T. H. GODWIN.

HARNESS.

APPLICATION FILED JUNE 14, 1919.

1,357,772.

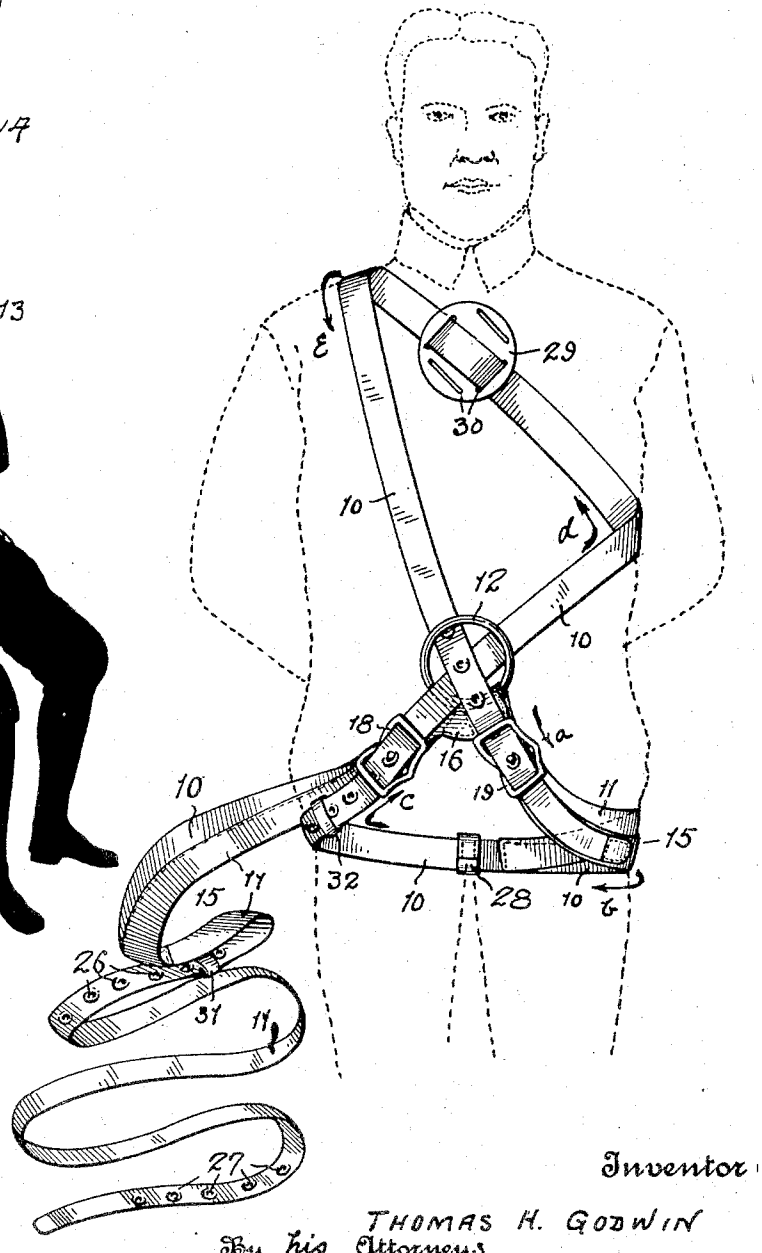
Patented Nov. 2, 1920.

2 SHEETS—SHEET 1.

Fig. 1.



Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

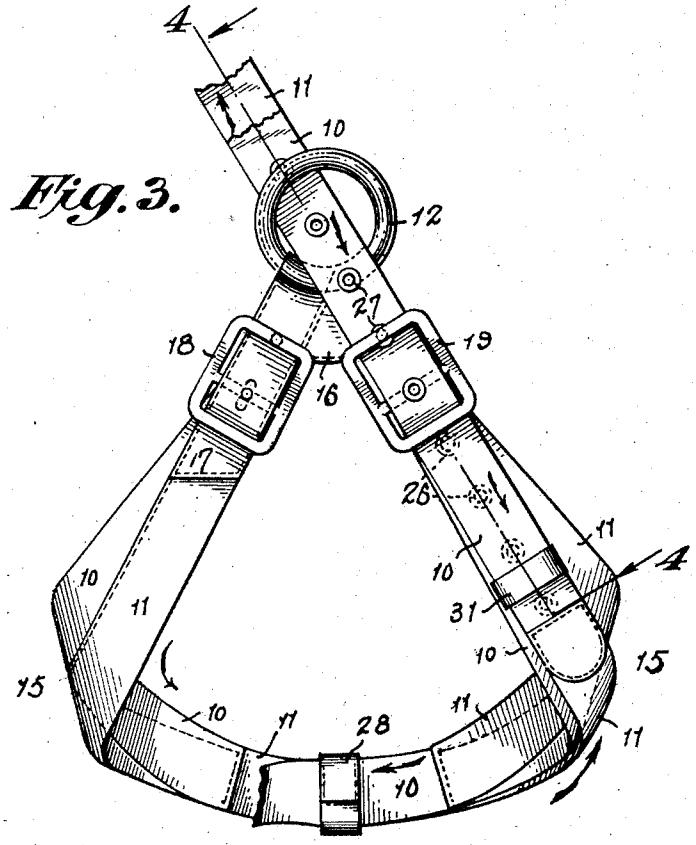


Fig. 4.

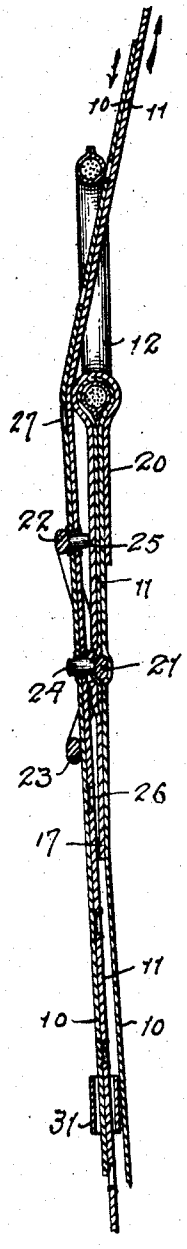
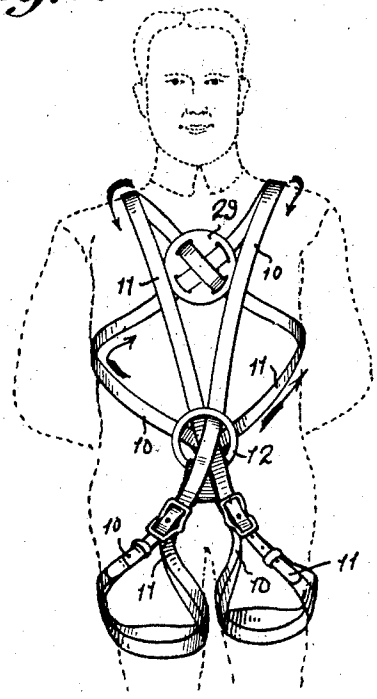


Fig. 5.



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UNITED STATES PATENT OFFICE.

THOMAS H. GODWIN, OF EXIRA, IOWA.

HARNESS.

1,357,772. Specification of Letters Patent. Patented Nov. 2, 1920.

Application filed June 14, 1919. Serial No. 304,152.

To all whom it may concern:

Be it known that I, THOMAS H. GODWIN, a citizen of the United States of America, residing at Exira, in the county of Audubon and State of Iowa, have invented certain new and useful Improvements in Harness, of which the following is a specification.

My invention relates to a harness, and particularly to a harness for aviators, the object of my invention being to provide a harness of simple construction, readily adjusted upon the body, affording a strong and secure support while at the same time allowing the greatest possible freedom of motion, yet so arranged as to prevent the aviator from slipping out during the parachute drop, even if unconscious; readily disengaged both from the parachute rigging and from the body on reaching the ground; simple to manufacture, and compact for storage.

Referring to the accompanying drawings—

Figure 1 is a perspective view of an aviator wearing the present harness and in the position normally assumed during the descent of the parachute;

Fig. 2 is an elevation of the harness showing the strap in adjusted position upon an aviator;

Fig. 3 is a broken front elevation showing the seat loop of the harness;

Fig. 4 is a section on the line 4—4 of Fig. 3; and

Fig. 5 is a front elevation showing the arrangement of harness when adjusted in a modified manner.

