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(54) **A wardrobe and a storage rail therefor**

(57) A hanging rail (11) for use with a storage unit (51) and comprising a base (12) in use for fixing the hanging rail to a support, a rail (13) pivotally connected to the base (12) and moveable in a vertical plane between horizontal and vertical conditions, a latching device (37) for holding the rail in the horizontal condition,

and a release mechanism (39) for releasing the latch device and allowing the rail to pivot into the vertical condition for housing within the unit (51). The base comprises two parts, a first part (15) for fixing to the support and a second part (16) pivoted to the first part by hinge means (17) inclined in said substantially vertical plane with the rail (13) being pivoted to the second part.

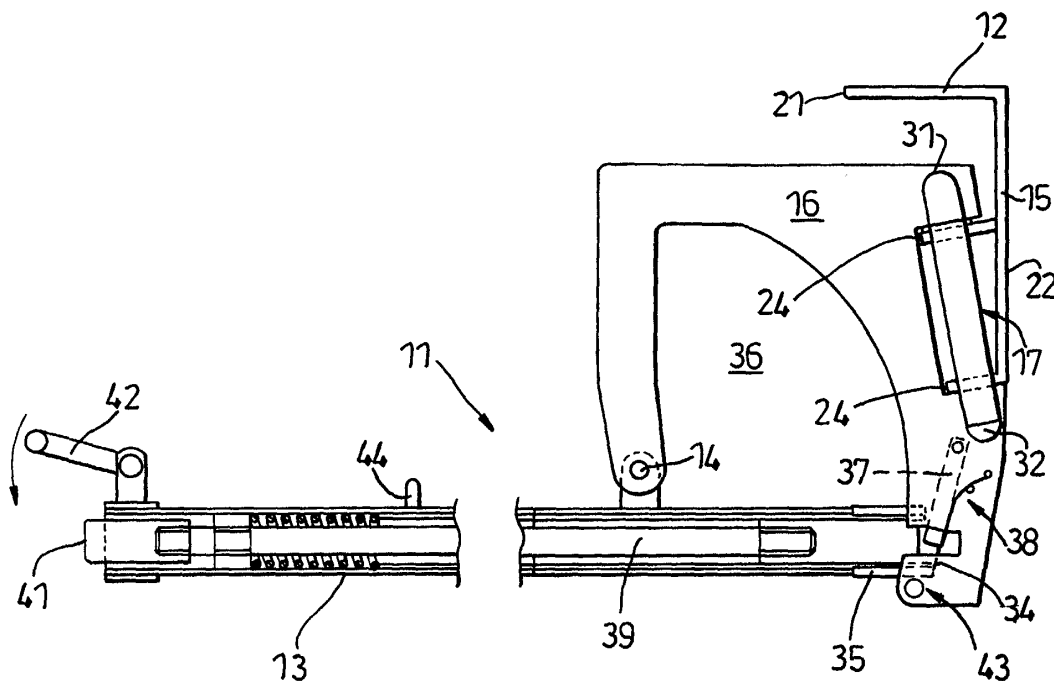


Fig. 2

Description

Field

[0001] This invention relates to storage rails and in particular to storage rails for use in wardrobes or cupboards for hanging clothes.

Background of the Invention

[0002] In compact living accommodation such as might be found in mobile homes, caravans, boats, guest rooms and hostels etc., where storage space is at a premium, it is desirable to provide compact storage units such as wardrobes which provide the normal wardrobe facilities for small amounts of clothing and occupy minimal amounts of space. One major problem with storage units for caravans and boats is that the front to rear depth of such storage spaces is necessarily confined by the overall living space available and therefore storage rails for clothes hangers sometimes are arranged to extend normal to any wall to which the storage unit is attached so that the clothes hangers in use will lie substantially parallel to the wall. This allows for small amounts of clothing to be stored within the limited available depth of the storage unit.

[0003] This arrangement has a disadvantage in that the clothes are hung front to rear within the unit and clothes from the rear cannot be easily seen and cannot be removed without emptying at least some of the other contents from the storage unit.

