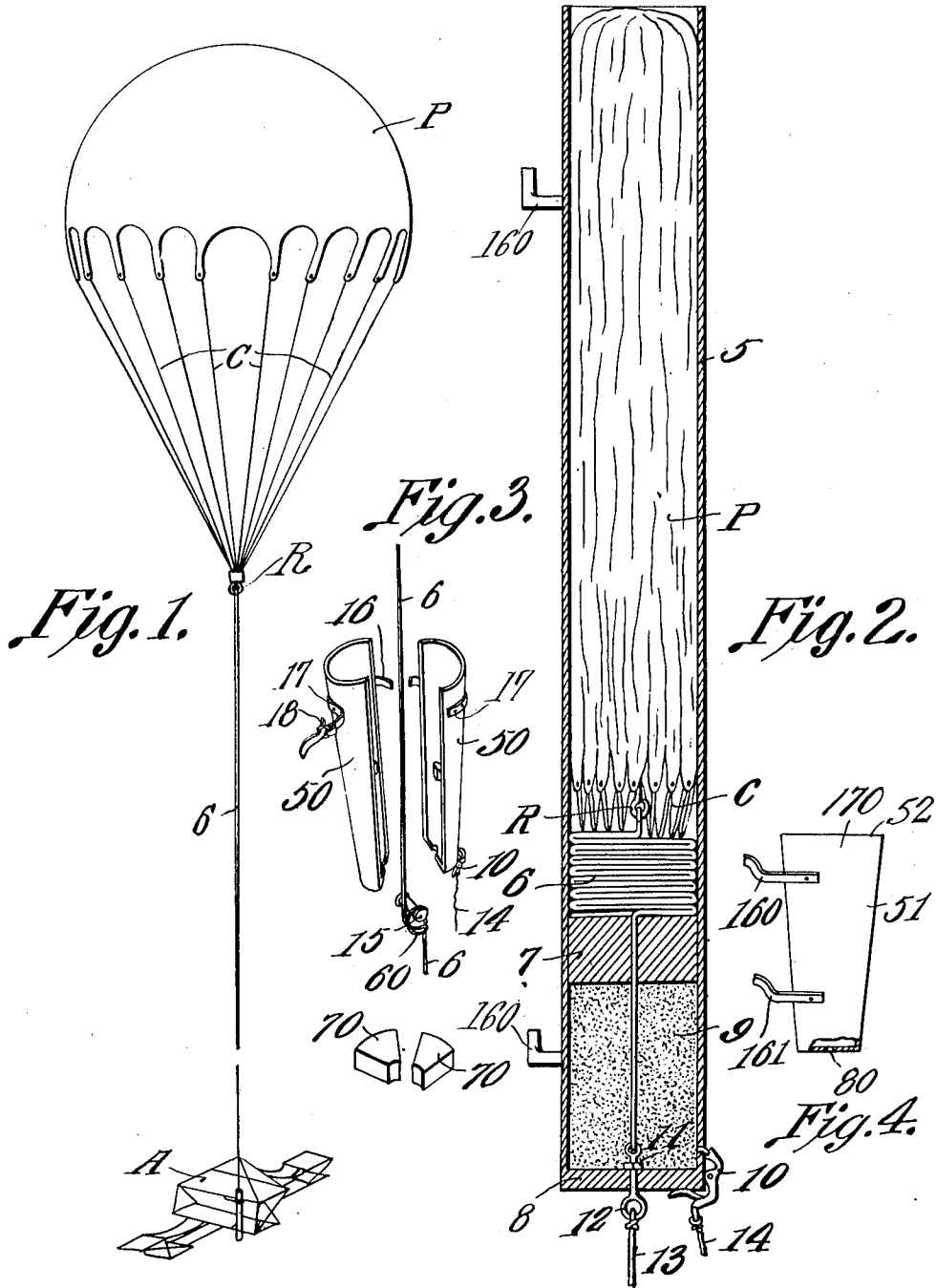


J. J. TANNER.
PARACHUTE.
APPLICATION FILED JAN. 28, 1911.

1,019,858.

Patented Mar. 12, 1912.



Witnesses

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UNITED STATES PATENT OFFICE.

JOSEPH JUNIUS TANNER, OF CLOVER, UTAH.

PARACHUTE.

1,019,858.

Specification of Letters Patent.

Patented Mar. 12, 1912.

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To all whom it may concern:

Be it known that I, JOSEPH J. TANNER, a citizen of the United States, residing at Clover, in the county of Tooele and State of Utah, have invented a new and useful Parachute, of which the following is a specification.

This invention relates to aeronautics, and more especially to safety devices; and the object of the same is to provide means for the instantaneous mechanical distention of a parachute so as to provide for the safety of persons in times of accident, whether in an aeroplane, a balloon, or other air craft or indeed if falling through the air, jumping from a burning building or other high place.

