

April 22, 1930.

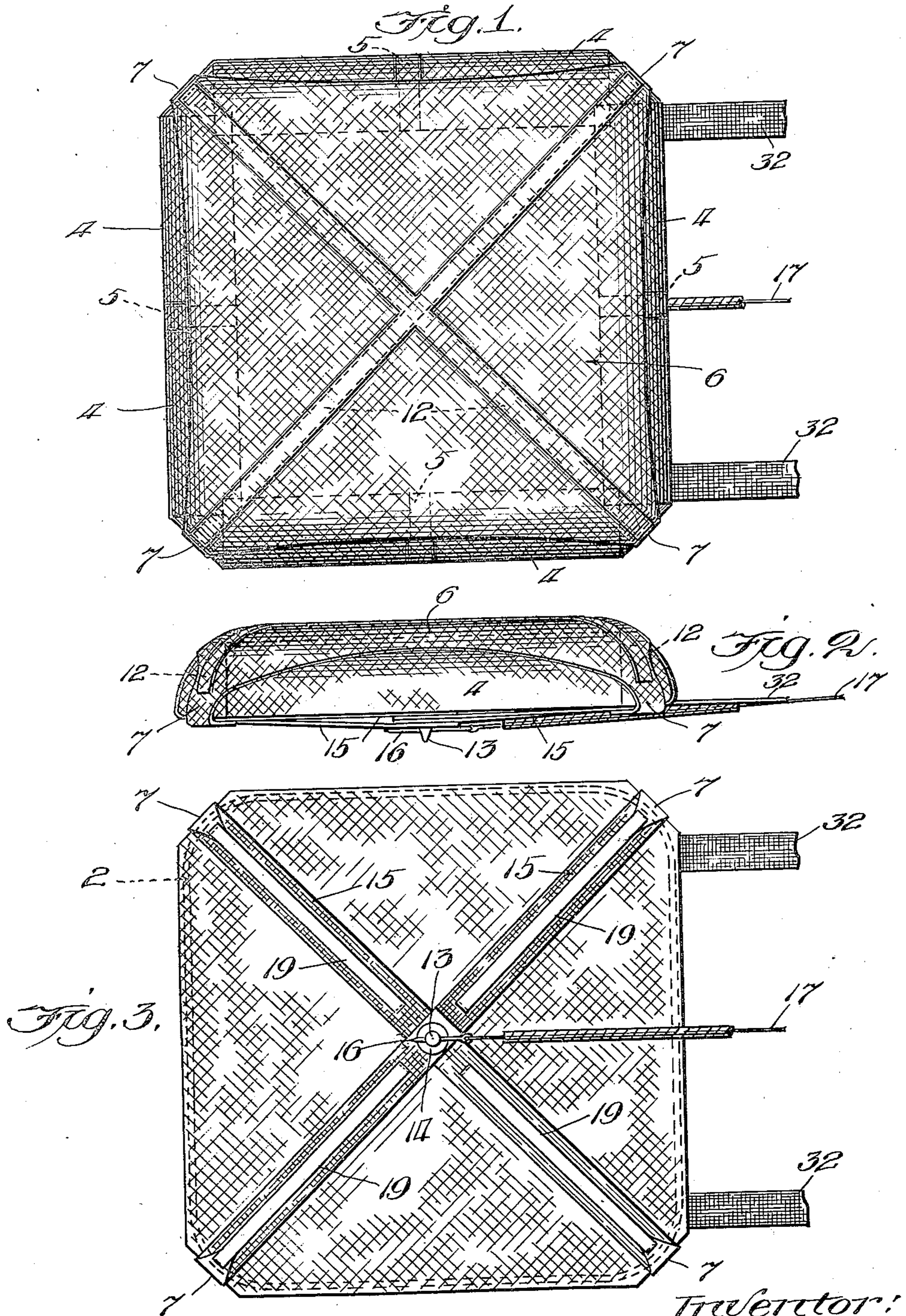
F. SMITH

1,755,414

PARACHUTE PACK

Filed Sept. 12, 1928

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April 22, 1930.

