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M. BIRDMAN

2,429,385

PARACHUTE CANOPY AND METHOD OF MAKING SAME

Filed Aug. 22, 1945

3 Sheets-Sheet 1

Fig. 1.

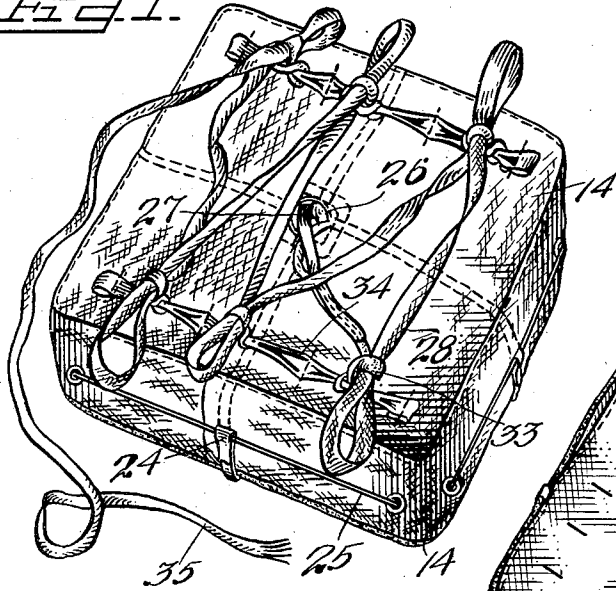


Fig. 2.

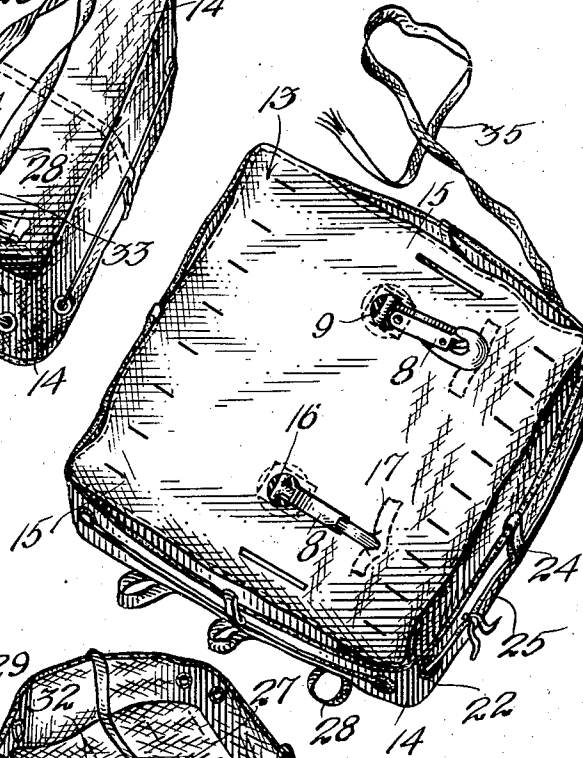
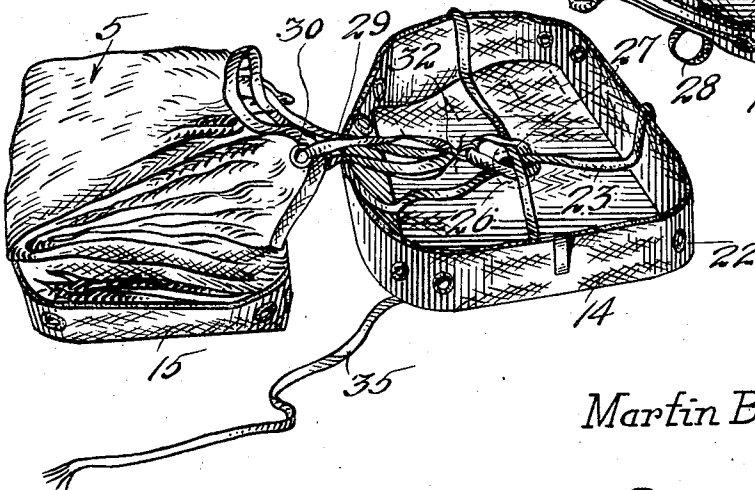


Fig. 3.



