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(54) **Umbrella**

(57) An umbrella includes an elongate stem (10), a notch (20) with an insert portion (22) for insertion into a concavity (115) in a top edge wall (111) of the stem (10), a canopy (60) mounted on a mounting portion (21) of the notch (20), and a rib assembly (40) pivotally mounted to the mounting portion (21) for supporting the canopy (60). A tubular runner (30) is slidably sleeved on the stem (10) and is movable between upper and lower positions for spreading and collapsing the canopy (60). A stretcher assembly (50) is disposed to stretch or retract the rib assembly (40). The rib assembly (40) can be brought into close proximity of the stem (10) after retraction, thereby resulting in a compact size of the umbrella for convenient storage and carrying.

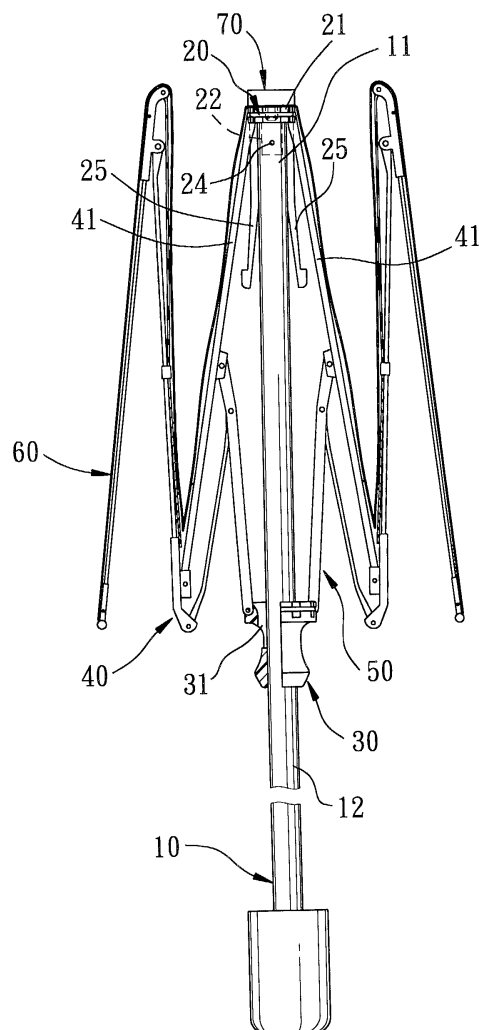


FIG. 3

EP 1 396 205 A1

Description

[0001] This invention relates to an umbrella, more particularly to an umbrella with a notch which has an insert portion for insertion of a tubular upper end portion of a stem thereof.

[0002] Referring to Figs. 1 and 2, a conventional umbrella is shown to include an elongate stem 1 and a runner 3 which is sleeved slidably on the stem 1 to connect pivotally with a stretch assembly 5 for supporting a rib assembly 4. A notch 2 includes a sleeve portion 202 which is sleeved on an upper end of the stem 1, and a mounting portion 203 for pivotally connecting a plurality of ribs 401 of the rib assembly 4. The runner 3 is movable between an upper position for stretching the rib assembly 4 and a lower position for collapsing the same. A pair of resilient tongue members 201 are fixed on the mounting portion 203, and have hook ends that are retainable in slots 301 formed in the runner 3 when the runner 3 is moved to the upper position so as to retain the runner 3 in the upper position.

[0003] Although such engagement of the tongue members 201 and the slots 301 can prevent injury to the user during the collapsing operation, the ribs 401 cannot be disposed close to the stem 1 due to the thickness of the sleeved portion 202 after being collapsed, as shown in Fig. 2, thereby resulting in inconvenient carrying and storage.

[0004] The object of the present invention is to provide an umbrella in which ribs can be brought into close proximity of a stem after being collapsed so as to facilitate storage and carrying.

[0005] According to this invention, the umbrella includes an elongate stem extending along an axis, and having a tubular upper end portion and a lower end portion opposite to each other along the axis. The upper end portion has a surrounding top edge wall which confines a concavity. A notch member includes an insert portion inserted into the concavity along the axis, a mounting portion which extends from the insert portion along the axis, which extends radially and outwardly relative to the axis, and which has an outer diameter larger than that of the insert portion, and a shoulder portion which is formed between the insert and mounting portions and which is disposed close to the top edge wall when the insert portion is inserted into the concavity. The mounting portion has an outer surrounding wall which surrounds the axis and which has a plurality of recesses that are angularly displaced from one another. A canopy is mounted securely on the mounting portion by means of a cap member. A rib assembly includes a plurality of ribs which have proximate rib ends that are respectively disposed in the recesses, and distal rib ends disposed at an underside of the canopy to support the canopy in a spread-out position and in a collapsed position. A tubular runner is slidably sleeved on the stem, and has upper and lower runner end portions that are respectively proximate to and distal from the notch

member. The runner is movable between upper and lower positions which correspond respectively to the spread-out and collapsed positions of the canopy. A stretch assembly is disposed to interconnect the rib assembly and the upper runner end portion so as to stretch or retract the rib assembly.

