

Sept. 29, 1942.

P. NASCA

2,297,493

FLOATING PARACHUTE PACK

Filed April 17, 1940

3 Sheets-Sheet 1

Fig. 1

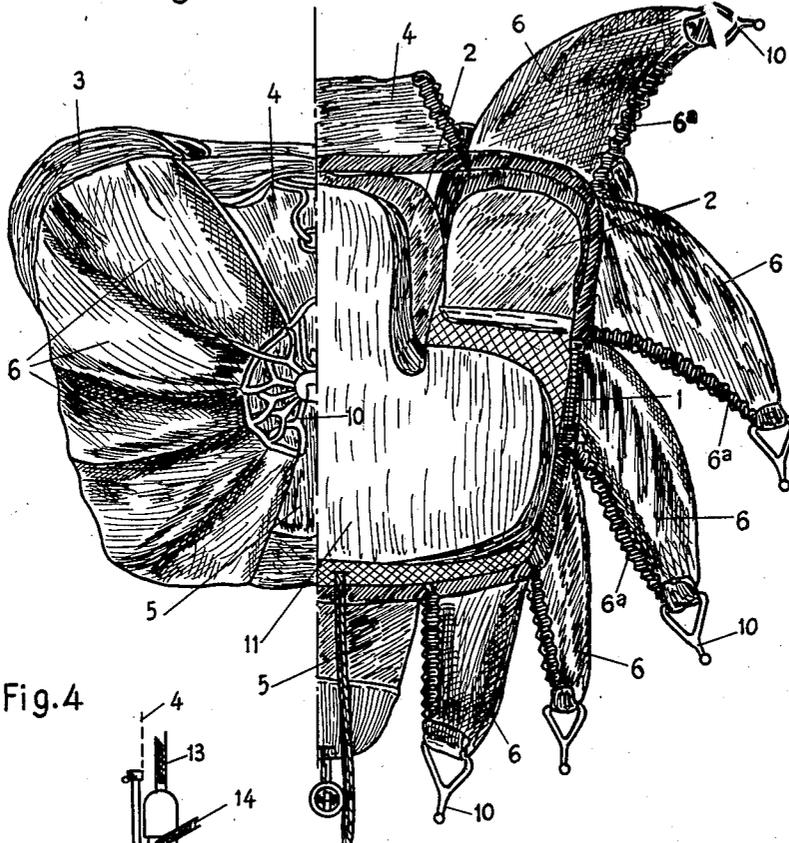


Fig. 4

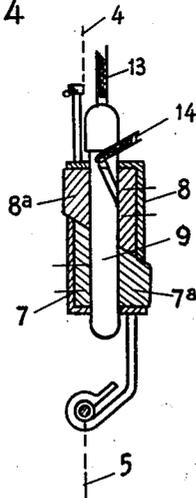
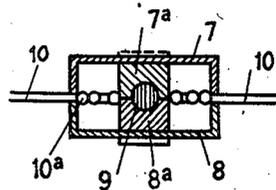


