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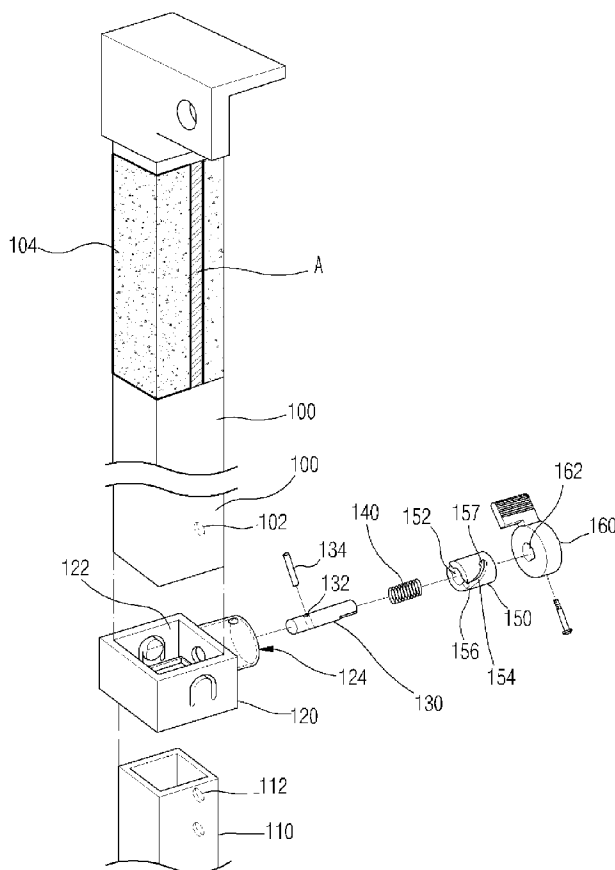
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(54) Title: PROP STRUCTURE OF FOLDING TENT



(57) Abstract: Provided is a prop structure of a folding tent. The prop structure includes a fixing bracket (120) comprised of a penetrating prop insertion portion (122) into which an upper prop (100) is inserted and a penetrating housing insertion portion (124) perpendicularly connected to the prop insertion portion (122); a pin housing (150) inserted and fixed to the housing insertion portion (124) and composed of a pin insertion portion (152), which penetrates through an inside of the pin housing (150), and a spiral guide hole (154) which is connected to the pin insertion portion (152) on both side surfaces of the pin housing (150); a spring (140) inserted into the pin insertion portion (152); a fixing pin (130) having a stopper hole (132), which vertically penetrates the fixing pin (130) and is formed at a front end of the fixing pin (130), and inserted into the spring (140); a stopper (134) inserted into the stopper hole (132) and moving along the guide hole (154); and a rotating handle (160) fixedly coupled to a rear end of the fixing pin (130).

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Description

PROP STRUCTURE OF FOLDING TENT

Technical Field

- [1] The present invention relates to a folding tent, and more particularly, to a prop structure of a folding tent which enables a user to easily adjust the height of each prop that supports the folding tent with respect to a ground surface and to fix the props.

Background Art

- [2] FIG. 1 illustrates the framework of a conventional folding tent.
- [3] Referring to FIG. 1, the folding tent, which is used as a shield against sunlight and rain outdoors, is largely composed of a plurality of props 30, a plurality of folding frames 40, and a top prop 50. Specifically, the props 30 support the folding tent with respect to a ground surface, and the folding frames 40 are rotatably connected to and cross each other in an "X" form between the props 30. In addition, the top prop 50 supports the center of a roof of the folding tent. If the props 30 are gathered toward the top prop 50, the folding tent becomes small enough to carry around and keep. Conversely, if the props 30 are spread from the top prop 50 in all directions, the framework of the folding tent is formed.
- [4] FIG. 2 illustrates a prop of the conventional folding tent of FIG. 1.
- [5] Referring to FIG. 2, the prop, which supports the folding tent with respect to a ground surface, is composed of an upper prop 10 and a lower prop 20 having different diameters. As in an antenna, the lower prop 20 having a smaller diameter is received into the upper prop 10 having a relatively larger diameter. A top housing 60, to which the folding frames 40 are connected, is fixedly attached to an upper part of the upper prop 10. A sliding housing 70, to which the folding frames 40 are connected, is slidably attached to the upper prop 10 under the top housing such that it can slide along the upper prop 10.
- [6] A prop fixing device 80 for fixing the upper prop 10 to the lower prop 20 is fixedly attached to a lower part of the upper prop 10. Another prop fixing device 90 for fixing the sliding housing 70 to the upper prop 10 is fixedly attached to the sliding housing 70. The prop fixing device 80 fixedly attached to the upper prop 10 and the prop fixing device 90 fixedly attached to the sliding housing 70 are disposed at different locations but have similar structures. Therefore, the prop fixing device 80 fixedly attached to the upper prop 10 will be mainly described below.
- [7] FIG. 3 illustrates the prop fixing device 80 of the conventional folding tent of FIG. 1.
- [8] The conventional prop fixing device 80 will now be described with reference to

FIG. 3.