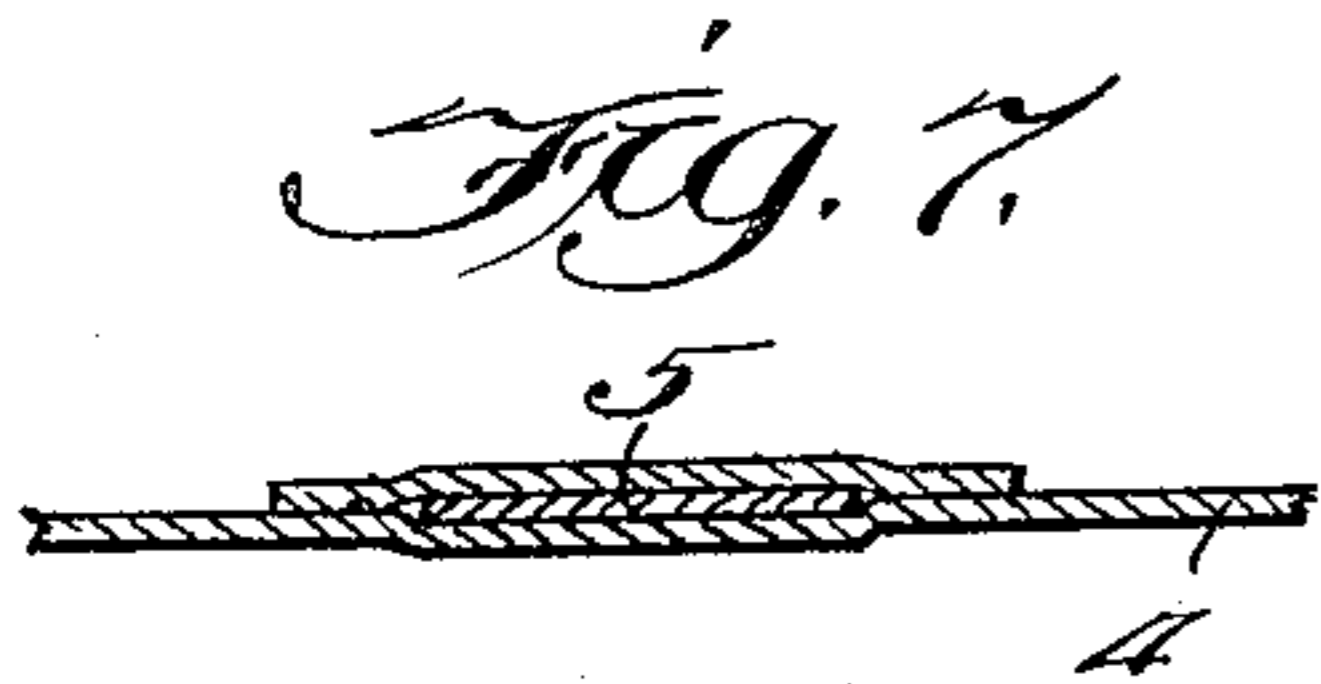
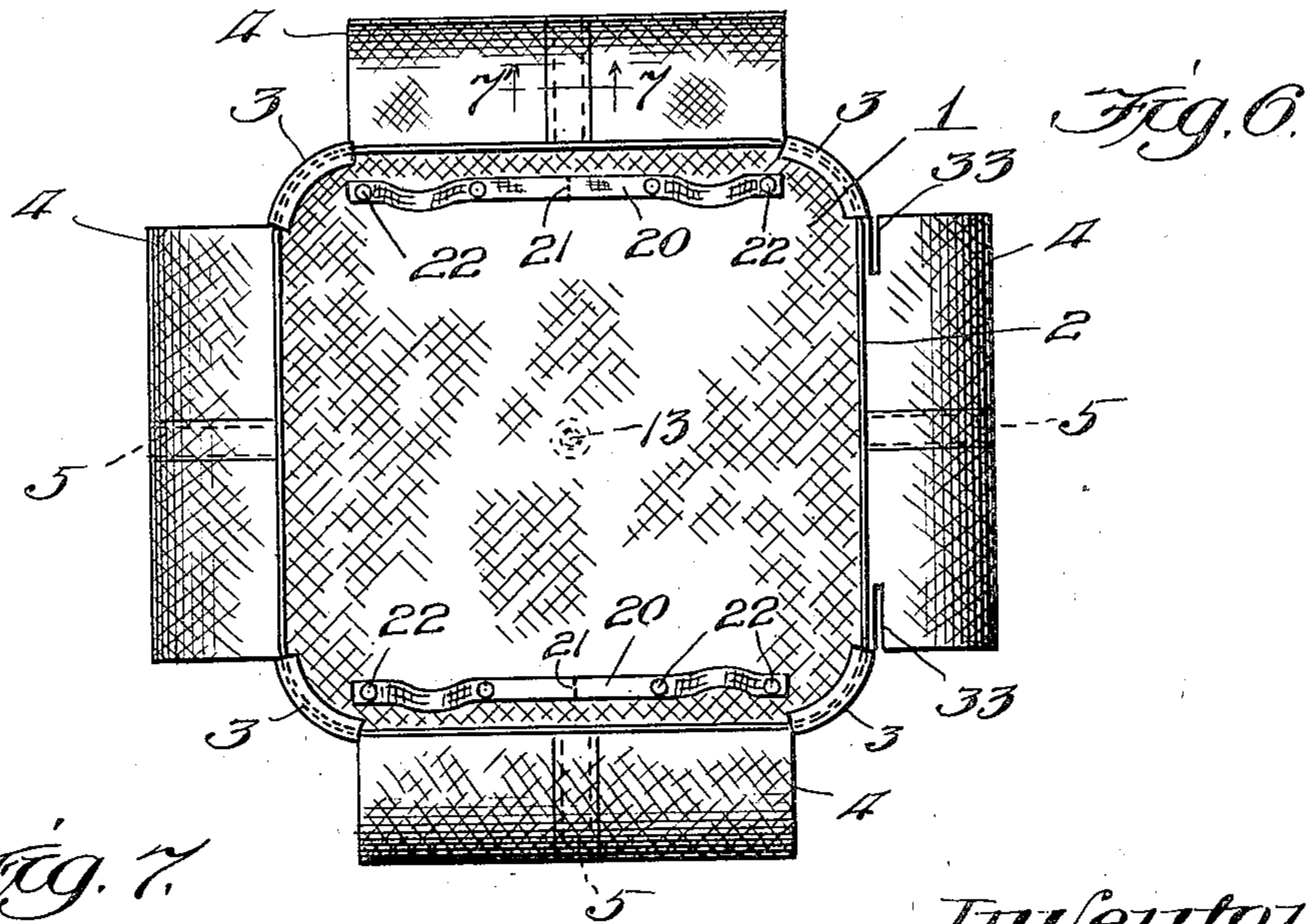
