Oct. 19, 1937. J. R. ALLEN 2,095,958

PARACHUTE FLARE CONTAINER

Filed Dec. 2, 1935 2 Sheets-Sheet 1

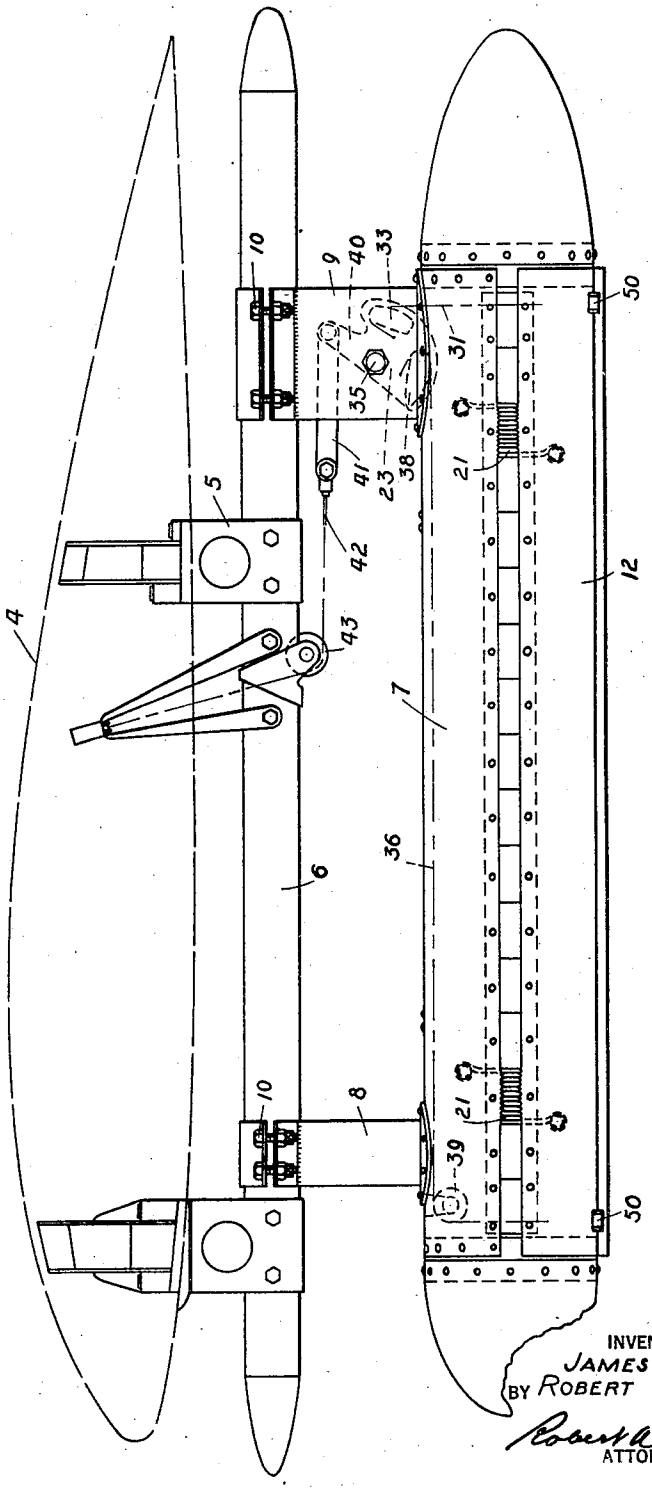


Fig. 1

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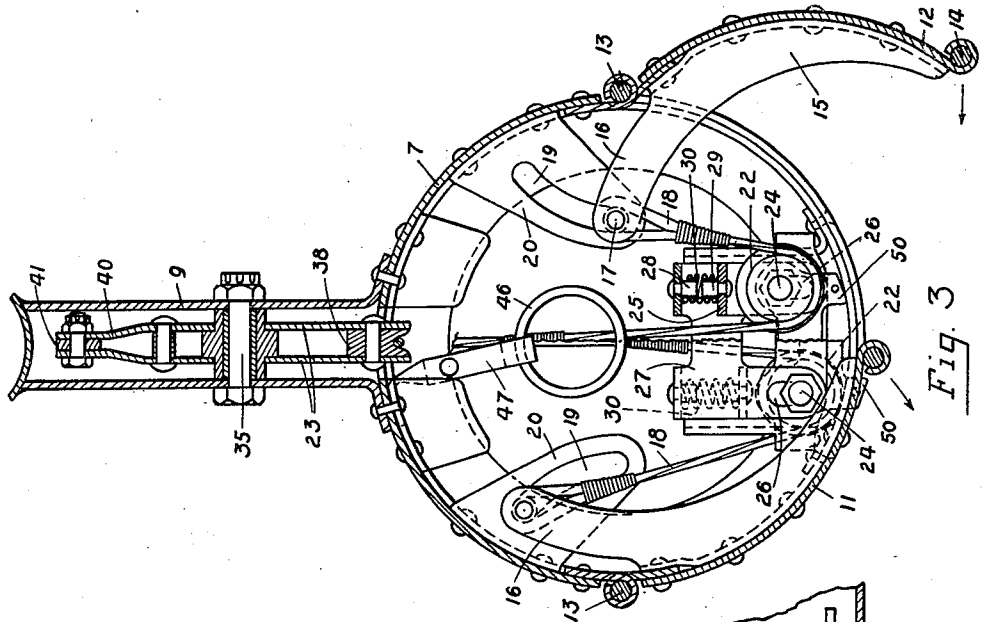


