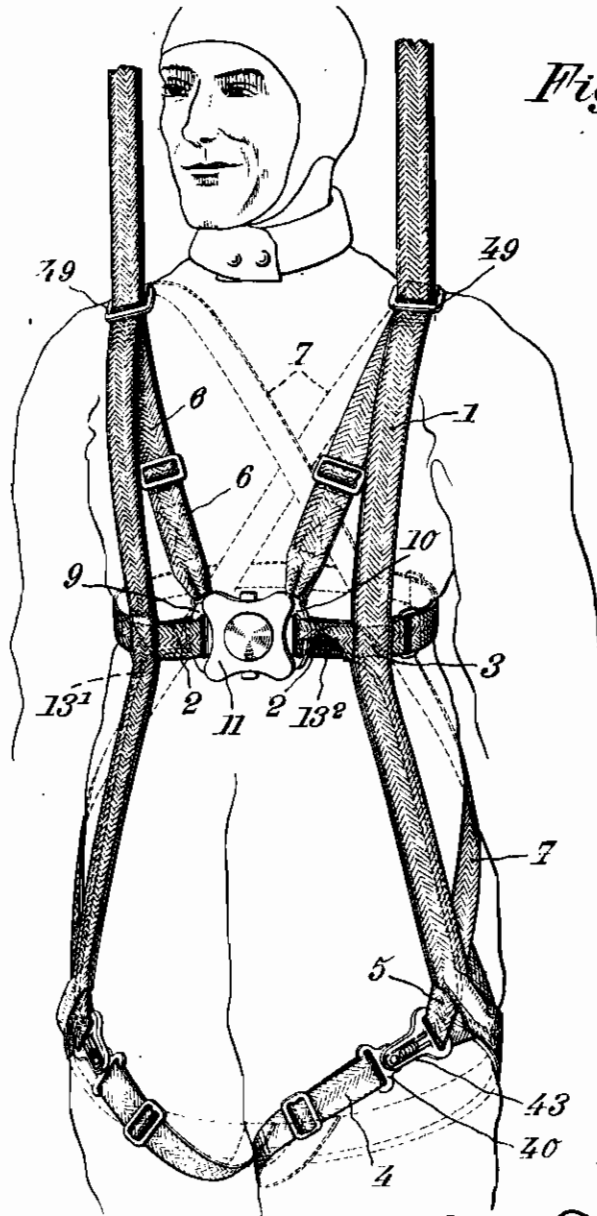


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*Fig. 1*

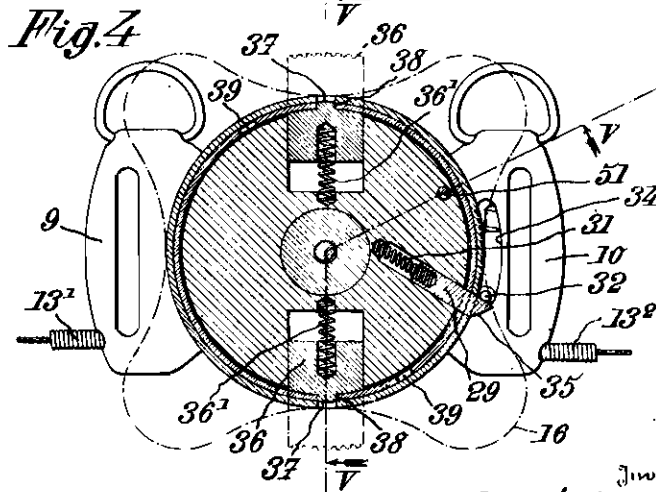
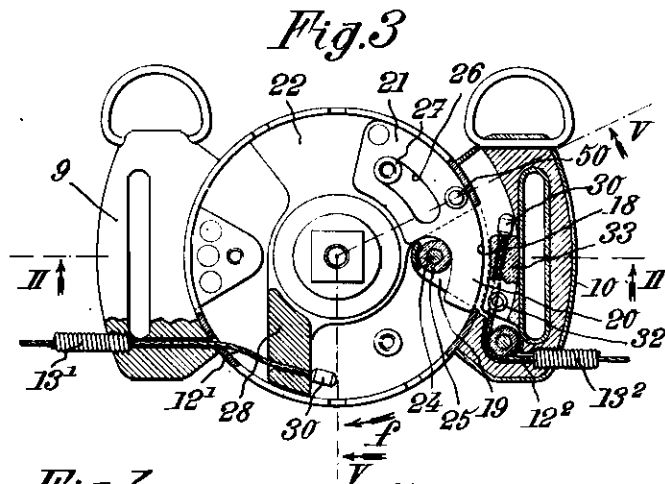
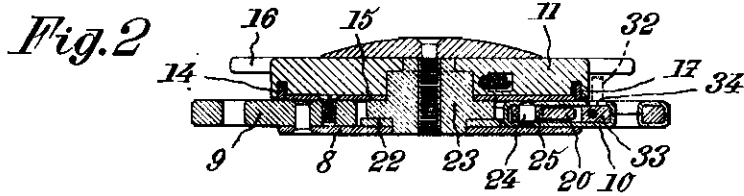
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Fig. 5

