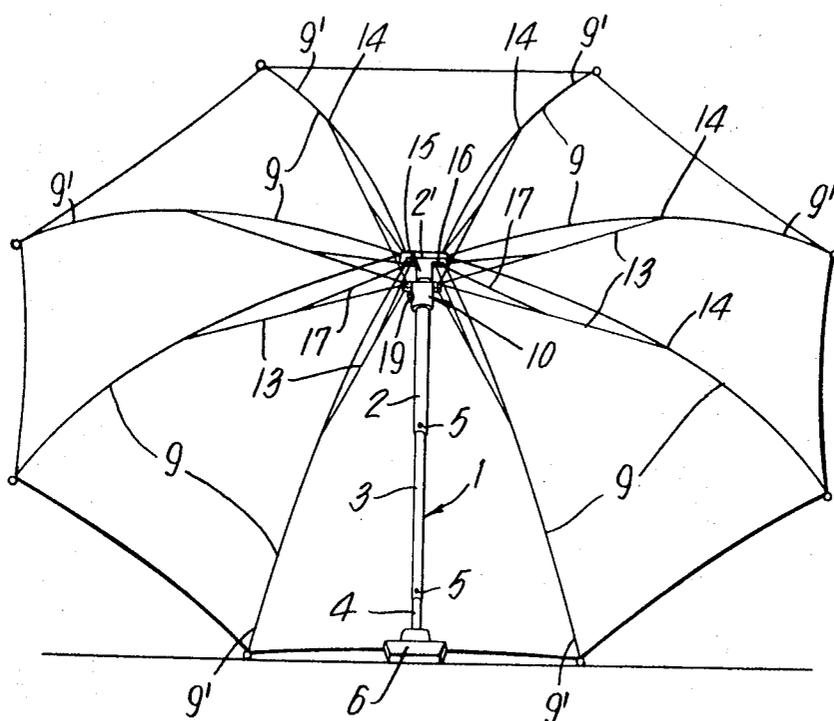
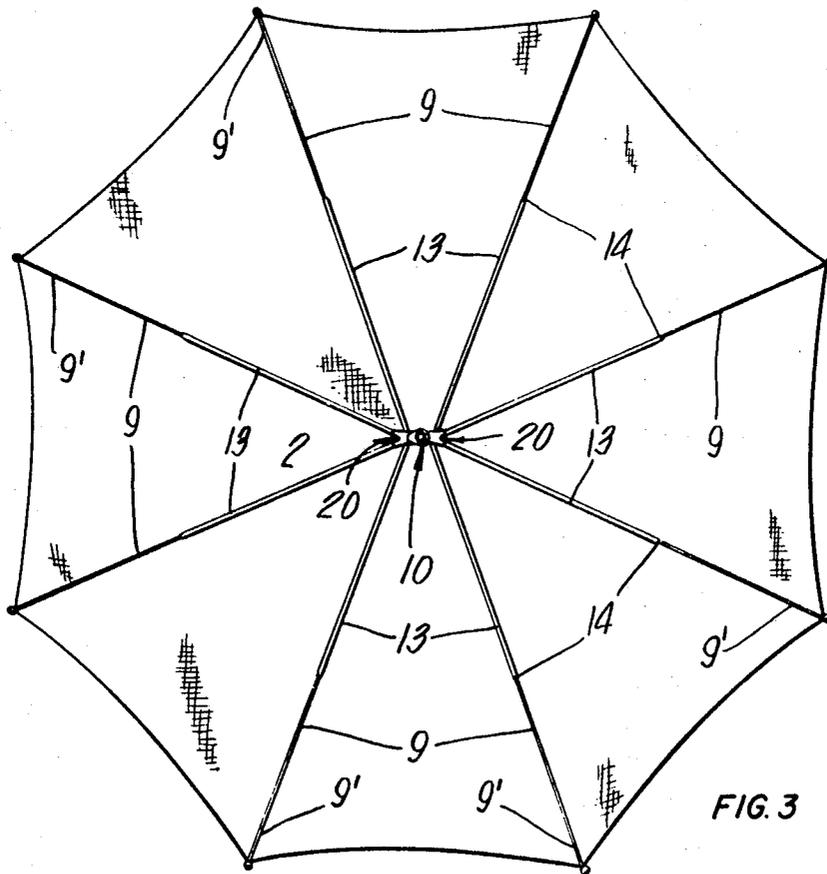
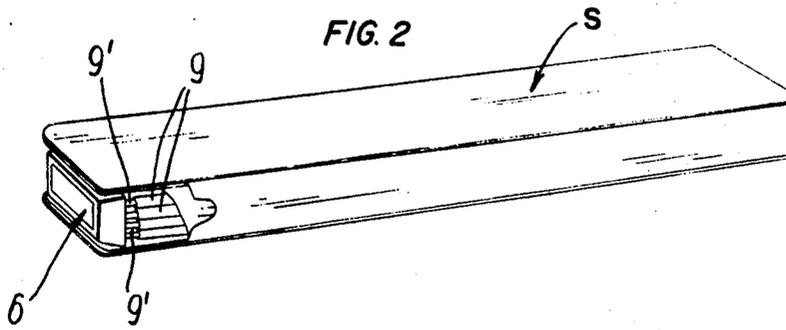