[0004] JP-A- 090173693 discloses a hanging rail for clothes drying and which comprises comprising a base in use for fixing the hanging rail to a support, a rail pivotally connected to the base and moveable in a substantially vertical plane between substantially horizontal and vertical conditions, a latching device for holding the rail in the substantially horizontal condition, and a release mechanism for releasing the latch device and allowing the rail to pivot into a substantially vertical condition for housing within the unit. Such a rail will be called a hanging rail of the type referred.

[0005] When the above hanging rail is in a horizontal condition it is liable to be damaged if the rail is subject to a transverse load or impact.

[0006] According to the present invention there is provided a hanging rail of the kind referred characterised by the base comprising two parts, a first part for fixing to a support and a second part, preferably forming an arm, pivoted to the first part by hinge means inclined in said substantially vertical plane, the rail being pivoted to the second part.

[0007] Preferably the rail is pivoted to the base at a mid-length location and the latch device includes a detent located at the end of the rail adjacent the base. The rail may be pivoted for downward movement relative to the base and the end of the rail may co-operate with the base to form a guide for the pivotal movement of the rail.

[0008] The rail may have spaced apart raised projections along its length which in use limit sliding movement of hangers along the length of the rail.

[0009] The latch device is releasable by a release means housed within the rail and which is resiliently biased into an inoperative condition, the release means being operated by a push button located in the other end of the rail away from the base. In an alternative arrangement the latch device is releasable by movement of the rail away from the base.

[0010] A second aspect of the present invention provides for a wall mountable storage unit having a hanging rail according to the first aspect of the present invention, the depth of the storage unit being less than the length of the rail.

[0011] The storage unit may comprise upper and lower frames with cladding panels and door(s) being attached to the frames, the unit being expandable in width by the addition of modular portions to the frame, and by the use of different standard panels and doors for different widths. The unit may be expandable in width using modular frame portions, panels etc..

[0012] The base of the hanging rail may form part of upper frame and is utilised for attachment of the unit to a support wall. A second lower support panel may also form part of the lower frame and also be utilised for attachment of the unit to a support wall.

[0013] A third aspect of the invention provides for a wall mountable storage unit which comprises upper and lower metal frames with cladding panels and door(s) being attached to the frame, the unit being expandable in width by the addition of modular portions to the frames, and by the use of different standard panels and doors for different width units.

[0014] The storage unit may be used as a compact wall mounted wardrobe for use within confined living spaces.

Description of the Drawings

[0015] The invention will be described by way of example and with reference to the accompanying drawings in which:

- Fig. 1 is a side elevation of a hanging rail according to the present invention with the rail in a lowered condition,
- Fig. 2 is a side elevation of the rail in Fig. 1 in a raised horizontal condition,
- Fig. 3 is a front elevation of the rail shown in Fig. 1
- Fig. 4 is a front elevation of a storage unit incorporating a hanging rail as shown in Fig. 1 with doors removed,
- Fig. 5 is a sectional side elevation and sectional view of the unit of Fig. 4 with a closed door,
- Fig. 6 is a plan view of the storage unit shown in Fig. 4 with the doors shown in open conditions,
- Fig. 7 is a side elevation showing one door in an open condition,

Fig. 8 is a side elevation of a second rail also according to the present invention, and

Fig. 9 is a side elevation of a third rail according to the present invention.

Detailed Description of the Invention

[0016] With reference to Figs. 1 to 3, there is shown a hanging rail 11 for the hanging clothes or other goods by means of hangers or hooks. The hanging rail 11 comprising a base 12 for fixing the hanging rail to a support, for example the rear wall of a storage unit, and a rail 13 pivotally connected to the base by a pin 14. The rail 13 is in the form of tube and can pivot between a horizontal condition as shown in Fig. 2 or a lowered position as shown in Fig. 1.

[0017] The base 12 is made up from two parts, a first part 15 which in use is fixed to a support for attachment of the base 12 thereto and a second part 16 in the form of an arm which is hinged to the first part by a hinge pin 17 secured to the arm 16 by any suitable means e.g. rivets. The first part 15 comprises a two planar flanges 21, 22, arranged normally of each other and both having holes 23 therein to accommodate screws, bolts etc. for attachment to a support. The vertical flange 22 supports a pair of brackets 24 having holes therein which accommodate the hinge pin 17 such that the pin 17 is inclined to the vertical within the plane of movement of the rail 13, forming a centring device which returns the rail 13 and second part 16 to a centralised position relative to the fixed first part. The pivot holes in the brackets 24 are slightly oversized allowing for limited play or movement between the pin 17 and supporting brackets 24.

