

No. 650,061.

Patented May 22, 1900.

C. H. ELY, J. W. DANSER & F. B. RUE.

FOLDING UMBRELLA.

(Application filed June 8, 1898. Renewed Oct. 28, 1899.)

(No Model.)

2 Sheets—Sheet 1.

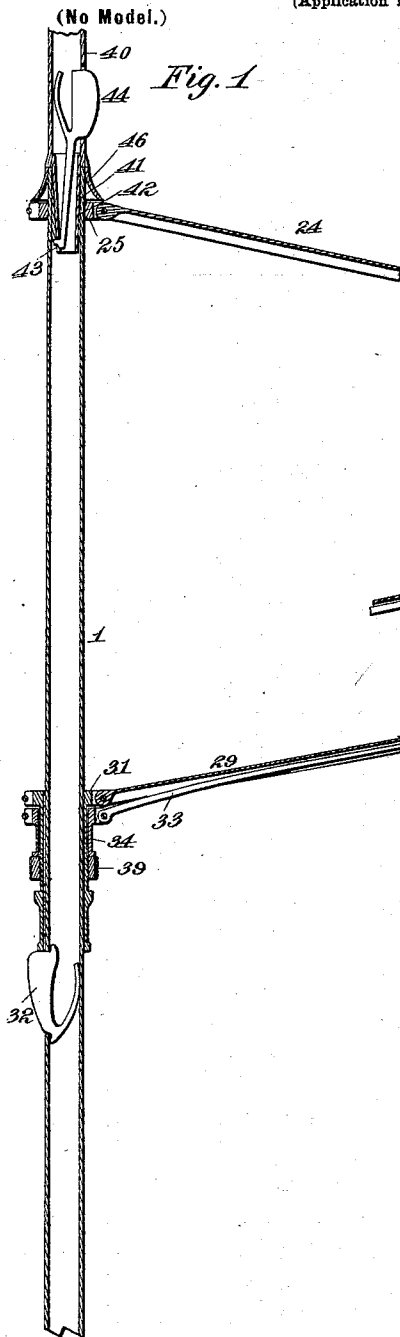


Fig. 1^a.

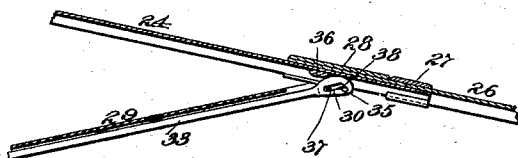
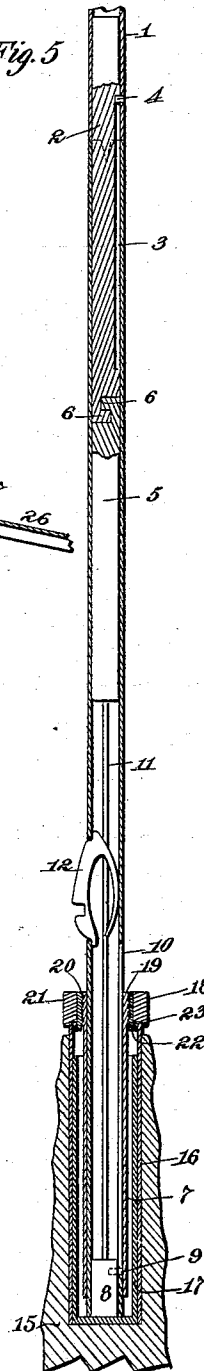


