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(71) Applicant and

(72) Inventor: **CHO, Young Gil** [KR/KR]; 3-297, Chungjeon-gro 3-ga, Seodaemun-gu, Seoul 120-031 (KR).

(74) Agent: **JU, In Jung**; #701.BYC B/D, 648-1, Yoksam-dong, Kangnam-gu, Seoul 135-080 (KR).

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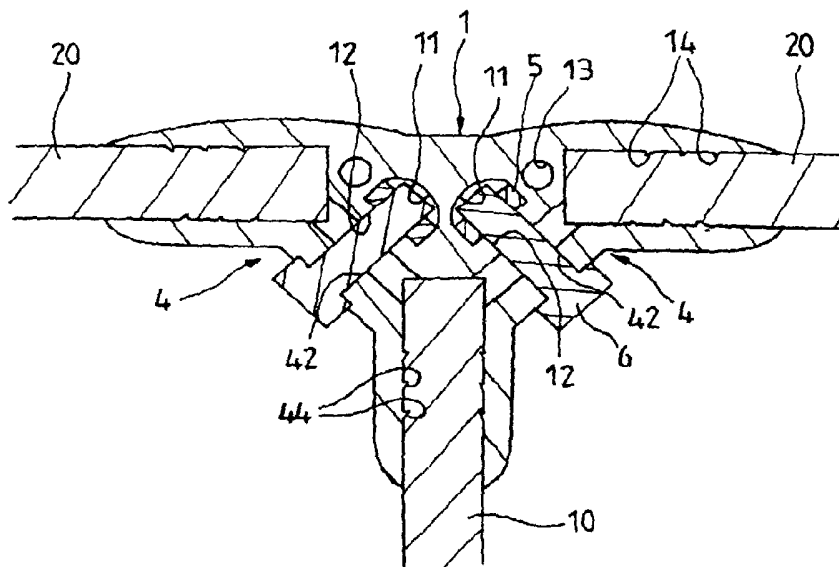
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(54) Title: CONNECTION DEVICE FOR ASSEMBLY FURNITURE



(57) Abstract: The present invention enables assembly despite the question whether the furniture is made of wood, synthetic resin material, metal material, etc. Moreover, the present invention purports to enable assembly without regard for the thickness of material. Use is made easy due to the use of boards of diverse thicknesses. At the time of disassembly, use is made possible since used material is not damaged. The present invention has the effect of enabling the customer to assemble the furniture according to the preference by using divided frame. Moreover, the present invention enables assembly and disassembly of furniture without the need for separate special equipment or technology. Assembled furniture maybe used for a long period of time since the assembly is maintained solid. At the time of disassembly, materials such as frame maintain original state without any processing, enabling re-use of divided frames in other ways. Therefore, the present invention ensures effective use of resource.

WO 2004/002270 A1

CONNECTION DEVICE FOR ASSEMBLY FURNITURE

BACKGROUND OF THE INVENTION

5 Field of the Invention:

The present invention relates to the assembly furniture for the assembly of all types of furniture such as bookcase, shelf, display case etc. In more detail, frame that comprises the furniture and assembly and disassembly of frame are made convenient, and the assembly of the furniture of diverse forms that the consumer wants is enabled.

10 Accordingly, the present invention pertains to the connection device for assembly furniture.

Since furniture uses mostly wood, synthetic resin material, steel material etc, furniture is produced into form and size that are deemed appropriate by different use.

15 Description of the Prior Art:

In general, volume of furniture is large, and since the weight is considerable, it is convenient to produce furniture that can be assembled and disassembled to ensure convenient storage and transport. Recent trend is such that the consumer prefers furniture that was designed according to consumer preference and the conditions for

the installation of furniture. Moreover, consumers prefer assembly furniture. In particular, recently, direct purchase of basic component parts by consumer for assembly into desired size and form is becoming a commonplace today when it pertains to bookcase, shelf and display case for ornaments.

- 5 However, in the past, assembly type of bookcase, shelf or display case for ornaments is not easy to be assembled and disassembled by consumer. Furniture that was assembled once face difficulty in re-use by disassembling.

Moreover, use of frame of divided state for the assembly of furniture that is desired by consumer faces greater problem.

- 10 Assembly of supplementary parts for connection for the connection to the furniture frame requires skilled technology or high priced equipment or if and when streamlined configuration is present, then solid assembly is not ensured, which cause inconvenience in the use of furniture.

SUMMARY OF THE INVENTION

The present invention relates to the device that shall be used to connect the frames at the time of assembling furniture of assembly. Connection shall be performed in a state in which one side of the frames subject to assembly is supported.