[0006] Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiment of the invention, with reference to the accompanying drawings, in which:

Fig. 1 is a fragmentary schematic view of a conventional umbrella;

Fig. 2 is a fragmentary schematic view of a notch of the conventional umbrella;

Fig. 3 is a fragmentary schematic view of a preferred embodiment of an umbrella according to this invention when folded;

Fig. 4 is an exploded perspective view of the preferred embodiment in part;

Fig. 5 is a fragmentary schematic view of the preferred embodiment in a spread-out state;

Fig. 6 is a partly sectional view showing a runner fastener; and

Fig. 7 is a sectional view showing a portion of the preferred embodiment in a collapsed state.

[0007] Referring to Figs. 3 and 4, the preferred embodiment of an umbrella according to the present invention is shown to comprise an elongate stem 10, a notch member 20, a cap member 70, a rib assembly 40, a canopy 60, a tubular runner 30, a stretch assembly 50, and a runner fastener.

[0008] The elongate stem 10 extends along an axis, and has a tubular upper end portion 11 and a lower end portion 12 opposite to each other along the axis. The upper end portion 11 has a surrounding top edge wall 111 which has outer and inner peripheries 112, 113 opposite to each other in radial directions relative to the axis, an inner surrounding wall surface 114 that extends from the inner periphery 113 along the axis toward the lower end portion 12 to confine a concavity 115, and an outer surrounding wall surface 116 which extends from the outer periphery 112 along the axis toward the lower end portion 12 to surround the inner surrounding wall surface 114.

[0009] The notch member 20 includes an insert portion 22 which is insertable into the concavity 115 along the axis via the inner periphery 113, a mounting portion 21 which extends from the insert portion 22 along the axis, which extends radially and outwardly relative to the axis, and which has an outer diameter larger than that of the insert portion 22, and a shoulder portion 23 which is formed between the insert and mounting portions 22, 21 and which abuts against the top edge wall 111 when the insert portion 22 is inserted into the concavity 115. With further reference to Fig. 7, a fastening pin 24

extends through the insert portion 22 and the stem 10 along a radial direction relative to the axis so as to secure the insert portion 22 to the stem 10. The mounting portion 21 has an outer surrounding wall 213 which surrounds the axis and which has a plurality of recesses 214 that are angularly displaced from one another. Each recess 214 extends radially and inwardly relative to the axis to terminate at an inner surface 215 that is substantially flush with the outer periphery 112 of the top edge wall 111 of the stem 10. A screw hole 212 is formed in the mounting portion 21.

[0010] The canopy 60 is mounted on the mounting portion 21. The cap member 70 has a screw bolt 71 which engages threadedly the screw hole 212 to clamp securely the canopy 60 between the cap member 70 and the mounting portion 21.

[0011] The rib assembly 40 includes a plurality of ribs 41, each of which has a proximate rib end 411 that is disposed in a respective one of the recesses 214, and a distal rib end that extends from the proximate rib end 411 radial to the axis and that is disposed at an underside of the canopy 60 to support the canopy 60 in a spread-out position and in a collapsed position.

[0012] The tubular runner 30 is slidably sleeved on the stem 10, and has upper and lower runner end portions 32,33 that are respectively proximate to and distal from the notch member 20. The runner 30 further has a tubular inner wall surface 34 which is disposed to be in slidable contact with the outer surrounding wall surface 116 of the upper end portion 11 of the stem 10 between upper and lower positions that correspond respectively to the spread-out position and the collapsed position of the canopy 60, as shown in Figs. 5 and 3, and a tubular outer wall surface 36 which is opposite to the tubular inner wall surface 34. The tubular inner wall surface 34 defines a pair of guideways 35, each of which extends from the upper runner end portion 32 towards the lower runner end portion 33 and each of which is radially spaced apart from the outer surrounding wall surface 116 of the upper end portion 11 of the stem 10.

[0013] The stretcher assembly 50 is disposed to interconnect the rib assembly 40 and the upper runner end portion 32 of the runner 30 so as to stretch or retract the rib assembly 40, thereby placing the canopy 60 in the spread-out position or the collapsed position when the runner 30 is moved to the upper position or the lower position, respectively.

[0014] With reference to Fig. 6, the runner fastener includes a pair of resilient tongue members 25, each of which has a fixed end that is fixed to the shoulder portion 23 of the notch member 20, and a hook end 251 which extends toward the lower end portion 11 of the stem 10. The hook ends 251 of the tongue members 25 are biased away from the stem 10 in a lateral and transverse direction relative to the axis. The runner fastener further includes a pair of slots 31 formed in the tubular outer wall surface 36 of the runner 30. Each slot 31 extends radially and inwardly towards the tubular inner wall sur-

face 34 and communicates with the respective one of the guideways 35. When the runner 30 is moved upwardly by manual force to the upper position for spreading the canopy 60, the guideways 35 engage the hook ends 251 of the tongue members 25 against the biasing action of the tongue members 25. Sequentially, the hook ends 251 project out of the slots 31 by means of the resilient forces of the tongue members 25 and are retained therein.

