July 22, 1969 H. WEBER 3,456,662

TELESCOPICALLY COLLAPSIBLE UMBRELLA FRAME OF THE TRIPLE-LINKAGE TYPE

Filed June 10, 1968 4 Sheets-Sheet 1

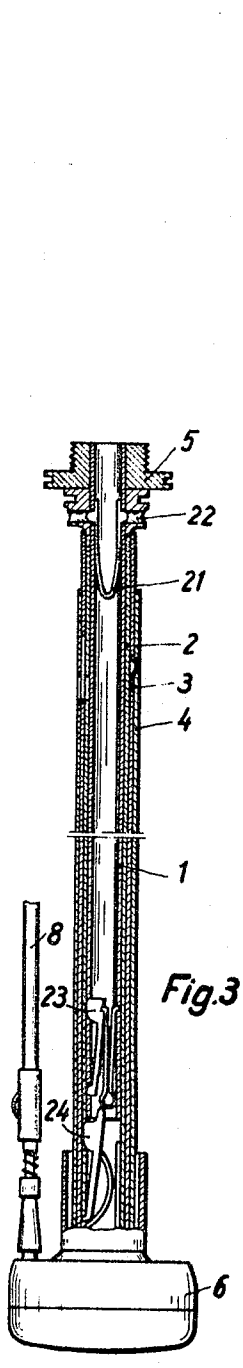

Fig.3

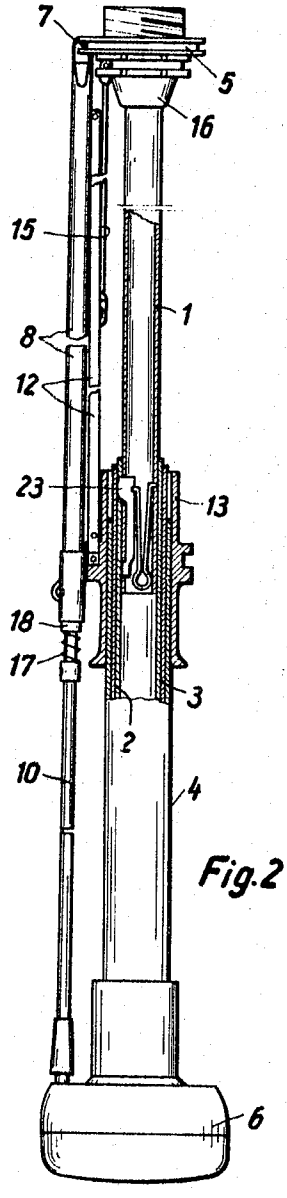

Fig.2

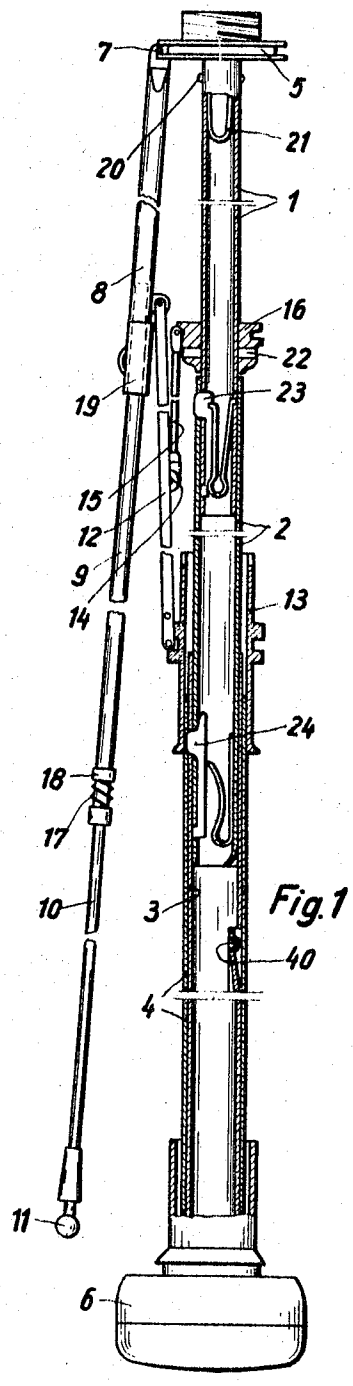

Fig.1

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TELESCOPICALLY COLLAPSIBLE UMBRELLA FRAME OF THE TRIPLE-LINKAGE TYPE

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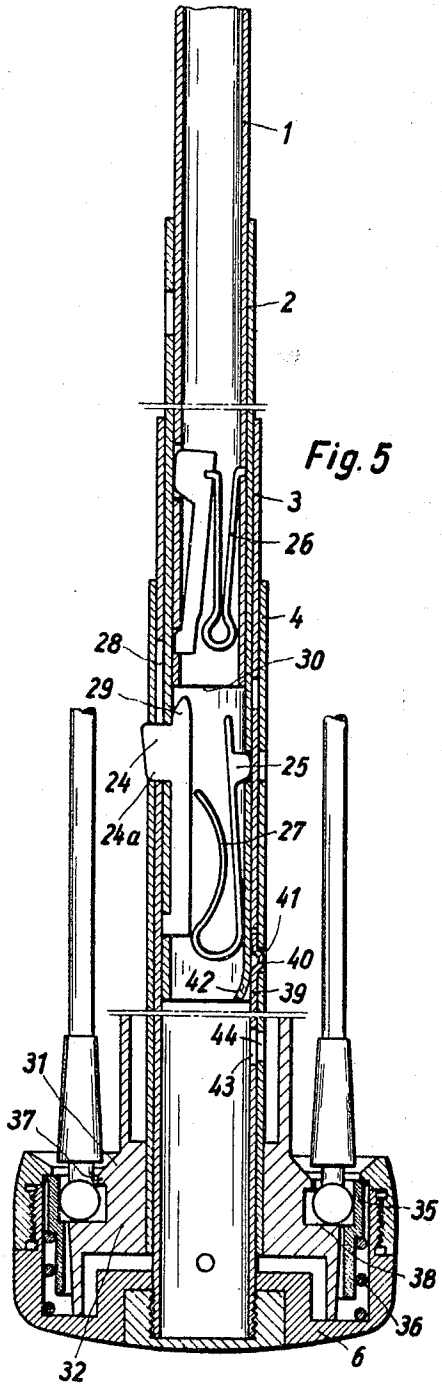

