April 9, 1940. P. J. SWOFFORD 2,196,947

PARACHUTE

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Fig. 2.

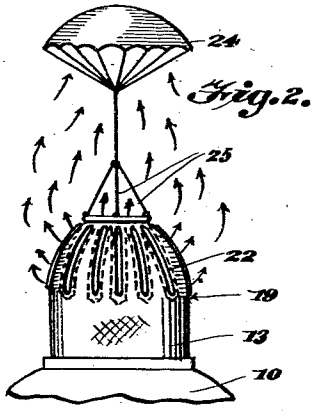


Fig. 1.

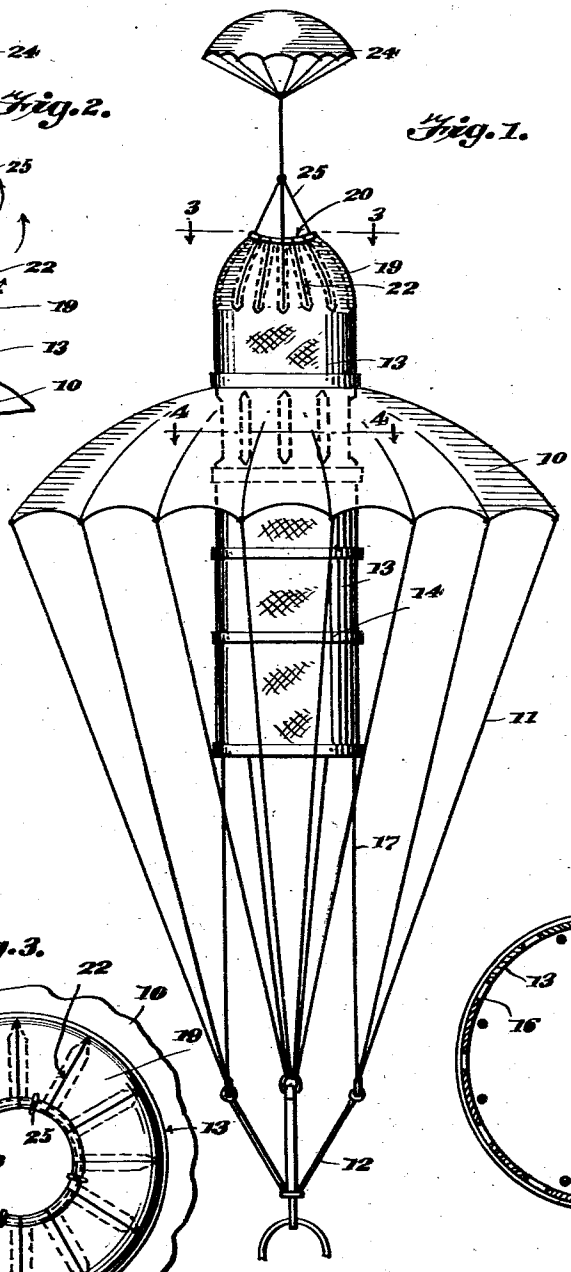


Fig. 4.

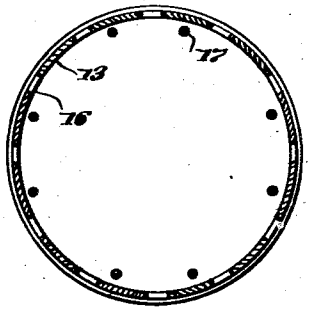
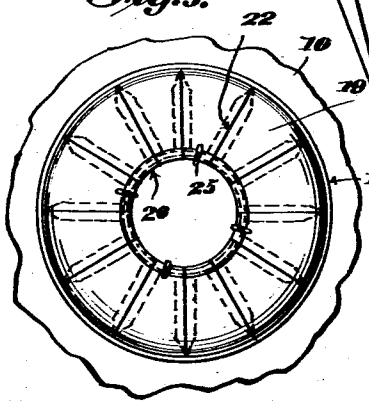


Fig. 3.



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PARACHUTE

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Fig. 5.