[0015] When it is desired to collapse the umbrella, the hook ends 251 of the tongue members 25 are pressed inwardly so as to disengage from the slots 31. As shown in Fig. 7, since the notch member 20 is connected to the stem 10 in such a manner that the insert portion 22 is inserted into the concavity 115, and since the inner surfaces 215 of the mounting portions 21 are substantially flush with the outer periphery 112 of the upper end portion 11 of the stem 10, the ribs 41 can be disposed close to the stem 10 after the collapsing operation, thereby resulting in a compact size of the umbrella to facilitate storage and carrying. In addition, the user usually grasps the runner 30 during the collapsing operation, thereby preventing injury to the user.

Claims

1. An umbrella comprising:

an elongate stem (10) extending along an axis, and having a tubular upper end portion (11) and a lower end portion (12) opposite to each other along the axis, said upper end portion (11) having a surrounding top edge wall (111) which has outer and inner peripheries (112,113) opposite to each other in radial directions relative to the axis, and an inner surrounding wall surface (114) which extends from said inner periphery (113) along the axis toward said lower end portion (12) to confine a concavity(115);
a notch member (20) including a mounting portion (21) having an outer surrounding wall (213) which surrounds the axis and which has a plurality of recesses (214) that are angularly displaced from one another, each of said recesses (214) extending radially and inwardly relative to the axis to terminate at an inner surface (215);
a canopy (60) mounted on said mounting portion (21);
a cap member (70) disposed to fasten said canopy (60) to said mounting portion (21);
a rib assembly (40) including a plurality of ribs (41), each of which has a proximate rib end (411) that is disposed in a respective one of said recesses (214), and a distal rib end that extends from said proximate rib end (411) radial to the axis and that is disposed at an underside of said canopy (60) to support said canopy (60)

in a spread-out position and in a collapsed position;

a tubular runner (30) slidably sleeved on said stem (10), and having upper and lower runner end portions (32,33) respectively proximate to and distal from said notch member (20), said runner (30) being movable between upper and lower positions which correspond respectively to the spread-out and collapsed positions of said canopy (60); and

a stretcher assembly (50) disposed to interconnect said rib assembly (40) and said upper runner end portion (32) so as to stretch or retract said rib assembly (40), thereby bringing said canopy (60) in the spread-out position or the collapsed position when said runner (30) is moved to the upper position or the lower position, respectively, **characterized in that:**

said notch member (20) further includes an insert portion (22) configured to be inserted into said concavity (115) along the axis via said inner periphery (113) and extending from said mounting portion (21) along the axis, said insert portion (22) extending radially and inwardly relative to the axis, and having an outer diameter smaller than that of said mounting portion (21), and a shoulder portion (23) formed between said insert and mounting portions (22,21), and disposed close to said top edge wall (111) when said insert portion (22) is inserted into said concavity (115).

2. The umbrella of Claim 1, **characterized in that** said shoulder portion (23) of said notch member (20) abuts against said top edge wall (111) when said insert portion (22) is inserted into said concavity (115), said inner surface (215) of said mounting portion (21) being substantially flush with said outer periphery (112) of said top edge wall (111) of said stem (10).

3. The umbrella of Claim 1 or Claim 2, further **characterized by** a resilient tongue member (25) which has a fixed end fixed to said shoulder portion (23) of said notch member (20), and a hook end (251) extending toward said lower end portion (11) of said stem (10) when said insert portion (22) is inserted into said concavity (115), said hook end (251) being biased away from said stem (10) in a lateral and transverse direction relative to the axis,

said stem (10) having an outer surrounding wall surface (116) which extends from said outer periphery (112) along the axis toward said lower end portion (12) to surround said inner surrounding wall surface (114),

said runner (30) including a tubular inner wall

surface (34) which is disposed in slidable contact with said outer surrounding wall surface (116) of said stem (10), said tubular inner wall surface (34) defining a guideway (35) which extends from said upper runner end portion (32) towards said lower runner end portion (33) and which is radially spaced apart from said outer surrounding wall surface (116) so as to receive said tongue member (25) therein, said runner (30) further including a tubular outer wall surface (36) which is opposite to said tubular inner wall surface (34) and which has a slot (31) that extends radially and inwardly towards said tubular inner wall surface (34) and that communicates with said guideway (35) at such a position that said hook end (251) will be biased to protrude and be retained in said slot (31) once said tongue member (25) is forced into said guideway (35).

4. The umbrella of any preceding claim, **characterized in that** said cap member (70) engages threadedly said mounting portion (21) of said notch member (20) so as to clamp said canopy (60) therebetween.

5. The umbrella of any preceding claim, further **characterized by** a fastening pin (24) extending through said insert portion (22) and said stem (10) along a radial direction relative to the axis so as to secure said insert portion (22) to said stem (10).

