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(54) **Wardrobe with a sliding door arrangement**

(57) A reversible wardrobe sliding door arrangement is constructed to include a wardrobe body and a reversible sliding door structure controlled to close/open a front opening of the wardrobe body, the reversible sliding door structure including a track disposed at one side of the front opening of the wardrobe body, a folding collapsible sliding door panel movable along the track to close/open the front opening of the wardrobe body, and a winding mechanism disposed at one side of the front opening of the wardrobe body perpendicular to one end of the track and adapted for winding up the folding collapsible sliding door panel to hold the folding collapsible sliding door panel in a received position where the front opening of the wardrobe body is opened.

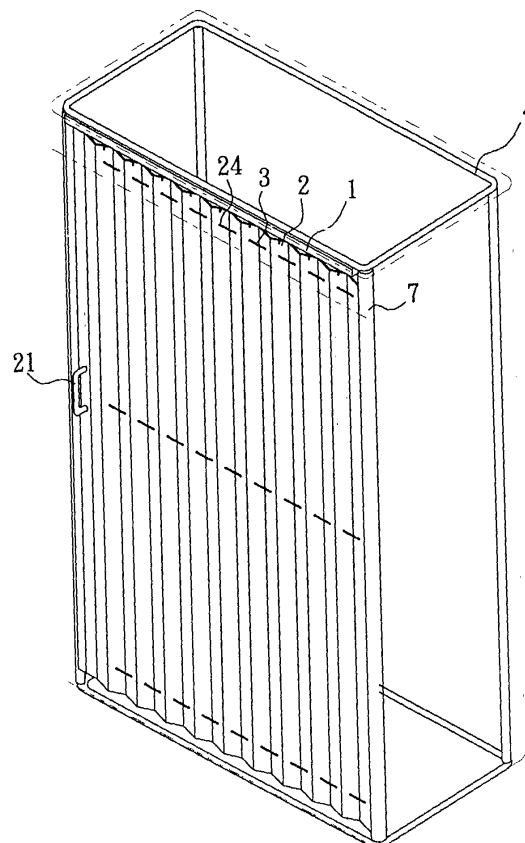


FIG.1

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention:

[0001] The present invention relates to a wardrobe for holding clothes and, more particularly, to a reversible sliding door arrangement for a wardrobe.

2. Description of the Related Art:

[0002] Conventional portable wardrobes are commonly comprised of a metal wardrobe frame and a covering of plastic sheet material covering the metal wardrobe frame. These portable wardrobes commonly use a zipper fastener for operation by hand to close/open the front door. However, because the two opposite door panels of the covering of plastic sheet material have a respective bottom side coupled to the zip fastener, the front door is not fully opened when unfastened the zipper fastener. In order to eliminate this problem, additional zip fasteners are provided for enabling the door panels of the covering of plastic sheet material to be fully opened. However, it is inconvenient to unfasten all the zip fasteners.

SUMMARY OF THE INVENTION

[0003] The present invention has been accomplished under the circumstances in view. It is one object of the present invention to provide a reversible wardrobe sliding door arrangement, which can easily be operated to close/open the wardrobe. It is another object of the present invention to provide a reversible wardrobe sliding door arrangement, which can be designed for horizontal sliding or vertical sliding as desired. It is still another object of the present invention to provide a reversible wardrobe sliding door arrangement, which automatically receives the door panel when the door panel unlocked. It is still another object of the present invention to provide a reversible wardrobe sliding door arrangement, which is suitable for use with a Venetian blind type sliding door as well as a flexible sheet material type sliding door. According to one aspect of the present invention, the reversible wardrobe sliding door arrangement comprises a wardrobe body and a reversible sliding door structure controlled to close/open a front opening of the wardrobe body. The reversible sliding door structure comprises a track disposed at one side of the front opening of the wardrobe body, a folding collapsible sliding door panel movable along the track to close/open the front opening of the wardrobe body, and a winding mechanism disposed at one side of the front opening of the wardrobe body perpendicular to one end of the track and adapted for winding up the folding collapsible sliding door panel to hold the folding collapsible sliding door panel in a received position where the front opening of

