



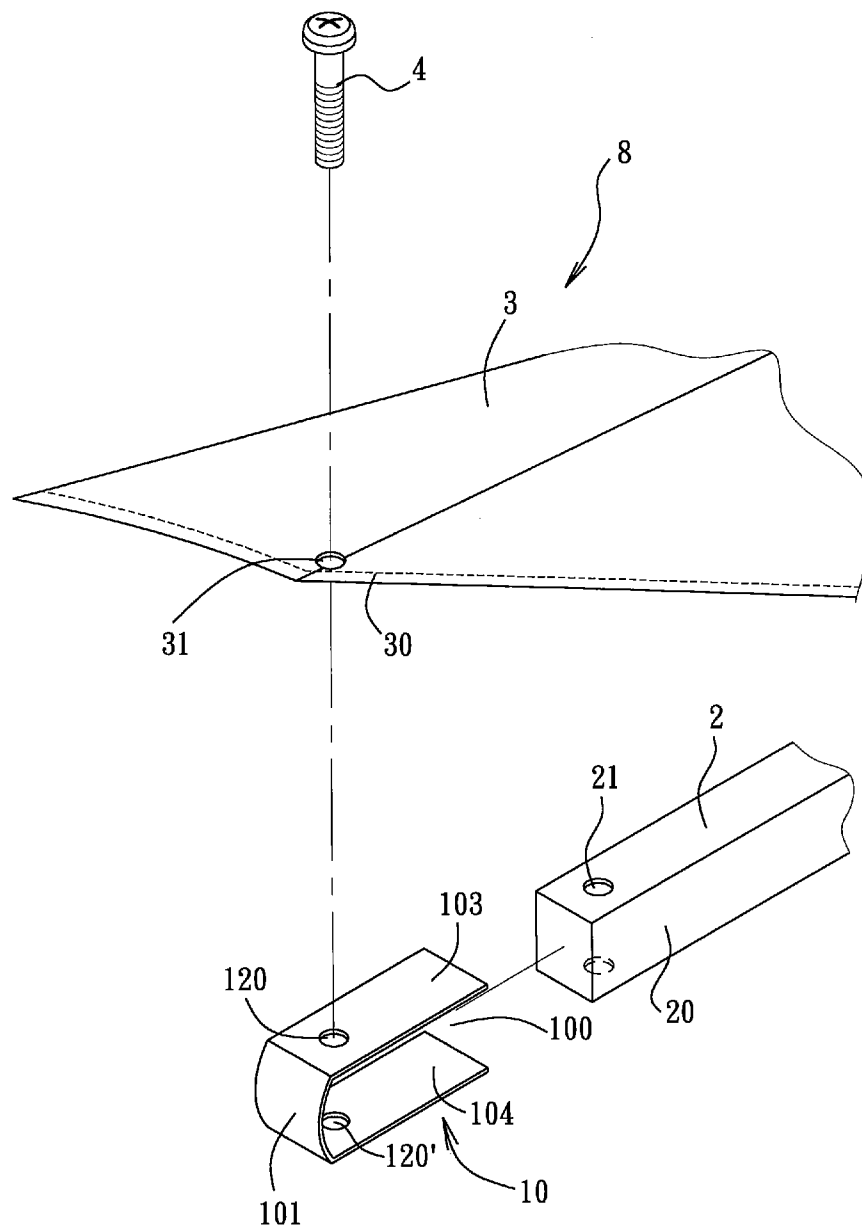
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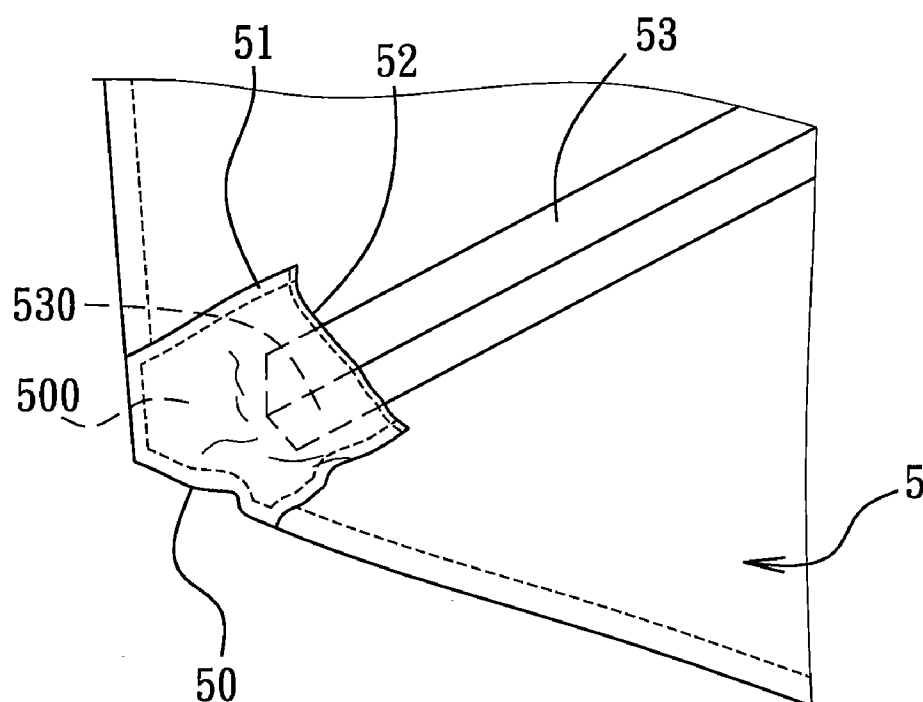
(19) **United States**(12) **Patent Application Publication**  
**LEE**(10) **Pub. No.: US 2009/0056774 A1**(43) **Pub. Date: Mar. 5, 2009**(54) **UMBRELLA HAVING A LOCKING MEMBER  
TO PREVENT RELEASE OF A TIP OF A RIB  
FROM A CANOPY**(22) Filed: **Aug. 27, 2007****Publication Classification**(76) Inventor: **Henry LEE, Kaohsiung City (TW)**(51) **Int. Cl.**  
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**PANITCH SCHWARZE BELISARIO & NADEL  
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STREET, SUITE 2200****PHILADELPHIA, PA 19103 (US)**(57) **ABSTRACT**