Fig. 5

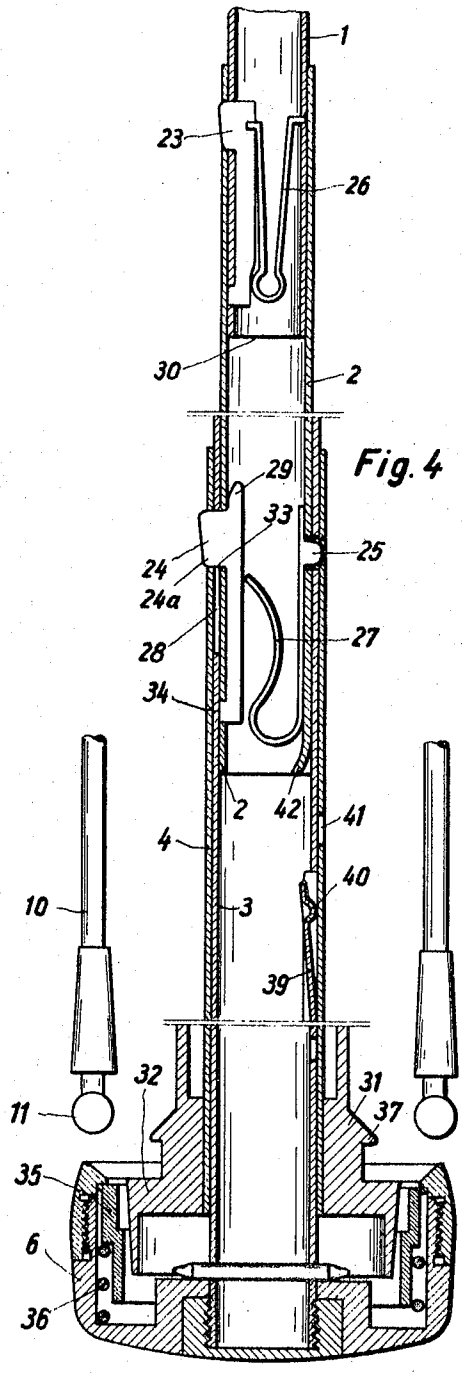

Fig. 4

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TELESCOPICALLY COLLAPSIBLE UMBRELLA FRAME OF THE TRIPLE-LINKAGE TYPE

Filed June 10, 1968 4 Sheets-Sheet 3

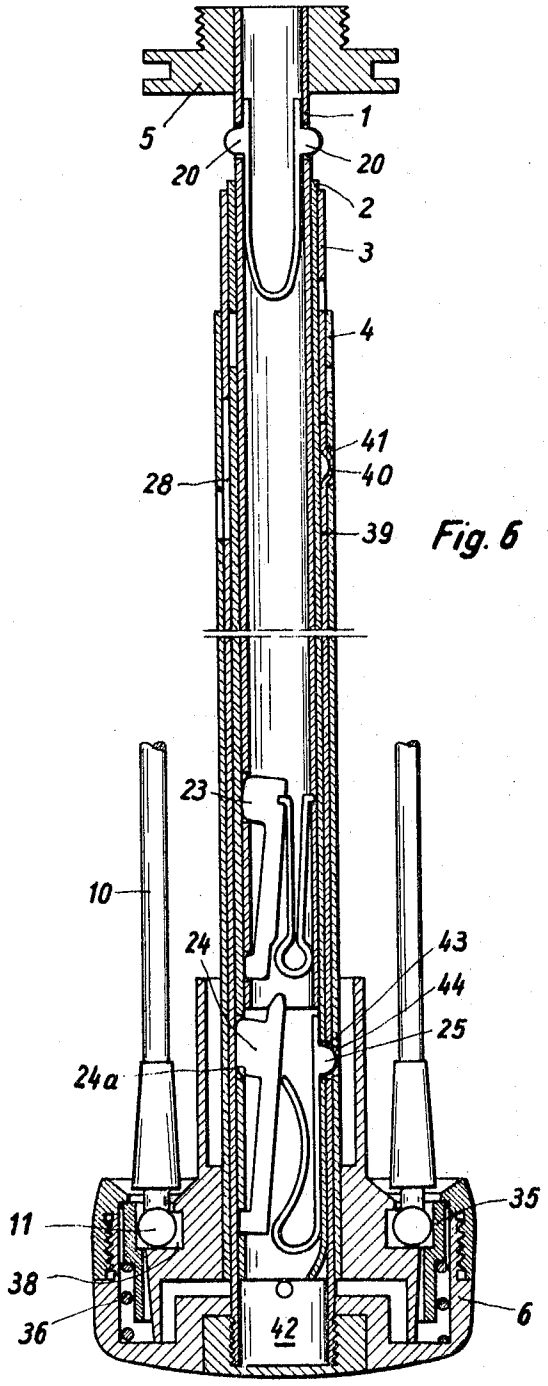

Fig. 6

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TELESCOPICALLY COLLAPSIBLE UMBRELLA FRAME OF THE TRIPLE-LINKAGE TYPE

