

Feb. 27, 1951

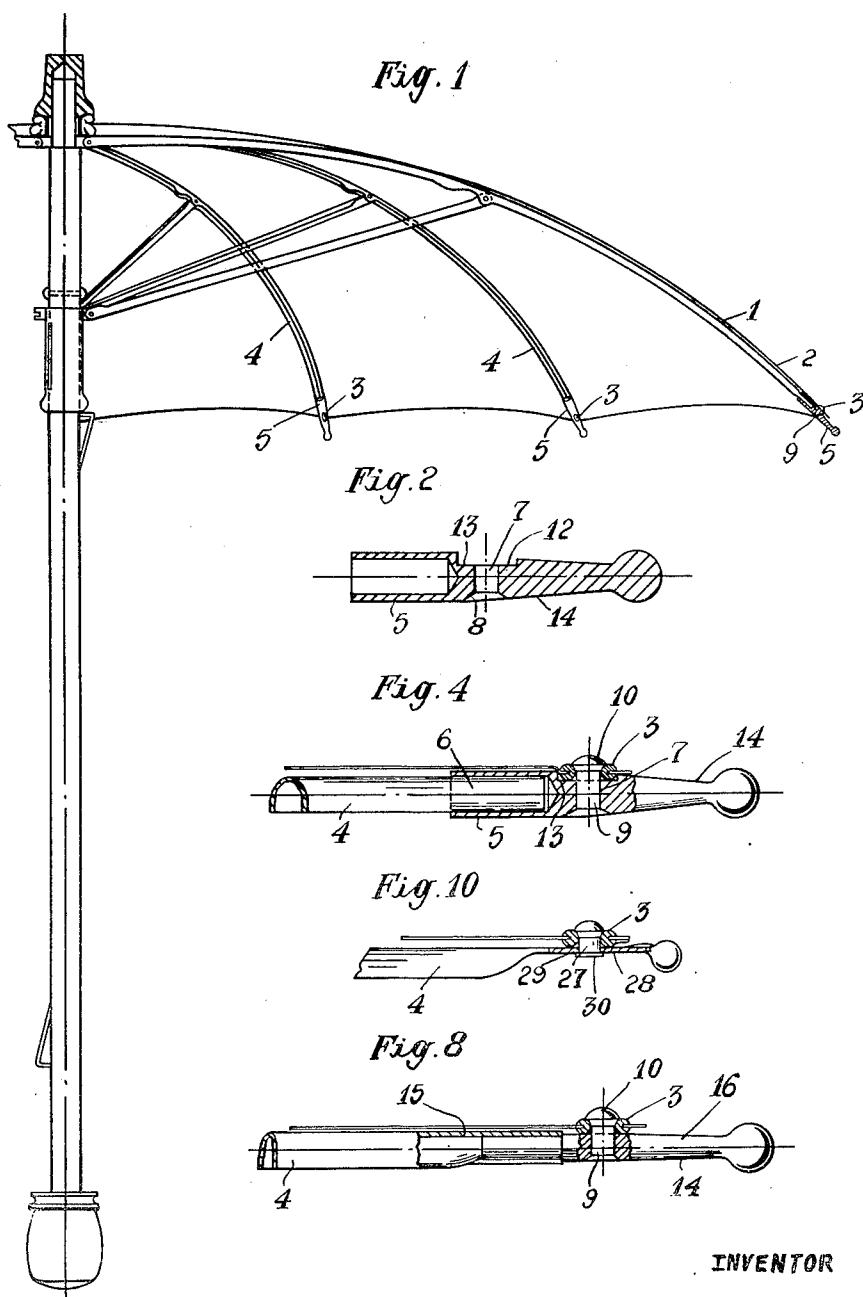
S. D. CATHCART

2,543,360

UMBRELLA, PARASOL AND THE LIKE

Filed Oct. 5, 1946

2 Sheets-Sheet 1



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Fig. 3

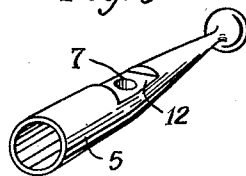


Fig. 5

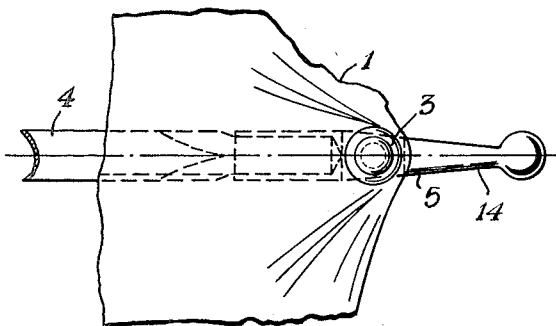


Fig. 6

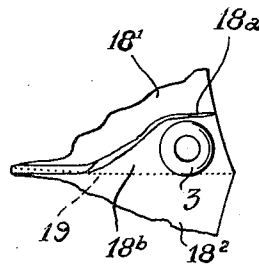


Fig. 7

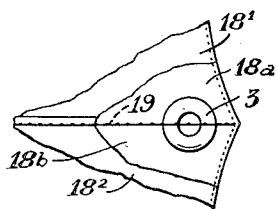


Fig. 11

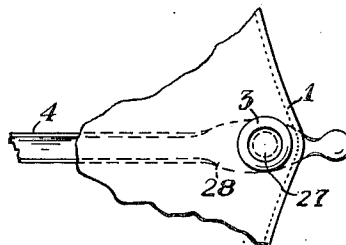
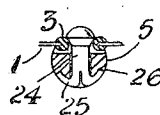


Fig. 12



Fig. 9



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2,543,360

UMBRELLA, PARASOL, AND THE LIKE

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Application October 5, 1946, Serial No. 701,593
In Great Britain October 6, 1945

4 Claims. (Cl. 135—36)

1 The present invention relates to improvements in and relating to umbrellas, sunshades, parasols and the like (hereinafter termed umbrellas) and has for its principal object to de-skill and quicken the operation of securing the perimeter of the cover to the ribs of the umbrella frame and to improve the appearance and strengthen the construction at the cover perimeter. The invention may be applied to ordinary or collapsible forms of umbrellas.

In particular the present invention is concerned with superseding the conventional method of sewing the cover to the outer ends of the ribs.

The present invention provides an umbrella having a cover secured to the outer ends of the ribs of the frame or to members constituting extensions thereof by rivets which are not formed integrally with the ribs or extension members and which pass through separate bushed eyelets formed by eyelet members attached to the said cover. By the term "bushed eyelet" I mean a light tube which has outwardly deformed ends which grip the fabric of the cover, with or without the aid of interposed washers, one at least of the outwardly deformed ends being formed by deforming an end of the tube after passing through the fabric. Preferably the extension members are secured through the eyelets to the cover before the extension members are assembled to the ribs. The cover perimeter may thus, by such purely mechanical operations as eyeleting and riveting be made adaptable for rapid connection to the ribs, and neither such adaptation nor the connection to the ribs needs sewing operations or requires skilled labour.

Such extension members may be made of any desired shape, material, colour or appearance to add attractiveness to the perimeter of the cover and promote facility of assembly and strength of construction.

