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PARACHUTE ASSEMBLY

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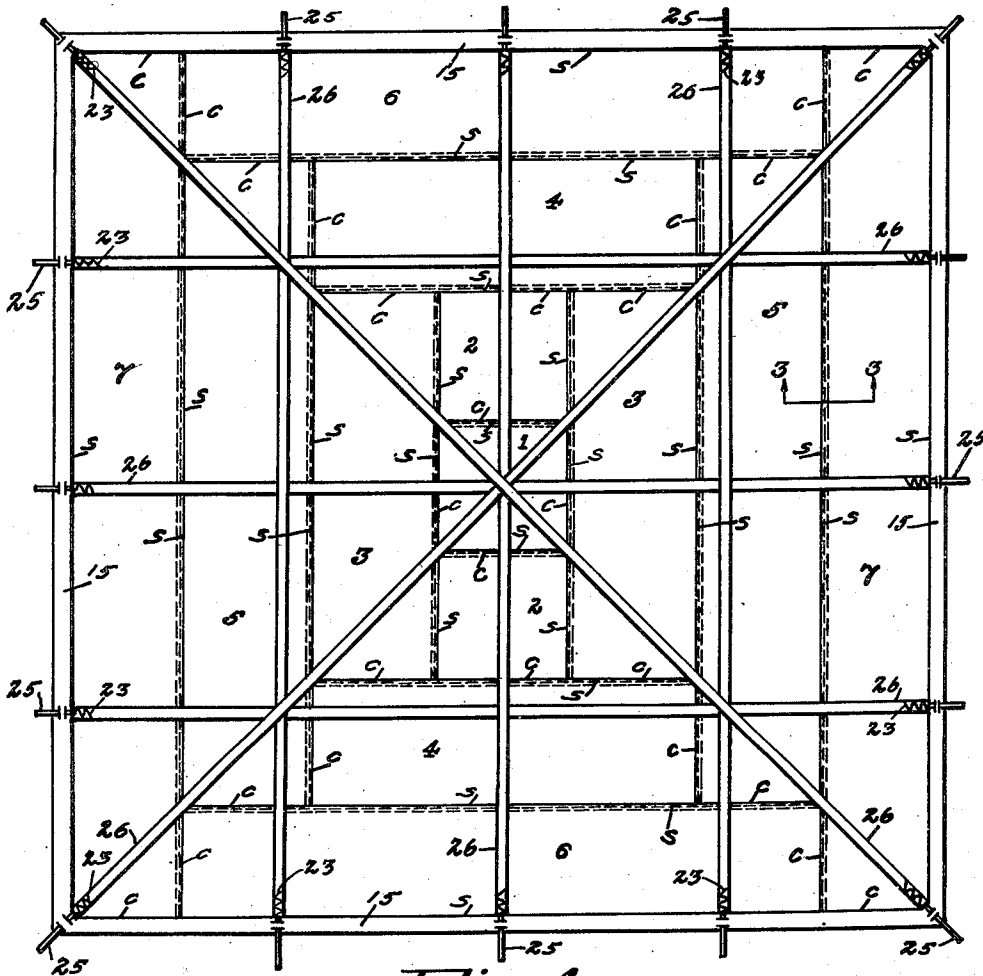


Fig. 1

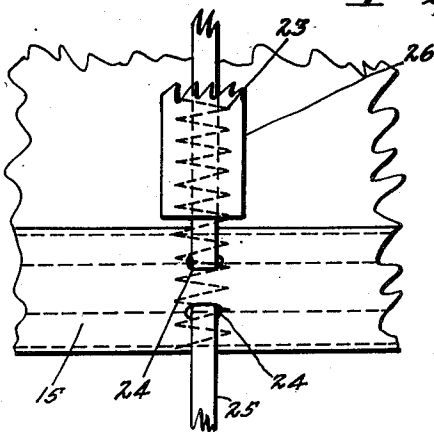


Fig. 2

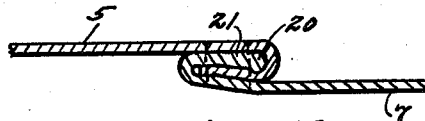


Fig. 3

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PARACHUTE ASSEMBLY

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12 Claims. (Cl. 244—21)

My parachute canopy is constructed of strips of material, so joined together that the seams shall fasten together two selvage edges, or a selvage edge and a cut edge. I avoid as much as possible sewing together any cut edges. In my most approved form, no cut edges are joined to each other, and the only out edges are sewed to the selvage edges, except four short edges, at one side of each corner of the canopy, which are folded over into a hem on each other.