Fig. 5



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Fig. 2

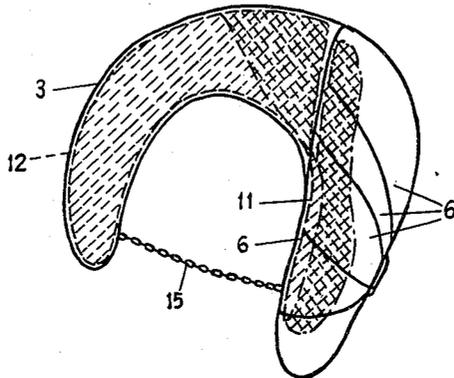
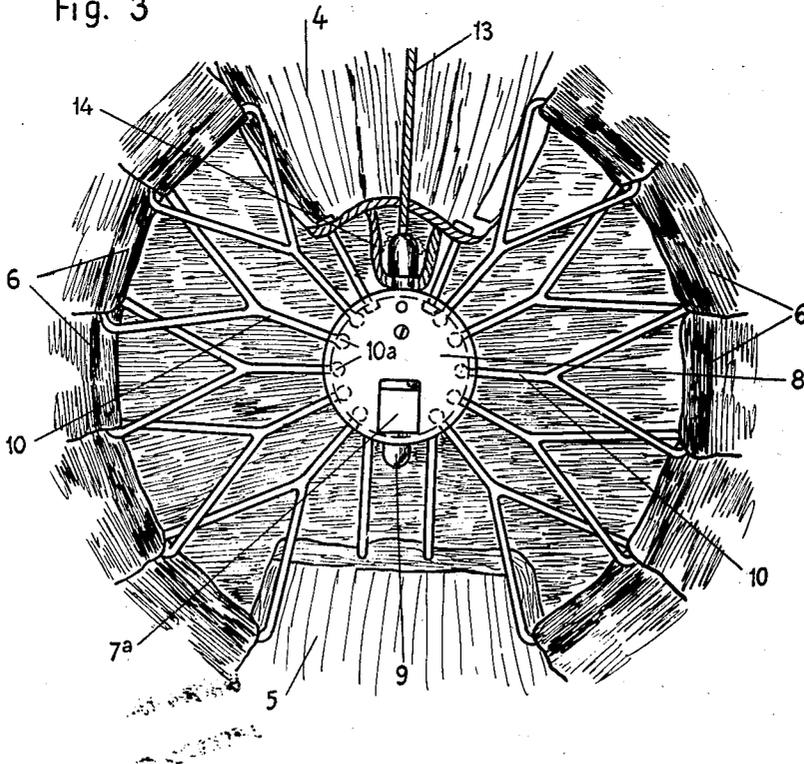


Fig. 3



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Fig. 6

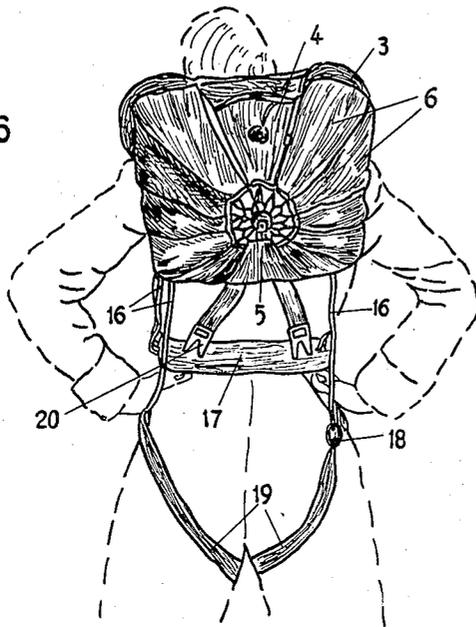
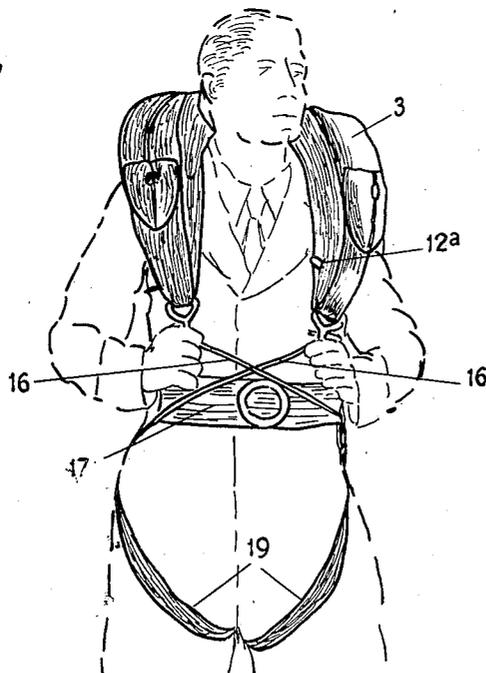


