United States Patent

Yasuda et al.

[15] **3,677,274**

[45] **July 18, 1972**

[54] UMBRELLAS

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July 23, 1969 Japan 44/69771

[52] **U.S. Cl.** **135/24**
[51] **Int. Cl.** **A45b 25/16**
[58] **Field of Search** 135/20, 22–26

[56] **References Cited**

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Primary Examiner—J. Karl Bell
Attorney—Cushman, Darby & Cushman

[57] **ABSTRACT**

In a collapsible, automatically openable umbrella comprising: a telescopic dual shaft having a tubular inner lower shaft member and a tubular outer upper shaft member, a compression spring means housed in said shaft for urging said members to mutually extended positions, a slidable tubular intermediate member pivotably carrying rib-supporting spokes, and a slidable tubular lower member pivotably carrying spoke-supporting rods, the opening of the umbrella is greatly facilitated by the provision of a slidable tubular push-up member urged upwardly by a compression spring provided in the bore of the grip secured to the lower end of the tubular inner lower shaft member, a resilient member provided on said tubular intermediate member or urge the spreading of the rib-supporting spokes. A buffer member secured at the top of the shaft serves to alleviate the impact arising when the top edge of the tubular intermediate member hits against the shaft top.

3 Claims, 23 Drawing Figures

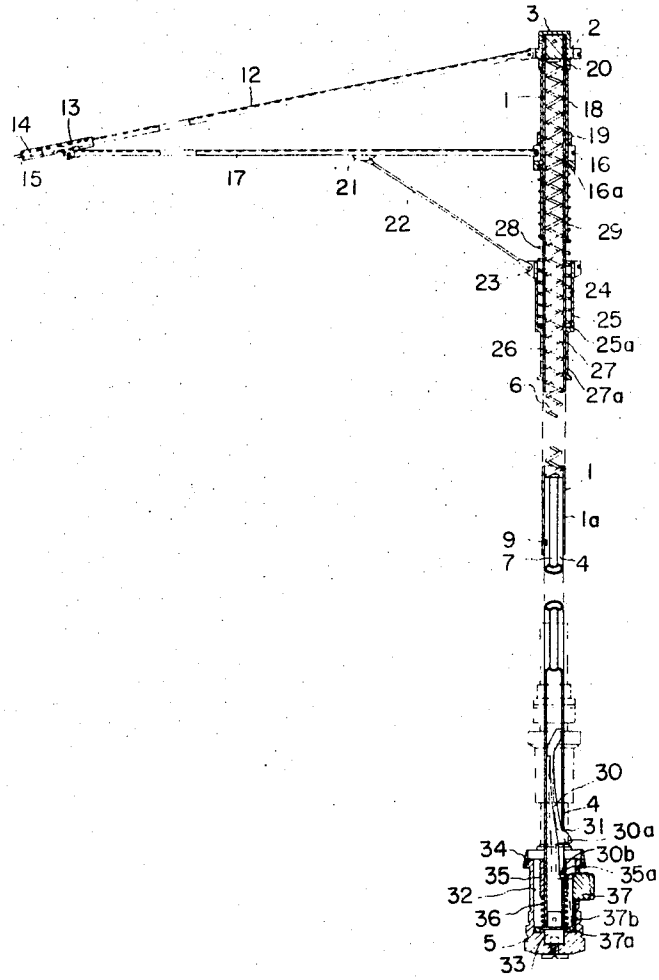
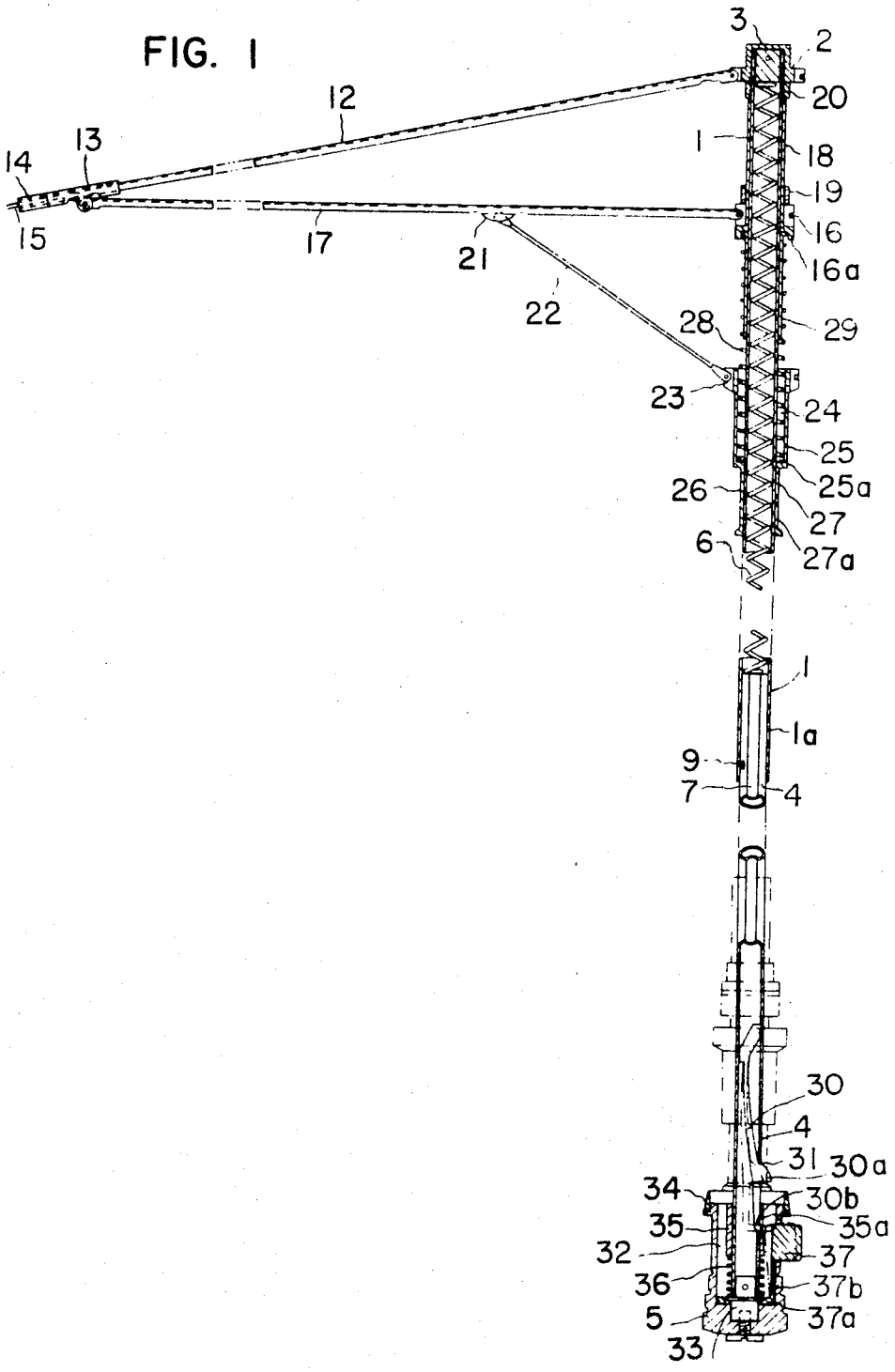


