

LIFE SAVING MEANS FOR AEROPLANES AND OTHER AIRSHIPS.

1,383,124.

4 SHEETS—SHEET 1.



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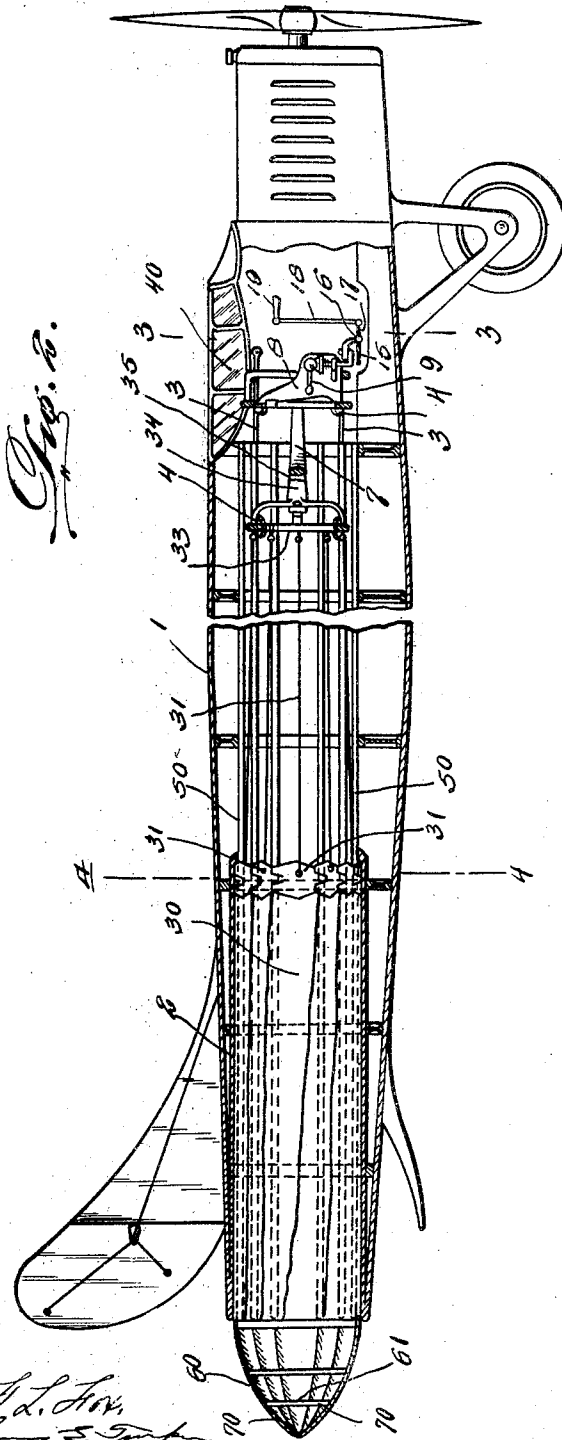
BY

P. L. JORDAN.
LIFE SAVING MEANS FOR AEROPLANES AND OTHER AIRSHIPS.
APPLICATION FILED JAN. 14, 1921.

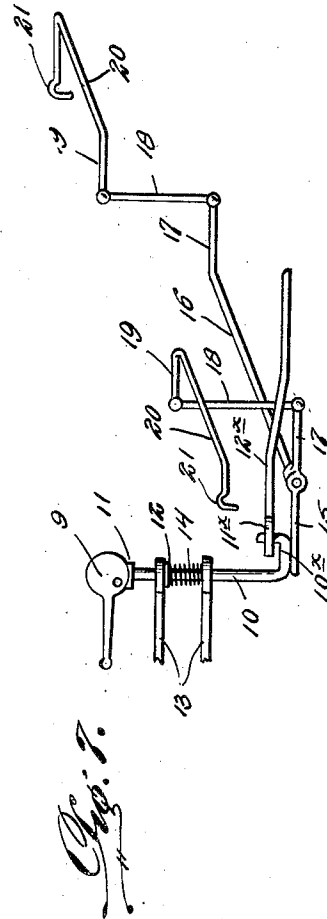
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4 SHEETS—SHEET 2.