Fig. 7



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UNITED STATES PATENT OFFICE

2,297,493

FLOATING PARACHUTE PACK

Pasquale Nasca, Rome, Italy; vested in the Alien
Property CustodianApplication April 17, 1940, Serial No. 330,217
In Italy April 19, 1939

3 Claims. (Cl. 244-148)

This invention relates to a parachute pack, the chief characteristic of which consists in that it is provided with a bladder which is inflated with compressed air when the parachute is dropped from the aeroplane, said bladder facilitating the release of the parachute, and acting as a float when the parachutist descends on a water surface. The bladder of rubberised fabric is of suitable form to support the wearer's back and shoulders and comprises a main compartment fitting to the wearer's back and two upper side compartments communicating with the former and resting on the shoulders. The pack is secured to two belts encircling the wearer's thighs and allows free movements of the wearer who may be a pilot, an observer, a photographer, a gunner etc.

The compressed air is supplied from a small bottle arranged in the pack and is fed into the bladder automatically by means of a spring attached to the aeroplane or manually by the parachutist during the descent. Owing to the special form of the pack the air is first conveyed into the shoulder compartments, which are thus inflated while the back compartment is pressed in a small volume together with the parachute by the pack flaps. When the flaps are released automatically or by the parachutist himself, the air in the shoulder compartments expands and inflates also the back compartment coating in releasing the parachute held between said compartment and the pack flaps. These flaps which constitute the outer surface of the pack are in the form of triangular segments, the apices of which are each provided with a hook and assembled at the center of the surface where they are held by a single clasp means. A simultaneous unclasp of all the triangular flaps is produced by the parachutist by pulling a string which disengages the clasp means from a pin.

One of the side free edges of the triangular flaps is elastic and the other is provided with a bead; when closing the pack, the elastic edge of a flap is laid over the bead of the adjacent flap, thus forming a continuous surface. When the clasp means is released, the elastic edge causes shrinking of the flaps thus facilitating the deployment of the parachute which remains secured by its strings to the thigh belts.

Further features of the pack according to this invention will appear from the following specification with reference to the annexed drawings, in which:

Fig. 1 shows the pack closed on the left side and opened on the right side as seen on the wearer's back.

Fig. 2 is a side view of the compressed air bladder.

Fig. 3 shows on an enlarged scale the flap fastening means in the closed position of the pack.

Figures 4 and 5 show in vertical and horizontal section respectively the clasp means.

Figures 6 and 7 show a parachutist in front and back view respectively, wearing the parachute in the pack, the compressed air having already been introduced in the bladder.

The pack comprises a square frame 1 (Fig. 1) enclosing the inner wall 2 provided at its upper corners with two large openings 2' in which are fitted the bags 3 resting on the wearer's shoulders. Figures 2 and 7 show said bags in the inflated state. The pack flaps 4 and 5 are secured to the central part of the upper and lower sides respectively of the frame 1; the flaps 6 of triangular form having a cut off apex are secured to the remaining part of the sides of the frame and constitute the outer surface of the pack. The parachute sail is located between the inner and outer wall and a portion of the bags 3.

The flaps 4 and 5 carry at their ends circular hollow members 7 and 8 (Figs. 3, 4 and 5) the edges of which are spaced apart by projections 7a, 8a through which a pin 9 is passed when the pack is fully closed. The flaps 6 carry hooks 10 adapted to fit in the gap between the edges of the hollow members.

Each hook is provided with a spherical head 10a held between the edges of the hollow members 7 and 8 by superposing the member 8 and member 7 and connecting both members by means of a pin 9 (Fig. 5). One edge 6a of the flaps 6 is elastic and the other edge is formed with a bead; when the pack is closed the first edge is superposed on and holds the bead of the adjacent flap (Fig. 1, left). When the pack is opened by removing the pin 9, the elastic edge causes the flap to shrink and helps in producing a quick deployment (Fig. 1).