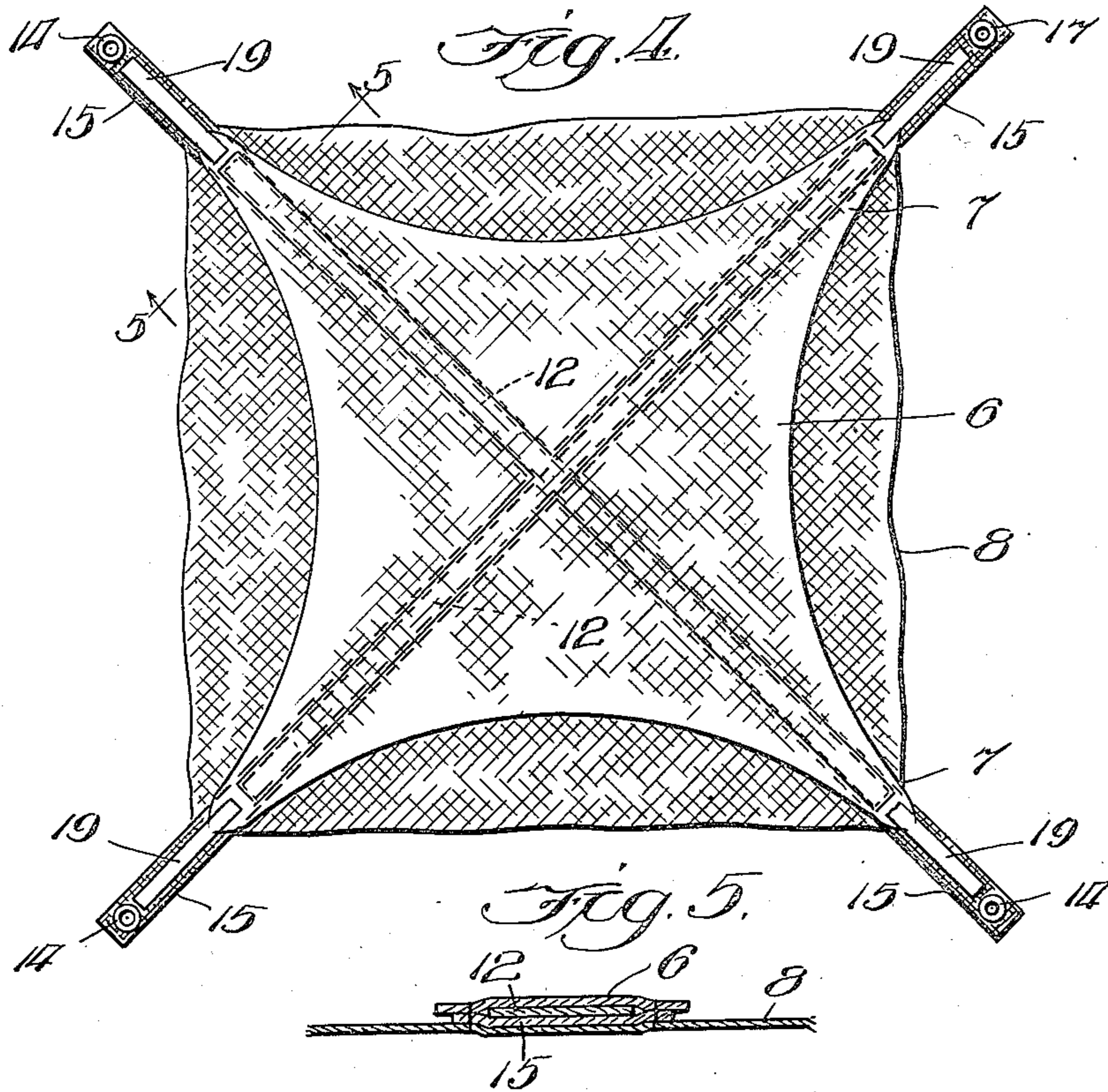
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PARACHUTE PACK