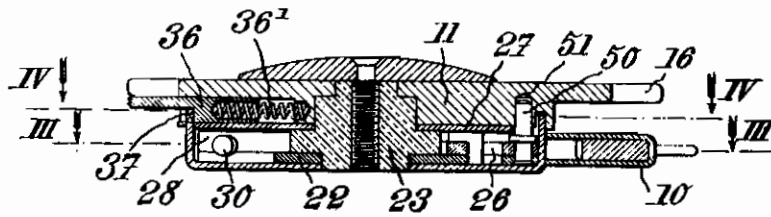


Fig. 6

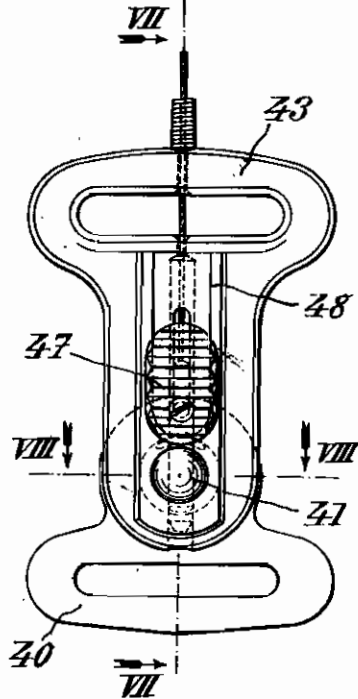


Fig. 7

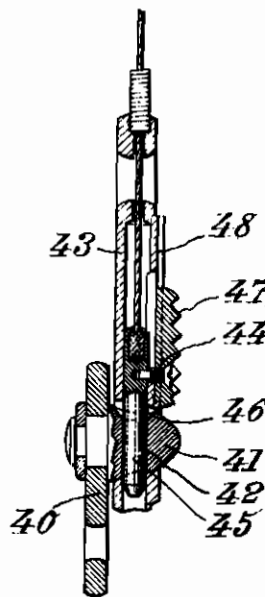
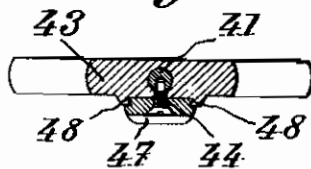


Fig. 8



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# ALIEN PROPERTY CUSTODIAN

## DEVICES FOR AIRCHUTS

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Application filed February 10, 1940

The present invention relates to parachute equipments, and more especially to those of the harness type, that is to say including, in particular, a U strap forming a seat for the parachutist, with thigh straps.

The object of the present invention is to provide a device of this type which is better adapted to meet the requirements of practice than those used for the same purpose up to this time, and in particular with which release can be obtained in a safer and simpler manner.

According to the present invention, the harness as above set forth including central release means for acting from a distance on the thigh straps is provided with a belt and the release means are mounted on said belt, said means being adapted simultaneously to release the belt, the thigh straps, and, eventually, shoulder straps connected to said release means.

According to another feature of the present invention, the harness as above set forth, including means for releasing the thigh straps from a distance is arranged in such manner that the means for opening or releasing said last mentioned straps include control means running along the U strap and partly along the belt, when such a belt exists.

According to still another feature of the present invention, the harness as above mentioned, with central releasing means, is provided with thigh strap releasing means adapted to be operated, when so desired, for opening the thigh straps without operating the central release buckle.

According to still another feature of the present invention, the buckle of a quick release parachute gear is arranged in such manner that release is obtained by rotation of a control member, the latter being further adapted, in a harness, to release the thigh straps.

Other features of the present invention will result from the following detailed description of some specific embodiments thereof.

