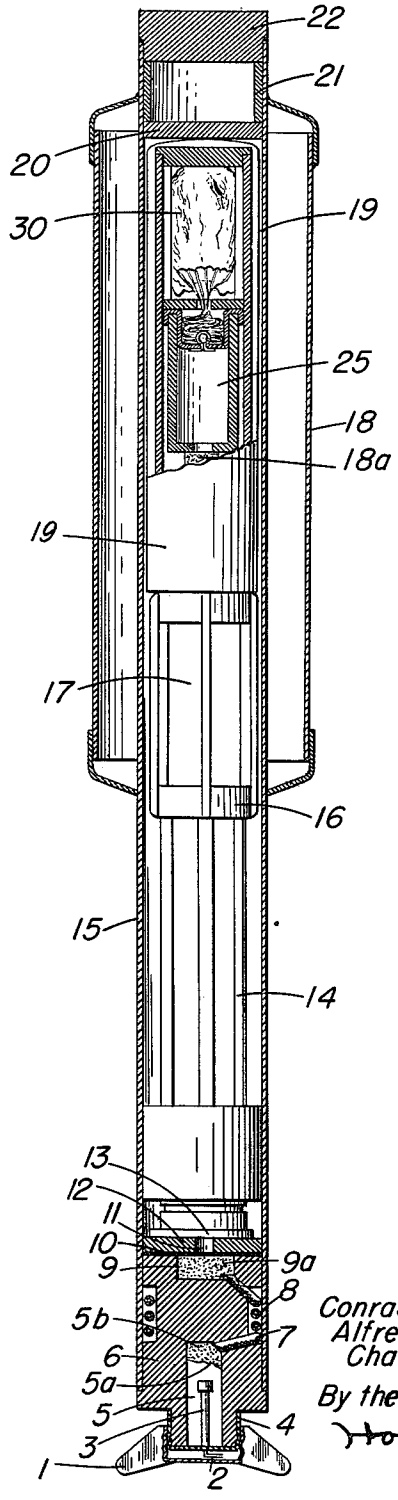
July 20, 1948. C. D. SCHERMULY ET AL 2,445,640

SMOKE, SIGNAL OR ILLUMINATING FLARE

Filed June 13, 1944




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Patented July 20, 1948 2,445,640

# UNITED STATES PATENT OFFICE

2,445,640

## SMOKE, SIGNAL, OR ILLUMINATING FLARE

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Application June 13, 1944, Serial No. 540,092
In Great Britain, November 12, 1943

2 Claims. (Cl. 102—7)

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This invention relates to smoke, signal or illuminating flares for use at sea and hereinafter referred to as flare devices, and has for its principal object to provide an improved flare device which is simple in construction and operation.

According to the present invention a flare device comprises a casing, a buoyancy chamber secured to said casing, a rocket, a head secured to said rocket and containing a flare candle and candle igniting means, said rocket and head being carried in said casing, and means associated with said casing for igniting said rocket.

The flare candle may be attached to a parachute, the candle and parachute being packed in a case secured to the head of the rocket.

The invention will now be described with reference to the accompanying drawing which shows, mainly in section a flare device according to this invention, but the invention is not limited to the specific embodiment shown.

A metal casing 15 has at one end a safety cap 1 screwed on to a screwthreaded extension 4. The casing 15 contains a plug 6, for example of wood or plastics, provided with central recesses 5 and 9 and an annular recess 7. The recess 5 contains a friction igniter 3 adapted to be actuated by pulling a wire 2, and also a screw-up paper 5a which holds in place a charge of combustible powder 5b which communicates with a delay fuze 8 wrapped round the plug 6 within the annular recess 7, which fuze communicates at its other end with the recess 9 containing a burster 9a. Secured to the face of the plug 6 and covering the recess 9 is a disc of paper 10. Positioned over the paper disc 10 is a wooden disc 12 having a central aperture 11.

The casing 15 contains a rocket 17 carrying a head 19 containing a flare candle 25 and an attached parachute 30. The rocket 17 has a sliding tail portion 14 of the kind described in the co-pending United States Patent No. 2,409,904, issued October 22, 1946. The tail portion 14 is capable of sliding rearwardly on the rocket 17 until the band 16 abuts against a flange 13 at the rear end of the rocket. The casing 15 is closed by a wooden plug 22 and the rocket 17 is held in position in the casing 15 by means of a wooden disc 20 and a millboard or like spacer tube 21. A buoyancy chamber 18 is secured around the casing 15, for example by soldering or welding.

In operation, the safety cap 1 is unscrewed and the igniter 3 is operated by pulling the wire 2. The flare device is then thrown into the sea where

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owing to the buoyancy chamber 18 it will float the correct way up with the plug 22 above the water level. After the igniter 3 has been actuated, the power 5b in the recess 5 burns and ignites the delay fuze 8. The delay fuze allows time for the device to be thrown into the sea and for the device to attain a vertical position before the rocket is fired.

When the delay fuze 8 has burnt through, it ignites the burster charge 9a in the recess 9 and this fires the rocket 17. The rocket 17 ejects the disc 20, spacer 21 and plug 22 and propels itself into the air. As the rocket starts its flight, the sliding tail 14 remains stationary until the band 16 engages the flange 13, after which the tail 14 remains in its correct position for steadying the flight of the rocket 17. When the rocket has nearly reached the top of its trajectory, it ignites a burster charge 18a in the head 19 and this charge ignites the flare candle 25 and ejects it from the head 19, thus allowing the parachute 30 attached to the candle to open and support the candle.

From the above description it will be seen that the flare device is eminently suitable for use at sea; for example it has been found that rafts or the like have been passed at sea by rescue craft, due to the fact that the rafts are low in the water and, even when provided with hand-held flares, are still not easily discernible in rough seas. With a flare device according to the present invention, however, those on the raft merely have to remove the cap 1, pull the wire 2, and throw the complete flare device into the sea. The flare candle ejected from the rocket head 19 will burn for a considerable time at an appreciable height, thus giving the approximate position of the raft, and being visible for a considerable distance. Should the raft be upset, the flare device will not be lost because the buoyancy chamber will keep it afloat until it can be recovered.

The flare candle may be a smoke candle, illuminating candle or signal star or stars.

What we claim is:

1. A flare device comprising a casing, a rocket within said casing, a head secured to said rocket, a removable closure at the end of the casing adjacent said head, an apertured disc in said casing below said rocket, a burster charge in said casing below said disc, means for igniting said burster charge whereby said burster charge explodes and causes said rocket to force off said removable closure and at the same time ignites said rocket, and a buoyancy chamber secured to

said casing, said buoyancy chamber being constructed and arranged to float said casing in water with said removable closure upwardly directed.

2. A flare device comprising a casing, a rocket within said casing, a head secured to said rocket, a removable closure at the end of the casing adjacent said head, an apertured disc in said casing below said rocket, a burster charge in said casing below said disc, a delay fuze having one end in contact with said burster charge, means for igniting the other end of said delay fuze, said burster charge being adapted, upon ignition, to explode and cause said rocket to force off said removable closure and at the same time ignite said rocket, and a buoyancy chamber secured to said casing, said buoyancy chamber being constructed and arranged to float said casing in water with said removable closure upwardly directed.

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