[0018] The arm 16 of the base 12 is substantially planar and extends outwardly from the fixed part 15. The arm 16 has the rail 13 pivoted to its end remote from the fixed part, and the hinge pin 17 is secured between two sockets 31, 32 formed in the inner end portion of the arm 16 adjacent the fixed part 15. The arm 16 is free to swing sideways in an arc relative to the fixed part 15 and the play between the hinge pin 17 and the brackets 24 allows for a tilting movement of the arm 16 relative to the fixed part 15.

[0019] The rail 13 is pivoted to the arm 16 at a mid length location so that a portion of the rail is co-extensive with the arm which has an arcuate hollow 36 therein to accommodate the movement of the co-extensive portion of the rail. The end portion 33 of the rail 13 adjacent the fixed part is formed with a slot 35 which engages either side of the arm to act as a guide for movement of the rail 13. The end portion 33 of the rail 13 has a detent 34 on its end face which is engageable with a latch means 37 on the lower inner portion of the arm 16. The latch 37 is biased into the engaging condition by a spring 38, preferably a leaf spring, and is releasable by a release rod 39 slidably located within the tubular rail 13 and spring biased away from the latch. The release rod 39 is operated by a push button 41 located in the outer end

of the rail. A handle 42 is pivotally connected to the outer end portion of the rail 13 for lifting the rail from a lowered condition to a horizontal condition. A stop 43 located on the arm 16 below the latch 37 prevents the pivotal movement of the rail 13 past the substantially horizontal. The rail 13 has a plurality of spaced apart projections 44 on its upper surface and which is used to prevent the hangers or hooks from sliding down to the outer end of the rail when in the lowered condition.

[0020] The hanging rail 11 is utilized in within a storage unit for example a compact wardrobe and is stored within the wardrobe in the lowered condition. The rail 13 is raised by the handle 42 and its pivoting movement is guided by the slot 35 in the inner end portion of the rail 13 engaging with the arm 16. The detent 35 on the rail 13 moves past the spring loaded latch 37 until the rail abuts the stop 43. The rail is then held in a horizontal condition and hangers having clothes or other goods thereon can be added or removed to or from the rail. The play in the hinge 17 allows some sideways movement of the rail 13 to aid viewing of garments on the rail and the inclination of the hinge 17 ensures that the rail 13 centres itself.

[0021] The rail can be lowered for storage by operation of the push button to release the latch 37 against the bias of the spring 38. In the lowered condition clothes on hangers form neat tiers within a storage unit.

[0022] With reference now to Figs 4 to 7, the hanging rail 11 is used in a compact wall mounted storage unit, in particular a wall mounted wardrobe 51. The wardrobe has a rectangular carcass 52 about 1.5m in height, 0.78m in width and about 0.2m in depth. The carcass 52 has an upper rectangular frame 53 which is fixed to the top flange 21 of the base 12 of the collapsible hanging rail, and a lower rectangular frame 55 which is fixed to lower support plate 54. The base 12 and lower support plate are fixed to support wall W.

[0023] Cladding panels 56 57 58 59 are mounted to the top and bottom frames 53, 55 to form the sides, top and bottom of the wardrobe respectively. Doors 61 62 are fixed to the upper and lower frames 53, 55 using elongate supports 63, 64 which are hinged to the upper and lower frames respectively. At least one of the doors is provided with a locking mechanism 66 having sliding struts 67 engageable with the upper and lower frames 53, 55 to maintain the doors in a closed condition. Any door handles may be recessed into the outer surface of the door so as to occupy minimal space within the room.

[0024] The frames 53, 55, and door supports 63, 64 may be formed from interlocking lengths of metal tube or rod, having for example a screw threaded stud at one end and a like screw threaded socket at the other end so that length of tube or rod can be assembled end to end. By using modular lengths of tube the upper and lower frames can be extended in width by known predetermined amounts whilst the height and depth of the unit remain constant. The widths of the door supports 63, 64 can be likewise extended and the doors 61, 62 can

be formed having different widths to suit the widths of the particular frames 53,55.

