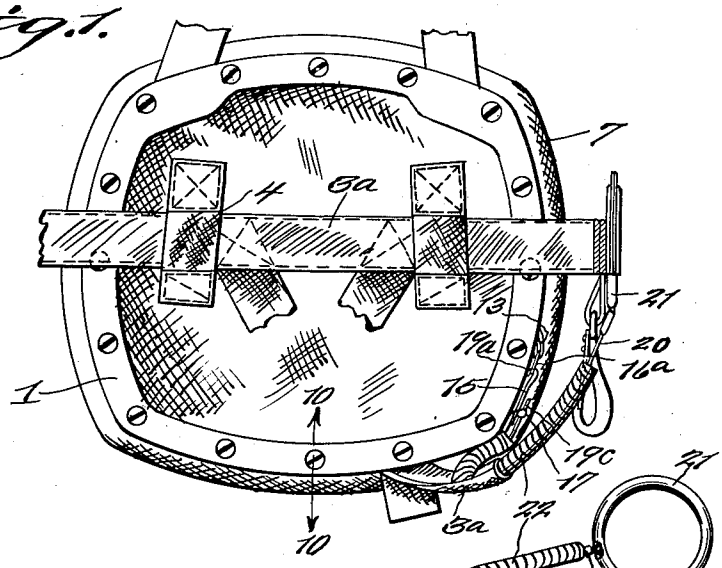
May 17, 1932. S. SWITLIK 1,859,185

PARACHUTE PACK

Filed Aug. 12, 1930 2 Sheets-Sheet 1

Fig. 1.



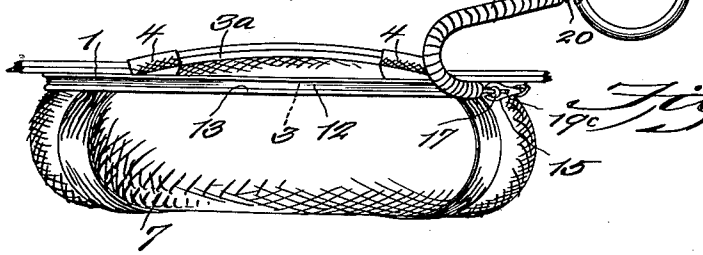
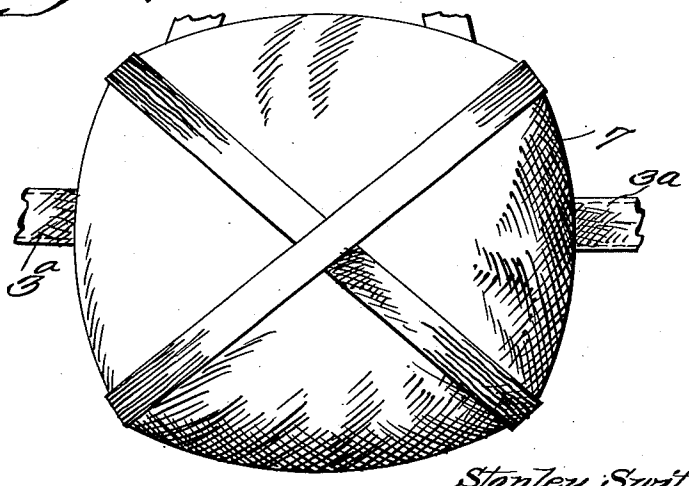


Fig. 2.

Fig. 3.



Stanley Switlik INVENTOR

BY Victor J. Evans

his ATTORNEY

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Fig. 4.

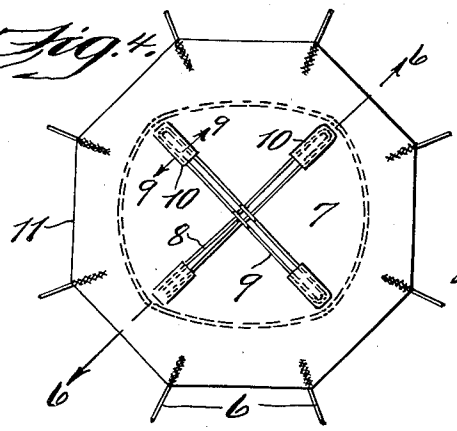


Fig. 5.

