

Jan. 24, 1950

H. J. MORAN
PARACHUTE CHAIR PACK

2,495,381

Filed March 28, 1947

3 Sheets-Sheet 1

FIG. 1.

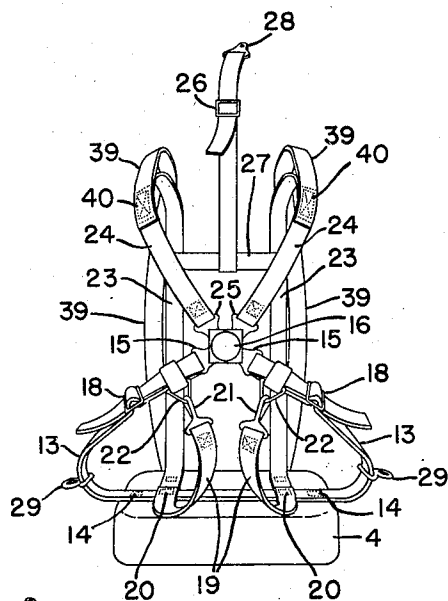
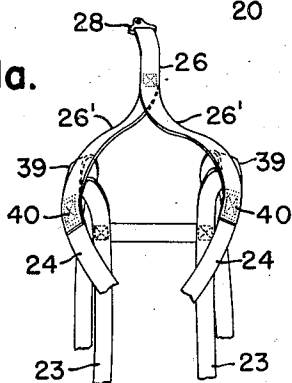


FIG. 1a.



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3 Sheets-Sheet 2

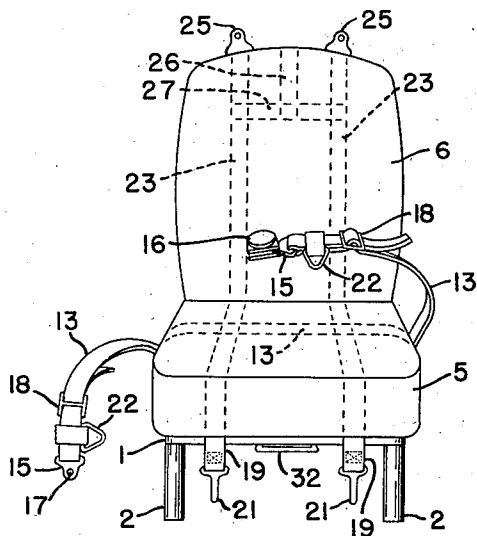


FIG. 2.

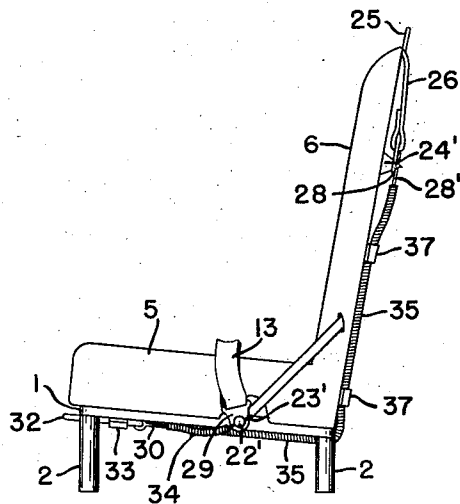


FIG. 3.

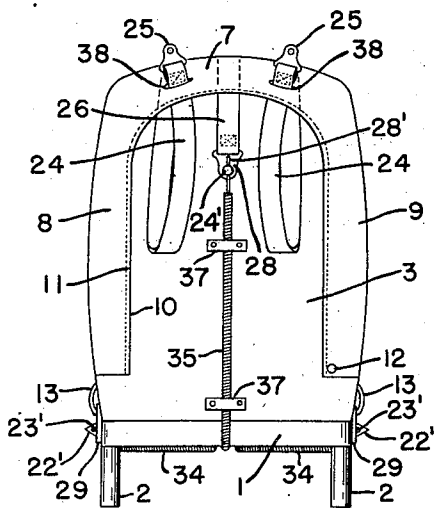


FIG. 4.

