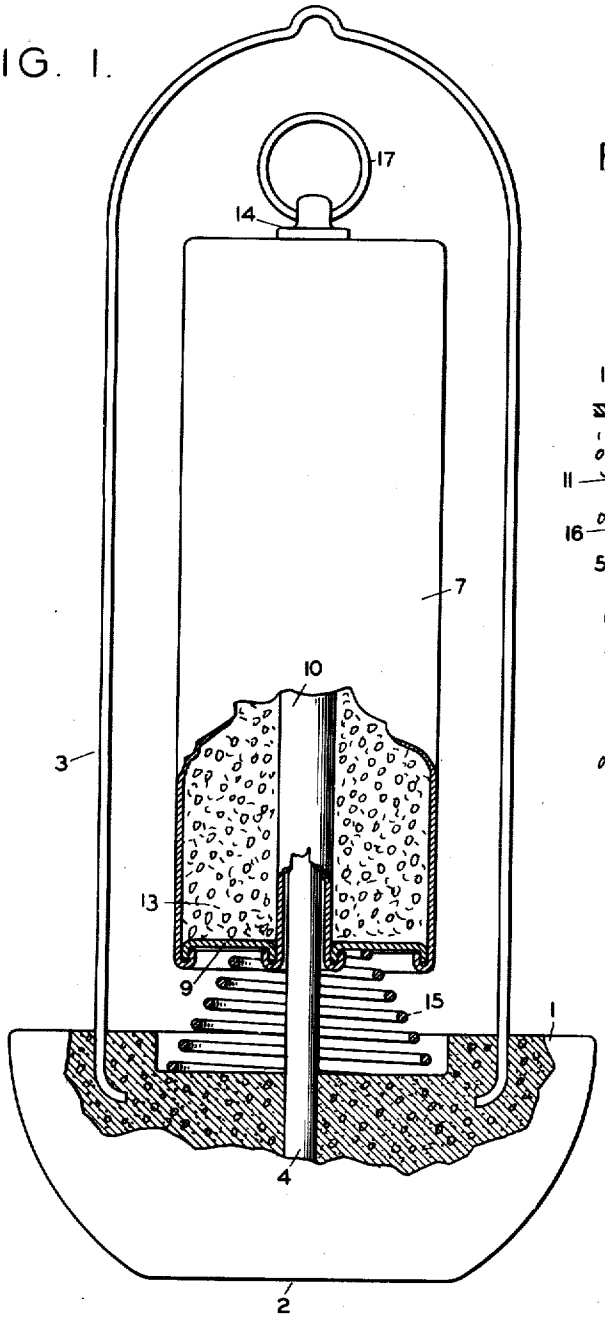
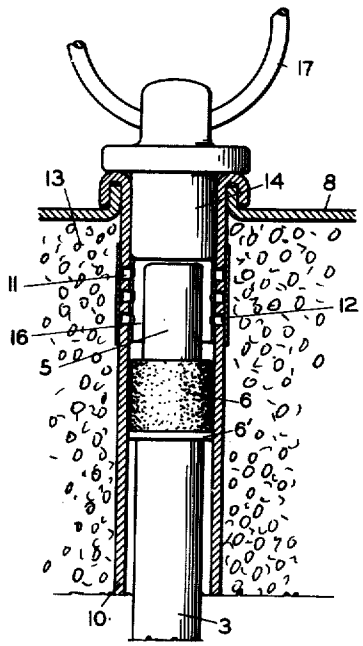


FIG. 2.



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FLARE

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7 Claims. (Cl. 102—36)

This invention relates to improvements in flares and more particularly to automatic flares for highway warnings.

Among the objects of the invention is to expedite the setting of flares to warn oncoming traffic of danger ahead.

Another object is to make the flares automatically self-igniting when dropped.

Another object is to insure quick ignition of the flare while sealing its combustibles against atmospheric deterioration.

Other objects and advantages will appear as the description progresses.

The traffic laws of certain states require that the driver of a motor truck or heavy vehicle set a lighted flare a specified distance to the rear when stopping his vehicle on an open highway at night.

Under present practice he must walk back the required distance, ignite and set the flare, then return to the vehicle. This requirement is a hazard to the driver walking on a highway in traffic. Besides, weather conditions may seriously interfere with igniting the flare. Furthermore, if the driver is in a collision or pinned in the wreckage, compliance with the law may be impossible.

In the present instance at the first indication of trouble the driver can throw one or more automatic flares overboard, with the assurance that oncoming traffic will be duly warned to proceed cautiously.

In this specification and the accompanying drawing the invention is disclosed in its preferred form. But it is to be understood that it is not limited to this form, because it may be embodied in other forms within the spirit of the invention as defined in the claims following the description.

In the drawing,

Fig. 1 is a flare constructed in accordance with this invention and shown in elevation and partially broken away in vertical section at the base.

Fig. 2 is an enlarged detail in vertical section showing the upper portion of the same.

In detail, the construction illustrated in the drawing comprises the weighted base 1, preferably composed of concrete material to save the greater cost of metal or other materials adapted to perform the same function.