- [9] Referring to FIG. 3, a penetrating pinhole 12 is formed in a lower part of a side surface of the upper prop 10, and a plurality of penetrating pinholes 22 are formed at regular intervals in a side surface of the lower prop 20. Therefore, if the upper prop 10 is slid downward, the pinholes 12 and 22 of the upper and lower props 10 and 20 are aligned in a straight line.
- [10] The prop fixing device 80 fixedly attached to the lower part of the upper prop 10 is composed of a fixing bracket 84, which is fixedly attached to the upper prop 10, a fixing pin 86, which is inserted and installed in the fixing bracket 84 and elastically inserted into the pinholes 12 and 22, a spring 87, which elastically supports the fixing pin 86, and a handle 85 which is formed at one end of the fixing pin 86.
- [11] According to the conventional prop fixing device 80, a user disengages the fixing pin 86 from the pinholes 12 and 22 by pulling the handle 85. Then, the user moves the upper prop 10 by a desired distance. In this state, if the user releases the handle 85, the fixing pin 86 sequentially passes through the pinholes 12 and 22 of the upper and lower props 10 and 20 and fixes the upper and lower props 10 and 20 to each other.
- [12] However, the conventional prop fixing device 80 has the following problems.
- [13] First of all, a user always has to move the upper prop 10 while pulling the handle 85 in order to adjust the height of each of the props 30.
- [14] Since no additional locking device for fixing the fixing pin 86 is available, if vibrations are consistently delivered to the fixing pin 86 from an external source while a considerably heavy load is put on the fixing pin 86, the fixing pin 86 may gradually be pushed out of the props 30, thereby collapsing the framework of the folding tent.
- [15] In addition, since the fixing pin 86 can move only linearly in forward and backward directions, if the user forcibly pulls the handle 85 while a considerably heavy load is put on the fixing pin 86, the fixing pin 86 or the prop 30 may be damaged.
- [16] FIG. 4 illustrates the operation of the conventional prop of FIG. 2.
- [17] As illustrated in FIGS. 2 and 4, a Velcro 14 for fixing tent canvas is fixedly attached to the upper part of each upper prop 10, and each corner of the tent canvas is attached to the Velcro 14. Hence, the exterior of the folding tent is formed. A conventional method of fixing the Velcro 14 to the upper prop 10 is as follows.
- [18] First, the square Velcro 14 is attached to the upper part of the upper prop 10, and fixing bolts 16 are coupled to both ends of the Velcro 14. In so doing, the Velcro 14 is fixedly attached to the upper part of the upper prop 10.
- [19] However, the prop structure of the conventional folding tent described above has the following problems.
- [20] The fixing bolts 16 for fixing the Velcro 14 and a fixing pin 96 of the prop fixing device 90 for fixing the sliding housing 70 protrude inside the upper prop 10, and the

protruding fixing bolts 16 and the protruding fixing pin 96 hinder the lower prop 20 from being inserted up to a top end of the upper prop 10 when the folding tent is folded. For this reason, in the frame structure of the conventional folding tent, the lower prop 20 is made short, and the upper prop 10 is made long in order to fully insert the lower prop 20 into the upper prop 10. However, if the length of the upper prop 10 is increased, when the folding tent is folded, the packaged length of the folded tent becomes that much longer. Consequently, it becomes inconvenient to carry around and store the folding tent.

Disclosure of Invention

Technical Solution

- [21] The present invention provides a prop structure of a folding tent which enables a user to easily adjust the height of each prop and to fix a sliding housing, thereby enhancing user convenience and the safety of a tent structure.
- [22] The present invention also provides a prop structure of a folding tent which allows a lower prop to be fully inserted into an upper prop, thereby reducing the packaged volume of the folded tent, which, in turn, increases the efficiency of carrying and storing the folding tent.
- [23] According to an aspect of the present invention, there is provided a prop structure of a folding tent which includes a prop fixing device for adjusting the height of a prop composed of an upper prop and a lower prop received into the upper prop like an antenna. The prop fixing device includes a fixing bracket composed of a penetrating prop insertion portion into which the upper prop is inserted and a penetrating housing insertion portion perpendicularly connected to the prop insertion portion; a pin housing inserted and fixed to the housing insertion portion and composed of a pin insertion portion, which penetrates through an inside of the pin housing, and a spiral guide hole which is connected to the pin insertion portion on both side surfaces of the pin housing; a spring inserted into the pin insertion portion; a fixing pin having a stopper hole, which vertically penetrates the fixing pin and is formed at a front end of the fixing pin, and inserted into the spring; a stopper inserted into the stopper hole and moving along the guide hole; and a rotating handle fixedly coupled to a rear end of the fixing pin.
- [24] The prop fixing device may further include stopper grooves bending and extending from both ends of the guide hole in order to fix the stopper.
- [25] The prop fixing device may further include a concave coupling groove which is formed at the center of the rotating handle and into which the rear end of the fixing pin is inserted.
- [26] A front end of the housing insertion portion of the prop fixing device may have a

diameter larger than that of the fixing pin and smaller than a length of the stopper in order to prevent the stopper from penetrating through the housing insertion portion.

[27] The prop structure may further include a Velcro fixedly attached to the upper part of the upper prop using an ultrasonic fusion splicer.

Brief Description of the Drawings

[28] FIG. 1 is a perspective view of the framework of a conventional folding tent;

[29] FIG. 2 is a perspective view of a prop of the conventional folding tent of FIG. 1;

[30] FIG. 3 is a cross-sectional view of a prop fixing device of the conventional folding tent of FIG. 1;

[31] FIG. 4 is a cross-sectional view of the prop of FIG. 2;

[32] FIG. 5 is an exploded perspective view of a prop of a folding tent according to the present invention; and

[33] FIGS. 6 and 7 respectively illustrate a method of using a prop fixing device of the folding tent of FIG. 5.

