

Feb. 27, 1940.

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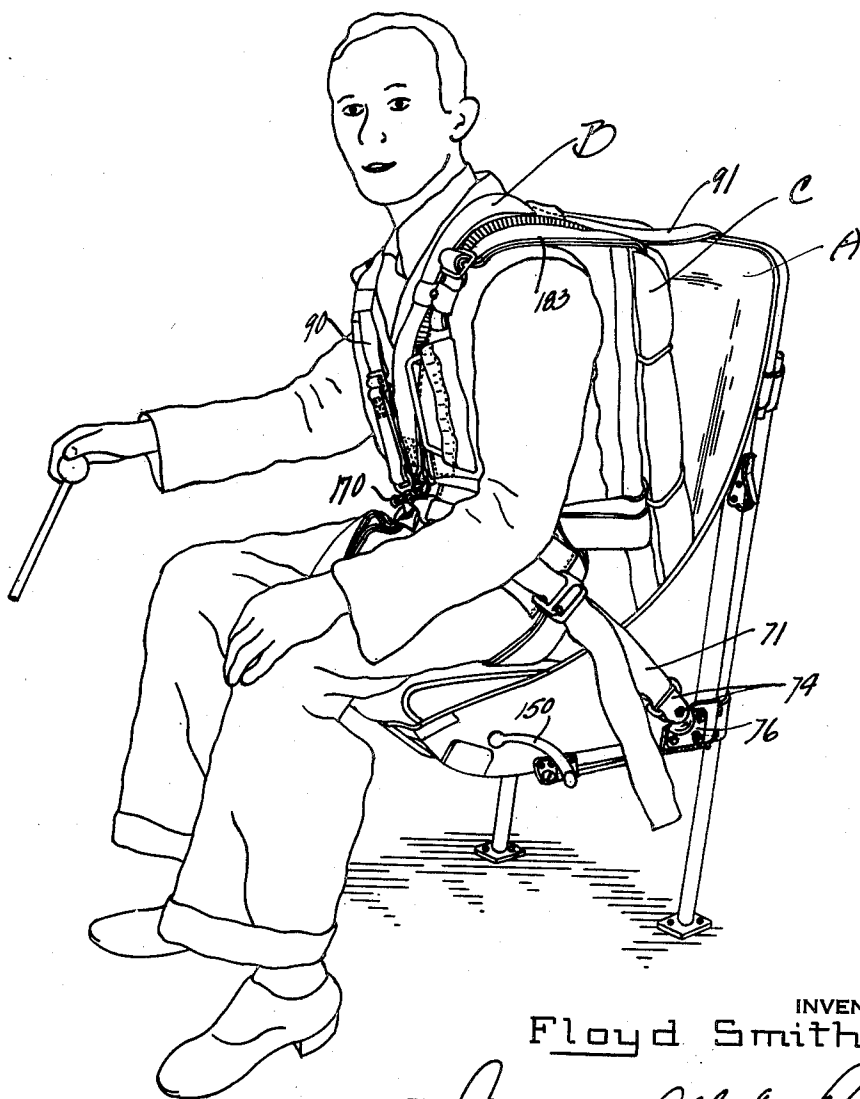
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PARACHUTE AND SAFETY HARNESS APPARATUS

Filed May 22, 1939

4 Sheets-Sheet 1

FIG. 1.