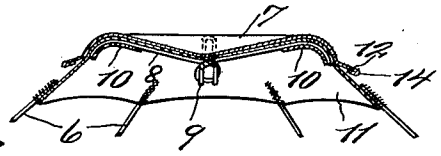
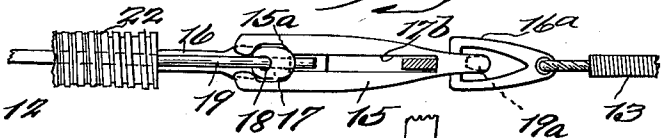


Fig. 7.



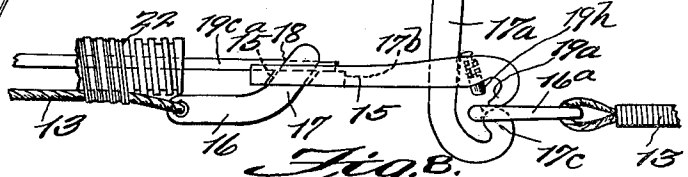
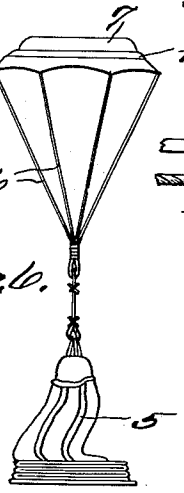


Fig. 8.

Fig. 6.



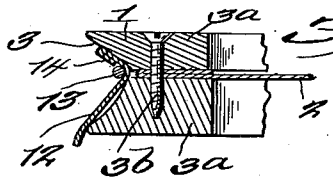


Fig. 10.

Fig. 9.

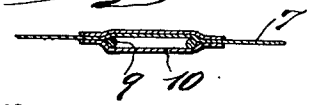


Fig. 11.

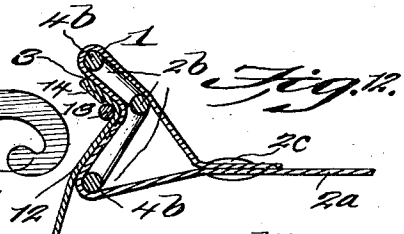


Fig. 12.

Stanley Switlik INVENTOR

BY Victor J. Evans

ATTORNEY

Patented May 17, 1932 1,859,185

UNITED STATES PATENT OFFICE

STANLEY SWITLIK, OF TRENTON, NEW JERSEY, ASSIGNOR TO SWITLIK PARACHUTE AND EQUIPMENT COMPANY, OF TRENTON, NEW JERSEY, A CORPORATION OF NEW JERSEY

PARACHUTE PACK

Application filed August 12, 1930. Serial No. 474,816.

This invention has reference to an improved parachute, and of a type which can be compactly folded and housed in a container in such wise that the chute can be quickly released practically instantly at the time the rip-cord is pulled and released, the purpose of the present invention being to simplify and improve parachute packs.

In general, containers for parachutes are ordinarily made of flexible sheet material, and in their construction, as a rule, joints are such as will permit water to possibly enter and come in contact with the parachute. In this respect, it is the purpose of the present invention to provide a simple and practical container that may readily open and instantly release the parachute, which, when in a compact small compass in its container, it is effectively sealed against the entrance of water.

It is common practice to equip parachutes with small pilot parachutes, such as will freely and instantly open irrespective of air currents or air resistance. As a general thing, the containers now used include a cover, which performs no other purpose than to overlie and cover the pilot parachute, such cover including an automatically releasable holding means which frees the pilot chute. In this respect the present invention differentiates and has for its purpose to provide a container for the parachute, wherein the pilot parachute forms a flexible contiguous part of the container, so secured to the base or body of the container and in such wise as to render it instantly separable from the base or body of the container, there being no opening or openings in the joints for the entrance of water or other foreign matter.

