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2 SHEETS-SHEET 1.

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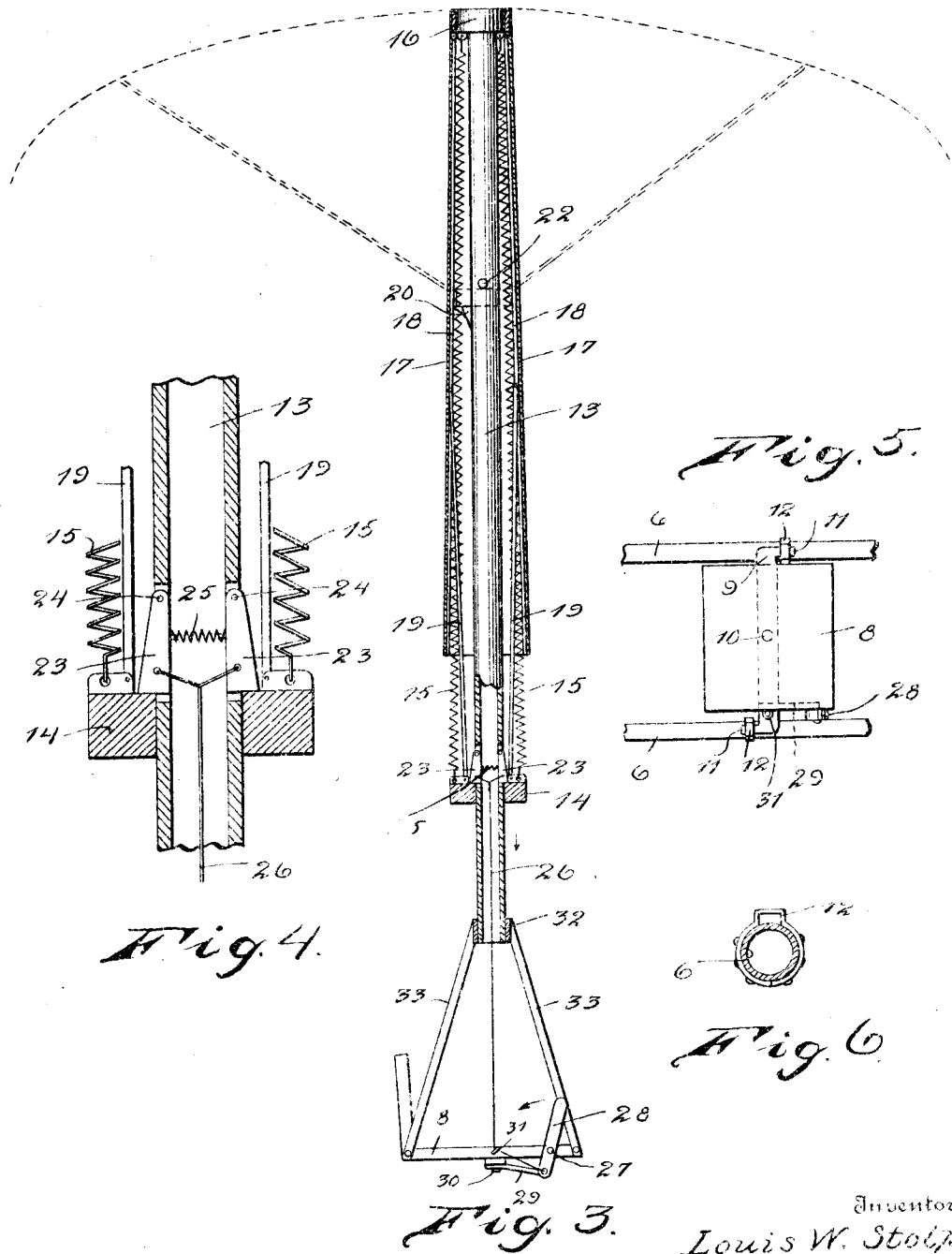
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SAFETY APPLIANCE FOR FLYING MACHINES.
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Patented June 11, 1912.

2 SHEETS-SHEET 3.

1,029,475.



Witnesses

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UNITED STATES PATENT OFFICE.

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SAFETY APPLIANCE FOR FLYING-MACHINES.

1,029,475.

Specification of Letters Patent.

Patented June 11, 1912.

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To all whom it may concern:

Be it known that I, LOUIS W. STOLP, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Safety Appliances for Flying-Machines, of which the following is a specification.