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Fig. 5.

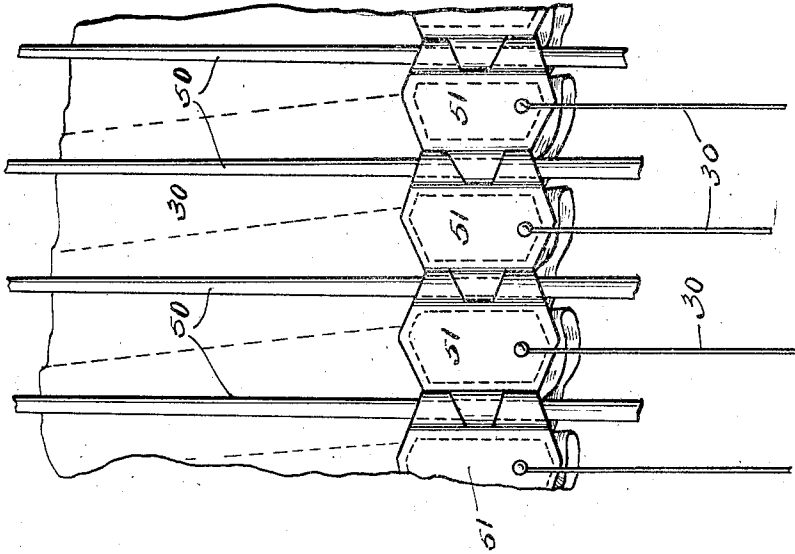
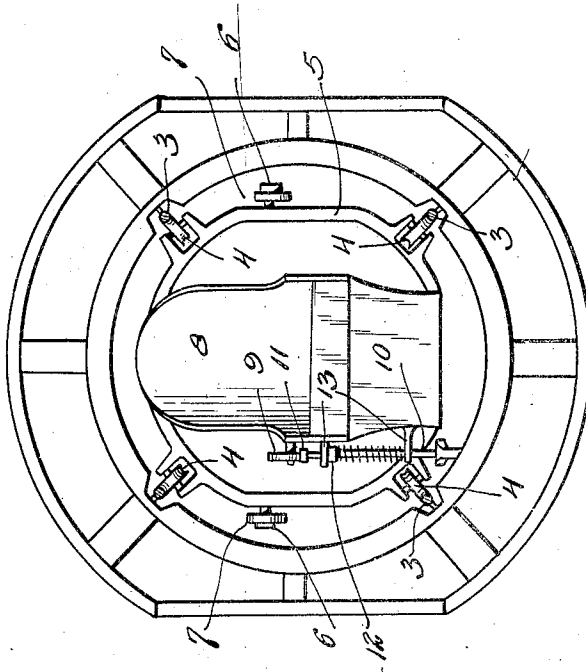


Fig. 3.