the wardrobe body is opened. According to another aspect of the present invention, the winding mechanism comprises a hollow elongated casing, a revolving shaft supported in the casing, a plurality of cord members respectively fastened to the folding collapsible door panel in parallel, a plurality of bobbins respectively fixedly fastened to the revolving shaft and adapted for winding up the cord members, and a plurality of spiral springs adapted for biasing the bobbins.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004]

FIG. 1 is a perspective view of a reversible wardrobe sliding door arrangement according to a first embodiment of the present invention.

FIG. 2 is similar to FIG. 1 but showing the folding collapsible sliding door panel received, the front opening of the wardrobe body opened.

FIG. 3 is a perspective view of a reversible wardrobe sliding door arrangement according to a second embodiment of the present invention.

FIG. 4 is a perspective view of a reversible wardrobe sliding door arrangement according to a third embodiment of the present invention.

FIG. 5 is similar to FIG. 4 but showing the folding collapsible sliding door panel extended out, the front opening of the wardrobe body closed.

FIG. 6 is a sectional plain view of the reversible sliding door structure according to the present invention (the folding collapsible sliding door panel excluded).

FIG. 7 is a sectional plain view of a part of the present invention, showing the arrangement of the carrier slide in the track and the connection of the folding collapsible sliding door panel to the carrier slide.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0005] Referring to FIGS. 1, 2, 6, and 7, a reversible wardrobe sliding door arrangement in accordance with a first embodiment of the present invention is shown comprised of a rectangular wardrobe body **4** (formed of a wardrobe frame and a flexible covering covering the wardrobe frame), and a reversible sliding door structure mounted in wardrobe body **4** and moved to close/open the front opening of the wardrobe body **4**. The reversible sliding door structure comprises a hollow elongated casing **7** fixedly vertically disposed along one vertical side of the front opening of the wardrobe body **4**, a revolving shaft **71** longitudinally revolvably supported in axle bearings inside the casing **7**, a plurality of bobbins **72** respectively fixedly mounted on the revolving shaft **71**, a plurality of spiral springs **73** respectively mounted inside the casing **7**, each spiral spring **73** having one end fix-

edly fastened to the inside wall of the casing 7 and the other end fixedly fastened to the revolving shaft 71, a plurality of cord members 3 respectively wound round the bobbins 72, each cord member 3 having one end, namely, the inner end fixedly fastened to the corresponding bobbin 72 and the other end, namely, the outer end wound round the corresponding bobbin 72 and then extended out of the casing 7, a track 1 fixedly horizontally disposed along the top horizontal side of the front opening of the wardrobe body 4, and a folding collapsible sliding door panel 2 fastened to the outer ends of the cord members 3 outside the casing 7 and moved horizontally along the track 1 to close/open the front opening of the wardrobe body 4. Normally, the spiral springs 73 hold the bobbins 72 in such a position that the bobbins 72 wound up the cord members 3, keeping the folding collapsible sliding door panel 2 in the received position, namely, the normal-open position. The folding collapsible sliding door panel 2 has a handle 21 at the free end through which the user can pull the folding collapsible sliding door panel 2 to the extended position to close the front opening of the wardrobe body 4. In order to prevent reverse movement of the folding collapsible sliding door panel 2 due to the spring power of the spiral springs 73, fastener means, for example, a ring and a hook (not shown) are respectively provided at the wardrobe body 4 and the free end of the folding collapsible sliding door panel 2 for securing the folding collapsible sliding door panel 2 in the close position. The folding collapsible sliding door panel 2 is formed of a set of slats 24 respectively fastened to the cord members 3 like the installation of the slats of a Venetian blind in the lift cord. Further, carrier slides 6 are respectively installed in the track 1 and adapted for carrying the folding collapsible sliding door panel 2 between the close position and the open position. Each carrier slide 6 comprises two pairs of rollers 61 movably supported in the longitudinal groove 11 in the track 1.