Referring to the drawings, the present harness comprises a pair of straps 10 and 11, each secured at the end to the supporting ring 12 which is engaged by any suitable means, such as a quick detachable snap hook, to the end of a rope 13 depending from the rigging 14 of a parachute. The end of each strap which is secured to the supporting ring 12 is passed therethrough and folded back upon the opposite strap, the folded back end being secured to the body of the strap in overlapped position to afford a relatively broad seat band 15 at the point at which the strap encircles the thigh of the aviator. The attachment to the ring 12 is preferably reinforced by a leather cover piece 16 of Y shape, the branches 17 of which over-lie the body lengths of the straps 10 and 11 and extend downward thereon a sufficient distance to reinforce the same at the point of attachment of buckles 18 and 19. The shank 20 of the leather reinforce passes through the ring 12 over the strap ends and is folded down thereon and stitched, or otherwise suitably secured thereto.

While the buckles 18 and 19 may be of any suitable type I prefer to employ the construction illustrated, in which the buckle frame is provided with a single cross bar 21 intermediate its ends and depressed from the plane of the end cross bars 22 and 23. A stud 24 projects from the cross bar 21 toward or beyond the plane of the end cross bars 22 and 23, while a second stud 25 projects in opposite directions from the end cross bar 22. Each strap has formed therein two series 26 and 27 of eyelets, the first, 26, being located at a predetermined point toward the mid length of the strap, while the second series 27 is located adjacent the free end of the strap. The eyelets of each series are spaced apart a distance corresponding to the spacing of the studs 24 and 25 of the buckles, so that these studs will enter two adjacent eyelets of each series.

A slip ring 28 may be provided to hold the straps together at a mid point in the seat loop. A guard disk 29 with pairs of slots 30 lying at right angles to each other may also be provided to hold the straps in proper position behind the shoulders of the aviator and to prevent accidental slipping off of the shoulder loops.

The harness may be adjusted to the aviator in different ways. In Figs. 1 to 4 I have shown the preferred arrangement in which each strap is so arranged upon the body as to form a figure **8**, through both loops of which the body of the aviator passes. Referring to Fig. 2, I have here shown one of the straps free, and the other in adjusted position upon an aviator. As here indicated the suspension ring 12 is positioned in front of the abdomen or lower chest. The strap 10 is carried down from the ring in the direction of the arrow *b* and passed beneath the buttocks at the rear. It will be noted that the broad seat portion 15 of the strap is so located that it bears against the thigh. The strap is then brought up in the direction of the arrow *c*, and passed in sequence through the buckle 18 and the ring 12. The studs 24 and 25 of the

buckle 18 are engaged in suitable eyelets of the series 26. Continuing diagonally upward across the front of the body the strap is passed beneath the left arm, and still upward across the back in the direction of the arrow *d* through the guard 29 and over the right shoulder, thence downward in the direction of the arrow *e* across the front of the body, and again through the ring 12 and through the buckle 19, the studs on which engage the eyelets of the series 27. Slip rings 31 and 32 may be provided to hold in position the free ends of the straps. It will be noted that the end of strap 10 will be accommodated in the slip ring 31 on strap 11, when the latter is adjusted, while the slip ring 32 of the strap 10 is in position to accommodate the free end of strap 11 after the latter has been adjusted.

Strap 11 is then wound around the body in precisely the same manner, but in opposite direction, passing downward and beneath the buttocks at the rear, thence upward through the buckle 19 on strap 10, where its eyelets 26 are engaged, thence upward through ring 12 and across the body beneath the right arm, upward across the back through the guard 29 and over the left shoulder, thence down through the ring to buckle 18, where its eyelets 27 are engaged.

It will thus be seen that the straps of the harness form two figure **8**'s, the lower loops of which substantially register, while the upper loops are warped in opposite directions, over-lie opposite shoulders, and cross each other at the guard 29 at the back of the aviator. It will also be observed that the two lower loops which register beneath the buttocks are completed at the buckles 18 and 19, at which point the straps are fastened. Similarly each of the two warped shoulder loops is complete by reason of the engagement of the strap with the buckles 18 and 19. In other words, each loop of the harness is independent of each other loop and is anchored on one or the other of the buckles 18 or 19. This fact is important since it enables the aviator to take the strain of the jump from any direction. Thus, if the jump is made head foremost with the parachute rope 13 passing between the legs, the strain of the shock when the parachute opens is transmitted to the harness through the shoulder loops, after which the aviator may somersault to the sitting position illustrated in Fig. 1.