Fig. 3

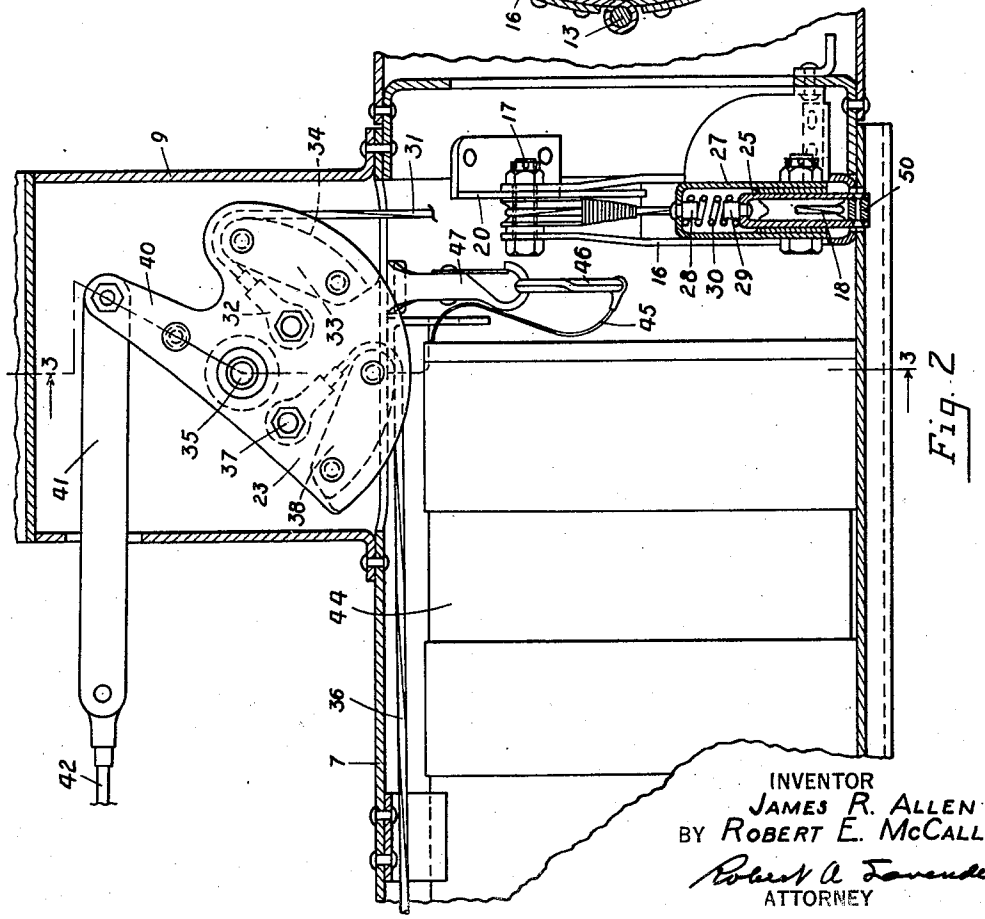


Fig. 2

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2,095,958

PARACHUTE FLARE CONTAINER

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Application December 2, 1935, Serial No. 52,515

5 Claims. (Cl. 89—1.5)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

This invention relates to means for carrying flares on aircraft from which they may be released by the pilot while seated in the cockpit of the plane. Among the several objects of the present invention are: To provide a flare container of which practically one-half the wall is swingable doors whereby the flare is released without possibility of obstruction; and to provide means for opening the above mentioned doors that will function to open both doors completely even though one of them may have become warped or the cables for operating the doors may be of unequal length through shrinkage or other causes. Further objects will appear as the description proceeds.