[0006] FIG. 3 shows a second embodiment of the present invention. According to this alternate form, the track 1 has a L-shaped profile extended along the horizontal tops of two adjacent vertical lateral sides of the rectangular wardrobe body. The folding collapsible sliding door panel 2 according to this embodiment is formed of a folding collapsible corrugated sheet member or piece of fabric.

[0007] FIGS. 4 and 5 show a third embodiment of the present invention. According to this alternate form, two vertical tracks 1 are provided at two sides of the front opening of the wardrobe body; the casing 7 is horizontally disposed at the top of the front opening of the wardrobe body, and the folding collapsible sliding door panel 5 is fastened to the cord members 3 and adapted for moving vertically along the tracks 1 to close/open the front opening of the wardrobe body. Normally, the winding mechanism (the spiral springs, the bobbins, and the revolving shaft inside the casing 7) holds the folding collapsible sliding door panel 5 in the received (open) po-

sition. When closing the wardrobe, the folding collapsible sliding door panel 5 is pulled downwards and extended to the bottom side and then fastened to the bottom side of the wardrobe body and held in the close position.

[0008] Although particular embodiments of the invention have been described in detail for purposes of illustration, various modifications and enhancements may be made without departing from the spirit and scope of the invention. Accordingly, the invention is not to be limited except as by the appended claims.

Claims

1. A reversible wardrobe sliding door arrangement comprising a wardrobe body having a wardrobe frame defining a front opening and a covering of flexible sheet material covering said wardrobe frame, and a reversible sliding door structure mounted on said wardrobe frame and moved to close/open the front opening of said wardrobe body, wherein said reversible sliding door structure comprises:

a track disposed at one side of the front opening of said wardrobe body;

a folding collapsible sliding door panel movable along said track to close/open the front opening of said wardrobe body; and

a winding mechanism disposed at one side of the front opening of said wardrobe body perpendicular to one end of said track and adapted for winding up said folding collapsible sliding door panel to hold said folding collapsible sliding door panel in a received position where the front opening of said wardrobe body is opened, said winding mechanism comprising a hollow elongated casing, a revolving shaft supported in said casing, a plurality of cord members respectively fastened to said folding collapsible sliding door panel in parallel, a plurality of bobbins respectively fixedly fastened to said revolving shaft and adapted for winding up said cord members, and a plurality of spiral springs adapted for biasing said bobbins.

2. The reversible wardrobe sliding door arrangement as claimed in claim 1, wherein said folding collapsible sliding door panel is comprised of a plurality of slats.
3. The reversible wardrobe sliding door arrangement as claimed in claim 1, wherein said folding collapsible sliding door panel is comprised of a flexible sheet of fabric.
4. The reversible wardrobe sliding door arrangement

as claimed in claim 1, wherein said casing is vertically extended along one lateral side of the front opening of said wardrobe body, and said track is horizontally extended along a top side of the front opening of said wardrobe body.

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5. The reversible wardrobe sliding door arrangement as claimed in claim 1, wherein said casing is horizontally extended along a top side of the front opening of said wardrobe body, and said track is vertically extended along one lateral side of the front opening of said wardrobe body.

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6. The reversible wardrobe sliding door arrangement as claimed in claim 1, wherein said track has a L-shaped profile horizontally extended along tops of two adjacent vertical peripheral sides of said wardrobe frame of said wardrobe body, and said casing is vertically disposed along one lateral side of one vertical peripheral side of said wardrobe frame adjacent to the front opening of said wardrobe body.