FIG. 1


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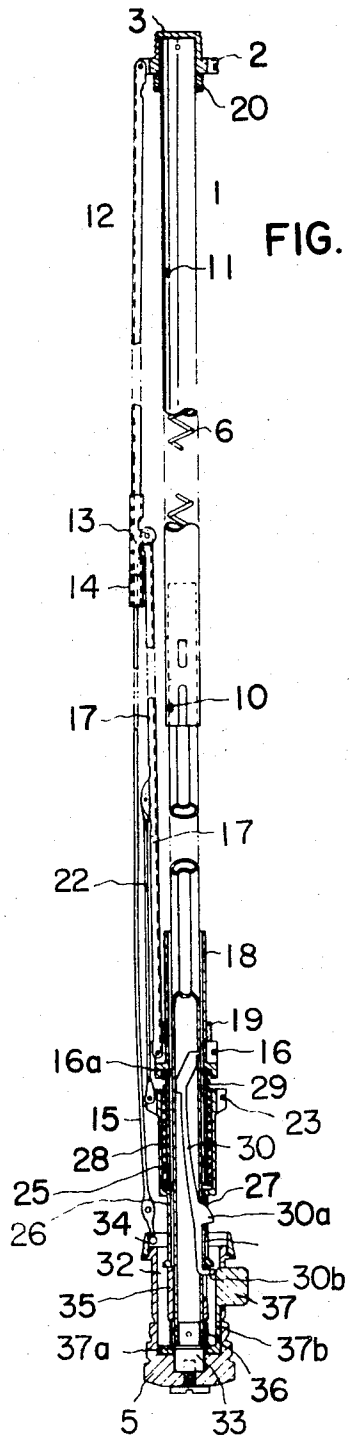