Fig. 5



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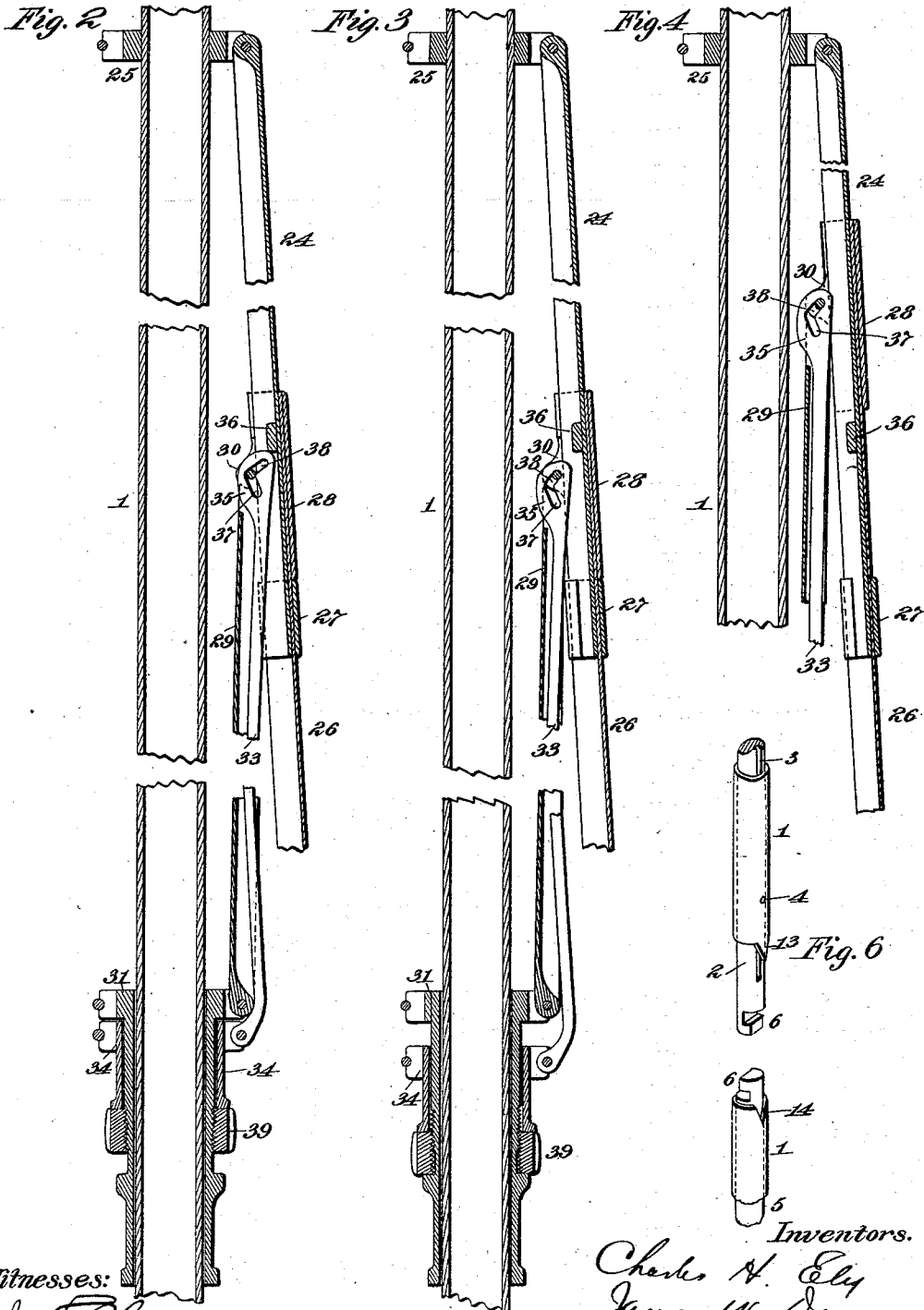
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UNITED STATES PATENT OFFICE.

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FOLDING UMBRELLA.

SPECIFICATION forming part of Letters Patent No. 650,061, dated May 22, 1900.

Application filed June 8, 1898. Renewed October 28, 1899. Serial No. 735,045. (No model.)

To all whom it may concern:

Be it known that we, CHARLES HOLMES ELY, of Orange, in the county of Essex, JAMES WESLEY DANSER, of Freehold, in the county of Monmouth, and FRANK BERGEN RUE, of Atlantic Highlands, in the county of Monmouth, State of New Jersey, citizens of the United States, have invented a certain new and useful Improvement in Folding or Telescoping Umbrellas, of which the following is a specification.