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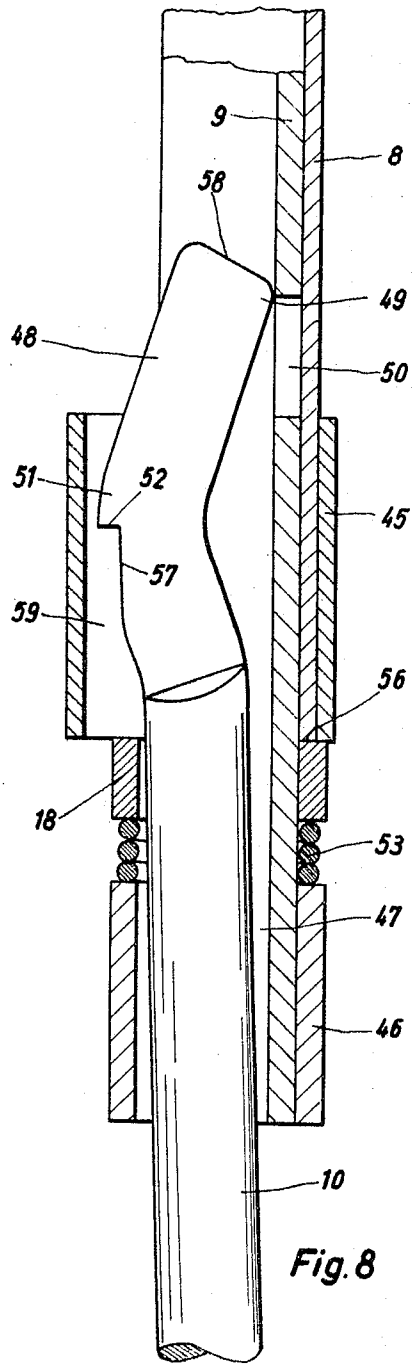

Fig. 8

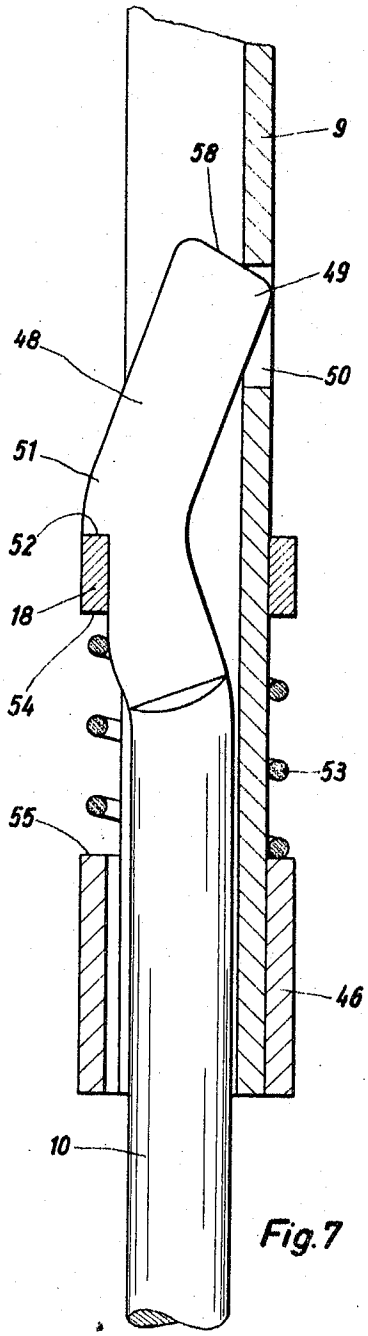

Fig. 7

Inventor:
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United States Patent Office 3,456,662
Patented July 22, 1969

3,456,662

TELESCOPICALLY COLLAPSIBLE UMBRELLA FRAME OF THE TRIPLE-LINKAGE TYPE

Heinz Weber, Hilden, Germany, assignor to Bremshey & Co., Solingen-Ohligs, Germany

Filed June 10, 1968, Ser. No. 735,736
Claims priority, application Germany, June 10, 1967, B 92,946
Int. Cl. A45b 19/04
U.S. Cl. 135—26 6 Claims

ABSTRACT OF THE DISCLOSURE

Telescopic collapsible umbrella frame has a locking device mounted on a stick formed of telescoping portions and axially displaceable therealong for locking the free ends of the outermost portions of tripartite telescoping roof-supporting ribs within a space in a handle located at an end of the stick. The locking device, in locking position thereof, is form-lockable by one of the stick portions to another of the stick portions at least until respective lock members lock the outermost and center rib portions of the roof-supporting ribs in extended condition thereof.

My invention relates to telescopically collapsible umbrella frames of the tripartite or triple-linkage type.