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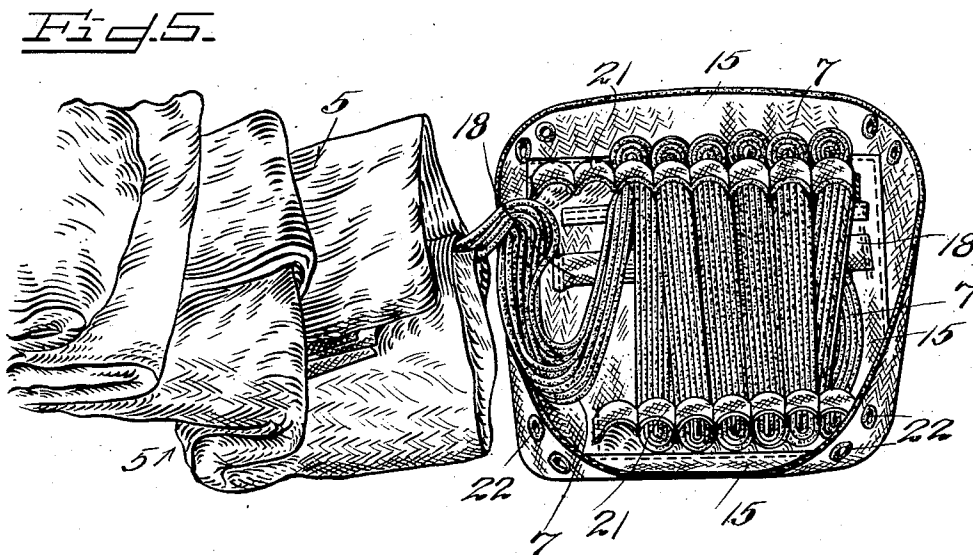
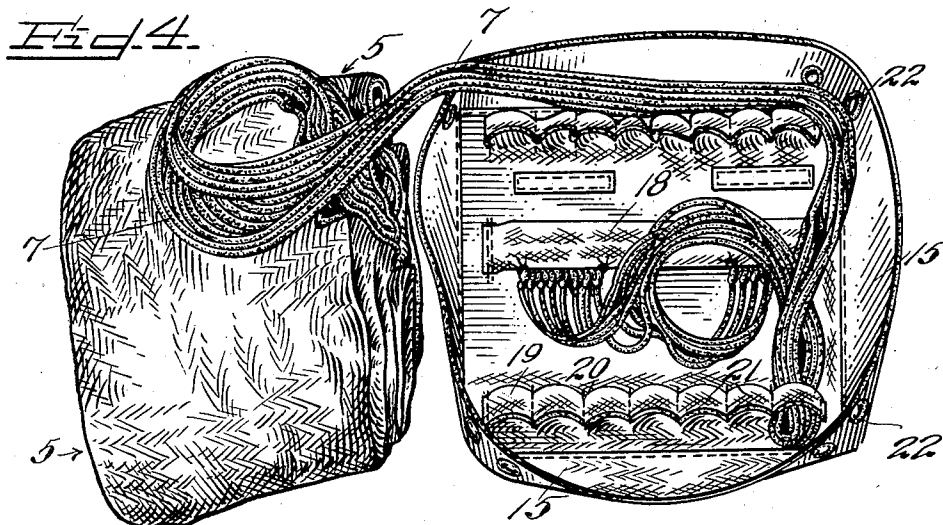
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Fig. 7.

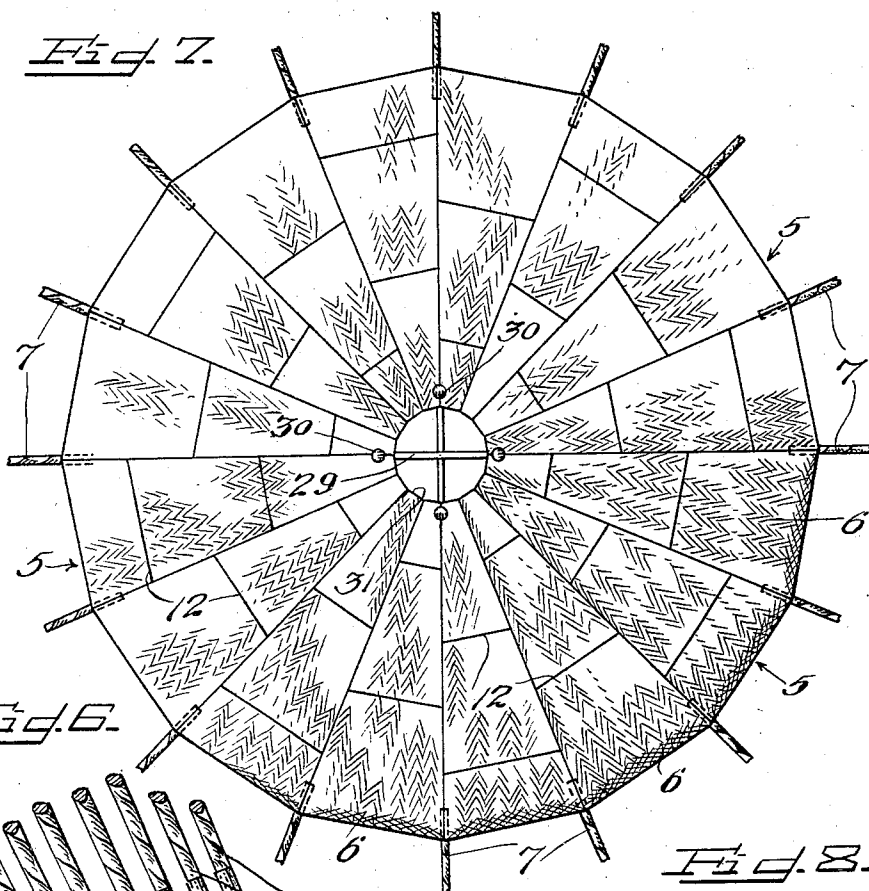


Fig. 6.