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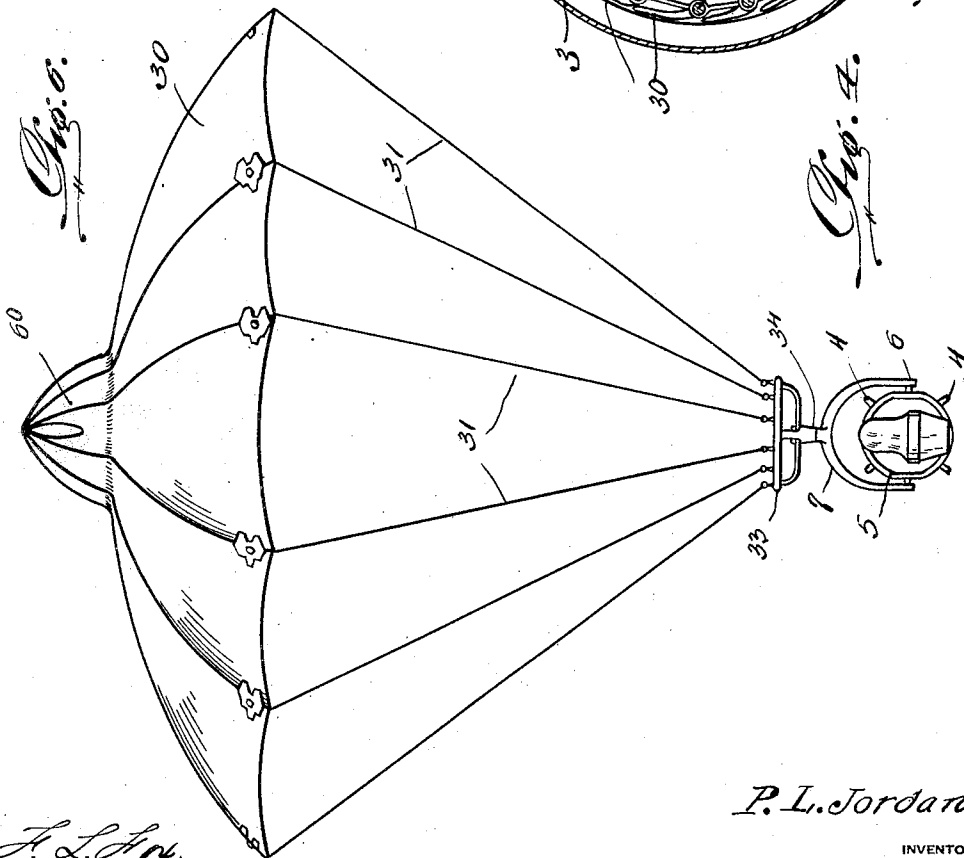
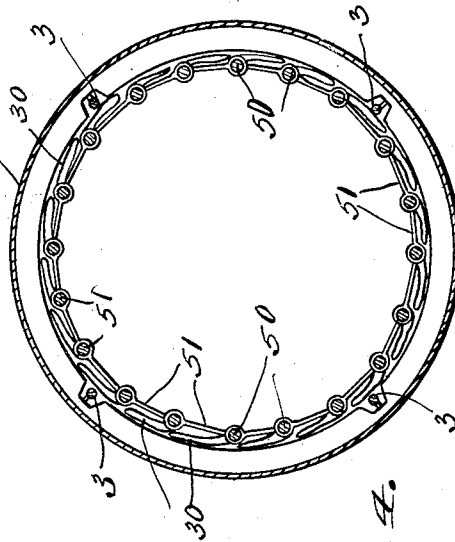
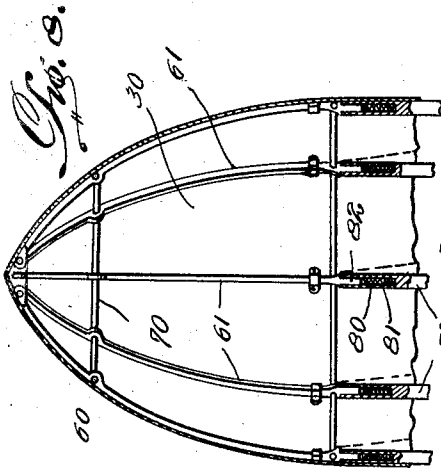
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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LIFE-SAVING MEANS FOR AEROPLANES AND OTHER AIRSHIPS.

1,383,124.

Specification of Letters Patent. Patented June 28, 1921.

Application filed January 14, 1921. Serial No. 437,249.

To all whom it may concern:

Be it known that I, PERRY L. JORDAN, a citizen of the United States, residing at Washington, in the county of Washington and State of Iowa, have invented new and useful Improvements in Life-Saving Means for Aeroplanes and other Airships, of which the following is a specification.

The object of my present invention is the provision of efficient means designed more especially, though not necessarily, for use in aeroplanes, and constructed with a view to enabling an aviator in the event of the aeroplane becoming disabled, to bring about the launching of himself in connection with a parachute into the air and clear of the aeroplane so that the descent of the aviator to the earth will be slow and safe.

To the attainment of the foregoing, the invention consists in the improvement as hereinafter described and definitely claimed.

In the accompanying drawings, forming part hereof:—

Figure 1 is a top plan view, partly broken away of an aeroplane equipped with my improvement.

Fig. 2 is a fragmentary vertical longitudinal section of the same.