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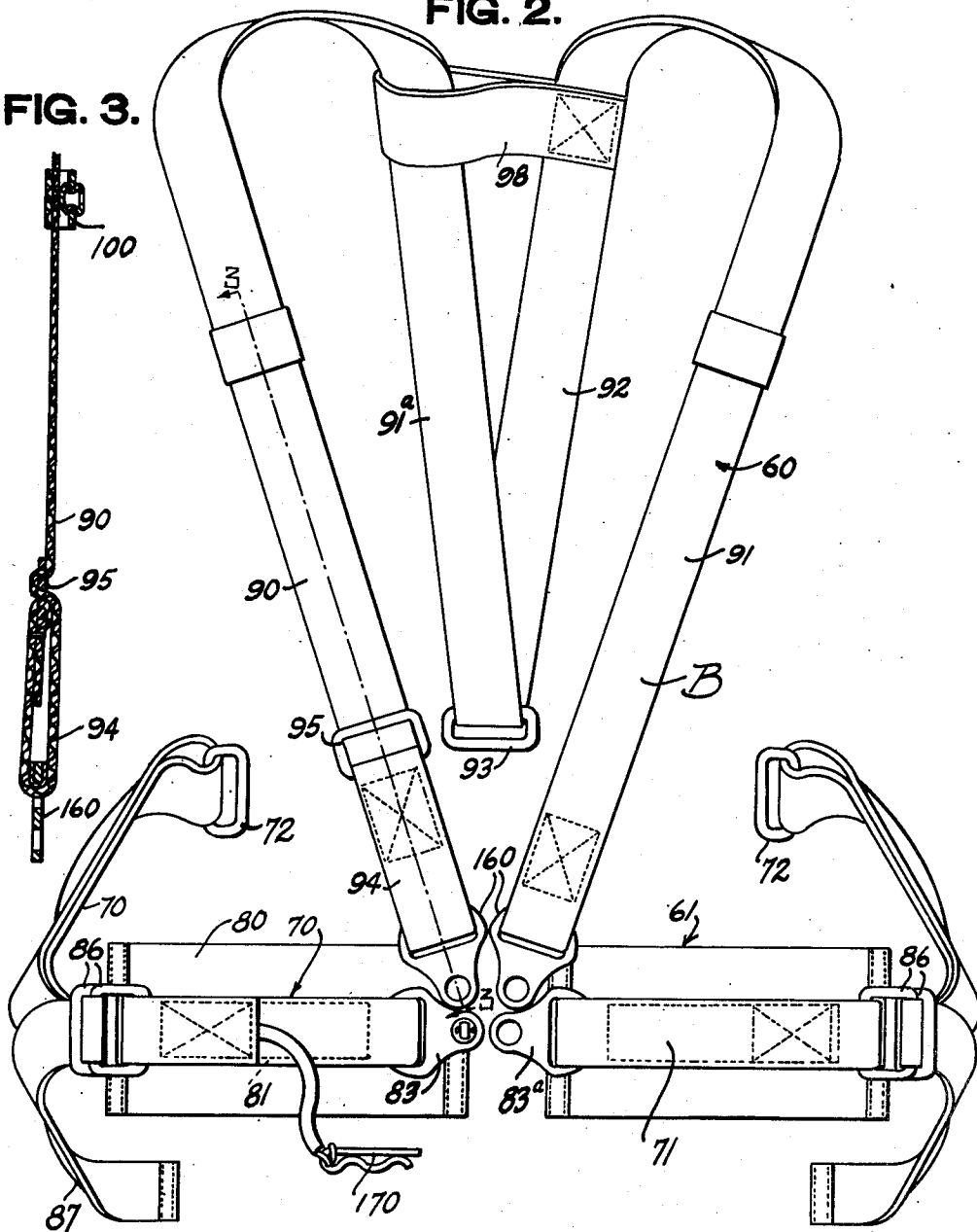
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FIG. 2.

FIG. 3.



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FIG. 4.

