

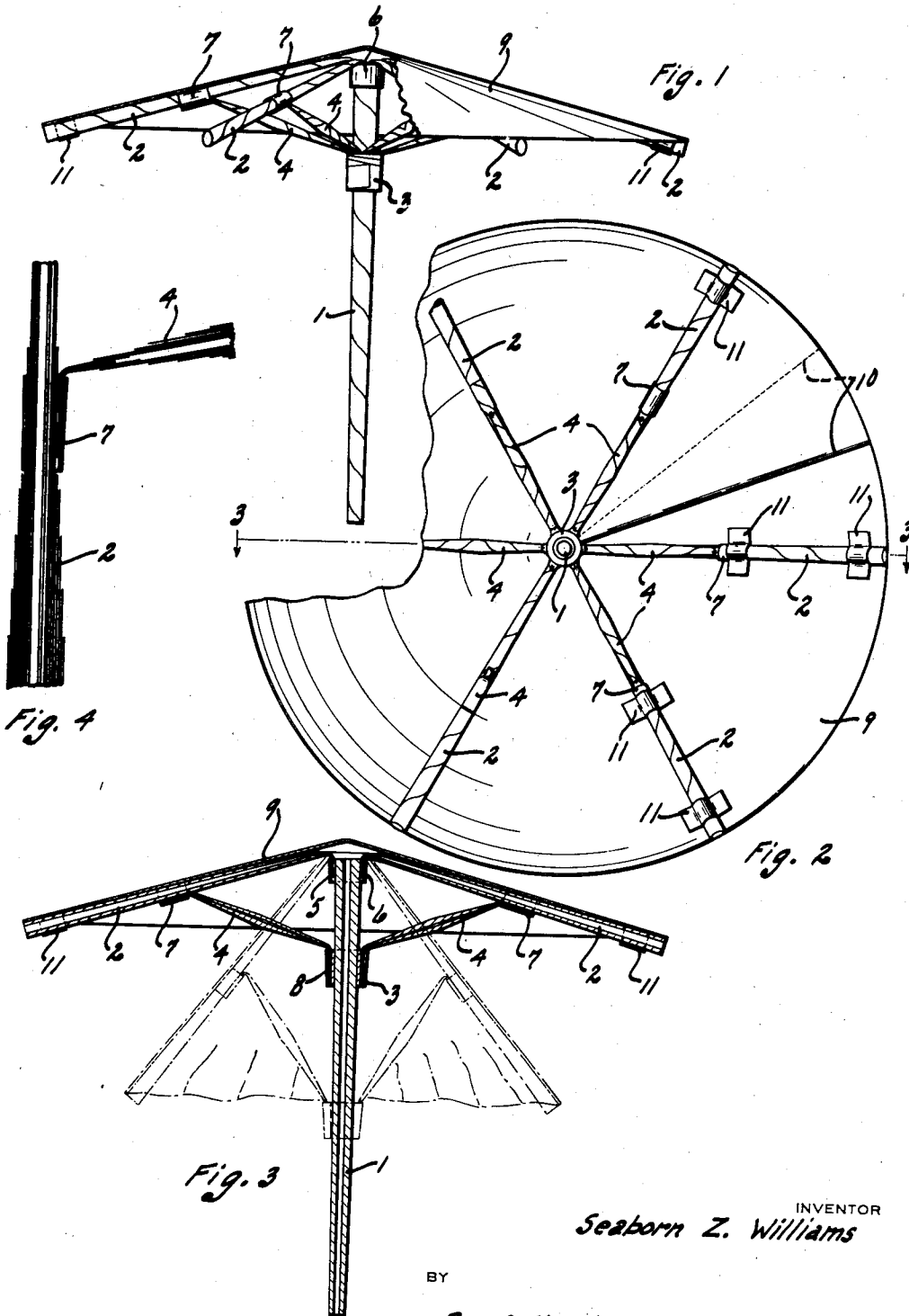
Aug. 29, 1933.