5 Hole for nuts injection where nuts are injected shall be formed into the direction of length. The present invention shall be characterized by the following; first supplementary parts for connection where the numerous holes for bolt penetration are formed in which bolts shall be penetrated into the vertical direction with the above mentioned hole for nuts injection; connection based on a state in which the other side
10 pertaining to the assembly of the above mentioned frames shall be supported; vertical frame that comprises furniture based on the configuration that includes the second supplementary parts for connection where hole for bolt injection, which corresponds to the hole for bolt penetration of the above mentioned first supplementary parts for connection, shall be formed; effect in which assembly and disassembly of horizontal
15 frame is made convenient, effect in which re-assembly of furniture of desired form of frame at the divided state shall be enabled; and use of furniture for a long time shall be made easy due to the solid state of assembly in addition to the convenient assembly of furniture without the need for separate tool or technique.

BRIEF DESCRIPTION OF THE DRAWINGS

The aforementioned aspects and other features of the present invention will be explained in the following description, taken in conjunction with the accompanying drawings, wherein:

5 Figure 1 shall be sectional view based on actual example no. 1 that shoes the configuration of the connection device in accordance to the present invention.

Figure 2 shall be sectional view based on actual example no. 2 that shoes the configuration of the connection device in accordance to the present invention.

0 Figure 3 shall be sectional view based on actual example no. 3 that shoes the configuration of the connection device in accordance to the present invention.

Figure 4 shall be perspective drawing of assembly furniture that uses the connection device in accordance to the present invention.

Figure 5 shall be frontal view of Figure 4.

5 Figure 6 shall be expanded perspective drawing pertaining to the main part of the Figure 4.

Figure 7 shall be sectional view that demonstrates transformed example in accordance to the actual example no. 3 of the connection device according to the present invention.

Figure 8 shall be sectional view example in accordance to the actual example no. 4 of the connection device according to the present invention.

10

(Explanation on the Symbols Pertaining to the Key Parts of Figure >

1,2,3 ; first supplementary parts for connection

11,21,31 ; hole for nuts injection 12,22,32 ; hole for bolt penetration

13,23,33 ; hole for screw 14,24,34 ; projection for the prevention of separation

5 15 ; hole for bolt injection 16 ; hole for screw

17 ; projection for the prevention of separation

4 ; second supplementary parts for connection

42 ; hole for bolt injection 44 ; projection for the prevention of separation

45 ; hole for nuts injection 46 ; hole for bolt penetration

10 47 ; projection for the prevention of separation

5 ; nuts 6 ; bolt

10 ; vertical frame 20 ; horizontal frame

30 ; wheel 100 ; display case for ornaments

15 **DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS**

The present invention, invented by factoring in the above mentioned problem, purports to provide connection device for assembly furniture that ensure convenience in assembly and disassembly.

The other purpose of the present invention lies in the provision of connection device

for assembly furniture that enables easy assembly of diverse forms of furniture,
demanded by consumer by using divided frame.

Another purpose of the present invention lies in the provision of connection device for
assembly furniture that enables assembly and disassembly of furniture even without the
5 presence of separate special equipment or technology.

Another purpose of the present invention lies in the provision of connection device for
assembly furniture that enables mitigation of inconvenience at the time of using
furniture based on solid assembly.

Another purpose of the present invention lies in the provision of connection device for
10 assembly furniture that enables assembly despite the question whether the furniture is
made of wood, synthetic resin material, metal material etc. Moreover, the present
invention purports to enable assembly without regard for the thickness of material.
Use is made easy due to the use of boards of diverse thicknesses. At the time of
disassembly, use is made possible since used material is not damaged. Therefore, the
15 present connection device for assembly furniture shall be characterized by effective use
of resources.

Best Mode for Carrying out the Invention

To achieve the above mentioned purposes, the present invention shall be connected in a
state that supports one side of frames subject to assembly, and hole for nuts injection
20 where nuts are injected shall be formed in the direction of length. The present
invention shall be configured as follows; first supplementary parts for connection that

shall form numerous holes for bolt penetration where bolt is penetrated into the vertical direction with the above mentioned hole for nuts injection; vertical frame that comprises furniture based on the configuration that includes the second supplementary parts for connection where hole for bolt injection, which corresponds to the hole for bolt penetration of the above mentioned first supplementary parts for connection, shall be formed; effect in which assembly and disassembly of horizontal frame is made convenient, effect in which re-assembly of furniture of desired form of frame at the divided state shall be enabled; and use of furniture for a long time shall be made easy due to the solid state of assembly in addition to the convenient assembly of furniture without the need for separate tool or technique.