An umbrella includes a canopy having a rib-connecting end, a rib having a tip to connect with the rib-connecting end, a tip cap connected to the rib-connecting end of the canopy and defining a receiving space that receives therein the tip of the rib, and a locking member connected to the tip cap to prevent release of the tip of the rib from the receiving space.

(21) Appl. No.: **11/845,128**



F I G. 1  
PRIOR ART

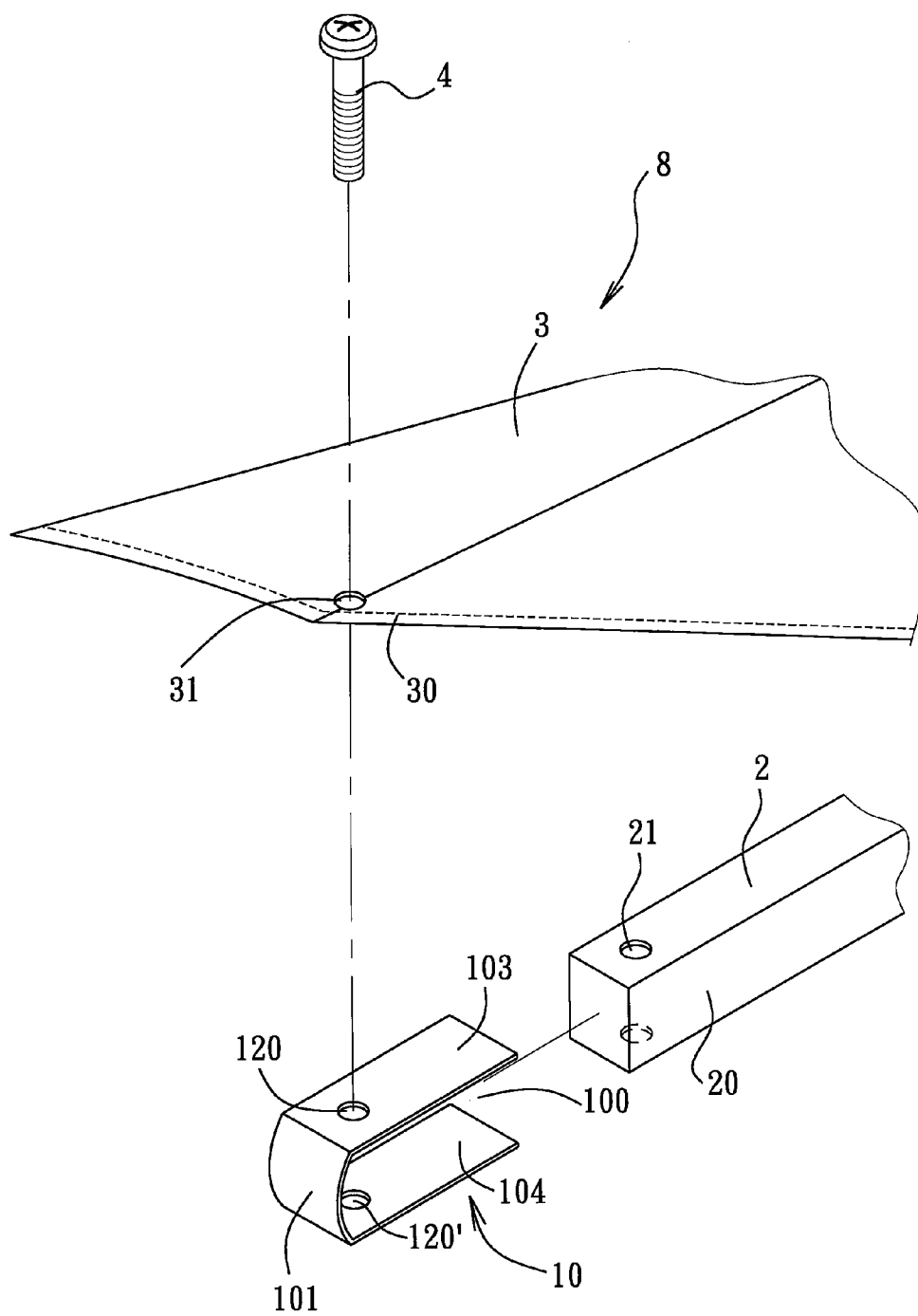


FIG. 2

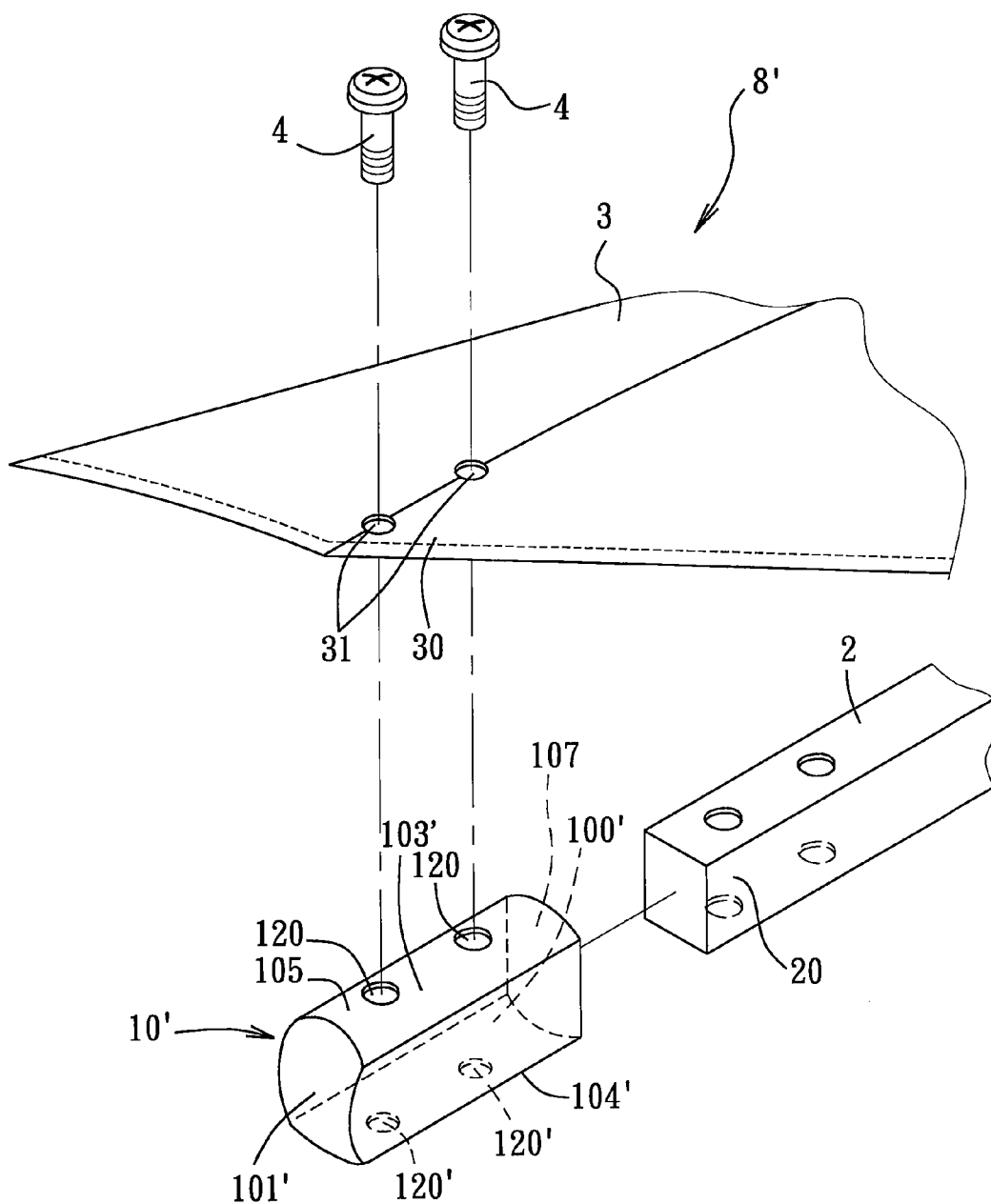


FIG. 3

FIG. 4

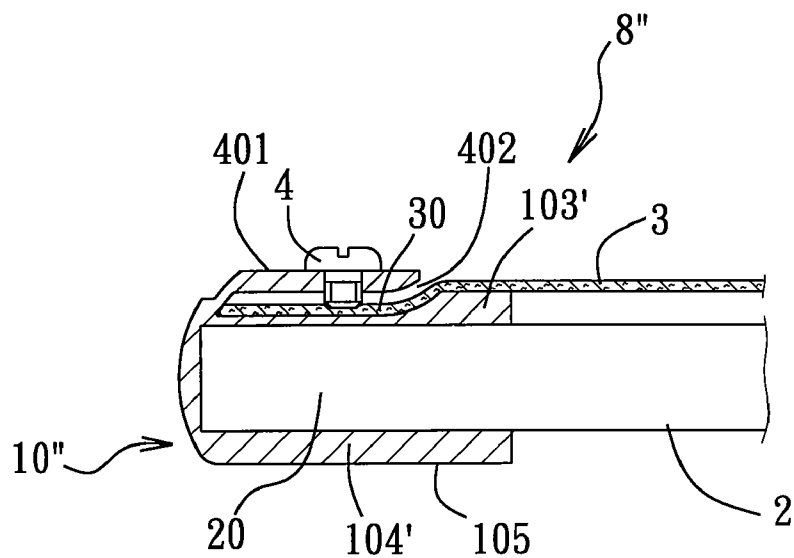


FIG. 5

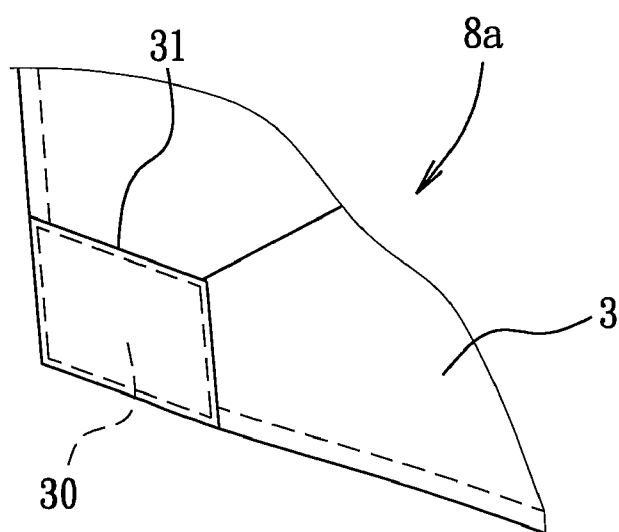


FIG. 6

# **UMBRELLA HAVING A LOCKING MEMBER TO PREVENT RELEASE OF A TIP OF A RIB FROM A CANOPY**

## **BACKGROUND OF THE INVENTION**

**[0001]** 1. Field of the Invention

**[0002]** This invention relates to an umbrella, more particularly to an umbrella having a locking member to prevent release of a tip of a rib from a canopy.