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FIG. 3

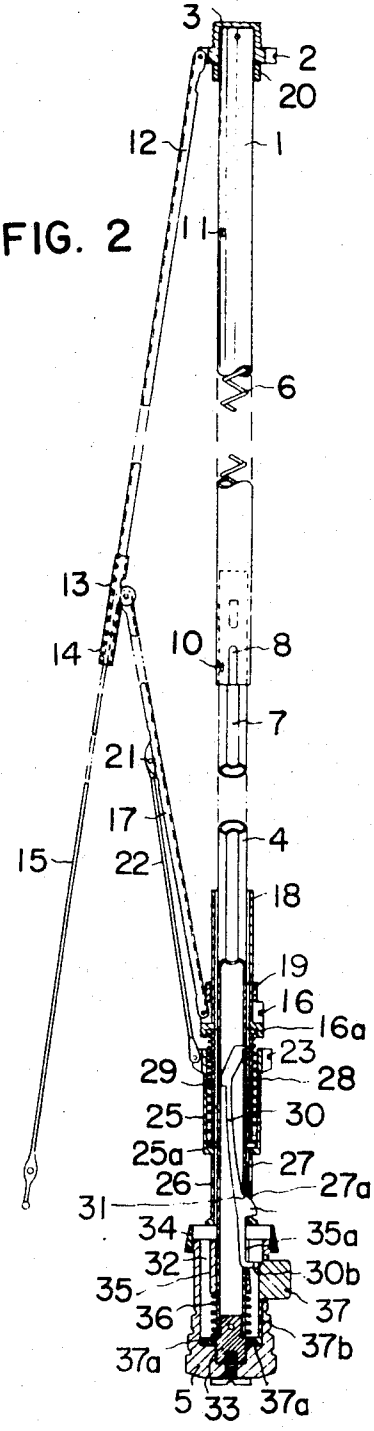

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FIG. 2

FIG. 4

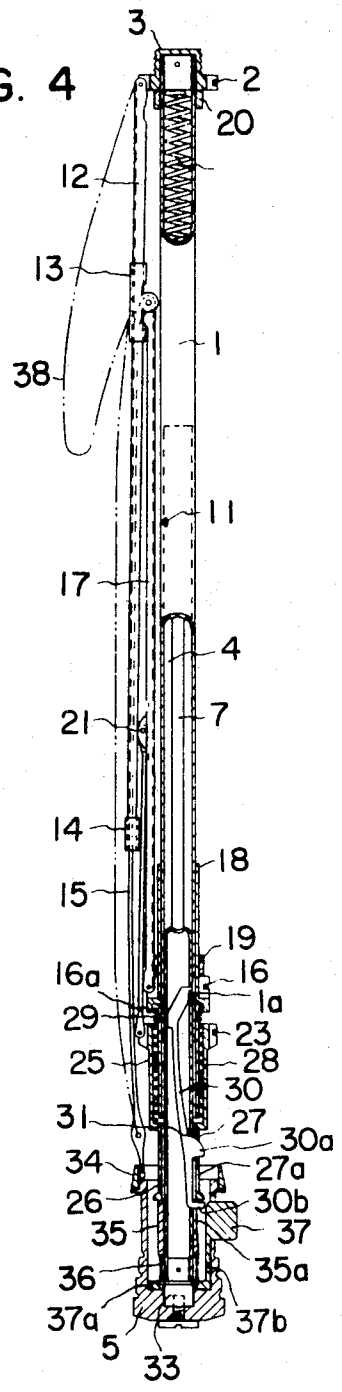

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FIG. 5

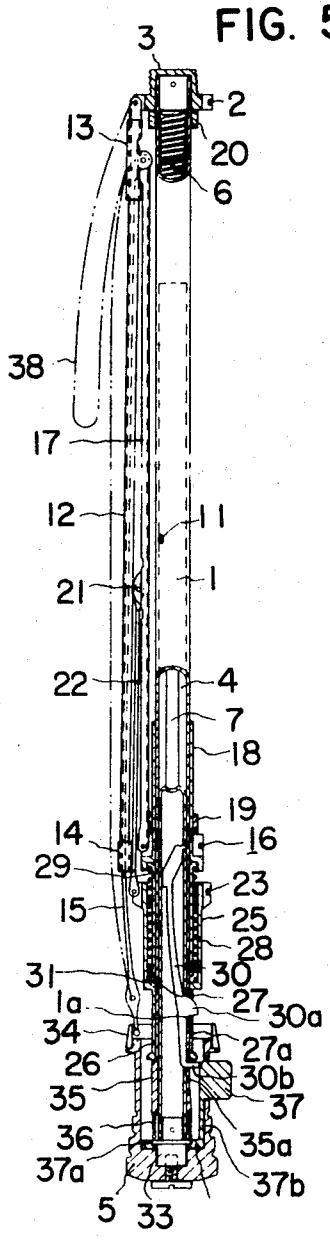

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FIG. 6

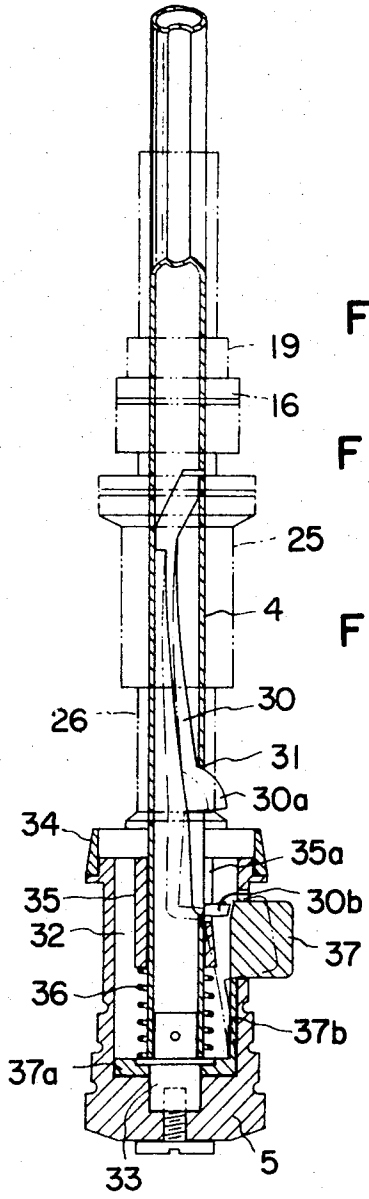


FIG. 20

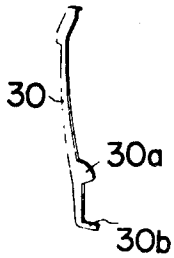


FIG. 21

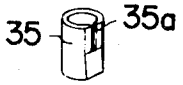


FIG. 22



FIG. 23

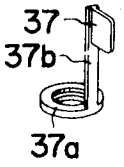


FIG. 14



FIG. 15



FIG. 16

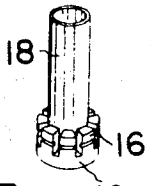


FIG. 17

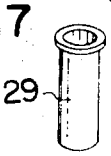


FIG. 18

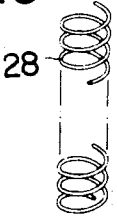


FIG. 19

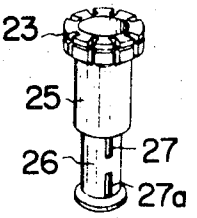


FIG. 7

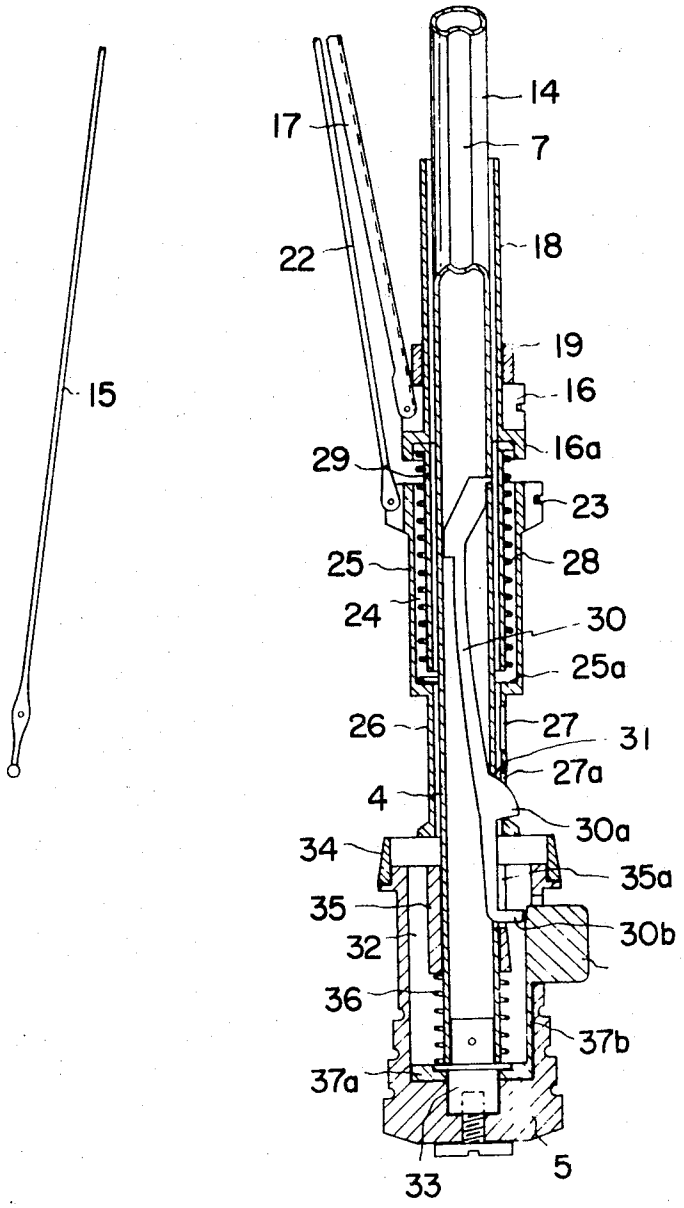

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FIG. 9

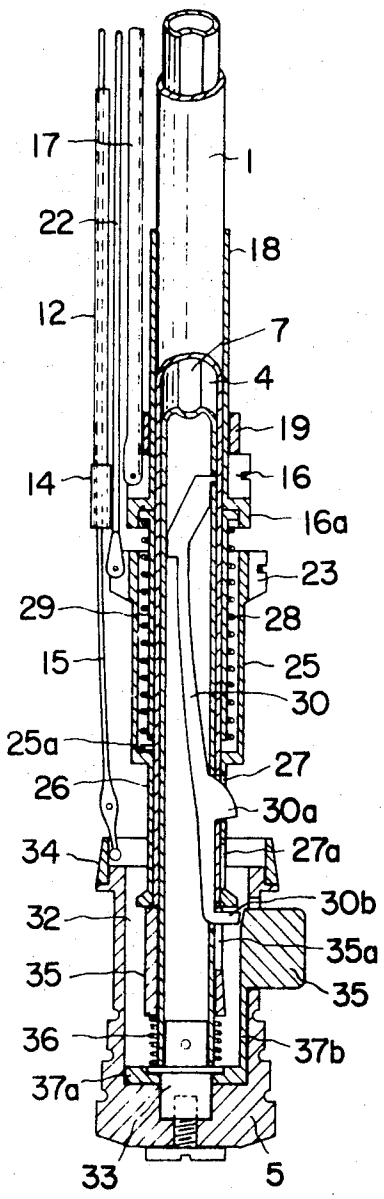

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FIG. 8

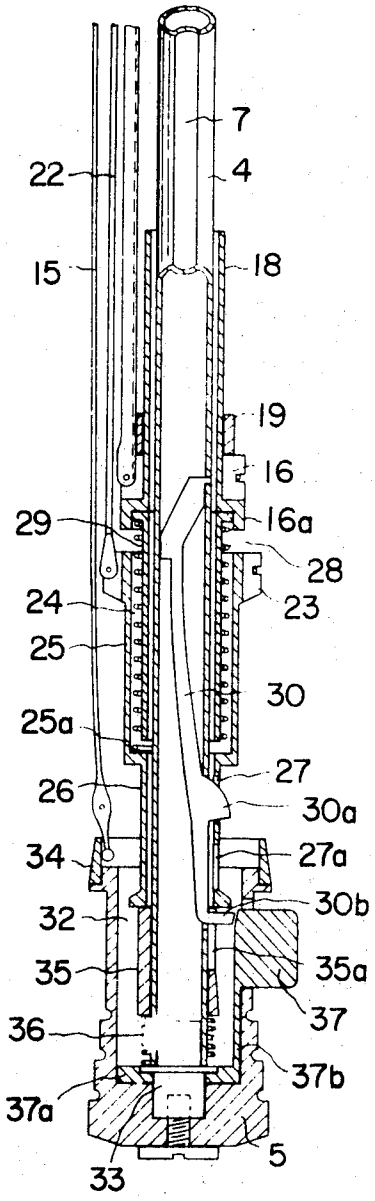

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FIG. 13

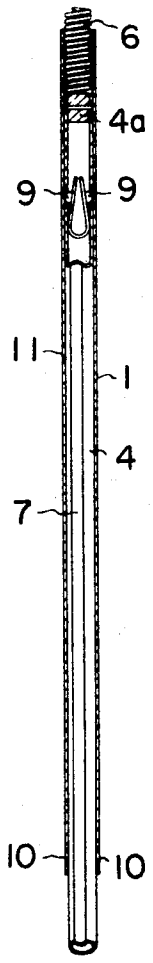


FIG. 12

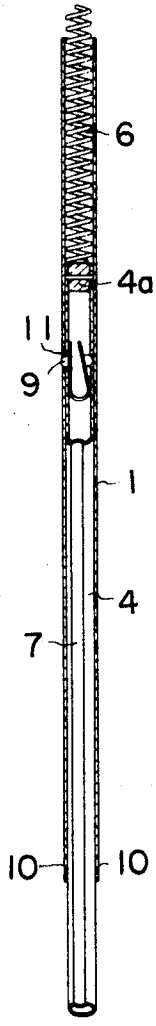


FIG. 10

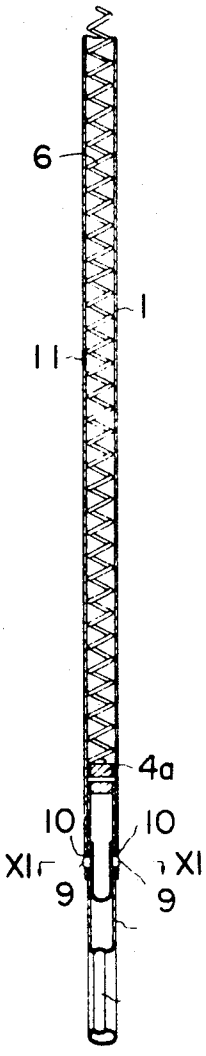
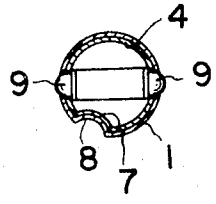


FIG. 11



UMBRELLAS

The present invention is concerned with an umbrella, and more particularly, it relates to improvements in a collapsible, automatically openable umbrella of the type that, upon depression of a push-button protruding outwardly from the grip, the length of the telescopic dual tubular shaft is extended axially by the action of a compression spring means housed therein and that, along with this, the auxiliary rib members slidably received in their mating main rib members are extended axially therefrom and that, thereafter the slidable tubular lower member as well as the slidable tubular intermediate member mounted on the dual shaft are caused to move upwardly therealong, and further that, from the closed position of the umbrella which is effected by pulling said lower member downwardly and in which the collected free ends of the auxiliary rib members are anchored in the open top edge of the grip, this grip is pushed toward the top end of the dual shaft, whereupon the dual shaft is reduced in its length while compressing the compression spring means and, along therewith, the auxiliary rib members are caused to be received into their mating main rib members and the umbrella cloth is folded into a reduced configuration resembling a mushroom.