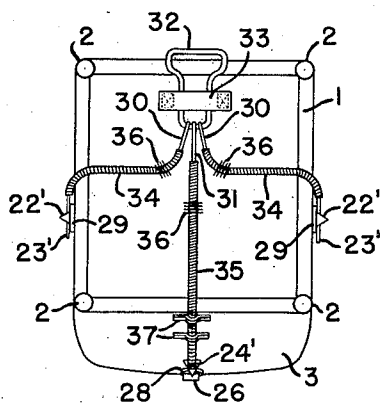


FIG. 5.

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3 Sheets-Sheet 3

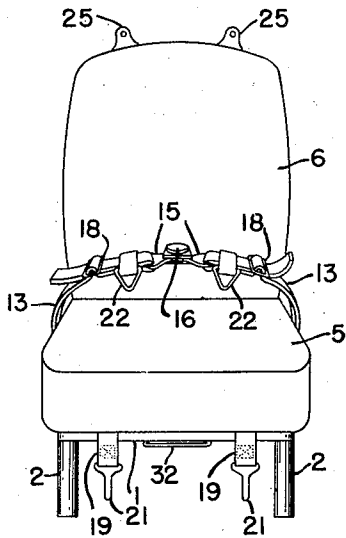


FIG. 6.

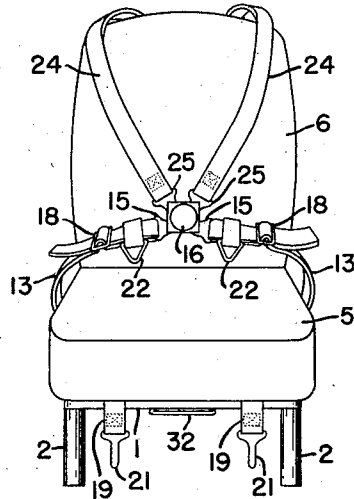


FIG. 7.

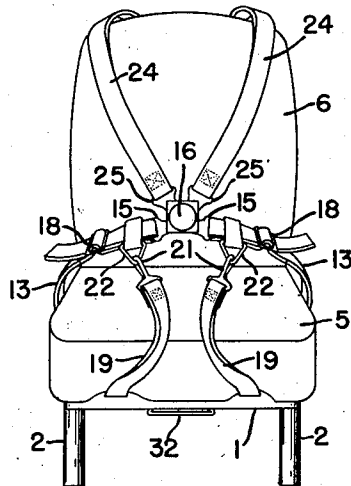


FIG. 8.

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PARACHUTE CHAIR PACK

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Application March 28, 1947, Serial No. 737,738

14 Claims. (Cl. 244-122)

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It is an object of the invention to provide a parachute assembly that may be used in conjunction with a chair, and that includes a harness that is useful as a suspension harness, a crash harness and a safety belt.

It is a further object of the invention to provide the combination of a harness, a parachute pack and a chair which are so constructed, arranged and correlated that the harness is easily adaptable for any of the three uses above referred to, and so that harness and pack may quickly be released from the chair for a jump.

A still further object of the invention is to provide a harness capable of performing the three functions above referred to and a parachute pack that are adapted for use with an upholstered chair and in which certain of the straps of the harness will be maintained in easily accessible positions for instantaneous use.

With these and other objects in view, such as will appear as the description herein progresses, the invention resides in the combination and arrangement of parts disclosed in the drawings, described in the specification and recited in the claims.

In the drawings which illustrate the preferred embodiment of the invention:

Figure 1 is a front elevation of the harness and pack unassociated with the chair or upholstery;

Figure 1A is a fragmentary view of another form of a portion of the device;

Figure 2 is a front elevation of the chair illustrating the position of the harness when it is to be used as a lap strap;

Figure 3 is a side elevation of the chair with certain parts omitted for the sake of clarity;

Figure 4 is a rear elevation of the chair showing the position that the shoulder straps will occupy prior to being adjusted to render the harness useful as a crash harness or as a suspension harness;

Figure 5 is a bottom plan view of the chair showing the release mechanism;

Figure 6 is a front elevation of the chair showing the positions of the straps when portions of the harness are used as a lap strap;

Figure 7 is a view similar to Figure 6, showing the positions of the straps when certain thereof are attached together for use as a crash harness; and

Figure 8 is a similar view showing the positions of the straps when they are attached together to produce a suspension harness.