Figs. 3 and 4 are transverse sections taken in the planes indicated by the lines 3—3 and 4—4, respectively, of Fig. 2.

Fig. 5 is an enlarged detail view illustrative of the manner in which the shoes of the parachute are arranged relatively to the guide rods.

Fig. 6 is an elevation showing the position that the parachute and the aviator's seat assume substantially to the discharge of the parachute from the aeroplane.

Fig. 7 is a detail perspective hereinafter explicitly referred to.

Fig. 8 is a detail diametrical section illustrative of the association of the guide rods and dome-like portion of the parachute.

Similar numerals of reference designate corresponding parts in all of the views of the drawings.

In general the aeroplane includes a fuselage 1 and is otherwise of the ordinary well known construction.

In furtherance of my invention the fuselage 1 is provided with a tubular casing 2 which extends throughout the major portion of the length of the fuselage and is entirely open at its rear end, Fig. 2.

Within the tubular casing 2 are arranged

longitudinal track rails 3, and arranged in engagement with and adapted to travel on said rails 3 are circumferentially grooved wheels 4, mounted in antifriction bearings in a frame 5 that is under certain conditions freely movable in the tubular casing 2 toward and through the rear end thereof. At its opposite sides the frame 5 is provided with trunnions 6 which are journaled in the side portions of a bail 7 for a purpose hereinafter set forth. Fixed with respect to the frame 5 is an aviator's seat 8, and carried at one side of the said seat is a cam lever 9. Also carried at the said side of the seat 8 is a vertically movable rod 10 having at its upper end a head 11 opposed to the periphery of the cam portion of the lever 9. At 12 the said rod 10 is provided with an abutment. It will also be noted that the rod 10 is movable rectilinearly in guides 13, and that a spring 14 is interposed between the lower guide 13 and the abutment 12 in order to hold the head 11 of the rod 10 under yielding pressure against the cam portion of the lever 9. At its lower end the rod 10 is arranged to bear downwardly against the arm 15, fixed to a rock shaft 16 which rock shaft is provided with other arms 17. The said arms 17 are connected through the medium of links 18 with arms 19 on rock shaft 20. The said rock shafts 20 also carry retaining hooks 21. Manifestly when the cam lever 9 is manipulated to depress the rod 10 against the action of the spring 14, the rock shafts 16 and 20 will be rocked about their axes, and the hooks 21 on the rock shafts 20 will be swung upwardly for a purpose hereinafter set forth. As clearly shown in Fig. 1 the hooks 21 are normally arranged in keepers 22 at the outer side of doors 23 which are hinged at 24 to the fuselage and are equipped with retractile springs 25 which have for their function to swing the doors into the open positions shown by dotted lines when the hooks 21 are disengaged from the keepers 22 in the manner before described. Interposed between and connected to portions 26 of the fuselage and the doors 23 are cables 27 which serve to limit the outward movement of the doors 23. It will be apparent from the foregoing that while the aeroplane is in flight the aviator is enabled in the event of accident to quickly release the doors 23, whereupon the said doors will be promptly opened and a strong head of air will be admitted to the forward

portion of the tubular casing 2. I prefer to provide the rod 10 at its lower end with a hook 10* that is movable in an eye 11* on a fixed bar 12* to hold the seat 8 and the parts movable therewith against longitudinal movement relatively to the tubular casing 2 of the fuselage. Manifestly when the aviator desires to release the seat 8 from the bar 12* to permit of rearward movement of the seat 8 and the parts movable therewith, it is simply necessary for the aviator to manipulate the lever 9 so as to move the rod 10 downwardly and carry the hook 10* out of engagement with the eye 11* of the bar 12*; the said eye 11* constituting a keeper. This, however, is not of the essence of my invention.

Disposed in a collapsed state in the tubular casing 2 in rear of the frame 5 and the aviator's seat 8 is a parachute 30 having cables 31 which are connected to a body 33. The said body 33 is swiveled at 34 on the stem 35 of the before mentioned bail 7. From this it follows that when the doors 23 are opened, and the strong head of air is led into the forward portion of the tubular casing 2 the parachute 30 will be powerfully ejected from the rear end of the tubular casing 2, and will carry with it the bail 7, frame 5 and driver seat 8, whereupon the frame will assume a pendent position as appears in Fig. 6 so as to avert discomfort to the aviator incident to his descent to the ground with the assistance of the parachute.