When it pertains to the above mentioned first supplementary parts for connection, section is recommended to be formed into straight line shape.

or, when it pertains to the above mentioned first supplementary parts for connection, section is recommended to be formed into \sqcap -shaped type.

At the above mentioned moment, when it pertains to the above mentioned first supplementary parts for connection, leg injection part is recommended to be formed in single unit in the form of extension.

or, when it pertains to the above mentioned first supplementary parts for connection, section is recommended to be formed into cross shape type.

In the above mentioned first supplementary parts for connection, screw is recommended to be formed into hole for screw where screw connects to.

Meanwhile, when it pertains to the above mentioned second supplementary parts for connection, section is recommended to be formed into \sqcap -shape.

And, when it pertains to the above mentioned supplementary parts for connection of no. 1 and 2, contact surface is recommended to be formed with numerous projections for
5 the prevention of separation where frame is contacted.

In accordance to the other side, the present invention shall connect into a state pertaining to the assembly of frames in which one side supports. The present invention is characterized by the following configuration; first supplementary parts for connection of straight line shape in which section where hole for bolt injection where
10 bolt is injected; connection is performed in a state whereby the other side of frames subject to assembly is supported, hole for nuts injection where nuts are injected is formed into the direction of length; straight line shaped second supplementary parts for connection with section, formed with numerous holes for bolt penetration where bolt is penetrated in the vertical direction and the above mentioned hole for nuts injection; and
15 configuration in which two vertical frame or two horizontal frames are connected consecutively.

Hereafter, the present invention's recommendable actual example shall be explained in detail by using the attached figure as reference.

Figure 1 is the sectional view based on actual example no. 1 that shoes the
20 configuration of the connection device in accordance to the present invention. To connect one vertical frame(10) and two horizontal frames(20), formation into straight

line shape shall be performed. Configuration shall be based on; first supplementary parts for connection(1) that supports one side of frame, and two second supplementary parts for connections(4) that support the other side of frames by being formed into Γ -shaped type.

- 5 Two holes for nuts injection(11) of first supplementary parts for connection(1) shall be formed into the direction of length, and the hole for nuts injection(11), formed as the above mentioned, hole for bolt penetration(12) is formed into the vertical direction. Second supplementary parts for connection(4) are formed with hole for bolt injection(42) that corresponds to the hole for bolt penetration(12) of first
10 supplementary parts for connection.

Moreover, first supplementary parts for connection(1) shall be formed with hole for screw(13), needed for connecting to hinge etc. Supplementary parts for connection(1)(4) of no. 1 and 2 shall be formed so that they slope towards the direction of preventing the separation of frame by the numerous each projection for the
15 prevention of separation(14)(44) at the frame contact surface that comes into contact with frame.

If and when the frame's order of assembly based on the actual example no. 1 of the present invention that is configured as explained above is explained in detail, bolt(6) shall be injected into the hole for bolt injection(42) of supplementary parts for
20 connection(4) of no. 2. After connecting nuts(6) into the end part of the above mentioned bolt(6), the above mentioned nuts(5) of supplementary parts for connection(4) of no. 2 of the state in which the above mentioned bolt(6) and nuts(5) are

assembled in is input into the hole for nuts injection(11) of supplementary parts for connection(1) of no. 1, one vertical frame(10) and two horizontal frames(20) shall be contacted on the frame contact surface of the above mentioned supplementary parts for connection(1) of no. 1 and supplementary parts for connection(4) of no. 2. Then, at
5 the above mentioned state, if and when the supplementary parts for connection(4) of no. 2's bolt(6) is screwed tightly, the distance between the above mentioned supplementary parts for connection(1) of no. 1 and supplementary parts for connection(1) of no. 2 becomes narrower and the assembly is completed based on perfect and tight of assembly of frame(10)(20).

10 Figure 2 is the depiction of the actual example no. 2 of the present invention that enables assembly of frame by the use of first supplementary parts for connection(2) for the connection of two vertical frames(10) and two horizontal frames(20), and four \sqcap -shaped type second supplementary parts for connections(4).

In the first supplementary parts for connection(2) based on actual example no. 2, holes
15 for nuts injection(21) at four places are formed in the direction of length in 90° distance. Hole for bolt penetration(22) is formed at each hole for nuts injection(21) in the vertical shape. Hole for bolt injection(42) is formed at the second supplementary parts for connection(4). Moreover, hole for screw(23) is formed at the both sides of first supplementary parts for connection(2), and numerous projections for the prevention of
20 separation(44) is formed at the frame contact surface of the second supplementary parts for connection(4).