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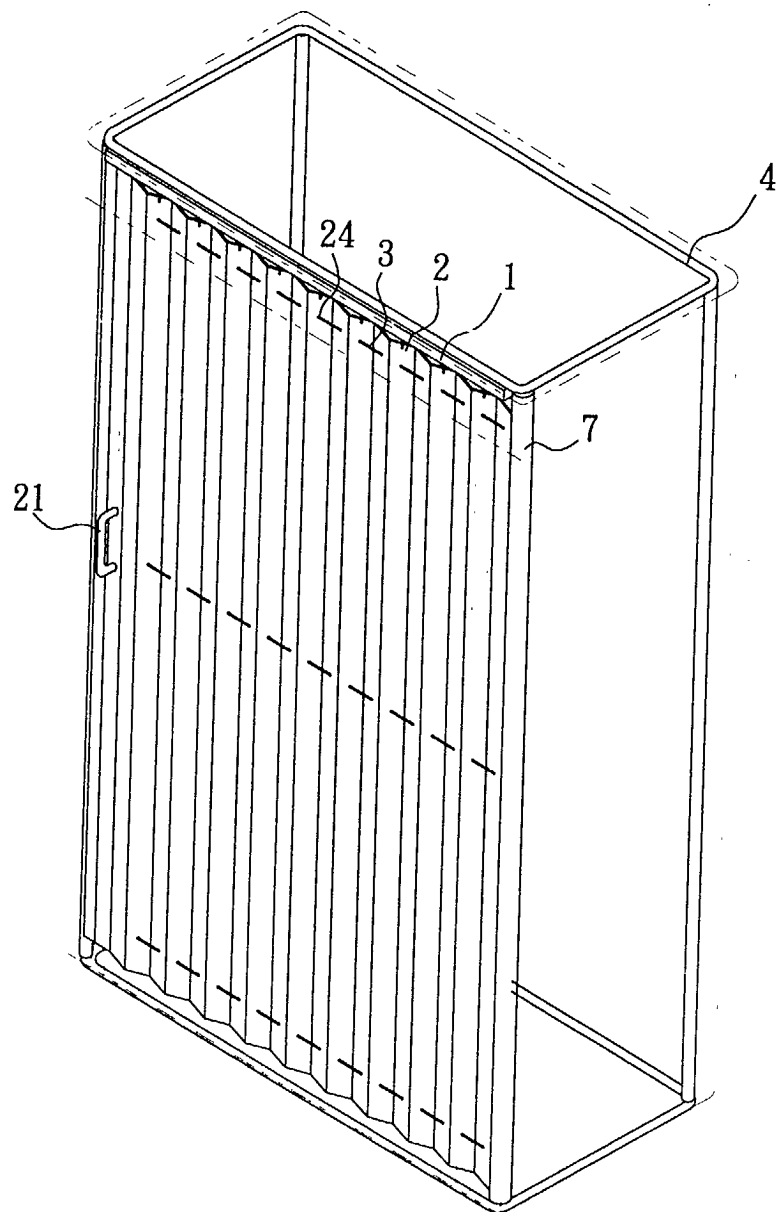