Said improvements lie in the arrangement that a resilient member is provided on the tubular intermediate member to facilitate the smooth automatic spreading of the ribs from their state in which the collected auxiliary rib members are anchored in the upper open edge of the grip whereby the ribs are urged to spread to a limited extent first by the resiliency of said resilient member, and that a tubular push-up member normally urged upwardly by a compression spring means is slidably mounted in the bore of the grip to push up the tubular lower member upwardly and further that a buffer means is secured to the top portion of the shaft to serve to alleviate the impact arising when the top edge of the tubular intermediate member hits against the shaft top as the umbrella is opened automatically.

According to the present invention, there is provided a collapsible, automatically openable umbrella comprising: a telescopic dual tubular shaft having an tubular outer upper shaft member provided with a plurality of ribs pivotably attached at one ends to the top of said outer tubular shaft members and an tubular inner lower shaft member having a grip secured to the lowermost end portion, said ribs each having a main rib member and an auxiliary rib member slidably received therein; a compression spring means housed in said telescopic dual shaft to urge said two shaft members to mutually extended positions; a slidable tubular intermediate member pivotably carrying rib-supporting spokes and a slidable tubular lower member pivotably carrying spoke-supporting rods both of which members being mounted on the shaft; a compression spring means mounted on said dual shaft between these two tubular members for urging them apart, and a latch means provided in the lower end portion of said inner lower shaft member to retain the parts in the collapsed configuration, whereby, upon the release of the latch means from the closed position of the umbrella, said two tubular members are caused to move upwardly on the shaft, and along therewith, the auxiliary rib members are caused to extend from their mating main rib members, thereby automatically opening the umbrella, the improvements lying in that a tubular push-up member normally urged upwardly by a compression spring means is slidably received in the bore of the grip to push-up the tubular lower member, upon release of the latch means, to assist the spreading of the auxiliary rib members from their engagement with the upper opening of the grip, that a resilient member is provided on said tubular intermediate member to urge the spreading of the spokes when the umbrella is opened, and that a buffer member is provided at the top of the shaft to alleviate the shock arising when the upper edge of the tubular intermediate member hits the top of the shaft.

The present invention will hereunder be described in connection with a preferred embodiment by referring to the accompanying drawings in which:

FIG. 1 is a side elevation, partly in section, of the umbrella frame of the present invention, showing the state of being opened;

FIG. 2 is a side elevation, partly in section, of the same umbrella frame, showing the state of being closed by pulling the tubular lower member downwardly on the shaft;

FIG. 3 is a side elevation, partly in section, of the same umbrella frame, showing the state in which the auxiliary rib members together with the main rib members coupled thereto are gathered together and the free ends of the auxiliary rib members are engaged inside the open top of the grip;

FIG. 4 is a side elevation, partly in section, of the same umbrella frame, showing the state in which the collapsing of the umbrella, i.e., the reduction of the length of the telescopic dual shaft is suspended during the course of its compression to allow the user to adjust the irregular folds of the cloth;

FIG. 5 is a side elevation, partly in section, of the same umbrella frame, showing the state in which the collapsing of the umbrella is completed;

FIG. 6 is a vertical sectional view of the portion in the vicinity of the grip when the umbrella frame is in the state shown in FIG. 1;

FIG. 7 is a similar view when the umbrella frame is in the state shown in FIG. 2;

FIG. 8 is a similar view when the umbrella frame is in the state shown in FIG. 3;

Flg. 9 is a similar view when the umbrella frame is in the stage shown in FIG. 5;

FIG. 10 is a fragmentary side elevation, partly in section, showing the state in which the tubular outer upper shaft member is fixed to the tubular inner lower shaft member by means of two snap locking beads after these two shaft members have been fully extended relative to each other;

FIG. 11 is a cross sectional view, on an enlarged scale, taken along the line XI—XI in FIG. 10;

FIG. 12 is a fragmentary side elevation, partly in section, showing the state in which the movement of the tubular inner lower shaft member entering into the outer upper shaft member is suspended by the action of one of the beads during the course in which the umbrella is collapsed;

FIG. 13 is a fragmentary side elevation, partly in section, showing the state in which the tubular inner lower shaft member is received to a maximum extent into the tubular outer upper shaft member;

FIG. 14 is a perspective view of the buffer means in the form of a resilient ring which is provided on the lower end face of the fixed top member;

FIG. 15 is a perspective view of a resilient member provided on the tubular intermediate member;

FIG. 16 is a perspective view of the tubular intermediate member;

FIG. 17 is protective tubular member for protecting the tubular outer upper shaft member from being in contact with the compression spring means mounted thereon;

FIG. 18 is a perspective view of the compression spring means in the form of a compressible coil spring provided between the slidable tubular intermediate member and the tubular lower member;

FIG. 19 is a perspective view of the slidable tubular lower member;

FIG. 20 is a perspective view of the spring-like latch means;

FIG. 21 is a perspective view of the tubular push-up member adapted to be received in the central bore of the grip;

FIG. 22 is a perspective view of the compression spring means in the form of a compressible coil spring for urging said tubular push-up member upwardly; and

FIG. 23 is a perspective view of the depressing means adapted to be provided in the grip.

Referring now to the drawings, a tubular outer upper shaft member 1 has a fixed top ring 2 secured at the top portion thereof. The upper face of said top ring 2 forms a ferrule 3. A tubular inner lower shaft member 4 is slidably received in said tubular outer upper shaft member 1. This tubular inner lower

