

C. A. JUDAH & H. R. SANDER.
LIFE SAVING APPARATUS FOR AVIATORS.
APPLICATION FILED APR. 19, 1911.

1,015,684.

Patented Jan. 23, 1912.

2 SHEETS—SHEET 1.

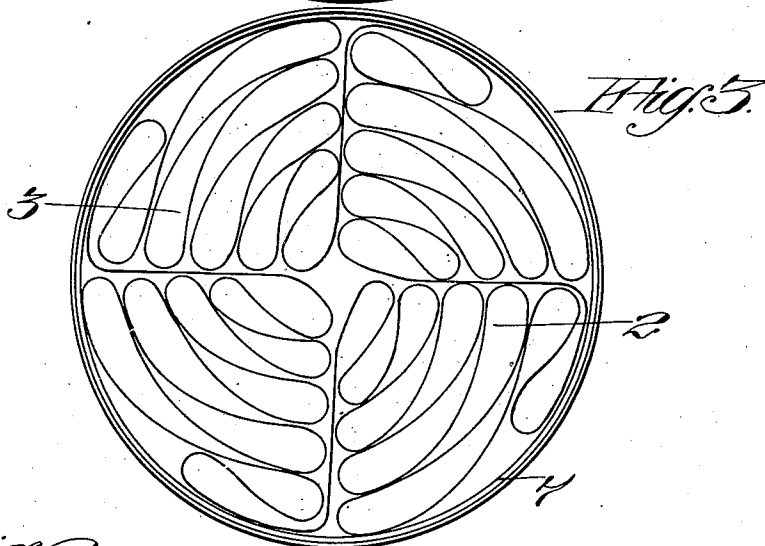
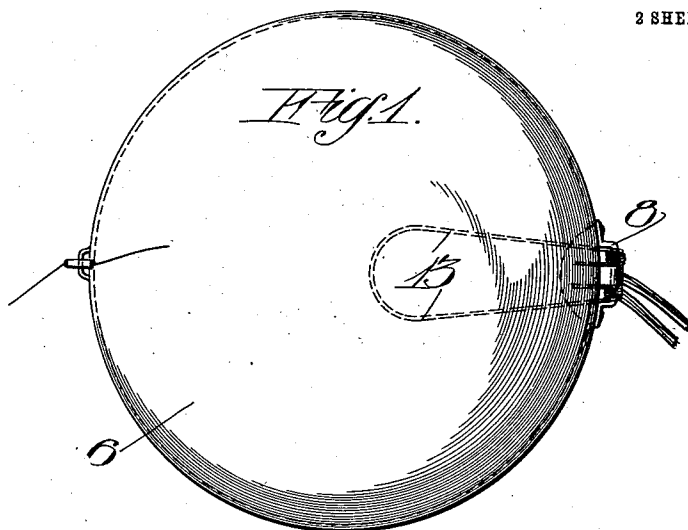
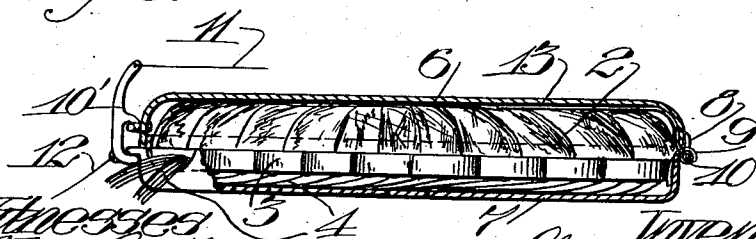


Fig. 2.