Umbrellas of the type corresponding to that of the instant application have frames which include roof-supporting ribs and a stick, each of which consists of three portions, a main runner or slider mounted on and slidable along the stick, main struts linked articulatingly to the runner and connected at the inner ends thereof with respective center portions of the roof-supporting ribs, a locking mechanism respectively located between each of the middle and outer roof-supporting rib portions and which automatically assumes a locking position when the roof-supporting ribs are extended and automatically assumes an unlocked position when the roof-supporting ribs are telescoped, and the frame also has a handle provided with an axially displaceable locking member for locking therein enlarged heads located at the free ends of the roof-supporting ribs, when the roof-supporting ribs are in fully extended condition.

In general, umbrella framees of the aforedescribed type are disclosed, for example, in the Swiss Patent 210,033. In such umbrella frames and other frames having primarily the same construction, there is ever-present danger that, when the tripartite stick is suddenly or violently extended, the locking member located in the handle of the umbrella frame will be prematurely released, namely at an instant when the mechanism which locks respective center and outer roof-supporting rib portions in the extended condition thereof has not yet had a chance to click into place. In such a case, it would then be necessary, after the stick had been extended, to separately pull out each individual rock-supporting rib so that the respective locking mechanisms between the outermost and center ribs slip into place. Such manipulation of the umbrella is naturally not appreciated and, in fact, considered clearly undesirable by a user of the umbrella.

In copending application Ser. No. 682,871, filed Nov. 14, 1967, of which applicant is a co-inventor, the locking means provided in the handle of the umbrella does not force-lockingly retain the ends of the roof-supporting ribs, but rather does so form-lockingly. Even when the frame is extended suddenly or violently, the locking mechanism in the handle of the umbrella disclosed in the copending application will not prematurely release the roof-supporting ribs.

The embodiment disclosed in the aforementioned copending application is provided with a pushbutton or a ring, displaceably mounted on the handle, which is manually actuable for releasing the locking means. However, the construction of the umbrella in the copending application is of relatively great complexity due to the necessity for having such manually actuable releasing members.

It is accordingly an object of my invention to provide an umbrella having the construction generally of the umbrella disclosed in the aforementioned copending application, but which is considerably simplified in construction with regard to the means for releasing the locking means. More particularly, it is an object of my invention to provide such umbrella wherein the locking means in the handle of the umbrella is placed in locking position, as in the aforementioned copending application, by form-locking means rather than force-locking means, and is releasable manually without any special positively manipulatable releasing device but rather merely by extending the stick proper.

With the foregoing and other objects in view, I accordingly provide, as my solution for attaining the foregoing objectives, a telescopically collapsible umbrella frame having tripartite linkages wherein the locking mechanism in the locking position thereof is capable of being locked form-lockingly by one of the parts of the stick to another part of the stick at least until the locking means located between the center roof-supporting rib portions and the respective outer roof-suporting rib portions have clicked out of place when the roof-supporting ribs are pulled apart or extended. By means of a considerably simplified construction, the locking means is thus released as the correct instant solely due to the extension of the roof-supporting rib portions, without requiring actuation of a special pushbutton, knob or the like.

In accordance with other features of my invention, I provide a three-jointed or tripartite stick, of which that joint or part closest to the handle of the umbrella has the largest diameter of the three joints. A tube carrying the locking means is mounted on the stick portion of maximum diameter and has a limited displaceability thereon, the stick portion of maximum diameter being formed with a locking nose receivable in a notch formed in the tube when the locking means is in locking position and which is form-lockingly secured firmly therein by the center stick portion which has been telescopically slid into the stick portion of maximum diameter.

It is not absolutely necessary, though advantageous, when the umbrella frame is being extended, that the stick portion closest to the umbrella crown and the center stick portion be first extended relative to one another, and thereafter, the center stick portion and the stick portion closest to the umbrella handle be then extended relative to one another. In order to assure such a sequential displacement of the individual stick joints relative to one another when extending the umbrella frame, I provide, in accordance with my invention, a locking nose which force-lockingly secures the center stick portion and the stick portion closets to the handle to one another when the umbrella frame is telescopically collapsed so that when the frame is thereafter extended, the stick portion closest to the umbrella crown and the center stick portion are the first to be extended relative to one another.

Umbrella frames constructed in accordance with the invention are provided with auxiliary struts which connect the inner ends of the center roof-supporting rib portions with an auxiliary runner mounted on the stick and displaceable between the main runner and the umbrella crown. Moreover, resilient or spring-mounted locking noses are provided for the stick portions for locking the

stick portions against relative displacement, in the extended condition thereof. More specifically, in accordance with my invention, the locking nose for locking the center stick portion and the stick portion closest to the umbrella crown together is of force-locking construction, and the locking nose for locking the center stick portion and the stick portion closest to the handle together is of form-locking construction and, when the frame is telescopically collapsed, is releasable by the stick closest to the umbrella crown. Thereby, a specific sequence of displacement of the stick portions relative to one another is again assured when the stick portions are telescopically collapsed.

In order also to provide a sequence of displacement of the stick portions relative to one another when the umbrella frame is being extended, a force-locking latching device is provided for the auxiliary runner when the latter is in a position assumed during telescopic collapsing of the umbrella frame, which fixes the auxiliary runner in that position until the locking members that secure the outermost and center roof-supporting rib portions to one another click into place.

In accordance with a particularly advantageous feature of my invention, I provide a displaceable sleeve in the handle of the umbrella which, in its normal position defines with the locking member, in the locking position thereof, an annular space wherein the free ends of the roof-supporting ribs are received. The sleeve is yieldably displaceable against the biasing force of a spring when the free end of a roof-supporting rib is subsequently inserted in the annular space. Thus, it is possible to insert into the annular space the free end of a roof-supporting rib which had inadvertently not been sufficiently tightly placed adjacent the umbrella stick with the other ribs of the umbrella, before the umbrella frame is telescopically collapsed, without having again to extend the umbrella frame completely.