Our invention relates to various new and useful improvements in folding or telescoping umbrellas, and the invention particularly relates to the general class of umbrellas invented by us and described in Letters Patent of the United States, numbered 456,405 and 600,219, dated July 21, 1891, and March 8, 1898, respectively. As with the umbrellas described by us in said patents, our present improvements provide for the telescoping of the ribs, each comprising two sections, to the lower of which sections the braces or stretchers are pivoted at their upper ends, means being provided for locking the two sections of each rib together when the umbrella is to be used or for unlocking them to allow for the relative movement of the two sections when it is desired to fold the umbrella, and the stick or staff of the umbrella being made in sections readily removable from each other, whereby a very compact and portable package will be secured when the umbrella is not in use. Our present invention relates especially to improvements in the devices for locking the two sections of each of the ribs together, which means are of simple construction and allow for the simultaneous release and locking of all of the ribs; and, further, our improvements relate to novel devices for securing the sections of the stick or staff together.

The objects of our present invention are to simplify and improve the operation generally of folding umbrellas, especially so far as such operations relate to the locking and unlocking of the rib-sections and to the securing together of the portions constituting the stick or staff.

In carrying out our present invention we employ ribs, preferably of the "Paragon" type, each arranged in two sections, the in-

ner section of each rib being arranged to telescope into or upon the outer section, the outer section of each rib being connected to a spreader or stretching-brace, as is common in devices of this type, the inner ends of such spreaders or stretching-braces being connected to a sleeve surrounding the stick or staff of the umbrella and which constitutes the body or main part of the runner. We mount within and extend adjacent to each spreader or stretching-brace a locking-bar, which may be concealed by such brace, the end of which locking-bar forms a cam, which is arranged to be engaged with or disengaged from a stop or other projection formed upon or carried within the inner section of each rib and the locking-bars being all connected at their inner ends by a supplemental sleeve, which surrounds the main sleeve or runner of the umbrella and which is arranged to be moved laterally with respect to said runner. The cam-heads of the locking-bars are provided with slots therein of peculiar form, which slots engage with the pivot-pins to which the stretchers or brace-rods are pivoted, the formation of said slots being such as will maintain the cam-heads of the locking-bars in engagement with the stop or other projection on each of the upper sections of the ribs when the supplemental sleeve which surrounds the runner is in a locked position. The said slots are so arranged, however, that when the supplemental sleeve is moved relatively to the runner the cam-heads of the locking-bars will be withdrawn from engagement with the stops or other projections formed on the upper section of each rib, thereby disengaging the ribs and allowing for the telescoping thereof. These parts are by preference so arranged and will be so described that this disengagement of the cam-heads of the locking-bars with the stops or other projections can take place only when the umbrella is in a closed position, whereby when the umbrella is open there can be no possibility of its getting out of order or accidentally telescoping.

In carrying our invention further into effect we make the stick or staff of the umbrella in two preferably-tubular sections, and we mount in the upper section a closely-fitting rod having a scarf-joint at its lower end,

said rod being preferably though not necessarily movable with respect to the upper section, and we preferably mount in the lower section a second closely-fitting rod having a corresponding scarf-joint at its upper end and being connected to a sleeve, which is movable upon the lower section of the stick or staff at its lower end. We also arrange the handle of the umbrella in such a way that the sleeve on the lower section of the stick can be engaged by said handle, whereby when the two scarf-joints have been interlocked and the sleeve moved downward to carry the rod from the upper section into the lower section the handle may be engaged with said sleeve to force the two portions of the stick or staff tightly together and at the same time to hold the handle firmly in place. In order to prevent any possible relative movement of the two sections of the stick or staff, we provide the said tubular sections with an interlocking tenon and recess, all as we will more fully hereinafter describe and claim.

In order that our present improvement may be better understood, attention is directed to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a full-sized sectional view of a portion of the upper section of an umbrella, showing a part of the tip in place, illustrating the upper portion of one rib, a part of one of the stretchers or brace-rods, and a part of one of the locking-rods, showing the preferred construction of runner, supplemental sleeve, and locking device therefor. Fig. 1^a is a continuation of the same parts shown in Fig. 1, illustrating the lower portion of the upper section of one rib, the upper portion of the lower section of the same rib, and the outer ends of the stretcher or brace-rod and locking-rod shown in Fig. 1; Fig. 2, an enlarged sectional view of the elements shown in Fig. 1, except the tip, illustrating the parts in their closed position, but with the sections of the rib still locked together; Fig. 3, a similar view showing the sections of the rib unlocked; Fig. 4, a corresponding view showing the sections of the rib moved relatively to each other; Fig. 5, a longitudinal sectional view of the improved joint for the two sections of the stick or staff, illustrating the preferred construction of handle and its connections, which cooperate with the improved joint; and Fig. 6 a perspective view of a part of the stick, showing more clearly the scarf-joint thereof.