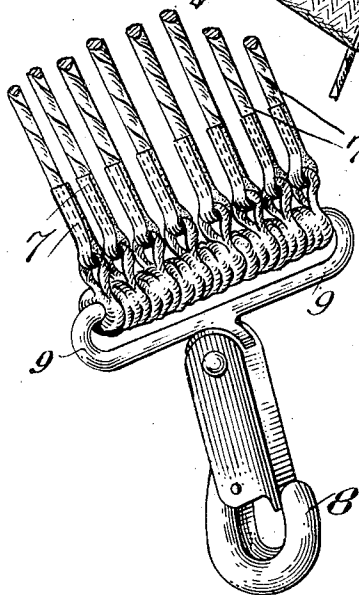
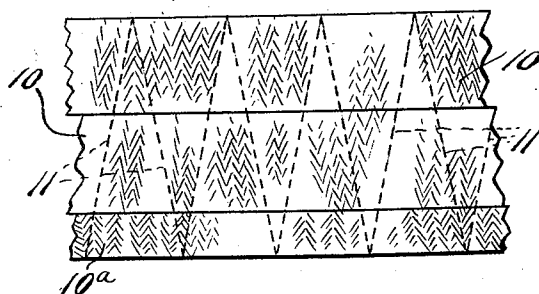


Fig. 8.



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PARACHUTE CANOPY AND METHOD OF
MAKING SAME

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Application August 22, 1945, Serial No. 612,088

2 Claims. (Cl. 244—145)

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The present invention relates to new and useful improvements in parachute canopies and methods of making same, and particularly to a parachute canopy adapted to be packed in a container and to be opened by a static line attached to the airplane.

An important object of the present invention is to provide a novel canopy construction for the parachute by means of which the same may be made of inexpensive material, such as cotton or the like.

A further object of the invention is to provide a device of this character of simple and practical construction, which is strong and durable, efficient and reliable in use, relatively inexpensive to manufacture and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view showing the top of the container for the parachute with the static line in position for release.

Figure 2 is a similar view of the bottom of the container.

Figure 3 is a perspective view showing the container in open position.

Figure 4 is a top plan view after the top of the container has been removed and illustrating the manner of folding the shrouds in the bottom of the container.

Figure 5 is a similar view showing the shroud in a substantially completely folded position in the container.

Figure 6 is an enlarged perspective view of one of the load-engaging hooks.

Figure 7 is a top plan view of the canopy.

Figure 8 is a fragmentary plan view illustrating the manner of cutting the segments of the canopy from strips of material.

Referring now to the drawings in detail, wherein for the purpose of illustration I have disclosed a preferred embodiment of the invention, the numeral 5 designates the canopy of a parachute generally which is composed of a plurality of radial segments 6 connected to each other at their edges by sewing the edges of the segments in a conventional manner. At the outer connected edges of the segments 6 are attached the shrouds 7 in the form of tapes, the outer ends of the tapes being connected to a snap hook 8 by means of a metal loop 9.

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The segments 6 of the canopy are constructed from a plurality of strips of cotton or other inexpensive cloth material 10, including a relatively narrow strip 10a, the longitudinal edges of the strips being sewed or otherwise suitably connected to each other with the narrow strip 10a at one outer edge, and the connected strips are cut transversely along diagonal lines 11, as shown in Figure 8 of the drawings, to produce the segments 6 having tapering side edges. By cutting the segments in the manner indicated, the wider ends of the segments will be cut from opposite edges of the strips 10, whereby to eliminate waste of material during the cutting of the segments.

When assembling the segments to form the canopy 5, the narrower ends of the segments are placed innermost, whereby the seams of the strips 10 will be staggered with respect to each other in adjacent segments, as indicated at 12. Thus, no two seams of adjacent segments are connected to each other, as will be apparent from an inspection of Figure 7 of the drawings to thus limit the change of any tears or rips in one seam extending beyond this seam to another seam in the canopy.

The canopy 5 and shroud 7 are packed in a canvas or other cloth container designated generally at 13 and which includes a top section 14 and bottom section 15, the container being of substantially flat square construction with the top section 14 telescoping over the bottom section 15.