[0025] The hanging rail 11 may have an overall length from the outer end of the rail 13 to the vertical flange 22 of the base 12 of about 0.43 m and is collapsible into a unit having a depth of about 0.2mm.

[0026] Referring now to Fig. 8, there is shown an alternative construction of rail 111 which is similar to that shown in Figs. 1-3 and the same reference numbers will be used for equivalent components. The rail 13 is pivoted to a two part base 12 comprising a first part 15 with a second part 116 pivoted to the first part by an inclined hinge pin 17. The second part 116 of the base 12 comprises a support arm 126 mounted to the pin 17 with a second arm 136 pivoted to the support arm by a pivot pin 137. The second arm 136 has limited rotational movement in substantially vertical plane relative to the support arm 126 and is held in a substantially horizontal condition as shown by abutment against the support arm.. A fixed latch 138 is mounted to the first part 15 and is engagable by the detent 34 on the end of the rail 13.

[0027] The rail 13 placed in the horizontal condition by pivoting the rail to a horizontal condition about the pin 14 and then pulling the handle 42 away from the fixed first part 15 so that the second arm 136 pivots upwardly relative to the support arm 126 and first part 15 allowing the detent 34 to engage under the fixed latch 138. The release is by the reverse procedure, moving the rail away from the latch 138 to dis-engage the detent 34.

[0028] Yet another construction of hanging rail 211 is shown in Fig. 9 and is again similar to that shown in Figs 1-3. The first part 15 of the base 12 has a fixed latch 138. In this embodiment the necessary movement of the rail 13 relative to the fixed latch 138 is provided by a lost motion connection 224 between the pivot pin 14 and the rail 13. The lost motion connection 224 is provided by an elongate aperture 225 engaging the pin 14. The rail 14 may be resiliently biased to the detent engaging condition to prevent accidental dis-engagement.

Claims

1. A hanging rail (11) for use with a storage unit (51) and comprising a base (12) in use for fixing the hanging rail to a support, a rail (13) pivotally connected to the base (12) and moveable in a substantially vertical plane between substantially horizontal and vertical conditions, a latching device (34,37, 138) for holding the rail (13) in the substantially horizontal condition, and a release mechanism (39, 136/7, 224) for releasing the latch device (37,138) and allowing the rail to pivot into a substantially vertical condition for housing within the unit **characterised in that** the base (12) comprises two parts, a first part (15) for fixing to the support and a second part (16) pivoted to the first part (15) by hinge means (17) inclined in said substantially vertical plane with the rail (13) being pivoted to the second part (16).
2. A hanging rail as claimed in Claim 1 **characterised in that** the rail (13) is pivoted to the base (12) at a mid-length location and the detent (34) for the latch device (37, 138) is located in the end of the rail adjacent the base (12).
3. A hanging rail as claimed in Claim 1 or Claim 2 **characterised in that** the rail (13) is pivoted for downward movement relative to the base (12).
4. A hanging rail as claimed in any one of Claims 1 to 3 **characterised in that** the rail (13) has spaced apart raised projections (44) along its length which in use limiting sliding movement of hangers along the length of the rail.
5. A hanging rail as claimed in any one of Claims 1 to 4 **characterised in that** the latch device (34,37) is a moveable latch which is resiliently biased to an engaged condition and is releasable by a release means (39) housed within the rail (13) and which is resiliently biased into an inoperative condition, the release means (39) being operated by a push button (41) located in the other end of the rail (13) away from the base (12).
6. A hanging rail as claimed in any one of Claims 1 to 4 **characterised in that** the latch device (34, 138) is engagable and releasable by movement the rail (13) towards or away from a fixed latch (138) mounted on the base (12).
7. A hanging rail as claimed in Claim 6, **characterised in that** the movement of the rail is accommodated by a lost motion connected between the rail (13) and the second part (16) of the base.
8. A hanging rail as claimed in Claim 6 **characterised in that** the second part comprises a support arm (126) connected to the hinge means (17) with a second arm (136) pivoted thereto and the rail (13) is pivoted to the second arm allowing the rail and second arm to move relative to the base (12).
9. A hanging rail as claimed in any one of Claims 1 to 8 **characterised in that** the hinge means (17) also provides for a small degree of play between the two parts (15, 16).
10. A storage unit having a hanging rail according to any one of Claims 1 to 9, and **characterised in that** the depth of the storage is being less than the length of the rail.