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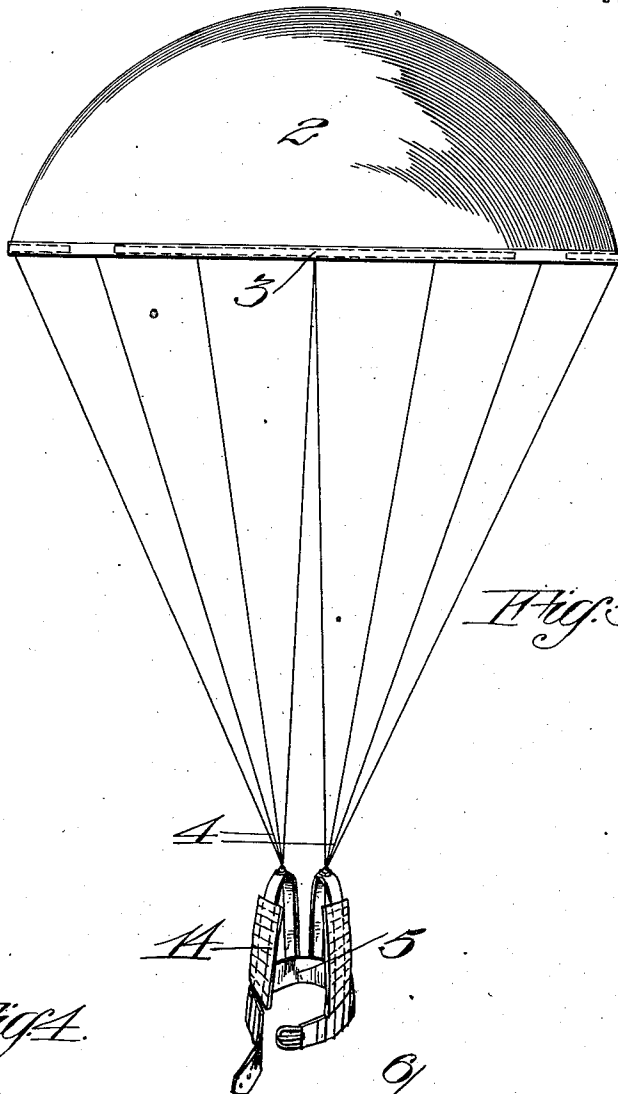
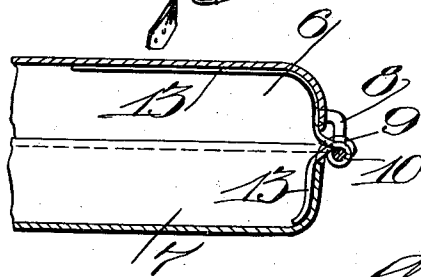


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHESTER A. JUDAH, OF MILL VALLEY, AND HENRY R. SANDER, OF OAKLAND,
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LIFE-SAVING APPARATUS FOR AVIATORS.

1,015,684.

Specification of Letters Patent.

Patented Jan. 23, 1912.

Application filed April 19, 1911. Serial No. 622,052.

To all whom it may concern:

Be it known that we, CHESTER A. JUDAH, residing at Mill Valley, county of Marin, State of California, and HENRY R. SANDER, residing at Oakland, county of Alameda, State of California, both citizens of the United States, have invented new and useful Improvements in Life-Saving Apparatus for Aviators, of which the following is a specification.

This invention relates to a life-saving apparatus, and particularly to paraphernalia for the saving of the lives of aviators and aeronauts and passengers of aerial machines.

The object of the present invention is to provide a light, compact, simple and readily released device for the saving of persons manipulating and traveling in aerial vessels; and to provide in combination a receptacle or casing adapted to inclose and restrain in a folded position a parachute, so constructed as to automatically unfold when released from the inclosing shell or cover; and to provide in combination a life-saving paraphernalia having a protecting case or cover for an automatically opening parachute and a harness structure adapted to be secured upon the body of aerial travelers.

The invention consists of the parts and the construction and combination of parts, as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a plan view of the apparatus. Fig. 2 is a transverse sectional view through the casing and showing the parachute in folded, restrained position. Fig. 3 is a diagrammatic view representing the folded automatically expansible selvage or edge of the parachute. Fig. 4 is a detail view showing the casing in part. Fig. 5 is a diagrammatic view representing the open unfolded parachute.

It is a desideratum to design and construct an apparatus for the saving of lives of persons operating and traveling in aerial machines; and particularly to afford a light, substantial and automatically opening device which may be attached either to some portion of the aerial vessel or may be secured to the back of the passenger and which may be released automatically or manually when occasion requires.