Best Mode for Carrying Out the Invention

[34] The present invention will now be described more fully with reference to the accompanying drawings, in which exemplary embodiments of the invention are shown. The invention may, however, be embodied in many different forms and should not be construed as being limited to the embodiments set forth therein; rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the concept of the invention to those skilled in the art.

[35] Hereinafter, a prop structure of a folding tent according to the present invention will be described with reference to the accompanying drawings.

[36] Like a conventional folding tent, a folding tent according to the present invention is composed of a plurality of props supporting the folding tent with respect to a ground surface, a plurality of folding frames crossing each other in an "X" form and rotatably connected to each other between the props, and a top prop supporting the center of a roof of the folding tent. Each of the props is composed of an upper prop and a lower prop having different diameters. As in an antenna, the lower prop having a smaller diameter is received into the upper prop having a larger diameter. A top housing, to which the folding frames are connected, is fixedly attached to an upper part of the upper prop. A sliding housing, to which the folding frames are connected, is slidably attached to the upper prop under the top housing such that it can slide up/down along the upper prop.

[37] The upper prop and the lower prop are fixedly coupled to each other by a prop fixing device which is fixedly attached to a lower part of the upper prop. In addition, the sliding housing is fixedly coupled to the upper prop by another prop fixing device

which is fixedly and integrally attached to an upper or lower part of the sliding housing. The two prop fixing devices are disposed at different locations but have identical structures and operations. Therefore, the prop fixing device for fixing the upper prop to the lower prop will be mainly described below. The prop fixing device, which will hereinafter be described, can also be integrally attached to the upper or lower part of the sliding housing and used to fix the sliding housing to the upper prop.

[38] FIG. 5 illustrates a prop fixing device of a folding tent according to the present invention. FIGS. 6 and 7 respectively illustrate a method of using the prop fixing device.

[39] Referring to FIG. 5, the prop fixing device includes a fixing bracket 120 which is attached to an upper prop 100, a pin housing 150 which is inserted and fixed to the fixing bracket 120, a spring 140 and a fixing pin 130 which are inserted into the pin housing 150, a stopper 134 which is inserted into the fixing pin 130 and prevents the disengagement of the spring 140, and a rotating handle 160 which is fixedly coupled to a rear end of the fixing pin 130.

[40] The fixing bracket 120 attached to the upper prop 100 includes a penetrating prop insertion portion 122 into which the upper prop 100 is inserted and a penetrating housing insertion portion 124 which is perpendicularly connected to the prop insertion portion 122. In addition, the fixing bracket 120 is fixedly attached to a lower part of the upper prop 100.

[41] Inner and outer ends of the housing insertion portion 124 may have different diameters. The diameter of the outer end of the housing insertion portion 124 may be sufficiently large to allow the pin housing 150, which will be described later, to be inserted therinto. The diameter of the inner end of the housing insertion portion 124 may be sufficiently large to allow the fixing pin 130, which will be described later, to pass therethrough, but may be sufficiently small to prevent the stopper 134 and the pin housing 150 from passing therethrough.

[42] The pin housing 150 fixedly inserted into the housing insertion portion 124 of the fixing bracket 120 is composed of a pin insertion portion 152 which horizontally penetrates through the center of the pin housing 150 and a slit-like spiral guide hole 154 which is connected to the pin insertion portion 152 on both side surfaces of the pin housing 150. Here, the spring 140 and the fixing pin 130, which will be described later, are inserted into the pin insertion portion 152, and the guide hole 154 serves as a path along which the stopper 134, which will be described later, move. The guide hole 154 is formed in a spiral shape from a front end of the pin housing 150 to a middle part thereof. In addition, stopper grooves 156 and 157 for fixing the stopper 134 may bend and extend from both ends of the guide hole 154. The stopper groove 156 formed at the front end of the guide hole 154 prevents the disengagement of the fixing pin 130.

The stopper groove 157 formed at a rear end of the guide hole 154 draws and fixes the fixing pin 130 when the upper prop 100 slides, thereby preventing a surface of the lower prop 110 from being scratched by the fixing pin 130.

[43] The pin housing 150 can be inserted into the housing insertion portion 124 of the fixing bracket 120, but cannot penetrate through the housing insertion portion 124. Therefore, the pin housing 150 remains fully inserted into the housing insertion portion 124 of the fixing bracket 120. After the pin housing 150 is fully inserted into the housing insertion portion 124, it is fixedly coupled inside the housing insertion portion 124 using a fixing unit such as a bolt so that the pin housing 150 does not rotate inside the housing insertion portion 124.

[44] The spring 140 elastically supports the fixing pin 130, which will be described later, and is inserted into the pin insertion portion 152 of the pin housing 150. A diameter of a front end of the pin insertion portion 152 may sufficiently large to allow the spring 140 to pass therethrough, whereas a diameter of a rear end of the pin insertion portion 152 may be smaller than that of the spring 140 in order to prevent the disengagement of the spring 140.

[45] The fixing pin 130 fixes the upper prop 100 to a lower prop 110 by passing through the pinholes 102 and 112 of the upper and lower props 100 and 110. While the fixing pin 130 remains inserted into the spring 140, it is inserted into the pin insertion portion 152. A stopper hole 132 penetrating through the fixing pin 130 in a vertical direction is formed at a position located a predetermined distance away from an end of the fixing pin 130. The stopper 134 having a length greater than the diameter of the fixing pin 130 is inserted into the stopper hole 132. After the stopper 134 is inserted into the stopper hole 132 of the fixing pin 130, the fixing pin 130 is inserted into the spring 140. Then, the fixing pin 130 and the spring 140 are inserted into the pin insertion portion 152 of the pin housing 150. Here, a front end of the spring 140 is caught on the stopper 134, and a rear end of the spring 140 is caught on the rear end of the pin insertion portion 152. Therefore, the disengagement of the spring 140 is prevented.