In all of the above views corresponding parts are represented by the same numerals of reference.

The stick or staff 1 of the umbrella is preferably of the usual tubular form, being divided at about the center, at which point the two sections may be joined together. The preferred form of joint between the two sections will first be described. The upper section of the stick or staff is provided with an

internal rod 2, which is adapted to fit within the lower section of the stick when the parts are to be united together. Preferably the rod 2 is movable into and out of the upper section of the stick, being provided with a slot 3 therein, with which a pin 4 engages. This construction somewhat shortens the upper section of the stick when the umbrella is to be collapsed and also facilitates in the manipulation of the joint, as we will explain. Mounted within the lower section of the stick or staff is a similar rod 5, arranged to move vertically in said section. The engaging ends of the rods 2 and 5 are provided with scarfs 6 6, constituting a well-known form of interlocking joint, in lieu of which, however, any other type of interlocking joint may be employed. The rod 5 is arranged to be moved within the lower section of the stick, so as to disclose the scarf 6 thereof for engagement with the corresponding scarf of the rod 2, as shown in Fig. 6. In order to operate the rod 5 within the lower section of the stick when it is desired to engage the two sections together, we provide a sleeve 7, mounted on the stick, at the lower end thereof, and connected with a plunger 8, working inside of the stick by means of a pin 9, which works within a slot 10 in the stick. The plunger 8 is connected to the rod 5 by a connecting-rod 11, which works within the stick, at one side thereof, so as to clear the usual spring-latch 12 for locking the umbrella in its closed position. It will be observed that by moving the sleeve 7 upward on the stick the rod 5 will be projected from the upper end of the lower section thereof, and that by engaging the scarfed ends of the rods 2 and 5 together, the sleeve 7 may be moved downward to draw the rod 2 within the lower section of the stick, and thereby secure a very firm and rigid joint. In order to prevent relative movement of the two parts of the stick or staff, we prefer to provide one section thereof with a tenon 13, which engages a groove 14 in the other section when the two sections are brought together. By making the rod 2 movable within the upper section of the stick it is possible, in securing the parts of the stick together, to first engage the scarfed ends of the rods 2 and 5 and to then bring the two tubular sections together, in which movement the upper portion of the rod 5 will enter the upper section of the stick to preserve the alinement of the two stick-sections, and subsequently the sleeve 7 may be moved downward to advance the rod 2 within the lower stick-section. It is, however, not strictly necessary to make the rod 2 movable within the upper stick section, and, if desired, the said rod may be rigidly secured therein. After the rods 2 and 5 have been engaged together and the rod 2 has been moved within the lower stick-section it is desirable to apply stress to such rods to force the two stick-sections tightly together and maintain the joint between them per-

fectly firm and rigid. We prefer to do this by means of a removable handle of novel construction. The said handle 15 is provided at its upper end with a metal sleeve 16, which is rigidly secured in place, and within said sleeve and rigidly connected therewith is a closed sleeve 17, the closed lower end thereof forming a bearing for the bottom end of the lower stick-section. Mounted on the upper end of the tube 16 is a rotatable nut 18, having a milled periphery by which it may be rotated and provided with a screw-threaded bore which engages the screw-threads 19 on the upper end of the sliding sleeve 7. In order that the nut 18 may be applied to the stationary sleeve 16, we prefer to make said nut in two parts 20 and 21, the former portion being provided with an outturned rim 22, which engages beneath an annular lip 23 on the tube 16, and the outer section 21 working above said annular lip and being soldered or otherwise secured to the section 20. By providing the handle 15 with a rotatable nut at its upper end it will be obvious that when the sleeve 7 has been moved downward to engage the rod 2 within the lower stick-section the handle may be inserted in position over said sleeve, with the bottom of the lower stick-section in engagement with the closed lower end of the sleeve 17. By now engaging the nut 18 with the screw-threads 19 and by rotating said nut the sleeve 7 will be forced downward, forcing the rod 2 within the lower stick-section and engaging the two stick-sections firmly and rigidly together. This also results in the securing of the handle 15 tightly in position upon the lower stick-section. In this way we obtain a joint between the two sections of the stick or staff of our improved umbrella, which joint is very rigid in construction and does not in any way affect or mar the appearance of the stick, and we also provide in connection with such joint and in cooperation therewith means by which the umbrella-handle may be firmly and rigidly secured in place to the lower stick-section.