To this end the invention consists broadly in the utilization of a parachute with an air craft, together with a housing for the parachute and means for expelling it forcibly therefrom when occasion requires; and the invention consists specifically in the details of construction whereby this end is brought about. The idea is disclosed and claimed in the following specification, and shown in the drawings wherein—

Figure 1 is an elevation of this device in use, showing it diagrammatically as attached to and supporting an aeroplane. Fig. 2 is an enlarged vertical section through this device with the parachute housed therein. Fig. 3 is a detail showing the housing as made in sections which fly apart at the moment of explosion and break the connections between it and the aeroplane, herein shown as straps; and this view also shows a spool or reel upon which the rope may be wound, and the plug in sections or pieces. Fig. 4 is a side elevation of the housing when made larger at the upper end.

Owing to the great weight of aeroplanes it might not be possible to entirely support one in its descent, but by the arrangement at different points, as for instance, on each wing and in the middle near operator, this device when arranged electrically or by any other quick acting mechanical means of release, would materially assist in aiding the operator to safely land both himself and his machine, in case of accident, motor troubles, etc.; this device acting as a brake or retarding medium, would make possible the continued control over the machine and furnish practical means of reaching the earth in safety. This idea also embraces the possibility of using the device as a brake in land-

ing even when no accident or trouble has occurred.

In the drawings the letter A designates diagrammatically or theoretically an air craft, here shown as an aeroplane, P is a parachute, and C are the cords leading from the bottom of the parachute downward to a common center from which something may be supported or by which at least something may be retarded in falling to the ground. This common center is here designated by an ordinary ring R.

The object of the present invention is to house the parachute in a strong, small and light casing so that it may be carried by an air craft or on the back or person of the aeronaut, and to provide means whereby it may be forcibly and quickly expelled from said housing and thrown into open or operative position in times of emergency, and I will now proceed to a specific description of the preferred means for carrying out my invention.

The numeral 5 designates a shell, here shown as a tube of rather stout paper although it might be of rather thin metal, its length, shape and size being sufficient to contain the parachute P when the same is folded into compact compass, and its cords C which of course lead from the edges of the parachute to the ring R as usual. From said ring leads a rope 6 which is of a size, kind and flexibility permitting a considerable length of it to be coiled or stored loosely within the shell 5 beneath the parachute P. This rope 6 leads downward through what may be a sectionally made block or plug 7 (part of the rope being coiled below the plug 7 sufficient to extend beyond the outer end of casing or shell) which is fitted within the shell 5 above its closed lower end 8, and between the latter and the plug is coiled part of the rope 6, and an expansive or explosive agent here designated by the numeral 9. The same may be a spring or powder or another agent which expands on release, or explodes when ignited, or it might be compressed air or gas or a charge of gasoline, any of which would need some means of ignition or release herein designated broadly by the numeral 10 and illustrated as a trigger. The rope 6 leads downward through a hole in the plug a portion of same being coiled under plug in space with means and thence downward through the charge of explosive agent 9, and is attached

to an eye bolt 12 which extends through and is made fast in the closed lower end 8 of the shell, as by a nut 11; the shell 5 and eye bolt 12 being firmly attached to the aeroplane, person or object being supported. It is clear, however, that the object being supported by the rope 6 might be the aviator himself, and I do not consider it necessary to illustrate this fact.

The numeral 14 designates a trip rope, electric wire, or cord leading from the release ignition device, or trigger to within reach of the operator, and connected at some convenient point to the aeroplane A if the latter be the object supported by this device. Furthermore, if such is a fact, the entire shell will be supported fixedly upon the aeroplane in an upright position with its upper end open to the air, and the explosive agent 9 may be a compressed charge of gasoline vapor taken from the engine usually employed for propelling aeroplanes as made at the present time.

The action of this invention will now be obvious, and its utility and advantage are apparent. Supposing some accident occurs and the aviator with or without his machine is falling through the air. He pulls upon the trip rope 14 and actuates the trigger 10, and the latter explodes the charge 9 within the shell 5. The lower end 8 of the latter being closed, the plug 7 is driven forcibly upward throughout the length of the shell, and in its passage it carries with it the coiled rope 6, the cords C, and the folded parachute P, all of which are ejected forcibly from the upper end of the shell into the air by the power of the explosion and yet are protected from injury by the presence of the plug 7, which may be made in sections which when ejected from the shell, will fall in pieces and be out of the way of the rope, etc. It will be obvious that as soon as the parachute is driven out of its containing or surrounding shell it will open up by reason of the upward rush of air passing alongside the shell and into the parachute P. At this time the rope 6 becomes taut, and by preference its length is such that the ring R may stand within 10 feet of the upper end of the shell 5, but may be of any length, from which ring the cords C diverge upward as seen in Fig. 1. It follows that whatever is attached thereto, person or thing, will be sustained or retarded in its descent or fall, by the fact that the widespread parachute body will meet with resistance as it is drawn forcibly downward through the air toward the earth. The plug 7 should fit closely around the rope 6 so that no damage may occur to the folded parachute P, as it is being expelled by explosion from the tube or shell; this being necessary, it is obvious that a portion of the rope 6 should be coiled below the

plug, a sufficient length to at least reach beyond the outer end of the shell or casing 5; said rope should be of a suitable make or material so that it will not be weakened or in any way damaged by the ejecting means, be it powder, spring, gasoline vapor, or other means.