If the aviator prefers to jump feet foremost, then the strain is taken by the registering seat loops around the buttocks and the position illustrated in Fig. 1 is readily assumed. In either manner of jump the strain upon the harness is transmitted to a portion of the body well able to withstand the pressure without injury.

However the jump is taken the aviator assumes the sitting position shown in Fig. 1 as the parachute floats downward. In this position the shoulder loops are without strain and the aviator may, without danger, disengage himself therefrom so that upon reaching the ground he may slip out of the harness instantly should the snap buckle which engages the ring 12 fail to operate. This is an important consideration since if the aviator descends in a wind he is very apt to be dragged by the chute after reaching the ground unless it is possible to at once free himself therefrom.

In Fig. 5 I have shown a modified method of adjustment of the harness. As here shown each strap is carried around the thigh and one leg only, thence up in front of the leg through the buckle and ring 12, beneath one arm, upward through the guard 29 at the back, over the opposite shoulder, down through the ring 12 to the buckle on the opposite strap. In this arrangement the engagement of the strap with the respective buckles is reversed, the strap passing first through its own buckle before it passes around the body and returning to the buckle on the opposite strap, as distinguished from the arrangement first shown, in which the strap first passes through the buckle on the companion strap, thence around the body over the shoulder and back to its own buckle, at which point it ends. I do not regard the form of support shown in Fig. 5 with as much favor as that indicated in the arrangement first shown, since on a jump feet foremost the leg loops are apt to slide upward and injure the aviator.

The straps may be laced in either manner illustrated before the harness is applied to the aviator, if preferred, and the latter may then step into the seat loops and pass his arms through the shoulder loops, the adjustment to a snug fit being accomplished by suitable manipulation of the straps and buckles.

It will be noted that the arms and legs of the aviator are completely free, so that the harness affords practically no impediment to movement in any direction. When sitting, for example in an aeroplane, the shoulder loops are somewhat loosened by reason of the drawn-up position of the legs and the aviator is quite unconscious of the presence of the harness.

Details of manufacture may be variously modified in many ways. Thus, while I prefer to make the straps of fabric, other suitable material may be employed. The particular buckle construction may be modified, for instance, by using oppositely faced independent buckles, and this construction I have successfully used in practice. The provision of the guard 29 is unnecessary, although it is an added feature of safety which I prefer to employ. The harness may

be variously modified in other details without departing from what I claim as my invention.

I claim—

1. A body harness comprising a suspension ring, and a pair of free ended straps anchored at one end to the ring and extending below the latter to form registering thigh loops, and passing through the ring to form above the latter a pair of independent crossed shoulder loops, together with means for engaging the straps at different points in their lengths to maintain the thigh and shoulder loops constant.

2. An aviator's harness comprising a supporting ring for engagement with a parachute rigging, and straps engaged by said ring and comprising thigh loops extending below said ring and shoulder loops extending above said ring, the thigh loops being arranged substantially in register.

3. An aviator's harness comprising a supporting ring for attachment to a parachute rigging, a pair of free ended straps extending from said ring, buckles on said straps adjacent said ring and two series of eyelets on each strap for engaging said buckles to form two loops for each strap extending respectively in opposite directions from the supporting ring.

4. An avitator's harness comprising a supporting ring, a strap engaging the same and having its engaging end folded back and secured in overlapping position upon the opposite strap length to afford a thigh band of greater width than the strap.

5. An aviator's harness comprising a supporting ring, a strap attached thereto and a buckle on said strap comprising oppositely faced rigid studs spaced longitudinally apart, together with a series of eyelets arranged in the length of the strap and adapted to engage the buckle, said eyelets being spaced apart the same distance as the buckle studs to register and form a double engagement therewith, substantially as described.

6. An aviator's harness comprising a supporting ring, a pair of independent straps extending therefrom and means for securing the same to form a double seat loop extending in one direction from the ring, and a pair of shoulder loops warped with respect to each other to encircle the body and pass over opposite shoulders, said shoulder loops crossing each other at the back of the harness.

In testimony whereof I have signed my name to this specification.

THOMAS H. GODWIN.