S. Z. WILLIAMS

1,924,426

PAPER UMBRELLA

Filed May 13, 1932



INVENTOR
Seaborn Z. Williams

BY

Brockett, Hyde, Higley & Meyer
ATTORNEYS

UNITED STATES PATENT OFFICE

1,924,426

PAPER UMBRELLA

Seaborn Z. Williams, Cleveland, Ohio

Application May 13, 1932. Serial No. 611,054

14 Claims. (Cl. 135—20)

This invention relates to umbrellas and more particularly to a type thereof so inexpensive that it may be discarded, once used. The general objects of the invention are thus indicated.

5 The invention contemplates, as a further object, a construction entirely, or substantially so, of paper or equivalent similar material, and to this end the invention includes numerous devices by which the material is employed in the umbrella structure.

10 The exact nature of this invention together with further objects and advantages thereof will be apparent from the following description taken in connection with the accompanying drawing, in which Figs. 1 and 2 are side and bottom views respectively of an umbrella embodying the invention, shown in extended form, with parts broken away to show details of construction; Fig. 3 is a sectional view of the same as in the plane of line 20 3—3, Fig. 2, and including dot-dash lines to indicate the manner of folding or closing the umbrella; Fig. 4 is an enlarged detail in section illustrating, as a typical joint, that between a rib and its cooperative structure.

25 With reference now to the drawing it will be apparent that the principal parts and their general disposition follows the contemporaneous art; the umbrella including a flexible cover and a collapsible and extensible frame therefor.

30 The principal parts of the frame are a stem, spindle, or handle 1, a plurality of ribs 2 swingably connected with the end of the spindle, a sleeve 3 slidable along the spindle, and for each rib 2, a strut 4 joining the sleeve 3 with the rib 35 intermediate the ends of the latter, the strut having flexible connection with those parts which it connects; so that, as in the ordinary umbrella, and as indicated Fig. 3, sliding motion of the sleeve 3 along the spindle 1 will adjust the ribs 2 40 between extended relation and closed position wherein the ribs are alongside the spindle.

According to this invention the enumerated frame parts may all be of roller paper or the like.

45 The spindle 1 has a sufficient number of convolutions to give it the necessary strength for supporting the other parts of the umbrella, serving as the usual handle therefor. It is preferably hollow as indicated Fig. 3 and is also preferably tapered, being larger at its upper end, that 50 to which the ribs 2 have attachment. The taper may be had by so rolling the sheet from which the spindle is made, with the central through opening defining a cone. Or as illustrated the tapered exterior may be effected by the disposition of the convolutions as indicated Fig. 1

wherein either there are more convolutions at one end than at the other as by the employment of a triangular sheet of paper, or the convolutions at one end are of greater diameter than at the other end of the spindle, as by the employment of a long strip of paper.

Each rib 2 is also formed of a roll of paper, so formed that its secured end has fewer convolutions than its intermediate part, or than its outer end as indicated in the drawing; and the thickness of the roll is reasonably slight relative to the size of the hollow therewithin so that the ribs are light in weight. Each rib is flattened at its thin end, there bent back, and secured to the large end of the spindle 1 overlying the latter as indicated at 5, Fig. 3. All of these rib ends 5 may be similarly and simultaneously secured as by a roll 6 of paper, turned about the rib ends, suitable adhesive being applied to all of the parts to maintain their assembled relation.

75 Thus each rib has in effect a hinge connection with the spindle 1 flexible owing to the thinness of the attached rib end, the rib body part, however, having rigidity owing to its tubular form.

Each strut 4 is so rolled, as indicated in the 80 drawing, that its ends are thinner than its intermediate portion which consequently has the greatest strength. Both ends of each strut are flattened and bent as already described for the ribs. One end of each strut is overlaid upon its rib and there bound as at 7, the other end being secured to the sleeve 3 as indicated at 8 and generally following the manner of securing the ends of the ribs. The body or inner part of the sleeve 3, to which the struts are secured, may 90 comprise a previously prepared roll of paper, of such inner diameter that it will frictionally engage and thus be self-maintaining in position upon the spindle 1 when the rib and strut parts are spread as shown Figs. 1 and 2. Of course 95 the sleeve is freely slidable upon the spindle below the point thereon where it binds, so that the rib and strut parts may be collapsed as indicated in broken lines Fig. 3.

