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S. WILEY

1,964,016

FLARE

Filed April 8, 1933

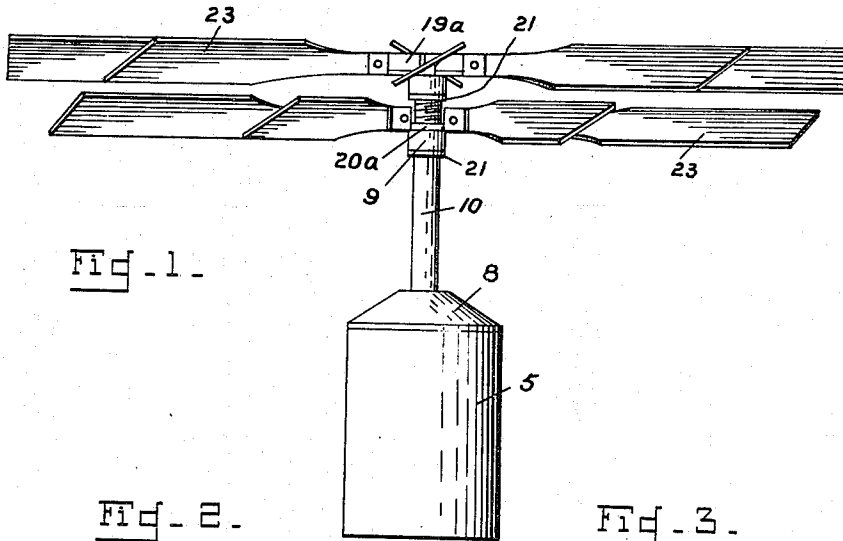


Fig. 1.

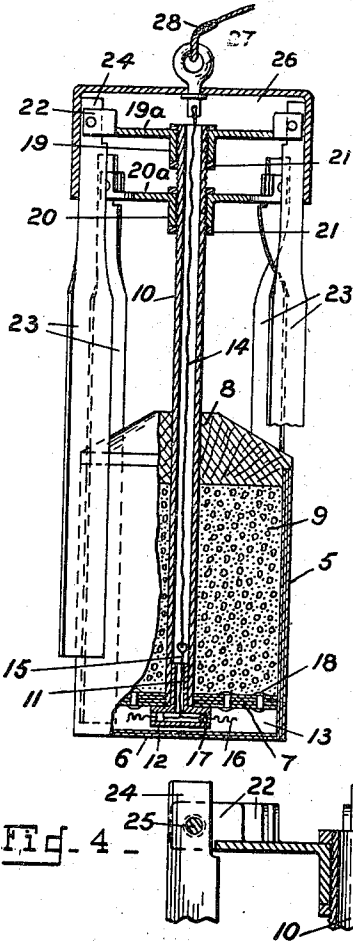


Fig. 2.

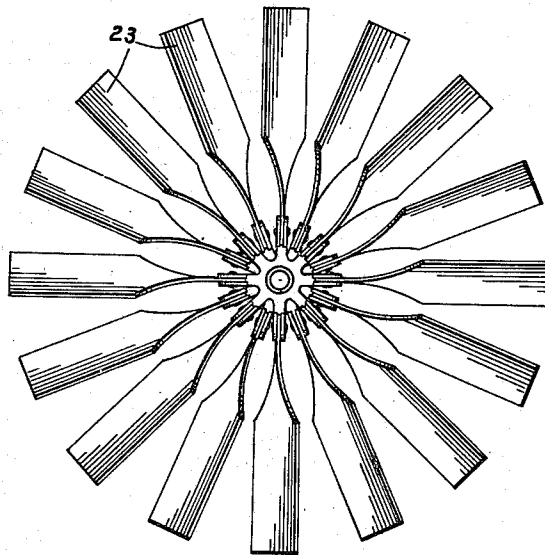


Fig. 3.

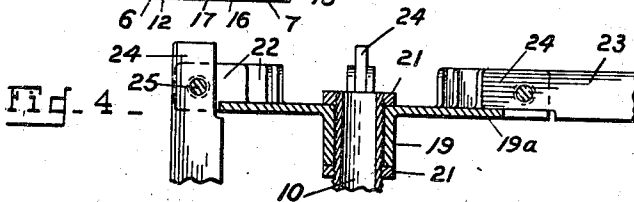


Fig. 4.

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UNITED STATES PATENT OFFICE

1,964,016

FLARE

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3 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.

5 This invention relates to a flare adapted to be launched from aircraft.

The principal object of the invention is to provide one or more vane wheels on a flare for the purpose of checking its descent. The vane wheels 10 are a substitute for the conventional parachute which is composed of a material such as silk which is difficult to procure in wartime.

Further objects of the invention are to provide a novel manner of arranging and mounting a pair 15 of vane wheels so that the blades may be folded against the flare and a novel means for releasing the blades and igniting the flare.