[46] The fixing pin 130 is longer than the pin insertion portion 152. A front end of the fixing pin 130 penetrates through the housing insertion portion 124 and is inserted into the pinholes 102 and 112 of the upper and lower props 100 and 110. A rear end of the fixing pin 130 penetrates through the pin insertion portion 152 and is coupled to the rotating handle 160 which will be described later. Here, the front end of the fixing pin 130, which is not inserted into the pin insertion portion 152, is from a tip end of the fixing pin 130 to the stopper hole 132 into which the stopper 134 is inserted. The rear end of the fixing pin 130, which penetrates through the pin insertion portion 152, indicates a portion of the fixing pin 130 which is inserted into a coupling groove 162 of the rotating handle 160.

- [47] The stopper 134 inserted into the stopper hole 132 moves along the guide hole 154 of the pin housing 150. Since the guide hole 154 is formed in a spiral shape, the fixing pin 130 must rotate at a predetermined angle in order for the stopper 134 to move. If the stopper 134 is positioned in either of the stopper grooves 156 and 157 which are formed at both ends of the guide hole 154, the stopper 134 cannot move along the guide hole 154 on its own unless it is forced to.
- [48] The concave coupling groove 162, into which the rear end of the fixing pin 130 is inserted, is formed at the center of the rotating handle 160 to which the rear end of the fixing pin 130 is coupled. The rear end of the fixing pin 130, which is inserted into the coupling groove 162 as described above, is fixedly coupled to the rotating handle 160 by a fixing unit such as a bolt. Therefore, the fixing pin 130 cannot rotate independently. That is, the fixing pin 130 must rotate together with the rotating handle 160. In order to prevent the rotation of the fixing pin 130, the coupling groove 162 and the rear end of the fixing pin 130, which is inserted into the coupling groove 162, may not have round shapes, but have square shapes corresponding to each other.
- [49] Referring to FIG. 5, a Velcro 104 for fixing tent canvas is fixedly attached to an upper part of the upper prop 100, and each corner of the tent canvas is attached to the Velcro 104. Hence, the exterior of the folding tent is formed. A method of fixing the Velcro 104 to the upper prop 100 is as follows.
- [50] First, the square Velcro 104 is attached to the upper part of the upper prop 100. Here, both ends of the Velcro 104 overlap each other, and the overlapping ends A of the Velcro 104 are fusion-spliced using an ultrasonic fusion splicer (or a high-frequency fusion splicer). In so doing, the Velcro 104 is fixedly attached to the upper part of the upper prop 100. Ultrasonic (high-frequency) fusion splicing denotes simultaneously fusing and compressing two things using ultrasonic (high-frequency) waves. After the Velcro 104 is put on the upper prop 100, if ultrasonic waves are applied to the Velcro 104 and the upper prop 100 for a sufficient period of time, the upper prop 100 and the Velcro 104 are fusion-spliced to each other by heat and compression.
- [51] If the Velcro 104 is fusion-spliced with the upper prop 100 using the ultrasonic fusion splicer, a bolt is not used to fix the Velcro 104 to the upper prop 100, unlike in a conventional art. Therefore, the bolt does not protrude inside the upper prop 100. Since the bolt obstructing the movement of the lower prop 110 does not protrude inside the upper prop 100, the lower prop 110 can be fully received into the upper prop 100. Consequently, the size of the folding tent when folded can be reduced over a conventional folding tent.
- [52] The operation of the prop fixing device of the folding tent according to the present invention will now be described with reference to FIGS. 6 and 7.
- [53] Referring to FIG. 6, while the upper and lower props 100 and 110 are fixed to each

other, the stopper 134 is placed at an inlet of the guide hole 154, that is, the front end of the pin housing 150. Accordingly, the fixing pin 130 is inserted into the pinholes 102 and 112 of the upper and lower props 100 and 110. In addition, the rotating handle 160 is placed adjacent to the housing insertion portion 124 of the fixing bracket 120. Since the stopper 134 is placed and fixed in the stopper groove 156 which is formed at the front end of the guide hole 154, even if vibrations or loads are applied to the folding tent, the stopper 134 cannot not voluntarily move along the guide hole 154. Therefore, there is no concern about the disengagement of the fixing pin 130 from the pinholes 102 and 112.

[54] In a state where the height of the prop is fixed by inserting the fixing pin 130 into the pinholes 102 and 112, if a user desires to adjust the height of the prop, the user may rotate the rotating handle 160 as illustrated in FIG. 7. If the rotating handle 160 is rotated, the stopper 134 located at the front end of the pin housing 150 is removed from the stopper groove 156 and moves to the middle part of the pin housing 150 along the spiral guide hole 154. Accordingly, the fixing pin 130 is removed from the pinholes 102 and 112 and moves backward. The spring 140 is compressed backward as the stopper 134 moves. Consequently, the rotating handle 160 is placed further away from the housing insertion portion 124 of the fixing bracket 120. Since the stopper 134 is placed and fixed in the stopper groove 157 which is formed at the tip end of the guide hole 154, the fixing pin 130 does not move forward again while the upper prop 100 slides even if the user is not holding the rotating handle 160.