6. An umbrella comprising:

an elongate stem (10) extending along an axis, and having a tubular upper end portion (11) and a lower end portion (12) opposite to each other along the axis, said upper end portion (11) having a surrounding top edge wall (111) which has outer and inner peripheries (112,113) opposite to each other in radial directions relative to the axis, an inner surrounding wall surface (114) which extends from said inner periphery (113) along the axis toward said lower end portion (12) to confine a concavity (115), and an outer surrounding wall surface (116) which extends from said outer periphery (112) along the axis toward said lower end portion (12) to surround said inner surrounding wall surface (114);

a notch member (20) including a mounting portion (21) having an outer surrounding wall (213) which surrounds the axis and which has a plurality of recesses (214) that are angularly displaced from one another, each of said recesses (214) extending radially and inwardly relative to the axis to terminate at an inner surface (215); a canopy (60) mounted on said mounting portion (21);

a cap member (70) disposed to fasten said canopy (60) to said mounting portion (21);

a rib assembly (40) including a plurality of ribs (41), each of which has a proximate rib end (411) that is disposed in a respective one of said recesses (214), and a distal rib end that extends from said proximate rib end (411) radial to the axis and that is disposed at an underside of said canopy (60) to support said canopy (60) in a spread-out position and in a collapsed position;

a tubular runner (30) slidably sleeved on said stem (10), and having upper and lower runner end portions (32,33) respectively proximate to and distal from said notch member (20), said runner (30) further having a tubular inner wall surface (34) which is disposed in slidable contact with said outer surrounding wall surface (116) of said stem (10) between upper and lower positions which correspond respectively to the spread-out and collapsed positions of said canopy (60);

a stretcher assembly (50) disposed to interconnect said rib assembly (40) and said upper runner end portion (32) so as to stretch or retract said rib assembly (40), thereby bringing said canopy (60) in the spread-out position or the collapsed position when said runner (30) is moved to the upper position or the lower position, respectively, **characterized in that:**

said notch member (20) further includes an insert portion (22) configured to be inserted into said concavity (115) along the axis via said inner periphery (113), and extending from said mounting portion (21) along the axis, said insert portion (22) extending radially and outwardly relative to the axis, and having an outer diameter smaller than that of said mounting portion (21), and

a shoulder portion (23) formed between said insert and mounting portions (22,21) and disposed close to said top edge wall (111) when said insert portion (22) is inserted into said concavity (115),

said tubular inner wall surface (34) defining a guideway (35) which extends from said upper runner end portion (32) towards said lower runner end portion (33) and which is radially spaced apart from said outer surrounding wall surface (116) of said stem (10),

said umbrella further comprising a resilient tongue member (25) having a fixed end which is fixed to said shoulder portion (23) of said notch member (20), and a hook end (251) which extends toward said lower end portion (11) of said stem (10) when said insert portion (22) is inserted into said con-

cavity (115), said hook end (251) being biased away from said stem (10) in a lateral and transverse direction relative to the axis such that upward movement of said runner (30) to the upper position by manual force permits said tongue member (25) to slide along said guideway (35) against biasing action of said tongue member (25).

7. The umbrella of Claim 6, **characterized in that** said shoulder portion (23) of said notch member (20) abuts against said top edge wall (111) when said insert portion (22) is inserted into said concavity (115), said inner surface (215) of said mounting portion (21) being substantially flush with said outer periphery (112) of said top edge wall (111) of said stem (10).

8. The umbrella of Claim 6 or Claim 7, **characterized in that** said runner (30) further includes a tubular outer wall surface (36) which is opposite to said tubular inner wall surface (34) and which has a slot (31) that extends radially and inwardly towards said tubular inner wall surface (34) and that communicates with said guideway (35) at such a position that said hook end (251) will be biased to protrude into and to be retained in said slot (31) once said tongue member (25) is forced into said guideway (35).