My invention is susceptible of considerable modification or amplification due to the exigencies of the case or the preference of the manufacturer. For instance, the shell or housing may be made sectional as shown at 50 in Fig. 3, or it may be made in the shape of an inverted truncated cone as at 51 in Fig. 4 with its larger end 52 uppermost and its smaller end 80 at the bottom so that the parachute and plug therein may be ejected without friction. Any suitable form of connections may be employed for connecting this housing with the aeroplane or the body of the user. In Fig. 3 I have shown a strap 16 connected as by rivets 17 with the housing 50, and a buckle 18 within the strap whereby the latter may be tightened, and obviously if the housing is made in sections which fly apart when the explosion occurs this strap will be broken as illustrated in this view. In Figs. 1 and 4 I have shown ordinary metallic brackets 160 projecting from the body of the housing, and in Fig. 4 the lowermost numbered 161 is slightly longer than the uppermost. The plug also may be made in sections as seen at 70 in Fig. 3, so that it will fly apart when the explosion occurs. Instead of coiling the rope 6 within the housing, I may wind it loosely upon a small reel 15 as seen in Fig. 3, so that when the explosion occurs the loop 60 of the rope will unwind automatically from the reel whereupon the latter falls to the ground. The eye bolt 12 and nut 11 may obviously be omitted as illustrated in this view, and the rope 6 continue uninterrupted from the ring R through the plug 7 to the article to be supported thereby.

What is claimed as new is:

1. The combination with a shell open at its upper end and having an aperture in its lower end, and means for attaching the shell to an object, of a parachute normally stored within the upper portion of the shell, flexible means leading from the parachute and loosely through the shell and the aperture to the object to which the shell is connected, said means constituting the sole connection between the parachute and said object, a separable element mounted within the shell and beneath the parachute, said connection projecting through said separable element, means stored within the shell and below said element for ejecting the parachute and separable element, and means for releasing said ejecting means.

2. The combination with a shell having

its upper end of greater diameter than its lower end, said upper end being open, and there being an aperture within the lower end, of a parachute normally folded and stored within the upper portion of the shell, a separable element mounted within the shell and below the parachute, a flexible connection between the parachute and the object to be supported, said connection extending loosely through the shell and separable element, and normally inactive ejecting means within the shell and below the separable element.

3. The combination with an upright shell of larger diameter at its upper than at its lower extremity and having its lower end closed except for a perforation, and connections for attaching said shell to an object; of a parachute adapted to be folded and stored within the upper portion of said shell, a rope leading from the parachute loosely throughout the shell and the perforation in its lower end and secured to the object to which the shell is connected, a plug made in separable sections and disposed within the shell beneath the parachute, the rope passing through said plug, an expansive agent within the shell between its lower end and said plug, and means for releasing said agent and causing its expansion.

4. The combination with an upright shell of larger diameter at its upper than at its lower extremity and having its lower end closed except for a perforation, and connections for attaching said shell to an object; of a parachute adapted to be folded and stored within the upper portion of said shell, a rope leading from the parachute loosely throughout the shell and the perforation in its lower end and secured to the object to which the shell is connected, a plug disposed within the shell beneath the parachute, the rope passing through said plug, an expansive agent within the shell between its lower end and said plug, and means for releasing said agent and causing its expansion.

5. The combination with an upright shell having its lower end closed except for a perforation, and connections for attaching said shell to an object; of a parachute adapted to be folded and stored within the upper portion of said shell, a rope leading

from the parachute loosely throughout the shell and the perforation in its lower end and secured to the object to which the shell is connected, a plug made in separable sections and disposed within the shell beneath the parachute, the rope passing through said plug, an expansive agent within the shell between its lower end and said plug, and means for releasing said agent and causing its expansion.

6. The combination with an upright shell having its lower end closed except for a perforation, and connections for attaching said shell to an object; of a parachute adapted to be folded and stored within the upper portion of said shell, a connection between the parachute and the object to which the shell is connected, said connection extending through the shell, a plug disposed within the shell beneath the parachute, the connection passing through said plug, a reel located within the shell between its lower end and said plug and upon which said connection is assembled, an expansive agent within the shell between its lower end and said plug, and means for releasing said agent and causing its expansion.

7. The combination with an upright shell of larger diameter at its upper than at its lower extremity and having its lower end closed except for a perforation, and connections for attaching said shell to an object; of a parachute adapted to be folded and stored within the upper portion of said shell, a rope leading from the parachute loosely throughout the shell and the perforation in its lower end and secured to the object to which the shell is connected, a plug disposed within the shell beneath the parachute, the rope passing through said plug, a reel located within the shell between its lower end and said plug and upon which said rope is assembled, an expansive agent within the shell between its lower end and said plug, and means for releasing said agent and causing its expansion.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOSEPH JUNIUS TANNER.

Witnesses:

M. M. STOOKEY,
FANNY A. STOOKEY.