[55] After disengaging the fixing pin 130 from the pinholes 102 and 112 by rotating the rotating handle 160, if the user adjusts the height of the prop appropriately and then rotates the rotating handle 160 back to its original state, the stopper 134 moves forward along the guide hole 154 due to the elasticity of the compressed spring 140. Accordingly, the fixing pin 130 is inserted into the pinholes 102 and 112, thereby fixing the upper and lower props 100 and 110 to each other.

[56] While the present invention has been particularly shown and described with reference to exemplary embodiments thereof, it will be understood by those of ordinary skill in the art that various changes in form and details may be made therein without departing from the spirit and scope of the present invention as defined by the following claims.

Industrial Applicability

[57] According to the present invention, the fixing pin 130 can be easily and simply inserted into or removed from the pinholes 102 and 112 by rotating the rotating handle 160.

[58] According to the present invention, even if loads or vibrations are applied to a

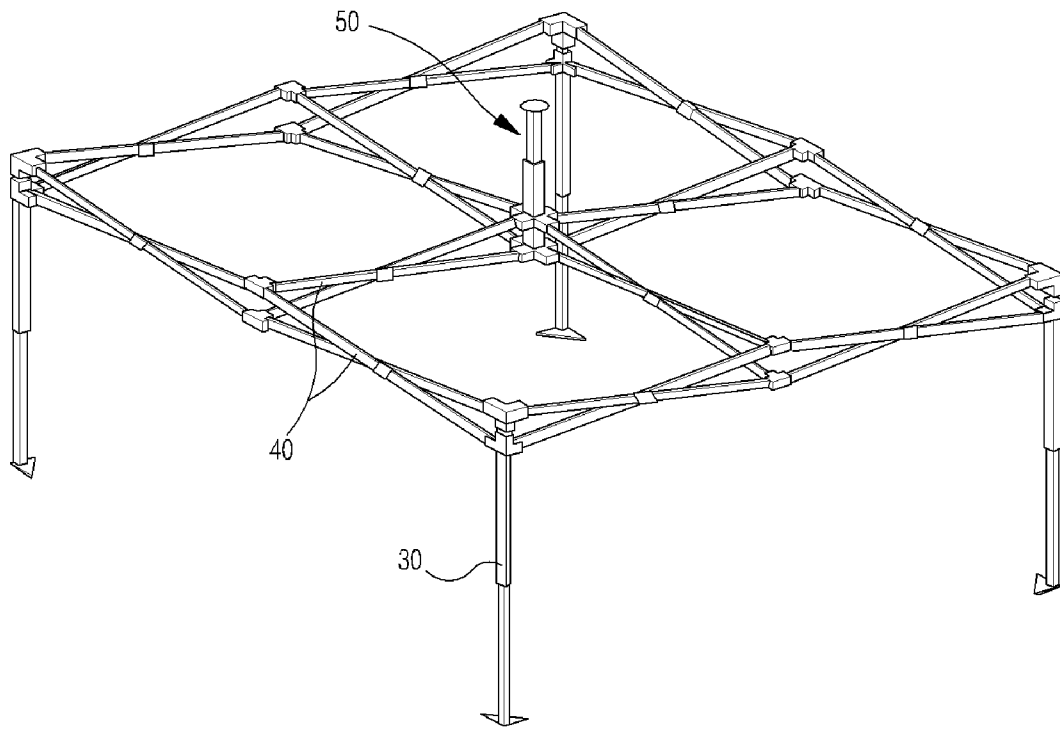
folding tent, the fixing pin 130 cannot voluntarily disengage from the pinholes 102 and 112.

[59] In addition, according to the present invention, there is no need to hold the rotating handle 160 while adjusting the height of a prop, thereby enhancing user convenience.