Connection device based on actual example no. 2 of the present invention that is configured as described above inputs bolt(6) into each hole for bolt injection(42) of supplementary parts for connection(4) of no. 2, and nuts(5) are connected into the end part of the above mentioned bolt(6). Then, connection device for assembly is
5 completed when nuts(5) of supplementary parts for connection(4) of no. 2 in which the above mentioned bolt(6) and nuts(5) are assembled are input into the hole for nuts injection(21) of supplementary parts for connection(2) of no. 1, and then each bolt (6) is tightened onto the frame contact surface of supplementary parts for connection(1) of no. 1(2) and supplementary parts for connection(4) of no. 2 at a state when two vertical
10 frames(10) and most of horizontal frames(20) are in contact.

Figure 3 is a depiction of the actual example no. 3 of the present invention and demonstrates the connection structure of frame of the most basic state. In other words, one \sqcap -shaped type first supplementary parts for connection(3) and one \sqcap -shaped type second supplementary parts for connection(4) shall be used to depict a state in
15 which vertical frame(10) and horizontal frame(20) are connected vertically. Symbol 31 shall be hole for nuts injection, 32 shall be hole for bolt penetration, 33 shall be hole for screw, 42 shall be hole for bolt injection, and 34 and 44 shall be projections for the prevention of separation.

Order of assembly based on the actual example no. 3 shall be assembled according to
20 the above mentioned method.

First supplementary parts for connection(1)(2)(3) based on actual examples 1, 2 and 3 and second supplementary parts for connection(4) shall be used to depict assembly

display case for ornaments(100) of completed 2 rows and 2 layers of loading space shall be depicted on Figure 4 and Figure 5.

As depicted, when it pertains to display case for ornaments(100), one cross shape type first supplementary parts for connection(2) was used at the core center. Four \cap -shaped type first supplementary parts for connection(3) was used at the foremost outer corner. Straight line shape first supplementary parts for connection(1), formed on both sides in which hole for nuts injection(11) shall be formed among \cap -shaped type first supplementary parts for connection(3), was installed, and the 16 second supplementary parts for connections(4) that support and connect frames when it pertains to first supplementary parts for connection(1)(2)(3) is being used. Moreover, at the horizontal frame(10) that is assembled to the lowest part of display case for ornaments(100), wheel(30) is assembled and configured so that it can move the location of display case for ornaments(100), and assembled first supplementary parts for connection(1)(2)(3) shall be formed with hole for screw that can connect onto hinge etc. Thus, if and when necessary, it shall be possible to connect other display case for ornaments or to configure with door for opening and shutting at the front part of the display case for ornaments.

Figure 6 is the expanded perspective drawing that depicts the state in which \cap -shaped type first supplementary parts for connection(3) and second supplementary parts for connection(4) are connected. As depicted, length of second supplementary parts for connection(4) that is connected to each of first supplementary parts for connection(1)(2)(3) maybe formed shorter than the first supplementary parts for

connection if and when it can support the other side of frame(10)(20). Figure 7 shall be sectional view that demonstrates transformed example in accordance to the actual example no. 3 of the connection device according to the present invention.

The structure is such that the round shaped leg injection part(35) is extended and formed in single unit at the one side of \cap -shaped type first supplementary parts for connection(3) that is used on corner part of the furniture that is normally subject to assembly. At the inner side of the above mentioned round shaped leg injection part(35), key groove(35a) shall be formed.

As mentioned above, according to the present invention's transformed example, board of wood or glass material shall be placed on top at a state in which vertical frame and horizontal frame are connected. Then, connecting leg on the leg injection part that can support board enables the above mentioned to be used as dining table or table.

Figure 8 depicts the integration structure of connection device's other actual example in which the hole for bolt injection (16) is formed at the first supplementary parts for connection(1) and where hole for nuts injection(45) and hole for bolt penetration(46) formed at the second supplementary parts for connection(4). Symbol 17 and 47 demonstrate projection for the prevention of separation of each supplementary parts for connection.

Connection device with the above mentioned configuration maybe applied when two vertical frames or two horizontal frames are connected to bottom and up, and left and right in a consecutive manner.

WHAT IS CLAIMED IS:

1. First supplementary parts for connection, formed with hole for bolt penetration in which the bolt is penetrated in the vertical direction with the above mentioned hole
5 for nuts injection, connection is enabled at a state that one side of frames subject to assembly is supported, and hole for nuts injection where nuts are injected is formed in the direction of length;

The above mentioned frames shall be connected in a state that other side is supported.
Connection device for assembly furniture characterized by configuration that includes
10 second supplementary parts for connection, formed with hole for bolt injection that corresponds to the hole for bolt penetration of the above mentioned first supplementary parts for connection.

