

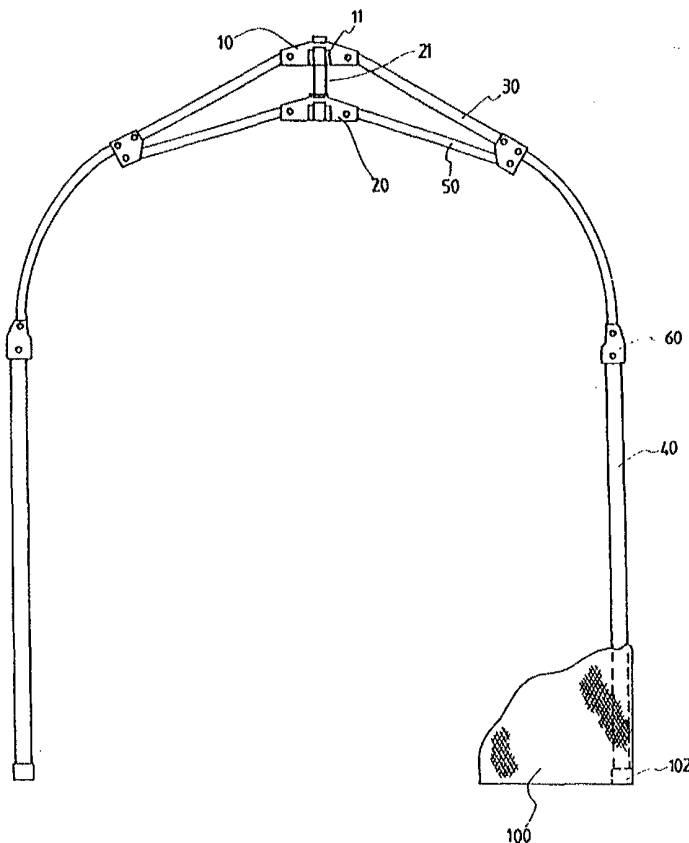


## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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| <b>(51) International Patent Classification <sup>7</sup> :</b><br><br><b>E04H 15/44</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>A1</b>                    | <b>(11) International Publication Number:</b> <b>WO 00/23676</b><br><br><b>(43) International Publication Date:</b> 27 April 2000 (27.04.00) |                            |    |              |                            |    |            |                            |    |              |                             |    |             |                          |    |             |                          |    |            |                          |    |             |                        |    |             |                        |    |             |                        |    |             |                        |    |              |                         |    |              |                              |    |                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>(21) International Application Number:</b> PCT/KR99/00624<br><b>(22) International Filing Date:</b> 19 October 1999 (19.10.99)<br><br><b>(30) Priority Data:</b> <table border="0"> <tr><td>1998/19996 U</td><td>19 October 1998 (19.10.98)</td><td>KR</td></tr> <tr><td>1998/19998 U</td><td>19 October 1998 (19.10.98)</td><td>KR</td></tr> <tr><td>1998/43721</td><td>19 October 1998 (19.10.98)</td><td>KR</td></tr> <tr><td>1998/28763 U</td><td>31 December 1998 (31.12.98)</td><td>KR</td></tr> <tr><td>1999/4500 U</td><td>20 March 1999 (20.03.99)</td><td>KR</td></tr> <tr><td>1999/4554 U</td><td>22 March 1999 (22.03.99)</td><td>KR</td></tr> <tr><td>1999/10359</td><td>25 March 1999 (25.03.99)</td><td>KR</td></tr> <tr><td>1999/8017 U</td><td>12 May 1999 (12.05.99)</td><td>KR</td></tr> <tr><td>1999/8057 U</td><td>12 May 1999 (12.05.99)</td><td>KR</td></tr> <tr><td>1999/8354 U</td><td>15 May 1999 (15.05.99)</td><td>KR</td></tr> <tr><td>1999/9422 U</td><td>31 May 1999 (31.05.99)</td><td>KR</td></tr> <tr><td>1999/10807 U</td><td>17 June 1999 (17.06.99)</td><td>KR</td></tr> <tr><td>1999/19738 U</td><td>14 September 1999 (14.09.99)</td><td>KR</td></tr> </table><br><b>(71)(72) Applicant and Inventor:</b> CHANG, Jae, Chul [KR/KR];<br>102-305 Koungnam Apt. #314 Kongchon-dong, Seo-ku,<br>Inchon-city 404-200 (KR).<br><br><b>(74) Agent:</b> HWANG, Byung, Do; Regent Officetel Building, Room<br>206, #547-8, Kuui-dong, Kwangjin-ku, Seoul 143-709<br>(KR). |                              | 1998/19996 U                                                                                                                                 | 19 October 1998 (19.10.98) | KR | 1998/19998 U | 19 October 1998 (19.10.98) | KR | 1998/43721 | 19 October 1998 (19.10.98) | KR | 1998/28763 U | 31 December 1998 (31.12.98) | KR | 1999/4500 U | 20 March 1999 (20.03.99) | KR | 1999/4554 U | 22 March 1999 (22.03.99) | KR | 1999/10359 | 25 March 1999 (25.03.99) | KR | 1999/8017 U | 12 May 1999 (12.05.99) | KR | 1999/8057 U | 12 May 1999 (12.05.99) | KR | 1999/8354 U | 15 May 1999 (15.05.99) | KR | 1999/9422 U | 31 May 1999 (31.05.99) | KR | 1999/10807 U | 17 June 1999 (17.06.99) | KR | 1999/19738 U | 14 September 1999 (14.09.99) | KR | <b>(81) Designated States:</b> AU, BR, CA, CN, IL, JP, LK, MX, NO,<br>NZ, SG, US, VN, European patent (AT, BE, CH, CY, DE,<br>DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).<br><br><b>Published</b><br><i>With international search report.</i><br><i>Before the expiration of the time limit for amending the<br/>         claims and to be republished in the event of the receipt of<br/>         amendments.</i> |
| 1998/19996 U                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 19 October 1998 (19.10.98)   | KR                                                                                                                                           |                            |    |              |                            |    |            |                            |    |              |                             |    |             |                          |    |             |                          |    |            |                          |    |             |                        |    |             |                        |    |             |                        |    |             |                        |    |              |                         |    |              |                              |    |                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| 1999/19738 U                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 14 September 1999 (14.09.99) | KR                                                                                                                                           |                            |    |              |                            |    |            |                            |    |              |                             |    |             |                          |    |             |                          |    |            |                          |    |             |                        |    |             |                        |    |             |                        |    |             |                        |    |              |                         |    |              |                              |    |                                                                                                                                                                                                                                                                                                                                                                                                                             |

**(54) Title:** A TENT WHICH IS PITCHED AND DISASSEMBLED BY ONE TOUCH**(57) Abstract**

The present invention relates to a tent which is pitched and disassembled like an umbrella by one touch forming a frame and a sheet of the tent as one and more particularly to a tent which is pitched and disassembled like an umbrella by one touch solving the problem of using the above tent. The tent-sheet is composed of the double-skin tent installed under the frame and the tent-sheet and the frame are formed as one for facility of being pitched and disassembled, which is not folded incidentally when the Flexible Pole and the Leg Pole which consist the frame are unfolded and which is that the Upper Hub Assembly and the Lower Hub Assembly connected to each other are assembled into an Upper Hub Assembly or a Lower Hub Assembly, so that the angle of the Upper Hub Assembly is varied to make various-shaped tents and for the Pole Foot, in order that the Leg Pole may not be separated from the tent-sheet, grooves which are formed a sill are installed in the Pole Foot and when the Leg Pole are inserted into the eyelets, a packing ring in the grooves of the Leg Pole is used not to be separated from the tent-sheet and clips are installed on the eyelets connected by a band in order that these eyelets may be detachable from the double tent-sheet.



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## **A tent which is pitched and disassembled by one touch**

### **Background of the invention**

### **Field of the Invention**

5

The present invention relates to a tent which is pitched and disassembled like an umbrella by one touch forming a frame and a tent-sheet as one and more particularly to a tent which is pitched and disassembled like an umbrella by one touch solving the problem of using the above tent.

10 In the prior invention, the frame of the tent which is pitched and disassembled like an umbrella by one touch, as shown in the Fig. 1 to Fig. 3, Flexible Poles (30) which are radially connected with an Upper Hub Assembly (10) and Leg Tubes (40) which are connected with the Flexible Poles (30) are linked by the Hinge Assembly (60) and in the center of the Flexible Pole (30), a Supporting Pole (50) which pushes out the  
15 Flexible Pole (30) by the up-and-down operation of the Lower Hub Assembly (20) is connected with the Flexible Pole (30) and the Lower Hub Assembly (20).

At this point, the Flexible Pole (30) which is connected with the Upper Hub Assembly (10) and the Supporting Pole (50) which is connected with the Lower Hub Assembly (20) are connected by the Hinge Pipes (31) as shown in the Fig. 2.

20 In the connected status as the above, Velcro (201) which is parted as male and female is installed inside of the tent-sheet (100) and fixed by coiling around the Flexible Pole (30) and the Leg Pole (40) which compose the frame, so that the tent-sheet (100) can be simply detachable with the Flexible Pole (30) and the Leg Pole (40).

Thus, in case of setting up the tent, a user should enter the door of the tent and.

push up the Lower Hub Assembly (20) with holding the Upper Hub Assembly (10), then the Supporting Pole (50) is to push out the Flexible Pole (30) and a Lock Pin (21) of the Lower Hub Assembly (20) is introduced into a Lock Pipe (11), so that the tent is to be set up as a dome-shaped.

5           The reason why the tent is set up as a dome-shaped as the above is that the Leg Poles (40) are not moved anymore and the Supporting Poles (50) fixed as a square push out the Flexible Poles (30), so that the Flexible Poles (30) are to be bent, because the Pole Foots are inserted into eyelets (102) formed on the lower corner part of the tent-sheet (100) which is spread out.

10           Moreover, the reason why the Lock Pipe (11) which is formed at the Upper Hub Assembly (10) and the Lock Pin (21) which is formed at the Lower Hub Assembly (20) are combined with each other, is for the facility of fixing the set-up tent and the facility of separation the Upper Hub Assembly (10) from the Lower Hub Assembly (20).

          However, it was difficult to form the double tent-sheet (200) because the tent-  
15   sheet (100) of the above umbrella-type tent is installed outside of the frame and even though the double tent-sheet (200) could be formed, the tent-sheets are close to each other, in spite of the perfect rainproof, there would be a limit of the rainproof wetting by waterdrops or dews.

          Furthermore, the tent should be pitched only as an arranged form because the  
20   Upper Hub Assembly (10) and the Lower Hub Assembly (20) are standardized as divided into four equal parts at right angles in order to be connected with the Flexible Pole (30) and the Supporting Pole (50), there was a problem to prepare another Upper Hub Assembly (10) or another Lower Hub Assembly (20) in order to install the ridge pole. There were other problems, such as the tent is to be collapsed with the poles being

folded, in case that the poles consisted of the Flexible Pole (30) and the Leg Pole (40) are formed as a two-step or a three-step, if the external force is reached between the Flexible Pole and the Leg Pole (40), such as the Leg Pole (40) can be separated easily from the eyelets (102) of the tent-sheet (100) while being packed or carried because the Pole Foots are merely inserted into the eyelets (102) on the lower corner part of the tent floor, so when a user tries to set up the tent, he has to check out if Pole Foots are inserted into the eyelets (102) of the tent-sheet (100) or not, such as the diaphragm of the Hinge Assembly (60) shaped as "H" which is connected with the Flexible Pole (30) and the Leg Pole (40) should be damaged by the power produced when the tent is set up, such as when the tent is packed or carried with the tent-sheet (100) folding together with the frame, the tent-sheet may be damaged by hitting of each frame with the tent-sheet gripped between the frames, such as the tent-sheet can be damaged by the top-part of the rivet which is protruded when the poles are connected by the rivet, and such as the tent is to be collapsed with the Upper Hub Assembly (10) and the Lower Hub Assembly (20) separated, when the external force is reached at the Upper Hub Assembly (10) after the Lock Pipe (11) of the Upper Hub Assembly (10) is combined with the Lock Pin (21) of the Lower Hub Assembly (20).

### Discussion of Related Art

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The present invention is invented in order to solve the problem of the above mentioned prior invention, namely the tent-sheet is composed of the double skin tent installed under the frame and the tent-sheet and the frame are formed as one for facility of being pitched and disassembled, which is not folded incidentally when the Flexible

Pole and the Leg Pole which consist the frame are unfolded and which is that the Upper Hub Assembly and the Lower Hub Assembly connected with each other are assembled into a Upper Hub Assembly or a Lower Hub Assembly, so that the angle of the Upper Hub Assembly is varied to make various-shaped tents and for the Pole Foot, in order  
5 that the Leg Pole may not be separated from the tent-sheet, grooves which are formed a sill are installed in the Pole Foot and when the Leg Pole are inserted into the eyelets, a packing ring in the grooves of the Leg Pole is used not to be separated from the tent-sheet and clips are installed on the eyelets connected by a band in order that these eyelets may be detachable from the double tent-sheet.

10

### **Summary of the Present Invention**

The present invention relates to a tent which is pitched and disassembled by the one touch forming a frame and a cover of the tent as one and more particularly to a tent  
15 which is pitched and disassembled by one touch which is possible to control the angle of each pole which composes the frame of the tent, of which the sheet of the tent-in-tent which is formed as one with the frame is easily detachable and folding and unfolding of the sheet of the tent-in-tent are possible even when the Ridge Pole is formed as one and which prevents the tent-sheet from be torn by rubbing caused by forming as the one unit  
20 with the frame, prevents the hinge assembly which connects each pole from being broken even by a small power and prevents the poles from folding by external force while the tent is pitched.

