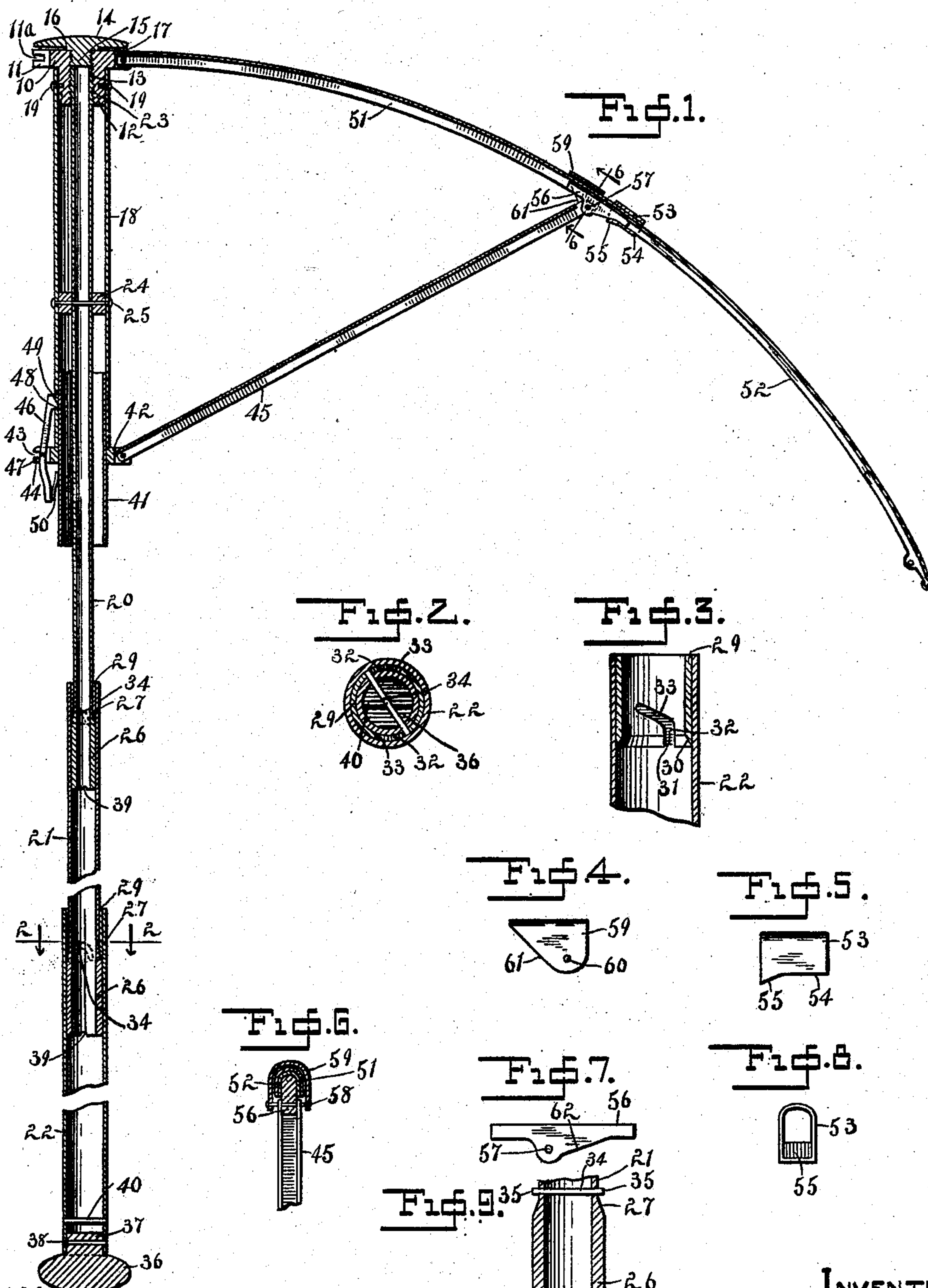


C. JESDALE & L. G. WELDE.
FOLDING UMBRELLA.
APPLICATION FILED NOV. 8, 1907.

911,728.

Patented Feb. 9, 1909.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES JESDALE AND LOUIS G. WELLDE, OF CHICAGO, ILLINOIS.

FOLDING UMBRELLA.

No. 911,723.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, CHARLES JESDALE and LOUIS G. WELLDE, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Folding Umbrellas, of which the following is a specification.

Our invention relates to umbrellas and has special reference to that class in which both stick and ribs are adapted to be reduced in length by sliding or telescoping, and commonly designated a folding umbrella.