This base is preferably hemispherical in contour with the flat bottom 2 to cause it to be self righting when it comes to rest. The bale 3 has its lower ends embedded in the base 1. The stem 4 is also embedded in the base and rises in the perpendicular axis of the base 1. Its upper portion is reduced in diameter, as at 5, and has the annular gritty yielding striker 6, such as steel wool or sand paper, fixed thereon. The yielding washer 6' will prevent the powder above, if any, from sifting past the striker 6. The flare is preferably composed of any suitable material, such as cardboard, to form the cylindrical outer casing 7, with the top and bottom 8, 9 crimped or otherwise fixed thereon.

The center tube 10 of similar material extends through the casing and is fixed in the top and bottom respectively. This tube is perforated adjacent its top end as at 11. These perforations are sealed by the overlying combustible band 12 surrounding and closing the inner openings of these perforations. The annular space within the casing 7 is filled with the desired combustible flare material 13, such as red fire.

The upper end of the center tube 10 is closed by the plug 14 which may be frictionally held or self threaded into the end of the tube.

The pyramid spring 15 or other resilient member rests within a depression in the top of the base, and bears under the bottom 9 of the flare casing. The tension of this spring supports the weight of the flare with a wide margin of safety, to prevent ordinary handling from displacing the plug 14 and igniting the flare.

The stem 4 passes up through the center tube 10 and terminates in proximity to the plug 14 and is centered on the axis of the striker 6 that is normally in approximate contact with the walls of the tube 10.

The inner surface of the tube 10 at the level of the perforations 11 is coated with a suitable frictionally ignitable material 16 such as the combustibles applied to the heads of friction matches.

The space between the plug 14 and the striker 6 may also be filled with gunpowder or a spark ignitable material.

The invention operates substantially as follows: The apparatus may be carried or suspended by the bale 3. When it is thrown overboard or dropped, it lands on the heavy base 1. This causes the casing 7 to descend until the stem pushes the plug 14 out of the tube 10. The passage of the yielding striker 6 through the upper portion of the tube 10 frictionally sparks the ignitable material 16 which disrupts the band 12 and ignites the flare material 13. In landing, the casing 3 will rebound several times, insuring the frictional ignition of the combustibles.

If the stem 3 is wood or other inflammable material, the whole flare assembly is consumed except the base 1, bale 3, and spring 15, leaving no dangerous obstruction in the highway.

If preferred, the base 1 and spring 15 may be omitted and the bale attached to the casing 3. The protruding stem 4 can then be bumped upward to cause the ignition described before being thrown overboard. In this instance the casing can be suspended by the ring 17 in the plug 14. The stem 4 will in this instance be frictionally suspended by the yielding striker 6 engaging the inner walls of the tube 10.

Having thus described this invention, what I claim and desire to secure by Letters Patent is:

1. A flare comprising a casing having a center tube therethrough with perforations through a wall thereof; flare material within said casing; frictionally ignitable material on said wall adjacent said perforations; a combustible band around said wall between said ignitable material and the contents of said casing; and a striker movable into frictional contact with said ignitable material.

2. A flare comprising a base; a stem extending outward from said base; a casing having a central tube surrounding said stem; a plug in said tube adjacent the end of said stem; flare material within said casing; a resilient member adjacent said stem and interposed between said base and casing; co-acting means on said stem and tube adapted to ignite the contents of said casing.

3. A flare comprising a base having a bale attached thereto; a stem extending outward from said base; a casing having a central tube surrounding said stem; flare material within said casing; a plug in said tube adjacent the end of said stem; a resilient member adjacent said stem and interposed between said base and casing; coacting means on said stem and tube adapted to ignite the contents of said casing.

4. A flare comprising a casing having a central tube extending through the length thereof, with lateral perforations through the wall of said tube near one end thereof; flare material within said casing; a displaceable plug closing the end of said tube adjacent said perforations; a stem frictionally held within said tube and having a diametrically reduced end portion terminating adjacent said plug, and its opposite end projecting from said tube; a frictionally ignitable coating on the perforated interior area of said tube; and a scratcher on said stem and normally beyond the area of said perforations and in operative relation to said coating.

5. A flare comprising a casing having a central tube extending through the length thereof, with lateral perforations through the wall of said tube near one end thereof; flare material within said casing; a displaceable plug closing the end of said tube adjacent said perforations; a stem frictionally held within said tube and having an end terminating adjacent said plug and its opposite end projecting from said tube; a frictionally ignitable coating on the perforated interior area of said tube; a scratcher on said stem and spaced from said perforated area and in operative relation to said ignitable coating; and a self-righting base fixed to the projecting end of said stem.

6. A flare comprising a casing having a central tube extending through the length thereof with lateral perforations through the wall of said tube near one end thereof; flare material within said casing; a displaceable plug closing the end of said tube adjacent said perforated area; a frictionally ignitable coating on the perforated interior area of said tube; a band of combustible material surrounding the exterior of said tube and closing said perforations; a stem frictionally held within said tube and having an end terminating adjacent said plug and its opposite end projecting from said tube; a scratcher on said stem in operative relation to said coating on the interior of said tube; a self-righting base fixed to the projecting end of said stem; and a resilient member interposed between said base and casing and normally holding said scratcher out of contact with said fulminating coating.

7. A flare comprising a casing having a central tube extending through the length thereof with lateral perforations through the wall of said tube near one end thereof; flare material within said casing; a stem frictionally held within said tube; a frictionally ignitable coating on the perforated interior area of said tube; means on said stem for frictionally igniting said coating; a base on the projecting end of said stem; and a bale fixed in said base and looped over said casing.

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