

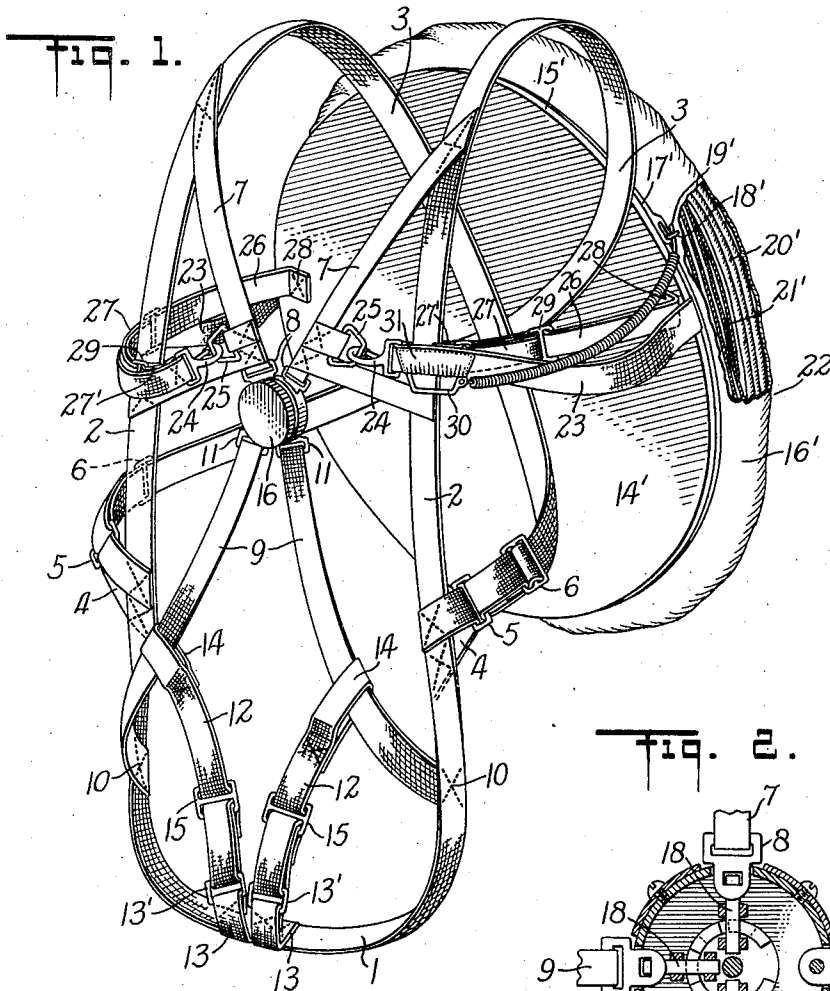
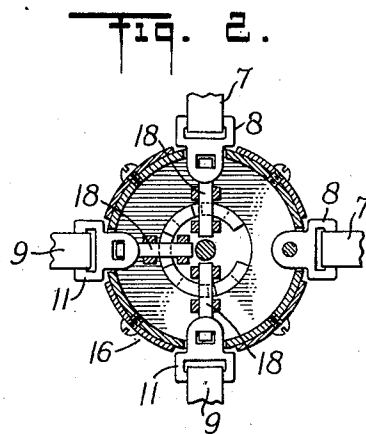
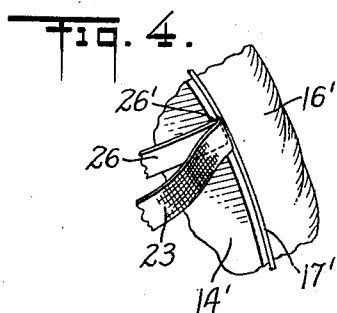
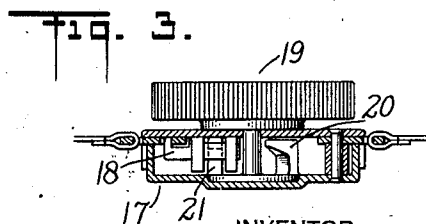
Nov. 14, 1939.