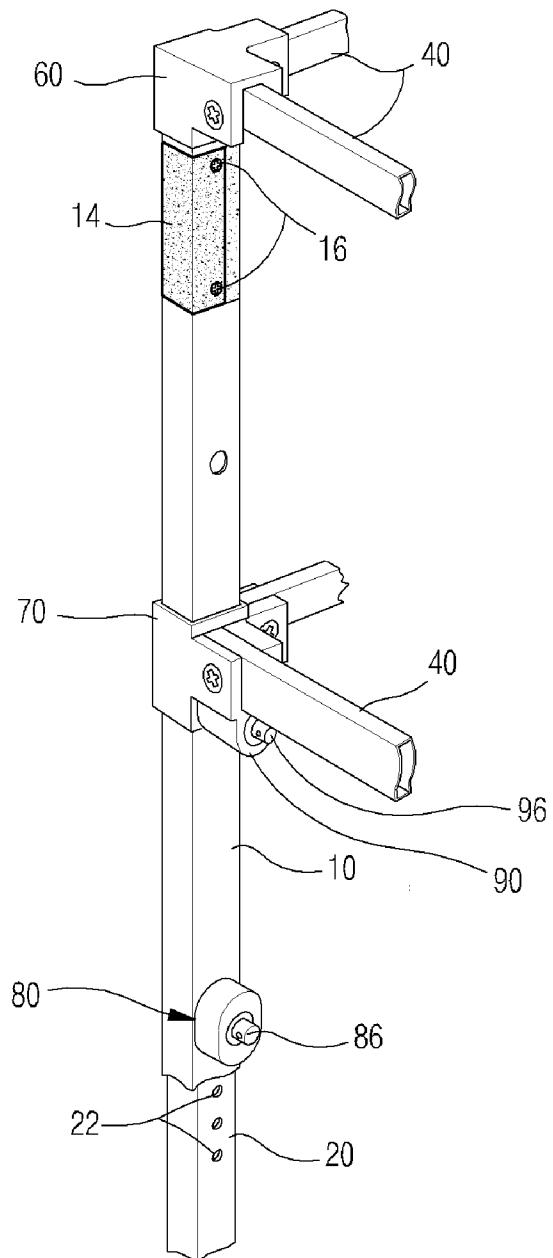
Claims

- [1] A prop structure of a folding tent, which comprises a prop fixing device fixedly attached to a lower part of an upper prop 100 and thus fixing the upper prop 100 to a lower prop 110 or fixedly and integrally attached to a sliding housing and thus fixing the sliding housing to the upper prop 100, the prop structure comprising:
- a fixing bracket 120 comprised of a penetrating prop insertion portion 122 into which the upper prop 100 is inserted and a penetrating housing insertion portion 124 perpendicularly connected to the prop insertion portion 122;
 - a pin housing 150 inserted and fixed to the housing insertion portion 124 and comprised of a pin insertion portion 152, which penetrates through an inside of the pin housing 150, and a spiral guide hole 154 which is connected to the pin insertion portion 152 on both side surfaces of the pin housing 150;
 - a spring 140 inserted into the pin insertion portion 152;
 - a fixing pin 130 having a stopper hole 132, which vertically penetrates the fixing pin 130 and is formed at a front end of the fixing pin 130, and inserted into the spring 140;
 - a stopper 134 inserted into the stopper hole 132 and moving along the guide hole 154; and
 - a rotating handle 160 fixedly coupled to a rear end of the fixing pin 130.
- [2] The prop structure of claim 1, wherein the prop fixing device further comprises stopper grooves 156 and 157 bending and extending from both ends of the guide hole 154 in order to fix the stopper 134.
- [3] The prop structure of claim 1 or 2, wherein the prop fixing device further comprises a concave coupling groove 162 which is formed at the center of the rotating handle 160 and into which the rear end of the fixing pin 130 is inserted.
- [4] The prop structure of claim 1 or 2, wherein a front end of the housing insertion portion 124 of the prop fixing device has a diameter larger than that of the fixing pin 130 and smaller than a length of the stopper 134 in order to prevent the stopper 134 from penetrating through the housing insertion portion 124.
- [5] The prop structure of claim 1 or 2, further comprising a Velcro 140 fixedly attached to the upper part of the upper prop 100 using an ultrasonic fusion splicer.

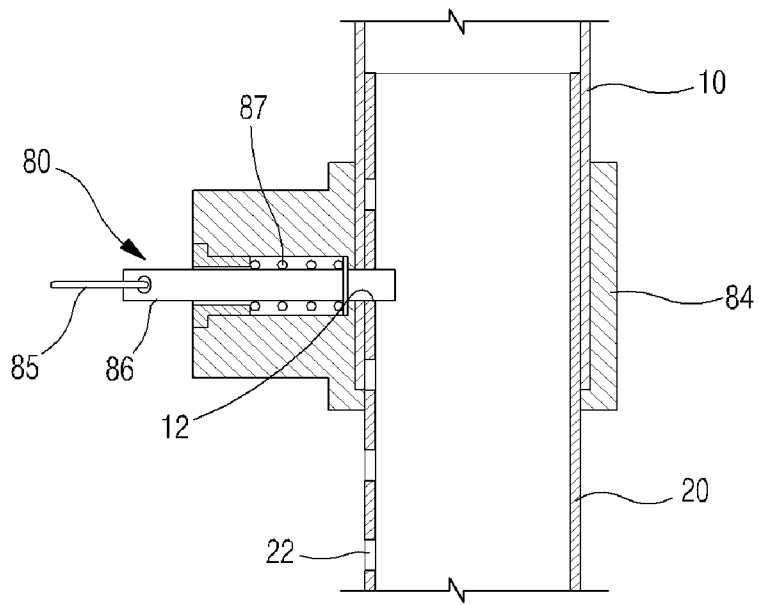
[Fig. 1]



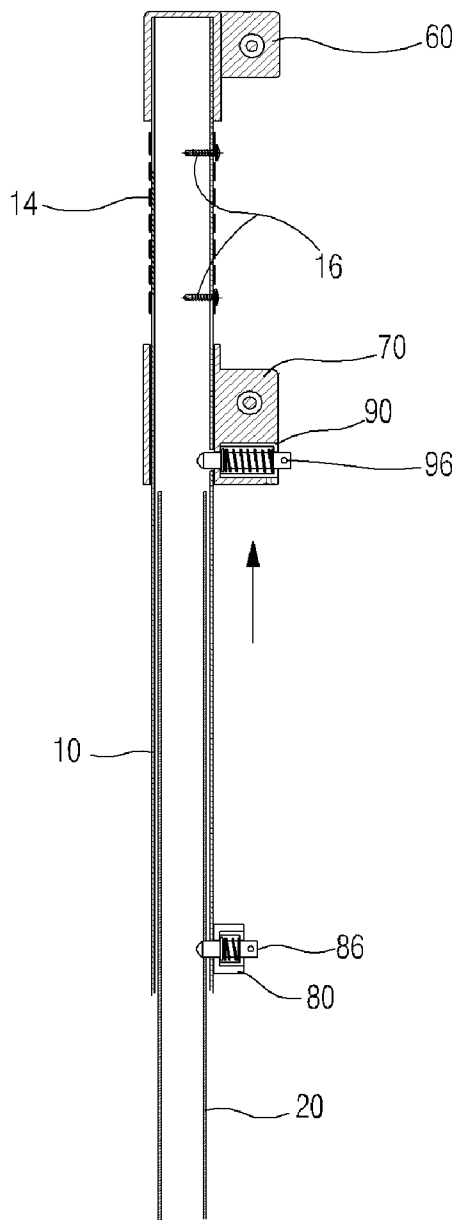
[Fig. 2]