### Brief Description of the Attached Drawings

FIG. 1 is a outline of the frame of the prior tent

FIG. 2 is a top view showing the Flexible Pole connected to the Upper Hub

5 Assembly

FIG. 3 is a cross sectional view of the Upper Hub Assembly and the Lower Hub Assembly combined together

FIG. 4 is a perspective view of the upper part of the block which compose the Upper Hub Assembly and the Lower Hub Assembly

10 FIG. 5 is a perspective view of the lower part of the block which compose the Upper Hub Assembly and the Lower Hub Assembly

FIG. 6 is a perspective view of the Upper Hub Assembly and the Lower Hub Assembly of which the two blocks are combined

15 FIG. 7 is a perspective view of the Upper Hub Assembly and the Lower Hub Assembly which is installed to form a ridge pole

FIG. 8 is a perspective view showing the combination of a Lock Assembly and a Lock Pin with the Upper Hub Assembly and the Lower Hub Assembly

FIG. 8A is a perspective view of the combination of the Lock Assembly and the Lock Pin by the opening part and the elastic protrusion

20 FIG. 8B is a perspective view of the combination of a Lock Assembly and a Lock Pin in other way

FIG. 8C is a cross sectional view of fixing the Lock Pin as the condition of the operation hoop

FIG. 9 is a perspective view of block combined with the Flexible Pole

FIG. 10 is a perspective view of showing the combination of the Lower Hub Assembly and the Supporting Pole

FIG. 10A is a cross sectional view of the combination of the Lower Hub Assembly and the Supporting Pole

5        FIG. 11 is a perspective view of the tent-sheet which is installed outside of the frame

FIG. 12 is a perspective view of the frame gripped by a sleeve which is formed on the tent-sheet

10       FIG. 13 is a cross sectional view of the Pole Foot inserted into the eyelet of the tent-sheet

FIG. 13A is a perspective view of the Pole Foot inserted into the eyelet of the tent-sheet

FIG. 14 is a perspective view of the eyelet installed a clip using a connection band

15       FIG. 15 is a perspective view of embodiment of which the double tent-sheet is installed

FIG. 16 is a perspective view of a protection cover formed for the protection of the tent-sheet

20       FIG. 17 is a perspective view of the embodiment which is the protection cover formed with the frame

FIG. 17A is a perspective view of the method preventing the conflict of the frames

FIG. 18 is a perspective view of the Ridge Pole formed on the Upper Hub Assembly

FIG. 19 is a perspective view of the Hinge Assembly shaped as "H"

FIG. 20 is a cross sectional view of the protection pipe which prevents the Flexible Pole and the Leg Pole from being bent

FIG. 21 is a perspective view of the protection pipe which prevents the Flexible Pole and the Leg Pole from being bent

FIG. 22 is a perspective view of the other embodiment of the protection pipe which prevents the Flexible Pole and the Leg Pole from being bent

FIG. 23 is a perspective view of the other embodiment of the protection pipe which prevents the Flexible Pole and the Leg Pole from being bent using the other connection piece

FIG. 24 is a perspective view of another embodiment of the protection pipe which prevents the Flexible Pole and the Leg Pole from being bent

FIG. 25 is a perspective view of the Flexible Pole made of the aluminum or others

FIG. 26 is a perspective view of the Flexible Pole and the Leg Pole connected by the connection body

FIG. 26A is a perspective view of the Flexible Pole connected by the connection body

FIG. 26B is a processing view of forming a round-top of the screw

FIG. 27 is a perspective view of the flat Flexible Pole which is formed the supporting protrusions

FIG. 28 is a perspective view of the embodiment of the tent which is set up with one pole using the prevention apparatus to prevent the tent from being disassembled

FIG. 29 is a perspective view of one perfect pole

FIG. 30 is a perspective view of the gripping band of the Upper Hub Assembly and the Lower Hub Assembly

### 5 Detailed Description of Preferred Embodiment

The most desirable embodiment of this invention will be described in detail according to the attached drawings on the following and the same reference number will be used to mean the same drawing elements regardless of different drawings.

10 As shown in the Fig. 4, two bend protrusion (2) are formed on the center of the block of the Upper Hub Assembly (10) and the Lower Hub Assembly (20) and two insertions (1, 1a) are formed on the right & left sides. As shown in the Fig. 5, a hollow (3) is formed inside of the two bend protrusion (2) and a screw perforation (4) is formed in order to combine the Lock Pipe (11) with the Lock Pin (21) using a screw (12, 22),  
15 and as shown in the Fig. 6, the two blocks which is formed an apex (6) of the inclined planes on the right and left sides around the screw perforation (4) are combined with the hollows (3) of the two blocks which are adhered to each other, so that each block (A, A') can be moved to right and left while an apex (6) of one block (A) is attached to the bend protrusion (2) of the other (A').

20 Moreover, for the Upper Hub Assembly (10) and the Lower Hub Assembly (20) which is formed with two blocks (A, A') like the above, as shown in the Fig. 7, one more block (A') can be added on the upper side of the Upper Hub Assembly (10) or the lower side and on the lower side of the Lower Hub Assembly (20) in order to facilitate installing the Ridge Pole(90) as shown in the Fig. 18.

Furthermore, as shown in the Fig. 8, a screw (12) of the Lock Pipe (11) and a screw (22) of the Lock Pin (21) are tighten and fixed into the screw perforation (4) of the Upper Hub Assembly (10) and the Lower Hub Assembly (20) which are formed with two blocks (A) like the above. At this point, as shown in the Fig. 9, the Flexible Pole (30) which is inserted into the Hinge Pipe (31) formed a inserted flat (32) which is inserted into the insertions (1, 1a) of the Upper Hub Assembly (10) is combined by the connection pin (33) and the upper part of the inserted flat (32) is formed as a round-shaped.

On the other hand, as shown in the Fig. 10, the insertions (1, 1a) of the Lower Hub Assembly (20) is combined with the Supporting Pole (50) which is inserted into the inserted flat (53) which is formed at the forward part of the Hinge Pipe (51) by the connection pin (55), as shown in the Fig. 10A, the upper part of the inserted flat (53) formed as a half-round-shaped, so that the inserted flat (53) can be moved to just one direction. At this point, the other side of the Supporting Pole (50) is connected to the center of the Flexible Pole (30) in order to be folded.

As shown in the Fig. 11, the Flexible Pole (30) is connected to another Flexible Pole (30a) and the Leg Pole (40) using the each Hinge Assembly (60).

As shown in the Fig. 19, the strengthening rib (63) is formed inside of the diaphragm (62) which consists the insertions (61), so that inserted flat (32, 53) can be inserted into the in order to prevent the Hinge Assembly (60) formed as "H" from being damaged by the bending power of the Flexible Pole (30) and the supporting power of the Leg Pole (40) even when the Hinge Assembly (60) should sustain the heavy load.

For the frame of the tent consisted as the above, as shown in the Fig. 11, hanging loops (103) which are formed on the tent-sheet are formed on the Flexible Pole

(30, 30a) or Leg Pole (40) so that the tent-sheet can be installed under the frame.

As shown in the Fig. 12, sleeves (104) can be formed on the tent-sheet (100) instead of the hanger (103).

Furthermore, as shown in the Fig. 13, Fig. 13A, a packing ring (42) is formed  
5 in the round-shaped groove (41) formed on the Pole Foot which is inserted into the  
eyelets (102) formed on the lower corner part of the tent-sheet (100), which prevents the  
Pole Foot from being detachable from the tent of eyelets and as shown in the Fig. 14, a  
female clip (44) is installed on the tent-sheet (100) which is formed eyelets (102) using  
a connection band (43) to be connected with the eyelets, so that as shown in the Fig. 15,  
10 the double tent-sheet (200) of which a male clip (202) is formed can be detachable.

At this point, bands (201) using Velcro are installed inside of the out-cover of  
the double tent-sheet (200) and fixed by coiling around the frame.

As described above, because the frame and the tent-sheet (100) are uni-  
constructed, in case that the external force occurs while the tent is packed or carried, in  
15 order to prevent the tent-sheet (100) from being damaged by rubbing or hitting between  
a pole and a pole or between the folding parts of the poles, the protection cover (70) is  
installed using the fixing band (71) which is formed a Velcro (72) or for itself on the  
contact part of the frame and the tent-sheet or on the folding parts of the pole as shown  
in the Fig. 16 and 17.

20 As the above, as shown in the Fig. 17A, in order to prevent the conflict of the  
frames, a ring (73) which has a regular thickness prevents the conflict of the frames, so  
that the tent-sheet (100) is prevented from being damaged.

Moreover, in order to prevent the connection part of the Flexible Pole (30) and Leg Pole (40) connected by the Hinge Assembly (60) from being folded, when the external force is reached at the tent which is set up by the balance of the bending power of the Flexible Pole (30) and the supporting power of the Leg Pole (40), as shown in the Fig. 20 and 21, the Protection Pipe (80) which is formed the hooked sill (81) is installed to be hooked at the supporting sill (64) of the Hinge Assembly (60) inserted into the Hinge Pipe (31) of the Flexible Pole (30), so that when the tent is set up, the Protection Pipe (80) is slipped down to the Leg Pole (40) and covers the Hinge Assembly (60) between the Flexible Pole (30) and the Leg Pole (40) in order to prevent the Flexible Pole (30) and the Leg Pole (40) from being folded the Protection Pipe (80).

For another way of prevention the poles from being folded, as shown in the Fig. 22, the Hinge Pipes (31, 31a) between the Flexible Pole (30) and Leg Pole (40) are connected to each other by the connection pieces (35, 35a) which is formed on the lower part of the each Hinge Pipe (31, 31a) using the Hinge Pin (36) and the hole (38) is formed inside of the Hinge Pipes (31a) of which the Leg Pole (40) is inserted into in order to install a spring (37). The Hinge Pipes (31) which is inserted into the Flexible Pole (30) is inserted into the operation hole (39) of the Flexible Pole (30) and fixed with the Hinge Pin (36a), so that Flexible Pole (30) may be put in and out, then while the Flexible Pole (30) is moved as much as the space of the operation hole (39) when a user tries to unfold the tent, the Flexible Pole (30) is protruded beyond the forward part of the Hinge Pipe (31) and inserted into the hole (38) of the Leg Pole (40) with pressing the spring (37). On the other hand, when the user tries to fold the tent, the tent is to be folded automatically by that the Flexible Pole (30) inserted into the hole (38) of the Leg Pole (40) with pressing the spring (37) is pushed out by the power of reflex.

At this point, the spring (37) inserted into the hole (38) is fixed by the fixing pin (36a) and one of the connection pieces (35, 35a) which is formed on the lower part of the each Hinge Pipe (31, 31a) protrudes to the forward and the other protrudes to the backward.

5 As shown in the Fig. 23, using the other connection piece (35) is also possible.

For another embodiment of the protection pipe which prevents the Flexible Pole and the Leg Pole from being folded, as shown in the Fig. 24, the connection protrusion (31-2) formed a sill toward inside (31-1) on the forward part of the Hinge Pipe (31) which is connected to the Flexible Pole (30) and the hole (31-4) which is  
10 formed a sill toward outside (31-3) on the forward part of the Hinge Pipe (31a) which is connected to the Leg Pole (40), so that when the operation hole (39) perforated on the side of the connection protrusion (31-2) and the diaphragm (31-5) of the hole (31-4) are connected by the Hinge Pin (36), the tent is patched. Then while the Leg Pole (40) is set up on the ground and the Flexible Pole (30) is bent, the Flexible Pole (30) and the Leg  
15 Pole (40) are combined with each other by the operation hole (39) of the Hinge Pipe (31) which is connected to Flexible Pole (30) the Hinge Pipe (31), which is that the sill toward inside (31-1) of the Flexible Pole (30) fits into the sill toward outside (31-3) which is formed in the hole (31-4) of the Leg Pole (40) in order not to be folded toward a certain direction, so that the tent is not to be disassembled when it is set up.

20 The Flexible Pole (30) and the Leg Pole (40) consisted as the above are made as tube-shaped, but if the Flexible Pole (30) is made flat as shown in the Fig. 25, the Leg Pole (40) is to be made as tube-shaped as shown in the Fig. 26, because the Flexible Pole (30) needs the power of bending, the Supporting Pole (50) needs the power of the Supporting Pole (50), the Leg Pole (40) is made tube-shaped. At this point, as shown in

the Fig. 27, two lines of the strengthening protrusions (302) are formed on the Flexible Pole (30) which is made flat as shown in the Fig. 26A, in order to strengthen the power of bending as well and in case that the Flexible Pole (30) is connected to the connection body (300), after the combination by the rivet, the part which is protruded is ground to a round top as shown in the Fig. 26B, so that it does not drop out with keeping folding and protects the tent-sheet from damaging.

At this point, the combination by the rivet is located between the two lines of the strengthening protrusions (302) in order to protect the tent-sheet.

Moreover, the Leg Pole (40) or the Supporting Pole (50) is connected by the pressure, because the Leg Pole (40) or the Supporting Pole (50) does not need any extra power, and when they are connected by the pressure as shown in the Fig. 26, in order not to be separated incidentally the packing ring (304) is formed in the round-shaped grooves (304) which is formed on the connection body (300) connected to the Leg Pole (40), the Leg Pole (40) and the connection body (300) are not to be separated incidentally and one or two packing ring (304) is optioned according to the uses and the when the damage of the Leg Pole or something occurs, the exchange of the damaged pole is also possible easily.

At this point, a sill is formed as thick as the Flexible Poles (30) in the connection body (300) which combines the Flexible Poles (30) which is flat, so the Flexible Pole (30) is located on the sill (303).

As shown in the Fig. 18, for the Ridge Pole(90) which is used for making more space under the tent-fly, a screw (12) of Lock Pipe (11) which is inserted into the screw perforation (4) of the Upper Hub Assembly (10) is extended long and another block (A'') is combined with the screw (12a) protruded after the combination, so that the

Ridge Pole(90) is connected with the insertions (1, 1a) of the above block (A'') and the Ridge Pole(90) is connected with the Supporting Pole (50a) as the same way as combining the Supporting Pole (50) with the lower part of the Lower Hub Assembly (20).

