

June 9, 1925.

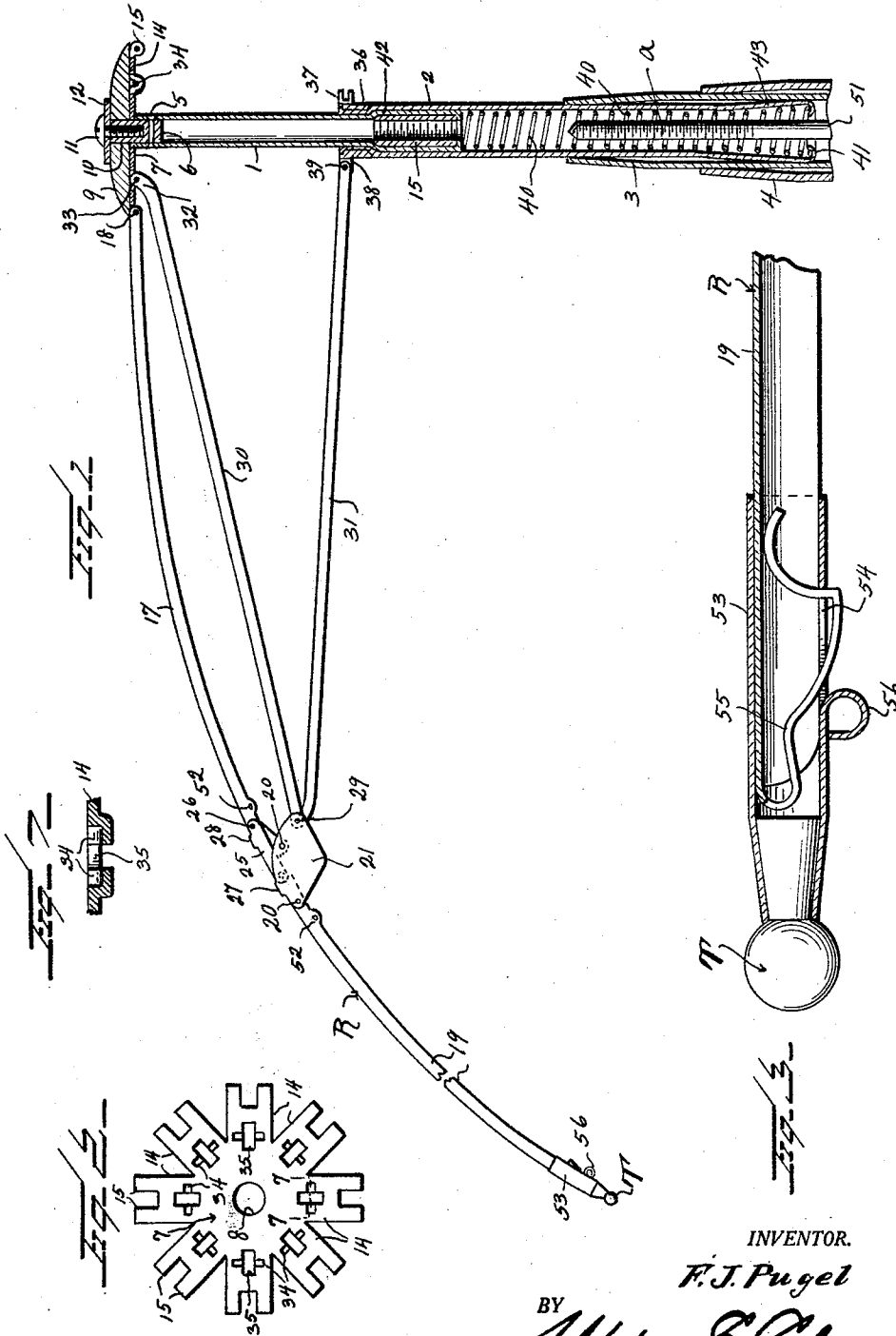
1,541,278

F. J. PUGEL

UMBRELLA

Filed April 17, 1924

2 Sheets-Sheet 1



INVENTOR.

F. J. Pugel

BY

Watson E. Coleman
ATTORNEY.