**[0003]** 2. Description of the Related Art

**[0004]** Referring to FIG. 1, there is shown a portion of a conventional umbrella having a tip **530** of a rib **53** inserted tautly into a pocket **52** of a canopy **5**. The canopy **5** includes a fabric piece **51** sewn to a bottom face **500** of a rib-connecting end **50** of the canopy **5** to form the pocket **52**. The length of the rib **53** is usually made long so as to stretch the canopy **5** when the umbrella is opened. However, when a strong wind is encountered, the tip **530** of the rib **53** is easily released from the pocket **52**, and needs to be inserted back into the pocket **52** manually.

## **SUMMARY OF THE INVENTION**

**[0005]** Therefore, the object of the present invention is to provide an umbrella having a locking member that can stably position a tip of a rib to a rib-connecting end of a canopy during opening and collapsing of the umbrella.

**[0006]** According to this invention, an umbrella comprises a canopy having a rib-connecting end, a rib having a tip to connect with the rib-connecting end, a tip cap connected to the rib-connecting end of the canopy and defining a receiving space that receives therein the tip of the rib, and a locking member connected to the tip cap to prevent release of the tip of the rib from the receiving space.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

**[0007]** Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiments of the invention, with reference to the accompanying drawings, in which:

**[0008]** FIG. 1 is a fragmentary schematic bottom view of a conventional umbrella;

**[0009]** FIG. 2 is a fragmentary exploded perspective view of an umbrella according to the first preferred embodiment of the present invention;

**[0010]** FIG. 3 is a fragmentary exploded perspective view of an umbrella according to the second preferred embodiment of the present invention;

**[0011]** FIG. 4 is a fragmentary exploded perspective view of an umbrella according to the third preferred embodiment of the present invention;

**[0012]** FIG. 5 is a fragmentary assembled sectional view of the third preferred embodiment; and

**[0013]** FIG. 6 is a fragmentary schematic bottom view of an umbrella according to the fourth preferred embodiment of the present invention.