2. When it pertains to Claim 1,
connection device for assembly furniture, characterized by the formation of section into
15 straight line shape when it pertains to the above mentioned first supplementary parts for connection.

3. When it pertains to Claim 1,
connection device for assembly furniture, characterized by the formation of section into
┌-shaped type when it pertains to the above mentioned first supplementary parts for
20 connection.

4. When it pertains to Claim 3,

connection device for assembly furniture, characterized by the extension and formation of leg injection part into single unit when it pertains to the above mentioned first supplementary parts for connection.

5 5. When it pertains to Claim 1,

connection device for assembly furniture, characterized by the formation of section into cross shape type when it pertains to the above mentioned first supplementary parts for connection.

6. When it pertains to Claim 1 or any one claim among Claim 5,

10 connection device for assembly furniture, characterized by the formation of hole for screw where screw is connected when it pertains to the above mentioned first supplementary parts for connection.

7. When it pertains to Claim 1,

15 connection device for assembly furniture, characterized by the formation of section into \cap -shaped type when it pertains to the above mentioned second supplementary parts for connection.

8. When it pertains to Claim 1 or 4 or to any single claim among Claim 7,

20 connection device for assembly furniture, characterized by the formation of numerous projections for the prevention of separation on the contact surface that comes into contact onto the frame when it pertains to the above mentioned supplementary parts for

connection of no. 1 and 2.

9. Connection device for assembly furniture, characterized by; connection into a state pertaining to the assembly of frames in which one side supports, first supplementary parts for connection of straight line shape in which section where hole for bolt injection where bolt is injected; connection is performed in a state whereby the
5 other side of frames subject to assembly is supported, hole for nuts injection where nuts are injected is formed into the direction of length; straight line shaped second supplementary parts for connection with section, formed with numerous holes for bolt penetration where bolt is penetrated in the vertical direction and the above mentioned
10 hole for nuts injection; and configuration in which two vertical frame or two horizontal frames are connected consecutively.

