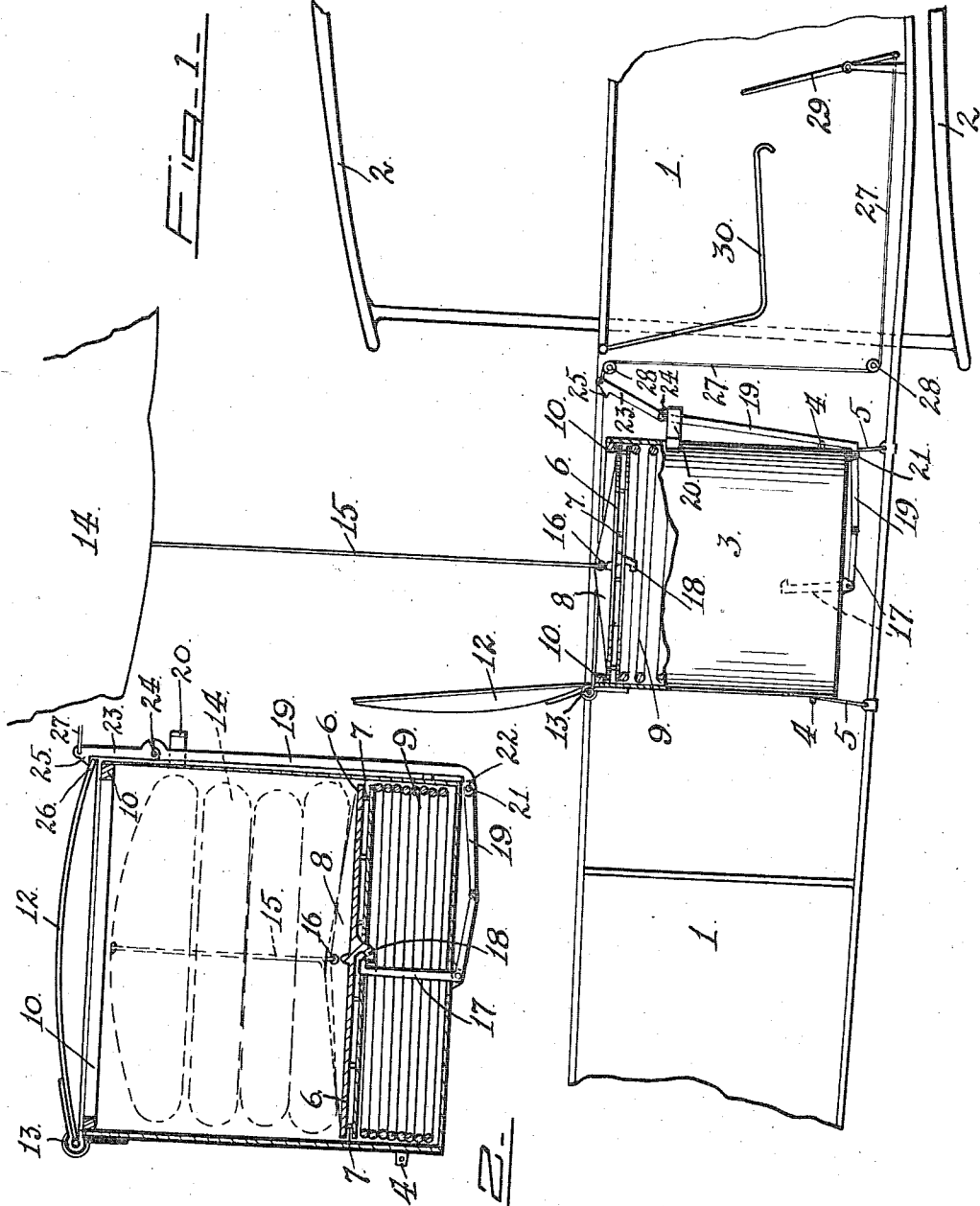


A. D. AUSTIN.
AERO SAFETY DEVICE.
APPLICATION FILED JAN. 13, 1919.

1,296,736.

Patented Mar. 11, 1919.



WITNESS

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ANDREW DOUGLAS AUSTIN, OF SAN FRANCISCO, CALIFORNIA.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ANDREW DOUGLAS AUSTIN, a citizen of the United States, residing at the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Aero Safety Devices, of which the following is a specification.

My invention relates to that class of aero safety devices in which a parachute member is so fitted to an aerial vehicle that when not in use it is compactly stowed, but is ready for instant release and function when, for any reason, the vehicle loses its self-sustaining power, thereby serving as a partial sustaining means to arrest the falling velocity of the vehicle and make its descent safe.

The object of my invention is to provide a simple, and easily operated safety device of this type and particularly one which is most effective in bearing the weight stress when called into functional operation; and to this end my invention consists in the novel parachute attachment for aeroplanes and other aerial vehicles which I shall hereinafter fully describe by reference to the accompanying drawings in which:

Figure 1 is a side view, partly in section, showing my safety device released for functional operation.

Fig. 2 is a vertical sectional view showing the safety device stored, when not in use.

1 indicates the fuselage of an aerial vehicle of which 2 are the planes. I have not deemed it necessary to illustrate the vehicle in any further detail, as it may be of any type.

Fitted in the fuselage 1 is a housing 3, which in its preferred form is a container provided with lugs 4 near its base by which it is secured in place by means of bolts 5.

Within the container 3 is freely fitted for linear movement a diaphragm 6, which for the sake of strength and rigidity is best made of two plates secured together by bolts 7, the top plate having ribs 8.