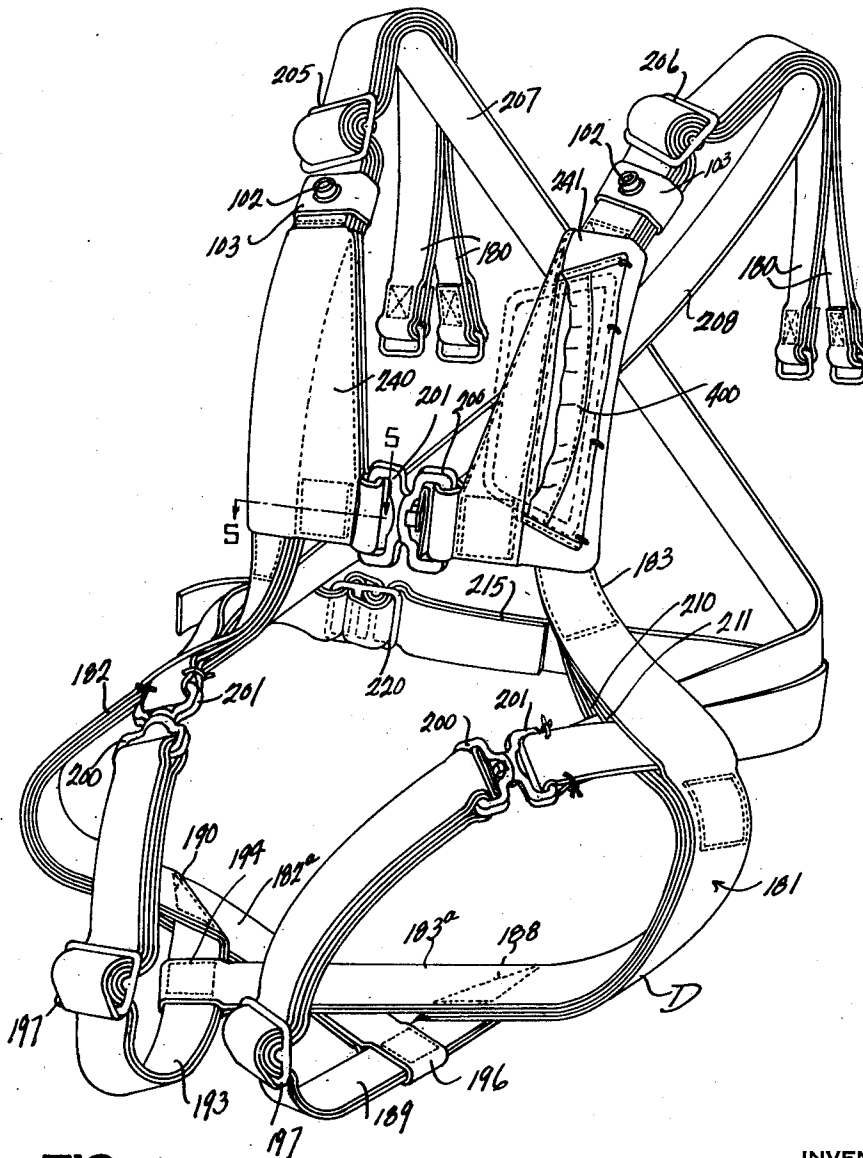


FIG. 5.