Referring now to the construction and arrangement of the parts relating to the ribs, 24 represents the upper section of one rib pivoted or hinged in the usual way to the top notch 25 and of the common "Paragon" type—i. e., being substantially U-shaped in cross-section. 26 is the lower section of the same rib, which works on the outside of the upper section 24. The section 24 is provided at its extreme lower end with a stationary guide-sleeve 27, which encircles section 26, and the section 26 is provided at its upper end with an extended sleeve 28, which engages the section 24, whereby these two sections may telescope together in the usual way.

29 represents one of the brace-rods or stretchers, which is pivoted at its upper end within lugs or ears 30, integral with the sleeve 28, and at its lower end to the runner of the umbrella, said runner constituting a sleeve

31, adapted to be locked in its uppermost position by the usual spring-latch 32 and in its lowermost position by the spring-latch 12, before referred to. Mounted within each of the stretchers or brace-rods 29 is a locking-rod 33. The lower ends of all the locking-rods are pivoted or hinged within a supplemental sleeve 34, which works on the runner, as shown, the pivots of the locking-rods being therefore immediately below the pivots of the stretchers or brace-rods and the locking-rods being practically entirely concealed by said brace-rods, so that our improved folding umbrella presents substantially the appearance of an ordinary umbrella. The outer end of each locking-rod 33 is provided with an integral cam-head 35, which when the ribs are to be locked in their extended positions engages behind a lug or projection 36, formed on the inside of the upper section 24 of each rib, and by which movement of the section 26 relative to the section 24 will be prevented. Owing to the difference in the pivot-points of the stretchers 29 and the locking-rods 33, it is necessary to provide the cam-heads 35 with a short longitudinal slot 37 therein to allow the locking-rods to move slightly with respect to the stretchers or brace-rods in the closing operation. The slots 37 are provided with continuations 38, which extend at an angle with respect to the same to a point adjacent to the periphery of the cam-head 35. The slot 37 and its continuation or extension 38 of each locking-rod are so proportioned that when the runner 31 is in an elevated position and locked by the latch 32 to extend the ribs 24 outward the pin will rest in the extreme inner portion of said slot, as shown in Fig. 1^a, but when the said runner is moved to the limit of its downward movement and is locked by the latch 12 the pin will rest in the extreme forward portion of said slot adjacent to the extension or continuation 38, as shown in Fig. 2. By now moving the supplemental sleeve 34 slightly downward, as shown in Fig. 3, all of the locking-rods will be moved to carry the pins of each of the ribs into the extension or continuation 38 of each slot, so as to withdraw the cam-heads 35 from their engagement with the stops or projections 36, and thereby release the lower section of each rib, as shown, whereby the ribs may be telescoped together, as shown in Fig. 4 and as we illustrate in our said patents before referred to. In order to allow for the slight relative movement of the supplemental sleeve 34, we prefer to provide the runner 31 with a rotatable nut or ring 39, screw-threaded thereon and adapted to be engaged with the lower end of the sleeve 34 to force the same firmly upward when it is desired to lock the sections of the ribs together. When it is desired to unlock the rib-sections, the ring or nut 39 will be turned, as shown in Fig. 3, to allow the supplemental sleeve 34 to be moved downward to release the cam-heads simultaneously from their engagement with all of the studs

or projections 36. It will thus be seen that we have provided a device by which the sections of all of the ribs may be simultaneously locked or unlocked when it is desired to extend or collapse the umbrella and that such devices for this purpose are compact, simple, and effective, and, moreover, are not in any sense conspicuous, so that the umbrella gives to the eye the general appearance of an ordinary umbrella.