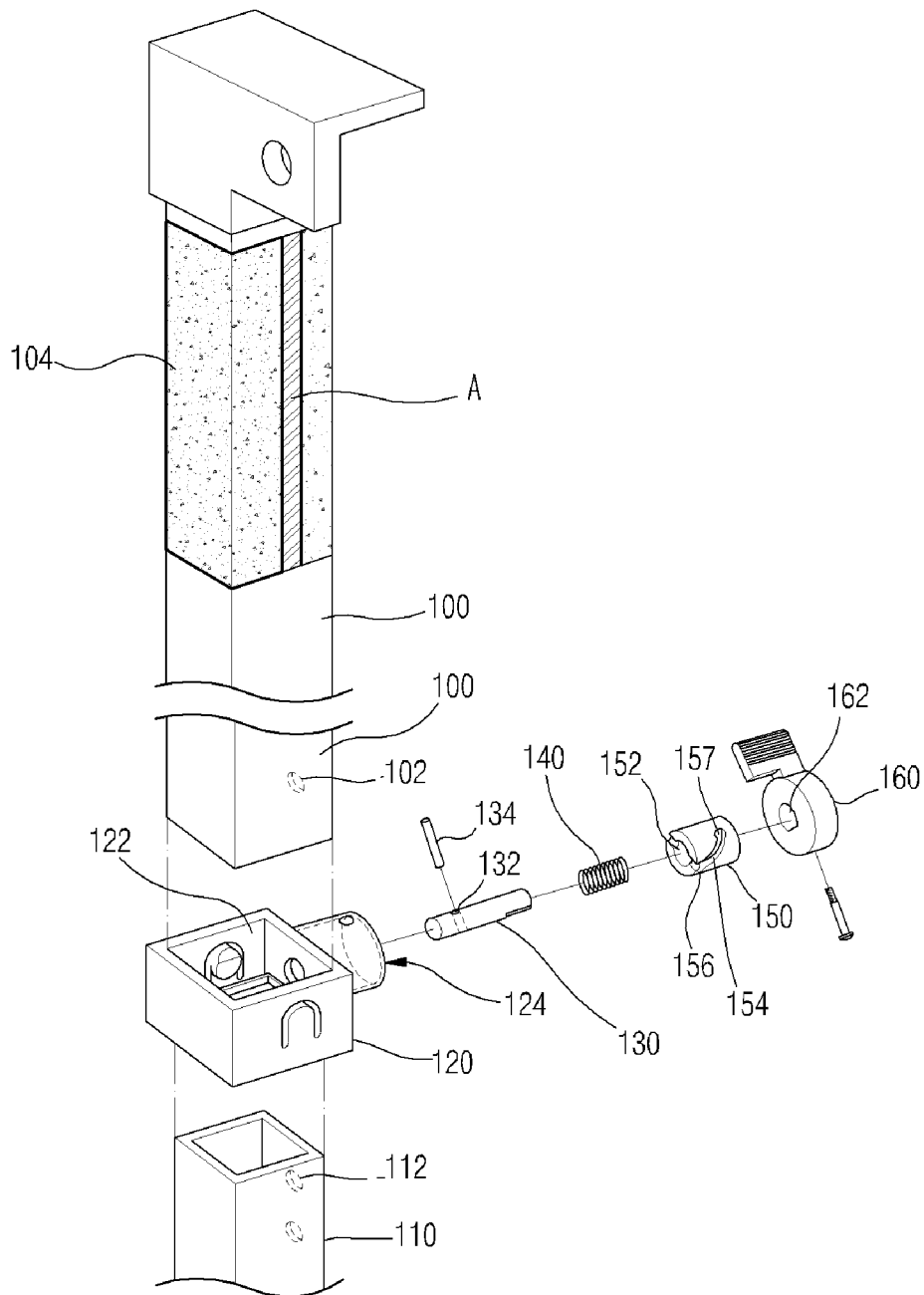
[Fig. 3]



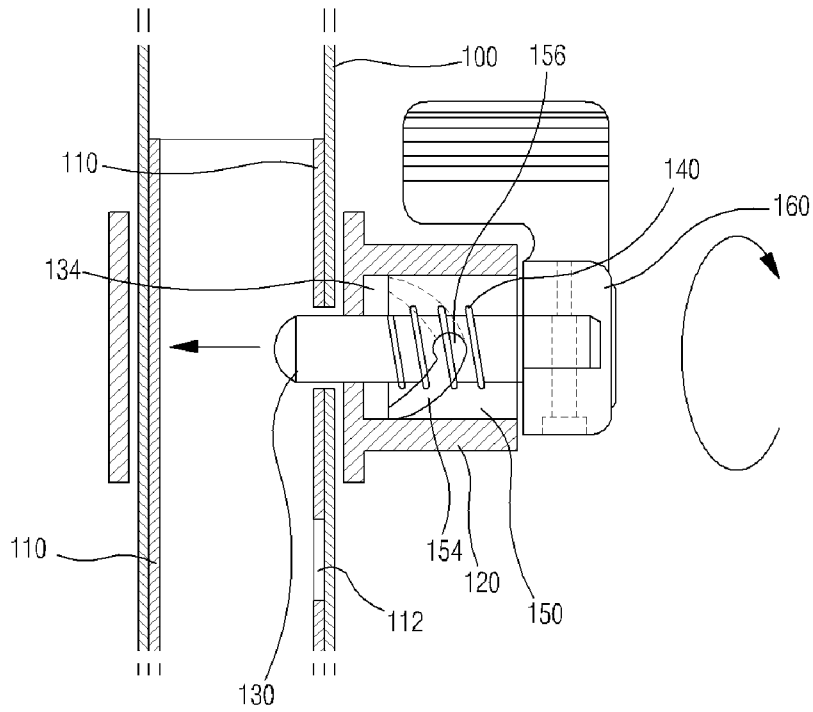
[Fig. 4]