## **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

**[0014]** Before the present invention is described in greater detail, it should be noted that the same reference numerals have been used to denote like elements throughout the specification.

**[0015]** Referring to FIG. 2, there is shown a portion of an umbrella **8** embodying the first preferred embodiment of the present invention. The portion of the umbrella **8** as shown includes a canopy **3** having a rib-connecting end **30**, a rib **2** having a tip **20**, a tip cap **10**, and a locking member.

**[0016]** The tip cap **10** is connected to the rib-connecting end **30** of the canopy **3**, and is made of a substantially U-shaped metal body having parallel top and bottom plates **103**, **104**, and a transverse plate **101** having top and bottom ends connected respectively to the top and bottom plates **103**, **104**. The top and bottom plates **103**, **104** and the transverse plate **101** cooperatively define a first receiving space **100** to receive therein the tip **20** of the rib **2**. Each of the top and bottom plates **103**, **104** has a locking hole **120**, **120'** that is proximate to the transverse plate **101**.

**[0017]** The locking member includes a headed screw **4**.

**[0018]** To position the tip **20** of the rib **2** to the rib-connecting end **30** of the canopy **3**, the tip **20** of the rib **2** is first inserted into the first receiving space **100** in the tip cap **10** until the tip **20** abuts against the transverse plate **101**, after which the screw **4** is passed transversely through a through hole **31** in the rib-connecting end **30** of the canopy **3**, the locking hole **120** in the top plate **103**, a through hole **21** in the tip **20** of the rib **2**, and the locking hole **120'** in the bottom plate **104**, thereby fixing the tip **20** of the rib **2** and the tip cap **10** to the rib-connecting end **30** of the canopy **3**. Hence, release of the tip **20** of the rib **2** from the rib-connecting end **30** of the canopy **3** is prevented.

**[0019]** Referring to FIG. 3, there is shown a portion of an umbrella **8'** embodying the second preferred embodiment of the present invention, which is similar to the first preferred embodiment. However, in this embodiment, the tip cap **10'** has a cap wall **105**, two top locking holes **120** provided in a top plate **103'** of the cap wall **105**, and two bottom locking holes **120'** provided in a bottom plate **104'** of the cap wall **105** and aligned respectively with the top locking holes **120**. The cap wall **105** surrounds the tip **20** of the rib **2**, defines the first receiving space **100'**, and has only one open end **107**. The tip **20** of the rib **2** is inserted into the first receiving space **100'** in the tip cap **10'** via the open end **107** until the tip **20** abuts against a transverse plate **101'** of the cap wall **105**, after which two screws **4** are passed transversely and respectively through through holes **31** in the rib-connecting end **30** of the canopy **3**, the top locking holes **120**, the through holes **21** in the tip **20** of the rib **2**, and the bottom locking holes **120'**, thereby fixing the tip **20** of the rib **2** to the rib-connecting end **30** of the canopy **3**.

**[0020]** Referring to FIGS. 4 and 5, there is shown a portion of an umbrella **8''** embodying the third preferred embodiment of the present invention, which is similar to the second preferred embodiment. However, in this embodiment, the tip cap **10''** further has a substantially L-shaped press arm **40** integral with the top plate **103'** of the cap wall **105** and extending longitudinally of the tip **20** of the rib **2** and outwardly of the cap wall **105**. In particular, the press arm **40** has a short plate portion **400** connected transversely to the top plate **103'**, and a long plate portion **401** connected to the short plate portion **400** and extending along the top plate **103'**. The long and short plate portions **400**, **401** of the press arm **40** and the top plate **103'** of the cap wall **105** cooperatively define a second receiving space **402**. A locking slot **403** is formed in the long plate portion **401** of the press arm **40**, and communicates spatially with the second receiving space **402**. Further, unlike the first and second embodiments of FIGS. 2 and 3, the top and bottom

plates 103', 104' of the cap wall 105 are not provided with the locking holes 120, 120", and the rib-connecting end 30 of the canopy 3 has no through hole 31.