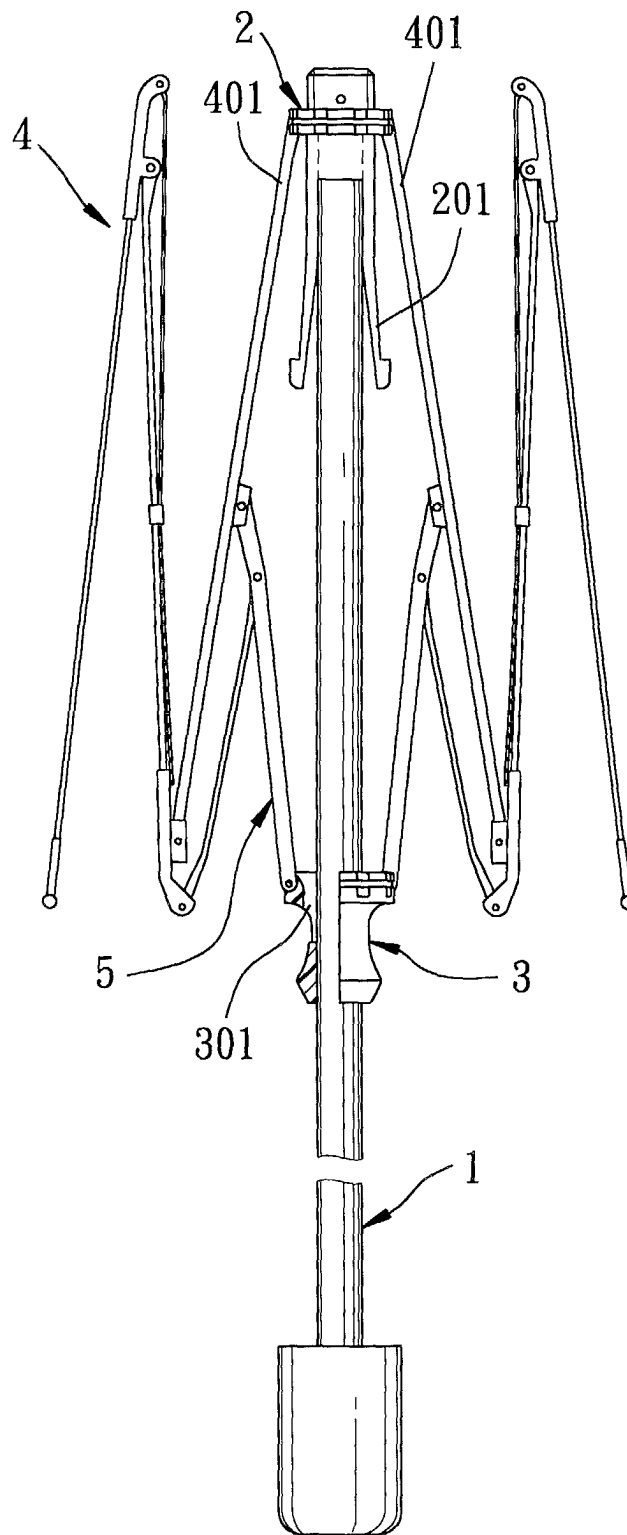


FIG. 1
PRIOR ART

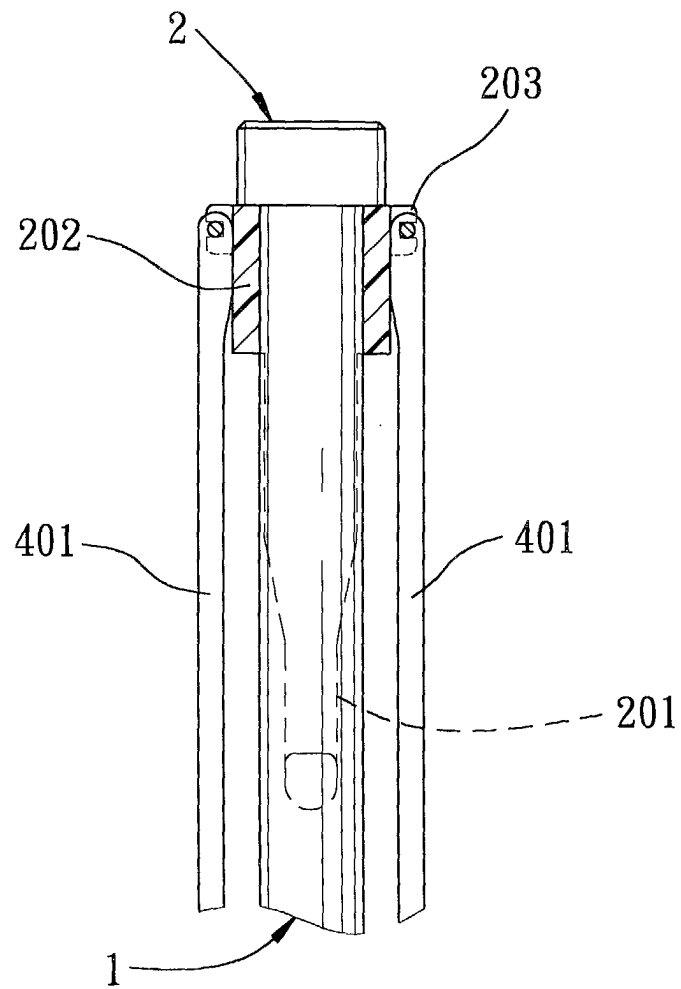


FIG. 2
PRIOR ART

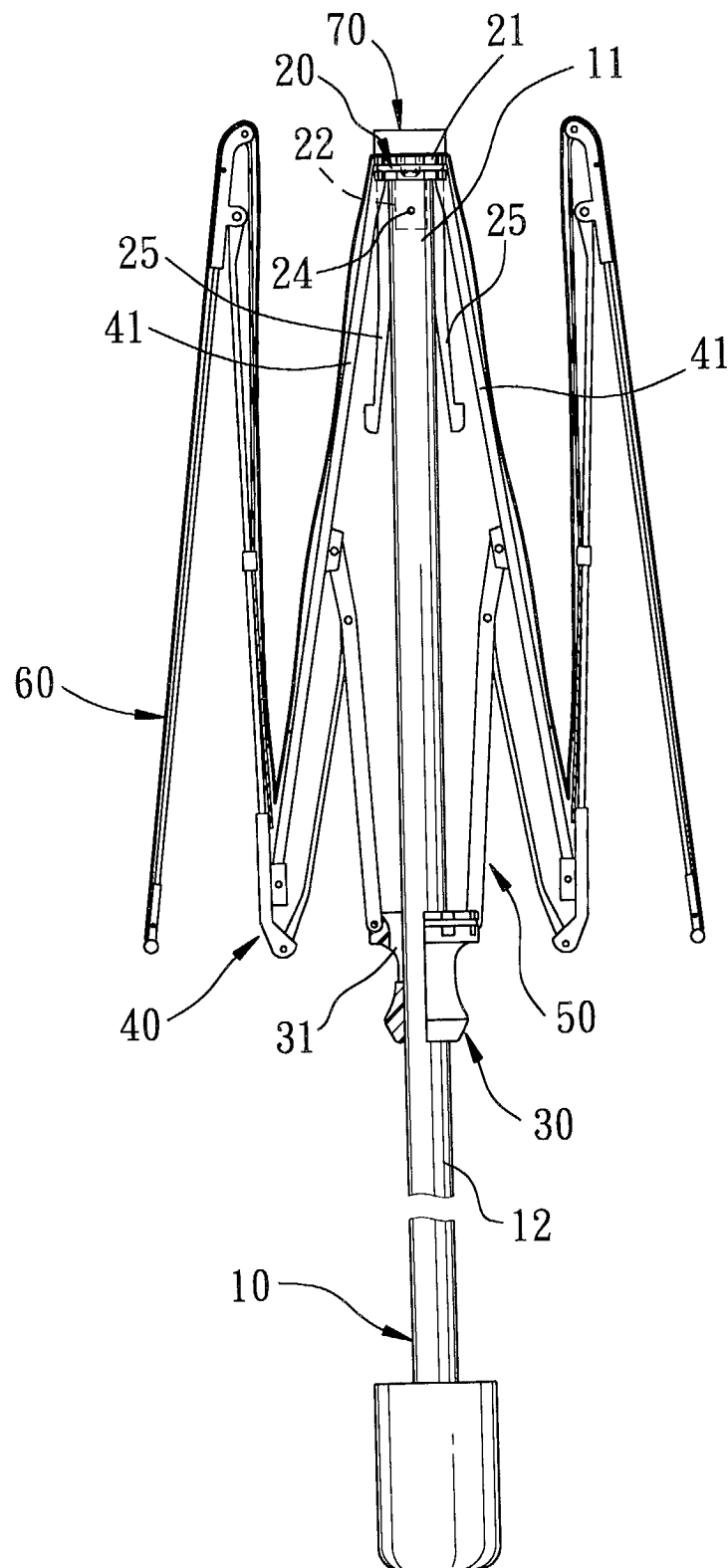


FIG. 3

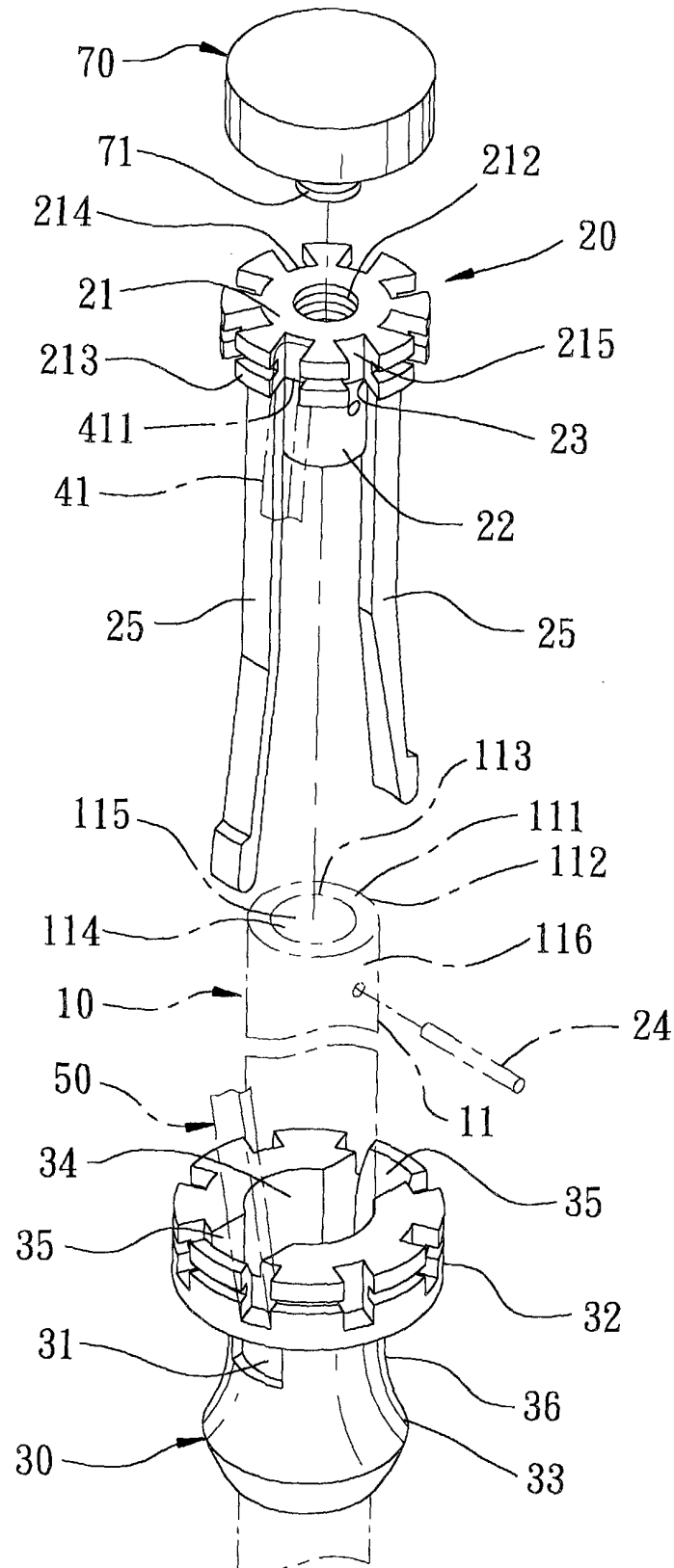