The bottom section 15 is formed with a pair of openings 16 through which the shanks of the snap hooks 8 project, the hooks being secured against idle swinging movement at the bottom of the container by means of light thread or cord 17.

The metal loops 9 of the snap hooks 8 are secured to the inside of the bottom section 15 of the container by a cloth strip 18.

Also secured to the inside of the bottom section 15 of the container, adjacent opposite side edges thereof, are a pair of cloth strips of material 19 sewed at longitudinally spaced intervals to the container, as indicated at 20, to provide a plurality of loops 21 in which the shrouds 7 are folded to retain the shrouds in parallel flights, as indicated more clearly in Figure 5 of the drawings, and from which the shrouds may be withdrawn by a pulling force exerted on the canopy 5.

The sides of both the bottom and cover sections 14 and 15, at the corners thereof, are provided with grummets 22.

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To the inside of the top section 14 are secured a pair of tapes 23 in crossed relation, the tapes being secured by stitching to the cover section of the container and the ends of the tapes extend outwardly over the side edges of the cover section and folded upon itself to form loops 24 which are also stitched to the outer side walls of the cover section, as will be apparent from an inspection of Figures 1 and 2 of the drawings. A light weight thread 25 is laced through the grommets 22 of the cover and bottom sections and also through the loops 24 to secure the cover and bottom sections in closed position.

The center of the cover section 14 is formed with a reinforced opening 26 through which a loop 27 formed at one end of a static line 28 is inserted, the static line being in the form of a cloth tape.

The loop 27 of the static line is engaged with the tapes 23 at their point of crossing, as indicated in Figure 3 of the drawings, and the loop 27 is also attached to cross tapes 29 having their ends secured to grommets 30 at the edges of a small central opening 31 in the canopy 5. The loop 27 is connected to the crossed tapes 29 of the canopy by means of a light weight thread or cord 32.

The static line 28 is folded across the top of the cover section 14 to form a plurality of flights inserted through resilient loops 33 secured to the top of the cover 14 by means of tapes 34. The other end of the static line 28 is designated at 35 and is adapted for attaching inside of an airplane.

In the operation of the device the canopy 5 is folded in a compact form and the shrouds 7 are then folded and placed in the loops 21 of the bottom section 15 of the container in the manner as illustrated in Figures 4 and 5 of the drawings and with the snap hooks 8 tightly secured to the outside of the bottom section in the position as shown in Figure 2 and adapted for attaching cargo thereto.

The folded canopy 5 is then packed on top of the shrouds 7, as shown in Figure 3 of the drawings, and the crossed straps 29 of the canopy are then attached by the light cord 32 to the loop 27 of the static line 28, the loop 27 first being secured to the tapes 23 through the opening 26 of the cover section 14.

The cover section 14 is then placed over the bottom section 15 and secured thereto by the light cord or thread 25, the thread or cord 25 being strong enough to secure the cover in position on the container.

The static line 27 is then folded into the position as illustrated in Figure 1 of the drawings, and retained in the elastic loops 33 and the free end 35 of the static cord is then attached to the inside of the airplane.

When the load is dropped from the airplane, the weight thereof will break the cord or thread 25 to separate the top 14 from the bottom 15 of the container, and the thread or cord 17 is likewise broken, so that the load will be suspended beneath the bottom section 15.

At the same time, the cord 32 is broken so that the crossed tapes 29 of the canopy 5 of the parachute are released from the loop 27 of the static line 28 and the parachute, with the load attached

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thereto, then descends to the ground. The cover section 14 remains attached to the static line 28 and thus is not lost from the airplane.

The bottom section 15 of the container remains attached to the canopy of the parachute and to the load suspended from the hooks 8.

While I have disclosed the invention designed as a cargo parachute, the same may also be employed as a parachute for persons by making suitable changes within the scope of the invention for such purpose.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the construction, operation and advantages of the device will be quite apparent to those skilled in the art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though I have herein shown and described a preferred embodiment of my invention, the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

Having thus described the invention, what I claim is:

1. A parachute comprising an annular canopy formed of radially extending segments connected to each other at their side edges, said segments being formed of a plurality of pieces of fabric sewed to each other to provide transverse seams in each segment, the pieces of alternate segments being staggered relative to the pieces in intermediate segments whereby the seams of adjacent segments are staggered with respect to each other, and shrouds attached to the outer edges of the canopy.

2. A method of making a parachute canopy comprising connecting outer and intermediate rectangular strips of cloth to each other at their longitudinal edges in parallel relation, one of the outer strips being relatively narrow, cutting the connected strips transversely along zig-zag diagonal lines to provide substantially triangular-shaped segments with alternate segments having the narrow strip at the apex of the segments and with the seams of the strips extending transversely of the segments, and connecting the side edges of the segments to each other with their apices inwardly and to arrange the transverse seams of adjacent segments staggered with respect to each other.

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