[0021] The tip 20 of the rib 2 is first inserted into the first receiving space 100" in the tip cap 10" until the tip 20 abuts against the transverse plate 101, after which the rib-connecting end 30 of the canopy 3 is inserted into the second receiving space 402 between the press arm 40 and the cap wall 105. Finally, the screw 4 is passed transversely through the locking slot 403 and into the second receiving space 402 so as to press tightly the rib-connecting end 30 of the canopy 3 against the top plate 103' of the cap wall 105, as best shown in FIG. 5.

[0022] If the locking holes 120, 120' in the top and bottom plates 103', 104' of the cap wall 105 are provided in this embodiment, the screw 4 may be arranged to extend through the rib-connecting end 30 of the canopy 3 and the tip 20 of the rib 2 so as to fix the tip 20 of the rib 2 and the tip cap 10" to the rib-connecting end 30 of the canopy 3. Moreover, if the top plate 103 of the tip cap 10 in FIG. 2 of the first preferred embodiment is provided with the L-shaped press arm 40, the advantages of the third preferred embodiment can be similarly achieved.

[0023] FIG. 6 illustrates a fragmentary bottom view of an umbrella (8a) embodying the fourth preferred embodiment of the present invention. In this embodiment, the rib-connecting end 30 of the canopy 3 is provided with a reinforcing member 31. The reinforcing member 31 may be made of a strong fabric or leather to enhance durability of the canopy 3. Hence, in each of the aforementioned preferred embodiments, the rib-connecting end 30 of the canopy 3 may be further provided with the reinforcing member 31 so as to prevent the rib-connecting end 30 of the canopy 3 from being easily damaged.

[0024] While the present invention has been described in connection with what are considered the most practical and preferred embodiments, it is understood that this invention is not limited to the disclosed embodiments but is intended to cover various arrangements included within the spirit and scope of the broadest interpretations and equivalent arrangements.

1. An umbrella comprising:

- a canopy having a rib-connecting end;
- a rib having a tip to connect with said rib-connecting end;
- a tip cap connected to said rib-connecting end of said canopy and defining a first receiving space that receives therein said tip of said rib; and
- a locking member connected to said tip cap to prevent release of said tip of said rib from said first receiving space.

2. The umbrella of claim 1, wherein said locking member extends transversely through said tip cap and said tip of said rib.

3. The umbrella of claim 2, wherein said locking member includes a headed screw.

4. The umbrella of claim 3, wherein said tip cap has top and bottom plates, and a transverse plate having top and bottom ends connected respectively to said top and bottom plates, said top and bottom plates and said transverse plate cooperatively defining said first receiving space, each of said top and bottom plates having a locking hole for passage of said headed screw.

5. The umbrella of claim 3, wherein said tip cap has a cap wall surrounding said tip of said rib and defining said first receiving space, and top and bottom locking holes provided respectively in said cap wall for passage of said headed screw.

6. The umbrella of claim 3, wherein said tip cap has a cap wall surrounding said tip of said rib and defining said first receiving space, a press arm integral with said cap wall and extending longitudinally of said tip of said rib and outwardly of said cap wall, and a locking slot provided in said press arm, said rib-connecting end of said canopy extending between said press arm and said cap wall, said headed screw extending through said locking slot and pressing tightly said rib-connecting end of said canopy against said cap wall.

7. The umbrella of claim 1, wherein said rib-connecting end of said canopy is provided with a reinforcing member.

8. The umbrella of claim 7, wherein said reinforcing member is made of a strong fabric.

9. The umbrella of claim 7, wherein said reinforcing member is made of leather.

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