The parachute canopy is rectangular. All the strips that form it may be used without any cutting, except that needful to produce a strip of the required length; and thus the entire selvage is preserved intact at the sides of the strips, and the only cut edges are at the ends of a strip. In the parachutes of the usual form many cut edges were necessarily used and many such edges were sewed each to each. If the strips in my parachute are woven to length and stopped off with an end selvage, cutting of any kind could be avoided. Joining cut edges is always a source of weakness, where sudden strains are put upon the seams.

Apart from these characteristics of the invention, all waste of material is avoided when my canopy is built in its best form and without any use of small pieces or numerous seams. By these savings the cost of building a parachute is lessened substantially. The total length of seaming may be materially shortened from that required in the building of the canopy as now generally used. A number of other features by which the strength of the canopy is increased, its construction cheapened, and advantages in the convenience in the building of the canopy both in economy of floor space and ease and convenience of seaming are also attained.

The canopy is built up of rectangular pieces which are arranged so that the cut edges of one piece are laid against selvage edges of the piece to which it is sewed. The pieces should be of the entire width of the fabric, to preserve the selvage edge of the piece and avoid waste of material in cutting. Of course, if there are considerations outweighing these, this may be modified. The strips are positioned in the canopy structure so that the strips from which the canopy is built up lie with their length parallel to the adjacent edge of the canopy. These strips are, in practice, longer where nearer the periphery, giving toward the outside of the periphery longer unbroken lengths of fabric, and only four seams joining strips together terminate at the periphery. In practice, only four short lengths of the periphery

are formed of cut edges, and these are not adjacent to each other, and are positioned at the corners of the canopy. These cut edges are protected by hems, and a hem, in practice, is carried completely around the periphery of the canopy, though if the warp of the fabric is made strong enough at the selvages this hem may be limited to portions only of the periphery under certain circumstances.

Another feature in addition to those above referred to, is an improved way of securing the load cords to the canopy more strongly than by previous means. The load cords may be passed through the fabric of the hem, and stitched fast to it by cross-stitching and the reinforce may be attached to the main fabric of the canopy by cross stitching or otherwise. This feature may be utilized or omitted in the building of my canopy.

Describing now the structure I have found best in practice, but not limiting my invention to the particular structure so described:—

Fig. 1 is a plan view of a parachute canopy. Fig. 2 is a fragmentary view on a larger scale of the fastener securing the load ropes to the canopy. Fig. 3 is a section on line 3—3 of Fig. 1, also much enlarged. In Fig. 1 the selvage edges are marked S, and the cut edges C.

The strips are preferably arranged to break joints so that no seam where a cut edge and selvage edge is continued for a distance longer than the width of a strip, and no seam of any kind is longer than the length of the lowest of the strips joined by it.

At the middle of the canopy is a square piece 1. At the two selvage edges S, S of this piece 1 are sewn the cut edges of the square pieces 2, 2. The three pieces thus sewed together, have sewed to the sides of the length they form, strips 3, 3. The selvage edges S of the strips 3 being sewed to the selvage edges of the pieces 2, 2 and to the cut edges of the piece 1. These strips 3, 3, are of the same length as the total length of the strip formed of the three pieces 2, 1, 2. Two sides of the square so formed are entirely selvage edged and the other two sides have each two selvage sides of the squares 2, 2, and, on either side of squares 2, 2 the cut ends of the strips 3, 3. The strips 4, 4, are sewed to this composite square, with their selvage edges against the sides of the square that contain the cut edges, forming a quadrilateral that has two sides that are entirely selvage edged and two sides that have a length of selvage edge in their middle portion and two shorter lengths of cut edge at either side of it. At the sides of the quadrilateral that

contains the cut edges of a strip, an additional strip 5, 5 is sewed: and at the sides containing cut edges of the square so formed, additional strips 6, 6, are sewed and at the sides containing cut edges of the quadrilateral so formed are sewed the strips 7, 7. In the illustration, this completes the canopy proper. If the strips were narrower or more support wished, more widths of material would be used, and vice versa. The proportion of cut edges to selvage edges diminishes outward from the middle.

The load cords 25 consist of a pair of diagonally running ropes leaving the canopy at its corners, and a series of crosswise running cords, (shown as six in number) intersecting, or other suitable load cord arrangement may be substituted for them to suit the circumstances in which the parachute is to be used.

The way I secure the load ropes is by making two holes 24 through the hem of the canopy. Through the holes passes a load rope 25. The cover 26 extends to the hem and rows of stitching 23 are sewed crosswise through the rope cover, the rope and the fabric are through the hem and the load rope.

A construction of the seam between the cut end (shown in Fig. 3) as the end of strip 5, and the selvage side of the fabric (shown as of strip 7) is illustrated in Fig. 3. The selvage edge of the strip is shown as having a rounded outside side edge 20, and a selvage 21 that is slightly thicker than the fabric and as folded with the cut edge of strip 5, which is of even thickness. Stitching of the customary form extends lengthwise of the seam. The seam so formed is very strong.