Preferred embodiments of the present invention will be hereinafter described, with reference to the accompanying drawings, given merely by way of example, and in which:

Fig. 1 is a diagrammatic perspective view of the whole of a harness made according to the invention and of the release means thereof, also made according to the invention;

Fig. 2 is a transverse sectional view showing separately, on a larger scale, the central release buckle of the harness of Fig. 1;

Fig. 3 is a sectional view on the line III—III of Fig. 5;

Fig. 4 is a sectional view on the line IV—IV of Fig. 5;

Fig. 5 is a sectional view on the line V—V of Fig. 3 or Fig. 4;

Fig. 6 is a front view of a device for securing the thigh straps, adapted to be controlled from a distance by means of the above mentioned central buckle;

Fig. 7 is a sectional view on the line VII—VII of Fig. 6;

Fig. 8 is a sectional view on the line VIII—VIII of Fig. 6.

I will now describe, with reference to the above mentioned Figs, a preferred embodiment of a parachute harness made according to the present invention.

This harness essentially includes, in the usual manner, a strap 1, forming a U, the base or lower part of which is adapted to act as seat for the parachutist.

To this U strap, I combine the following elements:

a. On the one hand, a belt 2, suitably connected to said strap, for instance sewn at 3;

b. On the other hand, thigh straps 4, which extend from the rear, where they are fixed to strap 1, substantially at the middle part thereof, and are fastened at the front part to said strap 1, at 5, by means of releasable securing means, such as will be hereinafter described; and, preferably,

c. Shoulder straps 6—7, the front portion 6 of which is, for instance, fixed to the belt or the buckle which will now be described, while the rear portion 7 is fixed to strap 1, preferably at 5, where the thigh straps are secured.

Being given such a system, or the like, I provide the belt with fastening means arranged in such manner as to permit, when they are operated to perform the release, of simultaneously opening the belt, the shoulder straps and the thigh straps, said thigh straps being closed through fixation means which are advantageously controlled, from the central fastening means above mentioned, through sheathed cables (of the same kind as those used for controlling the shutter of a camera) as it will be hereinafter supposed.

In the embodiment illustrated by the drawing, all these means are made as follows:

I make use of a buckle 8—11, to which are fixed both the belt and the shoulder straps, that is to say one of the shoulder straps and one of

the ends of the belt are, for instance, permanently fixed to the buckle proper, or a piece 9, rigid therewith, (on the left hand side of the drawing) while the other shoulder strap and the other end of the belt are fixed to a piece 10 adapted, on the contrary to be fixed in a releasable manner to the belt.

In order to permit of securing the two parts together or, on the contrary, of separating them from each other, the buckle is provided with a control member, constituted, for instance, by a kind of pivoting cover 11, suitably connected, on one hand, to the releasable piece 10, and, on the other hand, to thigh strap control cables 12<sup>1</sup> and 12<sup>2</sup>, slidable in their sheaths 13<sup>1</sup>, 13<sup>2</sup>.

In the embodiment described, the buckle constitutes a circular case the bottom of which is shown at 8, with cylindrical walls 14 (Figs. 2 to 5) said kind of cup-shaped element being covered by a cover 11, with the interposition of a separating partition 15, if necessary. The cover is pivotally mounted, about the axis of the cup-shaped structure and is advantageously provided with lugs 16, in order to permit of handling it more easily.

Wall 14 is preferably overlapped by a flange 17 of cover 11 and it is provided with a hole through which extends piece 9, and another hole 18 (visible on Fig. 3) through which can be engaged the corresponding end (for instance wedge-shaped) of piece 10.

I will now describe the means for enabling cover 11 either to catch or, on the contrary, to release piece 10—19.

In the embodiment shown, said means consists of a hook 20, fixed to said cover. For instance, said hook 20 is carried by a piece 21, fixed on a support 22, itself driven by the pivot member 23 of the cover.

This hook 20 coacts with a lug 24, fitted with a roller 25, the whole being carried by piece 19, which is advantageously hollow, so that the hook can penetrate into the interval between the two plates which constitute said piece 19. Piece 10, rigid with 19, can be made in a similar way.

Finally pieces 21—22 are provided with an elongated slot 26 in which engages a pin 27, in such manner as to limit the angular displacement of the cover.

I will proceed to describe the means for enabling the cover to operate the cables which control the opening of the thigh straps. Preferably these cables lead to pieces 9 and 10, respectively.

According to an interesting feature of the invention, these means are made in such manner as to permit of releasing the thigh straps without having to operate the central buckle.

For this purpose, I provide two driving members 28, 29, combined with the control cables in such manner as to be able to drive said cables in only one direction.

One of these pieces, 28, located on the side where the buckle is permanently fixed to the belt, is for instance constituted by a projection of pivot member 23. Through this projection extends cable 12<sup>1</sup>, provided with a small abutment mass 30. But this piece 28 might also be made similar to the piece 29 which will now be described.