In the drawings:

Fig. 1 is a side elevational view of the present invention carried by an aircraft;

Fig. 2 is an enlarged detail elevation of the device adjacent its after end, with parts of the housing shell broken away; and

Fig. 3 is a transverse section substantially on the line 3—3, Fig. 2.

Referring to Fig. 1, the wing of an aircraft is designated by the numeral 4, and suitably secured to the skeleton of the wing by members 5 is a mounting member 6. The housing of flare container 7 is suspended from the mounting member 6 by members 8 and 9 that are secured on member 6 by bolts 10.

The housing 7 is of general stream-line contour to reduce the air resistance to a minimum. Substantially the lower half of the housing 7 is made up of two longitudinally extending doors 11 and 12 that have their upper edges hinged to the housing at 13 to permit the doors to be swung outwardly away from each other and so, in effect, remove the entire lower portion of the housing from the path of the flare contained therein. The edges of doors 11 and 12 that are adjacent each other when in the closed position are rolled over rods 14 to increase the rigidity of the doors. It is to be understood that, while Fig. 3 shows the door 12 open and the door 11 closed, this is for illustration merely, since both the doors open and close simultaneously when in operation.

Fixed to each door adjacent each end thereof is a reinforcing rib 15 that extends upwardly and inwardly to form an arm 16. At the free end of each of the arms 16 is a pin 17 to which the cable 18 is attached and which further extends through the slot 19 in the bracket 20 fixed to housing 7 adjacent the arm 16; the cooperation of the pin 17 with bracket 20 guides the movement of arm 16 and permits making it of lighter weight without danger of lateral flexure when pull is applied thereto. Springs 21 are mounted on the hinge pins 13 of the doors under torsional stress and have their ends respectively secured to the doors and to the housing 7 whereby they normally keep the doors in the closed position.

The cables 18, that are attached at one end to the arms 16 of the doors, pass downwardly from the arms and around sheaves 22 secured to the fixed end portion of the housing and thence upwardly to the pivotally mounted segment 23. The axles 24 of sheaves 22 pass through sheave frames 25 and extend into slots 26 in the mounting 27. Studs 28 and 29 are disposed opposite each other and fixed in the mounting 27 and the sheave frames 25, respectively. Each sheave frame 25 is provided with a latch 50 that extends through an aperture in the adjacent door to prevent the doors swinging open under the weight of the flare. It is not necessary that the latch 50 be a hook, since the prevention of the component of rotational movement of the door, transverse to the latch, will effectively prohibit opening of the door. A spring 30 under compressional stress, seated upon the studs 28 and 29, normally holds the axle 24 of sheave 22 at the lower end of slot 26 and so retains the latches engaged with the doors.

The cables 18 at the after end of the housing are attached to one end of a cable 31 whereof the other end is fixed in an eye 32 that is bolted to the segment 23. A block 33 having a surface 34 that is an arc of a circle is mounted between the sides of segment 23 with the center of curvature of surface 34 at the pivot 35 on which the segment 23 is mounted. The cable 31 passes over block 33 and, therefore, when the segment 23 is rotated on its pivot, 31 is partially wound on the block and a rectilinear pull is applied to the cable. The cables 18 at the forward end of the housing are attached to one end of cable 36 that has its other end secured to the segment 23 at 37 and passes over a block 38 similar to the block 33 and thus pull is applied to the cable 36 simultaneously with the cable 31. In order that the pull applied to the cables 18 at the forward end of the housing shall act vertically, the cable 36 is passed over a sheave 39. An arm 40 extends outwardly from the segment 23 and to it is pivoted a link 41 to which is attached a cable 42 that passes forwardly over a sheave 43 and thence to the cockpit of the craft. The segment 23 is mounted inside the member 9 by which the after end of the housing is supported from the member 6.

When the flare 44 is to be released from the housing, the operator of the aircraft pulls on cable 42 which rotates the segment 23 about its pivot and winds the cables 31 and 36 upon the blocks 33 and 38, respectively, which through cables 18, first compresses springs 30 and releases latches 50, then pulls inwardly and downwardly upon the arms 16 and swings the doors 11 and 12 outwardly leaving the flare free to

fall. It is apparent that the springs 30 must be compressed when pull is applied to cables 31 and 36, since the latches prevent movement of the doors 11 and 12 until after the latches are withdrawn. A cable 45 attached to a ring 46 that is engaged with a snap hook 47 is used to operate the mechanism for igniting the flare at the time it is dropped free of the plane.