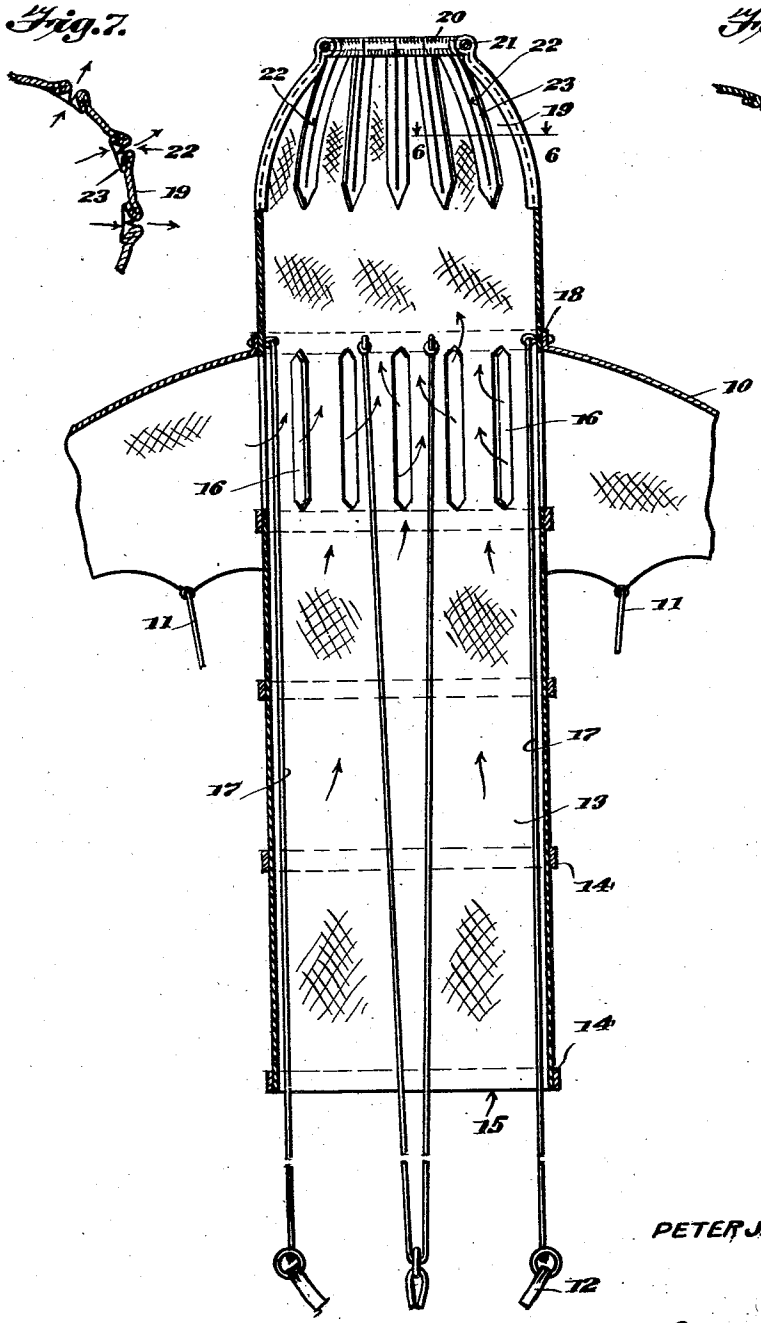
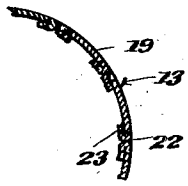


Fig. 7.

Fig. 6.



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UNITED STATES PATENT OFFICE

2,196,947

PARACHUTE

Peter J. Swofford, Arlington, Tex.

Application September 9, 1938, Serial No. 229,173

5 Claims. (Cl. 244—142)

This invention relates to parachutes, and has for one of its objects the production of a simple and efficient means for facilitating the stabilizing of the parachute and preventing the same from oscillating and drifting to a great extent.

A further object of this invention is the production of a simple and efficient parachute whereby the circumference of the canopy may be reduced to a minimum and at the same time efficiently support the body of the person using the chute.

A still further object of this invention is the production of a simple and efficient air controlled valve means carried by the outer upper end of the body of the chute, the valve means being formed in the outer rounded nose of the body of the chute.

Other objects and advantages of the present invention will appear throughout the following specification and claims.

This invention constitutes an improvement over my previous application, filed February 10, 1938, bearing Serial Number 189,881.

In the drawings—

Figure 1 is a side elevational view of the parachute;

Figure 2 is a fragmentary side elevational view showing the air controlled exit valves in an open position;

Figure 3 is a horizontal sectional view taken on line 3—3 of Figure 1;

Figure 4 is a horizontal sectional view through the body of the chute taken on line 4—4 of Figure 1;

Figure 5 is an enlarged vertical sectional view of the body of the chute and showing a portion of the canopy;

Figure 6 is a horizontal sectional view taken on line 6—6 of Figure 5, the air controlled valves being shown in a closed position;

Figure 7 is a horizontal sectional view similar to Figure 6, the valves being shown in an open position.

By referring to the drawings, it will be seen that 10 designates the canopy which is of the umbrella type, the outer edges of which are secured by suitable shroud lines 11 to the harness 12. A body portion 13 is provided and arranged centrally of the canopy 10, the body portion 13 being formed of fabric having circumferential reinforcing bands 14 which pass around the tubular-like body 13. The body 13 is open at its lower end 15, as shown in Figure 5, and this body 13 preferably extends about one-third above the canopy 10, and about two-thirds of its length below the canopy 10. The body 13 is preferably approximately thirty-six inches in diameter and about twelve feet in length.