The stick 1 is provided at its upper end with a tip 40, which is also preferably tubular, having the ordinary ferrule (not shown) at its outer end, and is provided at its inner end with a contracted or tapered portion 41, fitting tightly within a sleeve 42 in the extreme end of the stick. This tip is provided with a spring-latch 43, operated by a thumb-piece 44, which latch is adapted to snap into engagement beneath the sleeve 42 when the tip is inserted in place, whereby a very simple, attractive, and easily-operated construction is obtained. If desired, each stretcher or brace-rod 29 may be provided with one or more small sleeves 45, (see Fig. 1,) which act as braces for the locking-rods 33 and by which said locking-rods will be always kept concealed within said stretchers or brace-rods.

The cover of the umbrella is applied to the same in any suitable and convenient manner, and preferably as we have described in our said patents before referred to, being secured at the upper end of the stick or staff beneath the usual shield 46 to a suitable staple or guide carried by each of the sleeves 28 and to the tips of the rib-sections 26.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is as follows:

1. In a folding umbrella, a jointed stick therefor comprising two stick-sections having tubular portions, a rod within the upper stick-section adapted to enter the tubular portion of the lower stick-section, a sliding sleeve on the lower stick-section, connections between said sleeve and the rod in the upper stick-section whereby by moving said sleeve on the lower stick-section the said rod will enter said section, a removable handle, and a rotatable nut carried by said handle and adapted to engage said sleeve, substantially as set forth.

2. In a folding umbrella, a stick therefor comprising two sections having tubular portions, a rod carried by the upper stick-section, a rod slidably carried in the lower stick-section, said rods having interlocking joints whereby they may be engaged together, and a sleeve slidably mounted on the lower stick-section and connected to said rod, substantially as set forth.

3. In a folding umbrella, a stick therefor comprising two sections having tubular portions, a rod carried by the upper stick-section, a rod slidably carried in the lower stick-section, said rods having interlocking joints whereby they may be engaged together, a sleeve slidably mounted on the lower stick-

section and connected to said rod, a removable handle, and connections between said handle and sleeve, substantially as set forth.

4. In a folding umbrella, a stick therefor comprising two sections having tubular portions, a rod carried by the upper stick-section, a rod slidably carried in the lower stick-section, said rods having interlocking joints whereby they may be engaged together, a sleeve slidably mounted on the lower stick-section and connected to said rod, a removable handle, and a nut carried by said handle for engaging said sleeve, substantially as set forth.

5. In a folding umbrella, a jointed stick therefor comprising two sections having tubular portions, a rod slidably mounted in the upper stick-section, a rod slidably mounted in the lower stick-section, said rods having interlocking joints whereby they may be engaged together, and a sliding sleeve on the lower stick-section connected to the corresponding rod therein, substantially as set forth.

6. In a folding umbrella, a jointed stick therefor comprising two sections having tubular portions, a rod slidably mounted in the upper stick-section, a rod slidably mounted in the lower stick-section, said rods having interlocking joints whereby they may be engaged together, a sliding sleeve on the lower stick-section connected to the corresponding rod therein, a removable handle, and connections between said handle and sleeve, substantially as set forth.

7. In a folding umbrella, a jointed stick therefor comprising two sections having tubular portions, a rod slidably mounted in the upper stick-section, a rod slidably mounted in the lower stick-section, said rods having interlocking joints whereby they may be engaged together, a sliding sleeve on the lower stick-section connected to the corresponding rod therein, a removable handle, and a rotatable nut carried by said handle and engaging said sleeve, substantially as set forth.

8. In a folding umbrella, a jointed stick therefor comprising two stick-sections having tubular portions, a rod within the upper stick-section adapted to enter the tubular portion of the lower stick-section, a sliding sleeve on the lower stick-section, connections between said sleeve and the rod in the upper stick-section whereby by moving said sleeve on the lower stick-section the said rod will enter said section, and a groove-and-tenon joint between the engaging ends of the stick-sections, substantially as set forth.

9. In a folding umbrella, a jointed stick therefor comprising two sections having tubular portions, a rod slidably mounted in the upper stick-section, a rod slidably mounted in the lower stick-section, said rods having interlocking joints whereby they may be engaged together, a sliding sleeve on the lower stick-section connected to the corresponding rod therein, and a groove-and-tenon joint be-

tween the engaging ends of the stick-sections, substantially as set forth.