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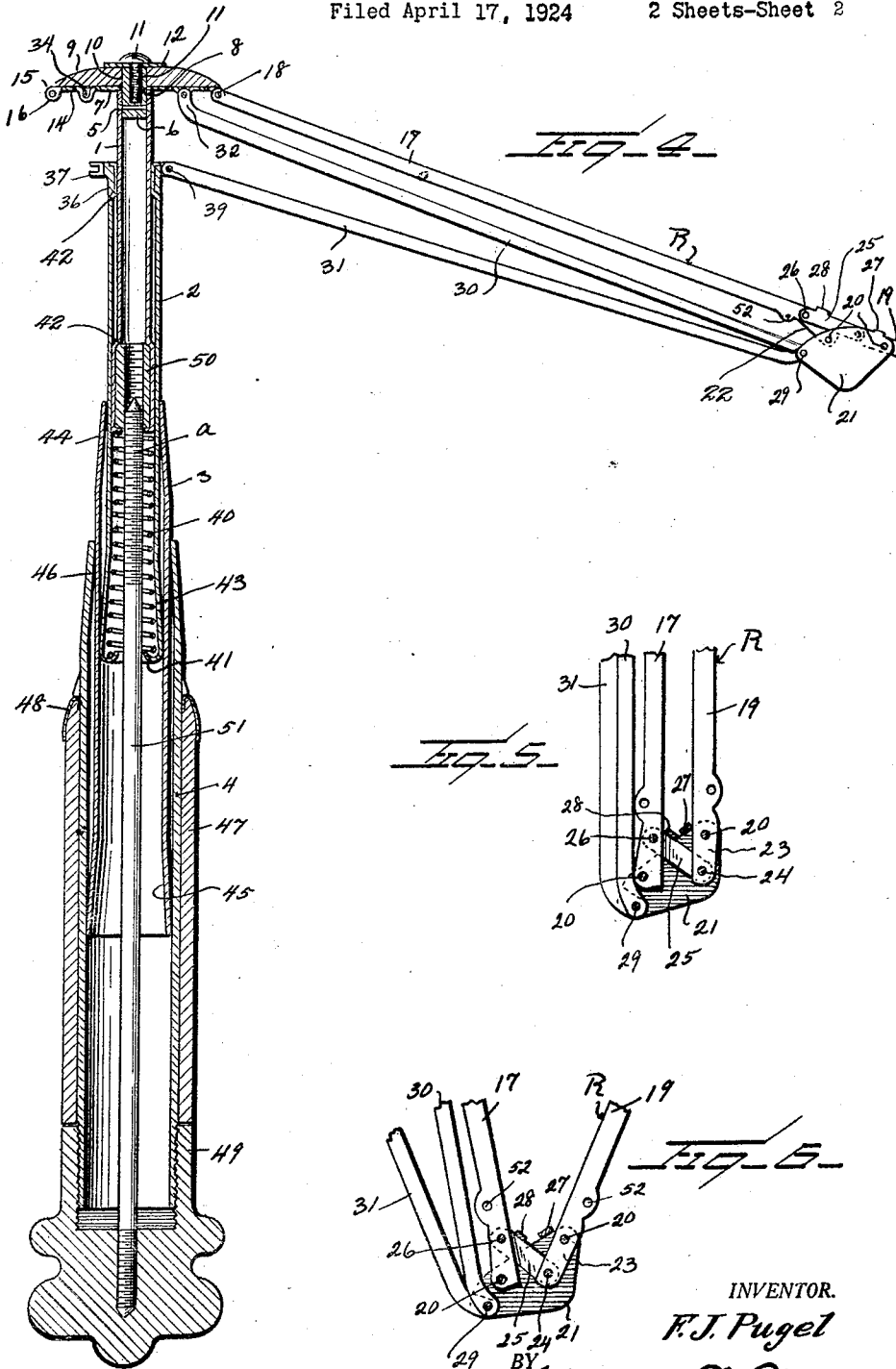
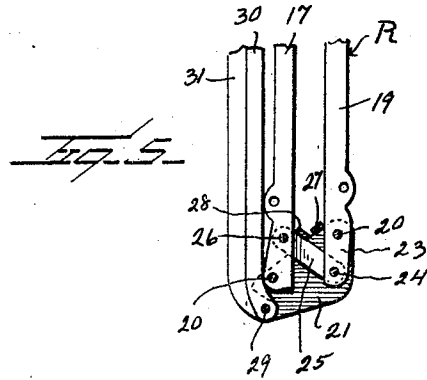
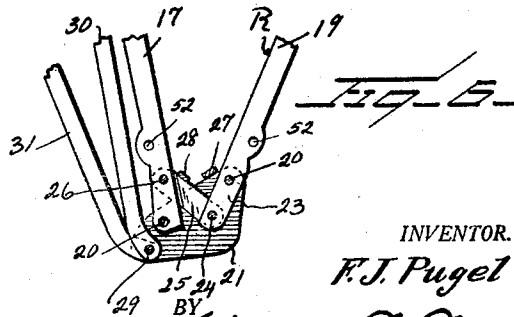
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UNITED STATES PATENT OFFICE.

