Feb. 18, 1930. M. BERGH 1,747,215

SAFETY DEVICE FOR AEROPLANES

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Fig. 1.

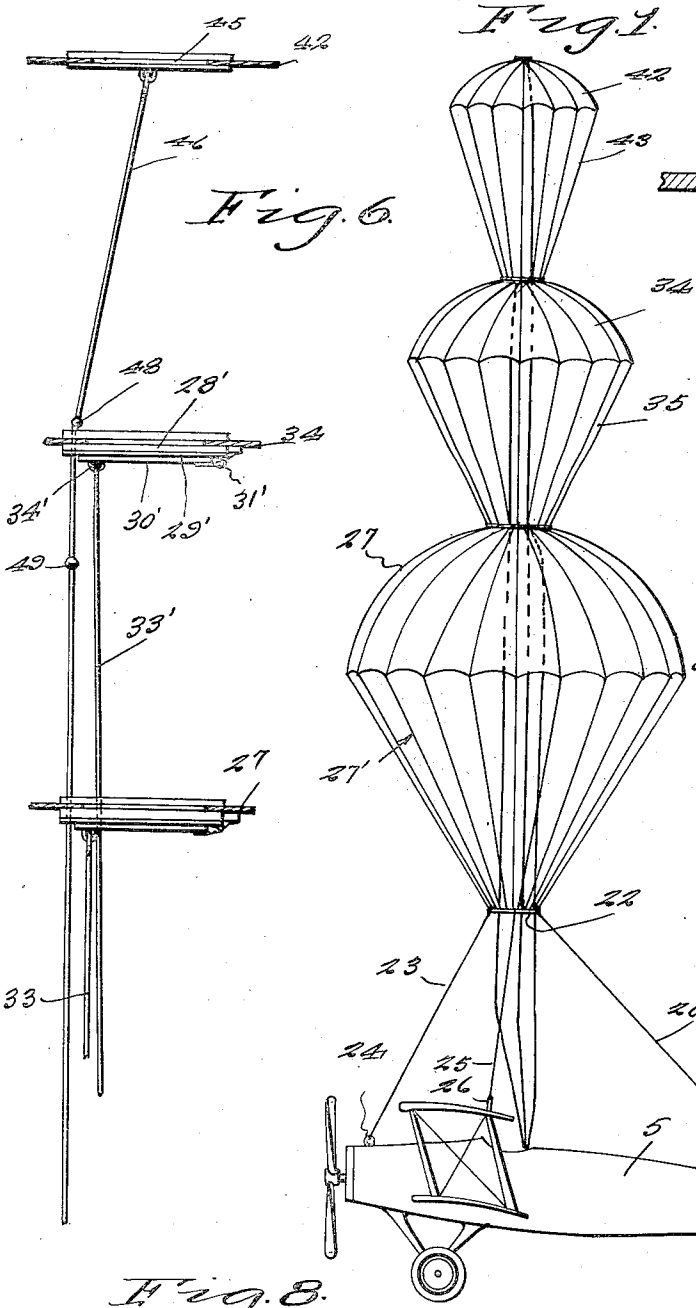


Fig. 5.

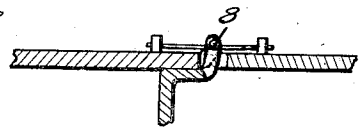


Fig. 6.

Fig. 7.

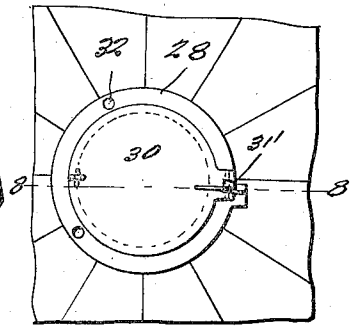
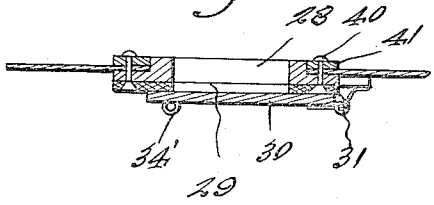


Fig. 8.