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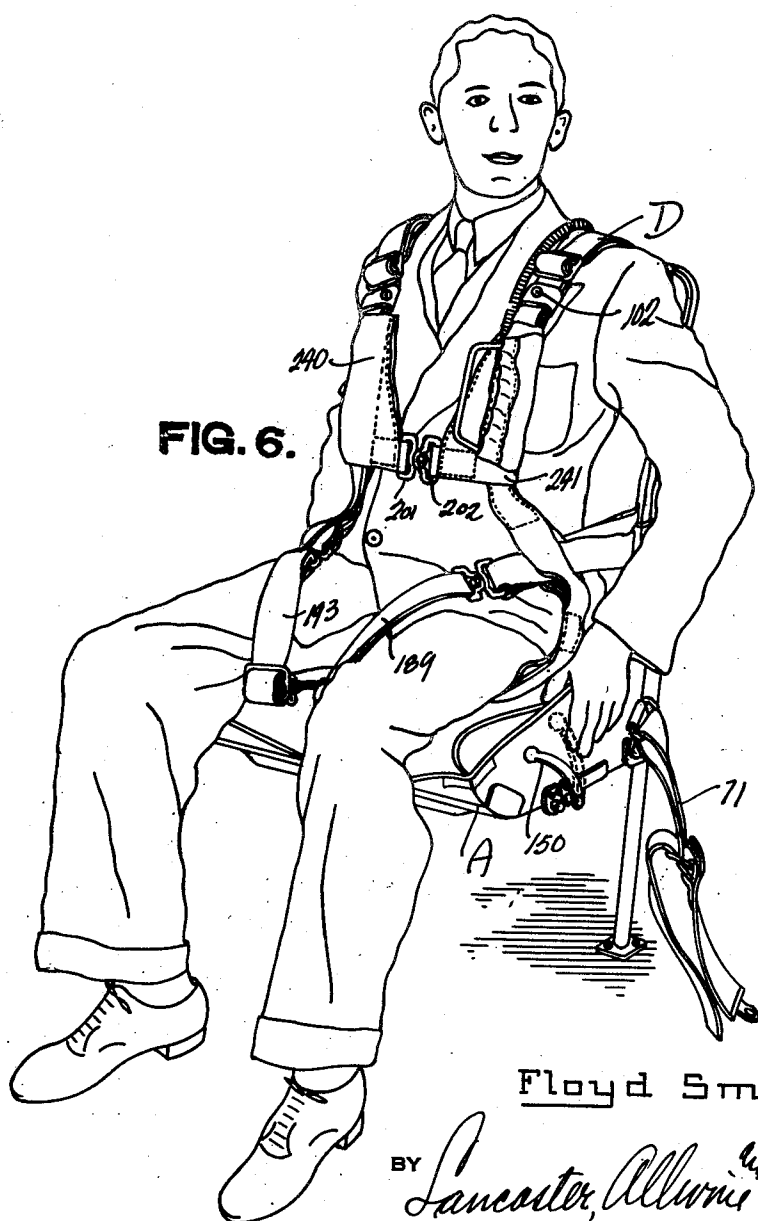
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PARACHUTE AND SAFETY HARNESS APPARATUS

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4 Sheets-Sheet 4



UNITED STATES PATENT OFFICE

2,192,109

PARACHUTE AND SAFETY HARNESS
APPARATUSFloyd Smith, Buffalo, N. Y., assignor to Irving
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tion

Application May 22, 1939, Serial No. 275,103

3 Claims. (Cl. 244-122)

This invention relates to a combination parachute and safety harness.

In the accompanying drawings, forming a part of this specification, and wherein similar reference characters designate corresponding parts throughout the several views,

Figure 1 is a perspective view showing the improved parachute chair with a safety harness in loosened condition so as to permit the aviator to lean forward for manipulation of controls.

Figure 2 is a view showing the various details of the safety harness, detached from the chair.

Figure 3 is a vertical sectional view taken substantially on the line 3-3 of Figure 2 of the drawings.

Figure 4 is a perspective view of the improved parachute harness which may be associated with the chair.

Figure 5 is a cross sectional view taken substantially on the line 5-5 of Figure 4.

Figure 6 is a perspective view of the aviator in the chair with the safety harness released from the wearer.

In the drawings, wherein for the purpose of illustration is shown only a preferred embodiment of the invention, the letter A may generally designate the improved chair with which parachute safety harness B may be associated. The chair is shaped to accommodate a parachute pack C, of the back variety, in the present instance, although a seat pack can be used; the parachute pack C having associated therewith an improved parachute harness D.

The chair may be of any approved type. It is preferably made of some light material, such as aluminum, and includes a socketed seat and a socketed back connected by side arms.

Referring to the improved safety harness B, my co-pending application Serial No. 275,102, filed May 22, 1939, better describes the same. It consists of a shoulder strap construction 60 and a lap strap construction 61. The shoulder construction and the lap strap construction may be independently used although they are shown related in the present invention, and details of the spring operated detent may be associated with either or both of these strap constructions.