In an umbrella constructed in accordance with this invention, a rapid but strong and secure connection is assured between the cover and the ribs (or extension members thereof), since the bushed eyelets do not open under the tension of the extended cover but remain close around the rivet stems and the swaging of the rivets can be controlled by means of any suitable or well known riveting apparatus to avoid undesirable deformation of the connecting member and of the eyelets, and the construction of the extension members and the choice of material of the eyelets as hereinafter described further assists the desired ends.

Preferably the extension members comprise a series of socket members riveted as aforesaid to

2 the eyelets and adapted to receive the rib ends plug and socket fashion, such members being preferably cross-bored and the stem of a separate rivet or headed stem being passed through the eyelet and the cross bore and swaged at its leading or headless end, advantageously into a countersunk end of the passage so that the swaged end of the rivet lies flush with the external surface of the socket member.

10 According to an alternative form, the extension member riveted to the eyelet forms the plug element of a detachable plug and socket connection with the end of the rib, the rib being formed as a socket to receive the plug portion of said element.

15 The said extension members may be of elongated form and provided with a groove or recess with a flat bottom into which the cross-passage opens, the eyelet being wholly or partially received in the groove or recess and seated on said flat bottom.

20 A button head rivet, preferably countersunk, may be employed to secure the eyelet to the said extension member, and in the latter case the countersunk portion of the head may lie in the eyelet so as to promote a neat and compact finish.

25 In the form herein illustrated the extension members are of partly cylindrical and partly conical form with a ball end, but they may be round or square ended cylindrical or hexagonal members or of any other appropriate form and they may be of metal, if desired plated, or coloured, and where the metal permits, anodised or given any other suitable finish to promote an attractive externally visible terminal to the ribs, or they may be made of plastic or any other suitable material.

30 The crown or centre of the cover is preferably provided with an eyelet, e. g., as described and claimed in our co-pending application No. 701,594, filed October 5, 1946, which can be readily passed over the end of the shank remote from the handle, and secured by a peg-end, open cap or end to the shank against the notch from which the ribs radiate so that both the central and perimetral connections of the cover to the umbrella shank and frame respectively may be attached and detached readily and re-covering can be quickly effected by unskilled labour. Connection of the ribs to the gore seams between the crown and perimeter may be effected by sewing in the usual manner, although such connections could also be made by fasteners without sewing if desired.