Referring, now, to the embodiment of the invention illustrated in the drawings, the chair

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includes a bottom or seat portion 1, which is supported by legs 2 and includes also a back 3, the bottom or seat 1 and the back 3 being preferably relatively rigid. The bottom or seat 1 is adapted to support a parachute pack 4, such as disclosed in Figure 1 of the drawings, which pack will, when so supported, form a cushion upon which the user may sit, the bottom or seat portion 1 and the pack 4 comprising the seat of the chair.

The pack 4 is preferably covered by upholstery 5 which extends upwardly to form a back upholstery 6 and over the upper and side edges to form back flaps 7, 8 and 9. The edges 10 of the back flaps 7, 8 and 9, are preferably provided with a tightening means such as an elastic 11 for positioning the upholstery on the back, and one of the flaps, 9 for instance, is provided with a separable fastener 12 which releasably secures the back upholstery to the back 3 of the chair.

The form of the harness illustrated in the drawings includes a lap strap 13 which is secured to the back of the pack 4, as at 14, by suitable means such as stitching. Each end of the lap strap 13 is provided with an element 15, which cooperates with a coupler 16 which may be of a quick release form, and which may have releasable pins for engaging openings 17 in the elements 15. If desired, one of these elements 15 may be permanently secured to the coupler so that the latter will not become detached from the harness. Each end of the lap strap is turned back on itself, as illustrated in the drawings, and is provided with an adapter 18 by means of which the effective length of the lap strap may be varied to adapt the lap strap to users of various sizes.

Leg straps 19 are suitably secured to the back of the pack 4, as at 20, for instance, and the end of each is provided with a separable fastener element 21, which is adapted to be releasably engaged with a complemental fastener element 22 carried by the lap strap adjacent its ends. Back straps 23 extend upwardly from the leg straps and merge with shoulder straps 24 on the end of each of which is a fastener element 25 similar to the elements 15 heretofore described, and attachable to the coupler 16 in a similar manner.

A retaining strap 26 is secured to the harness and is provided at its end with a separable fastener element 28. In the form shown in Figure 1 the retaining strap 26 is attached to the back straps 23 by a cross strap 27. In the form shown in Figure 1A this retaining strap 26 is divided to form portions 26' which are attached to the shoulder straps as at 40 to exert a greater restraining influence against the forward move-

ment of the upper portion of the body of the user. Additional perforated separable fastener elements are freely mounted on the lap straps 13 for a purpose later to be described.

In order that the harness hereinbefore described may be arranged upon the chair so that it may be brought into operation to perform any of the three functions mentioned, and yet will be securely maintained in position when desired and quickly released from the chair when desired, the chair frame at the sides of the bottom or seat supporting portion 1 is provided with cones 22', over which the perforated separable fastener elements 29 are adapted to be placed and to be held in position on the cones by pins 23'.

The back of the frame of the chair is provided with a cone 24' which is arranged to accommodate the separable fastener element 28, and which latter is held releasably upon the cone by a pin 28'.

The pins 23' are carried by release cords 30, while the pin 28' is carried by a release cord 31, the release cords 30 and 31 being secured to a release cord handle 32 that is removably mounted in a pocket 33, preferably on the bottom 1 of the chair frame, and is arranged so that it may be withdrawn forwardly from said pocket, upon which withdrawal the pins 23' and 28' will be released from the cones with which they are engaged, and will free the separable fastener elements 28 and 29.

For protection the release cords 30 and 31 are respectively located within housings 34 and 35, which housings are preferably flexible tubing and are conveniently secured to the under side of the bottom 1 of the chair frame, as at 36, and to the back as at 37.

In order that the shoulder straps 24, when not in use, may be held in a position readily accessible to the user of the chair, that is, so that they may be quickly drawn over his shoulders and attached to the coupler 16, the straps are looped back on themselves behind the back of the chair, as indicated in Figure 4, and the ends thereof pass beneath the elastic 11 and through openings 38 in the back cover, as illustrated in Figure 4, these straps being held in place in said openings 38 with the separable fastener elements 25 located at a convenient point at the top of the chair frame by the elastic retaining element 11.