A bladder 11 of rubberised fabric is attached to the inner side of the back wall 2, said bladder extending by its extensions 12 inside the bags 3 (Fig. 2). When the parachute is enclosed in the pack its size is small and is not felt by the wearer as long as compressed air is not admitted through a valve 12a in one of the bags communicating with a bottle carried by the parachutist and which may be thrown away after inflation. The air fills the space shown in dash lines in Fig. 2 and inflates nearly completely the bags 12 while the bladder 11 remains shrunk owing to the presence of the parachute in the pack. When

the pack is opened the air expands and inflates also the bladder 11 filling the space cross-hatched in Fig. 2, thus facilitating deployment of the parachute. The inflated pack, freed from the parachute may keep the wearer floating on the water surface.

A string 13 of a certain length is secured at one end to the clasping pin 9 and at its other end to the aeroplane. A short time after the parachute is dropped, the string reaches its full length and pulls pin 9 free, releasing the flaps 4, 5 and 6 and releasing the parachute, thus allowing bladders 11 and 12 to expand so that the pack is forced open and the parachute forced out. A string 14 anchored to the pin 9 is within reach of the parachutist in a pocket in one of the bags 3 to unclasp the pack when it is dropped. The strings are conveniently led through openings in the flap 4; generally elastic eyelets, wings, etc. are used in addition to the means above described for the purpose of obtaining a rapid and easy opening of the pack and release of the parachute.

The pack above described is particularly though not exclusively adapted to receive the parachute described in my copending patent application.

The pack and parachute are worn in the manner of a knapsack (Figures 6 and 7), the expansions 3 constituting the shoulder straps and the chains 15 (Fig. 2) serving as arm-hole attachment.

The parachutist is suspended to the parachute by means of two steel cords 16, which are anchored to the waistband 17 and led upwards forming a loop engagement with the rigging lines of the parachute, then led downwards over the parachutist's back (Figure 6), crossed on his waist and secured at their free end to the ends of bags 3 (Fig. 7) after having been led through the rings 18 of the belts 19 anchored to the lower side of the frame 1 of the pack (Fig. 6) and passing from the back to the fore part of the thighs and back again to the hips where they are suspended to the cords 16.

The belts 19 form thus a loop encircling the thigh and subjected to tension on dropping the parachute. The tension however is applied only underneath the waistband and the pack (Fig. 6) is relieved from the tension by means of the stops 20 engaging with the waistband. The position

of the rings 18 and stops 20 may be suited to the size of the wearer.

The constructional details, number of pack flaps, form of hooks, etc., may be modified from what has been described and illustrated by way of example without departing from the spirit of the invention.

What I claim is:

1. Parachute pack, comprising a square frame, a bottom wall in said frame having two openings in proximity to the upper corners, bag-like extensions secured to the edges of said openings, means for securing said frame on the wearer's back and said extensions on the wearer's shoulders, an air-tight bladder on said bottom wall having compartments located in said bag-like extensions of said frame, a plurality of flaps of substantially triangular form secured to the periphery of the frame, easily disassemblable means for clasping the apices of said flaps at the center of the frame forming a cover for enclosing a folded parachute inside the frame, and means for filling the bladder and its compartments with a pressure gas when the parachute is dropped, thus facilitating release of the parachute and providing a float for sustaining the parachutist when descent is made on a water surface.

2. Parachute pack, as claimed in claim 1, in which the means for clasping the flap apices comprise hollow members secured to the apices of two diametrically opposed flaps, projections in said hollow members to space the latter apart, a pin passing through a hole in said projections to connect said hollow members together, attachment means each ending in a spherical head secured to the apices of the remaining flaps and adapted to be clasped and kept in place between the edges of said hollow members, and means for withdrawing said pin and simultaneously disengaging all the attachment means.

3. Parachute pack, as claimed in claim 3, in which the triangular flaps comprise an elastic side edge, the other side edge being of bead form, so that in the closed position the elastic edge of a flap is superposed to and holds in place the bead of the adjacent flap while when unfolding the elastic edge produces shrinking of the flaps and helps in effecting a rapid deployment.

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