The present invention relates to means for use in connection with flying machines, to safely lower the operator to the ground, when the machine becomes inoperative during flight, due to accidents, tilting of the machine, or the like.

An important object of the present invention is to provide means of the above mentioned character, which will not in any way interfere with the freedom of action of the operator or his control over the machine and will not impede the flight of the machine to any perceptible extent.

A further object of my invention is to provide means of the above mentioned character, which are simple in construction, quick and positive in operation, and cheap to manufacture.

In carrying out my invention, I may employ any form of flying machine and I dispense with the ordinary operator's seat included therein. To the frame-work of the machine I detachably connect my improved seat, having suitable connection with a preferably foldable gliding structure in the form of a parachute. Automatic means may preferably be provided for opening the top or umbrella portion of the parachute. A suitable latch serves to detachably connect the seat to the frame-work of the machine and common means are provided for simultaneously operating the automatic means for opening the parachute and moving the latch to disconnect the seat from the frame-work of the machine.

It is to be understood that the invention is not restricted by the inclusion of any elements except as set forth in the annexed claims.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same, Figure 1 is a fragmentary side view of a Curtiss flying machine equipped with my safety appliance, Fig. 2 is a fragmentary front end view of the same, showing the parachute open, Fig.

3 is an enlarged central longitudinal sectional view through the parachute, Fig. 4 is a further enlarged fragmentary detail view of the lower portion of the parachute, Fig. 5 is a plan view of the seat, and, Fig. 6 is a sectional view taken through the strut 6.

In the drawings wherein is illustrated a preferred embodiment of my invention, the numeral 1 designates as a whole a flying machine such as the Curtiss machine. Although I have shown my invention as applied to this form of machine, I do not wish in any way to restrict myself to such employment alone as any form of flying machine may be used.

The flying machine comprises the usual frame-work 2, planes 3, engine 4, and propeller 5. The frame-work further comprises inclined forwardly extending rods or tubes 6 connected with the forward rudder (not shown).

The numeral 7 designates the steering wheel for operating the forward rudder.

My invention comprises the provision of an operator's support or seat 8, which is disposed in the most convenient position, depending upon the type of flying machine in connection with which it is employed. I have shown the seat 8 disposed forwardly of the planes 3 and near the steering wheel 7. The seat 8 has a latch 9 disposed therebelow and pivotally connected therewith, as shown at 10. This latch has its ends bent at right angles, for forming tongues 11, which lie upon the diagonal rods 6 and enter apertured brackets 12, fixedly secured to the rods 6. The latch 9 thus detachably and rigidly connects the seat 8 with the rods 6.

I provide a parachute comprising a staff or tube 13, upon which is longitudinally movably mounted a ring 14, having connections with the lower ends of retractile coil springs 15, which have their upper ends attached to a ring 16, that is rigidly connected with the upper end of the staff 13. There may be any suitable number of the springs 15.

The numeral 17 designates the top or umbrella portion of the parachute and may be preferably formed of silk, canvas, or any other suitable material. The top 17 is suitably mounted upon ribs 18, the upper ends of which are hinged to the ring 16, as shown. The ribs 18 have pivotal connection midway their ends with spreaders 19, as shown, such

spreaders extending downwardly for pivotal connection with the movable ring 14. A spring catch 20 is mounted upon the staff 13, to hold the movable ring 14 in its upper position when moved thereto by the springs 15. A pin or lug 22 is fixedly mounted upon the staff 13 above and near the spring catch 20, to limit the upward movement of the ring 14.

10 The staff 13 is provided near its lower end with preferably diametrically arranged openings, within which are mounted swinging triggers or holders 23, pivoted at their upper ends, as shown at 24. The triggers

15 or holders 23 are forced apart or held in their outer position by a compressible coil spring 25, connected therewith, as shown. When the triggers or holders 23 occupy their outer position they extend beyond the staff or tube 13 and their lower ends are in the path of travel of the ring 14, to engage the same and normally prevent its upward movement. Suitable means are provided to swing the triggers or holders 23 inwardly

20 so that they disengage the ring 14 and said ring is released, such means preferably being in the form of a cable 26 or the like, connected with said triggers or holders, as shown.