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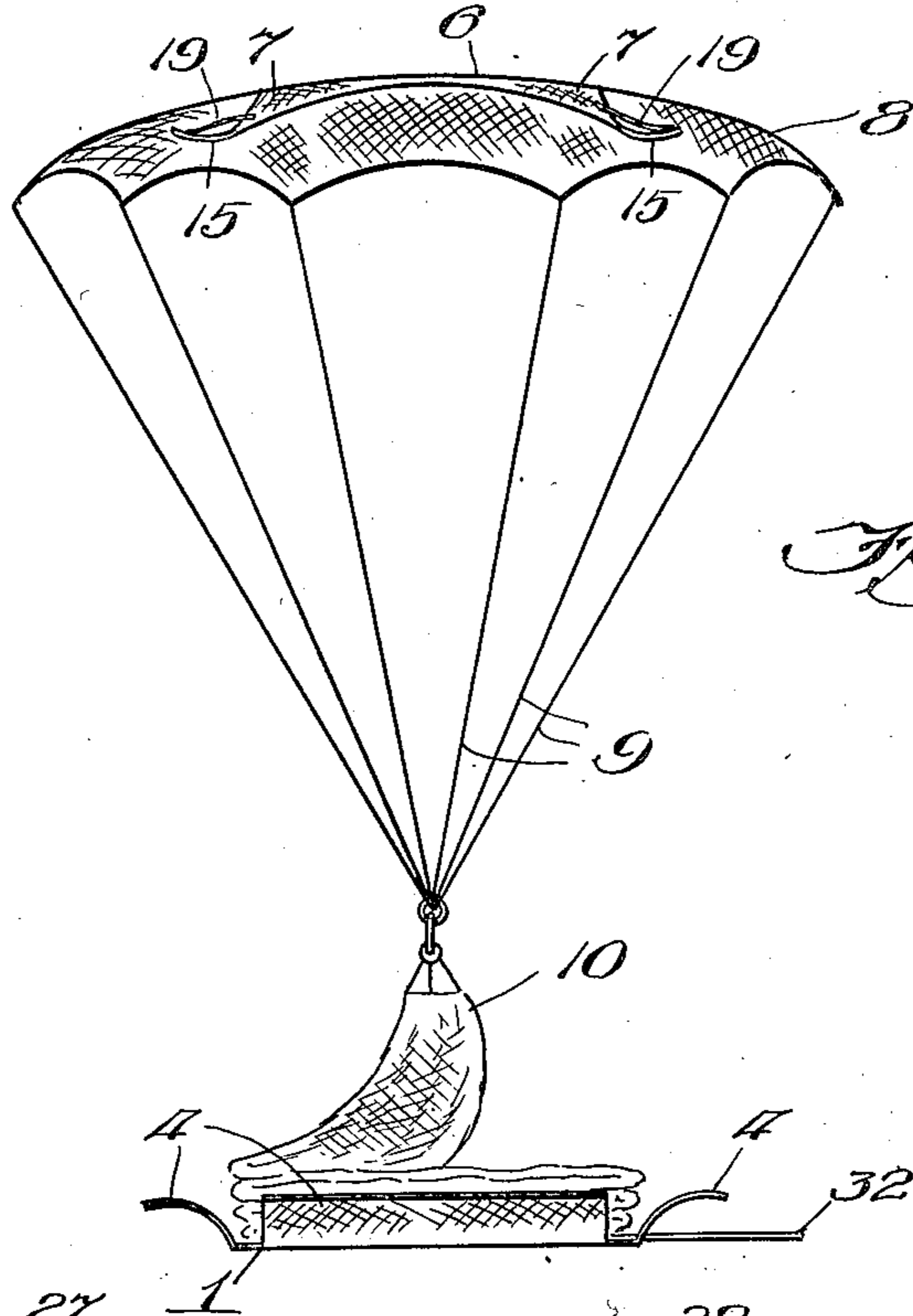