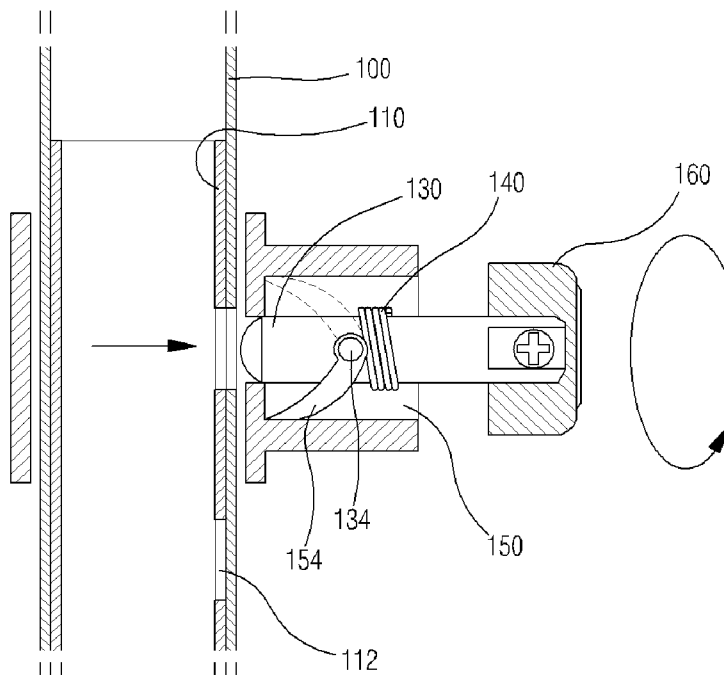
[Fig. 5]



[Fig. 6]





[Fig. 7]



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2006/005010

A. CLASSIFICATION OF SUBJECT MATTER		
<i>E04H 15/44(2006.01)i</i>		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) IPC 8 E04H 15/44		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean Patent and applications for inventions since 1975 Korean Utility Models and applications for Utility Models since 1975 Japanese Utility Models and applications for Utility Models since 1975		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) eKIPASS (KIPO internal) & "Keywords: folding tent, prop structure, prop fixing device, spring, fixing pin, and similar terms"		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 20-0275331 Y1 (SANG-JIN BAE) 11 May 2002 figures 2-3, and pages 2-3	1- 5
A	US 6575656 B2 (DONG TACK SUH) 10 June 2003 figures 1-4, and columns 3-4	1
A	JP 2002-227454 A (NOMURA MASAKO) 14 August 2002 figures 2-4, and pages 2-3	1
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
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Date of the actual completion of the international search 29 MARCH 2007 (29.03.2007)		Date of mailing of the international search report 29 MARCH 2007 (29.03.2007)
Name and mailing address of the ISA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140		Authorized officer CHEON Seung Hyun Telephone No. 82-42-481-5796 

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2006/005010

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Claims 3 and 4 (hereinafter referred to as "Group 1") depending on claim 1 or 2 define the subelements of the prop fixing device.

Claim 5 (hereinafter referred to as "Group 2") depending on claim 1 or 2 defines an additional feature, a Velcro attached to the prop using an ultrasonic fusion splicer.

The only common technical feature between Group 1 and Group 2 is the prop structure claimed in claim 1 or 2. However, the prop structure of claims 1 and 2 lacks an inventive step over the document KR 20-0275331 Y1.

Thus, there is no technical relationship left over the prior art among the claimed inventions, leaving the claims without a single general inventive concept. Hence, there is a lack of unity of invention "a posteriori."

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2006/005010

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
KR20-0275331Y1	11.05.2002	None	
US6575656B2	10.06.2003	CA2447952AA CA2447952A1 GB200327086A0 GB200424247A0 GB200506622A0 GB2392459A1 GB2392459B2 GB2406107A GB2406107B2 GB2406107A1 GB2410041A1 GB2410041B2 MXPA03010738A US20020179134A1 US2002179134A1 US2002179134AA US6575656BB W002095165A2 W02002095165A2 W02002095165A3	28.11.2002 28.11.2002 24.12.2003 01.12.2004 11.05.2005 03.03.2004 23.11.2005 23.03.2005 23.11.2005 23.03.2005 20.07.2005 23.11.2005 19.04.2005 05.12.2002 05.12.2002 05.12.2002 10.06.2003 28.11.2002 28.11.2002 03.07.2003
JP2002227454A	14.08.2002	JP2002227454A2 JP3697399B2	14.08.2002 21.09.2005