The paramount objects of our invention are to provide an umbrella that can be readily reduced in its longitudinal dimension so that it can be placed in a comparatively small receptacle, such as a hand bag or the pocket of a coat; to afford means for quickly restoring the parts to their extended or open position, and to furnish means for rigidly securing the devices against accidental collapse when so expanded.

Other objects of our improvements are to provide simple mechanism for accomplishing the desired results; to so design and construct the parts as to give the requisite strength and rigidity without unusual increase in the weight and dimension, and to supply movable parts having the desirable quality or durability and so related as to be readily assembled and repaired.

Further objects of our invention are to provide quick-acting interlocking devices for the telescoping members; to furnish a strong and rigid connection between the stick and the rib holder, and to supply a frictional detent for the rib sections that will afford mutual support to the slidable connections and lock the parts when extended.

We accomplish the above and other important objects by the mechanical construction illustrated in the accompanying drawing, which forms a part of this specification, and in which:—

Figure 1 is a longitudinal sectional view of the stick and one rib and spreader, the remaining ribs and spreaders being omitted; Fig. 2 is a sectional view through the lower joint on the line 2—2 of Fig. 1; Fig. 3 is a longitudinal section through the upper reinforcement of one of the sections of the stick; Figs. 4 and 5 are side views of the locking clamp and locking sleeve, respectively; Fig. 6 is a sectional view on the line 6—6 of Fig. 1; Fig. 7 is a side view of the locking shoe;

Fig. 8 is an end view of the locking sleeve, and Fig. 9 is a longitudinal section through the lower end of one of the stick sections.

Referring to the details of the drawing, the numeral 10 indicates the top or notch, provided with the usual groove 11 for the retaining wire (not shown) and notches 11^a with which the ends of the rib engage. The said notch 10 has an extension 12, reduced in size and through the notch and its extension is formed an aperture 13 having internal threads. Covering this aperture is a cap-plate 14 from which projects a screw 15, said screw engaging the aperture 13. The cap-plate 14 is furnished with a shoulder 16, thus leaving an interval 17 between the cap-plate and the said notch to receive the fabric (not shown) which is to form a cover for the umbrella. The application of such cover will be readily understood since it will only be necessary to supply a central hole therein to admit the shoulder 16, the plate 14 retaining the cover in place when assembled. Engaging the extension 12 is a reinforcing sleeve 18, secured thereto by screws 19. We prefer to make the cap and notch of aluminum to reduce the weight.

The stick of the umbrella is composed of three tubular sections 20, 21, 22, which have a telescoping engagement with each other and are retained in such relation by means hereinafter described. The material for these sections may be any suitable metal. We prefer, however, to employ steel for this portion of the structure, and we use this metal generally throughout the entire framework, certain exceptions being noted in connection with the detailed descriptions. The objectionable feature inherent in steel, namely, the tendency to oxidation, is obviated by subjecting the parts to the well known bluing process, which has the double advantage of producing the desired temper and at the same time rendering the metal rust-proof. The first or upper section 20 is the smallest in diameter and may be made of a solid rod if desired. We prefer the construction shown as affording the necessary strength and rigidity with a minimum weight. The upper end 23 of this section is threaded to engage the internal threads of the aperture 13 in the fixed notch 10. The said section is additionally supported and centered by a collar or bushing 24, preferably made of aluminum which surrounds the said section and fits tightly in the bore

of the fastening sleeve 18 and is secured by a rivet 25. The sleeve 18 in conjunction with the section 20, thus forms a rigid structure adapted to properly support the attached framework and to resist lateral strain, at the same time affording a housing and support for the upper end of the runner which telescopes therein, said runner and arrangement being hereinafter described.

The lower end of the section 20 is reinforced by a thickening of the wall upon the outer surface as shown at 26, said reinforcement presenting a sloping or taper shoulder 27 where it joins the main tube. This engagement is adapted to have a sliding fit within the bore of the second or middle section 21. The upper end of the middle section 21 is provided with an internal reinforcement formed by inserting a sleeve 29 and securing it by brazing. The inner margin of the sleeve is tapered or beveled as shown at 30, Fig. 3, to correspond with the incline 27 of the first section, and these tapered shoulders become wedged together when the sections are extended and thus prevent any lost motion laterally. The sections thus engaged are locked against longitudinal movement by the following means. The sleeve 29 is furnished with oppositely located slots 31, which extend from the tapered margin of said sleeve in a longitudinal direction as shown at 32, Fig. 3, and are then continued in a spiral form 33, for about a quarter of the circumference of the sleeve. The engaging end of the adjacent section is provided with a transverse pin 34, having its ends 35 projecting to an extent corresponding with the thickness of the reinforcement. These ends 35 are adapted to enter the slots 31, and upon being carried to the end of the spiral portion 33 of the slots, which is done by giving the parts a slight twisting movement the ends 35 of the pin will lock the joint securely against longitudinal and lateral forces. The description thus given to the construction and manipulation of the joint between the sections 20 and 21 will apply equally to the joint between the middle or second section 21, and the last or third section 22. The lower end of the said third section is supplied with a handle or knob 36 which is provided with an extension 37 adapted to fit tightly within the bore of the tubing or section, and is permanently fastened by a rivet 38.