FIG. 1



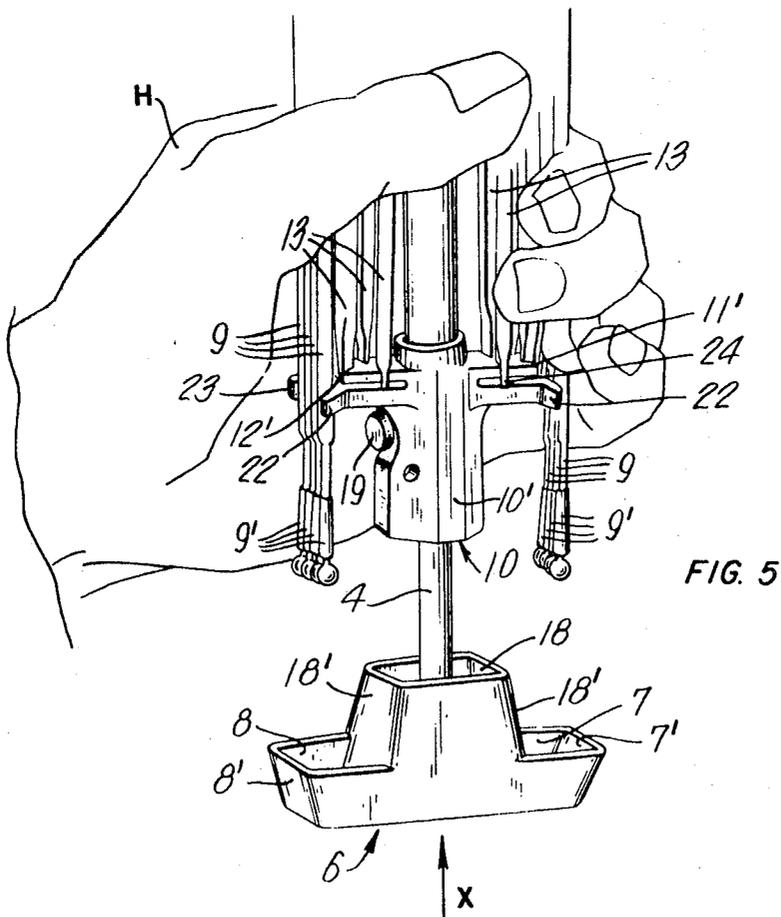
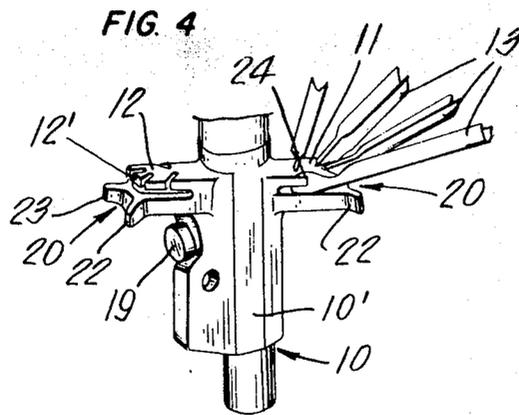
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1 DOME-RIB ORIENTING SLIDE FOR COLLAPSIBLE UMBRELLAS

BACKGROUND OF THE INVENTION

The umbrella of the present invention is of the longitudinally collapsible type, having a rectangular cross section when collapsed and packaged in a corresponding sheath. The umbrella includes a headpiece to which foldable or telescopic dome ribs are hinged at their inner ends, primary struts and auxiliary struts are respectively hinged to the dome ribs and a primary slide and a secondary slide and the primary struts, and a generally rectangular handle has upwardly opening recesses for receiving the dome-rib tips and sleeve portion of the primary slide when the umbrella is collapsed.