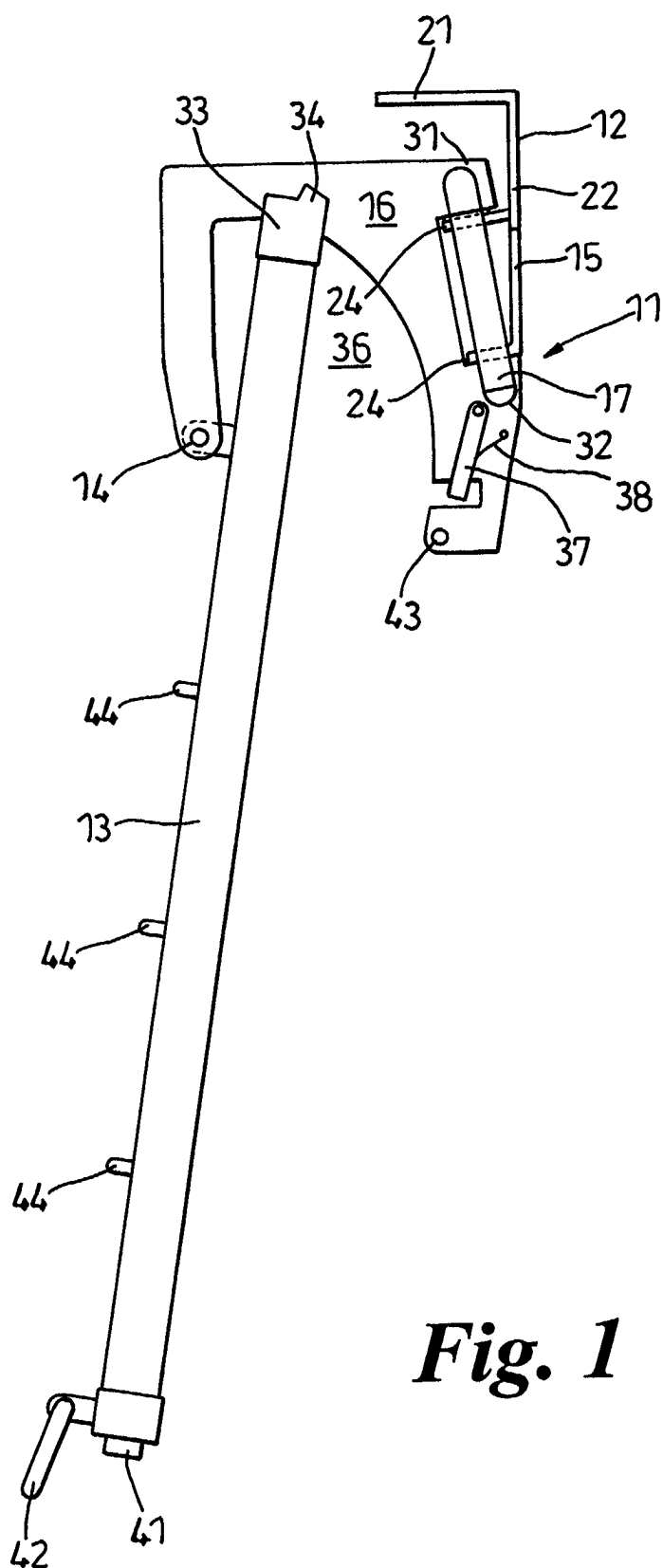


Fig. 1

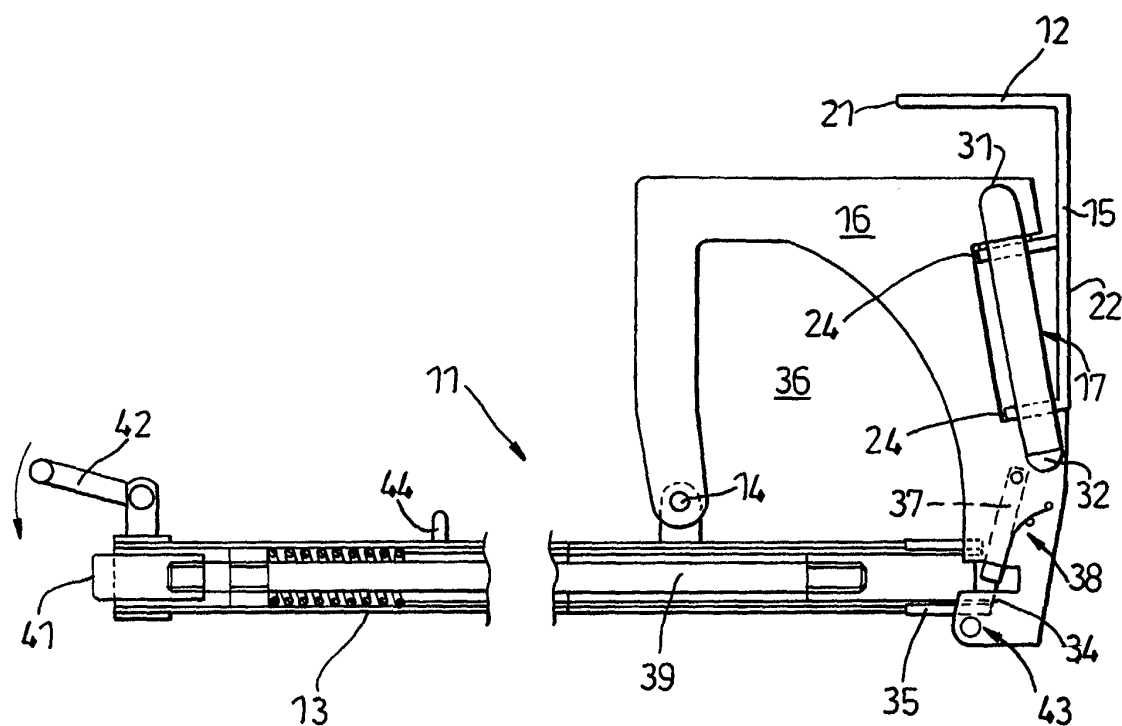