shaft member 4 is provided, at its lower end, with a grip 5. A compressible coil spring 6 is inserted, in the state of being compressed, within the tubular outer upper shaft member 1. The lower end of said coil spring 6 is urged against a plug 4*a* (see FIG. 10) which, in turn, is secured in the upper opening of the tubular inner lower shaft member 4. The tubular inner lower shaft member 4 is provided, longitudinally on the outer surface thereof, with a recessed groove 7. On the other hand, the tubular outer upper shaft member 1 is provided with a ridge 8 extending inwardly radially from the inner surface thereof in such a size and a configuration as will be suitable for being slidably received in said longitudinal recessed groove 7 formed on the outer surface of the tubular inner lower shaft member 4. Accordingly, the tubular outer upper shaft member 1 is allowed to slide rectilinearly along the outer surface of the tubular inner lower shaft member 4 in the directions away from and toward the lower portion of the latter shaft member 4 without rotating around the latter. The tubular inner lower shaft member 4 is provided, at the upper end portion but below its plug 4*a*, with a pair of small openings formed through the wall thereof in diametrically opposite directions avoiding the location of the recessed groove 7, each of these small openings having a size and configuration sufficient for the passage therethrough of a major portion of a bead 9 of a pair of beads 9 and 9 of a snap locking means. The snap locking means may be of the type described in detail in our copending Japanese Utility Model Applications Nos. 44201 and 44202. Therefore, the detailed description is omitted. On the other hand, the tubular outer upper shaft member 1 is provided, at the lower portion thereof, with a pair of small openings 10 and 10 formed through the wall thereof in diametrically opposite directions avoiding the location of the ridge 8 in such a fashion as will be aligned with the positions of the small openings and accordingly the beads 9 and 9 of the tubular inner lower shaft member 4, each of these small openings 10 and 10 having a size and a configuration sufficient for the passage therethrough of the corresponding bead 9 of the snap locking means secured to the inner surface of the tubular inner lower shaft member 4. Accordingly, in the fully extending position of the telescopic dual shaft, i.e., in the state in which the tubular inner lower shaft member 4 is fully withdrawn outwardly from the tubular outer upper shaft member 1, these two shaft members 4 and 1 are locked together by the beads 9 and 9 protruding from the inner lower shaft member 4 and engagingly extending through the small opening 10 and 10 of the outer upper shaft member 1. The tubular outer upper shaft member 1 is provided also with another small opening 11 of the same size and configuration as that of said small opening 10 at a position a small distance above one of the two small openings 10 and 10 and in alignment therewith (see FIG. 12). When the grip 5 which is secured to the lower end of the tubular inner lower shaft member 4 is pushed toward the top end of the dual shaft and when, as a result, the tubular inner lower shaft member 4 is pushed for a small distance upwardly into the tubular outer upper shaft member 1, one 9 of said pair of beads 9 and 9 will engage in this small opening 11 so that the grip 5 may be inhibited of its further upward movement and may be locked in its shifted position.

The inner end, i.e., the upper end of each main rib member 12 is pivotably secured to the fixed top ring 2 so that the ribs radially may extend therefrom. Each of these main rib members 12 is of a generally U-shaped sheath-like cross section. This main rib member 12 is mounted by a sliding attachment member 13 capable of sliding on the main rib member 12. An annular stopper member 14 is secured to the outer or forward free end of each of these main rib members 12 to prevent said slidable attachment member 13 from detaching off the main rib member 12. An auxiliary rib member 15 formed with a length of a rod of a small diameter is inserted inside the U-shaped cross section of the main rib member 12 after passing through said annular stopper member 14. The inner end of said auxiliary rib member 15 is coupled to the slidable attachment member 13 so that, along with the sliding movement of the slidable attachment member 13 on the main rib member 12, the auxiliary rib member 15 is allowed to be withdrawn, in alignment with the main rib member 12, from the latter member 12 and to be received into the main rib member 12, to thereby be able to extend and reduce the length of each rib as a whole.

A spoke 17 is pivotably coupled at one end to said slidable attachment member 13 and also at the other end to a tubular intermediate member 16 which is mounted, for sliding, on the dual shaft. This tubular intermediate member 16 is mounted, integrally therewith, on a tubular sheath member 18 extending upwardly beyond the upper face of the tubular intermediate member 16 and is also provided, integrally therewith, with a flanged annular seat 16*a* at the lower end edge. A resilient ring 19 made of an elastic material such as a rubber is mounted on said tubular sheath member 18 so as to be in contact with the upper face of the tubular intermediate member 16. A buffer ring 20 is mounted on the tubular outer upper shaft member 1 so as to be in contact with the lower face of the fixed top ring 2. When the tubular intermediate member 16 makes an upward movement along the tubular outer upper shaft member 1 and when, accordingly, the upper end face of the tubular sheath member 18 hits the buffer ring 20, the latter 20 alleviates the impact arising from the collision.

A spoke-supporting rod 22 is pivotably secured at one end to an attachment piece 19 which is securely mounted at an appropriate intermediate portion on the spoke 17 and at the other end secured pivotably to a tubular lower member 23 which, in turn, is adapted to slide upwardly and downwardly below the tubular intermediate member 16 along the tubular outer upper shaft member 1 and the tubular inner lower shaft member 4. The tubular lower member 23 is mounted securely on the upper end portion of a cylindrical member 25 which, in turn, is loosely mounted on the tubular outer upper shaft member 1 with an appropriate gap 22 left from the external circumferential surface of the latter shaft member 1. A grip tube 26 having a diameter smaller than that of the cylindrical member 25 by the provision of a shoulder 25*a* is formed at the lower end of the cylindrical member 25 integrally therewith. The grip tube 26 is provided with vertically aligned and spaced two latch-engaging holes 27 and 27*a*.

A compressible coil spring 28 is mounted along the tubular outer upper shaft member 1 between the shoulder 25*a* within the gap 24 of the cylindrical member 25 and the flanged annular seat 16*a* of the tubular intermediate member 16. This compressible coil spring 28 is of a spring force which is slightly weaker than that of the compressible coil spring 6 which is inserted in the tubular outer upper shaft member 1. A protective tubular member 29 is mounted slidably on the tubular outer upper shaft member 1 to prevent the coil spring 28 from being brought into contact with this shaft member 1. The upper end of said protective tubular member 29 is anchored within the flange annular seat 16*a* of the tubular intermediate member 16.

A spring-like latch means 30 is inserted in the lower portion of the tubular inner lower shaft member 4. This spring-like latch means 30 is of a latch projection 30*a* which protrudes outside the wall of the tubular inner lower shaft member 4 through a slot 31 formed therethrough. Said spring-like latch means 30 is of a projection 30*b* formed by bending the lower end portion thereof to also protrude outside the wall of the tubular inner lower shaft member 4 through said slot 31 and to project therefrom into the central bore 32 of the grip 5. The lowermost end of the tubular inner lower shaft member 4 is secured to the grip 5 at the bottom of the central bore 32 by means of a fastening member 33. An annular anchoring member 34 is securely mounted on top edge of the central bore 32 of the grip 5 for anchoring the collected free ends of the auxiliary rib members 15.