FRANK J. PUGEL, OF PUEBLO, COLORADO.

UMBRELLA.

Application filed April 17, 1924. Serial No. 707,196.

To all whom it may concern:

Be it known that I, FRANK J. PUGEL, a citizen of the United States, residing at Pueblo, in the county of Pueblo and State of Colorado, have invented certain new and useful Improvements in Umbrellas, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in umbrellas and has relation more particularly to a device of this general character of a folding type and it is an object of the invention to provide a device of this character constructed in a novel and improved manner whereby the same may be collapsed or compacted to occupy a minimum of space when not in use and wherein the same may be extended in substantially an automatic manner.

Furthermore it is an object of the invention to provide a device of this general character having novel and improved means for bracing or reinforcing the ribs when extended for use.

An additional object of the invention is to provide a novel and improved device of this general character embodying a collapsible stick together with foldable ribs wherein means are provided for maintaining the stick collapsed but at the same time retaining the ribs in their folded condition.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved umbrella whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of my invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:—

Figure 1 is a fragmentary view partly in section and partly in elevation illustrating an umbrella constructed in accordance with an embodiment of my invention;

Figure 2 is a view in top plan of the notch herein disclosed unapplied;

Figure 3 is an enlarged detailed fragmentary view partly in section and partly in elevation illustrating the manner of holding a tip to a rib;

Figure 4 is a view partly in section and partly in elevation illustrating a complete stick partially collapsed;

Figure 5 is a fragmentary view partly in section and partly in elevation illustrating the arrangement of the sections of a rib and the stretchers associated therewith in folded or compacted relation;

Figure 6 is a fragmentary view partly in section and partly in elevation illustrating the sections of a rib and associated stretchers in partially open or extended relation;

Figure 7 is an enlarged fragmentary sectional view taken substantially on the line 7—7 of Figure 2.

As disclosed in the accompanying drawings, the stick comprises a plurality of telescoping sections or members 1, 2, 3 and 4 which, when the umbrella is compacted, are in nested relation. The outer end of the section 1 has riveted, as at 5, or otherwise secured therein a plug 6, said plug extending a desired distance beyond the outer end of the section 1. A notch 7 is provided with a central opening 8 through which the plug 6 snugly passes but permitting the notch 7 when applied to have close contact with the outer end of the section 1.

Overlying or superimposed upon the notch 7 is a button or top piece 9 also provided with a central opening 10 through which the plug 6 is disposed, the outer end of the plug 6 being substantially flush with the adjacent outer surface of the button or member 9.

A screw 11 is threaded in the outer end of the plug 6 with the head 11' thereof contacting from above with a washer 12 surrounding said screw 11 and of a diameter to overlie the central portion of the button or member 9 whereby said button or member 9 together with the notch 7 are effectively maintained in applied position. The washer 12 is also adapted to hold the central portion of the umbrella cover (not shown) effectively in working position.

The notch 7 is provided with a plurality of radially disposed flat arms 14, the outer end portion of each of which being bifurcated to provide the transversely spaced arms 15 each of which being provided with a dependent bearing 16. Between the bearing 16 and associated with the arm 14 is an end portion of the inner section 17 of a rib R, said end portion being pivotally held to the notch by the pin 18 disposed through the bearing 16 and the section 17.