Other features which are considered as characteristic for the invention are set forth in the appended claims.

Although the invention is illustrated and described herein as embodied in telescopically collapsible umbrella frame with triple linkages, it is nevertheless not intended to be limited to the details shown, since various modifications and structural changes may be made therein without departing from the spirit of the invention and within the scope and range of equivalence of the claims.

The construction and method of operation of the invention, however, together with additional objects and advantages thereof will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings, wherein:

FIG. 1 is a longitudinal sectional view of an umbrella frame construction according to the invention wherein the umbrella frame is in fully extended condition but the umbrella roof is not open;

FIG. 2 is a longitudinal sectional view of the umbrella frame of FIG. 1 in an intermediate partly telescopically collapsed condition;

FIG. 3 is a longitudinal sectional view of part of the umbrella frame of FIGS. 1 and 2 in fully telescopically collapsed condition;

FIG. 4 is an enlarged longitudinal sectional view of the lower part of the umbrella frame as shown in the condition of FIG. 1 and showing the handle thereof in section;

FIG. 5 is an enlarged view similar to that of FIG. 4 of the umbrella frame in the condition shown in FIG. 2;

FIG. 6 is a view similar to those of FIGS. 4 and 5 of the umbrella frame in the condition shown in FIG. 3;

FIG. 7 is an enlarged longitudinal sectional view of a center and an outermost roof-supporting rib portion in locked condition thereof; and

FIG. 8 is another view of FIG. 7 showing the rib portions in unlocked condition thereof.

In the interest of clarity, the umbrella roof-covering material has been omitted. Furthermore, in FIGS. 4 to 6, the entire roof supporting system, i.e. the roof-supporting ribs, the main struts and the auxiliary struts, as well as the main runner and the auxiliary runner, are omitted, and only the free ends of the roof-supporting ribs that are to be locked at the handle of the umbrella are shown.

Referring now to the drawings and first particularly to FIGS. 1 through 3 thereof, there is shown an umbrella frame having a stick formed of three telescopically collapsible hollow joints or portions **1**, **2** and **3**, which are respectively serially slidable one within another. A tube **4**, described in greater detail hereinbelow, is coaxially and displaceably mounted on the stick joint **3**. The tube **4** does not form any part of the stick proper but merely serves for carrying out a control function. All of the stick portions **1**, **2** and **3** and the tube **4** have a hexagonal cross section so as not to be turnable relative to one another about their common axis. Of course, the stick portions **1**, **2** and **3** and the tube **4** can have any other cross section besides that of a circular cross section, if desired, in order to prevent relative turning therebetween. An umbrella crown **5** of conventional construction is carried by the stick portion **1**, and a bell-shaped handle **6** is carried by the stick joint **3**.

The crown **5** forms the support for the roof-supporting framework. Each roof-supporting rib is articulatingly secured by a hinge **7** to the crown **5** and is formed of three telescopically collapsible portions **8**, **9** and **10**, of which the portions **10** are provided with spherically-shaped heads **11**, so-called "points," at the free ends thereof. The inner ends of the roof supporting rib portions **9**, namely the ends thereof closest to the umbrella crown **5**, are connected by respective main struts **12** with a main runner **13** slidable along the stick which, when the umbrella is closed, as viewed in FIG. 1, as well as when the umbrella is manually opened, can be retained by resilient locking means in a conventional manner on the stick. This locking means has been omitted from the drawing in the interest of clarity. An auxiliary strut **15** is connected by a hinge **14** to each main strut **12**. The auxiliary struts **15** are in turn connected in a conventional manner articulatingly with an auxiliary runner **16** displaceable along the stick between the main runner **13** and the umbrella crown **5**.

When the umbrella frame is extended, the roof-supporting rib portions **9** and **10** are locked relative to one another by a lock **17**, so that the portion **10** cannot be telescopically slidable within the portion **9**. A detailed description of the lock **17** is given hereinbelow with reference to FIGS. 7 and 8. When the umbrella frame is telescopically collapsed, the lock **17** is released so that a ring **18** movable against a spring-biasing force abuts against the free end **19** (FIG. 1) of the roof-supporting rib portion **8**.

A pair of resilient nose pieces **20** are mounted in the stick joint **1** in the direct vicinity of the crown **5** and extend slightly above the outer surface of the stick. The nose pieces **20** are respectively formed on the free ends of the legs of a U-shaped spring **21** disposed within the hollow stick portion **1**, the nose pieces **20** extending out of the stick portion **1** through openings suitably formed therein. When the auxiliarly runner **16** comes into abutment with the crown **5** in the upper end position thereof as the umbrella frame is telescopically collapsed, i.e. in the positions shown, for example, in FIGS. 2 and 3, the nose pieces **20** are firmly snapped into radial bores **22** formed in the auxiliary runner **16**, as shown more clearly in FIG. 3, and are held firmly, though only force-lockingly, therein. When the umbrella frame is extended, the auxiliary runner **16** and the auxiliary struts **15**, the main struts **12** and also the roof-supporting rib portions **9** therewith remain in the position shown in FIG. 2 due to the action of the nose pieces **20**, so that when the roof-supporting ribs, which are held by their points or heads **11** at the handle **6**, are extended, the rib portions **10** are

drawn out of the rib portions 8, 9 first, and the locking means 17 fall into locking condition before the roof-supporting rib portions 9 are drawn out of the roof-supporting rib portions 8. When the locking means 17 slip into locking condition, the yieldable pressure exerted by nose pieces 20 is overcome by being pressed inwardly due to the further tension or pull on the roof-supporting ribs which is transferred through the main struts 12 and the auxiliary struts 15 to the auxiliary runner 16, and the auxiliary runner 16 is moved away from the crown 5.