In attaining the objects of our invention we employ a parachute 2 of appropriate

form, size and material which has attached to, or stitched in its circumferential edge or selvage a series of sections 3 of some light elastic material, such as spring steel or its equivalent. The function of this elastic insertion is to automatically open to form approximately a curved edge whereby the parachute may be more readily rendered effective during its descent. If these automatically opening elastic springs 3 were not employed, the rapidity with which the parachute would unfold itself during descent would be so slow as to hazard the life of the user in the event that the apparatus was brought into use only a few hundred feet above the ground.

Attached to the parachute 2 are suitable cords or ropes 4, which may be converged and attached to a harness or jacket of desirable construction and design, and which is adapted to be secured about the person of the wearer during flight in an aerial vessel.

The parachute is adapted to be folded into small compass and its several expansible springs 3 are coiled, as indicated in Fig. 3, so that the parachute can be incased in a flat, circular cover or shell comprising upper and lower sections 6 and 7 respectively. These shell sections 6 and 7 are adapted to be hinged together by a suitable device, here represented as a pivotal piece 8 attached to the shell section 6, and a hook 9 open on its lower side, as at 10, to receive the pivot bar 8 attached to the complementary shell or cover section 6. The several springs 3 attached to the edge of the parachute 2 are all of considerable length and are adapted to be folded into small compass so as to occupy a comparatively small area approximately equal to the area of the shell sections. When folded, as indicated in Fig. 3, the springs 3 naturally tend to expand against the sides of the shell and when released quickly fly outwardly and form an open circumferential edge at the bottom of the parachute. When the folded parachute and its springs have been placed in position upon one of the shell sections it is held in a restrained position until the complementary cover section, as 6, is placed over the folded parachute.

For the purpose of keeping the shell casings closed after one has been swung about the pivot member 8, any suitable form of

latch or latching device may be connected to the shell sections at a point approximately diametrically opposite the hinged members. This latch is shown at 10' in Fig. 2, and to it is connected a pair of cords 11 and 12, one of which may be attached to some convenient portion of the aerial vessel, and the other cord, as 12, can be led to the aviator so as to be within his reach.

10 In assuming his position in the aerial machine, the aviator adjusts the harness 5 about himself in a substantial manner. The cords or ropes 4, connected to the harness 5, are all sufficiently long to allow the incased parachute 2 to be mounted at some convenient place on the aerial apparatus which will permit the parachute to be opened and get away from the machine without danger of becoming entangled.

20 In operation, should the use of the apparatus become necessary, the aviator may, if he has time, deliberately pull the lanyard 12 to release the casing hook 10. The shell sections 6 and 7 will be automatically thrust apart about the open hinge partly by reason of the expansibility of the incased parachute and its spring sections 3 and also by positive action of a suitable spring 13 which is attached to the pivot member 8 and effective to thrust the opposite shell or cover outwardly about the pivot 8. In the event that the aviator is suddenly thrown out of the aerial vessel and does not have time to intentionally operate the opening of the parachute casing and is thrown or jumps from the aerial vessel, the lanyard 12 will serve to open the casing or the other cord 11, attached to the hook 10 at one end and to a portion of the vessel at the other end, will cause the shell to open as soon as sufficient pull is exerted on the cord 11 to unlatch the latch 10. Since the aviator has secured the harness 5 about himself and the ropes 4, connected to the harness, are led to the shell incasing the parachute, as soon as sufficient power, as stated, is applied to the restraining cord 11 the latch 10 will be pulled and released allowing the covers to automatically separate. The springs 3 in the selvage or circumference of the parachute will immediately fly into an extended position to almost instantly open the parachute to become effective as a support for the descending aviator.

55 In order to further increase the life saving capacity of the device the harness 5 embracing the aviator may be padded, as at 14, with a suitable structure capable of floating should the aviator be precipitated in water.