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SAFETY DEVICE FOR AEROPLANES

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Fig. 2

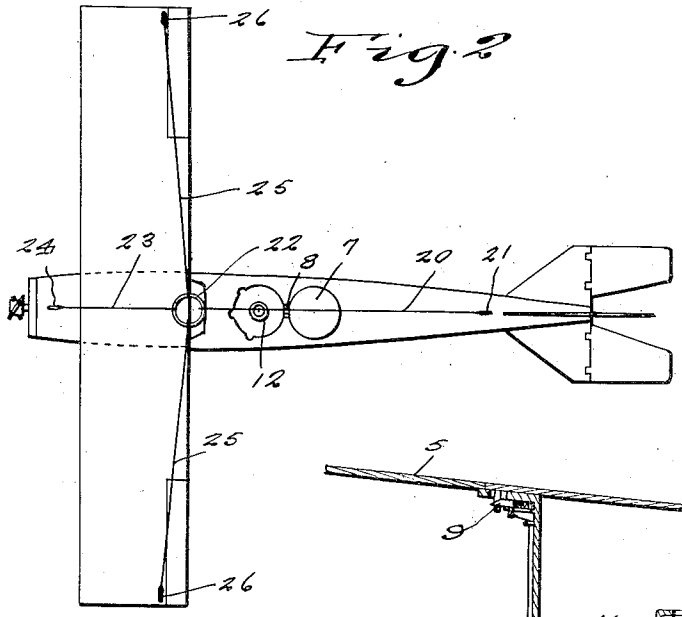


Fig. 4.

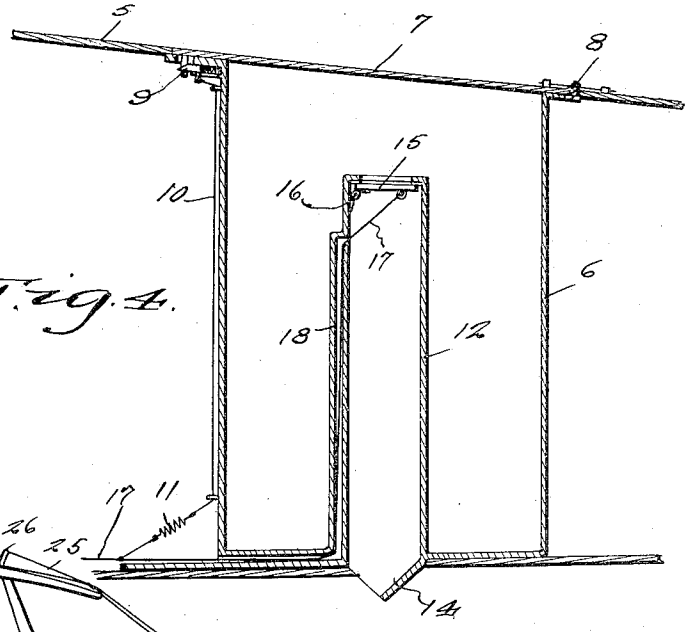
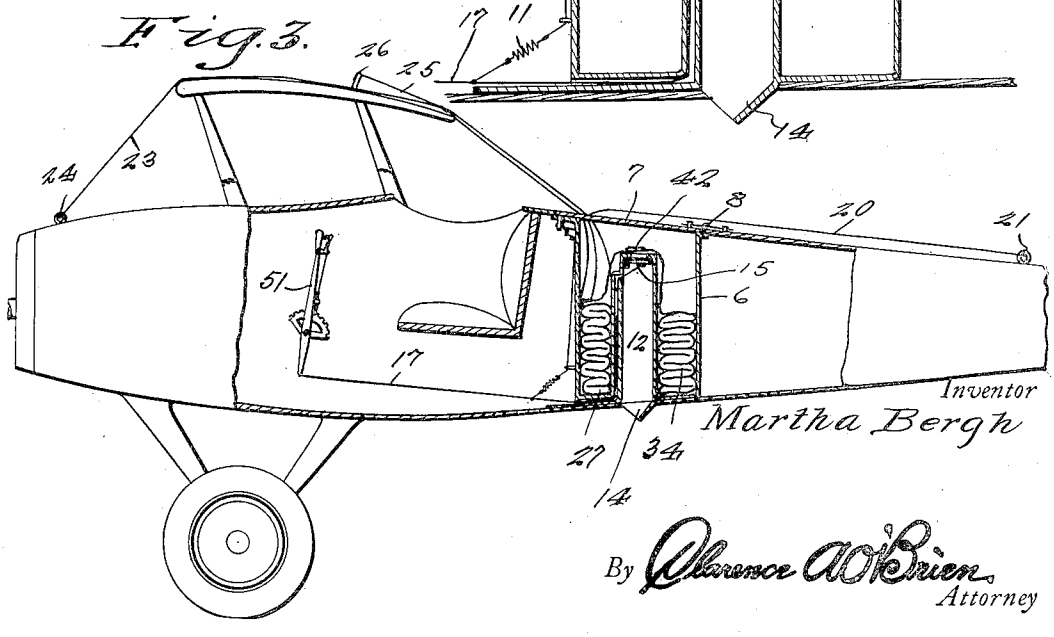