The body 13 is provided with a plurality of longitudinally extending closely arranged air intake ports 16 arranged circumferentially around the body and at a point just below the canopy 10, as shown in Figure 5. The body 13 is anchored to the harness 12 by means of suitable cords 17 which are secured to the inner face of the body 13 as at 18, at a point approximately the junction of the canopy 10 with the body 13, as shown in Figure 5.

The body 13 is provided with an upper rounded nose portion 19 having an air outlet opening 20 of reduced size at its upper extremity, the edges of which opening are reinforced by means of a suitable band 21. The rounded nose portion is provided with a plurality of longitudinally extending slots 22 which are cut on the bias and which are reinforced along their longitudinal edges by means of bands 23 which are stitched securely in the manner as shown in Figures 6 and 7 to reinforce the edges of the slots 22. These slots 22 preferably extend throughout the entire length of the rounded portion of the nose 19, that is, from a point approximately the parallel side walls of the body 13 to the outer open end 20.

It should be understood that the slots 22 constitute expansion ports for letting out shock air while the parachute is first opening.

A pilot chute 24 is connected to the upper end of the rounded nose 19 through the medium of the cords 25, which cords are secured around the edge of the opening 20, and to the cord 21 to provide a secure anchoring means.

The operation of the device is as follows:

As the chute is released, the canopy 10 will expand in the conventional manner, and the cylindrical or tubular body 13 will expand to its normal shape and air will pass into the interior of the body 13 through the intake ports or openings 16 in the direction of the arrows, as well as up through the bottom or open end 15 of the body 13. The air will then pass up into the restricted rounded nose 19 and the confined pressure of the air will cause the slots 22 to be spread apart as shown in Figure 7, allowing additional air escape areas to relieve the strain on the rounded nose 19, and at the same time permit the parachute to gradually adjust itself to air currents and gradually descend the person supported by the chute without injury to him. These port openings or slots 22 on the top of the body 13 in the rounded nose 19 will split up the

air confined within the body 13, causing an even suction which will stabilize the chute. The lower air inlet openings 16 which are just below the canopy 10, allow the air to pass up through these openings into the upper end of the body 13 and out through the slots or ports 22 as well as through the restricted outer end 20. The particular construction provided not only constitutes a stabilizer but also provides an efficient means for admitting the air into the body and providing an exit for the air. This construction prevents oscillating and drifting to a great extent and the particular structure as stated above will permit the circumference of the chute to be reduced to a minimum. The body cords or lines 11 and 17 firmly hold the chute down in the center and there has been found by experience that a twenty foot chute with the particular body structure illustrated has as much lifting resistance as a conventional twenty-four foot standard chute.

It should be understood that certain detail changes in the mechanical construction and arrangement of parts may be employed without departing from the spirit of the invention, so long as such changes fall within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A parachute of the class described comprising a canopy, a tubular body portion extending centrally of the canopy and projecting through the canopy, the body portion extending approximately one-third above and two-thirds below the canopy, said body portion having a lower open end, means connecting the canopy and body portion to a harness, and expansible air controlled valves carried by the upper end of said body for releasing excess air pressure from the upper end of the body.

2. A parachute of the class described comprising a canopy, a tubular body portion extending centrally of the canopy and projecting through the canopy, the body portion extending approximately one-third above and two-thirds below the canopy, said body portion having a lower open end, means connecting the canopy and body portion to a harness, expansible air controlled valves carried by the upper end of said body for releasing excess air pressure from the upper end of the body, said body having longitudinally extending air inlet openings arranged around the circumference thereof for admitting air from the outside to the inside of the body.

3. A parachute of the class described comprising a canopy, a tubular body portion extending centrally of the canopy and vertically thereof and projecting through the canopy, the body portion extending approximately one-third above and two-thirds below the canopy, and a harness carried by the parachute.

4. A parachute of the class described comprising a canopy, a tubular body portion extending centrally of the canopy and having a portion thereof projecting for a material distance above the canopy and a greater portion thereof extending for a material distance below the canopy, whereby the tubular body portion will constitute a stabilizing means for the canopy, and a harness carried by and suspended from the parachute.

5. A parachute of the class described comprising a canopy, a tubular body portion extending centrally of the canopy and projecting through the canopy, the body portion extending approximately one-third above and two-thirds below the canopy, said body portion having a lower open end, means connecting the canopy and body portion to a harness, and means for automatically releasing excess air pressure from the upper end of the body.

PETER J. SWOFFORD.