The suspension lines of the canopy, which latter is within the pack 4 and housed therein in the usual manner, may be connected to the harness thus far described in any convenient manner, and for the purpose of illustration, the harness is shown as provided with suspension web 39 which are secured at 40 to the shoulder straps 24 by any suitable means, such as stitching. These suspension webs extend downwardly from the shoulders of the harness to and into the pack 4, and are connected in the usual manner to the suspension lines of the canopy.

When the harness and pack are installed on a chair, three of the separable fastener elements 15 and 25 are released from the coupler 16, when one is permanently attached thereto, and the pack 4 is placed upon the seat bottom 1, with the end portions of the lap strap 13 and the leg straps 19 suspended. The straps 23 are arranged upwardly along the front of the back of the chair and over the top thereof, so that they will hang down the back of the chair frame.

When upholstery is used, such as described,

it is placed upon the chair as illustrated in the drawings and it covers all except the end portions of the straps 24, the lap strap 13 and the leg straps 19. The ends of the straps 24 are then looped upwardly through the openings 38 in the back upholstery cover, with the separable elements 25 on the ends thereof extending, preferably, slightly above the top of the back so that they will be accessible to the user of the chair.

When the user desires to use certain portions of the harness as a lap strap, it is only necessary for him to bring the ends of the lap strap 13 over his lap and secure these ends together by means of the coupler 16, thus producing the arrangement illustrated in Figure 6 of the drawings. When, however, it is desired to convert the harness into a crash harness, this may quickly be done by the user reaching over his shoulders, grasping the separable fastener elements 25 and drawing the free end portions of the straps 24 over his shoulders and attaching the separable fastener elements 25 to the coupler 16, thus producing the harness arrangement illustrated in Figure 7 of the drawings. If, however, the user desires to create a suspension harness which will support him in a jump, it is only necessary for him to draw the free ends of the leg straps 19 upwardly and secure the separable fastener elements 21 and 22 together, thus producing the harness arrangement illustrated in Figure 8. When it is desired to release the harness from the chair so that the user may rise and carry the parachute pack with him and maintain the harness in its body embracing position, it is only necessary for the user to pull upon the release cord handle 32, whereupon the pins 23' and 28' will be released from the cooperating cones and the separable fastener elements that are attached to the cones will release therefrom, thus freeing the harness, the pack and the user from the chair.

It will be realized that in a harness of the nature above described, when used in such a chair as has been described, the major portion of the harness is hidden from view and yet easily it may be arranged to constitute a lap strap or a crash harness where the body of the user is not only retained in the chair against excessive forward movement by resistance of the lap strap, but also by resistance applied to the chest and shoulders by the shoulder straps. Moreover, it is easy to convert the harness into a suspension harness.

While a particular form of harness and chair have been described and illustrated in the drawings, this particular form is selected merely for illustrative purposes, for it will be realized that many details of construction may be varied without departing from the spirit of the invention, or without exceeding the scope of the claims, and therefore the claims are not to be taken as limited to the particular construction except in so far as the limitation is necessary as a matter of law.

What is claimed is:

1. A body harness comprising back straps, shoulder straps, leg straps, a lap strap, means for releasably securing the ends of said shoulder straps and said lap strap together, separable fastener elements carried by said lap strap for detachable engagement with complementary fastener elements on a fixed portion of an airplane, a retaining strap connected with said harness and having a separable fastener element thereon

for detachable engagement with a complementary fastener element on a fixed portion of an airplane, and suspension straps connected with said shoulder straps and adapted to be connected to a canopy.

2. A body harness comprising back straps, shoulder straps, leg straps, a lap strap, means for releasably securing the ends of said shoulder straps and said lap strap together, means for releasably securing the ends of said leg straps to said lap strap, separable fastener elements carried by said lap strap for detachable engagement with complementary fastener elements on a fixed portion of an airplane, a retaining strap connected with said harness and having a separable fastener element therein for detachable engagement with a complementary fastener element on a fixed portion of an airplane, and suspension straps connected with said shoulder straps and adapted to be connected to a canopy.

3. In combination, a body harness comprising back straps, shoulder straps, leg straps, a lap strap, means for releasably securing the ends of said shoulder straps and said lap strap together, separable fastener elements carried by said lap strap for detachable engagement with complementary fastener elements on a fixed portion of an airplane, a retaining strap operatively connected with said harness and having a separable fastener element thereon for detachable engagement with a complementary fastener element on a fixed portion of an airplane, suspension straps connected with said shoulder straps and adapted to be connected to a canopy, a chair, separable fastener elements on said chair complementary to the fastener elements on said lap strap and said retaining strap, and means for releasably securing said cooperating complementary fastener elements together.