A slidable tubular push-up member 35 is mounted on the end portion of the tubular inner lower shaft member 4 within the central bore 32 of the grip 5. A compressible coil spring 36

having its lower end in contact with the bottom of the central bore **32** of the grip **5** is mounted on the lower part of the tubular inner lower shaft member **4**. The slidable tubular push-up member **35** is normally urged upwardly by said compressible coil spring **36**. The slidable tubular push-up member **35** is provided with a slit **35***a* formed therethrough on one side upto an appropriate depth from the upper end edge of this member **35**. The projection **30***b* of the spring-like latch means **30** is inserted in said slit **35***a*. This projection **30***b* is adapted to retreat into the space in the tubular inner lower shaft member **4** by the application of an external pressure thereto upon the depression of the push-button **37** which projects outwardly beyond the outer side surface of the grip **5**. This push-button **37** is of an enlarged configuration which joins the upper end of a resilient leg **37***b* protruding from an annular base member **37***a* which, in turn, is secured to the bottom of the central bore of the grip **5** by the fastening member **33**. The inner side face of the push-button **37** is arranged to oppose the projection **30***b*, whereas the outer side of this push-button **37** projects outwardly beyond the outer side surface of the grip **5** through a slot formed in the side wall of the grip **5**.

Description has been directed to the structure of the umbrella frame representing one embodiment of the present invention. The closing as well as the automatic opening operations of the umbrella embodying the present invention will be made hereunder.

When it is intended to close the umbrella from its automatically opened position shown in FIG. **1**, it is only necessary for the user to grip the grip tube **26** of the tubular lower member **23** and to manually move it downwardly on the extended dual shaft. Whereupon, this downward movement of the tubular lower member **23** causes, via the supporting rods **22**, the spokes **17** together with the tubular intermediate member **16** to be pulled to move downwardly and also causes the slidable attachment members **13** to which the forward ends of the spokes **17** are pivotably attached to be pulled toward the dual shaft, resulting in that the umbrella is closed in the manner as shown in FIG. **2** in which the umbrella is still slightly open and the auxiliary rib members **15** remain to be extended fully from their mating main rib members **12**. On the other hand, the coil spring **28** is compressed so that the tubular intermediate member **16** approach closer toward the tubular lower member **23**. In this position of the tubular lower member **23**, the latch projection **30***a* of the spring-like latch means **30** is brought into engagement with the lower latch-engaging hole **27***a* of the grip tube **26**. In this state, the umbrella frame is locked in its closed position. From this closed state of the umbrella, the free ends of the auxiliary rib members **15** may be gathered and the grip **5** may be pushed toward the top end of the dual shaft. Whereupon the beads **9** and **9** of the snap locking means provided in the tubular inner lower shaft member **4** are relieved of their engagement with the small openings **10** and **10** of the tubular outer upper shaft member **1**. As a consequence, the tubular inner lower shaft member **4** enters for a small distance into the tubular outer upper shaft member **1** while compressing to a slight extent the coil spring **6** housed in the latter shaft member **1** as shown in FIG. **3**. Along with this, the gathered free ends of the auxiliary rib members **15** engage in the annular anchoring member **34** which is provided at the open top of the grip **5**. On the other hand, the latch projection **30***a* of the spring-like latch means **30** is relieved of its engagement with the lower latch-engaging hole **27***a* of the grip tube **26** and is brought into engagement with the upper latch-engaging hole **27**. Accordingly, the tubular push-up member **35** is depressed by the lower end edge of the grip tube **26** to move downwardly. This downward movement of the tubular push-up member **35** compresses the coil spring **36** so that the latter **36** will have a spring force stored therein. During this closing operation, the spokes **17** are caused to gather closer toward the dual shaft so that the spokes **17** will press against the outer surface of the resilient ring **19** which is mounted on the tubular sheath member **18** of the tubular intermediate member **16**. As a result, this resilient ring **19** is compressed so that it will have a spring force stored therein.

When it is intended to open the umbrella in its closed state shown in FIG. **3**, it is only necessary for the user to depress the push-button **37**. Whereupon, the projection **30***b* of the spring-like latch means **30** retreats so that the latch projection **30***a* is relieved of its engagement with the upper latch-engaging hole **27**. Whereupon, the tubular push-up member **35** is pushed upwardly by the accumulated spring force of the compressed coil spring **36**. This movement of the push-up member **35**, in turn, will push the grip tube **26** upwardly for a small distance. Along with this, the tubular inner lower shaft member **4** is slightly pushed downwardly by the spring force exerted by the coil spring **6** housed in the tubular outer upper shaft member **1**. As a consequence, the beads **9** and **9** of the snap locking means will again enter in the small holes **10** and **10** to lock the inner lower shaft member **4** to the outer upper shaft member **1**. On the other hand, the free ends of the auxiliary rib members **15** will be relieved of their engagement with the annular anchoring member **34**. The restoring force of the compressed resilient ring **19** will urge the spokes **17** to spread slightly in the directions away from the dual shaft, so that the umbrella will resume its slightly open position shown in FIG. **2**. Along with this, the latch projection **30***a* of the spring-like latch means **30** is brought into engagement with the lower latch-engaging hole **27***a*.

In this state of the umbrella frame, the push-button **37** may be depressed further to relieve the engagement of the latch projection **30***a* with the latch-engaging hole **27***a*. Whereupon, the spring force of the compressed coil spring **28** pushes both the tubular lower member **23** and the tubular intermediate member **16** upwardly along the dual shaft, while spreading the supporting rods **22** as well as the spokes **17**, causing the main rib members **12** to open automatically. Along with this, the movement of the tubular intermediate member **16** will stop abruptly when the upper end edge of the tubular sheath member **18** which is formed integrally therewith hits against the buffer ring **20**. On the other hand, the tubular lower member **23** will make a voluntary halt after it has made an upward movement along the dual shaft up to a position at which there is established a balance between the tension of the coil spring **28** and the tension of the umbrella cloth **38** which covers the main rib members **12** and the auxiliary rib members **15**.