Fig. 3.



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UNITED STATES PATENT OFFICE

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SAFETY DEVICE FOR AEROPLANES

Application filed September 20, 1928. Serial No. 307,225.

The present invention relates to safety devices for aeroplanes, the general object of the invention being to provide parachutes for checking the fall of the plane if the engine should stop or some other accident happen which would cause the aeroplane to drop.

Another object of the invention is to provide trip means operated by the pilot, for releasing the parachute when an accident happens.

Another very important object of the invention resides in the provision of a parachute with means whereby the parachutes after they have been released may be collapsed and placed back in the storage pit should it be found possible to repair the aeroplane before the same is actually landed, in order that it may be continued in its flight.

A still further very important object of the invention resides in the provision of a safety device for aeroplanes of this nature which is simple in its construction, strong and durable, easy to manipulate, thoroughly efficient and reliable in use and operation, and otherwise well adapted to the purpose for which it is designed.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawing:

Figure 1 is a side elevation of an aeroplane showing the parachutes in fully open and supporting position,

Figure 2 is a top plan view of the aeroplane showing the parachutes removed,

Figure 3 is a sectional side elevation of the aeroplane showing the parachutes folded in the storage ship,

Figure 4 is an enlarged detail section through the fuselage of the aeroplane showing the construction of the storage chute,

Figure 5 is an enlarged detail section showing the hinge for the lid of the storage pit,

Figure 6 is an enlarged detail fragmentary section showing the central ring of the parachute and control cables associated therewith,

Figure 7 is a fragmentary bottom plan view of one of the parachutes showing the central ring and the valve associated therewith, and

Figure 8 is a sectional view therethrough taken substantially on the line 8—8 of Figure 7.

Referring to the drawing in detail it will be seen that the numeral 5 denotes the fuselage of an aeroplane which has a parachute storage pit 6 built therein and opening through the top of the fuselage.

A lid 7 is mounted on the fuselage to close the top of the parachute storage pit 6 and is spring hingedly mounted as at 8 so as to be normally swung to an open position by the spring hinge.

A latch structure 9 is provided for holding the lid closed. A cable 10 with a spring 11 incorporated therein is provided for releasing the latch 9. A tube 12 extends upwardly from the bottom of the fuselage and the bottom of the storage pit 6 and has a forwardly and downwardly inclined deflector 14 on the bottom end thereof projecting below the fuselage for catching air to create a turn up through the tube.

A valve 15 is incorporated in the top of the tube 12 and has a spring hinge 16 associated therewith for normally holding the same closed.

A cable 17 is engaged with the valve for opening the same and is trained through a passage 18 on one side of the tube 12 and is connected with the cable 10 so that these cables may be simultaneously pulled for simultaneously allowing the opening of the lid 7 by the spring hinge 8 and causing the downwardly swinging of the valve 15 to an open position so that a draft is created through the

tube 12 for a purpose which will be hereinafter set forth.

A cable 20 is anchored as at 21 to the tail of the fuselage 5 and to a ring 22.

A cable 23 is attached to the ring 22 and to the nose of the fuselage 5 as at 24. Cables 25 are attached to the ring 22 and to the end of the wings 26. The numeral 27 denotes a relatively large parachute having cables 27′ attached thereto and attached to the ring 22.

The center of the parachute 27 is constructed with an opening reinforced by a ring 28 with packing 29 on the lower face thereof. A valve 30 closes the ring 27 and is spring hinged as at 31 to be normally closed against the packing 29.