The lap strap construction 61 consists of side straps 70 and 71, each of which is doubled upon itself at its chair attached end, and through which doubled portion a coupling ring 72 is threaded, adapted to be attached to a pivoted coupling part 74 on a side of the chair. The pivoted coupling parts 74 of course move with bending of the wearer, and they are attached at

the lower corners of the chair upon suitable brackets 76. Each of the straps 70 and 71 of the doubled section which faces the lap of the wearer and at its outer end is provided with a broad piece of webbing 80, which acts as a protection to the wearer. This webbing 80 is securely stitched at 81 to this end of the strap. The thickness of the part of the strap to which the webbing 80 is attached may be doubled and provided with a loop at its free end to which a coupling part 83 of the lap strap is attached. The coupling part 83 is the male part and is mounted upon the strap 70. It is provided with a transversely apertured stud adapted to receive the opening in the other coupling part 83^a of the strap 71, and the openings of the coupling parts of the shoulder straps to be subsequently described. The strap portion on the webbing 80 opposite the coupling part 83 is provided with two strap clamping rings 86 to which the free end 87 of the strap is threaded whereby the length of the lap strap between the pad and the ring 72 may be adjusted to suit the stature of the wearer. Both of the lap straps are of substantially the same construction.

The shoulder strap construction 60 is of a single length of material, and includes the shoulder straps 90 and 91 adapted to extend upwardly from the lap of the wearer and over the shoulders of the wearer and then they converge downwardly at the back of the chair, as shown at 91^a and 92 and at their meeting point are provided with a D or other type ring 93 loosely threaded on the shoulder strap material. Only one of the shoulder straps, such as the shoulder strap 90 shown in Figures 2 and 3, is adjustable; one end being doubled at 94 upon itself and having an adjusting buckle 95. The straps 91^a and 92 are maintained against displacement by means of a lateral loop 98 secured on the strap portion 92 and through which the strap portion 91^a is threaded, as shown in Figure 2 of the drawings. Suitable slip loops 99 are provided on each of the shoulder strap front portions 90 and 91 having female fastener snaps 100; the male portions 102 being secured on similar slip loops 103 placed on the riser straps of the harness D, as shown in Figure 4. The snap parts 100 and 102 cooperate in maintaining the shoulder straps and riser webs in relative position. They are, as shown in the drawings, of the "lift the dot" variety of fastener and automatically release from each other without the necessity of fumbling with them as an incident of pull when the

wearer arises from the chair after the safety harness has been released.

Referring again to the shoulder straps 90 and 91, the same at their free ends are provided with fastener couplings 160, similar to the coupling 83^a above described and transversely apertured for fitting over the stud of the coupling part 83 on the lap strap 70. A suitable spring controlled detent pin 170 attached on a string secured to the leg strap 70 is adapted to be slipped in the transverse aperture in the fastener 83, in order to hold all of the fasteners 83^a and 160 together. A quick pull on the pin 170 will release all the fastener parts so that the wearer may become instantly dislodged from the safety harness B.

Referring to the harness D as shown in the drawings, and the associated pack construction, it will be understood that the harness will be constructed for either a seat or back pack, or a detachable pack, if desired. In the present case a back pack C is used and this consists of a container, housing a parachute canopy in the usual manner, and into which container the ends 180 of suspension straps of the harness extend for connection with the shroud lines of the canopy.

The harness D includes a U-shaped supporting sling 181 having a rather unique seat construction which gives a better and broader support to the wearer during a parachute descent. Each of the riser webs 182 and 183 is formed of four thicknesses or plies of webbing, and of course they terminate in the suspension straps 180 shown in Figure 11 of the drawings. To form the seat construction the two inner plies 183^a of the riser web 183 are diagonally extended at an acute angle freely across the two outer plies 182^a of the riser web 182, as shown in Figure 4. The two outer plies of the riser web 183 are bent upon themselves at the seat structure, in an acute angled relation, and stitched as at 188 to the two inner plies; the two outer plies thus extending at an acute angle to the line of the inner ply extension 183^a, to form a leg strap 189. Similarly the two inner plies of the riser web 182 are doubled upon themselves and stitched at 190 to the two outer plies and extended at an acute angle to the line of the seat plies 182^a, to form the leg strap 193. The two outer plies 183^a are then looped at their outer ends and secured by stitching 194 to the leg strap 193 forwardly of the extended end of the seat portion 182^a, and similarly the two plies 182^a of the seat structure are looped at their free ends and stitched at 196 to the leg strap 189 where it branches off from the riser web 183, as is shown in Figure 4. This construction provides a deeper and more comfortable basket seat for the wearer, and permits of greater flexibility of movement. The plies of the leg straps 189 and 193 are of course doubled upon themselves and provided with length adjusting buckles 197. At their free ends they are provided with coupling portions 200 adapted to act in a complementary relation with the coupling portions 201 of diagonally extending back straps.