The rib R also comprises an outer section 19 which overlies the section 17 when the umbrella is collapsed or compacted with the section 19 outermost with respect to the section 17. The adjacent extremities of the sections 17 and 19 are pivotally connected, as at 20, with a plate 21 substantially in the form of a sector of a circle, the pivotal connection of the section 19 being in close proximity to an end of the arcuate margin of the plate while the pivotal connection of the section 17 is adjacent to the arcuate margin of the plate at a point closely adjacent to the center of said margin but to the side thereof remote from the pivotal connection 20 between the section 19 and the plate 21. The pivotal connection 20 between the section 17 and the plate 21 is at a desired distance to one side of the transverse center of the section 17 of the rib by means of the lateral extension 22 carried by the adjacent end portion of the section 17. The section 19, as particularly illustrated in Figures 5 and 6, has an extension 23 extending beyond its pivotal connection 20 and overlying the plate 21, the outer or free end portion of said extension 23 having pivotally engaged therewith, as at 24, a link 25 also pivotally engaged, as at 26, with the section 17 inwardly of the pivotal connection 20 between said section 17 and the plate 21. The arcuate edge of the plate 21 is provided with an inturned lug or lip 27 with which the extension 23 contacts to limit the outward swinging movement of the section 19 when extended. A marginal portion of the link 25 is also provided with an inwardly disposed lip or lug 28 with which the section 17 contacts to limit the relative swinging movement in one direction between the plate 21 and the section 17 of the rib.

Pivotally connected, as at 29, with the plate 21 adjacent to the opposite extremity of the arcuate margin of the plate are the outer extremities of the stretchers 30 and 31. The opposite end portion of the stretcher 30 terminates in a short lateral extension 32 disposed toward the notch 7 pivotally connected, as at 33, with said notch 7. This pivotal connection is effected through the instrumentality of a pin which seats in the pockets or recesses 34 at opposite sides of the opening 35 produced in the inner portion of an arm 14 of the notch 7. The stretcher 30 is operatively engaged with the notch 7 before the button or member 9 is applied. After having the desired pivotal connection between the stretcher 30 and the notch 7 the extension 32 of the stretcher is first inserted from below through the opening 35 and then the pivotal pin 33 is directed through the extension 32 above the plate and as said extension 32 drops back through the opening 35, the extremities of the pin will seat within the pockets or recesses 34. After the button

or member 9 has been applied upon the notch 7, the stretcher 30 is effectively held against displacement with respect to the notch 7.

Carried by the outer end portion of the section 2 of the stick is a ferrule 36 provided therearound with an outstanding grooved flange 37 provided with circumferentially spaced notches 38 in one of which is received the opposite end portion of the stretcher 31, said stretcher being pivotally held to the flange 37 by the wire 39 as is well-known.

With the umbrella in folded or compacted condition or more particularly the rib sections and associated stretchers, as indicated in Figure 5, and as the section 1 is moved outwardly with respect to the section 2, the plate 21 will swing on the pivotal connection 20 between the associated rib section 17 and the plate 21 and the resultant outward swinging movement of the pivotal point 26 between the link 25 and the rib section 17 will result in the section 19 being thrown outward or forward into extended position. The desired turning or rocking of the plate 21 on the first mentioned pivotal connection 20 is assured by the stretchers 30 and 31. These stretchers 30 and 31 also serve to effectively brace the structure when extended for use.

As herein disclosed, the section 1 is adapted to be moved outwardly in an automatic manner through the instrumentality of the expansible spring 40 interposed between the inserted end of the section 1 and an inturned flange 41 carried by the inserted end of the section 2.

The outer end of the section 2 and the inserted end portion of the section 1 are provided with coacting shoulders 42 adapted to limit the extent of outward movement of the section 1 and the inserted end portion 43 of the section 2, as herein disclosed, is flared for coaction with the restricted outer end portion 44 of the section 3 whereby is limited the outward movement of the section 2 with respect to the section 3. The inserted end portion of the section 3 is also flared, as at 45, for coaction with the restricted outer end portion 46 of the section 4 to limit the outward movement of the section 3 with respect to the section 4. The relative movements between the sections 2 and 3, and 3 and 4 are effected manually.

The section 4 constitutes the handle portion of the stick as herein disclosed and arranged around the major portion of said section 4 is a sleeve 47 of suitable material to give requisite finish to the handle. The inner end portion of this sleeve 47 is engaged within the ferrule 48 carried by the outer end portion of the section 4 while the opposite end portion of the sleeve 47 has in substantial close contact therewith the cap 49 threaded upon the outer end portion of the section 4. Upon removal of the cap 49

the sleeve 47 may be readily applied or removed.