35 I employ for the cover perimeter eyelet members made of metal of sufficient ductility and lack

of springiness as to enable them to form surfaces of contact with the cloth without cutting the cloth. Eyelets of aluminium or aluminium alloy have the desired ductility and also may be anodised to wide variation of colours. The eyelets may be made of or covered or coated with plastic material, which may be suitably coloured. The heads of the rivets may also be so coated. The bushed eyelets keep the stem of the rivet out of contact with the material of the cover which is securely held between the radially extending portions of the eyelets.

By using such ductile eyelets and a stiletto piercing tool in the eyeleting machine in known manner to promote separation of the weft and warp threads, rather than the cutting thereof, during the piercing and eyelet inserting operation, the eyeleting can be performed with little or no risk of the threads parting or of the cover becoming torn away from the eyelets.

Friction or force fit plug and socket connections between the ribs and the co-operating means riveted through the eyelets of the cover are preferred so as to avoid looseness in the connections while permitting the connections to be readily disengaged by relative axial movement when it is desired to detach the perimeter of the cover from the ribs.

Preferably the gore seams terminate short of the perimeter, although the line of stitching is extended to the cover perimeter and suitably knotted off to lock the stitches and the eyelets may be arranged in overlapping portions of the material between the seam ends and the cover perimeter. The eyelets may be arranged to one side of the line of stitches which extends to the perimeter, and we find that if a stiletto piercing tool be used in the eyeleting machine, risk of the threads or stitching being cut, even if the eyelets are arranged substantially on the stitchline between the ends of the seams and the perimeter of the cover is reduced and this promotes a close juxtaposition of the ribs and the seams which is desirable. The material of the gores between the ends of the seams and the perimeter may be overlapped by folding the material of one gore back in one direction and that of the adjacent gore back in the other direction about the line of stitching, or the material of one gore may be folded back in one direction about the stitch line and the marginal material beyond the stitch line of the other gore lapped thereover, the eyelet being secured with its centre approximately on the stitch line in either case.

In order that the present invention may be the more readily understood, reference is hereinafter made by way of example to the accompanying drawings in which:

Fig. 1 is a half view partly in section of an umbrella according to the invention.

Fig. 2 is a sectional elevation and Fig. 3 a perspective view of one of the socket members and Figs. 4 and 5 show in section and in plan respectively such a member when riveted through an eyelet in the cover perimeter and making plug and socket connection with the free end of one of the ribs of the frame. Figs. 6 and 7 are fragmentary plan views of the perimeter of the cover showing preferred ways of arranging the cover material at the end of the seam where the eyelet is secured.

Fig. 8 is a sectional elevation of a modification wherein the member riveted through the eyelet in the cover perimeter serves as the plug element and the rib end as the co-operating socket

element in the plug and socket connection between the member and the rib.

Fig. 9 is a cross sectional view of another modified form of rivet connection between the eyelet and the socket or other member to be connected to the rib.

Fig. 10 is a sectional elevation and Fig. 11 a plan view elevation of a modified form in which the eyeleted cover perimeter is riveted directly to the ribs.

Fig. 12 is a cross section through an eyelet.

Referring to the drawings, perimetally of the cover 1 and near the end of each seam 2, the cover is eyeleted by means of a series of bushed eyelet members 3, preferably of aluminium for the reasons before stated, and each eyelet is fastened to the free end of the corresponding one of the ribs 4 of the frame. This is effected by means of a socket member 5 adapted to fit over the free end 6 of the rib, e. g., with a tight friction fit, such socket member being provided with a transverse passage 7, preferably countersunk at 8 and registering with the eyelet and permitting socket and eyelet to be secured together by a solid rivet 9 whose bolt occupies such passage. By these means the perimeter of the cover may be quickly attached to the outer ends of the ribs, the proportioning of the cover and the positioning of the sockets in relation to the ribs being so chosen as to enable the desired tension to be applied to the cover by the open frame of the umbrella. A rivet with a domed, button or countersunk button head 10 as shown serves well and if desired the headless end may be cupped or recessed for facilitating the riveting operation.

The headless end of the rivet is swaged down into the countersinking 8 so as to produce a flush finish, i. e., the end face of the rivet forms with the surrounding part of the socket member a smooth continuous curved surface.

The socket member is provided with a transverse groove 12 forming a flat face 13 and the eyelet in the cover is let into the said groove and seated on said face so that a good bearing face for the eyelet is provided and the eyelet lies wholly or partially in the groove in order to promote a neat finish.

The sides of the channel at end of the channel-shaped rib may be closed into an approximately tubular form as shown in Fig. 4 to provide the plug element of the plug and socket connection. The socket member is preferably formed with a tapering ball-ended continuation 14.