It is obvious that in producing a parachute pack, wherein the pilot parachute forms a contiguous part of the container, with means in the pilot chute (which constitutes a cover for the container) to allow the cover pilot chute to instantly release and open, in order that it may instantly take the air, and thereby insure immediate opening of the main parachute.

It is to be understood that the particulars herein given are in no way limitive, and that while still keeping within the scope of the invention, any desired modification of details and proportions may be made in the construction of the appliance according to circumstances.

The invention comprises further features and combination of parts to be hereinafter set forth, shown in the drawings and claimed.

In the drawings:—

Figure 1 is a bottom plan view of the improved parachute pack constructed in accordance with the invention.

Figure 2 is an edge view of the same.

Figure 3 is a top plan view of the parachute pack embodying the invention.

Figure 4 is a bottom plan view of the pilot parachute, showing it in its normal open condition.

Figure 5 is a sectional view on line 5—5 of Figure 4.

Figure 6 is a view in side elevation showing the pilot chute open and soaring, and the parachute in the act of unfolding.

Figure 7 is a detail view showing the adjacent ends of a cable for holding the pack closed, the ends being separated.

Figure 8 is a plan view of Figure 7, the adjacent ends connected.

Figure 9 is an enlarged sectional view on line 9—9 of Figure 4.

Figure 10 is an enlarged sectional view on line 10—10 of Figure 1.

Figure 11 is a view of the tool 17*a*.

Figure 12 is a sectional view showing a portion of the base wherein the marginal frame is constructed of wire.

Referring to the drawings, 1 identifies an open frame, which may be any desired size and shape. Extending across an opening 2*a* of the frame is a sheet or panel 2, the frame and the panel constituting the base of a container. In other words the base of the container comprises a sheet or panel which is bordered with a thick marginal rim, in the outer face of which a groove 3 is formed. Portions of a harness 3*a*, which constitutes means whereby the pack may be carried upon or connected to a person, are fastened to the

outside of the base, straps 4 being adapted for this purpose.

The device includes a main parachute 5 and a pilot parachute, the shroud lines 6 of which being connected to the apex of the main parachute.

A portion 7 approximately the same shape as the base constitutes a central part of the pilot parachute, but is somewhat larger in area. Suitable spring means is operatively carried by the pilot chute, and so tensioned that it may act to constantly hold the pilot chute in an open or spread condition. This means comprises 2 springs 8 and 9, which extend at right angles and intersect each other. Each spring extends from one corner of the part 7 to the opposite corner, the springs being fitted in the box 10 on the inner or under side of the part 7.

The size of the canopy of the pilot chute can be determined by a skirt or apron 11, which depends in a surrounding position from the central part 7, and the shroud lines 6 are connected to this skirt or apron. It has been found preferable, though not necessary, to join the skirt or apron to the part 7 inwardly from the, periphery of the latter thereby providing a flap or narrow auxiliary skirt 12 above the part 11.

The pack, when being made up, is arranged in a small compact compass, the main parachute being folded in the usual way on top of the base, while the pilot chute is disposed on top of the main parachute with the skirt 11 folded inwardly underneath the part 7, the shroud lines 6 being placed in between the part 7 and the main parachute. In order to form the pack into a small compact compass, pressure is then applied in order to bring the flange or auxiliary skirt 12 of the pilot chute into a position where it may extend around the edge of the base over the groove 3 therein. A suitable cable 13 may then be drawn around the edge of the base, drawing the flange or skirt 12 into the groove. Then the ends of the cable may be drawn toward each other and fastened together, drawing the marginal portion of the pilot chute into the groove 3, securing the pilot chute to the base by means of a tightly closed joint, and thereby producing a sealed container for the main parachute. The part 7 with its flange or skirt 12 preferably of waterproof material, when the pack is so closed in a small compass, excludes water from reaching the main parachute through the material of the flexible part of the container or through the joints between this part and the base.