It will be evident that the force required to release the joints when locked will vary not only in different joints, but also as to each joint. That is, when the end sections are grasped and the parts given a slight twist to unseat the engaging pins 34 from the slots 31, sometimes one joint will be the first to unlock and sometimes the other. By shifting one hand to the middle portion and holding that firmly the second joint can be

unlocked, but as the operator may be for the moment uncertain which joint has yielded, he is obliged to make trial, in some instances, first of one section and then the other before his efforts are successful. To avoid this procedure which is awkward and undesirable and to enable the releasing to be done with a quick movement and without the necessity of shifting the hold upon the ends of the stick, we provide releasing notches 39 in the lower ends of the sections. The said notches in the end of the first section 20 are adapted to be engaged by the locking pin 34 of the next section, when the sections are retracted and as there is no locking pin below the second joint a release pin 40 is inserted in section 22 just above the attachment of the handle 36, for the purpose of engaging and releasing the upper joint. Inspection of the relation of these notches and the several pins will show that the engagement of the notches 39 of the upper section with the locking pin 34 of the middle section 21 will aid in the release of the lower joint, and engagement of the notches 39 of the middle section 21 with the pin 40 will enable the upper joint to be released.

As in all umbrellas, we provide a runner which consists of a slidable sleeve 41 adapted to telescope within the fastening sleeve 18, and embracing said sleeve 41 is a ring or collar 42 provided with a peripheral groove 43 for the binding wire, and having the usual notches 44, to receive the inner ends of the spreaders 45 which have the ordinary construction. Between adjacent notches 44 is cut a special notch in which is mounted a latch 46 having a pivot hole 47 through which the fastening wire (not shown) is threaded and which serves as a pivot upon which said latch rocks. The upper end of the latch is supplied with a tooth 48 which engages an aperture 49 in the fastening sleeve 18, a spring 50 holding the latch in locked position.

The ribs which serve to support the cloth covering in the usual manner, are each composed of two portions an upper rib or section 51 one end of which is received in a notch in the member 10 and a lower section or rib 52. These ribs are U-shaped in cross section, the form usually met with in umbrella construction, and are adapted to telescopically slide upon each other, the lower rib 52 being received within the upper rib 51. To the free end of the upper rib 51 is secured a retaining sleeve 53 through which the lower rib slides and which aids in maintaining the two ribs in proper engagement with each other. The side 54 of said sleeve 53 which covers the inner rib is flattened and the inner end 55 thereof is inclined upward to form an engaging surface for a retaining shoe 56, which is located at the upper end of the lower rib 52 and is fast-

tened securely to the inner face or groove of said rib. This shoe projects beyond the side margins of the rib 52 to which it is attached and is furnished with a pivot hole 57.

5 To this shoe is pivotally attached the outer end of the spreader, which is forked to embrace said shoe and secured thereto by a pivot pin 58. The end of the lower rib thus attached to the spreader is retained in place
10 by a clip 59 which loosely clasps the rib 51 and has holes 60 for the pin 58. This clip has inclined margins 61 which prevent said clips from engaging the lower end of the fastening sleeve 18 during the process of
15 folding the umbrella. The free margin of the said shoe 56 has a beveled portion 62 which engages the inclined surface of the sleeve 53 when the ribs are completely extended and locks them in this position until
20 the stick is extended and the locking pins engaged with their slots.

To open the umbrella when closed, the operator grasps the runner and attached
25 stretcher or the runner alone, in one hand and takes hold of the top cap with the other. A steady pull upon these parts will extend the ribs by sliding the lower rib in its channel in the upper rib through the medium of the spreaders. When the ribs are slid to
30 their full extent the operator seizes the handle with one hand, still keeping a grasp upon the top cap. He then pulls the sections out as far as they will go, and still holding the cap firmly he rotates the handle
35 until the pins 34 engage the slots 31 and as soon as their engaging ends 35 have reached the ends of the slots the parts will be firmly locked in extended position.