30 Pivotaly mounted upon the operator's support or seat 8, as shown at 27, is an operating lever 28, to the lower end of which is pivoted a link 29, having pivotal connection with one end of the latch 9, as shown

35 at 30. The cable 26 extends axially through the staff or tube 13 and through an eye 31 fixed upon the seat 8 and then is attached to the lever 28 adjacent the connection of the link 29 with said lever, as shown. It is thus

40 seen that the lever 28 constitutes common means for simultaneously operating the triggers or holders 23 to release the ring 14 and for moving the latch 9 to disconnect the seat 8 from the rods 6.

45 Connected with the lower end of the staff or tube 13 is a ring 32, to which are connected rods 33, diverging downwardly, as shown, for connection with the seat 8.

50 The operation of the device is as follows:—Assuming that the machine 1 is in flight and on account of an accident or the like, the same begins to fall, the operator on the seat 8 at once swings the lever 28 in the direction of the arrow, whereby the cable 26

55 is pulled downwardly and the triggers or holders 23 moved inwardly to release the ring 14. The springs 15 now draw the ring 14 upwardly along the staff or tube 13, whereby the top or umbrella portion of the parachute is opened. Simultaneously with

60 the downward movement of the cable 26, the link 29 is moved to draw the tongues 11 out of the brackets 12, whereby the seat 8 is disconnected from the frame-work of the

65 machine. The operator is thus freed from

the machine, which may continue its dangerous rapid descent, while said operator is lowered safely to the ground.

It is to be understood that the form of my invention herewith shown and described 70 is to be taken as a preferred example of the same and that certain changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the sub- 75 joined claims.

Having thus described my invention, I claim:—

1. The combination with the frame-work of a flying machine, of an operator's seat, 80 means including a movable element to securely hold the operator's seat in place upon said frame-work, manually operated means to move the element to release the operator's seat from its connection with said frame- 85 work, a parachute connected with the operator's seat, including an umbrella portion, automatic means to open the umbrella portion and normally held against movement, and means movable with said manually op- 90 erated means to release said automatic means for opening the umbrella portion.

2. The combination with the frame-work of a flying machine, of an operator's sup- 95 port, a movable element to connect the support with the frame-work, manually operated means to move the element, a parachute connected with the operator's support including an umbrella portion, and means operated simultaneously with the 100 movement of the manually operated means to open the umbrella portion of the parachute.

3. The combination with the frame-work of a flying machine, of brackets secured to 105 such frame-work, an operator's seat disposed between the brackets, an element pivotally connected with the operator's seat and having oppositely extending end portions movable into and out of the brackets, 110 a hand lever pivoted upon the operator's seat and having operative connection with the pivoted element, and a parachute connected with the operator's seat.

4. The combination with the frame-work 115 of a flying machine, of an operator's seat, detachable means for securely holding the operator's seat in place upon said frame-work, a parachute connected with the operator's seat including an umbrella portion, 120 means for opening the umbrella portion of the parachute, and common means to operate the first and second named means.

5. The combination with the frame-work of a flying machine, of an operator's seat, 125 detachable means for securely holding the operator's seat in place upon said frame-work including a latch pivoted to said operator's seat, a parachute connected with said operator's seat, including a staff and 130

umbrella portion, means to open said umbrella portion comprising an element longitudinally movably mounted on the staff, a spring to move the element when released, a device to normally hold the element against movement, and common means to move said device and pivoted latch.

6. The combination with a flying machine, of an operator's seat, a latch for detachably connecting said operator's seat with the frame-work of the flying machine, a parachute connected with said operator's seat including a staff, an umbrella portion connected therewith, means to open said umbrella portion comprising an element longitudinally movably mounted upon the staff, a spring tending to move the element in one direction along the staff to open the umbrella portion, a device to normally hold the element against movement, and a common operating element connected with the operator's seat and having connections with said device and latch.

7. The combination with a flying ma-

chine, of an operator's seat, a latch pivotally connected with said operator's seat for detachably securing the same to the frame-work of the flying machine, a parachute connected with said operator's seat including a staff, an umbrella portion connected therewith, means to open said umbrella portion comprising an element longitudinally movably mounted upon the staff, retractile coil springs connected with said element and the upper portion of the staff, pivoted triggers normally disposed to prevent the movement of said element to open said umbrella portion of the parachute, a lever pivoted upon the operator's seat, connecting means between said lever and triggers, and connecting means between said lever and pivoted latch.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS W. STOLP.

Witnesses:

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