The extreme marginal edge of the flange or auxiliary skirt 12 may be folded over the fabric, or otherwise arranged as identified at 14, as a way of preferably thickening the skirt at this point, so as to prevent the fabric from pulling out after the cable has been applied.

There are many ways of detachably connecting the adjacent ends of the cable, whereby it can be very quickly disconnected at will, so as to permit the springs 8 and 9 to come into play. The springs 8 and 9 are normally grooved away from the pack. When the pilot chute is in position as above described, the springs are put under tension. One of the many ways for connecting the adjacent ends of the cable consists of pivotally connecting a plate 15 to one end of the cable, the free end of the plate having an opening or aperture 15*a*. Pivotally connected to the other end of the cable is an element comprising two arms 16 and 17 forming an obtuse angle with each other, the arm 16 being connected to the cable, while in the free end of the outer arm 17 an eye or opening 18 is formed. The element, which comprises the two arms 16 and 17, and the plate 15 constitute the two parts of the fastener for the adjacent ends of the cable, therefore when the arm 17 is inserted through the opening in the plate 15, the element and the plate may be locked detachably together, by means of a slip pin 19, which is inserted through the opening or eye in the element and can lie flat against the side of the plate, as shown in Figure 8. When the slip pin is withdrawn, the cable no doubt being under tension, the plate will simply slip off the arm 17 of the element, the release being facilitated due to the arm 17 being at an obtuse angle to the arm 16.

As shown in Figure 11, a tool 17*a* may be inserted through an elongated opening 17*b* in the plate 15, so that the hook 17*c* may engage with a loop 16*a*, whereby upon moving the lever or tool to a position as in full lines, the hook 19*a* may quickly engage with the loop 16*a*. When the slip pin is withdrawn through the medium of the rip-cord 20 the arm 17 of the element will slip through the opening of the plate 15, in which case the plate 15 is lost and the two ends of the cable are thereby quickly detached, allowing the pilot chute to open and take the air as in Figure 6.

The slip pin 19 is connected to a rip or pull cord 20, to the other end of which may be attached a ring 21, should the pack be of a free type. Should the pack be opened automatically after the passenger has left the craft, the pull or rip-cord will of course be attached to some part of the craft in any suitable manner. In order to protect the pull or rip-cord, it is mounted to extend through a flexible metal tubing or conduit 22, which may be fastened to a part of the harness. The cable 13 may also be fastened in any manner to this conduit, so that when it is released from the pack it will not become lost.

From the foregoing it can be understood

that there has been produced a simple and novel container including a simple base having a fixed marginal outline with a fabric body portion, in combination with a simple tie for drawing the body portion into intimate contact with the edge of the base along a continuous line extending around the base. It will also be obvious that this present improved construction adapts itself to that type of parachute, wherein a pilot chute is used, enabling the pilot chute to perform the double function of a chute and a cover which forms an effective part of the container.

Also from the foregoing it is to be understood that a container comprising an imperforate base and an overlying cover in the form of pilot chute tightly clinched in a marginal groove of the base is produced, and since the cover or pilot chute, particularly its central part 7 and the central part of the base, are made of waterproof material, the container is impervious to water, keeping the main parachute dry and protected against dampness. While the frame 1 of the base is formed of two rings 3*c*, preferably of wood, secured together by screws 3*b* with the panel 2 between the rings, it is obvious that the frame may be made of heavy wire 4*b*, the canvas panel 2*a* of which is fastened over the frame as shown at 2*b* and secured at 2*c*, the flexible panel being of waterproof material such as waterproof canvas or the like, rendering protection to the main pack encased in the container.

When the loop 16*a* is in the act of engaging the hook 19*a*, the transverse part of the loop 16*a* depresses a spring tensioned pin 19*h*, which is carried by the body of the hook 19*a*, the pin 19*h* acting to retain the transverse part of the loop 16*a* in the crotch of the hook 19*a*.