In the variant form shown in Fig. 8, the socket element of the connection is formed by the end 15 of the rib, and the member 16 which is riveted through the cover eyelet is formed with a plug end to fit in such socket.

In each case, the member riveted to the eyelet forms in effect a neat end continuation of the rib, and the member is arranged on the inside of the cover, while the eyelet and the overlying domed head of the rivet promote a neat and pleasing finish and the connection is stronger than the usual sewn connection between the rib and the material of the cover. Further, the connection between the rib and the cover perimeter is made a simple mechanical connection without any sewing, firstly involving riveting through the eyelets and then a simple friction fit between the riveted member and the rib whereby attachment or detachment of the connection can be rapidly made.

The seam proper 2 of the gores of the cover preferably terminates short of the perimeter of

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the cover although the stitches are continued to the cover perimeter. The material of the gores between the seam and the cover perimeter on the outside of the stitch line may be laid as shown in Fig. 6 by folding back about the stitch line 19 the material 18a of the gore 18' and overlapping the material 18b of the gore 18², or as shown in Fig. 7 by folding back about the stitch line the material 18a of the gore 18' and folding back in the reverse direction the material 18b of the gore 18². The eyelet may in either case be disposed substantially on the stitch line as for example, as shown in Fig. 7, or it may be arranged on one side of the stitch line, as shown in Fig. 6.

Fig. 9 shows another modified form in which a bifurcated rivet 24 is used and the free ends 25 of the latter where these are turned back may be arranged to lie in an arcuate groove 26 in the socket member.

Figs. 10 and 11 show the modified form previously referred to in which the cover perimeter is riveted to the ribs by rivets 27 passing through the eyelets in the cover and through appropriately shaped portions of the ribs, viz. the portions 28 where the sides of the channel of the rib are spread and flattened and the flattened end is holed at 29 to receive the rivet which is suitably swaged over, e. g. as shown at 30.

As shown in Figs. 10-11, the projecting ends of the ribs may be pressed to form ball ends or provided with ball and other fancy end pieces.

Fig. 12 shows the manner in which the ductile eyelets deform to produce a powerful grip of the material with tendency to kink the same.

I have shown and prefer single part eyelets for manufacturing facility but multiple part eyelets may be used.

What I claim is:

1. An umbrella comprising a cover and a frame having cover-supporting ribs, members constituting extensions of the outer ends of said ribs and providing a plug and socket connection therewith, tubular eyelet members inserted through and clamped to the perimeter of the cover, each of said extension members having a cross passage and being provided with a recess with a flat bottom into which said passage opens, and rivet members separate from said ribs and extension members, each of said rivet members having a head and stem, said stem passing through said eyelet member and said cross passage and being headed by swaging at its leading end, said eyelet members being at least partially received in said recesses and seated on said flat bottom.

2. An umbrella comprising a cover having substantially triangular gores with folded radial margins seamed together by stitching, a frame having ribs for supporting said cover, members constituting extensions of the outer ends of the ribs, said gore seams of the cover terminat-

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ing short of the cover perimeter but the stitches continuing to the cover perimeter to form free marginal portions of the gores on the outside of said stitch line, said free marginal portions being folded one above the other about and to one side of the stitch line to form with the body material of the gore a plurality of plies of material, tubular eyelet members inserted through said plies to one side of the stitch line and clamped thereto, and separate rivet members passing through said eyelet members for securing the cover to the extension members.

3. An umbrella comprising a cover and a frame having cover-supporting ribs, members constituting extensions of the outer ends of the ribs, the cover material adjacent the seams of the gores and the perimeter forming a plurality of overlapping plies, tubular eyelet members of ductile metal inserted through said overlapping plies and having flanges directly marginally gripping said plies between them and rivet members separate from the ribs and extension members, said rivet members extending through said eyelet members and said extension members and having a head at each end, one of said heads overlying the eyelet and the other engaging the corresponding extension to lock the cover to the extension members without causing any direct pressure by the rivet on the cover material.

4. An umbrella cover comprising a central metal eyelet by means of which the cover is adapted to be readily connected to the stick of the umbrella in a detachable manner and comprising tubular eyelets inserted through and clamped to the perimeter of the cover in spaced relation therearound and comprising members adapted to make detachable plug and socket connection with the ribs of an umbrella frame and to form extensions of said ribs, said rib-extension members each having a cross passage which is registered with one of the eyelets, and the cover and extension members being secured by rivets each passing through a said eyelet and a said cross passage.

SAMUEL DUNCAN CATHCART.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
404,039	Harris	May 28, 1889
1,273,861	Howard	July 30, 1918
2,200,897	Ronkin	May 14, 1940

FOREIGN PATENTS

Number	Country	Date
2,141	Switzerland	Mar. 12, 1890
2,911	Great Britain	Dec. 15, 1853