The riser webs 182 and 183 at their upper ends are threaded through adjustable shoulder buckles 205 and 206 respectively. The ends of diagonal shoulder straps 207 and 208 are also threaded through these buckles and secured by stitching to the riser webs below the respective buckles. These shoulder straps are adapted to extend over the shoulders of the wearer and diagonally across the back to the opposite sides of the harness.

The plies of the riser web 183 are parted, above the seat structure of the harness, to provide a loop 210 through which the strap 207 is loosely threaded. The strap 207 is then doubled upon itself and threaded back through another loop 211 and extended horizontally rearward to provide a cross back strap 215. The diagonal strap 208 is similarly associated with the other riser web 182, and the meeting ends of the straps 207 and 208, where they provide the horizontal crossing back strap, are adjustably secured together by suitable buckle means 220 as shown in Figure 4. The forwardly extending looped ends of the straps 207 and 208 where they extend through the slip loops in the riser webs are provided with the complementary buckles 201 above described.

Breast strap means is provided for the harness, consisting of vertically adjustable breast strap portions 240 and 241, slidably mounted upon the upper portions of the riser webs 182 and 183 respectively, and having complementary coupling parts 201 and 200 associated therewith.

The couplings for connecting the various strap portions of the harness are made up of the complementary coupling parts 200 and 201, as shown in Figure 4 of the drawings. They admit of a quick and efficient attachment of the various straps of the harness and insure that they do not become detached from each other, except manually.

The parachute pack has a suitable rip cord, whose handle may be disposed in a pocket 400 conveniently located on one of the breast straps 241.

From the foregoing it will be readily apparent that in order to hold the relation of the shoulder straps of the safety harness with respect to the riser webs of the parachute harness the female snaps 100 on the safety harness shoulder straps may be snapped to the male portions 102 which are adjustable on the riser webs of the parachute harness.

Various changes in the shape, size, and arrangement of parts may be made to the form of invention herein shown and described, without departing from the spirit of the invention or the scope of the claims.

I claim:

1. In combination with parachute and safety harness, the combination of a parachute harness having front riser straps to extend upwardly at the front and over the shoulders of a wearer, the safety harness including front strap portions to extend upwardly at the front and over the shoulders of the wearer, slip loops on each of the front straps of the parachute harness and safety harness below the shoulders of the harnesses, having complementary snap fastening means to releasably secure them together.

2. In a combined parachute and safety harness device, a chair, a safety harness secured to the chair including shoulder straps adapted to extend from the chair downwardly over the shoulders and to the front of a wearer, means to releasably fasten the shoulder straps upon the wearer, said shoulder straps upon operation of said releasable fastening means adapted to remain with the chair and be completely free of the wearer when the latter arises from the chair, a parachute harness including body straps such as riser webs, and releasable fastening means to releasably secure the riser webs of the parachute harness to the shoulder straps of the safety harness, said releasable fastening means last mentioned being automatically operable when the wearer arises from the chair after the safety

harness is released, due to the pull of the wearer arising from the chair, whereby to completely free the wearer and his parachute harness from the safety harness and chair.

5 3. In a combination safety harness and parachute device, a chair, a safety harness secured to the chair including straps adapted to remain with the chair when the safety harness is released from a wearer, means to releasably secure

the safety harness about a wearer when the latter is seated in the chair, a parachute harness for the wearer, and "lift the dot" fastening means securing the parachute harness to the safety straps and adapted to open as an incident of pull of the parachute harness away from the safety harness when the straps of the latter are released and the wearer arises from the chair.

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