5           As shown in the Fig. 8, when the Upper Hub Assembly (10) and the Lower Hub Assembly (20) are combined by the Lock Pipe (11) and the Lock Pin (21), in order to prevent their separation due to the power caused by the conflict at the upper part of the Upper Hub Assembly (10). As shown in the Fig. 8A, the elastic protrusion (23) is formed on the Lock Pin (21) and the opening parts (13) of which the elastic protrusion  
10   (23) may put in and out are formed on the right and left side of the Lock Pipe (11), so that they are not separated with each other. For the other composition, as shown in the Fig. 8B, the round-shaped groove (24) is formed on the forward part of the Lock Pin (21) which is inserted into the Lock Pipe (11) and a spring (14) is formed on the side of the Lock Pipe (11), and the operation hoop (16) which is formed a connection screw  
15   (15) is located on the protruded hoop (17, 17a) and the screw perforation (18) is formed on the Lock Pipe (11) which is formed the operation hoop (16), so the connection screw (15) is always protruded toward the inside of the Lock Pipe (11) by the spring (14), then as shown in the Fig. 8C, if the operation hoop (16) is pressed on the one side, the connection screw (15) is moved to the backward so Lock Pin (21) is inserted into the  
20   Lock Pipe (11). After the combination, the connection screw (15) is returned by the power of reflex and fitted into the round-shaped groove (24) in order to prevent the Upper Hub Assembly (10) and the Lower Hub Assembly (20) from being separated.

For the facility of the combination with the Lock Pin (21), the forward part of

the Lock Pipe (11) is formed inclined (19) inside and the forward part of the Lock Pin (21) is protruded round (25), so the Lock Pin (21) and the Lock Pipe (11) can be combined automatically with pushing out the connection screw (15).

At this point, the connection screw (15) is tightened into the operation hoop (16), so only the top point is protruded and this connection screw (15) can be installed by welding.

Moreover, the protruded hoop (17a) which is formed on the lower part of the operation hoop (16) should be detachable in order to prevent the operation hoop (16) from being disassembled when it is combined with the Lock Pipe (11). And the outside diameter of the protruded hoop (17, 17a) has to be formed larger than the inside diameter of the operation hoop (16) and the inside diameter of the operation hoop (16) is to be larger than the outside diameter of the Lock Pipe (11), so that they can be moved to the right and the left side.

Furthermore, in order to guide the exact direction of the operation hoop (16), a spot (16a) to be pressed is formed on the outside of a groove (14a) which is included the spring (14) for the exact operation and a groove (14b) is formed on the Lock Pipe (11) in order that the spring (14) which is installed inside of the operation hoop (16) may be assembled easily.

As shown in the Fig. 30, for the other method of the prevention the Upper Hub Assembly (10) and the Lower Hub Assembly (20) from being separated, the gripping band (7) is installed on the one Supporting Pole (50a) and on another Supporting Pole (50b) using the hanger(8) over the Upper Hub Assembly (10).

As shown in the Fig. 23 and 24, using the protection pipe (B) of the Flexible Pole (30) and the Leg Pole (40), as shown in the Fig. 28, it can be applied to setting up the tent with one pole line, and as shown in the Fig. 29, the protection pipe (B) is formed on the center of the pole and between the Flexible Pole (30a) and the Leg Pole  
5 (40).

As described above, the present invention is possible to control the angle of each pole to make various-shaped tents and even when the poles sustain the heavy weight, the Hinge Assembly and each corner of the components is not to be damaged and the tent is not to be collapsed.

10 Moreover, the present invention is to prevent the tent-sheet from being torn and damaged and prevent the separation the tent-sheet from the Leg Pole (40) by the strong combination.

The Ridge Pole(90) can be installed on the Upper Hub Assembly (10) and the Lower Hub Assembly (20), so that the it is possible to have the ample space. The  
15 double tent-sheet is Folded and unfolded by the male and female clips and the tent-sheet can be prevented from being torn and damaged caused by forming together with the frame.

**What is claimed is:**

1. A tent which is pitched and disassembled by one touch whose conventional one is pitched and disassembled by one touch for the up-and-down operation of the  
5 Upper and the Lower Hub Assembly, wherein comprising:

a Upper Hub assembly (10) and the Lower Hub Assembly (20) for which is two insertions (1, 1a) are formed on the right & left sides.

a hollow (3) is formed inside of the two bend protrusion (2)

a screw perforation (4) is formed in order to combine the Lock Pipe (11) with  
10 the Lock Pin (21) using a screw,

two blocks which is formed an apex (6) of the inclines on the right and left sides around the screw perforation (4) are combined, so that the Upper Hub Assembly (10) and the Lower Hub Assembly (20) can be moved to right and left with the hollows (3) of the two blocks are adhered to each other while an apex (6) of one is attached to  
15 the bend protrusion (2) of the other.

2. The tent which is pitched and disassembled by one touch as claimed in claim 1, wherein, another block can be added on the upper side or the lower side of the Upper Hub Assembly (10) and the Lower Hub Assembly (20) which are consisted of two  
20 blocks in order to facilitate installing the ridge pole.

3. The tent which is pitched and disassembled by one touch as claimed in claim 2, wherein, in order to fix another block added, a screw (12a) is protruded through the Lock Pipe (11) and the Lock Pin (21) inserted into the screw perforation of the Upper

### Hub Assembly (10) and the Lower Hub Assembly (20)

4. The tent which is pitched and disassembled by one touch whose conventional one is that the Supporting Pole (50) which is connected with the Flexible Pole (30) connected with the Upper Hub Assembly (10) and the Lower Hub Assembly (20) is connected by the upper part of inserted flat (53) which is inserted into the insertions (1, 1a) of the Lower Hub Assembly (20) using the connection pin (55), wherein comprising,

the lower part of the inserted flat (53) formed flat and the upper part of inserted flat (53) formed as a half-round-shaped (54) so that the inserted flat (53) can be moved only to a certain direction.

5. The tent which is pitched and disassembled by one touch, wherein a packing ring (42) is formed in the round-shaped grooves (41) formed on the Pole Foot which is inserted into the eyelets (102) formed on the lower corner part (45) of the tent-sheet (100), which prevents the Leg Pole (40) from being detachable from the tent of eyelets.

6. The tent which is pitched and disassembled by one touch, wherein, a female clip (44) which is installed on the tent-sheet (100) formed eyelets (102) connected with a connection band (43) is formed to be detachable from a male clip (202) connected by the connection band (201) of the double tent-sheet (200), so that the tent can be folded or unfolded easily when the double tent-sheet (200) is formed.

7. The tent which is pitched and disassembled by one touch as claimed in claim 6, wherein, a linked band (201) and a male clip (202) are installed inside of the rainfly (100) and on fixed the frame.

5

8. The tent which is pitched and disassembled by one touch, wherein, the protection cover (70) using the fixing band (71) which is installed on the folding parts of the poles prevents the tent-sheet from being damaged .

10

9. The tent which is pitched and disassembled by one touch as claimed in claim 8, wherein, a ring (73) is installed on the frame in order to prevent the conflict of the frames, so that the tent-sheet (100) is prevented from being damaged.

15

10. The tent which is pitched and disassembled by one touch wherein, for the Hinge Assembly shaped as "H" which is used for the connection the Flexible Pole (30), the Leg Pole (40), the strengthening rib (63) which is formed inside of the diaphragm (62) consisting the insertions (61) can prevent the damage when the heavy load is reached by the bending power.

20

11. The tent which is pitched and disassembled by one touch as claimed in claim 10, wherein, the supporting sill (64) is formed outside of the diaphragm (62)

12. The tent which is pitched and disassembled by one touch wherein, in case of setting up the Flexible Pole (30) which is connected to the Leg Pole (40), the Protection Pipe (80) which is formed the hooked sill (81) to be hooked at the supporting sill (64) of the Hinge Assembly (60) inserted into the Hinge Pipe (31) of the Flexible Pole (30) prevents the poles from being folded.

13. The tent which is pitched and disassembled by one touch wherein, the Hinge Pipes (31, 31a) of the Flexible Pole (30) and Leg Pole (40) are connected to each other by the connection pieces (35, 35a) which is formed on the lower part of the each Hinge Pipe (31, 31a) using the Hinge Pin (36) and the hole (38) is formed inside of the Hinge Pipes (31a) of which the Leg Pole (40) is inserted into in order to install a spring (37) and by the way of that the Hinge Pipes (31) which is inserted into the Flexible Pole (30) is inserted into the operation hole (39) of the Flexible Pole (30) and fixed with the Hinge Pin (36a) in order that Flexible Pole (30) may be put in and out, then the Flexible Pole (30) is moved as the space of the operation hole (39) and prevents the poles from being folded by undesigned situation.

14. The tent which is pitched and disassembled by one touch as claimed in claim 13, wherein, the spring (37) which is inserted into the hole (38) is fixed by the Hinge Pin (36a) not to bolt.

15. The tent which is pitched and disassembled by one touch as claimed in claim 13, wherein, one of the connection pieces (35, 35a) which is formed on the lower part of the each Hinge Pipe (31, 31a) is protruded forward and the other is protruded

backward.

16. The tent which is pitched and disassembled by one touch as claimed in claim 13, wherein, using the other connection piece (35) is also possible.

5           17. The tent which is pitched and disassembled by one touch wherein, the connection protrusion (31-2) formed a sill toward inside (31-1) on the forward part of the Hinge Pipe (31) which is connected to the Flexible Pole (30) and the hole (31-4) which is formed a sill toward outside (31-3) on the forward part of the Hinge Pipe (31a) which is connected to the Leg Pole (40), so that when the operation hole (39) perforated  
10   on the side of the connection protrusion (31-2) and the diaphragm (31-5) of the hole (31-4) are connected by the Hinge Pin (36), the tent is set up.

18. The tent which is pitched and disassembled by one touch wherein, the Flexible Pole (30) connected to the Upper Hub Assembly (10) is made flat and the Leg  
15   Pole (40) is made tube-shaped, in order to strengthen the power of bending and supporting.

19. The tent which is pitched and disassembled by one touch as claimed in claim 18, wherein, two lines of the strengthening protrusions (302) are formed on the  
20   Flexible Pole (30) in order to strengthen the power of bending.

20. The tent which is pitched and disassembled by one touch as claimed in claim 18, and 19, wherein, after the Flexible Pole (30) and the Leg Pole (40) is connected to the connection body (300) by the rivet, the part which is protruded is

ground to a round top.

21. The tent which is pitched and disassembled by one touch as claimed in claim 18, wherein, for the Leg Pole (40) or the Supporting Pole (50) which does not  
5 need any extra power, the packing ring (305) is installed at the round-shaped grooves (304) is formed on the connection body (300) which is connected to the Leg Pole (40), so that the Leg Pole (40) and the connection body (300) are combined easily by the packing ring (305).

10 22. The tent which is pitched and disassembled by one touch as claimed in claim 18, wherein, the Flexible Pole (30) which is made flat is as thick as the sill (303) of the connection body (300) in order to make the even level with the connection body (300).

15 23. The tent which is pitched and disassembled by one touch, wherein, after a screw (12) of Lock Pipe (11) which is inserted into the screw perforation (4) of the Upper Hub Assembly (10) is extended long to be protruded, another block (A') is combined with the protruded screw (12a), so that the Ridge Pole(90) is installed as one with the frame being connected with the insertions (1, 1a) of the above block (A').

20

24. The tent which is pitched and disassembled by one touch, wherein, when the Upper Hub Assembly (10) is combined with the Lock Pipe (11) and the Lock Pin (21), in order to prevent their separation by the impulse from the above, the elastic protrusion (23) is formed on the Lock Pin (21) and the opening parts (13) of which the

elastic protrusion (23) may be put in and out are formed on the right and left side of the Lock Pipe (11), so that they are not separated with each other.

25. The tent which is pitched and disassembled by one touch, wherein, when  
5 the Upper Hub Assembly (10) is combined with the Lock Pipe (11) and the Lock Pin (21), in order to prevent their separation by the impulse from the above, the operation hoop (16) which has the elasticity by the spring (14) is formed outside of the Lock Pipe (11), so the connection protrusion (15) of the operation hoop (16) is inserted into the screw perforation and fitted into the round-shaped groove (24) of the Lock Pin (21).

10

26. The tent which is pitched and disassembled by one touch as claimed in claim 25, wherein, the forward part of the Lock Pin (21) is protruded round (25).

27. The tent which is pitched and disassembled by one touch as claimed in  
15 claim 25, wherein, the operation hoop (16) is located on the protruded hoop (17, 17a).

28. The tent which is pitched and disassembled by one touch as claimed in claim 25, wherein, the connection protrusion (15) of the operation hoop (16) is tightened like a screw.

20

29. The tent which is pitched and disassembled by one touch as claimed in claim 25, wherein, an incline plane (19) is formed inside of the forward part of the Lock Pin (21) for the facility of the combination with the Lock Pin (21).

5           30. The tent which is pitched and disassembled by one touch as claimed in claim 25, wherein, the protruded hoop (17, 17a) which is formed on the lower part of the operation hoop (16) should be detachable

31. The tent which is pitched and disassembled by one touch as claimed in claim 25, wherein, the outside diameter of the protruded hoop (17, 17a) has to be  
10   formed larger than the inside diameter of the operation hoop (16).

32. The tent which is pitched and disassembled by one touch as claimed in claim 25, wherein, the inside diameter of the operation hoop (16) is to be larger than the outside diameter of the Lock Pipe (11).

15

33. The tent which is pitched and disassembled by one touch as claimed in claim 25, wherein, a spot (16a) to be pressed is formed in order to guide the exact direction of the operation hoop (16).