FIG.1

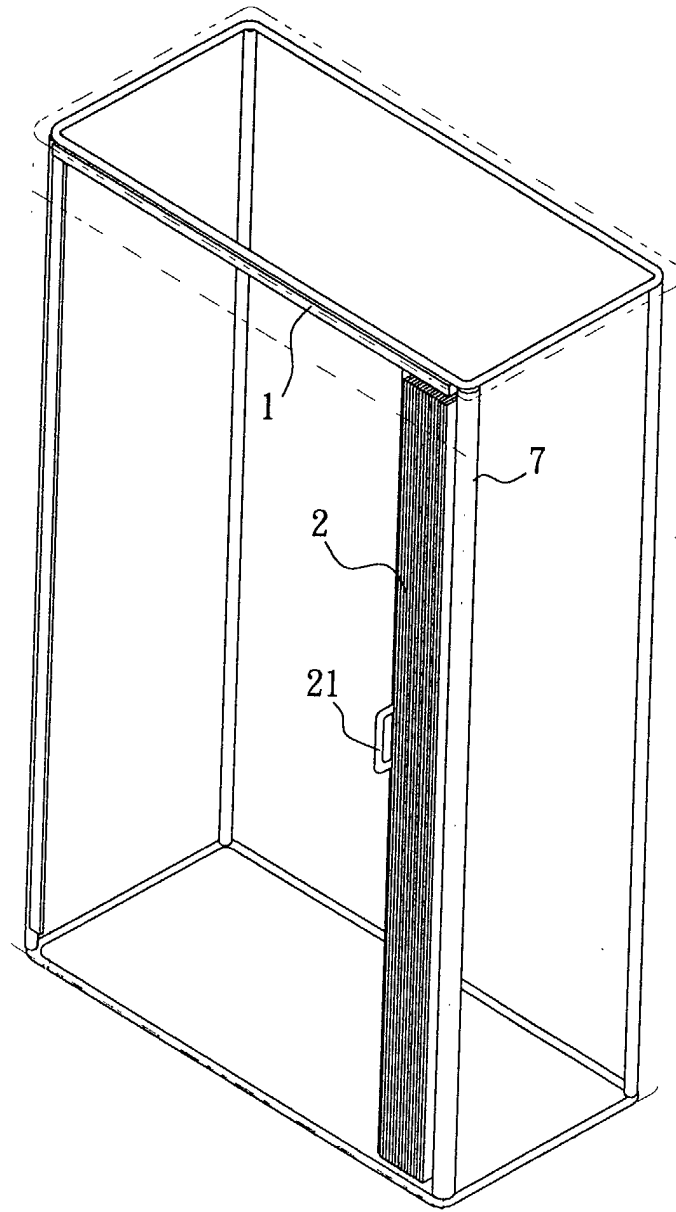


FIG.2

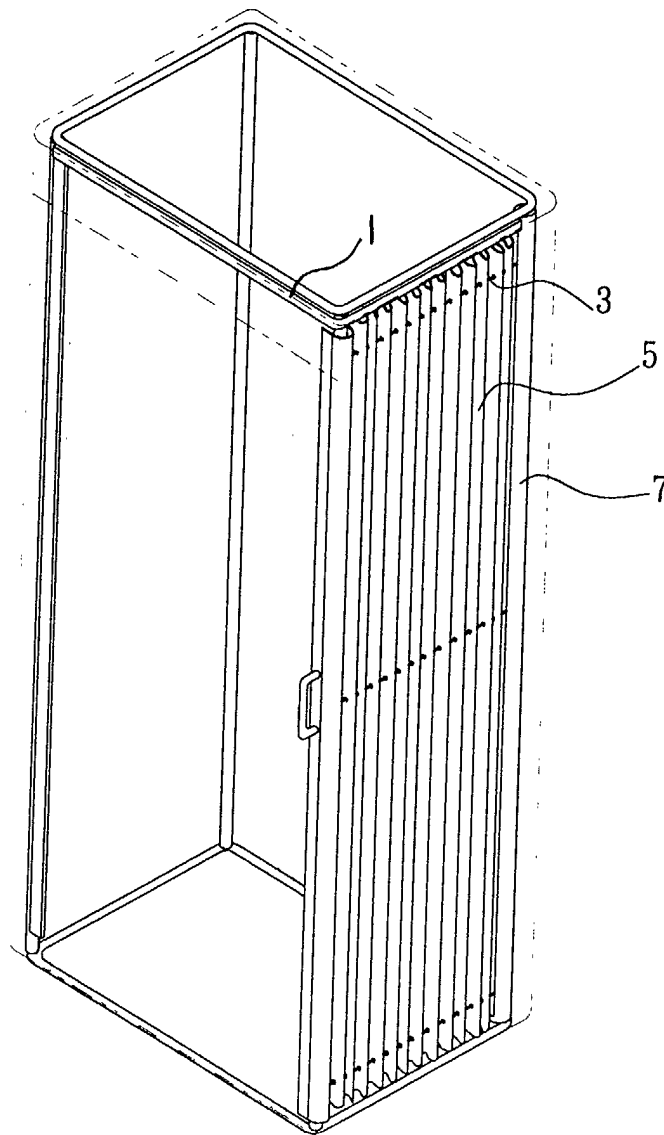


FIG.3

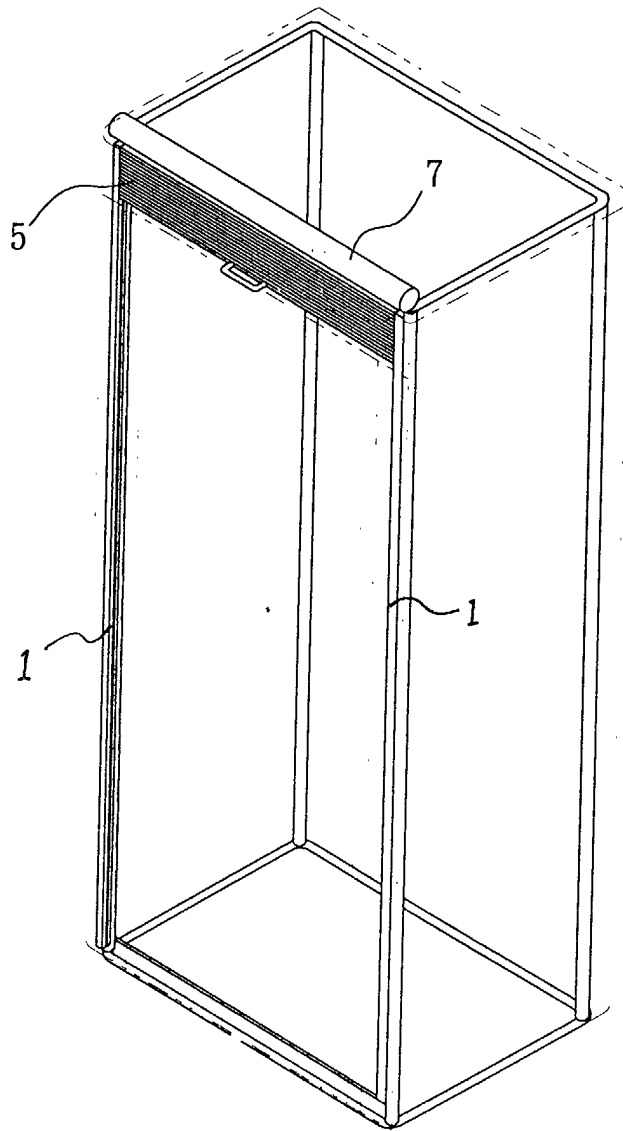


FIG.4

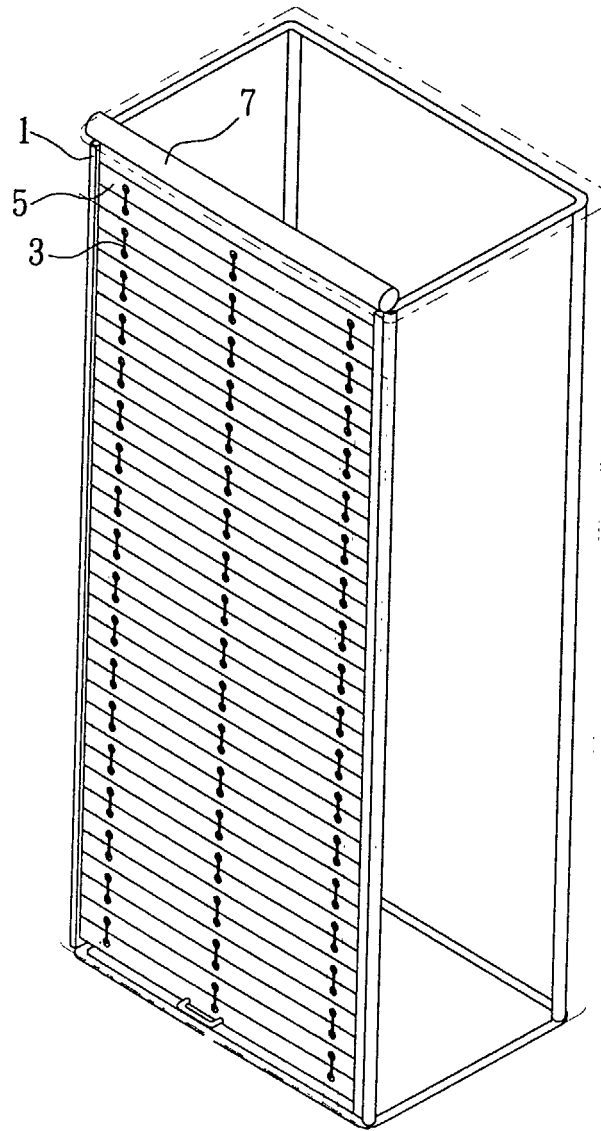


FIG.5

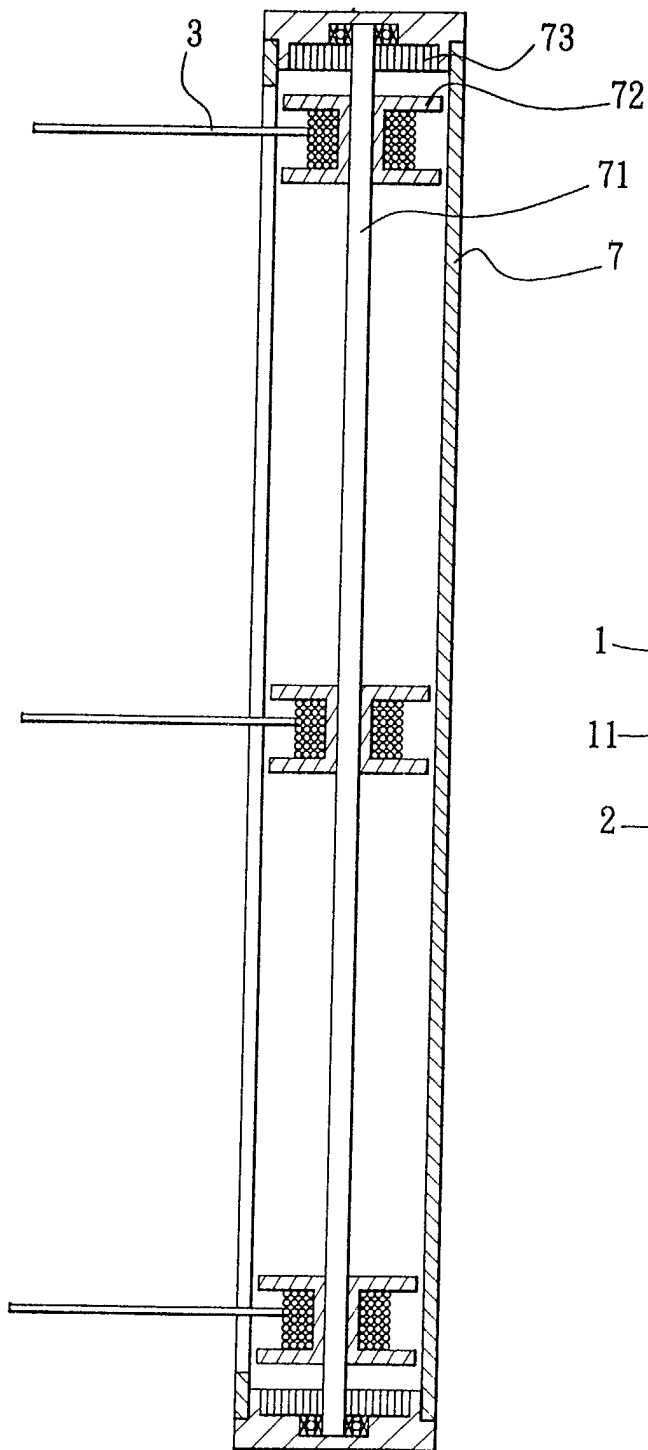


FIG.6

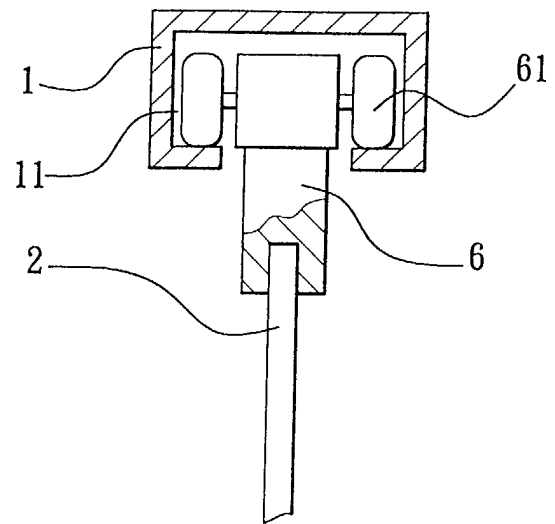


FIG.7



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 02 01 1483

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Y	US 5 810 457 A (FELSENTHAL DONALD H ET AL) 22 September 1998 (1998-09-22) * the whole document *	1-6	E06B9/11 A47B61/00