FIG. 4

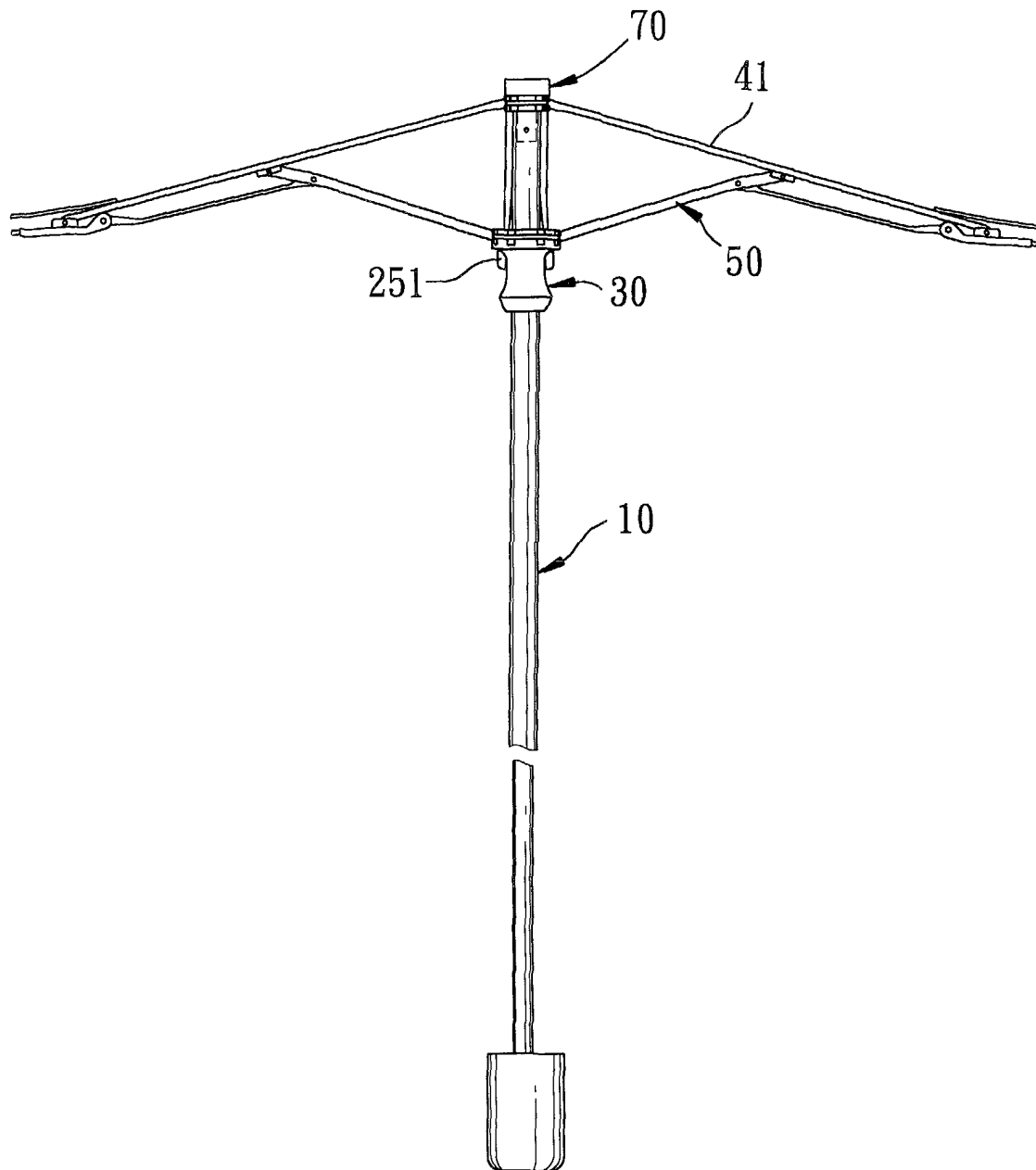


FIG. 5

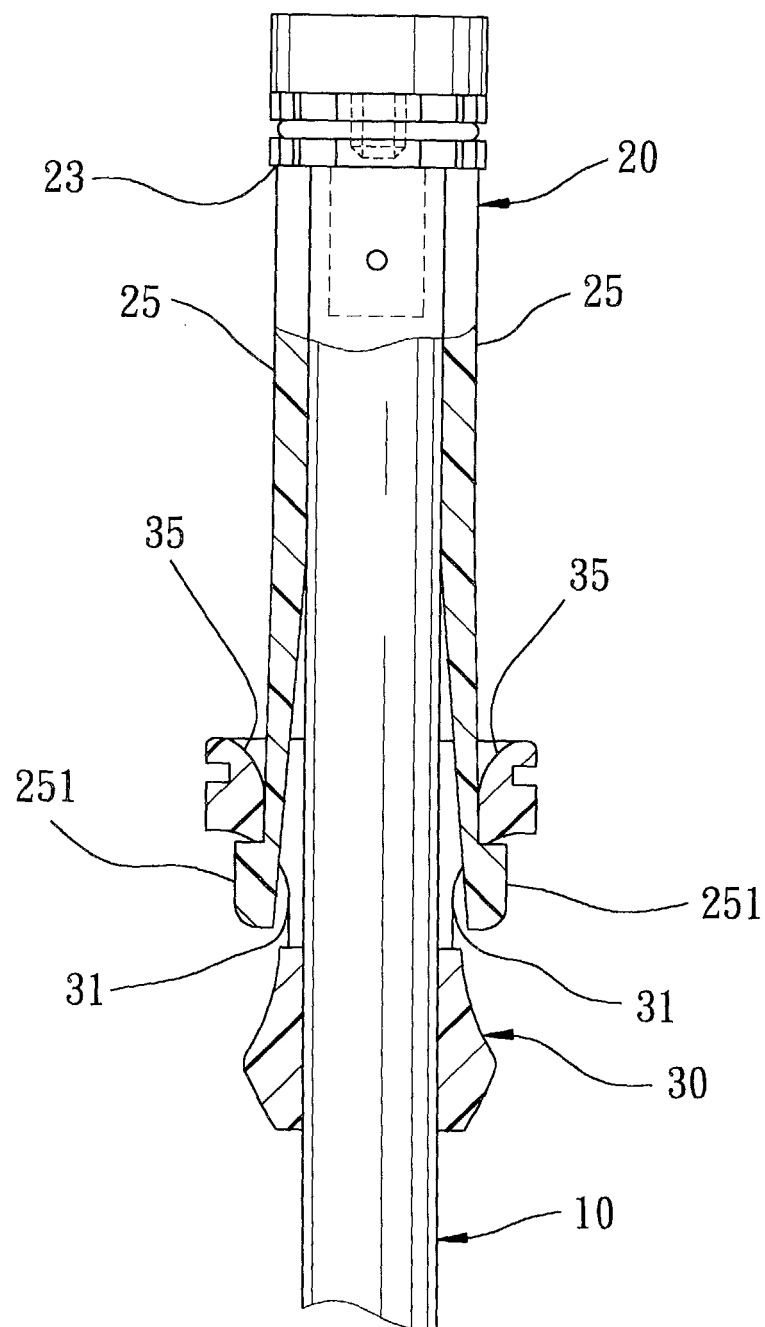


FIG. 6

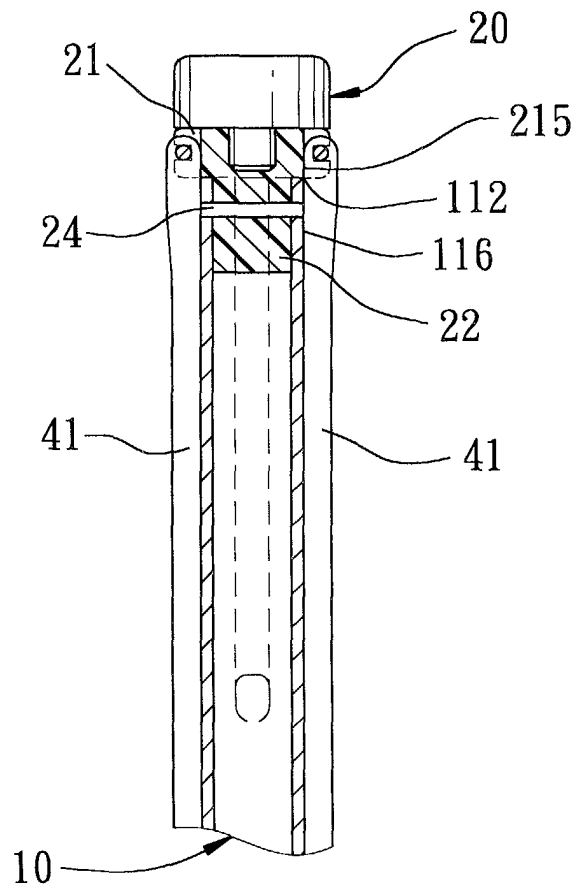


FIG. 7



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 02 25 6231

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A45B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 25 February 2003	Examiner Garcia, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 02 25 6231

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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25-02-2003

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