Fig. 2

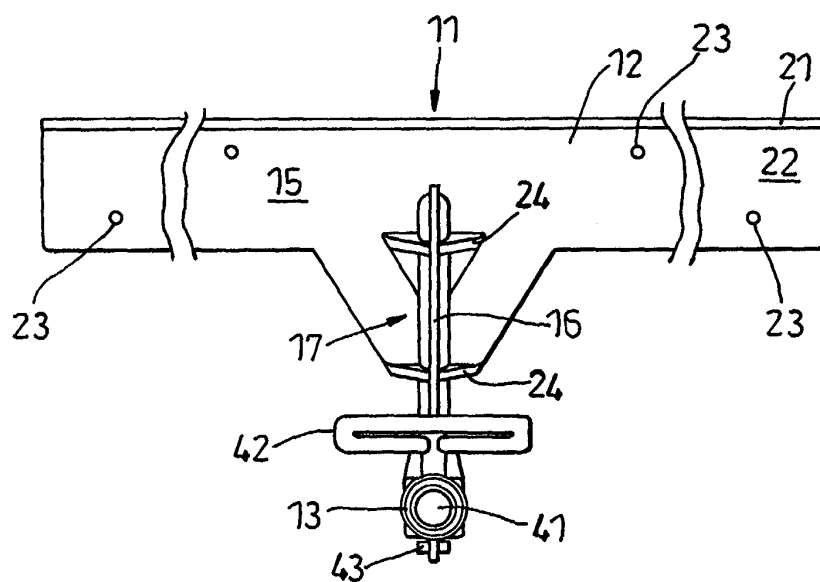


Fig. 3