20           34. The tent which is pitched and disassembled by one touch as claimed in

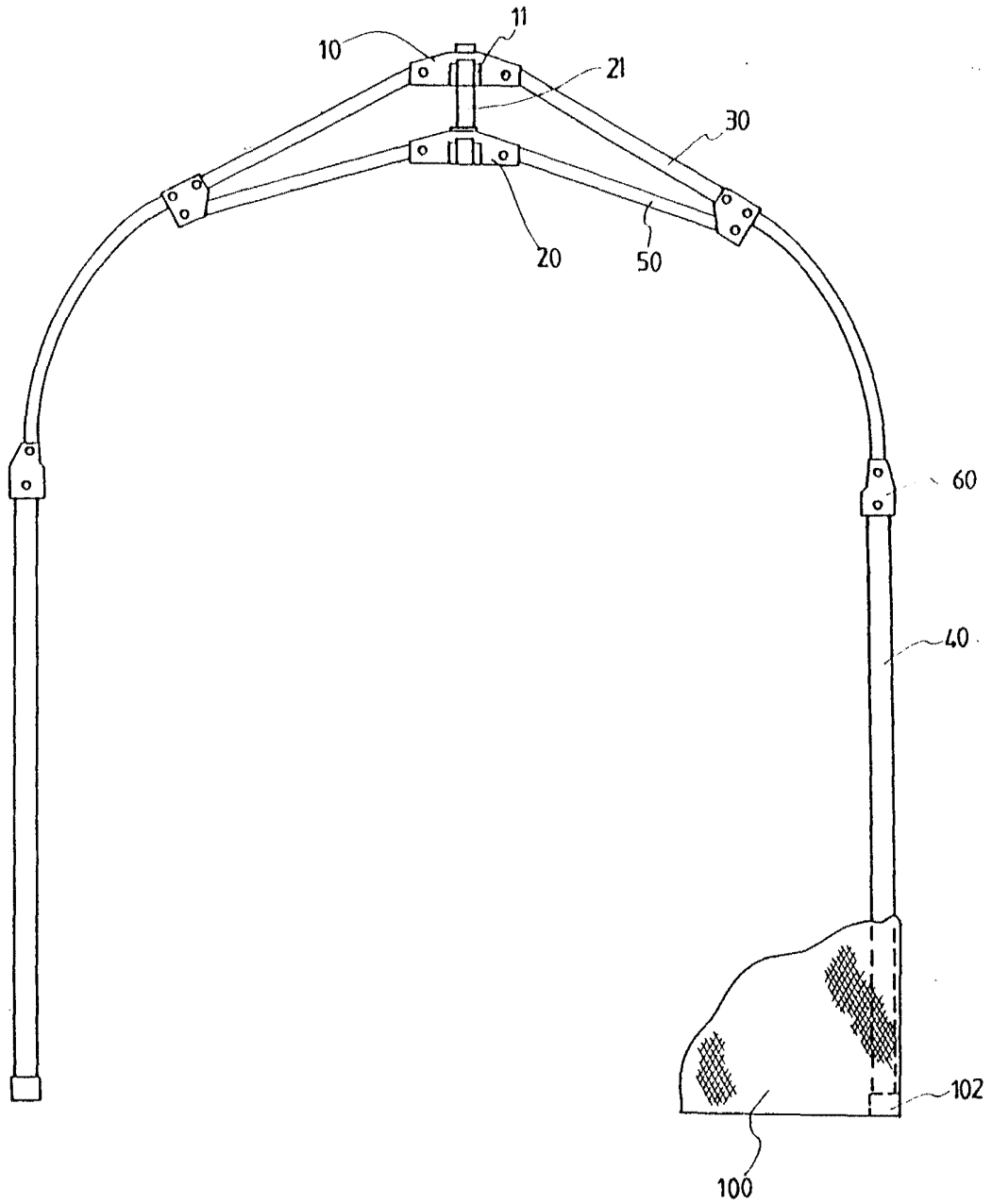
claim 25, wherein, a groove (14a) is installed inside of the operation hoop (16) in order that the spring (14) which is used for the operation of the operation hoop (16) may be fixed.

5           35. The tent which is pitched and disassembled by one touch, wherein, the gripping band (7) is installed on the one Supporting Pole (50a) and fixed on another Supporting Pole (50b) using the hanger (8) over the Upper Hub Assembly (10).

          36. The tent which is pitched and disassembled by one touch, wherein, the  
10   protection pipe (B) is formed on the center of the pole and between the Flexible Pole (30a) and the Leg Pole (40) in order to be applied to setting up the tent with one pole using the protection pipe (B) of the Flexible Pole (30) and the Leg Pole (40).

1/23

Fig. 1



2/23  
Fig. 2

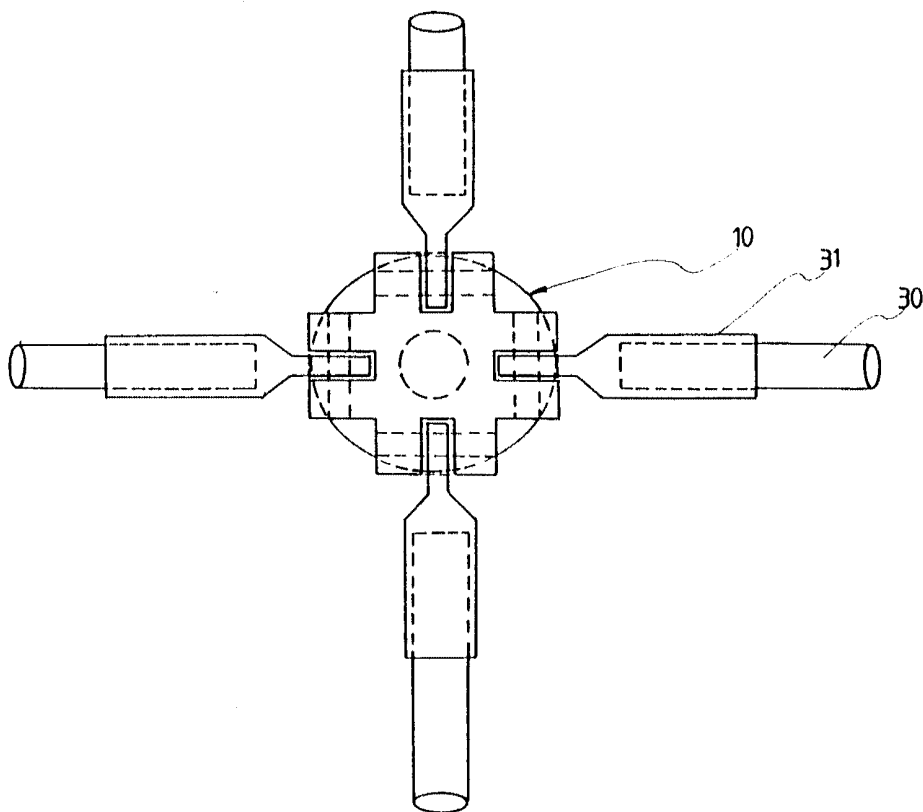
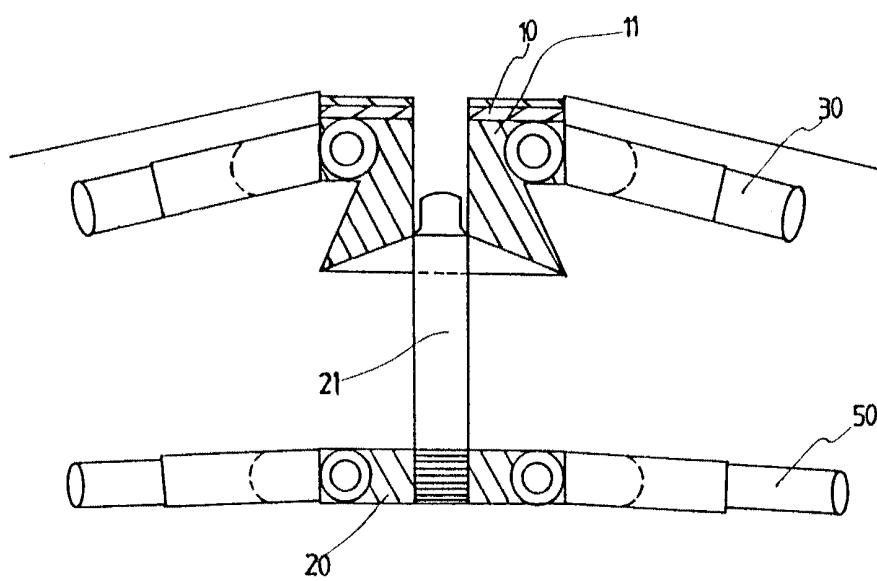


Fig. 3



3/23

Fig. 4

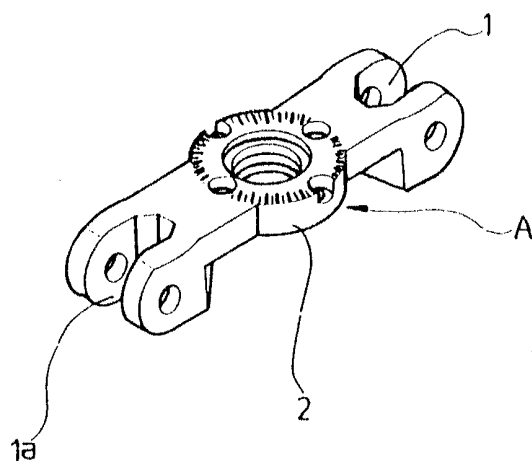
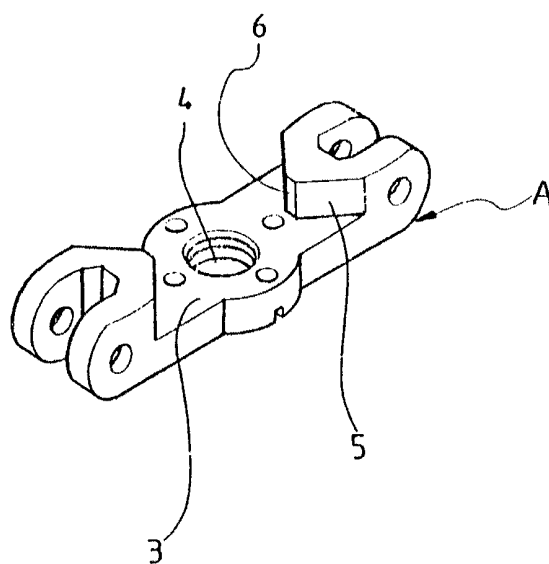


Fig. 5



4/23

Fig. 6

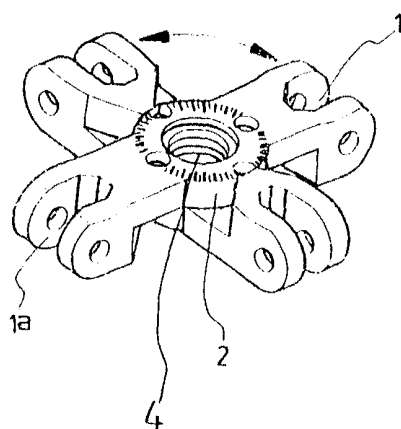
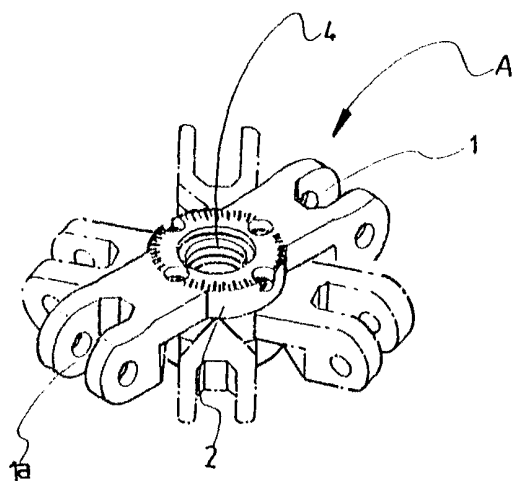
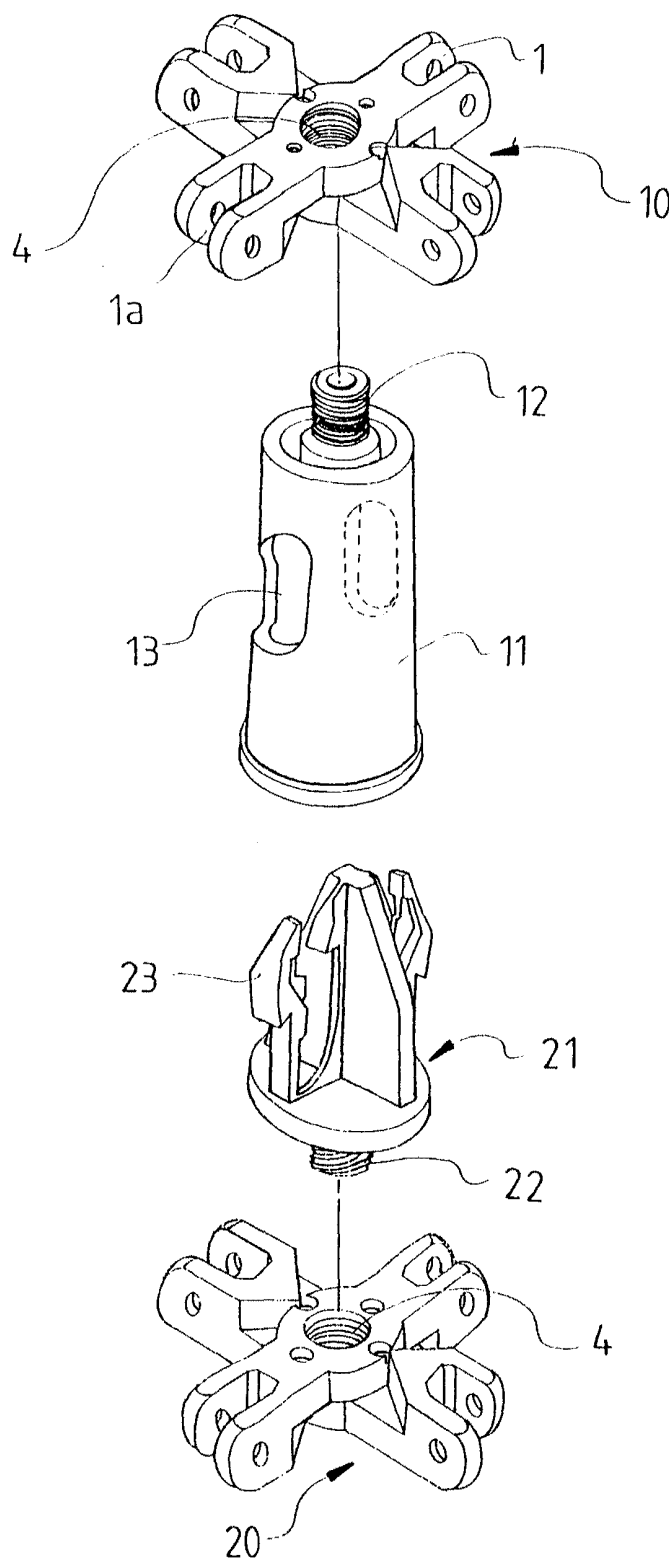