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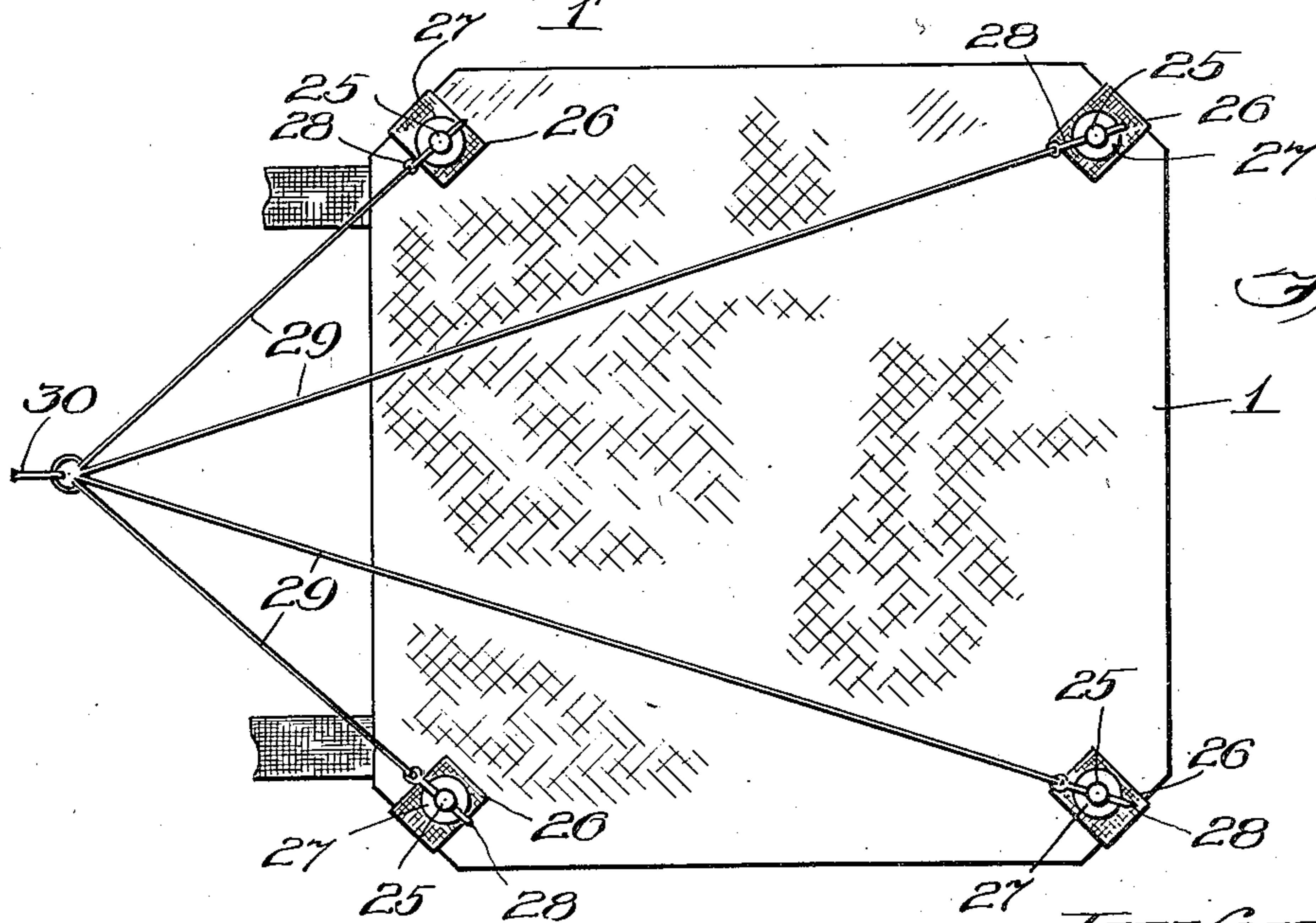
PARACHUTE PACK