With the foregoing and other objects in view, the invention resides in the novel arrangement 20 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 25 without departing from the spirit of the invention.

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

Fig. 1 is a view in side elevation of the im- 30 proved flare showing the blades in the operative position.

Fig. 2 is a view principally in longitudinal section showing the blades in the folded position, some of the blades not being shown in order to 35 avoid confusion.

Fig. 3 is a plan view of Fig. 1, and

Fig. 4 is an enlarged sectional view of one of the vane wheels.

Referring to the drawing by numerals of reference, there is shown a cylindrical case 5 having a bottom 6, a false bottom 7, and a relatively thick wooden block 8 forming a top closure. An illuminating composition 9 is contained within the casing between the false bottom 7 and the 45 top 8.

A tube 10 extending through the false bottom 7, illuminating composition 9, and the top 8 and secured relative to the top in any suitable manner has a T-fitting 11 secured in its lower end 50 so that the arms 12 of the fitting are disposed in the space 13 between the two bottoms 6 and 7. A wire 14 passing through the tube 10 is attached to a wire 15 having two ends 16-16 passing through the arms 12 of the T-fitting and adapted 55 ed to ignite friction primer compositions 17-17.

The flame from the friction primers is adapted to ignite relay charges 18-18 in the false bottom 7 leading to the illuminating composition 9.

The tube 10 extends some distance above the casing and carries a pair of hubs 19 and 20 having a rotating fit on the tube and held against longitudinal displacement by a plurality of retaining members 21 which may be threaded in place. The upper and lower hubs respectively 19 and 20, are similar in construction and each one 65 has a plurality of spokes 19a and 20a. On the outer extremity of each spoke are a pair of spaced ears 22 which project beyond the end of the spoke.

A blade 23 is carried by each spoke and has a narrowed stock 24 disposed between the spaced 70 ears 22 and pivotally mounted thereon by means of a pin 25. When the blade is moved to a horizontal position the end of the stock is adapted to engage the spoke and act as a stop.

When the blades are all moved to a vertical 75 position and are folded against the casing, they may be held in this position by a cap 26 having a light press fit on the parallel-positioned stocks 24. An eye bolt 27 secured to the center of the cap is attached to the ignition wire 14 and also 80 to a cable 28 associated with a flare launching apparatus on the aircraft.

In operation, when the flare is launched the cap 26 is removed by the cable 28 which is secured 85 to the aircraft, and the blades are free to be moved to the horizontal position by air pressure. The blades have a slight pitch and the vane wheels will consequently be rotated and serve to check the descent of the flare in the manner of a parachute and similar to the action of an auto- 90 gyro. It will be readily understood that if the pitch of the blades of the two vane wheels are opposite, the wheels will rotate in opposite direction.

Upon removal of the cap 26 the wires 14, 15 95 and 16 are also withdrawn and the latter wires set off the friction primer and ignite the illuminating composition. One method of providing a period of delay between releasing the blades and igniting the flare is to have slack in the 100 wire 14.

The speed of rotation of the vane wheels may be regulated by establishing a frictional resistance between the hubs 19 and 20 and their retaining members 21. Under certain conditions 105 it may even be desirable to hold the vane wheels stationary.

I claim:

1. A flare comprising a casing, a combustible composition in the casing, a tube fast to the cas- 110

	ing and projecting therefrom, a pair of wheels having spokes and mounted on the projecting end of the tube, means for holding the wheels against longitudinal displacement, a pair of	80
5	spaced ears on the end of each spoke, a blade having its stock positioned between a pair of ears, a pin passing through the stock and ears and pivotally mounting the blade, the end of the stock engageable with the spoke to limit move-	
10	ment of the blade to a horizontal position, a cap fitting over the stocks when the stocks are parallel and the blades are folded against the casing, means for removing the cap in launching the flare, and means in the tube and attached to the	
15	cap for igniting the combustible composition.	
20	2. A flare comprising a casing, a combustible composition in the casing, a tube fast to the casing and projecting therefrom, a pair of wheels mounted on the projecting end of the tube, a plu-	
	rality of blades pivotally mounted on each wheel, the pivoted end of each blade engageable with the wheel to limit movement of the blade to a horizontal position, a cap fitting over the pivoted ends of the blades of both wheels when the blades are folded against the casing, means for removing the cap in launching the flare, and means in the tube and attached to the cap for igniting the combustible composition.	
	3. A flare comprising a casing, a support projecting from the casing, a vane wheel mounted on the support, a plurality of blades pivotally mounted on the wheel for movement from a folded position to an extended position, a cap fitting over the pivotal ends of the blades when the blades are in folded position, and a firing mechanism associated with the cap and actuated on removal thereof.	85
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SAMUEL WILEY.