100 The cover 9 for the frame comprises a circular sheet of oiled or otherwise waterproofed paper, uninterrupted by any opening. It has two folds 10 along radial lines as indicated Fig. 2 whereby when the frame is opened the cover will stretch to a generally circular but slightly 105 conical form.

It is contemplated that the cover be printed upon to bear advertising or decorative display matter. The printing is done with the paper flat and with due regard for the two folds 10 to 110

be later made. These folds being closely adjacent each other, this is easily accomplished.

The cover 9 is secured to the ribs 2 of the frame as by strips 11, also of paper provided with the proper adhesive. Thus as the frame is collapsed, the cover will close, bending along radial lines, as indicated in broken lines, Fig. 3.

What I claim is:

1. An umbrella frame member comprising a roll of paper flattened at its end to allow flexure thereat as in a hinge, and elsewhere having tubular form and consequent rigidity.
2. In an umbrella frame, a pair of cooperative members, one of said members comprising a roll of paper flattened at its end and there secured to the other member whereby said first member has a rigid body part flexibly connected with the second member.
3. An umbrella frame member comprising a roll of paper tapering toward its end and there flattened to allow flexure as in a hinge, and elsewhere having tubular form and consequent rigidity.
4. An umbrella frame member comprising a roll of paper, having more convolutions elsewhere than at an end, and at the latter flattened and bent to be secured to another frame part overlying the latter, whereby said member will be rigid up to said bend and flexible at the latter.
5. In an umbrella frame, a pair of cooperative rib and strut members each comprising a roll of paper, said strut member having its end flattened and secured to said rib member overlying the latter intermediate the ends thereof to provide a hinge relation between the parts.
6. In an umbrella frame having sleeve and rib parts, a strut member joining said parts and comprising a roll of paper flattened at its ends and there bent to overlie said parts and secured to the latter.
7. In an umbrella frame having sleeve and rib parts, a strut member joining said parts and comprising a roll of paper flattened at its ends and there bent to overlie said parts and secured to the latter, said roll having maximum thickness

intermediate its ends to provide maximum rigidity for its intermediate body portion with maximum flexibility at its joints.

8. In an umbrella frame having sleeve and rib parts, a strut member joining said parts and comprising a roll of paper flattened at its ends and there bent to overlie said parts and secured to the latter, said roll having maximum thickness intermediate its ends and tapering toward the latter.

9. In an umbrella frame having a spindle, a rib comprising a roll of paper flattened at its end and there joined with said spindle, and elsewhere having tubular form.

10. In an umbrella frame having a spindle, a rib comprising a roll of paper having its end flattened and secured to said spindle overlying the end of the latter, the body part of said rib being bent back over said end.

11. In an umbrella frame having a spindle, a rib comprising a roll of paper having more convolutions elsewhere than at an end, said end being flattened and there joined with said spindle, and said roll elsewhere having tubular form.

12. In an umbrella frame having ribs and struts, a spindle, said ribs being secured to one end of said spindle, a sleeve movable along said spindle, said struts joining said sleeve with said ribs, said spindle comprising a roll of paper with diameter increasing toward its rib end, said sleeve being adapted to frictionally engage said spindle to secure said ribs in spread relation.

13. In an umbrella frame, a spindle, and a plurality of ribs associated therewith at the end of the latter, each rib comprising a roll of paper flattened at its end, the ends being bent under and secured to the spindle end overlying the latter.

14. An umbrella frame member of paper rolled to provide a typical transverse section of circular characteristic, and consequent rigidity, said member being flattened at its ends to there provide flexibility.

SEABORN Z. WILLIAMS.