Secured within the inserted end portion of the section 1 is a nut member 50 in which is adapted to be engaged the threaded end portion *a* of an elongated shank 51 carried by the cap 49 and arranged at the axial center thereof, said shank 51 being of requisite length to have requisite engagement with the nut member 50 before the section 3 is completely telescoped within the section 4. When the shank 51 is engaged with the nut member 50, the requisite rotation of the cap 49 will cause the sleeve 1 to be further restricted within the section 2 and thereby swinging the stretchers 30 and 31 and the section 17 of an associated rib in close proximity one to the other so that the outer section 19 of each of the ribs may be readily swung outwardly and upwardly to accomplish the desired compacting of the umbrella in its entirety.

When it is desired to extend the umbrella for use, it is only necessary to rotate the cap 49 in a direction to move the section 1 outwardly until the nut member 50 is free of the shank 51 whereby the expansible member 40 will automatically force the section 1 to the limit of its outward movement as illustrated in Figure 1 of the accompanying drawings. The opposed end portions of the sections 17 and 19 of each of the ribs *R* are provided with the inwardly disposed perforated lugs 52 to provide means whereby an umbrella cover (not shown) may be effectively secured to each of the ribs. The outer end portion of the section 19 of each rib is inserted within a sleeve 53 comprised in the rib tip *T*, said sleeve 53 being provided with an opening 54 through which is adapted to project a latch member 55 carried by the outer end of the section 19 and extending inwardly thereof. As herein disclosed, the latch member 55 is of a resilient type.

The metal cut out to provide the opening 53 is returned to provide an eye member 56 to afford means to effectively secure a marginal portion of the umbrella cover to the tip *T*.

It is to be understood that the section 1 may be square or hexagon in cross section and the outer portion of the bore of the section 2 similarly formed so that said sections 1 and 2 at all times are maintained in effective relation to assure the requisite functioning of the various parts of the umbrella when in compacted or extended relation.

From the foregoing description it is thought to be obvious that an umbrella constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it

will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice except as hereinafter claimed.

I claim:—

1. In combination with an umbrella having a stick comprising two telescoping sections, ribs pivotally engaged with the outer end portions of the inner section of the stick, each of said ribs comprising two sections, a plate with which the adjacent end portions of the rib sections are pivotally connected, the pivoted end portion of one of the rib sections extending beyond its pivotal connection with the plate, a link pivotally connected with said extension and with the second section of the rib section inwardly of the pivotal connection between said second rib and the plate, a stretcher pivotally connected with the plate and with the outer end portion of the inner section of the stick, and a stretcher pivotally connected with the plate and with the outer end portion of the outer section of the stick.

2. In combination with an umbrella having a stick comprising two telescoping sections, ribs pivotally engaged with the outer end portions of the inner section of the stick, each of said ribs comprising two sections, a plate with which the adjacent end portions of the rib sections are pivotally connected, the pivoted end portion of one of the rib sections extending beyond its pivotal connection with the plate, a link pivotally connected with said extension and with the second section of the rib inwardly of the pivotal connection between said second rib section and the plate, a stretcher pivotally connected with the plate and with the outer end portion of the inner section of the stick, and a stretcher pivotally connected with the plate and with the outer end portion of the outer section of the stick, the pivotal connection of both of the stretchers with the plate being about a common axis.

3. In combination with an umbrella having a stick comprising two telescoping sections, ribs pivotally engaged with the outer end portions of the inner section of the stick, each of said ribs comprising two sections, a plate with which the adjacent end portions of the rib sections are pivotally connected, the pivoted end portion of one of the rib sections extending beyond its pivotal connection with the plate, a link pivotally connected with said extension and with the second section of the rib inwardly of the pivotal connection between said second rib section and the plate, a stretcher pivotally connected with the plate and with the outer

end portion of the inner section of the stick, a stretcher pivotally connected with the plate and with the outer end portion of the outer section of the stick, and means for automatically moving the inner section outwardly.

4. In combination with an umbrella having a stick comprising two telescoping sections, ribs pivotally engaged with the outer end portions of the inner section of the stick, each of said ribs comprising two sections, a plate with which the adjacent end portions of the rib sections are pivotally connected, the pivoted end portion of one of the rib sections extending beyond its pivotal connection with the plate, a link pivotally connected with said extension and with the second section of the rib inwardly of the pivotal connection between said second rib section and the plate, a stretcher pivotally connected with the plate and with the outer end portion of the inner section of the stick, a stretcher pivotally connected with the plate and with the outer end portion of the outer section of the stick, and means for holding the inner section retracted.