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3 Sheets-Sheet 3



*Fig. 8*



*Fig. 9*

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# UNITED STATES PATENT OFFICE

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## PARACHUTE PACK

Application filed September 12, 1928. Serial No. 305,603.

The present invention has for its objects to produce a parachute pack that will be simpler and cheaper than the packs now commonly in use; to provide improved means for causing the pilot parachute, if one is used, to open and catch the air; to enable the parachute to have an unobstructed path in leaving the container; and more effectively to guard and protect the release cord or cords and pin or pins.

In carrying out my invention, I have caused a section of the main parachute or of the pilot parachute, if one is used, to form a wall of or closure for the container. Consequently, upon disconnecting this section from the container, a part of the parachute is already outside of the container, ready to catch the air. Therefore, viewed in one of its aspects, the present invention may be said to have for its object to produce a simple and novel parachute pack, enclosing the body of the parachute or parachutes the various shroud lines, in which the envelope or container is formed in part by the parachute itself.

The various features of novelty whereby my invention is characterized will hereinafter be pointed out with particularity in the claims; but for a full understanding of my invention and of its objects and advantages, reference may be had to the following detailed description, taken in connection with the accompanying drawing, wherein: Fig. 1 is a top plan view of a parachute pack arranged in accordance with my invention; Fig. 2 is a side or edge view of a pack; Fig. 3 is a bottom plan view of the pack; Fig. 4 is a plan view of a fragment of the parachute, at the apex, illustrating the section that forms the cover for the container; Fig. 5 is a section taken on line 5—5 of Fig. 4; Fig. 6 is a top plan view, on a smaller scale than Figs. 1-4, of the body member of the container in its open condition; Fig. 7 is a section, on an enlarged scale, taken on line 7—7 of Fig. 6; Fig. 8 is a view showing the pack open, the pilot parachute having already been opened and partially drawn the main parachute from the container; and Fig. 9 is a view sim-

ilar to Fig. 3 illustrating the arrangement of release cords and pins.