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2,180,182

PARACHUTE ASSEMBLAGE

Filed Oct. 29, 1937



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2,180,182

PARACHUTE ASSEMBLAGE

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Application October 29, 1937, Serial No. 171,639

3 Claims. (Cl. 244—148)

This application is a continuation in part of my application, Serial No. 7,338, filed February 20, 1935, for Parachute assemblage. An object of the invention resides in the provision of a parachute assemblage wherein the parachute pack is quickly attachable to the body harness of the wearer and wherein the container which constitutes one element of the parachute pack is automatically releasable from the wearer when the canopy is released for operation.

The invention is applicable to a back, seat, chest, or chair pack, and I have illustrated the invention in connection with a back pack, since the application of the invention to the other types of packs is in accordance with the principle involved when the back pack is used.

In the present state of the commercial art, there are two types of parachute packs in use. Each involves the use of a cover in which is located a parachute canopy and from which extend lift webs that are connected to the shroud lines of the canopy and are either permanently attached to, or attachable to the harness. In one type of pack the cover consists of a substantially rectangular back or tray from which extend flaps that are adapted to be folded over the canopy that is placed on the back or tray and releasably secured together. Another type of cover that is now in use is one which consists of a back or tray on which the folded canopy is located and with which a detachable flap is associated. In this structure the lift webs that are connected to the shroud lines extend from the cover and are either attached to, or attachable to the body harness.

In this type of cover, the flap is removably held on the tray by a rip cord, which, when released, will release the flap from the tray and permit the canopy to go into action.

My invention is applicable to either type of cover and regardless of whether or not they are used as part of a back, seat, chest, or chair pack. Certain objects of the invention are to provide for the quick attachment of the lift webs to the harness, to provide for the control of the effective lengths of the lift webs and the variation of the effective length of the lift webs while the pack is attached to the wearer, and to releasably attach the cover to the harness in such manner that when the canopy is released for operation, the cover will be released from the wearer.

It is a further object of the invention to provide a quick attachable harness in connection with the features above outlined.

Other objects of the invention will appear as

the description progresses, and it is therefore unnecessary to enumerate them all at this time.

In the drawing:

Figure 1 is a perspective view of the harness with a back pack attached thereto;

Figure 2 is a horizontal, sectional view of the quick releasable fastener for the harness;

Figure 3 is a vertical, sectional view of the quick, releasable fastener; and

Figure 4 is a fragmentary view of a modification of one phase of the invention.

In the drawing I have shown the preferred form of harness, which is made, preferably, of the usual webbing, as are also the lift webs that extend between the harness and the canopy. This form of harness includes a seat strap or swing 1 which is adapted to pass around the seat of the user. Preferably integral with and extending from the seat strap are front straps 2 which pass around the hips of the user and upwardly to the shoulders. These front straps extend over the shoulders and become back straps 3 which are adapted to pass across the back of the user in crossed relation and are attached at 4 to the front straps.

The end of each of these back straps 3 extends through a ring 5 that is carried by the attachment 4 and is looped back upon itself and attached to an adapter 6 by means of which the lengths of the back straps may be varied. The consequence of the adjustment of the back straps will be an adjustment of the front straps so that by this adjustment of the back straps the entire harness may be adjusted to users' bodies of various sizes.

A breast strap 7 extends from each of the front straps 2, being secured thereto by non-breakable securing means such as stitching, as illustrated. These straps are also formed of the usual webbing. These front straps 7 are each provided with a fastener element 8 on its end for a purpose which will later appear.

Each of the leg straps is constituted by two elements, the element 9 being attached at 10 by securing means such as non-breakable stitching, to the seat strap or swing 1 and is adapted to extend upwardly and at its end is provided with a fastener element 11. The other element 12 of each leg strap is provided with loop 14 which encircles the adjacent strap 9 and is of greater dimensions than the strap so that it may slide freely thereon. Each of these straps 12 is attached by coupling 13, which is permanently secured to the seat or swing and is provided with a loop 13'. Each strap 12 passes through the ad-

jacent loop 13' and is looped back upon itself and secured to an adapter 15 by means of which the length of the loop may be changed and thus the effective length of the leg strap 12 varied.