10. In a folding umbrella, the combination of a two-part telescopic rib, a runner, a 5 spreader or brace-rod connecting said runner to the lower section of said rib, a locking-rod extending substantially parallel to said spreader or brace-rod and its outer end forming a cam, a stop or projection on the upper 10 rib-section with which said cam engages, and means for disengaging said cam from said stop or projection, substantially as set forth.

11. In a folding umbrella, the combination of a two-part telescopic rib, a runner, a 15 spreader or brace-rod connecting said runner to the lower section of said rib, a locking-rod extending substantially parallel to said spreader or brace-rod and its outer end forming a cam, a stop or projection on the upper 20 rib-section with which said cam engages, means for disengaging said cam from said stop or projection, and a supplemental sleeve surrounding the runner to which said locking-rod is connected, substantially as set forth.

25 12. In a telescoping umbrella, the combination of a two-part telescoping rib, a runner, a stretcher or brace-rod connecting said runner with the lower rib-section, a locking-rod, the outer end of which forms a cam, said cam being mounted on the pivot of the stretcher or 30 brace-rod and having a slot in which said pivot is mounted, a stop or projection on the upper rib-section with which said cam engages, and means for disengaging said cam, 35 substantially as set forth.

13. In a telescoping umbrella, the combination of a two-part telescoping rib, a runner, a stretcher or brace-rod connecting said runner with the lower rib-section, a locking-rod, 40 the outer end of which forms a cam, said cam being mounted on the pivot of the stretcher or brace-rod and having a slot in which said pivot is mounted, a stop or projection on the upper rib-section with which said cam engages, 45 means for disengaging said cam, and a supplemental sleeve to which said locking-rod is connected mounted on the runner, substantially as set forth.

14. In a telescoping umbrella, the combination of a two-part telescoping rib, a runner, a stretcher or brace-rod connecting said runner with the lower rib-section, a locking-rod, 50 the outer end of which forms a cam, said cam being mounted on the pivot of the stretcher or brace-rod and having a slot in which said pivot is mounted, a stop or projection on the upper rib-section with which said cam engages, 55 means for disengaging said cam, a supplemental sleeve to which said locking-rod is

connected mounted on the runner, and a 60 screw-threaded ring mounted on the runner for locking said sleeve in its uppermost position, substantially as set forth.

15. In a folding umbrella, the combination of a two-part telescoping rib, a runner, a 65 spreader or brace-rod connecting said runner with the lower rib-section, a locking-rod having a cam-head with a slot therein mounted on the pivot of the spreader or brace-rod, said slot having an angular continuation as described, a stud or projection on the upper rib- 70 section with which said cam-head engages, and means for moving the locking-rod relatively to the spreader or brace-rod whereby said cam-head will be disengaged from the stud or projection, substantially as set forth. 75

16. In a folding umbrella, the combination of a two-part telescoping rib, a runner, a spreader or brace-rod connecting said runner with the lower rib-section, a locking-rod having a cam-head with a slot therein mounted 80 on the pivot of the spreader or brace-rod, said slot having an angular continuation as described, a stud or projection on the upper rib-section with which said cam-head engages, 85 means for moving the locking-rod relatively to the spreader or brace-rod whereby said cam-head will be disengaged from the stud or projection, and a supplemental sleeve mounted on the runner and to which said locking-rod 90 is connected, substantially as set forth.

17. In a folding umbrella, the combination of a two-part telescoping rib, a runner, a spreader or brace-rod connecting said runner with the lower rib-section, a locking-rod having a cam-head with a slot therein mounted 95 on the pivot of the spreader or brace-rod, said slot having an angular continuation as described, a stud or projection on the upper rib-section with which said cam-head engages, 100 means for moving the locking-rod relatively to the spreader or brace-rod whereby said cam-head will be disengaged from the stud or projection, a supplemental sleeve mounted on the runner and to which said locking-rod 105 is connected, and a screw-threaded ring mounted on said runner for locking said supplemental sleeve in its uppermost position, substantially as set forth.

This specification signed and witnessed this 110 4th day of June, 1898.

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Witnesses:

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