Y	US 5 287 908 A (HOFFMANN BRIAN M ET AL) 22 February 1994 (1994-02-22) * column 4, line 52 - column 5, line 12; figures 3,4 *	1,3	
Y	US 2 564 197 A (DOBKIN WILLIAM J) 14 August 1951 (1951-08-14) * figures 2,4 *	2,4,5	
Y	DE 296 07 921 U (VER GLASWERKE GMBH) 14 August 1996 (1996-08-14) * figure 1 *	4,6	
A	WO 02 29194 A (GAMBARELLI FRANCO ;SWISSLOG ITALIA S P A (IT)) 11 April 2002 (2002-04-11) * the whole document *		
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E06B A47B
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 25 July 2002	Examiner Knerr, G
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 01 1483

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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25-07-2002

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5810457	A	22-09-1998	US 5622415 A	22-04-1997
US 5287908	A	22-02-1994	AT 149627 T	15-03-1997
			AU 662030 B2	17-08-1995
			AU 3031592 A	24-06-1993
			BR 9205052 A	13-10-1993
			CA 2085801 A1	20-06-1993
			DE 69217880 D1	10-04-1997
			DE 69217880 T2	12-06-1997
			DE 69232466 D1	11-04-2002
			DK 549216 T3	08-09-1997
			EP 0549216 A1	30-06-1993
			EP 0742339 A2	13-11-1996
			ES 2098461 T3	01-05-1997
			HK 1000059 A1	31-10-1997
			JP 6050069 A	22-02-1994
			KR 233069 B1	01-12-1999
			NO 924910 A	21-06-1993
			SG 47409 A1	17-04-1998
			US 5454414 A	03-10-1995
			US 5339883 A	23-08-1994
			US 5392832 A	28-02-1995
			ZA 9209849 A	13-01-1994
US 2564197	A	14-08-1951	NONE	
DE 29607921	U	14-08-1996	DE 29607921 U1	14-08-1996
WO 0229194	A	11-04-2002	IT M020000214 A1	05-04-2002
			WO 0229194 A1	11-04-2002