For locking the portions 1, 2 and 3 of the stick relative to one another, three locking noses 23, 24 and 25 respectively, which are more clearly discernible in FIGS. 4 through 6, are provided. The noses 23 and 24 are formed on levers which are subjected to the biasing action of U-shaped springs 26 and 27 located within the hollow space of the stick. The nose 25 is formed on a leg of the spring 27 proper. The nose 23 locks the stick joints 1 and 2 together when the stick is extended, acting however only force-lockingly, but yields in a direction opposite to the biasing force when axial pressure is exerted on the stick. The nose piece 24 on the other hand operates form-lockingly, locking the stick joints 2 and 3 and the tube 4 in form-locking position. The stick joint 3 has, however, a limited amount of axial play with respect to the nose piece 24, due to an elongated slot 28 formed in the joint 3. The nose piece 24 is provided with a beveled projection 29 against which the lower edge 30 of the stick joint 1, as shown in FIG. 5, for example, abuts shortly before the stick joints 1 and 2 are completely telescoped one within the other. Thereby, the nose piece 24 is forced radially inwardly for such a distance that the stick joint 3 as well as the tube 4 can slide over the rounded edge 24*a* of the nose piece 24, and thereby the stick joint 3 and the tube 4 are released for displacement relative to the stick joint 2. In this way, assurance is afforded that during telescoping, the stick joint 1 is first slid telescopically into the stick joint 2 and, only after the end of this operation, the joints 1 and 2 are slid together telescopically into the stick joint 3. The nose 25, in turn, acts only force-lockingly, and serves among other purposes for preventing the stick joints 2 and 3 from being displaced within the clearance provided by the slot 28 when the stick is in extended condition. A further purpose of the nose 25 will be described in greater detail hereinafter.

The tube 4 which is slidably displaceable on the stick joint 3 forms the support for a locking member 31 which is secured on the lower end of the tube 4 as seen, for example, in FIGS. 4 and 5, and is provided with a flange 32. The locking member 31 is axially displaceable within the bell-shaped handle 6 over a length corresponding to the length of the slot 28 between the lower edge 33 of the nose 24 and the lower limiting edge 34 of the slit 28, as seen in FIG. 4, for example. A sleeve 35 is axially displaceable against the biasing action of a spring 36 within the bell-shaped handle 6. Furthermore, a collar 37 is formed on the locking member 31. In the condition illustrated in FIG. 5, the locking member 31, with its flange 32 and collar 37 together, form with the sleeve 35 an annular space 38 for receiving therein the spherical ends 11 of the roof-supporting ribs. In the position shown in FIG. 5, the roof-supporting rib ends 11 cannot be forced out of the annular space 38 even when a strong pull is exterted thereon, and are form-lockingly secured at the handle 6. On the other hand, in the position shown in FIG. 4, the locking mechanism 31 is raised and the roof-supporting rib ends 11 are free.

In the vicinity of the end of the stick joint 3 located closest to the crown 5 there is stamped out a resilient tongue 39 having a nose 40, which assumes the position shown in FIG. 4 wherein the nose piece 40 lies up against the inner surface of the tube 4 when the umbrella frame is in extended condition. If the stick joint 3 is slid into the tube 4, the nose piece 40 engages in an opening 41 formed in the tube 4 (FIG. 5). Simultaneously, the locking member 31 assumes the position shown in FIG. 5 and is initially, however, only force-lockingly secured by the nose piece 40 in this position. The force-lock is transformed to a form-locking action when, during the telescopic collapse of the umbrella frame, the stick joint 1 provided with a bevel or inclined edge portion 42 abuts against the resilient tongue 39 and thereby necessarily prevents radially inward movement of the tongue 39. Accordingly, the locking member 31 is similarly fixed by form-locking means in the position shown in FIG. 5. When the umbrella frame is completely telescopically collapsed, the nose piece 25, as shown in FIG. 6, slips into the openings 43 and 44 of the stick joint 3 and the tube 4 respectively and thereby assures a specific sequence of the telescopic movements when the umbrella frame is subsequently extended.

The umbrella frame is operated or manipulated in the following manner:

Starting with the position of the umbrella shown in FIG. 1, the roof-supporting ribs are manually grasped together so that the ends 11 thereof assume the position shown in FIG. 4, for example. The roof-supporting ribs can accordingly be held together with a conventional rubber band or by any other suitable means. Thereafter, the umbrella frame is shoved together by axial pressure toward the ends of the stick.