Fig. 1

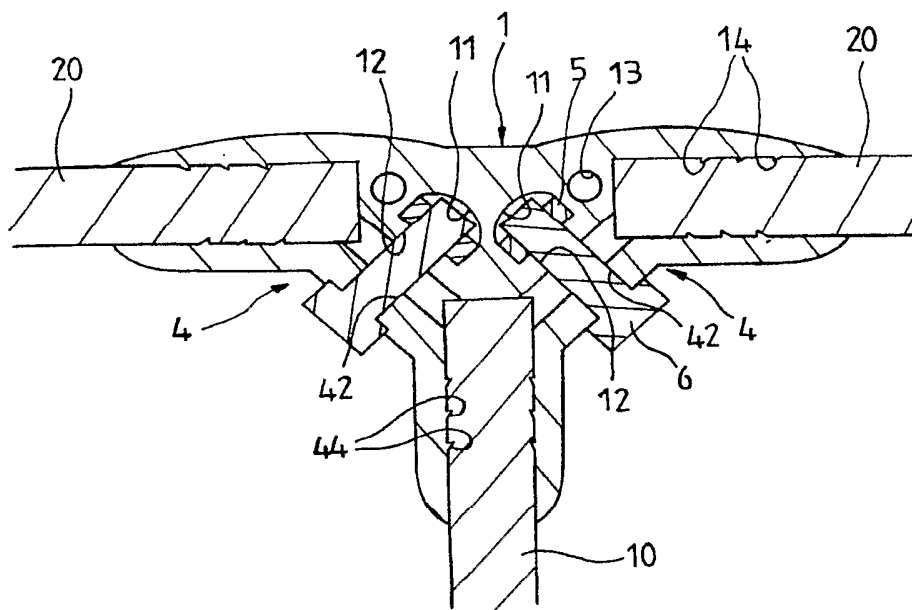


Fig. 2

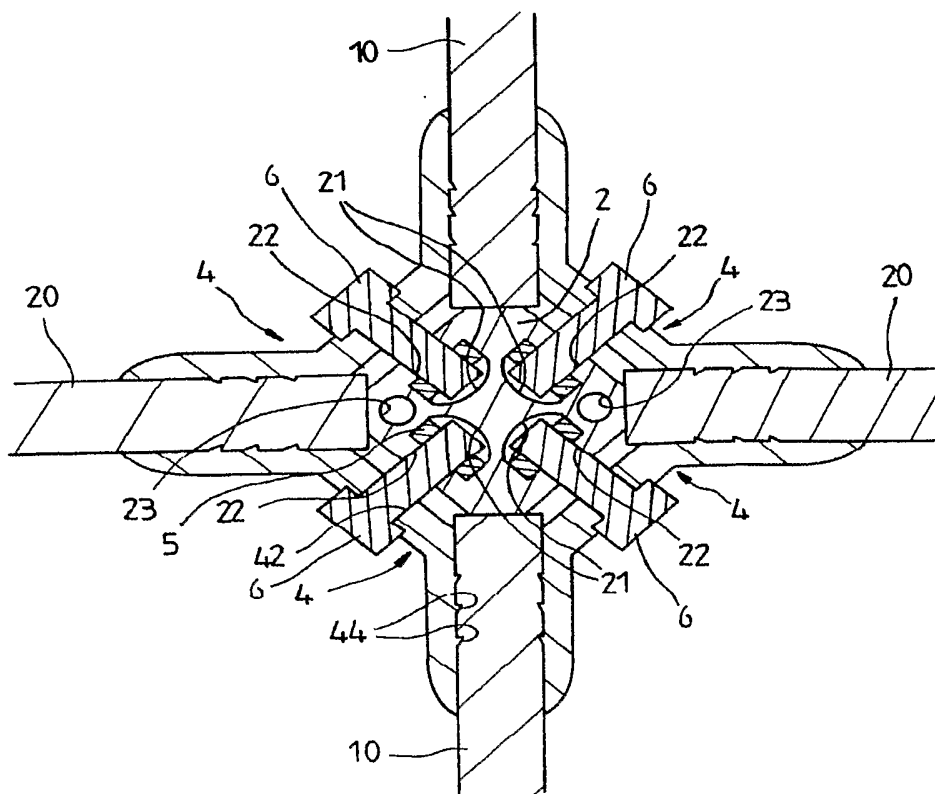


Fig. 3

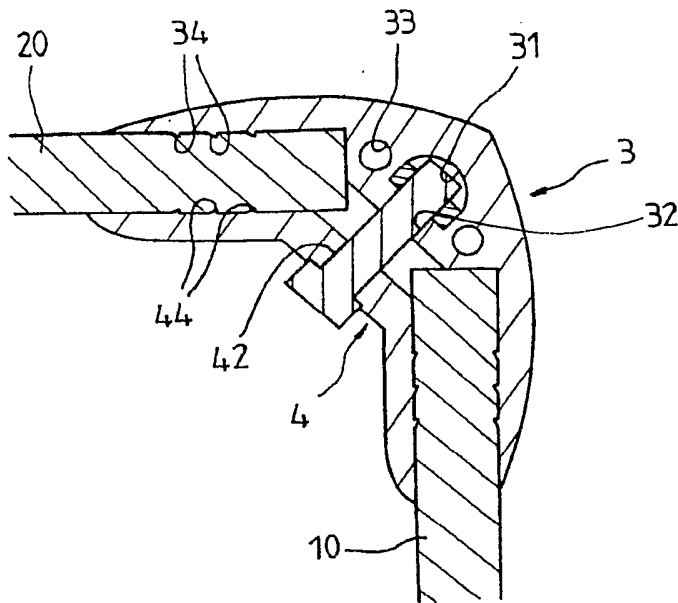


Fig. 4

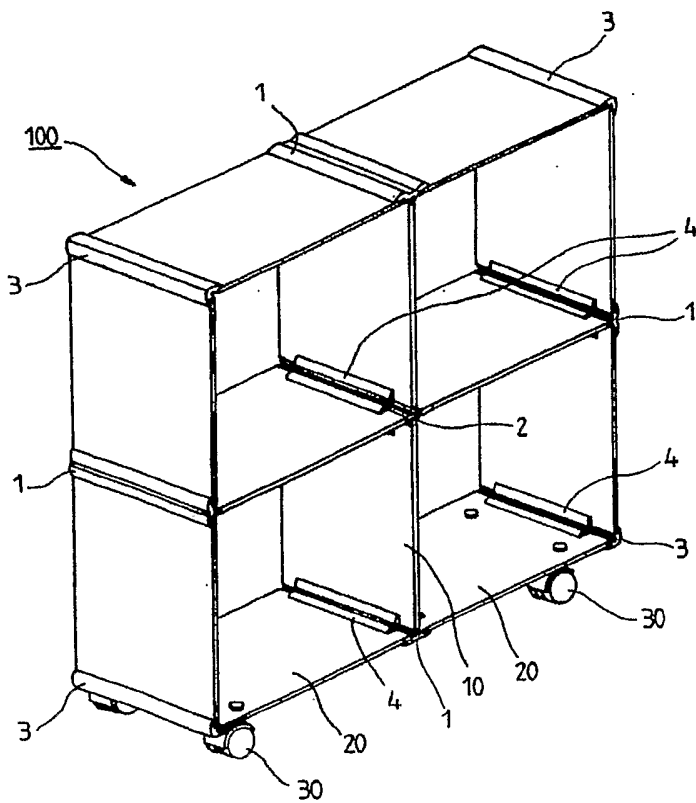


Fig. 5

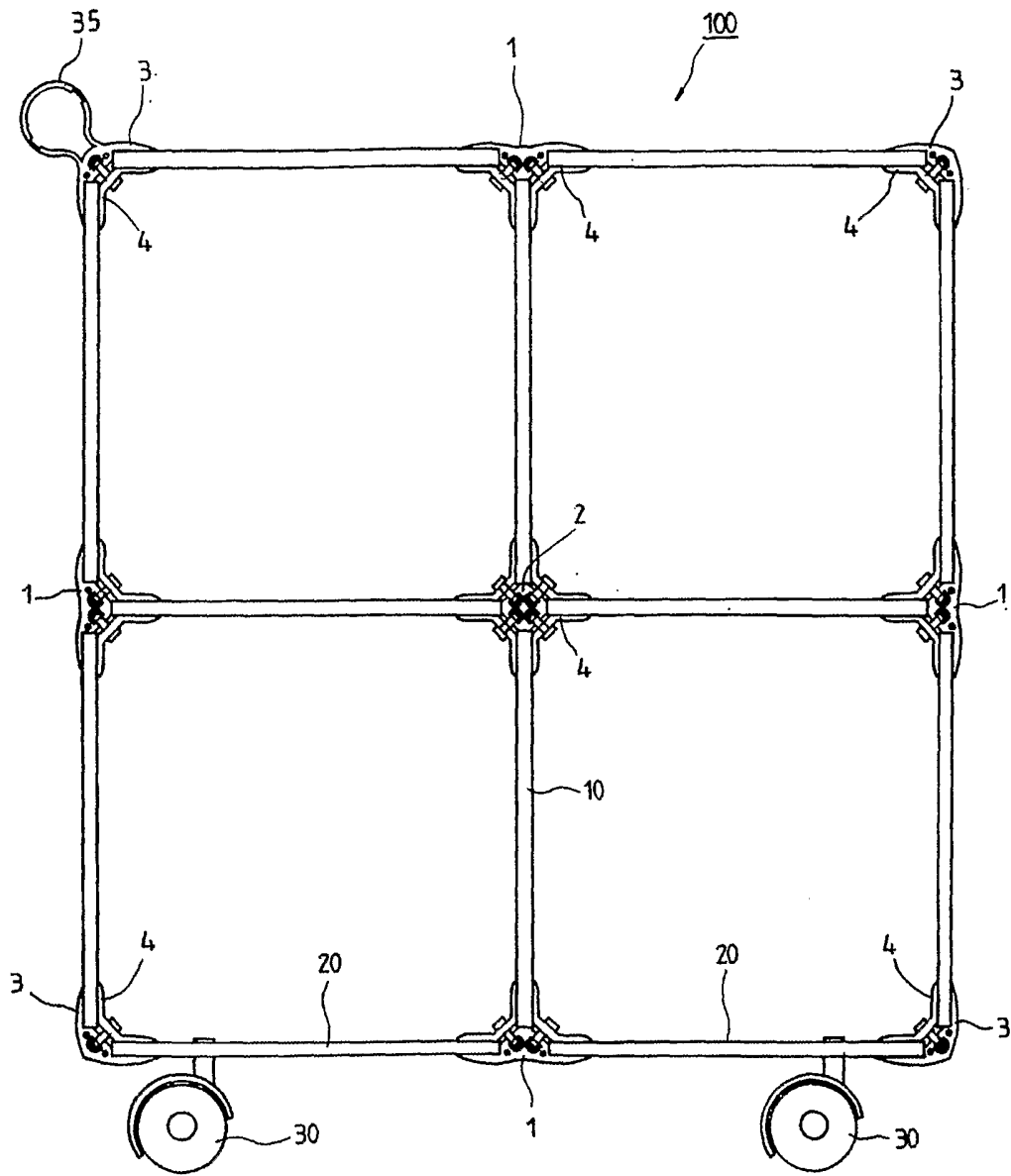


Fig. 6

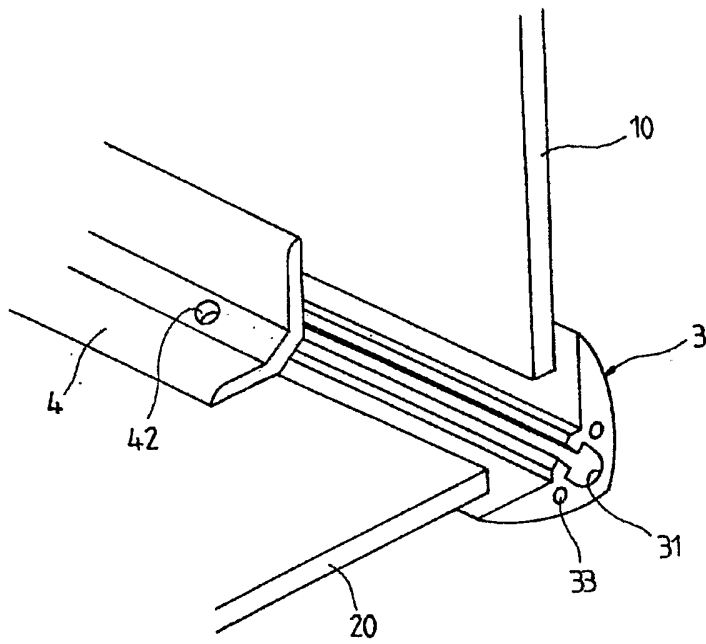


Fig. 7

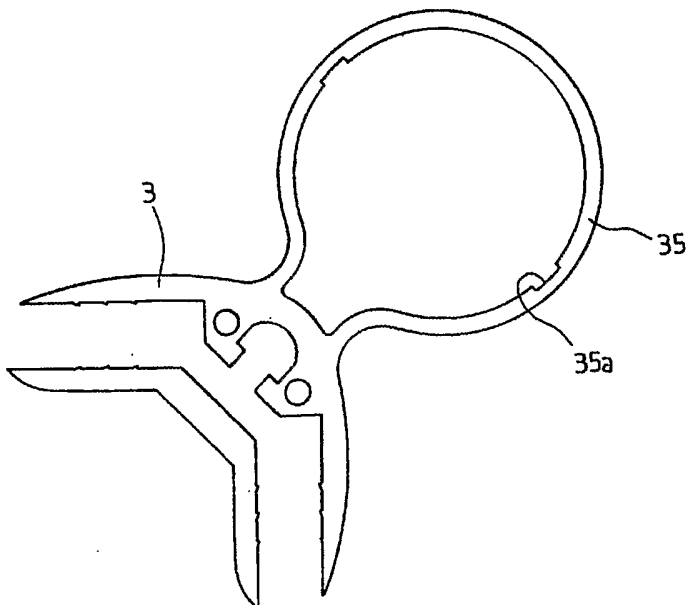
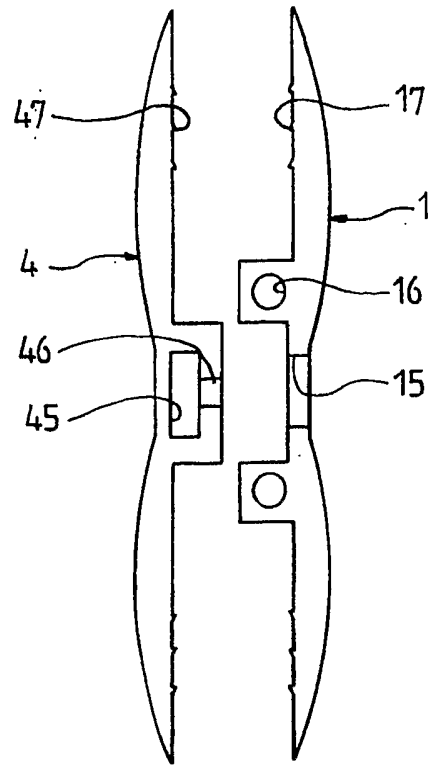


Fig. 8



INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC7 A47B 47/00
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)
IPC7 A47B 47/00, F16B 12/40

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korea patents and applications for inventions since 1975
Korea Utility models applications for Utility models since 1975

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 02-4734 Y1 (Song Dae Jun), 28 November 1991 Claim, Fig. 1,2,3	1 - 7
Y	KR 2002-18491 A (Yang Kyung Ho), 8 March 2002 Claim 1, fig. 2,3	1 - 7, 9
Y	KR 91-17721 U (Jo Yong Dae), 28 November 1991 Claim 2, Fig. 2,3	8

Further documents are listed in the continuation of Box C. See patent family annex.

<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>
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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
 KIM, Byung Woo
 Telephone No. 82-42-481-5695