A spring 9 within the container underlies the diaphragm, said spring being normally compressed by the diaphragm, but which by expansion serves to throw the diaphragm up.

The top edge of the container 3 is provided with an inwardly projecting flange 10 which serves to limit the upward throw of the diaphragm and to form a shoulder or

abutment therefor to carry the weight as will presently be seen.

The container 3 is fitted with a lid 12 having a spring-hinge at 13, tending to throw the lid open.

14 indicates a parachute of any suitable type, adapted for folding down in the container and for storage therein, and 15 is the line by which said parachute is connected with the diaphragm 6 through an eye 16 on the top thereof.

17 is a trip latch which extends upwardly through the bottom of the container 3 and engages with its upper end a keeper lug 18 on the bottom of the diaphragm 6.

19 is a trigger rod or lever connected with the trip latch 17. This lever is guided at 20 in a suitable bracket and is pivoted at 21 in a bracket 22. The upper portion of the lever 19 has an extension 23 hinged to it at 24 by a limited joint which permits a backward movement of said extension prior to the backward stroke of the whole lever about the pivot 21.

The upper extremity of the lever extension 23 carries a latch 25 which engages the edge at 26 of the lid 12, thereby holding said lid closed against the normal tendency of its spring hinge 13 to throw it open.

27 is an operating wire or line connected at one end with the trigger lever extension 23 and thence suitably guided by pulleys 28 to the lever 29 within reach and under the control of the pilot occupying the seat 30 in the fuselage 1.

The operation of my safety device as thus described is as follows:

Normally the parachute is stowed in the container 3, as seen in Fig. 2 and is held down by the lid 12 which is itself locked in closed position by the lever extension trigger 23. The parachute lies above the diaphragm 6, which latter is held down by the trip latch 17 and holds the spring 9 under compression.

When, for any reason, the function of the parachute is required, the pilot through the lever 29 and line 27 pulls back the trigger extension 23, which has the immediate and preliminary effect of releasing the lid 12, which by means of its spring hinge 13 at once flies open, thereby initially clearing the way for the projection of the parachute. The extension 23 after moving back to the extent of its limited hinge-joint 24, becomes

rigid in that direction with the main body of the trigger lever 19, and this latter moving about its pivot 21 moves the trip latch 17 to release the diaphragm 6. The spring 9 thereupon throws the diaphragm up which thus projects the parachute clear of the container, with velocity sufficient to enable it to catch the air and expand for its proper function. The diaphragm comes up against the abutment flange 10 of the container, and then the expanded parachute suspends, through its connecting line 15, arrested diaphragm 6 and bolted container 3, the aerial vehicle to an extent conducive to its safe descent.

It will thus be seen that the weight of the vehicle is carried by the arrested diaphragm bearing against the abutment flange of the container, and that this forms a most stable and secure connection in that the flange and the diaphragm can be given the requisite strength to bear the stress.

Although I have illustrated only one parachute attachment, it will be readily understood that I may install a plurality of them. I claim:

1. A safety device for aerial vehicles comprising a container fitted and secured to the vehicle, said container having at its upper portion an inwardly projecting abutment flange; a diaphragm fitted for linear movement within the container and adapted to be limited on its outer stroke by contact with the abutment flange of the container; a spring under the diaphragm to effect its outward stroke; a parachute member adapted for storage within the container and for projection therefrom by the diaphragm; a line connecting the parachute member with the diaphragm; and locking and releasing connections for controlling the diaphragm.

2. A safety device for aerial vehicles comprising a container fitted and secured to the vehicle, said container having at its upper portion an inwardly projecting abutment flange; a diaphragm fitted for linear movement within the container and adapted to be limited on its outer stroke by contact with the abutment flange of the container; a spring under the diaphragm to effect its outward stroke; a parachute member adapted for storage within the container and for projection therefrom by the diaphragm; a line connecting the parachute member with the diaphragm; and locking and releasing connections for controlling the diaphragm

comprising a trip latch engaging the diaphragm to hold it down; a trigger lever to operate the trip latch, and a line under the control of the pilot to operate the trigger lever.

3. A safety device for aerial vehicles, comprising a container fitted and secured to the vehicle, said container having at its upper portion an inwardly projecting abutment flange; a lid fitted to the container by a spring hinge tending to throw it open; a diaphragm fitted for linear movement within the container and adapted to be limited on its outer stroke by contact with the abutment flange of the container; a spring under the diaphragm to effect its outward stroke; a parachute member adapted for storage within the container and for projection therefrom by the diaphragm; a line connecting the parachute member with the diaphragm; and locking and releasing connections for successively controlling the container lid and the diaphragm.

4. A safety device for aerial vehicles, comprising a container fitted and secured to the vehicle, said container having at its upper portion an inwardly projecting abutment flange; a lid fitted to the container by a spring hinge tending to throw it open; a diaphragm fitted for linear movement within the container and adapted to be limited on its outer stroke by contact with the abutment flange of the container; a spring under the diaphragm to effect its outward stroke; a parachute member adapted for storage within the container and for projection therefrom by the diaphragm; a line connecting the parachute member with the diaphragm; and locking and releasing connections for successively controlling the container lid and the diaphragm comprising a trip latch engaging the diaphragm to hold it down; a pivoted trigger lever to operate the trip latch, an extension of said lever provided with means for locking and tripping the lid, said extension being connected with the lever by a limited joint, and a line, under the control of the pilot, connected with the extension of the trigger lever.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANDREW DOUGLAS AUSTIN.

Witnesses:

WM. F. BOOTH,
D. B. RICHARDS.