The handle 6 and the stick joint 3 within the tube 4 are initially displaced until the nose 40 slips into the opening 41. After the nose 40 has thus slipped into the opening 41, the locking member 31 remains stationary relative to the stick joint 3 and the handle 6 upon further displacement of the latter. Consequently, the roof-supporting rib ends 11 are caught between the locking member 31 and the sleeve 35 in the annular space 38. In the further course of operating the umbrella frame, the stick joints 1 and 2 and thereafter the stick joints 2 and 3 are slid together. Thereby, the stick joint 2, as aforedescribed, fixes the resilient tongue 39 with the nose piece 40 in the opening 41, so that the locking member 31 is form-lockingly secured. Simultaneously, the roof-supporting rib portions are slid together and, in fact, the parts 8 and 9 are telescoped first because the parts 9 and 10 are still locked against movement relative to one another by the respective locking means 17. Since the stick portions 1 and 2 are initially telescoped, assurance is afforded that the roof-supporting ribs will not buckle because the inner ends of the center roof-supporting rib portions 9 are provisionally held fast by the main struts 12. After the nose 23, 24 and 25 have been released and the resilient tongue 39 has been firmly secured, the nose piece 25 finally assumes the position shown in FIG. 6 wherein it is inserted in the openings 43 and 44. Thereby, the umbrella frame is completely collapsed to its shortest configuration and the condition illustrated in FIGS. 3 and 6 is produced.

When the umbrella frame is extended it is of decisive importance, for the reasons given in the introductory remarks hereinbefore, that the roof-supporting rib ends 11 remain form-lockingly secured or positively locked at the handle 6 at least for as long as the locks 17 provide locking engagement between the roof-supporting rib portions 9 and 10, and, in fact, also when the extension of the frame occurs suddenly or violently.

When the umbrella frame is being extended, the stick joint 1 is initially withdrawn from the stick joint 2 and is locked by the nose 23. Displacement of the stick joint 2 relative to the stick joint 3 is accordingly prevented by the nose piece 25. If necessary, this last mentioned feature can be dispensed with, because even when, during extension of the frame, the stick joints 1 and 2 are withdrawn together first from the stick joint 3, the wall of the stick joint 2 only leaves the resilient tongue 39 at the instant when the locks 17 between the roof-supporting rib portions 9 and 10 have already clicked into place,

and a premature release of the roof-supporting rib ends **11** would not be damaging. The only result thereof would be that one would have to grope deeper into the folded roof of the umbrella in order to obtain access to the main runner **13**. As a rule, this situation does not occur at any rate even in the absence of the force-locking action of the nose **25** in the openings **43** and **44** because the friction between the roof-supporting rib portions **1** and **2** is at a minimum. The positive unlocking of the resilient tongue **39** is accordingly effected only when the umbrella frame is virtually completely extended.

The last phase of the operation occurring when extending the umbrella frame consists of a displacement of the stick joint **3** relative to the tube **4** by overcoming the weak force-locking effect produced by the nose **40**, the resilient tongue **39** thereof being then turned radially inwardly. Accordingly, the handle **6** is displaced axially with respect to the locking member **31** so that the roof-supporting rib ends **11** are freed and the roof of the umbrella can be spread out or opened.

The spring-mounted sleeve **35** is not indispensable for the aforedescribed function of the umbrella, but provides, however, an expedient aid in the case when, at the beginning of the telescopic collapsing action, one or the other roof-supporting ribs are not caught in the annular space **38** because it or they have been left out of the group of ribs which have been encircled by the rubber band or the like. After the telescoping action has begun, the umbrella frame is then required only to be extended again over a short distance and the roof-supporting rib remaining outside the lock to be forced against the stick whereupon the telescopic collapsing of the frame can be resumed. The sleeve **35** springs back resiliently and permits the spherical head **11** of the roof-supporting rib which had not been caught initially to be snapped into the annular space **38**.

With respect to FIGS. 7 and 8, the locking means **17** shown in general in FIGS. 1 and 2 are more clearly shown and are accordingly described hereinafter more fully.

The outermost roof-supporting rib portion **10** is disposed with a predetermined clearance **47** within the U-profiled and consequently hollow center roof-supporting rib portion **9**, as shown in FIG. 7. The roof-supporting rib portion **10** can execute a tilting motion relative to the roof-supporting rib portion **9** within specific and quite narrow limits. The inner end of the outermost roof-supporting rib portion **10** has a cranked head **48** formed with a nose **49** which, in the locking position illustrated in FIG. 7, is inserted in the recess or aperture **50** formed in the center roof-supporting rib portion **9**. The cranked head **48** also has a second nose **51** extending in a direction substantially opposite to the direction in which the nose **49** extends, and projecting out of the open side of the U-shaped roof-supporting rib portion **9**. The nose **51** has a shoulder surface **52** against which a ring **18**, displaceable along the roof-supporting rib portion **9**, abuts in the locking condition shown in FIG. 7. In the locking condition, the ring **18** is biased against the shoulder **52** by a helical spring **53** which abuts the outer face **54** of the sleeve **46** at the other end thereof. The cranked head **48** of the outer roof-supporting rib portion **10** is held stationary by the ring **18**, the roof-supporting rib portion **10** being thus prevented from tilting relative to the roof-supporting rib poriton **9** in spite of the remaning celarance **47** between the roof-supporting rib portion **10** and the roof-supporting rib portion **9**, and the nose **49** is held stationary within the recess or aperture **50** so that the roof-supporting rib portions **9** and **10** cannot be displaced relative to one another.