5 A quick releasable fastener 13 is carried preferably by one of the breast straps 7 by means of the fastener element 9 that secures the quick releasable fastener 13 to the breast strap 7 permanently.

10 The fastener element 9 on the other breast strap and the fastener elements 11 on the elements 9 of the leg straps are releasably attached to the fastener element 13 in such manner that when the fastener element 13 is actuated the 15 breast strap and the two leg straps automatically will be released.

The form of this quick releasable fastener 13 is relatively unimportant, it being essential only that it be so constructed that the breast straps 20 and leg straps will be simultaneously released from each other.

For the purpose of illustration, I have shown a fastener element that consists of a base 17, 25 detents 18, with which the fastener elements 9 and 11 are engageable, an operating disc 19 which carries two sets of cams 20 and 21, the first set being for the purpose of maintaining the detents in a locking position and the second set being 30 for the purpose of positively releasing the detents from the fastener elements 9 and 11.

Thus, by operating the quick releasable fastener 13 by simply turning the disc 19, the breast straps and leg strap elements 19 will be disengaged from each other, and the elements 9 will 35 slide through the loops 14, the size of these loops being sufficient to permit the fasteners 11 on the elements 9 to pass therethrough. The result will be that after landing, the jumper may entirely disengage himself from the harness, by a simple 40 turning of the operating disc 19.

As I have said, I have illustrated in the drawing a back pack, and this showing is merely for illustrating the applicability of the invention. In this form of back pack, the pack consists of a back 45 or tray 14' which is preferably rigid and is provided with a groove at 15' of the general type illustrated at 3 in Figure 10 of my Patent No. 1,859,185, dated May 17, 1932. The flap 16' of the pack, which is generally designated by the 50 numeral 22, has its edge portion overlying this groove 15'.

In order that the flap 16' may be releasably attached to the base or tray 14', a securing element, such as a cable 17', is drawn tightly around 55 the groove overlying the flap 16'. Thus the flap, 16' and the base or tray 14' will be held together releasably. The ends of this securing element 17' are provided with securing means such as eyelets 18' through which the rip cord 19' extends, thus holding the ends of the securing element or cable 17' releasably together and holding 60 the flap, 16' releasably to the base or tray 14'. This base 14' and the flap 16' constitute what I term the cover of the pack. The rip cord 19' carries a rip cord handle 30 at its end, which 65 rip cord handle is removably mounted in a pocket 31 carried by the harness, preferably by the adjacent lift web 23 that will later be described.

The pack also includes the usual parachute 70 canopy 20' which is folded back and forth upon the base or tray 14' and within the cover formed by this base and the flap 16'. The shroud lines 21' that are attached to the canopy in the usual manner are also housed within this cover and 75 are attached to the lift webs 23 in the usual

manner, as for instance, as shown in my Patent No. 1,964,864, of July 3, 1934.

The lift webs 23 extend from the pack between the edge of the base or tray 14' and the flap 16' being in this particular construction clamped in 5 position by the securing element or cable 17'. On the end of each of these lift webs 23 is a snap hook 24 which is adapted for quick attachment to a ring 25 permanently carried by the harness, as for instance, by the breast straps 7. Of course 10 it is to be understood that the order may be reversed and the snap hooks 24 carried by the harness and the rings 25 by the lift webs.

Straps 26 that are looped back upon themselves at 27 and are provided with adapters 28 15 for adjusting their length, in the manner similar to the adjusting of the straps 12 are each secured at one end as at 27' to the adjacent lift web 23, the point of securement of each being remote from the pack and adjacent the quick attachable 20 coupling 24—25.