4. In combination, a body harness comprising back straps, shoulder straps, leg straps, a lap strap, means for releasably securing the ends of said shoulder straps and said lap strap together, separable fastener elements carried by said lap strap for detachable engagement with complementary fastener elements on a chair, a retaining strap operatively associated with said harness and having a separable fastener element thereon for detachable engagement with a complementary fastener element on a fixed portion of an airplane, suspension straps connected with said shoulder straps and adapted to be connected to a canopy, a chair, separable fastener elements on said chair complementary to the fastener elements on said lap strap and said retaining strap, means for releasably securing said cooperating complementary fastener elements together, and means for releasing said last mentioned means to free said harness from said chair.

5. In combination, a body harness comprising back straps, shoulder straps, leg straps, a lap strap, means for releasably securing the ends of said shoulder straps and said lap strap together, separable fastener elements carried by said lap strap for detachable engagement with complementary fastener elements on a chair, a retaining strap connected with said harness and having a separable fastener element thereon for detachable engagement with a complementary fastener element on a chair, suspension straps connected with said shoulder straps and adapted to be connected to a canopy, a chair, separable fastener elements on said chair complementary to the fastener elements on said lap strap and said retaining strap, means for releasably securing said co-

operating complementary fastener elements together, means for releasing said last mentioned means to free said harness from said chair, said last mentioned means comprising release cords and a release handle connected with and for actuating all of said release cords.

6. In combination, a body harness comprising back straps, shoulder straps, leg straps, a lap strap, means for releasably securing the ends of said shoulder straps and said lap strap together, separable fastener elements carried by said lap strap for detachable engagement with complementary fastener elements on a chair, a retaining strap operatively associated with said back straps and having a separable fastener element thereon for detachable engagement with a complementary fastener element on a chair, suspension straps connected with said shoulder straps and adapted to be connected to a canopy, a chair, separable fastener elements on said chair complementary to the fastener elements on said lap strap and said retaining strap, said complementary fastener elements being of the perforated cone and grommet type, releasable pins releasably mounted in the perforations of said cones for securing said complementary fastener elements together, release cords for said pins, and a handle attached to all of said cords for actuating said release cords to withdraw said pins from said perforations.

7. In combination, a body harness comprising back straps, shoulder straps, leg straps, a lap strap, means for releasably securing the ends of said shoulder straps and said lap strap together, separable fastener elements carried by said lap strap for detachable engagement with complementary fastener elements on a chair, a retaining strap operatively associated with said back straps and having a separable fastener element thereon for detachable engagement with a complementary fastener element on a chair, suspension straps connected with said shoulder straps and adapted to be connected to a canopy, a chair, separable fastener elements on said chair complementary to the fastener elements on said lap strap and said retaining strap, said complementary fastener elements being of the perforated cone and grommet type, releasable pins releasably mounted in the perforations of said cones for securing said complementary fastener elements together, release cords for said pins, and means attached to all of said cords for actuating said release cords to withdraw said pins from said perforations.

8. The combination with a chair including a seat bottom and a back, of a parachute pack, including a canopy, removably supported on said seat bottom as a cushion; a cover for said pack and said chair back releasably attached to said chair; back straps secured to said pack and extending upwardly over said chair back beneath said cover; shoulder straps having separable fastener elements on the ends thereof depending from the top of said chair back downwardly over the back thereof with said separable fastener elements located adjacent the top of said chair back and held in position by said cover; a retaining strap operatively connected with said back straps and releasably secured to the back of said chair; leg straps operatively connected with said back straps, secured to said pack, located beneath the seat portion of said cover, and having separable fastener elements on the ends thereof located at the front of said chair seat and protruding from the forward portion of said seat portion of said seat cover; a lap strap secured to said pack, having separable fastened elements on the ends

thereof and located beneath said seat portion of said seat cover with the ends thereof protruding from the side portions of said seat portion of said seat cover and having separable fastener elements thereon complementary to the leg strap fastener elements; a quick release device to releasably engage fastener elements on said shoulder straps and said lap strap to releasably secure said lap strap and said shoulder strap together; additional separable fastener elements on said lap strap; complementary separable fastener elements on said chair back and said chair seat bottom for engagement with the fastener elements on said retaining strap and said additional fastener elements on said lap strap respectively, and means for connecting said harness to said canopy.