Fig. 7

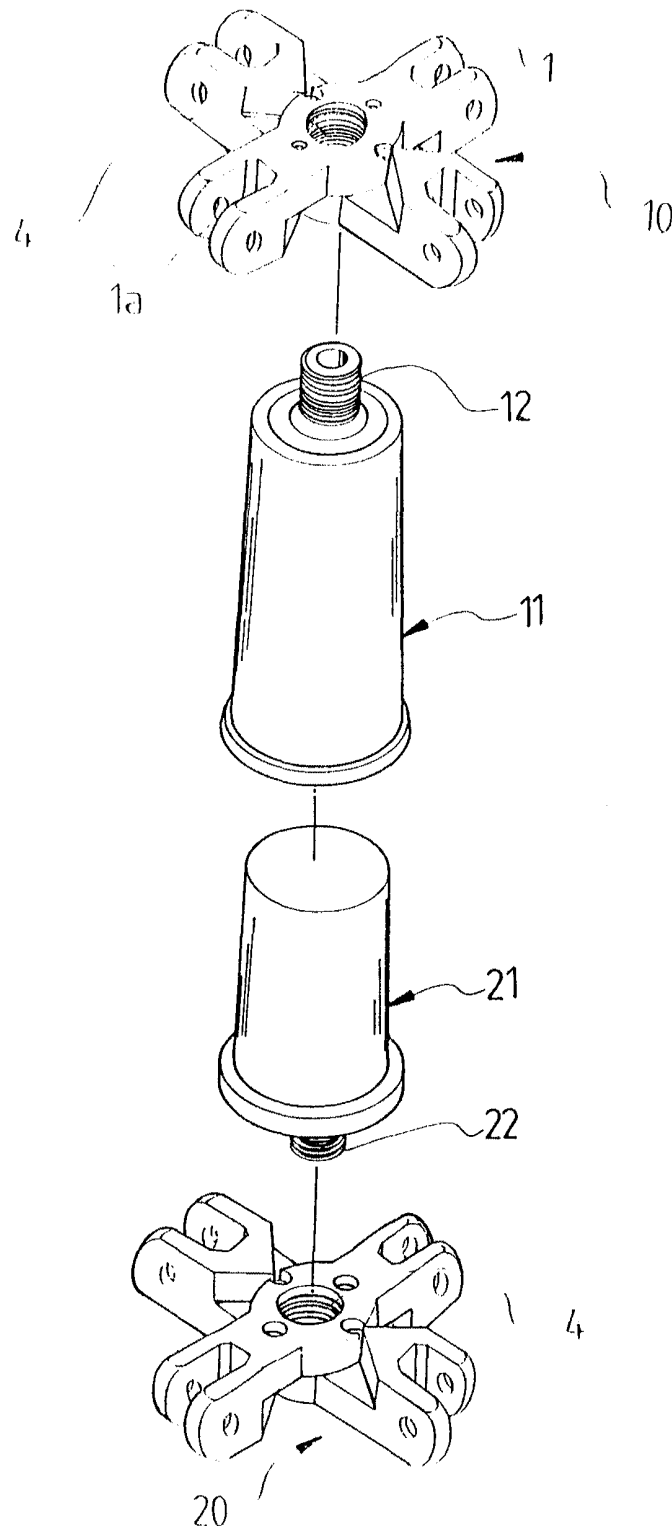


5/23

Fig. 8

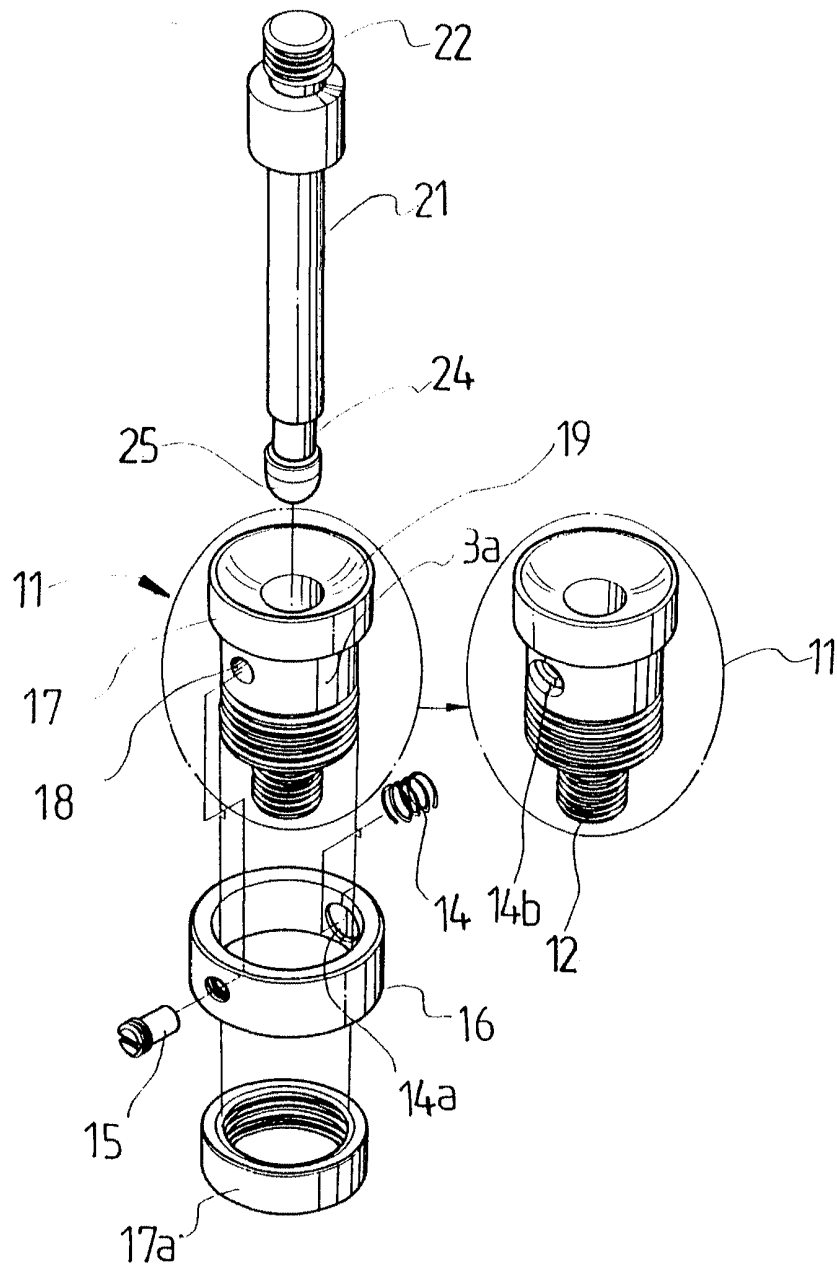


6/23  
Fig. 8A



7/23

Fig. 8B



8/23

Fig. 8C

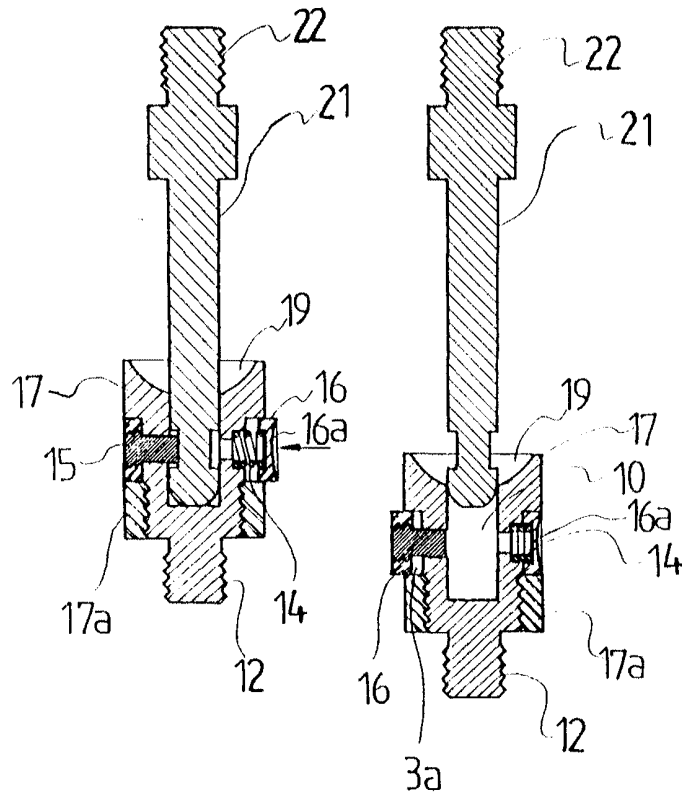
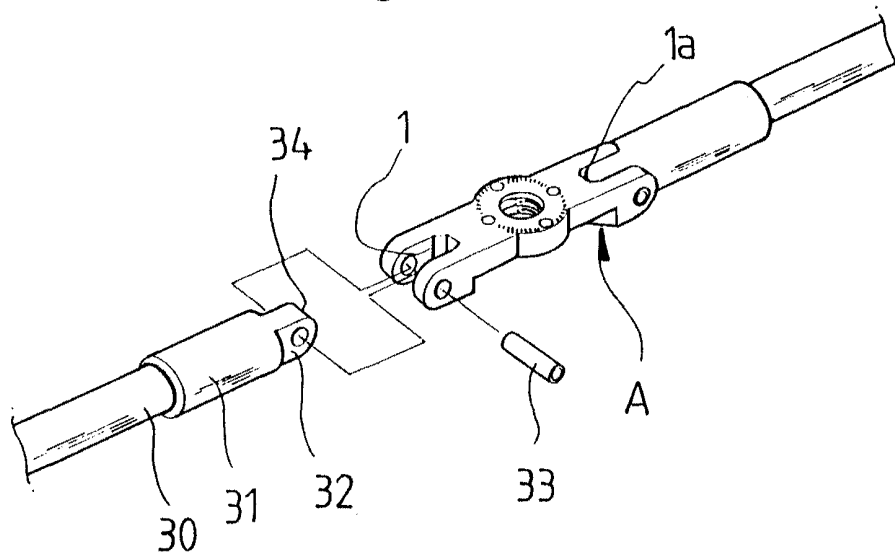