Referring to Figs. 1 to 8 of the drawings, 1 represents the base member or bottom wall of the container for a parachute. This member may be of any desired size and shape. In the arrangement shown, the member 1 consists of a piece of canvas or other strong, wear-resisting fabric, held in a flattened condition by means of a wire frame 2 extending along the edge of the same. Where the pack is to be rectangular or square, as shown, the four corners may be cut away or rounded, as indicated at 3. The sides of the container are in the form of separate or individual flaps 4, one at each edge or side. Each flap is preferably provided with means that will tend constantly to swing it outward, and thus leave the space above the base member unobstructed. In the arrangement shown, each flap has secured to the same a flat spring 5 that extends at right angles to the edge of the base member to which the flap is hinged. This spring may be curved so as to tend normally to hold the flaps curved upwardly and outwardly, as indicated in Fig. 8.

The cover for the container consists of a piece 6 of canvas or other suitable, strong, wear-resisting material, large enough to extend over the marginal portions of the side flaps of the container along the upper or free edges, when these flaps are folded up and curved inwardly over the marginal portions of a parachute packed in the container. The member 6 also has wings 7 that will extend down to the corners of the body member, overlapping the marginal portions of the flaps at the ends of the latter and closing the gaps existing at the four corners because of the fact that adjacent flaps do not meet at the corners. Means are provided for securing the ends of the wings to the base, as will hereinafter be explained.

The cover member 6 constitutes a section at the apex of the parachute 8 which, in the embodiment of my invention illustrated, is a pilot parachute whose shroud lines 9 are attached to the apex of the main parachute 10.

In practice the member 6 will ordinarily be laid directly upon the parachute canopy

that is complete in itself, although it might be set in an opening provided therefor in the canopy.

Ordinarily, where pilot parachutes are employed, springs are provided to open the same when released from the pack. In my improved construction, I eliminate the usual springs and substitute therefor by placing in or on the cover section 6, springs 12 that may conveniently extend diagonally of the cover section.

In the arrangement shown, the cover is provided with eyelets adapted to slip over a cone shaped projection, 13, located at the underside of the base member at the center. The eyelets, indicated at 14, may conveniently be in the ends of straps 15 secured to and forming continuations of the wing portions 7 of the cover element. The cone is perforated in the usual way, so that when a pin 16 is inserted in the same after the eyelets have been assembled thereon, the pack will be secured in its closed condition. A release cable 17 is connected to the pin 16 so that, when the parachute is to be freed from the pack, a pull on the release cable will draw out the pin and permit the eyelets to slip from the conical projection, thus freeing the cover.

The springs in the cover tend to hold it flat. However, in drawing the cover down in closing the pack, the springs are bent down at the ends. As a result, as soon as the eyelets are freed from the conical projection the springs begin to flatten out, permitting the cover section to return to a flattened condition and thus be permitted to catch the air and cause the parachute or parachutes to be withdrawn. As heretofore explained, the side flaps on the container swing outwardly as soon as the pressure of the cover thereon is released. Consequently, as soon as the cover section catches the air there is no longer anything to interfere with the withdrawal of the parachute or parachutes.

If desired, each of the straps 15 may have an elastic cord 19, conveniently of rubber, extending lengthwise of the same; one end of each elastic cord being secured to corresponding strap near the free end of the latter, and also being secured to corresponding wing of the cover element. Normally each elastic cord is shorter than that portion of the strap which it spans. Consequently, the elastic cords are stretched when the eyelets are engaged with the conical projection so that, upon the release of the eyelets from the projection, the cords draw the straps back.

The base member of the container may be provided with suitable means for holding the folded shroud lines in place, but permitting the lines to draw out freely when the parachute or parachutes open. In the arrangement shown, there are two pieces of tape 20 lying near and parallel with two opposite edges of the base. Each piece of tape is

adapted to be detachably fastened to the base at a plurality of points to form a series of pockets. In the arrangement shown, each tape is permanently fastened to the base, at the middle, as indicated at 21, to prevent it from being mislaid, and is provided with a plurality of snap fastener elements 22, cooperating with complementary elements on the base.

When the parachute is to be packed, the snap fasteners are released, and, after the shroud lines have been laid on the base in proper positions, the free ends of the tapes are laid across the lines and snapped to the base.