The ring and packing have openings 32 therein. A cable 33 is engaged with an eye 34′ on the valve 30 so that the same may be swung to an open position to decrease the supporting efficiency of the parachute 27 as may be desired and as will be hereinafter set forth.

The parachute 34 is smaller than the parachute 27 and has cables 35 engaged with the ring 28′. The parachute 34 has a ring 28′, a packing 29′, valve 30′ and spring hinge 31′ similar to those described in connection with parachute 27. The ring and packing structure just described are riveted to their respective parachutes as at 40 with reinforcing rings 41 associated therewith.

A cable 33′ is engaged with an eye 34′ on the valve 30′ and extends through one of the openings 32. A parachute 42 is smaller than the parachute 34 has cables 43 attached to the ring structure of the parachute 34 and has its center closed as at 45 with a cable 46 attached thereto.

The cable 46 is trained through an opening in the ring structure of the parachutes 34 and 27 and has enlargements 48 and 49 thereon in spaced relation one above and one below the parachute 34 to function as stops.

Considering the parachute when in the storage pit 6 as shown in Figure 3, it will be seen that parachute 27, the largest one is toward the front of the tube 12, the parachute 34, the intermediate one is stored to the rear thereof, and the parachute 42, the smallest one, is stretched across the upper end of the tube 12.

If anything should happen to the aeroplane requiring the use of this safety device the aviator rocks the lever 51 pulling on cable 17 and at the same time pulling on cable 10 thereby simultaneously opening the valve 15 and the lid 7 so that the current of air set up in the tube 12 will raise the parachute 42 and drag the parachutes 34 and 27 out of the storage pit and also the parachutes will open up and support the aeroplane.

If it should be possible to repair the aeroplane so that it could continue its flight, the valves 30 and 30′ may be opened causing the collapsing of the parachutes 27 and 34 and then by pulling on the cable 46, the parachute 42 may be drawn down and the parachutes 27, 34 and 42 may be stored in the storage pit 6 as previously indicated and the parachute mechanism is all ready for further use. The plurality of parachute in spaced vertical position on the same axis presents a greater resistance to swinging or rocking of the aeroplane, while falling, than a single parachute.

It will also be seen that the valves 30 and 30′ may be used to hasten the descent of the aeroplane if it should be desirable as where the aeroplane is hovering over a good landing place.

It is thought that the construction, operation, utility and advantages of this invention will now be quite apparent to those skilled in this art without a more detailed description thereof.

The present embodiment of the invention has been disclosed in detail merely by way of example since in actual practice it will attain the features of advantage enumerated as desirable in the statement of the invention and the above description.

It will be apparent that changes in the details of construction, and in the combination and arrangement of parts may be resorted to without departing from the spirit or scope of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described my invention, what I claim as new is:

1. In an aeroplane, a fuselage having a storage pit therein, a lid over the storage pit, spring means mounting the lid and normally urging the lid to an open position, a latch for holding the lid in a closed position, a draft tube extending up through the bottom of the pit, a valve in the top of the tube, and means for simultaneously opening the valve and releasing the latch, and a plurality of interconnected parachutes stored in the pit one extending across the top of the tube.

2. In an aeroplane, a fuselage having a storage pit therein, a lid over the storage pit, spring means mounting the lid and normally urging the lid to an open position, a latch for holding the lid in a closed position, a draft tube extending up through the bottom of the pit, a valve in the top of the tube, and means for simultaneously opening the valve and releasing the latch, and a plurality of interconnected parachutes stored in the pit one extending across the top of the tube, some of said parachutes being provided with valves in the central portion thereof and means for opening the valve.

3. In an aeroplane, a fuselage having a storage pit therein, a lid over the storage pit, spring means mounting the lid and normally urging the lid to an open position, a latch for holding the lid in a closed position, a draft tube extending up through the bottom of the pit, a valve in the top of the tube, and

means for simultaneously opening the valve and releasing the latch, and a plurality of interconnected parachutes stored in the pit, one extending across the top of the tube, some of said parachutes being provided with valves in the central portion thereof and means for opening the valve, and means connected with the outer parachute and trained through the lower parachute for drawing the parachutes into the storage pit.

In testimony whereof I affix my signature.

MARTHA BERGH.