9. The combination with a chair including a seat bottom and a back, of a parachute pack, including a canopy, removably supported on said seat bottom as a cushion; a cover for said pack and said chair back releasably attached to said chair; back straps secured to said pack and extending upwardly over said chair back beneath said cover; shoulder straps having separable fastener elements on the ends thereof depending from the top of said chair back downwardly over the back thereof with said separable fastener elements located adjacent the top of said chair back and held in position by said cover; a retaining strap operatively connected with said back straps and releasably secured to the back of said chair; leg straps operatively connected with said back straps, secured to said pack, located beneath the seat portion of said cover, and having separable fastener elements on the ends thereof located at the front of said chair seat and protruding from the forward portion of said seat portion of said seat cover; a lap strap secured to said pack, having separable fastener elements on the ends thereof and located beneath said seat portion of said seat cover with the ends thereof protruding from the side portions of said seat portion of said seat cover and having separable fastener elements thereon complementary to the leg strap fastener elements; a quick release device to releasably engage fastener elements on said shoulder straps and said lap strap to releasably secure said lap strap and said shoulder strap together; additional separable fastener elements on said lap strap, complementary separable fastener elements on said chair back and said chair seat bottom for engagement with the fastener elements on said retaining strap and said additional fastener elements on said lap strap respectively; means for connecting said harness to said canopy; means for normally securing said separable fastener element on said retaining strap and said additional fastener elements on said lap strap to said complementary fastener elements on said chair; and means for releasing said securing means.

10. The combination with a chair including a seat bottom and a back, of a parachute pack, including a canopy, removably supported on said seat bottom as a cushion; a cover for said pack and said chair back releasably attached to said chair; back straps secured to said pack and extending upwardly over said chair back beneath said cover; shoulder straps having separable fastener elements on the ends thereof depending from the top of said chair back downwardly over the back thereof with said separable fastener elements located adjacent the top of said chair back and held in position by said cover; a retain-

ing strap operatively connected with said back straps and releasably secured to the back of said chair; leg straps operatively connected with said back straps, secured to said pack, located beneath the seat portion of said cover, and having separable fastener elements on the ends thereof located at the front of said chair seat and protruding from the forward portion of said seat portion of said seat cover; a lap strap secured to said pack, having separable fastener elements on the ends thereof and located beneath said seat portion of said seat cover with the ends thereof protruding from the side portions of said seat portion of said seat cover and having separable fastener elements thereon complementary to the leg strap fastener elements; a quick release device to releasably engage fastener elements on said shoulder straps and said lap strap to releasably secure said lap strap and said shoulder strap together; additional separable fastener elements on said lap strap; complementary separable fastener elements on said chair back and said chair seat bottom for engagement with the fastener elements on said retaining strap and said additional fastener elements on said lap strap respectively; means for connecting said harness to said canopy; means for normally securing said separable fastener element on said retaining strap and said additional fastener elements on said lap strap to said complementary fastener elements on said chair; means for releasing said securing means, said complementary fastener elements being of the perforated cone and grommet type, said securing means for said separable fastener elements being in the form of pins releasably mounted in the cone perforations, and said releasing means comprising release cords.

11. The combination with a chair including a seat bottom and a back, of a parachute pack, including a canopy, removably supported on said seat bottom as a cushion; a cover for said pack and said chair back releasably attached to said chair; back straps secured to said pack and extending upwardly over said chair back beneath said cover; shoulder straps having separable fastener elements on the ends thereof depending from the top of said chair back downwardly over the back thereof with said separable fastener elements located adjacent the top of said chair back and held in position by said cover; a retaining strap operatively connected with said back straps and releasably secured to the back of said chair; leg straps operatively connected with said back straps, secured to said pack, located beneath the seat portion of said cover, and having separable fastener elements on the ends thereof located at the front of said chair seat and protruding from the forward portion of said seat portion of said seat cover; a lap strap secured to said pack, having separable fastener elements on the ends thereof and located beneath said seat portion of said seat cover with the ends thereof protruding from the side portions of said seat portion of said seat cover and having separable fastener elements thereon complementary to the leg strap fastener elements; a quick release device to releasably engage fastener elements on said shoulder straps and said lap strap to releasably secure said lap strap and said shoulder strap together; additional separable fastener elements on said lap strap; complementary separable fastener elements on said chair back and chair seat bottom for engagement with the fastener elements on said retaining strap and said additional fastener elements on said lap strap respectively.