GENERAL DESCRIPTION OF THE PRIOR ART AND NATURE OF THE PARTICULAR PROBLEM SOLVED

Because of the moving part of telescoped umbrellas, and manipulative steps in erection and collapse, as well as the general mechanical inaptitude of most users, particularly women, it is important that the erection and collapse of the umbrella be essentially "fool proof." In collapsible umbrellas of the character involved, it is important that the dome ribs be oriented into groups flanking opposite sides of the umbrella stick so that final collapsing of the stick results in essentially automatic positioning of the dome-rib tips into a retention compartment formed in the umbrella handle.

SUMMARY OF THE INVENTION

Primary objects of the invention are to provide a primary slide for a longitudinally collapsible umbrella in which the slide orients separated groups of dome ribs essentially parallel to the umbrella stick whereby final collapsing results in the tips entering cooperating, upwardly opening recesses, to provide means of the character mentioned above in which parts are substantially automatically oriented, particularly during closing of the umbrella and collapsing for transit and packaging whereby wear on moving parts is minimized and proper operation of the umbrella is maximized.

These together with other and more specific objects and advantages will become apparent from a consideration of the following description when taken in conjunction with the accompanying drawing forming a part thereof, in which:

IN THE DRAWING

FIG. 1 is a perspective view of an erected umbrella incorporating the invention;

FIG. 2 is a rectangular umbrella package in which the oriented dome-rib tips are shown in retained relation in the umbrella handle;

FIG. 3 is a bottom plan view looking into the erected umbrella of FIG. 1 with the handle removed and the stick shown in section;

FIG. 4 is an enlarged, fragmentary perspective view of the T-shaped slide shown in the condition of the erected umbrella of FIG. 1; and

FIG. 5 is a fragmentary, perspective elevational view showing the groups of dome-rib tips oriented for subsequent receipt in the upwardly opening recesses of the handle.

DESCRIPTION OF AN EXEMPLARY EMBODIMENT

The umbrella in FIG. 1 includes a conventional stick 1 comprising telescopically connected tubular elements 2,3 and 4 retained in extended condition by suitable detent means 5, or the like. The elements 4-2 are respectively graduated in diameter to permit the element 4 to be substantially received in element 3, and element 3, containing the upper portion of element 4, to be received in element 2. The lower end of the element 4 is suitably secured to a handle 6, centrally of an upwardly opening, generally polygonal recess 18 which is flanked by lower, upwardly opening, dome-rib, tip-receiving recesses or compartments 7 and 8.

Suitably secured to the upper end of stick element 2 is a rectangular headpiece 2', which has pivotally connected thereto dome ribs 9 to which a flexible canopy or dome cover is suitably secured; the ribs 9 terminate in dome-rib tips 9'. Reciprocally supported on the stick 1 is a lower, primary slide 10 having a T-shaped elevation including a depending sleeve portion 10', preferably having a polygonal exterior to which the recess 18 is at least partially complementary to prevent relative rotation when the sleeve 10' is in recess 18. The slide 10 includes diametrically opposed wings or arms 11 and 12 having a group of notches or pivot portions 11' and 12', respectively, to which inner ends of primary strut 13 are pivotally connected at 24, see FIG. 4. The outer ends of the primary struts 13 are pivotally connected at 14 to intermediate portions of the dome ribs 9. An auxiliary slide 15 is reciprocally supported on the stick 1 between the head piece 2' and primary slide 10; the slide 15 pivotally accommodating inner ends of auxiliary struts 17 which are terminally pivoted to intermediate portions of the primary struts 13. Although not shown in detail, the dome ribs 9 can be of the foldable or telescopic types, each of which being conventional and permitting longitudinal collapsing of the umbrella into a stored condition. The collapsed umbrella, together with the rectangular configuration of the head piece 2', slides 10, 15 and handle 6 accommodate the collapsed umbrella, with the canopy or dome wrapped about the collapsed ribs, into the rectangular sheath or case S in FIG. 2.