At a point above the position equipped by the aviator in the normal operation of the aeroplane, the tubular casing 2 is provided with an appropriate transparent door 40 designed to enable the aviator to readily gain access to the seat 8, and also to render it convenient for the aviator to observe what is above the aeroplane.

Arranged within the tubular casing 2 are guide rods 50 which are adapted to hold the parachute 30 in proper arrangement relatively to the wall of the casing 2, and are also designed in combination with shoes 51 to preclude tangling of the folds of the parachute in the tubular casing 2. By virtue of the construction of the shoes 51 as illustrated the said shoes which are carried by the parachute, Fig. 6, are adapted to slip off the guide rods 50 and separate as soon as they reach the rear ends of the guide rods, whereupon the parachute will effectively open. In this connection it will be apparent that the guide rods 50 serve somewhat after the manner of hinge pintles when the shoes 51 are within the tubular casing 2, and the separation of the shoes 51 only takes place after the said shoes move rearwardly off the guide rods 50.

As will be observed by comparison of Figs. 2 and 6 the parachute 30 is provided with a dome portion 60, and in said dome

portion 60 is a light frame work 61. By virtue of this provision it will be manifest that the air will afford but little resistance to the ejection of the parachute from the rear end of the tubular casing 2.

For the sake of increased strength I prefer to reinforce the rear end of the frame work 61 with hoops 70 of aluminum or other appropriate material.

In order to efficiently support the dome-like portion 60 of the parachute in the fuselage of the aeroplane, and to assure the prompt separation of the frame work 61 from the guide rods 50 I prefer to employ the construction shown in Fig. 8. By reference to said figure it will be noted that the guide rods 50 have sockets 80 in their rear ends in which springs 81 are housed, and that the longitudinal rods of the frame work 61 are reduced, as indicated by 82, and are arranged in said sockets and against said springs. From this it follows that under normal conditions the dome-like portion 60 of the parachute will be adequately supported relatively to the fuselage; also that the initial rearward impetus of the parachute will be assisted by the springs 81.

It will be apparent from the foregoing that my improvement affords a reliable means to enable an aviator to safely descend to the ground in the event of the aeroplane or other airship becoming disabled. In this connection it will be appreciated that by virtue of the parachute being properly folded and resting close to the walls of the tubular casing inflation of the parachute and the powerful ejection of the same from the tubular casing when the portions 23 are opened will be assured.

It will also be apparent from the foregoing that little difficulty will attend the positioning of the parachute and the aviator's seat in the tubular casing 2; it being simply necessary to move the seat and the seat frame forwardly to proper position in the tubular casing 2, and to position the shoes on the guide rods and move the shoes to proper position within the tubular casing 2, when the parachute will be held adjacent to the wall of the tubular casing 2, and tangling of any part of the parachute will be averted. I would also have it understood here that the swiveled connection of the head 33 to the bail 7 is calculated to preclude tangling of the cables of the parachute so that the parachute will surely open when the same is subjected to the weight of the aviator in the air.

Having described my invention, what I claim and desire to secure by Letters-Patent is:—

1. In an airship, the combination of a tubular casing, means under the control of an aviator to admit air into the forward portion of said casing, an aviator's seat mov-

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able in the casing, and a parachute carried and movable in the casing and connected with the aviator's seat and movable with said seat through the rear end of the tubular casing.

2. In an airship, the combination of a tubular casing, means under the control of an aviator to admit air into the forward portion of said casing, an aviator's seat movable in the casing, and a parachute carried and movable in the casing and connected with the aviator's seat and movable with said seat through the rear end of the tubular casing; the said tubular casing having interior longitudinal guide rods, and the parachute being provided with shoes having knuckles arranged on and connected by the guide rods and separable when they move rearwardly off said guide rods, whereby the parachute is maintained in a partially open state in the tubular casing and tangling of the parachute is prevented.