tively; means for connecting said harness to said canopy; means for normally securing said separable fastener element on said retaining strap and said additional fastener elements on said lap strap to said complemental fastener elements on said chair; means for releasing said securing means, said complemental fastener elements being of the perforated cone and grommet type, said securing means for said separable fastener elements being in the form of pins releasably mounted in the cone perforations, and said releasing means comprising release cords; and an operating handle common to all of said cords to actuate the same to withdraw said pins from said cone perforations.

12. The combination with a chair including a seat bottom and a back, of a parachute pack, including a canopy, removably supported on said seat bottom as a cushion; a cover for said pack and said chair back releasably attached to said chair; back straps secured to said pack and extending upwardly over said chair back beneath said cover; shoulder straps having separable fastener elements on the ends thereof depending from the top of said chair back downwardly over the back thereof with said separable fastener elements located adjacent the top of said chair back and held in position by said cover; a retaining strap operatively connected with said back straps and releasably secured to the back of said chair; leg straps operatively connected with said back straps, secured to said pack, located beneath the seat portion of said cover, and having separable fastener elements on the ends thereof located at the front of said chair seat and protruding from the forward portion of said seat portion of said seat cover; a lap strap secured to said pack, having separable fastener elements on the ends thereof and located beneath said seat portion of said seat cover with the ends thereof protruding from the side portions of said seat portion of said seat cover and having separable fastener elements thereon complemental to the leg strap fastener elements; a quick release device to releasably engage fastener elements on said shoulder straps and said lap strap to releasably secure said lap strap and said shoulder strap together; additional separable fastener elements on said lap strap; complemental separable fastener elements on said chair back and said chair seat bottom for engagement with the fastener elements on said retaining strap and said additional fastener elements on said lap strap respectively; means for connecting said harness to said canopy; means for normally securing said separable fastener element on said retaining strap and said additional fastener elements on said lap strap to said complemental fastener elements on said chair; means for releasing said securing means, said complemental fastener elements being of the perforated cone and grommet type, said securing means for said separable fastener elements being in the form of pins releasably mounted in the cone perforations, and said releasing means comprising release cords; and an operating handle common to all of said cords to actuate the same to with-

draw said pins from said cone perforations, and mounted on and protruding from the chair seat bottom.

13. In combination, a chair having a seat bottom and a back; a parachute pack, including a canopy, removably supported by said seat bottom; a harness comprising back straps, shoulder straps, leg straps, and a lap strap secured to said pack; suspension straps connected with said harness and said canopy, a cover for said pack and chair seat bottom and for said back and beneath which said straps are located with their ends protruding therefrom; means releasably securing the ends of said lap strap together; means on said cover for supporting the ends of said shoulder straps for releasable engagement with said lap strap; means on said cover for supporting the ends of said leg straps for releasable engagement with said lap strap; and means for releasably securing said lap strap to said chair, whereby said harness is constructed and arranged to function as a safety belt.

14. In combination, a body harness comprising back straps, shoulder straps, leg straps, a lap strap, means for releasably securing the ends of said shoulder straps and said lap strap together, separable fastener elements carried by said lap strap for detachable engagement with complemental fastener elements on a chair, a retaining strap connected with said shoulder straps at the forward portion thereof and having a separable fastener element thereon for detachable engagement with a complemental fastener element on a chair, suspension straps connected with said shoulder straps and adapted to be connected to a canopy, a chair, separable fastener elements on said chair complemental to the fastener elements on said lap strap and said retaining strap, means for releasably securing said cooperating complemental fastener elements together, means for releasing said last mentioned means to free said harness from said chair, said last mentioned means comprising release cords and a release handle connected with and for actuating all of said release cords.

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