Instead of having only a single cone over which the eyelets from all of the securing straps are placed, there may be as many cones as there are straps. Thus, in Fig. 9 I have illustrated an arrangement in which there are four cones, 25, on the under side of the base, one near each corner. The straps 26 correspond to the straps 15 in the construction previously described, and are only long enough so that the eyelet 27 in each of the straps may be slipped over the adjacent cone. Each eyelet is held in place by a pin 28 extending transversely through the corresponding cone. There is a separate release cord 29 for each pin, and all of these cords are connected to the cable 30 so that, by pulling on the cable, all of the pins will be withdrawn.

Any suitable harness may be associated with my improved pack; however, I have illustrated only two straps, 32 that must extend into the pack and be connected to the parachute or parachutes. These straps may enter the pack through suitable slots 33, at the base of one of the side flaps of the container, as indicated in Fig. 6.

It will thus be seen that I have produced a parachute pack that is extremely simple; the parachute or parachutes being thoroughly housed and protected when the pack is closed; the parachute or parachutes being able to catch the air almost simultaneously with the pull on the release cord, and having an unobstructed path in drawing out of the pack; and the detachable fastenings being on the under side of the pack and being better protected, in use, than if they were on top.

While I have illustrated and described in detail only a single preferred form of my invention, with a slight modification, I do not desire to be limited to the details thus illustrated and described; but intend to cover all forms and arrangements coming within the definitions of my invention constituting the appended claims.

I claim:

1. In combination, a parachute container open to expose a parachute therein and a parachute adapted to be housed in the container, said parachute having at the apex a reenforced section adapted to extend across

and close the opening in the container on the outer side of the latter when the parachute is housed in the container.

2. In combination, a parachute container open on one side, a parachute adapted to be housed in the container and having a wear-resisting section adapted to lie on the outer side of and form a closure for said open side, and means for detachably connecting said section and the container together to form a protection cover for the parachute.

3. In combination, a parachute container comprising a base member and individual side flaps connected to the base member, a parachute having at the apex a wear-resisting section large enough to overlie the free ends of the said flaps when the parachute is packed upon the base member and the side flaps are swung up, and means for detachably connecting the said section to the container so as to hold the said flaps in their raised position and form with the container a complete housing for the body of the parachute.

4. In combination, a container comprising a base and individual side flaps hinged to the base, spring means tending to swing the flaps down, a parachute having at the apex a wear-resisting section tending to maintain a flattened condition and large enough to overlie the free ends of the said flaps when the parachute is packed on the base and the flaps are swung up, and quickly-releasable fastening means to hold said section on the container to form a closure therefor and maintain the flaps in their raised positions.

5. In combination, a parachute container open at the top, a cover for the top of the container, elements extending from the cover to the under side of the container, and detachable fastenings between said elements and the under side of the container.

6. The combination with a parachute container having a base portion, of a pair of separated strips, and means for detachably connecting each strip to the base at a plurality of points to produce a plurality of pockets between each strip and the base.

7. In a parachute pack comprising a parachute and a container, a section of the parachute constituting one entire side of the container and lying outside of the adjacent portions of the remainder of the container.

8. In combination, a flat base member stiffened to maintain a predetermined contour, a parachute adapted to be folded upon said base member, said parachute having a wear-resisting section adapted to overlie the body portion of the parachute, and means for holding the marginal portions of said section against the edge of the base member.

9. In combination, a flat base member stiffened to maintain a predetermined contour, a parachute adapted to be folded upon said base member, said parachute having at the apex a wear-resisting section of approxi-

mately the same shape as the base member and adapted to overlie the body portion of the parachute, and means for detachably securing the edges of the base member and of said wear-resisting section together.

10. In combination, a flat base member stiffened to maintain a predetermined contour, a parachute adapted to be folded upon said base member, said parachute having at the apex a wear-resisting section of approximately the same shape as the base member and adapted to overlie the body portion of the parachute, means for detachably securing the edges of the base member and of said wear-resisting section together, and spring elements connected to and extending across said wear-resisting element and tending constantly to raise the marginal portions of said wear-resisting section from the base member.

In testimony whereof, I sign this specification.

FLOYD SMITH.

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