If the roof-supporting ribs are to be telescoped after the roof of the umbrella has been closed, the roof-supporting rib portions **8** and **9** are no longer prevented by the main struts **12** from sliding one within the other whereby the sleeve **45** approaches the inner end of the outer roof-supporting rib portion **10**. Shortly before the roof-supporting rib portions **8** and **9** are completely slid together, the lower edge **56** of the inner roof-supporting rib portion **8** (together with the sleeve **45**) engages the ring **18** and slides it against the biasing action of the helical spring **53** into the position shown in FIG. 8. The ring **18** is thereby separated from the shoulder **52** and from a surface **57** formed on the head **48** and located below the shoulder **52** and extending parallel to the axis of the outermost roof-supporting rib portion **10**, and assumes the position shown in FIG. 8 in which the ring **18** no longer prevents the outermost roof-supporting rib portion **10** from tilting relative to the center roof-supporting rib portion **9**. Since the inner end of the cranked head **48** extending in a direction toward the umbrella crown **5** has an inclined surface **58**, a slight pressure in the axial direction applied to the ends of the roof-supporting ribs is sufficient for forcing the nose **49** out of the recess or aperture **50** in order to effect a transition from the condition illustrated in FIG. 7 to the condition illustrated in FIG. 8 and to free the outermost roof-supporting rib portion **10** so that it can be slid telescopically into the center roof-supporting rib portion **9**.

In order to permit the cranked inner end of the outermost roof-supporting rib portion **10** to assume the position shown in FIG. 8, the sleeve **45** is provided with an arched or curved surface **59** which provides space for the shoulder **52** if the roof-supporting rib portions are slid together or telescoped while the roof-supporting rib portion **10** is being pivoted or tilted.

If, on the other hand, the roof-supporting rib portions are being slid apart or extended, the portions **8** and **9** are first displaced relative to one another so that the outer end of the innermost roof-supporting rib portion **8** with its end surface **56** and the sleeve **45** are removed from the vicinity of the cranked end **48** of the outermost roof-supporting rib portion **10**. Under the action of tension stress applied at the end of the roof-supporting ribs and the additional effect of the thereby released ring **18**, which the spring **53** tends to force toward and against the shoulder **52**, the nose **49** again extends into the recess **50** so that the locked condition shown in FIG. 7 is again produced.

I claim:

1. Telescopic collapsible umbrella frame comprising a stick formed of telescoping portions, a plurality of roof-supporting ribs each having an innermost portion pivotally connected to an end of said stick, a center portion telescopically connected to said innermost portion and an outermost portion telescopically connected to said center portion, a runner slidably mounted on said stick and carrying a plurality of struts pivotally linked respectively with the center portion of said supporting ribs, means for locking said outermost and said center rib portions together in extended condition thereof, a handle located at the end of said stick opposite the end thereof at which said roof-supporting ribs are connected, said outermost portions of said roof-supporting ribs having an enlargement at the respective free ends thereof receivable, in the extended condition of the rib portions, within a space formed in said handle, and locking means mounted on said stick and displaceable in the axial direction thereof for locking said enlargements in said handle, said locking means, in locking position thereof, being form-lockable by one of said stick portions to another of said stick portions at least until said means for locking said outermost and center rib portions together is rendered effective in extended condition of said non-supporting ribs.

2. Umbrella frame according to claim **1** wherein said stick is formed of three telescoping portions, the portion thereof colsest to said handle having the largest diameter, a tube carrying said locking means being mounted on said stick portion of largest diameter and being slidable within limits thereon, said stick portion of largest diameter being formed with a locking nose receivable, in the

locking position of said locking means, in a notch formed in said tube, said locking nose being form-lockingly secured in said recess in the position wherein the center portion of the stick is telescopically received in said stick portion of largest diameter.

3. Umbrella frame according to claim 1, wherein said stick is formed of three telescoping portions, and including a locking nose located within said stick for force-lockingly securing the center portion of the stick and the portion of the stick closest to said handle to one another in the telescopically collapsed condition of the umbrella frame whereby when the frame is extended thereafter, the stick portion closest to the umbrella crown and said center stick portion are the first to be extended relative to one another.

4. Umbrella frame according to claim 1, wherein said stick is formed of three telescoping portions, and including an auxiliary runner slidably mounted on said stick and displaceable between said first-mentioned runner and said umbrella crown, auxiliary struts respectively connecting the inner ends of said center rib portions with said auxiliary runner, resiliently mounted locking noses provided in said stick for locking said stick portions against relative displacement, in extended condition thereof, and including a locking nose of force-locking construction for locking said center stick portion and the stick portion closest to said crown together, and a locking nose of form-locking construction for locking said center stick portion and the stick portion closest to said handle together, said latter locking nose being releasable from locking condition thereof by the stick portion closest to said crown, in telescopically collapsed condition of the umbrella frame.

5. Umbrella frame according to claim 4, including a force-locking latching means for said auxiliary runner in the position thereof in the telescopically collapsed condition of the umbrella frame, said latching means being effective for fixing said auxiliary runner in said position until said means for locking said outermost and said center rib portions to one another are effective in condition wherein said rib portions are being extended.

6. Umbrella frame according to claim 1, including a sleeve located within said handle and being axially displaceable against a spring-biasing force, said sleeve, in a given position thereof, defining with said locking means mounted on said stick an annular space for receiving said end enlargements of said roof-supporting ribs therein, said sleeve being displaceable against said spring-biasing force for inserting into said annular space an end enlargement of a roof-supporting rib not previously inserted in said annular space.

References Cited

UNITED STATES PATENTS

784,952	3/1905	Mabee	135—44
868,326	10/1907	Casale	135—44
1,738,267	12/1929	Theodoropulos	135—26
1,902,395	3/1933	Cornic	135—44
2,772,685	12/1956	Koch	135—26

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