The invention having been set forth, what is claimed is:

1. A container for a main parachute, comprising a periphery of fixed contour and having a base consisting of a panel connected to the periphery of fixed contour, a fabric cover member constituting a pilot chute arranged over and housing the main parachute, said cover member having a marginal flexible skirt extending past the edges of the base and releasably attached marginally to the base.

2. A container for a main parachute, comprising a periphery of fixed contour and having a base consisting of a panel connected to the periphery of fixed contour, a fabric cover member constituting a pilot chute arranged over and housing the main parachute said cover member having a marginal flexible skirt extending past the edges of the base and releasably attached marginally to the base, the base being flat and imperforate and waterproof, while the cover is waterproof and imperforate.

3. In a parachute container, a thin flat imperforate base member having a periphery of fixed contour, a body member having a flexible skirt adapted to extend past the edges of the base, a flexible tie adapted to extend around the base outside of the skirt to draw the skirt against the base, and a quickly detachable means connecting the ends of said tie.

4. In a parachute container, a thin flat imperforate base having a groove extending around the same in the edge thereof, a body member having a flexible skirt adapted to surround the base in engagement with said edge, and a tie to draw said skirt into said groove.

5. In a parachute pack, a base having a groove extending around the same in the edge, a main parachute adapted to be folded upon the base, a pilot parachute adapted to cover the main parachute and having a part extending down past and along the edge of the base, and a tie adapted to surround the base outside of said part of the pilot parachute and draw the same tightly into said groove.

6. In a parachute pack, a base having a periphery of fixed contour, a main parachute adapted to be folded upon the base, a pilot parachute adapted to form a cover for the main parachute and having a marginal flexible skirt adapted to extend down past the periphery of the base, and an independent tie adapted to extend around the periphery of the base outside of the pilot parachute to draw the later into intimate contact with the periphery of the base.

7. In a parachute pack a base having a groove extending around the same in the edge thereof, a parachute overlying the base and having at the top a member serving as a cover, said member having a flexible skirt surrounding the base in engagement with said edge, a tie adapted to extend around the base over said skirt and secured in said groove, and a quickly detachable fastening between the ends of the tie.

8. In a parachute pack, a thin flat base having a groove extending around the same in the ledge thereof, a parachute device overlying the base and having at the top a member forming a cover, said member having a flexible skirt extending around the base outside of the edge of the base, and a detachable tie extending around the base over the skirt and holding the latter rightly in said groove.

9. In a parachute container a base member having a periphery of fixed contour, a body member having a flexible skirt adapted to extend past the edges of said base, said base having a groove, a flexible tie adapted to extend around the base outside of the skirt to draw the skirt into the groove of the base, a quickly detachable means connecting the ends of the tie, said means consisting of a

connector to be manually attached to one end of the tie, an element carried by the other end of the tie and insertable through one end of the connector and provided with an opening assuming a position beyond one face of the connector, a slip pin engaged in said opening, and a rip cord operatively connected to the slip pin for extracting it and releasing the element from the connector.

10. In a parachute container, a base member having a periphery of fixed contour provided with a marginal groove, a body member having a flexible skirt adapted to extend past the edges of the base, a flexible tie adapted to extend around the base on the outside of the skirt to draw the skirt into the groove of the base, a quickly detachable means connecting the ends of said tie, said means comprising a loop at one end of the tie, a connector having a hook and provided with a slot, which receives a tool having a hook at one end to temporarily engage with said loop for drawing the hook of the connector in engagement with said loop upon moving the tool in a desired direction and subsequently removing the tool, an element carried by the other end of the tie and insertable through the other end of the connector, said element having an opening assuming a position beyond one face of the connector, a slip pin to engage said opening, and a rip cord connected to the slip pin for operating the latter for effecting a separation of the tie.

In testimony whereof I affix my signature.

STANLEY SWITLIK.