To fold the umbrella when open the top
40 cap is to be held firmly in one hand and the handle grasped with the other. The handle is then rotated in a direction opposite to that in which it was turned when opening, until one of the sections or joints is released. The
45 sections are then telescoped by pushing them together and are then slightly rotated until the notch 39 of the unlocked section is engaged by its release pin. A further rotary movement of the handle will release the remaining joint. The ribs will then be re-
50 tracted relatively to each other by grasping the points of the outer ribs by one hand and sliding them towards the cap which is still held as at first grasped.

55 Having thus described our invention what we claim as new, is:—

1. In a folding umbrella, the combination with a stick composed of telescoping sections, of a notch having threaded connection with
60 the upper section, a reinforcing sleeve attached to the notch, a collar connecting the sleeve and said upper section, a series of ribs consisting of sections arranged to slide upon each other, a runner engaging said sleeve,

and spreaders connecting said runner and 65 ribs.

2. In an umbrella, the combination with a stick composed of telescoping sections, of a notch secured to the upper section, a rein-
forcing sleeve attached to the notch, a collar 70 connecting the sleeve and said upper section, a series of sectional ribs, each rib composed of an upper and a lower section, a retaining sleeve on each upper rib section and sur-
rounding the lower rib section, a clip at- 75 tached to the lower rib section and embracing the upper rib section, a retaining shoe fixed to the lower rib section, a runner surrounding the stick, and a series of spreaders connecting said retaining shoes with the run- 80 ner.

3. In a folding umbrella, the combination with a stick composed of telescoping sections, of a notch secured to the upper sec-
tion, a reinforcing sleeve attached to the 85 notch, a collar connecting the sleeve and said upper section, a series of sectional ribs each rib composed of an upper and a lower section, a retaining sleeve on each upper rib section and surrounding the lower rib sec- 90 tion, a clip attached to the lower rib section and embracing the upper rib section, a retaining shoe fixed to the lower rib section and adapted to engage said retaining sleeve, a runner surrounding the stick and adapted 95 to engage the said reinforcing sleeve when the ribs are extended, and a series of spreaders connecting said retaining shoes with the runner.

4. In a folding umbrella, the combination 100 of a stick composed of telescoping sections, reinforcements for the ends of the sections, said reinforcements being provided with tapered shoulders adapted to mutually en-
gage when the sections are extended, a lock- 105 ing pin arranged transversely in all but one of the sections and adapted to engage notches in the ends of the adjacent sections, said pins having projecting ends adapted to engage spirally arranged slots in the inner surface 110 of the adjacent section, a pin arranged transversely in the cavity of the lowest section, and adapted to engage notches in the end of the adjacent section, a series of ribs composed of sections arranged to slide upon 115 each other, a runner surrounding the stick, and adapted to slidably engage the said sleeve when the ribs are extended and spreaders connecting said runner and ribs.

5. In a folding umbrella, the combination 120 with a stick composed of telescoping sections, a notch attached to the upper section, and a runner embracing the stick, of a series of sectional ribs, each rib having an upper and a lower section, a retaining sleeve on 125 each upper rib section and surrounding the lower rib section, a clip attached to the said lower rib section and embracing the upper

rib section, a retaining shoe fixed to the lower rib section, a runner surrounding the stick and a series of spreaders connecting said retaining shoes with the runner.

5 6. In a folding umbrella, the combination of a stick composed of telescoping sections, reinforcements for the ends of the sections, tapering shoulders for the reinforcements adapted to mutually engage when the sec-
10 tions are extended, slots formed in the inner surfaces of the reinforced portions of the sections, said slots having a straight and a spiral portion, a locking pin extending trans-
15 versely in each section and having project- ing ends adapted to engage said slots, a series of sectional ribs, a runner, and a series of spreaders connecting said sectional ribs with the runner.

20 7. In a folding umbrella, the combination of a stick, composed of telescoping sections, reinforcements for the ends of the sections, tapering shoulders for the reinforcements adapted to mutually engage when the sec-

tions are extended, slots formed in the inner surfaces of the reinforced portions, said 25 slots having a straight and a spiral portion, locking pins in the sections having projecting ends adapted to engage said slots, a notch having threaded en-
30 gagement with the upper section, a rein- forcing sleeve attached to the notch, a con- necting collar between the sleeve and said upper section, a series of sectional ribs, a runner surrounding the stick and adapted to telescopically engage the said reinforcing 35 sleeve when the ribs are extended, and a series of spreaders connecting said sectional ribs with the runner.

In testimony whereof we affix our signatures in the presence of two witnesses.

CHARLES JESDALE.
LOUIS G. WELDE.

Witnesses:

FRED. YOUNGBERG,
GEORGE M. JOHNSON.