The invention herein described and claimed may be used and/or manufactured by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

We claim:

1. A device of the class described, comprising a supporting means adapted to be carried by an aircraft beneath a lower surface thereof, substantially parallel to the longitudinal axis thereof, a streamlined housing suspended from said support parallel thereto, said housing including two longitudinally extending doors making up substantially the lower half of said housing, a longitudinal hinge means at the upper edge of each door, springs associated with said hinges to move said doors to the closed position, an arm at each end of said doors extending into said housing, an arcuately slotted plate adjacent each of said arms, a pin on each arm movable in the adjacent slot, a sheave mounted below and in alignment with each pin with freedom for limited vertical movement, yieldable means to urge each sheave toward its lowermost position, latch means engageable with the respectively adjacent door carried by each of the said sheaves, cables passing over said sheaves and respectively secured to the adjacent pin, a segment of a circle pivotally mounted at its center of curvature and having a substantially diametrically extending arm, and means operable from a distance attached to said arm to rotate said segment about its pivot, said cables being operatively connected to said segment to be partially rolled on the arc thereof, whereby a pull applied to said means will rotate said segment and thereby open said doors.

2. In a device of the class described, a housing having oppositely hinged doors of considerable length; and means to open said doors comprising a segment of a circle pivoted at its center of curvature, an arm extending out from said segment, means attached to said arm to rotate said segment on its pivot, cables attached to said segment to be partially wound thereon when said segment is rotated, an arm at each end of each of said doors extending into said housing, a sheave mounted below each arm with freedom for limited vertical movement, yieldable means urging said sheaves to their lowermost positions, latch means engageable with the respectively adjacent door carried by each of the said sheaves, a cable passing over each of said sheaves and respectively secured to the adjacent arm, and means connecting each of said cables to the appropriate cable attached to said segment whereby rotation of said segment will exert a simultaneous pull upon all of said arms to open said doors.

3. A device of the class described, comprising a housing adapted to be suspended below a lower surface of an aircraft, said housing including two longitudinally extending doors making up substantially the lower half of said housing, longitudinal hinge means at the upper edge of each door, springs associated with said hinges to move said doors to the closed position, an arm at each end of said doors extending into said housing, an arcuately slotted plate adjacent each of said arms, a pin on each arm movable in the adjacent slot, a sheave mounted below and in alignment with each pin with freedom for limited vertical movement, latch means engageable with the respectively adjacent door carried by each of the said sheaves, yieldable means to urge each sheave toward its lowermost position, cables passing over said sheaves and respectively secured to the adjacent pin, a segment of a circle pivotally mounted at its center of curvature and having a substantially diametrically extending arm, and means operable from a distance attached to said arm to rotate said segment about the pivot, said cables being operatively connected to said segment to be partially rolled on the arc thereof, whereby a pull applied to said means will rotate said segment and thereby open said doors.

4. In a device of the class described, a housing having oppositely hinged doors of considerable length; and means to open said doors comprising a segment of a circle pivoted at its center of curvature, an arm extending out from said segment, means attached to said arm to rotate said segment on its pivot, cables attached to said segment to be partially wound thereon when said segment is rotated, an arm at each end of each of said doors extending into said housing, a bracket fixed to said housing adjacent each arm, each of said brackets having in it an arcuate slot, a pin on each arm extending into the adjacent slot, a sheave mounted below each arm with freedom for limited vertical movement, yieldable means urging said sheaves to their lowermost positions, latch means engageable with the respectively adjacent door carried by each of the said sheaves, a cable passing over each of said sheaves and respectively secured to the adjacent arm, and means connecting each of said cables to the appropriate cable attached to said segment whereby rotation of said segment will exert a simultaneous pull upon all of said arms to open said doors.

5. In a device of the class described, a housing having oppositely hinged doors of considerable length; and means to open said doors comprising a segment of a circle pivoted at its center of curvature, an arm extending out from said segment, means attached to said arm to rotate said segment on its pivot, cables attached to said segment to be partially wound thereon when said segment is rotated, an arm at each end of each of said doors extending into said housing, mounting means having a pair of spaced apart parallel side portions adjacent each of said arms, each of said portions having in it a longitudinal slot, a sheave between the members of each said pair, an axle upon which each of said sheaves is rotatably mounted having its ends disposed respectively in the said slots, a spring acting upon each sheave to move the sheave to its lowermost position, latch means engageable with the respectively adjacent door carried by each of the said sheaves, a cable passing over each of said sheaves and secured at one end to the adjacent arm, and means connecting each of said cables to the appropriate cable attached to said segment whereby rotation of said segment will exert a simultaneous pull upon all of said arms to open said doors.

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