60 Having thus described our invention, what we claim and desire to secure by Letters Patent, is—

1. A life saving apparatus for aerial travelers, comprising a parachute having attached to its circumferential edge a series

of radially expansible normally restrained sections adapted to automatically open, a harness attached to said parachute and a substantially, flat, sectional, circular casing within which the parachute may be folded under restraint.

2. A life saving apparatus for aerial travelers comprising a parachute having a series of sections of elastic material attached to its circumferential edge and adapted to automatically open to expand the parachute, a harness attached to the parachute, and a substantially flat, sectional, circular casing within which the sections may be folded under restraint, said casing having a device for keeping it closed against the tension of the automatically expansible sections.

3. A life saving apparatus, for aerial travelers comprising a parachute having a series of radially expansible normally restrained sections attached to the circumferential edge of the parachute, and composed of elastic material whereby the sections are adapted to automatically expand to open the parachute, a harness attached to said parachute, and a substantially flat, sectional, circular casing within which the sections may be folded under restraint, said casing having a device for keeping it closed against the tension of the automatically expansible sections, said device being provided with cords whereby the casing may be opened by the release of the cover device.

4. A life saving apparatus, for aerial travelers comprising a parachute having a series of radially expansible normally restrained sections attached to the circumferential edge of the parachute, and composed of elastic material whereby the sections are adapted to automatically expand to open the parachute, a harness attached to said parachute, and a substantially flat, sectional, circular casing within which the sections may be folded under restraint, said casing having a device for keeping it closed against the tension of the automatically expansible sections, said device being provided with sections whereby the casing may be opened by the release of the cover device, and a resilient lever interposed between the casing sections whereby said sections may be thrown apart when the locking device has been released.

5. An apparatus for saving the lives of aviators, comprising a parachute, automatically radially expanding elastic members attached to the circumferential edge of the parachute, said members being effective to spread open the parachute, and a sectional casing into which the parachute may be packed and by which said resilient members may be restrained against expansion.

6. An apparatus for saving the lives of aviators, comprising a parachute, automatically radially expanding elastic members

attached to the circumferential edge of the parachute, said members being effective to spread open the parachute, a sectional casing into which the parachute may be packed and by which said resilient members may be restrained against expansion, a resilient device interposed between the sections of the casing whereby the latter may be separated to release the incased parachute, and a latching device adapted to keep the sections of the cover in closed position against the automatically expanding pressure of the incased parachute and the aforesaid resilient casing opening device.

7. An apparatus for saving the lives of aviators, comprising a parachute, automatically radially expanding elastic members attached to the circumferential edge of the parachute, said members being effective to spread open the parachute, a sectional casing into which the parachute may be packed and by which said resilient members may be restrained against expansion, a resilient device interposed between the sections of the casing whereby the latter may be separated to release the incased parachute, a latching device adapted to keep the sections of the cover in closed position against the automatically expanding pressure of the incased parachute and the aforesaid resilient casing opening device, and means attached to said latch whereby the casing may be connected to a portion of an aerial machine and whereby the aviator may release the latch.

8. A life-saving device for aviators, comprising a foldable parachute, resilient, ra-

dially expanding elastic members attached to the circumferential edge of the parachute and adapted to normally sustain said edge in an extended relation, a sectional casing into which the parachute may be folded and by which the automatically expansible members may be restrained in a folded position, and connections between said casing and a portion of the aerial apparatus whereby the sectional casing may be permitted to open to release the incased, restrained parachute.

9. A life-saving device for aviators, comprising a foldable parachute, resilient, radially expanding elastic members attached to the circumferential edge of the parachute and adapted to normally sustain said edge in an extended relation, a sectional casing into which the parachute may be folded and by which the automatically expansible members may be restrained in a folded position, and connections between said casing and a portion of the aerial apparatus whereby the sectional casing may be permitted to open to release the incased, restrained parachute, said connections comprising a latch attached to the casing and cords connecting said latch and the aerial apparatus.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

CHESTER A. JUDAH.
HENRY R. SANDER.

Witnesses:

W. J. A. REY,
M. MACKENZIE.