3. In an airship, the combination of a tubular casing having interior longitudinal guide rods, and a parachute arranged and movable in said tubular casing and through the rear open end thereof and having shoes mounted on and connected by the guide rods and separable when they are moved rearwardly out of engagement with said rods.

4. In an airship, the combination of a tubular casing open at its rear end, longitudinal rails arranged in said casing, a parachute movable in the casing and through the rear end thereof, a frame movable on said rails and in the casing and through the rear end thereof, a drivers seat mounted in said frame, and a connection between the frame and the parachute.

5. In an airship, the combination of a tubular casing open at its rear end, longitudinal rails arranged in said casing, a parachute movable in the casing and through the rear end thereof, a frame movable on said rails and in the casing and through the rear end thereof, a drivers seat mounted in said frame, and a connection between the frame and the parachute; the said connection including a bail in which the frame is pivotally mounted, a head, cables between the parachute and said head, and a swiveled connection between the head and the bail.

6. In an airship, the combination of a tubular casing open at its rear end and having doors adjacent to its forward end, means normally holding said doors in closed positions, an aviator's seat located in the forward portion of the tubular casing, a keeper in the forward portion of the casing to hold the aviator's seat against rearward movement, and manually operable means on the aviator's seat to synchronously release the said doors and detach the aviator's seat from said keeper.

7. In an airship, the combination of a

tubular casing open at its rear end and having hinge doors adjacent to its forward end, movable hooks to retain said doors in closed positions, springs to assist the opening of the doors, a parachute in the casing, an aviator's seat in the casing and connected with the parachute, a seat-retaining keeper in the casing, a manually operable hook on the aviator's seat normally engaging said keeper, and means operable by said hook when retaining the keeper to disengage the first-named hooks from the doors for the release of the latter.

8. In an airship, the combination of a tubular casing open at its rear end and having doors adjacent to its forward end and also having means to assist the opening movements of said doors, longitudinal track rails in the casing, longitudinal guide rods in the casing; a parachute in the casing and having shoes arranged on and connected by the guide rods whereby tangling of the parachute is prevented, a frame arranged in the casing and having wheels movable on said rails, an aviator's seat carried by said frame, a connection between the frame and parachute, a keeper in the casing, and manually operable means on the aviator's seat normally engaging said keeper and connected with means to release the doors when the frame is released from said keeper.

9. In an airship, the combination of a tubular casing open at its rear end and having doors adjacent to its forward end and also having means to assist the opening movements of said doors, longitudinal track rails in the casing, longitudinal guide rods in the casing; a parachute in the casing and having shoes arranged on and connected by the guide rods whereby tangling of the parachute is prevented, a frame arranged in the casing and having wheels movable on said rails, an aviator's seat carried by said frame, a connection between the frame and parachute, a keeper in the casing, and manually operable means on the aviator's seat normally engaging said keeper and connected with means to release the doors when the frame is released from said keeper; the said tubular casing having in its upper forward portion an additional door through which the aviator may enter and leave the tubular casing.

10. In an airship, the combination of a tubular casing having interior longitudinal guide rods with sockets in their rear ends, and a parachute arranged and movable in said tubular casing and through the rear open end thereof and having frame members the forward ends of which are removably arranged in the sockets of the guide rods.

11. In an airship, the combination of a tubular casing having interior longitudinal guide rods with sockets in their rear ends, and a parachute arranged and movable in

said tubular casing and through the rear open end thereof and having shoes mounted on and connected by the guide rods and separable when they are moved rearwardly
5 out of engagement with said rods and also having frame members the forward ends of which are removably arranged in the sockets of the guide rods.

12. In an airship, the combination of a
10 tubular casing having interior longitudinal guide rods with sockets in their rear ends, and a parachute arranged and movable in said tubular casing and through the rear

open end thereof and having shoes mounted on and connected by the guide rods and 15 separable when they are moved rearwardly out of engagement with said rods and also having frame members the forward ends of which are removably arranged in the sockets of the guide rods, and springs arranged in 20 the sockets of the guide rods and against the forward ends of the frame members of the parachute.

In testimony whereof I affix my signature.

PERRY L. JORDAN.