Of course, the canopy may be used with other forms of seams and with other means of securing the load ropes to it than are described above, but their use is particularly helpful with the form of canopy described above.

I have described the particular form of canopy that is illustrated in the drawing as a good embodiment of my invention, but many changes may be made without departing from my invention which is to be limited to nothing less than the terms.

I claim:—

1. A parachute having a quadrilaterally shaped parachute canopy, composed entirely of sets of strips of selvage edged material, each strip lying parallel to a peripheral edge of the parachute and the cut ends of each strip positioned inside the strips bordering on peripheral edges of the canopy having its cut ends sewed to a portion of the selvage edge of a strip positioned adjacent to said cut end.

2. A parachute comprising a quadrilaterally shaped canopy composed of sets of strips of textile material fabric said strips having selvage edges at their sides and being sewed together with selvages on each side of said strips intact, said selvages being parallel to an edge of said canopy and one set of said strips running at right angles to two other sets and parallel to another set of strips.

3. A parachute comprising a square canopy formed of strips of a textile material with selvages on each side of said strips lying parallel to a peripheral edge of said canopy, said strips being sewed together and being longer as they are positioned nearer the edge of the canopy and being cut to extend past cut ends of adjacent strips running at right angles thereto.

4. A parachute comprising a quadrilaterally

shaped canopy formed of strips of textile material, each strip having a selvage at either side, the strips running parallel to a peripheral edge of the canopy, the selvage sides of the strips overlapping the ends of the strip adjacent to them and running at right angles therewith, and having the overlapping part of selvage edges sewed to the cut edges of the ends of said adjacent strips.

5. A parachute comprising a quadrilaterally shaped canopy composed of strips of textile material having a selvage edge on each side of the strip, the selvage edge of each strip lying parallel to a peripheral edge of the parachute and the strips being longer toward the edges of the parachute and being arranged each strip parallel to the strips the selvage edges of which run in the same direction as its selvage edges and at substantial right angles with the strips, the selvage edges of which run at right angles with it, said strips all being arranged symmetrically around the middle of the canopy.

6. A parachute comprising a quadrilaterally shaped canopy consisting of a middle portion composed of three square pieces of textile material, each having the selvage edges intact at two sides of each piece, said pieces being sewed together, one of said pieces having its selvage edges sewed to a cut edge of each of the other of said three pieces which are positioned at each of the ends of the first named piece, and an outer portion of the canopy composed of strips of textile material of even width positioned between said three middle pieces and the peripheral edges of the parachute, and sewed to these middle pieces and to each other.

7. A rectangular parachute canopy composed entirely of strips of textile material, each strip being of constant width and with its selvage edge intact, and arranged symmetrically with their selvage edges parallel to a peripheral edge of the canopy and sewed together, at the abutting ends and edges, and hemmed around the peripheral edges.

8. A parachute canopy composed of strips of differing lengths but of equal width, and having a selvage on either side and cut ends, each strip being sewed along a selvage side to another strip positioned in the canopy parallel thereto, and the cut ends of said strips where overlapped by the selvage sides of adjacent strips being sewed to said selvaged sides of said strips.

9. A parallelogrammatically shaped parachute canopy comprising two series of strips of textile material, all of constant width, and with their selvage edges intact, the selvage edges of each strip of one series of strips being parallel to two opposite peripheral edges of the canopy, and the other series of strips being parallel to the other two peripheral edges of the canopy, said strips being cut to varying lengths and the cut ends of the strips composing one of the series being overlapped and sewed to a selvage edge of a strip of the other series of strips.

10. A parallelogrammatically shaped canopy comprising two series of strips of textile material all of constant width, the strips of one series running at right angles with the strips of the other, and cut in varying lengths, the cut ends of the strips composing one series being sewed to the sides of a portion of the side of a strip of the other series of strips which portion lies adjacent to said cut edge.

11. In a quadrilaterally shaped parachute canopy composed of strips of textile material in which

the component strips lie either parallel with or at right angles to each other, the combination of strips of textile material having intact selvage edges cut to desired lengths, the selvage edges 5 of adjacent parallel strips being sewed together along their selvages and the cut ends being sewed to a selvage side of adjacent strips lying at right angles thereto, except selvage edges and cut edges of the outermost strips, in combination with a 10 hem sewed around the selvage edges and cut edges of said outermost strips.

12. A parachute canopy in the form of a parallelogram composed of sets of textile material hav-

ing selvage edges at the sides, cut into lengths with their selvage edges intact; two of said strips of one set extending lengthwise along the entire length of two opposite peripheral edges of said canopy, two of the other set of said strips extend- 5 ing along the other two peripheral edges of the canopy, and having their cut ends abutting selvage edges of the said strips of the first set and sewed thereto, the outer selvage edges of the said strips of the second set being substantially flush with the 10 ends of the strips of the first set.

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