The other end of each of these straps 26 is secured at 28, to the back or tray of the cover by frangible threads so that when force is applied 25 to the threads, they will break and the straps 26 will thereby be released from the cover. It is, of course, to be understood, that any other form of attachment that will insure a similar action may be used.

In Figure 4 of the drawing I have illustrated a 30 modification of this feature, wherein the ends of the straps 26 remote from the couplings 24—25 pass between the edge of the back or tray 14' and the flap 16' and are held in place by the pressure applied by the securing element or cable 35 17', and are held in place only by this cable so that upon the release of the cable the straps 26 will be released from the cover.

It will be seen that with this construction the adjustment of the straps 26 in respect of their 40 lengths will vary the effective length, although not the actual length, of the lift webs 23 and thereby the pack may be adjusted to the size of the particular user.

In using a back pack, a seat pack, or a chair 45 pack, it is the custom to adjust the connection straps so that the pack will be pulled snugly against the body, or in other words, the distance between the couplings 24—25 and the back of the pack is substantially the same as the distance 50 between that point on the body of the wearer which lies adjacent the couplings 24—25 and that portion with which the back of the pack contacts.

In the form of the invention disclosed in 55 Figure 1, when the rip cord 19' is pulled, the securing element or cable 17' will be released and will thereby release the flap 16' so that it is free to and will fall away from the back or tray 14' and will expose the parachute canopy. The 60 canopy, being exposed, will inflate, and will extend the shroud lines and the lift webs 23. Of course, as the user falls, the parachute shroud lines and lift webs 23 will move into an upward position. During this upward movement, the 65 lift webs 23 will pivot on the rings 25 as a fulcrum and will jerk or apply force to the straps 26, the force being applied at the points 27'. This application of force will react against the body of the user since the base 14' lies tightly 70 against his body and will cause the breaking of the frangible threads at 28, or the release of whatever other separable fastening is used at this point. Thus, the second element of the cover, namely the back or tray 14', will be released from 75

the user, and the release of this back or tray, together with the release of the flap 18' will constitute a release of the entire cover so that thereafter there will be connected to the harness, the canopy, the shroud lines, and the lift webs.

In the form that I have illustrated in Figure 4 of the drawing, the straps 26' will be released from the back or tray by the release of their ends 26'' when the securing element or cable 17' is released by the pulling of the rip cord and the ultimate action will be the same as in the case of the construction shown in Figure 1, it being understood, however, that in this instance the cover is released by the pulling of the rip cord without the application of force to the straps 26.

It should be distinctly understood that the illustration of this particular form of pack and the attachment thereof to the harness is not intended to limit the invention to use with that particular form, because as I have heretofore stated, it is applicable to back, seat, chest, and chair packs, not only of the form illustrated in this drawing, but all forms wherein the canopy is used within a cover, and wherein the lift webs extend from the cover to the harness.

Moreover, so far as the releasability of the cover from the harness is concerned, the straps 26 or the straps 26' may be omitted and this function transferred to the lift webs.

It is of course to be understood that certain phases of this invention are applicable to a parachute assemblage wherein the rip cord is carried by the user and is manually operated by him,

and it is also applicable to that type of parachute assemblage where the rip cord is attached to the plane.

It is to be understood that I have illustrated and described a particular form of my invention, but that variations in construction may be made so that I do not desire to be limited to that particular construction, except insofar as is made necessary by the claims.

I claim:

1. In a parachute assemblage, the combination with a body harness, of a parachute pack including a canopy, lift webs and a cover, quick attachable means for securing the lift webs to the harness and means, independent of the lift webs and automatically releasable upon the operation of the canopy, for attaching the cover to the harness.

2. In a parachute assemblage, the combination with a body harness, of a parachute pack including a cover, a canopy, and lift webs of an automatic, breakable connection independent of the lift webs between the harness and the cover.

3. In a parachute assemblage, the combination with a body harness, of a parachute pack including a cover, a canopy, shroud lines and lift webs, the cover including a base and a flap, a strap extending from the cover between the base and the flap and means for securing said strap to the pack and for securing the back of the pack to the cover.

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