Fig. 9



9/23

Fig. 10

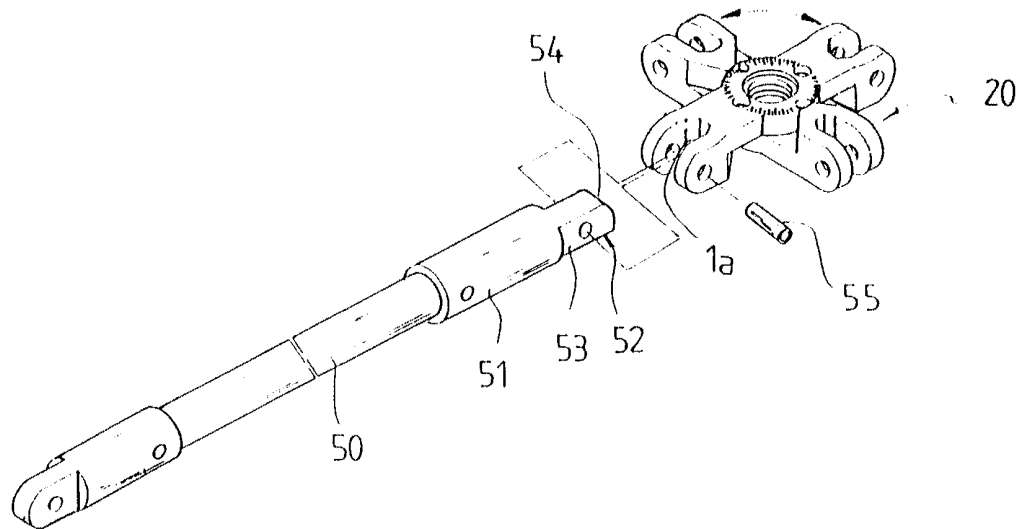
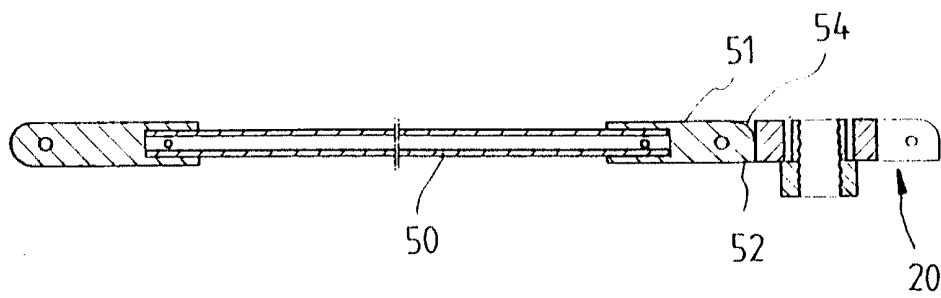
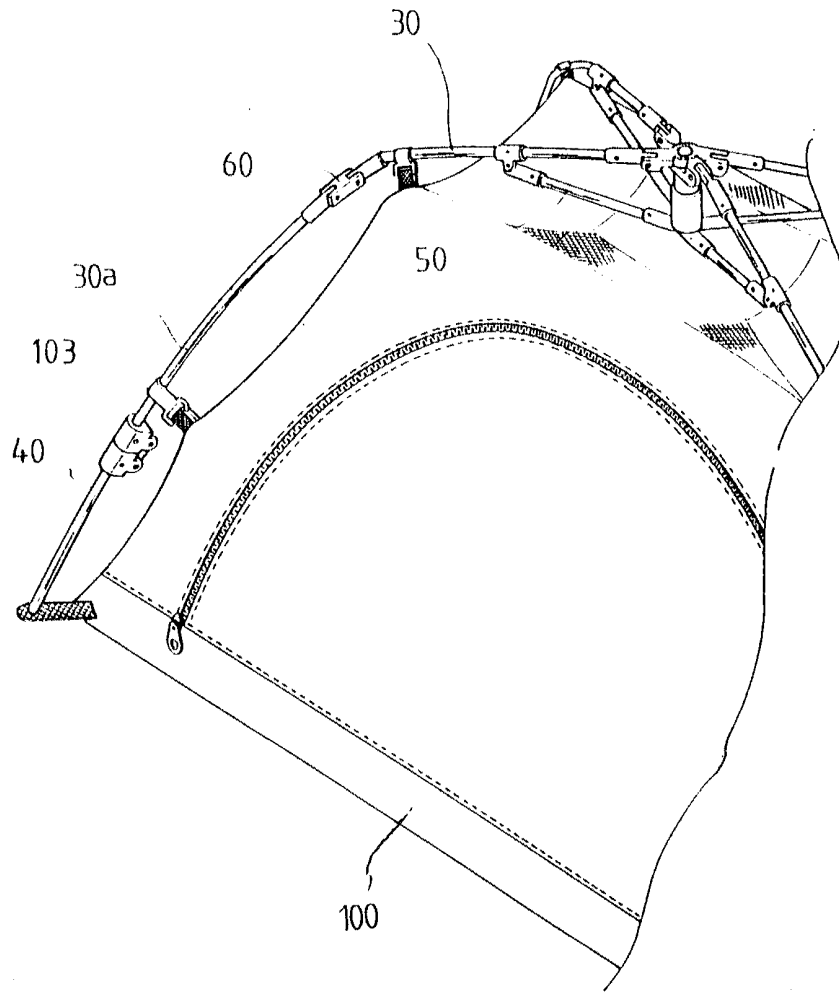


Fig. 10A



10/23

Fig. 11



11/23

Fig. 12

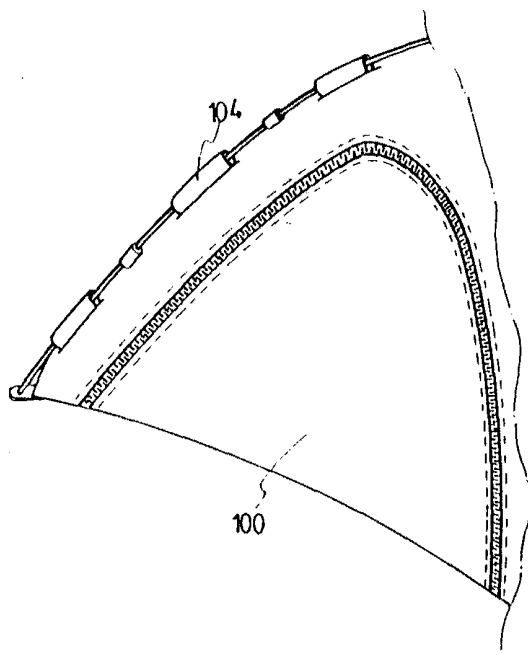


Fig. 13

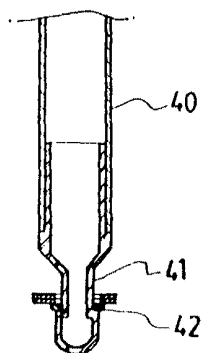
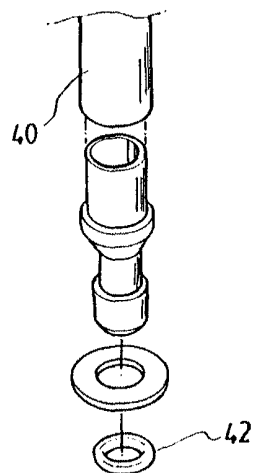
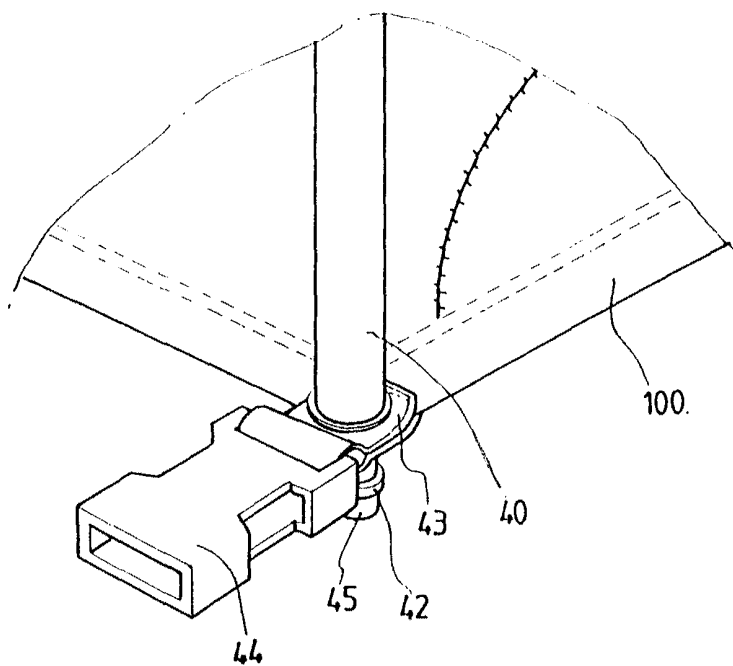


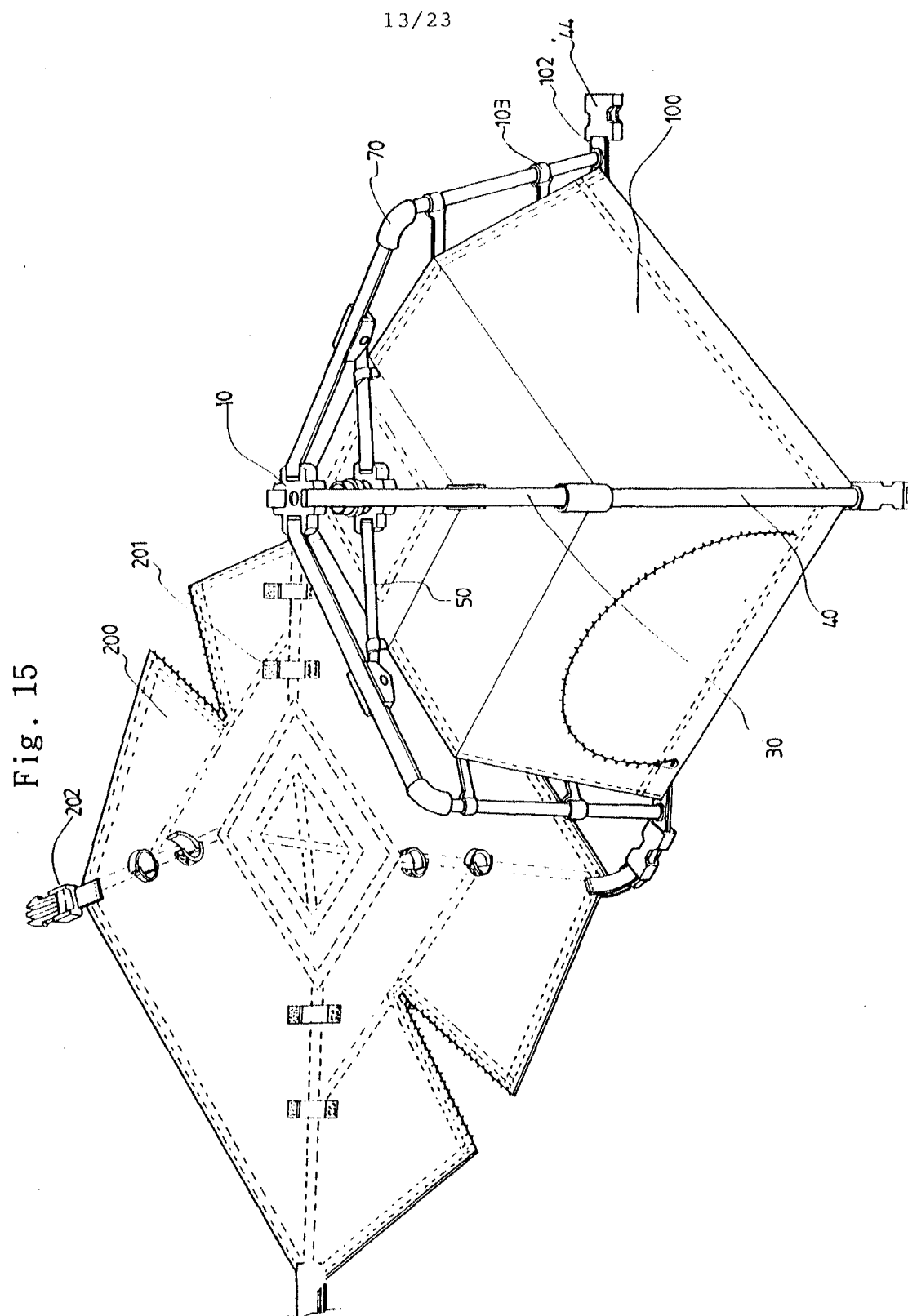
Fig. 13A



12/23

Fig. 14





14/23

Fig. 16

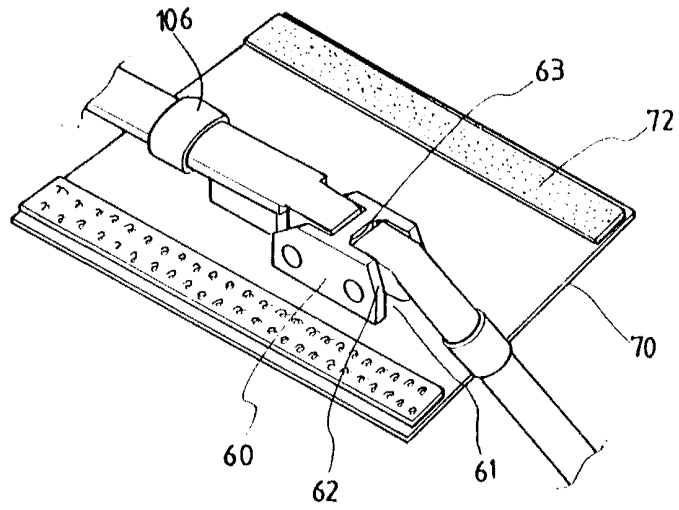
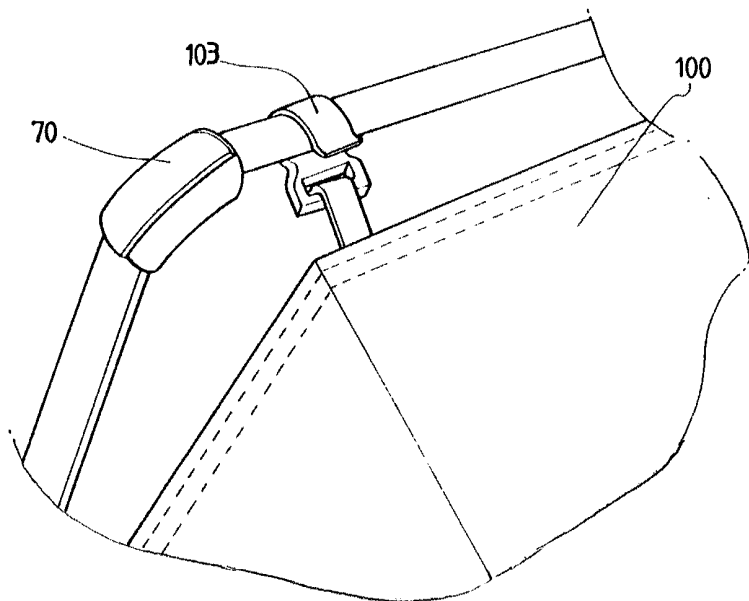