5. In combination with an umbrella having a stick comprising two telescoping sections, ribs pivotally engaged with the outer end portions of the inner section of the stick, each of said ribs comprising two sections, a plate with which the adjacent end portions of the rib sections are pivotally connected, the pivoted end portions of one of the rib sections extending beyond its pivotal connection with the plate, a link pivotally connected with said extension and with the second section of the rib inwardly of the pivotal connection between said second rib section and the plate, a stretcher pivotally connected with the plate and with the outer end portion of the inner section of the stick, a stretcher pivotally connected with the plate and with the outer end portion of the outer section of the stick, and a member extending through the outer section of the stick for threaded engagement with the inner section of the stick for holding said inner section retracted.

6. In combination with an umbrella having a stick comprising two telescoping sections, ribs pivotally engaged with the outer end portions of the inner section of the stick, each of said ribs comprising two sections, a plate with which the adjacent end portions of the rib sections are pivotally connected, the pivoted end portions of one of the rib sections extending beyond its pivotal connection with the plate, a link pivotally connected with said extension and with the second section of the rib inwardly of the pivotal connection between said second rib section and the plate, a stretcher pivotally connected with the plate and with the outer end portion of the inner section of the stick,

a stretcher pivotally connected with the plate and with the outer end portion of the outer section of the stick, and means carried by one of the sections of the rib and coacting with the second rib section for limiting the relative swinging movement of said sections in one direction.

7. In combination with an umbrella having a stick comprising two telescoping sections, ribs pivotally engaged with the outer end portions of the inner section of the stick, each of said ribs comprising two sections, a plate with which the adjacent end portions of the rib sections are pivotally connected, the pivoted end portions of one of the rib sections extending beyond its pivotal connection with the plate, a link pivotally connected with said extension and with the second section of the rib inwardly of the pivotal connection between said second rib section and the plate, a stretcher pivotally connected with the plate and with the outer end portion of the inner section of the stick, a stretcher pivotally connected with the plate and with the outer end portion of the outer section of the stick, and means carried by the plate for coaction with one of the sections of the rib for limiting the relative swinging movement of said section and plate in one direction.

8. In combination with an umbrella having a stick comprising two telescoping sections, ribs pivotally engaged with the outer end portions of the inner section of the stick, each of said ribs comprising two sections, a plate with which the adjacent end portions of the rib sections are pivotally connected, the pivoted end portions of one of the rib sections extending beyond its pivotal connection with the plate, a link pivotally connected with said extension and with the second section of the rib inwardly of the pivotal connection between said second rib section and the plate, a stretcher pivotally connected with the plate and with the outer end portion of the inner section of the stick, a stretcher pivotally connected with the plate and with the outer end portion of the outer section of the stick, the pivotal connections between the sections of the rib and the plate being offset one with respect to the other.

9. In combination with an umbrella having a stick comprising two telescoping sections, ribs pivotally engaged with the outer end portions of the inner section of the stick, each of said ribs comprising two sections, a plate with which the adjacent end portions of the rib sections are pivotally connected, the pivoted end portions of one of the rib sections extending beyond its pivotal connection with the plate, a link pivotally connected with said extension and with the second section of the rib inwardly of the pivotal connection between said second rib section

and the plate, a stretcher pivotally connected with the plate and with the outer end portion of the inner section of the stick, a stretcher pivotally connected with the plate
5 and with the outer end portion of the outer section of the stick, the pivotal connections between the sections of the rib and the plate being offset one with respect to the other, the pivotal connection between the plate and
10 the inner section of the rib being disposed inwardly of the pivotal connection between the outer section of the rib and the plate when said sections are extended.

10. An umbrella comprising, in combination, a stick consisting of two telescoping sections, ribs pivotally engaged with the outer end portions of the inner section of the stick, stretchers operatively engaged with the outer end portions of the outer section
20 of the stick and operatively engaged with

the ribs, and a member extending through the outer section of the stick and engageable with the inner section of the stick for holding said inner section retracted.

11. An umbrella comprising, in combination, a stick consisting of two telescoping sections, ribs pivotally engaged with the outer end portions of the inner section of the stick, stretchers operatively engaged with the outer end portions of the outer section
30 of the stick and operatively engaged with the ribs, and a member extending through the outer section of the stick for threaded engagement with the inner section of the stick for holding said inner section re-
35 tracted.

In testimony whereof I hereunto affix my signature.

FRANK J. PUGEL.