The recess or tunnel 18 together with the recesses 7 and 8, afford a collapsed umbrella which is shorter than most umbrellas of the prior art. The primary slide includes (not shown) a suitable latch mechanism functioning to latch the umbrella in an erected condition of FIG. 1; and including an operator 19 which controls operation of the latch mechanism.

The wings or arms 11 and 12 include laterally opening, orienting means 20 comprising bifurcations or legs 22, 23 which are in longitudinal alignment with the spaces 7 and 8, see FIG. 5. The umbrella of the exemplary embodiment comprises an "8-rib" umbrella; however, the invention is adapted for use with other types such as the "6-rib" and "10-rib" umbrellas. The dome ribs 9 and cooperating primary and auxiliary struts 13, 17 are arranged in groups of four ribs at each side of the wings or arms of the primary and auxiliary slides. The orienting means or storage spaces 20 diverge from the sleeve 10', and when the collapsed umbrella ribs are grasped in one's hand H, see FIG. 5, the dome ribs are urged into the spaces 20 and the tips 9' of the dome ribs are arranged in the longitudinal groups as shown; as the handle is moved longitudinally, relative to the dome-rib tips in the direction "x," tips 9' enter compartments 7,8 and sleeve 10' enters recess 18. The diverging spaces 20 minimize manipulation of the dome ribs and canopy to place the umbrella in its collapsed condition.

The orienting bifurcations 22,23 are disposed below the pivots 24 of the primary struts 13 and there is formed an underlying ledge or upper abutment surface below end faces 11', 12' of the arms or wings 11, 12, respectively, which limits excessive downward pivotal movement of struts from the condition illustrated in FIG. 4.

It is understood that the stick element 4 can be a solid element, and is relatively shorter than tubular stick elements 3 and 4. The element 3 after having been telescoped into element 4, defines a collapsed stick-length approximately that of the collapsed or folded dome ribs 9 (it will be recalled that these dome ribs can be either telescopic or foldable).

As can be seen from FIG. 5, the outer end walls 7', 8' of the recesses 7, 8, respectively, diverge upwardly toward the longitudinal axis of the umbrella stick, and as the dome-rib tips 9' enter the recesses, the end walls 7', 8' urge the rib tips inwardly toward the stick axis to form a tight, compact package.

What is claimed is as follows:

1. In a longitudinally collapsible umbrella comprising, in combination, a telescopic stick including a plurality of elongated sections, a lower handle, primary slide, auxiliary slide and head piece in series on said telescopic stick from the lower end thereof,

said primary slide including latch means for retaining the umbrella in an erected condition and permitting longitudinal collapse;

dome ribs, a canopy, primary struts and auxiliary struts operatively mounted on said head piece, primary and auxiliary slides, the improvement wherein: said primary slide includes diametrically opposed arms extending laterally from a depending sleeve,

said arms including outwardly opening guide means for receiving a group of dome ribs and orienting them parallel to the telescopic stick, said handle including upwardly opening recesses in substantial longitudinal alignment with said grouped dome ribs for receiving the tips thereof when the umbrella is collapsed,

said guide means of said arms comprising divergent bifurcations opening outwardly for guiding the dome ribs into compact aligned groups.

2. The structure as claimed in claim 1 in which said arms include hinge portions overlying and disposed inwardly of said guide means, said primary struts being terminally pivoted at said hinge portions.

3. The structure as claimed in claim 3 in which said guide means bifurcations project outwardly beyond said hinge portions.

4. The structure as claimed in claim 2 in which said handle recesses include end walls converging downwardly for urging the dome rib tips into a compact group toward the longitudinal axis of the umbrella stick.

5. The structure as claimed in claim 2 in which said handle includes a central tunnel surrounding the lower end of said stick and flanked by said upwardly opening recesses, said depending sleeve of the primary slide being telescopically received with said central tunnel.

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