This piece 29 is arranged in such manner that it can cooperate correctly with cable 12<sup>2</sup> or parts associated therewith, when piece 10 is engaged with the buckle.

Piece 29 is, for instance, constituted by a driving radial finger, slidably mounted in the buckle

cover and urged outwardly by a spring 31 so as to project across the path of a lug 32 rigid with a sliding part 33 which serves to drive cable 12<sup>2</sup>. Said cable extends through said sliding part and is provided, at its end, with an abutment mass 30. The sliding part is, for instance, movable along a circular path inside piece 10, the lug 32 of said sliding part projecting to the outside of said piece 10 owing to the provision of a slot 34 therein.

Furthermore, driving finger 39 is provided with a bevelled edge 35 adapted to permit, after the engagement of piece 10 on the buckle, lug 32 to occupy any position and finger 39 to come, during the closing of the buckle (which is produced by a rotation of the cover in the direction of arrow *f*, shown by Figs. 3 and 4) into contact with said lug and, owing to bevel edge 35, to pass on the other side thereof. In this way, the finger can thus drive the lug during the release operation, which corresponds to a rotation in the direction opposed to arrow *f*. It should be noted that, in this case also, the drive takes place in only one direction, which permits of manually releasing the thigh strap without acting on the central buckle.

This buckle further includes means for locking it in the closed position. Said means includes in the embodiment shown by the drawing, two push-pieces 36, adapted to be operated from the outside against the action of springs 38<sup>1</sup> which, normally, tend to engage projections 37, carried by said push pieces into one or the other of two series of holes 39, corresponding to the closed and opened positions, respectively, and provided in the wall 14 of piece 8. In order to pass from one to the other of these positions, it suffices to push in the two push-pieces and to operate the cover in the direction of arrow *f* (for closing) or in the opposite direction (for releasing).

Concerning, finally, the mounting of the control cables for operating the thigh strap fastening means, I have found that it is advantageous to make use of the following arrangement:

The control cables advantageously pass first along the ends of the belt, then along strap 1, so as to lead preferably to a projection 5 to which the thigh strap fixation means are secured. For instance, this projection 5 is constituted by an extension of the shoulder strap 7.

The thigh strap fastening means are made as follows:

They include a male element 40, preferably fixed to the thigh strap and provided with a spindle 41 having a hole 42 formed therein. On the other hand, there is a female element 43, fixed to projection 5, said element including a pin 45 adapted to penetrate into hole 42 once the spindle has been correctly engaged into the female element. Hole 42 is widened at 46 on the side of the pin so as to facilitate the engagement thereof.

This pin, which is constituted for instance by a cylindrical rod suitably guided in piece 43, can be operated, on the one hand, by the corresponding control cable 12<sup>1</sup> or 12<sup>2</sup>, and, on the other hand, preferably manually so as to permit the fastening of the device when the parachutist puts the harness on, and also to permit the release, when so desired, without acting on the central buckle.

For this purpose, an operating member 47 is provided on the outside, being fixed to the pin at 44 and suitably guided at 46.

It should be well understood that any other

means than those (spindle and pin) above described might be used within the scope of the invention.

The harness further includes any suitable tightening means for fitting it to the size of the parachutist. The double-D buckles shown at 49 on Fig. 1 are supposed to cooperate respectively with the two portions 6 and 7 of each shoulder strap, such an arrangement being given merely by way of example.

Whatever be the particular arrangement that is chosen, I obtain a system the operation of which results sufficiently clearly from the above description for making it unnecessary to enter into further explanations.

This operation can be summed up in the following manner:

When the parachutist puts the harness on, the central buckle being supposed to remain in the release position, the closing of the belt is effected first by means of this buckle, the cover of which is turned in the direction of arrow *f* after having introduced wedge 19 into the corre-

sponding housing. At the end of this operation, bevel edge 35 having passed on the other side of lug 32, the operation of the two control cables 12<sup>1</sup> and 12<sup>2</sup> is quite free. Therefore all the parachutist has to do is to secure the thigh straps by acting on operating members 47.

If now the parachutist wishes to release the harness, for instance after he has landed, it suffices to operate said cover in the direction opposed to that of arrow *f* after having brought the locking means thereof out of action. The release of the various parts of the harness is then simultaneous and complete for all of them.

If, on the other hand, at any time, the parachutist, wearing the harness, wishes merely to unfasten the thigh straps, he can always do so by acting on members 47, without touching the central buckle.

The system according to the invention is particularly simple to make, easy to operate and perfectly safe.

RENÉ TAUTY.