Now, in the position of the umbrella frame shown in FIG. **3**, an external force may be applied onto the ferrule **3** which is provided on the outer face of the fixed top ring **2** while holding the grip **5** in one of the user's hands. Whereupon, the compressible coil spring **6** housed in the tubular outer upper shaft member **1** will be caused to be compressed, resulting in the relief of the beads **9** and **9** from their engagement with the small holes **10** and **10**. As a consequence, the length of the dual shaft is reduced progressively. However, during the course of reduction of the length of the dual shaft, the movement of the tubular inner lower shaft member **4** will be halted at the position in which one **9** of the beads **9** and **9** is brought into engagement with the small opening **11**. Thus, the dual shaft is temporarily locked in its state as shown in FIG. **4**. Simultaneously therewith, the auxiliary rib members **15** will be received up to an appropriate length thereof into the main rib members **12**. As a result, the umbrella cloth **38** will assume a configuration in which it is folded in the form of a substantially mushroom shape. In this state of the umbrella, the user may adjust the irregular folds of the umbrella cloth **38**. Thereafter, he may apply a relatively intensive force onto the grip **5** toward the ferrule **3**. Whereupon, the tubular outer upper shaft member **1** will be relieved of the engagement between the small opening **11** and the bead **9** and will receive therein the tubular inner lower shaft member **4** to a further extent to further reduce the length of the dual shaft. Whereupon, the lowermost end of the tubular outer upper shaft member **1** will pass through the cylindrical member **25** of the tubular lower member **23** and through the grip tube **26**, causing the latch projection **30***a* of the spring-like latch means **30** to be brought into engagement with the elongated slot **1***a* formed in the lower end portion of the tubular outer upper shaft member **1**.

Thus, the umbrella is locked in its further compressed state as shown in FIG. 5. In this state, the auxiliary rib members **15** are received further in their mating main rib members **12** so that the umbrella cloth is folded into a perfect mushroom shape. Since the folds of the umbrella cloth have been already adjusted, the compressed umbrella now may be placed in a wrapping member for the convenience of the user in carrying it with him.

If the push-button **37** is depressed in the folded state of the umbrella shown in FIG. 5, the latch projection **30***a* of the spring-like latch means **30** is relieved of its engagement with the elongated slot **1***a* of the tubular outer upper shaft member **1** and also of its engagement with the upper latch-engaging hole **27** of the grip tube **26**, so that both the tubular outer upper shaft member **1** and the tubular lower member **23** are released from their locked positions. However, owing to the difference in the intensity between the spring forces of the coil springs **6** and **28**, both the inner and the outer shaft members **1** and **4** will first be allowed to make an automatic stretching relative to each other. Along with this, the auxiliary rib members **15** will extend axially relative to the main rib members **12**. Thereafter, the tubular lower member **23** and the tubular intermediate member **16** will be caused to make an upward movement along the dual shaft. As a consequence, the supporting rods **22** as well as the spokes **17** will spread to automatically open the umbrella frame.

As stated above, the present invention insures that the closing and the automatic opening of the umbrella are both performed with a great smoothness. Not only that, the present invention provides the user with a great convenience in carrying the umbrella with him. Furthermore, the present invention permits the user to effect automatic opening of the umbrella quite easily with one of his hands. Of all the features of the present invention, the umbrella of the present invention is particularly characterized by the provision, within the bore of the grip **5**, of the tubular push-up member **35** adapted to be urged upwardly by the coil spring **36**, as will be clearly understood from the description of the preferred embodiment. More specifically, without this tubular push-up member **35**, there will arise the inconvenience that, even when the push-button **37** is depressed to release the latch projection **30***a* of the spring-like latch means **30** from its engagement with the upper latch-engaging hole **27** of the grip tube **26** when it is intended to open the umbrella from its position shown in FIG. **3**, it often happens that the coil spring **6** does not function smoothly and that the free ends of the auxiliary rib members **15** fail to be disengaged from the open top of the grip **5**. According to the present invention, however, the coil spring **36** which has been compressed to have accumulated spring force for pushing up the tubular push-up member **35** insures the unfailing release of the auxiliary rib members **15** from their engagement with the annular anchoring member **34** to render the closed umbrella to the state of being slightly open. In addition, a resilient ring **19** is mounted on the tubular intermediate member **16**. This resilient ring **19** serves to encourage the ribs in parting away from the dual shaft when the umbrella is about to be opened. In close cooperation with the tubular push-up member **35**, this resilient ring **19** makes the automatic opening of the umbrella all the more certain. Furthermore, the provision of a buffer ring **20** on the lower face of the fixed top ring **2** adequately alleviates the impact which arises when the tubular intermediate member **16** hits against the fixed top ring **2** at the time the umbrella is opened. This alleviation of impact not only serves to minimize the shock transmitted to the user, but also minimizes the impact transmitted to the joints of the parts of umbrella, and saves the frame from sustaining damages due to accumulated fatigue.

What is claimed is:

1. In a collapsible, automatically openable umbrella comprising:

a telescopic dual shaft including a tubular outer upper shaft member and a tubular inner lower shaft member, the latter being slidably received in the former;

a top member fixed to the top of said upper shaft member and adapted to carry pivotable ends of a plurality of ribs;

said ribs each including a main rib member and an auxiliary rib member, the latter being slidably received in the former;

a grip mounted at the lower end of said lower shaft member;

a compression spring housed in said upper shaft member for urging said two shaft members to mutually extended positions;

a tubular intermediate member slidably mounted on said dual shaft and adapted to carry pivotable ends of rib-supporting spokes;

a tubular lower member slidably mounted on said dual shaft below said tubular intermediate member and adapted to carry spoke-supporting rods;

and a compressible spring mounted on said dual shaft between said tubular intermediate and lower members for urging these two members relatively apart, whereby those two members are moved upward along said dual shaft while effecting automatic opening of the umbrella with concurrent extension of the auxiliary rib members from their mating main rib members upon release of a latch provided in a lower portion of said lower shaft member;

the improvement wherein:

said latch is adapted to catch said tubular lower member at two closely adjacent positions, at one of which the tips of said auxiliary rib members can be engaged into a flange formed at said grip and at the other of which said tips are disengaged from said flange;

a spring-urged push up means being mounted in said grip and adapted to resiliently urge said tubular lower member upward from its lowermost position;

and a resilient member being mounted on said tubular intermediate member for assisting the movement of said ribs away from said dual shaft.

2. An umbrella according to claim **1**, wherein said tubular lower member is provided two openings adapted to engage with a claw of said latch.

3. An umbrella according to claim **1** wherein said resilient member mounted on said tubular intermediate member is a ring made of a resilient material.

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