Fig. 17



15/23

Fig. 17A

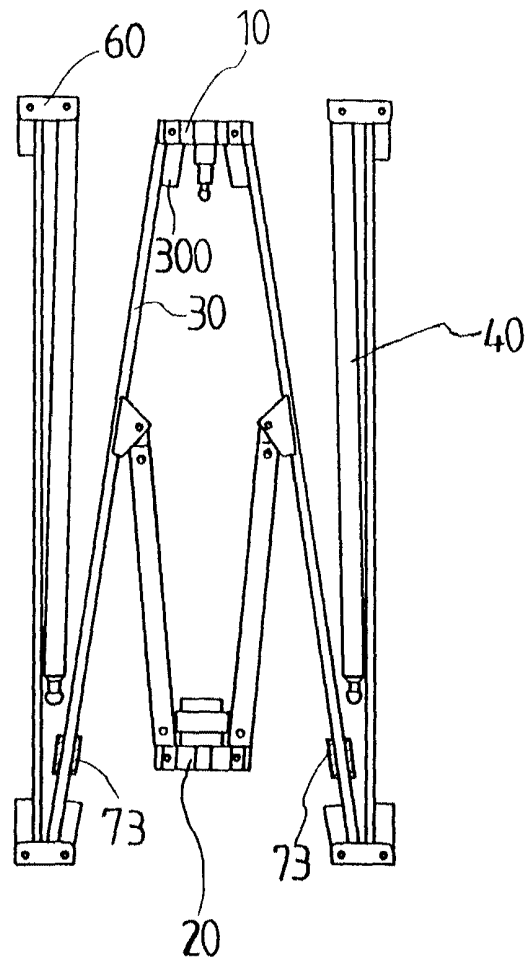
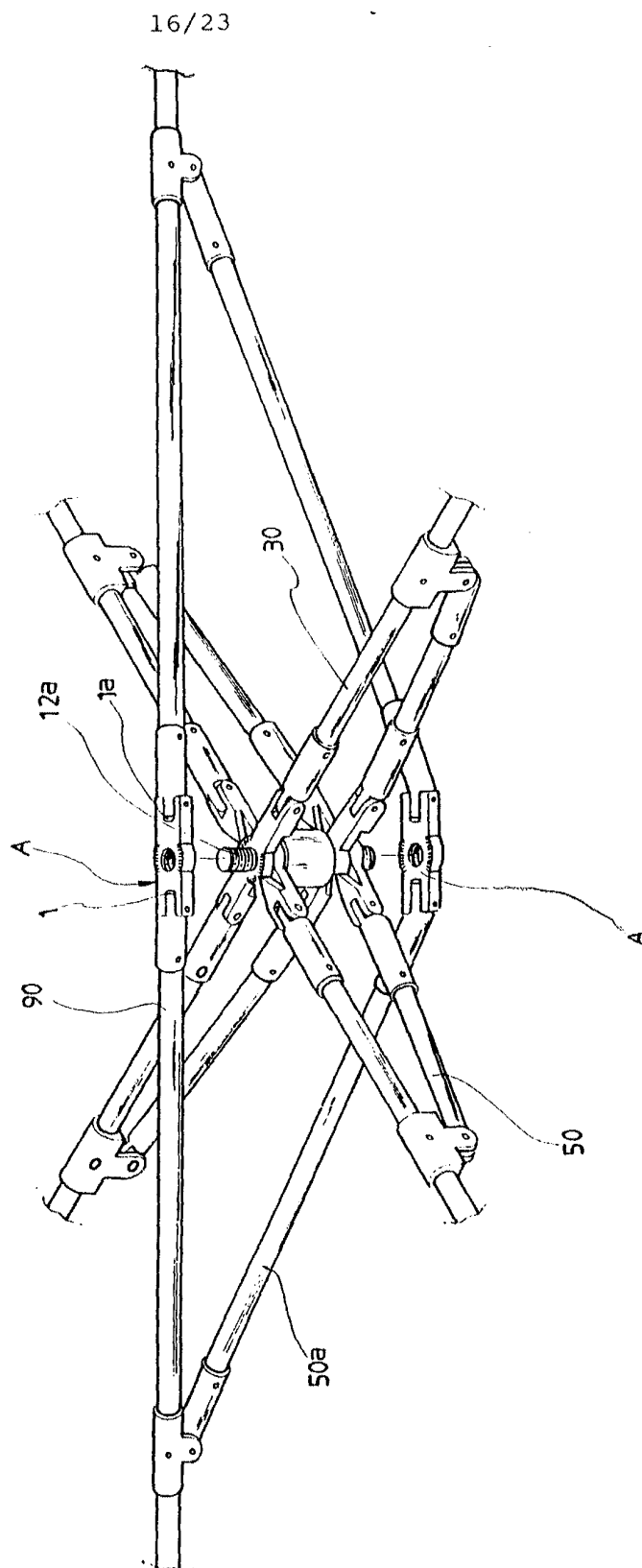


Fig. 18



17/23

Fig. 19

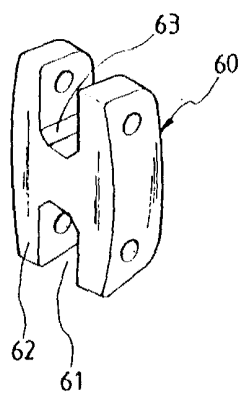


Fig. 20

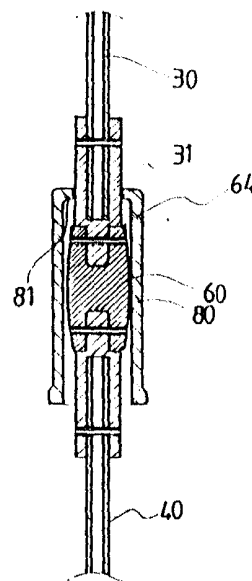
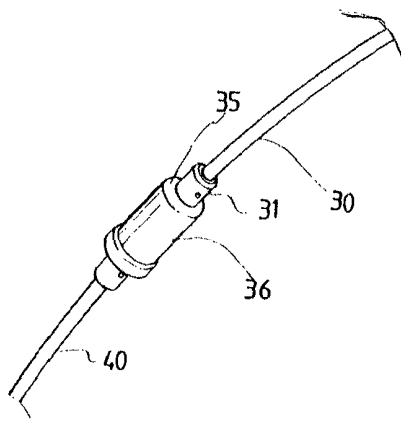


Fig. 21



18/23

Fig. 22

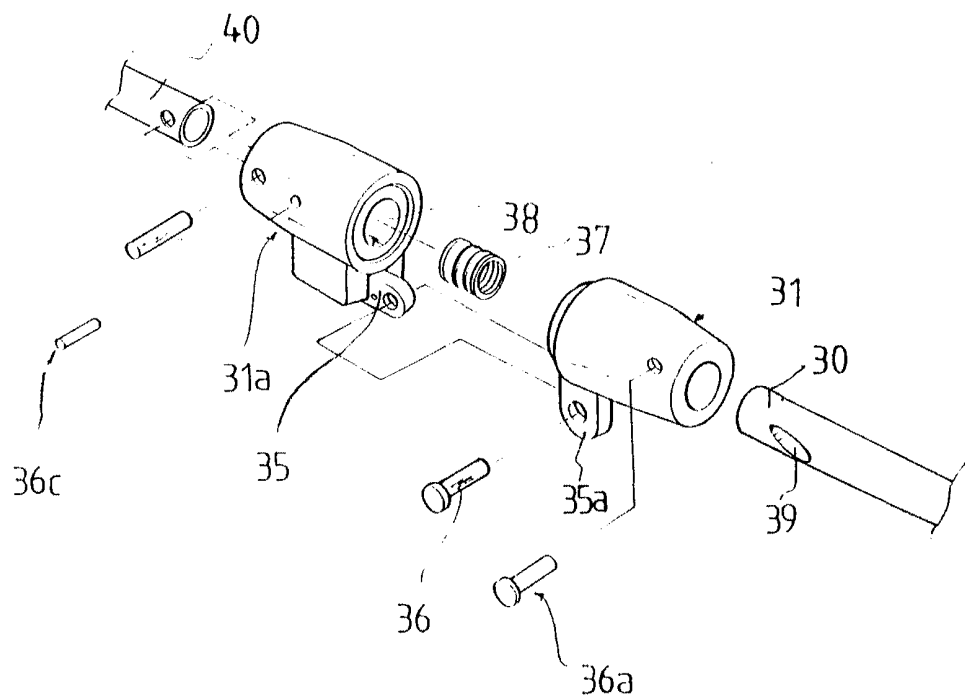
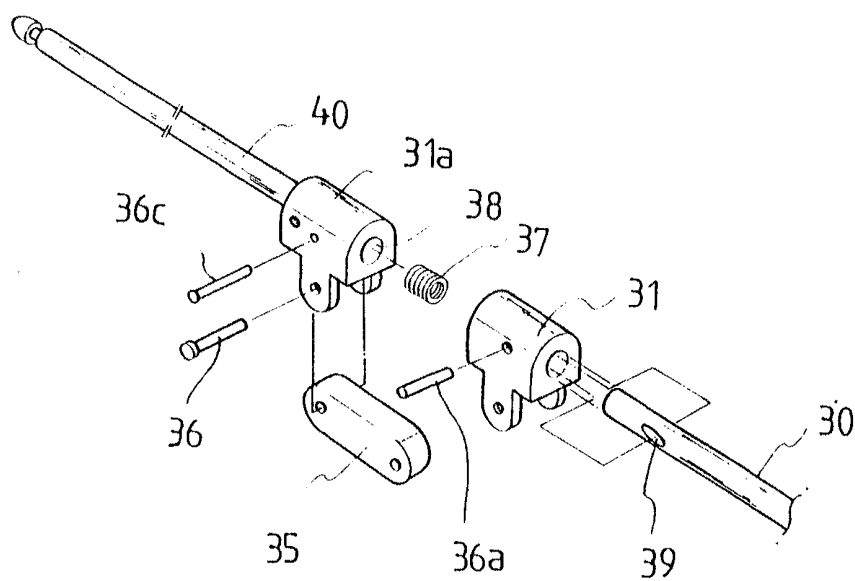


Fig. 23



19/23  
Fig. 24

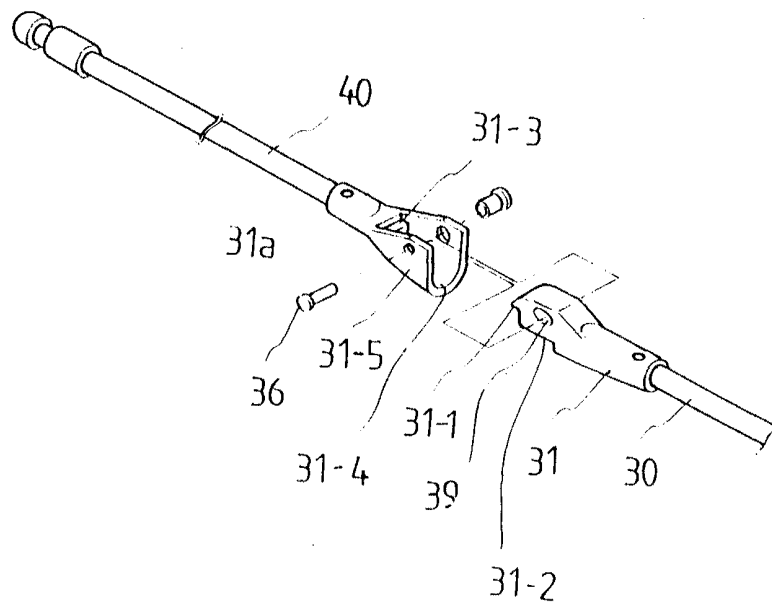
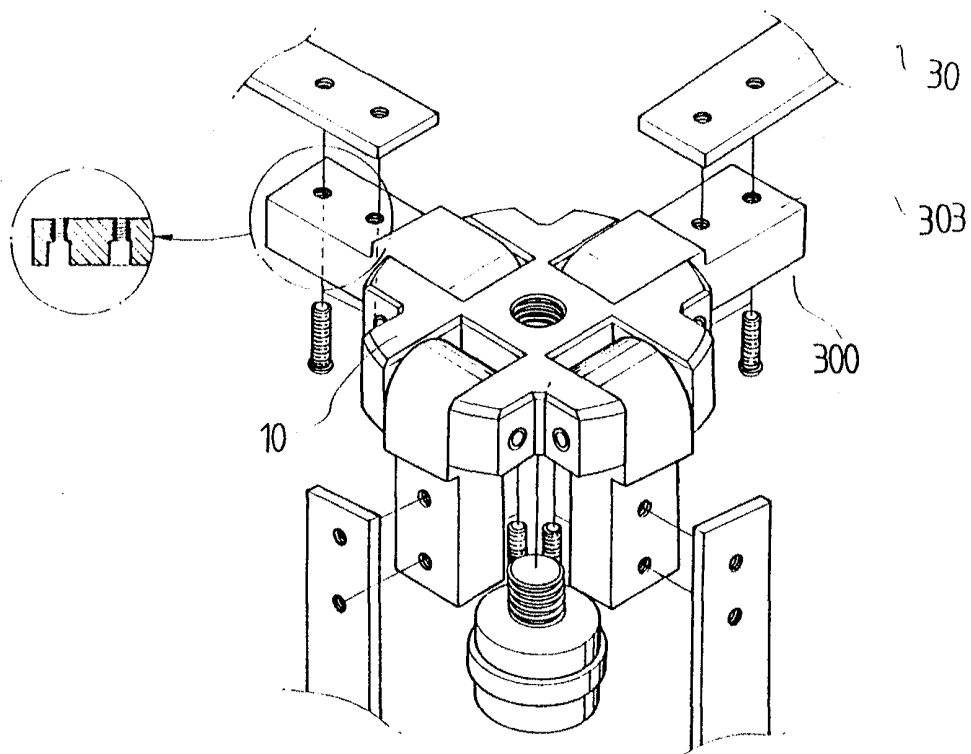


Fig. 25



20/23

Fig. 26

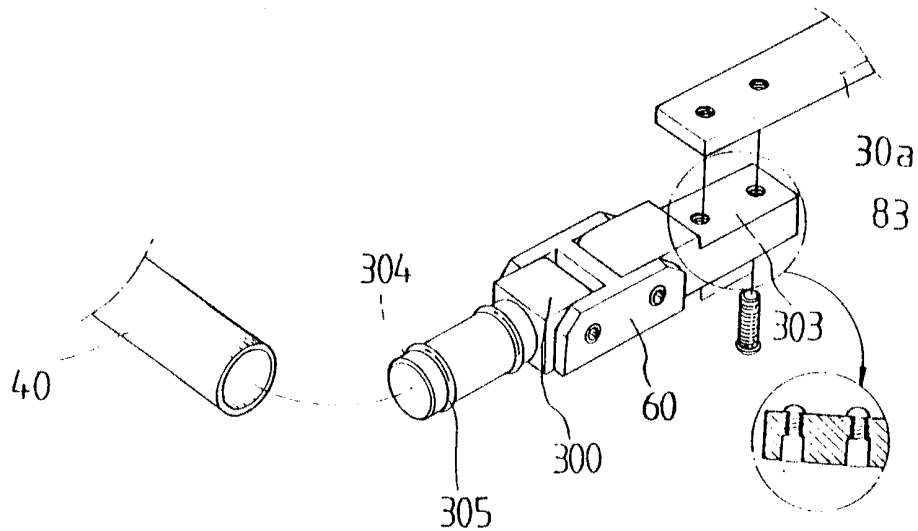
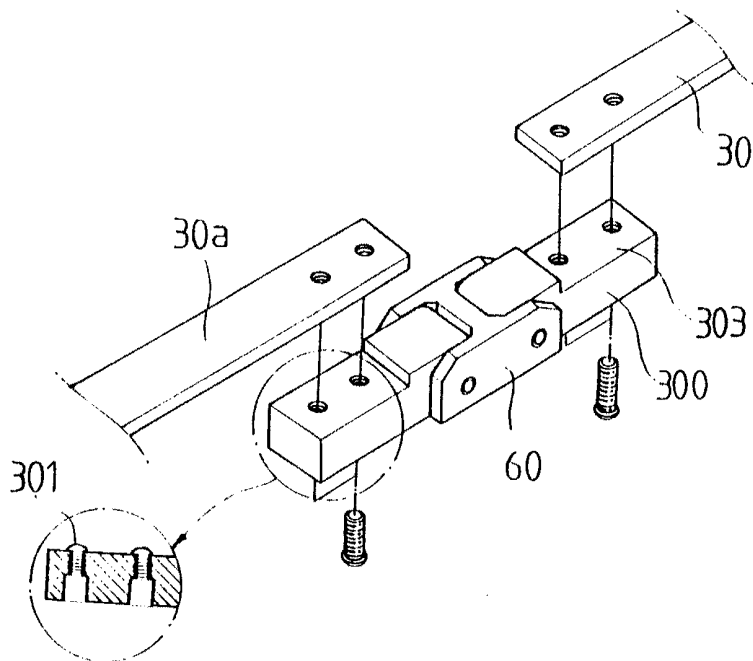


Fig. 26A



21/23

Fig. 26B

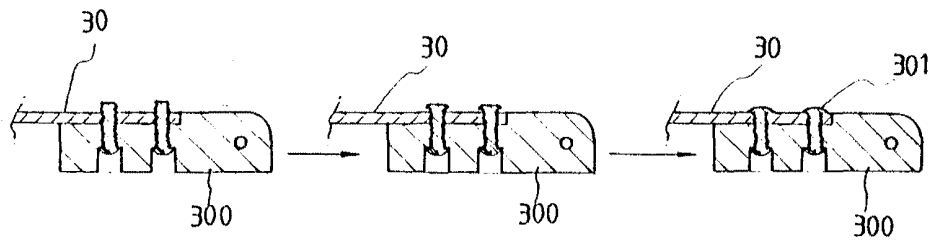
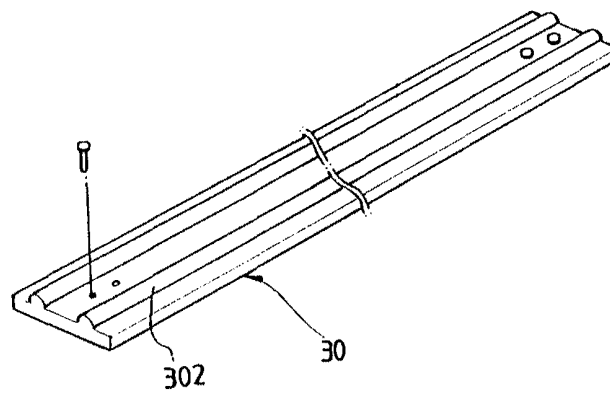


Fig. 27



22/23  
Fig. 28

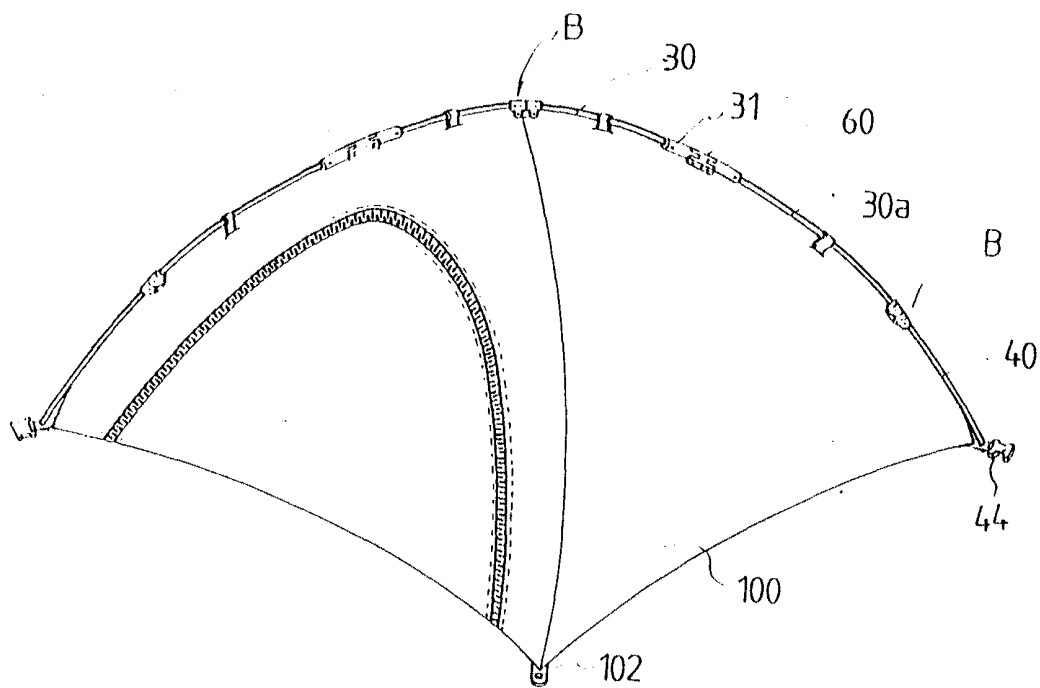
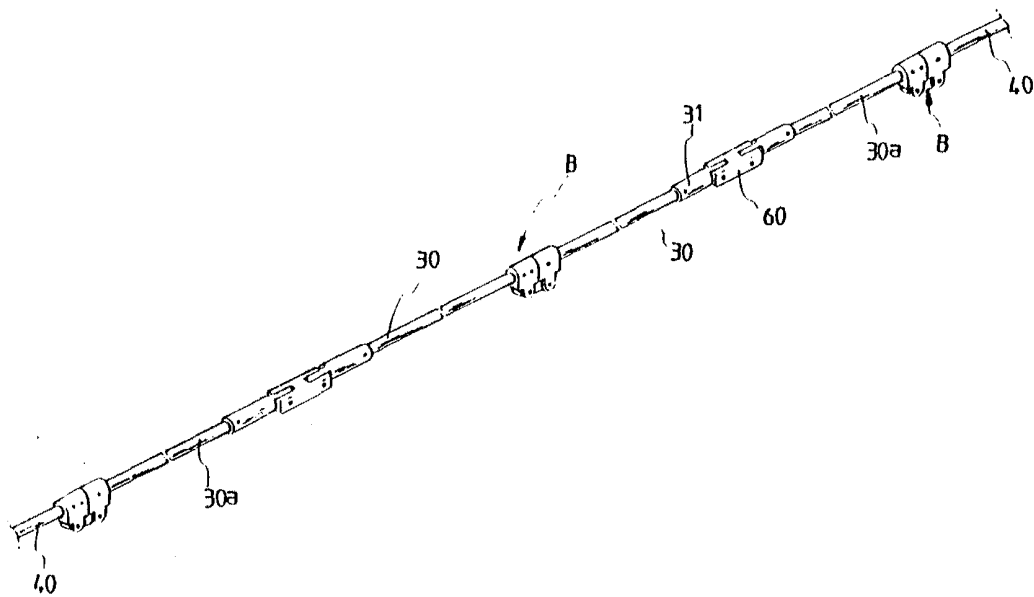
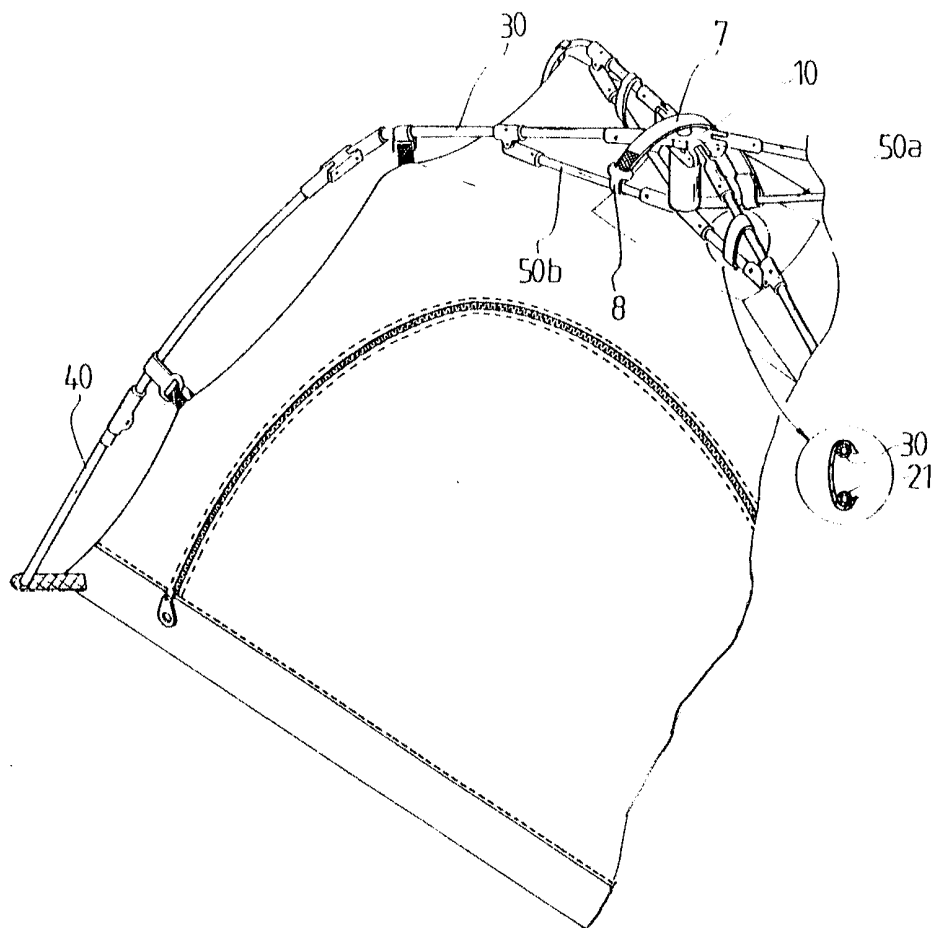


Fig. 29



23/23

Fig. 30



# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR 99/00624

## A. CLASSIFICATION OF SUBJECT MATTER

IPC<sup>7</sup>: E04H, 15/44

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<sup>7</sup>: E04H, 15/28, 15/32, 15/34, 15/44

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPIL

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                                           | Relevant to claim No. |
|-----------|------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| A         | US 4256129 A (Gilsenan) 17 March 1981 (17.03.81), abstract; column 3, line 42 – column 4, line 27; claim 1; fig. 1, 5 and 6. | 1                     |
| A         | WO 94/24392 A1 (Cuthill) 27 October 1994 (27.10.94), abstract; page 8, line 25 – page 9, line 15; claims 1, 2 and 4; fig. 1  | 1                     |
| A         | US 2948287 A (S.J. Rupert) 09 August 1960 (09.08.60), column 2, line 40 – column 3, line 3; claim 1; fig. 1-9.<br>----       | 1                     |

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

\* Special categories of cited documents:

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„&“ document member of the same patent family

Date of the actual completion of the international search

31 January 2000 (31.01.00)

Date of mailing of the international search report

10 March 2000 (10.03.00)

Name and mailing address of the ISA/AT

Austrian Patent Office  
Kohlmarkt 8-10; A-1014 Vienna  
Facsimile No. 1/53424/200

Authorized officer

Tsilidis

Telephone No. 1/53424/387

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

PCT/KR 99/00624

| Patent document cited<br>in search report |    |          | Publication<br>date | Patent family<br>member(s) |    |          | Publication<br>date |
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|                                           |    |          |                     | EP                         | A3 | 5061     | 28-11-1979          |
|                                           |    |          |                     | GB                         | A  | 1601400  | 28-10-1981          |
| WO                                        | A1 | 9424392  | 27-10-1994          | AU                         | A1 | 65456/94 | 08-11-1994          |
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|                                           |    |          |                     | NZ                         | A  | 265115   | 28-05-1996          |
|                                           |    |          |                     | US                         | A  | 5673720  | 07-10-1997          |
| US                                        | A  | 2948287a |                     | none                       |    |          |                     |