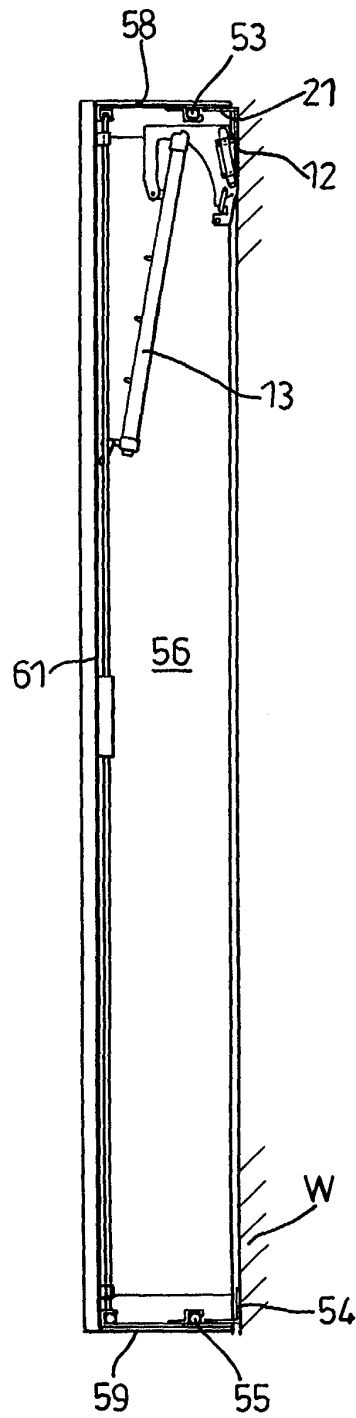


Fig. 5

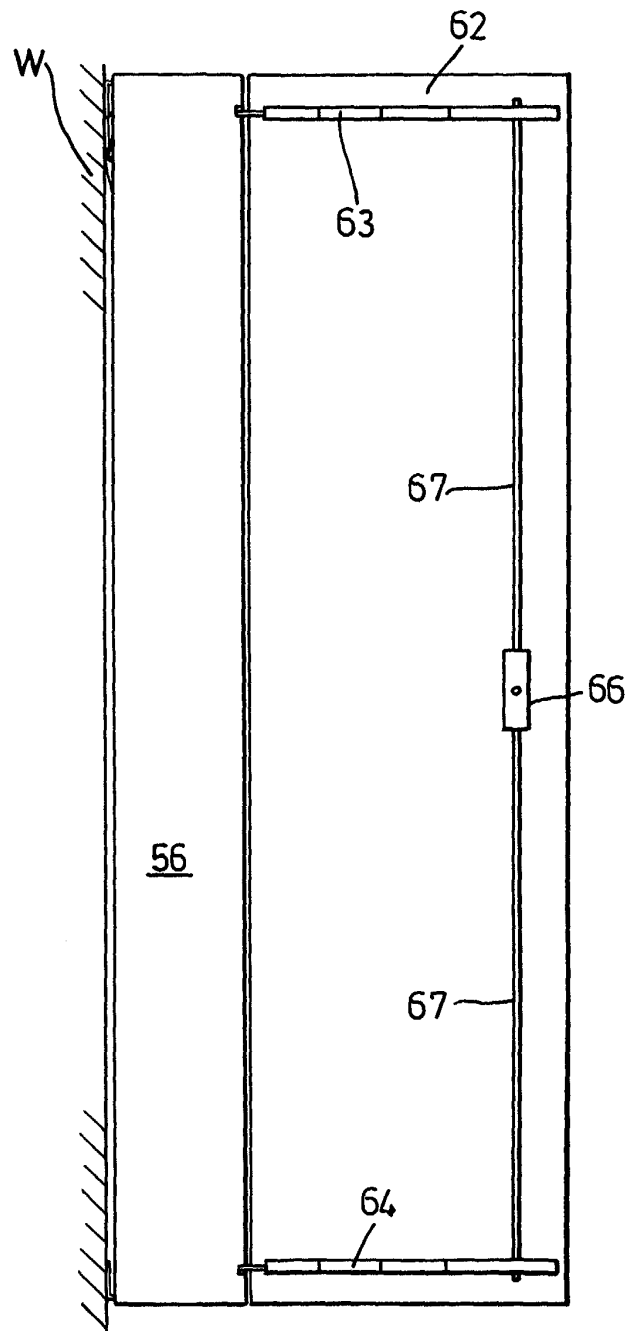


Fig. 7

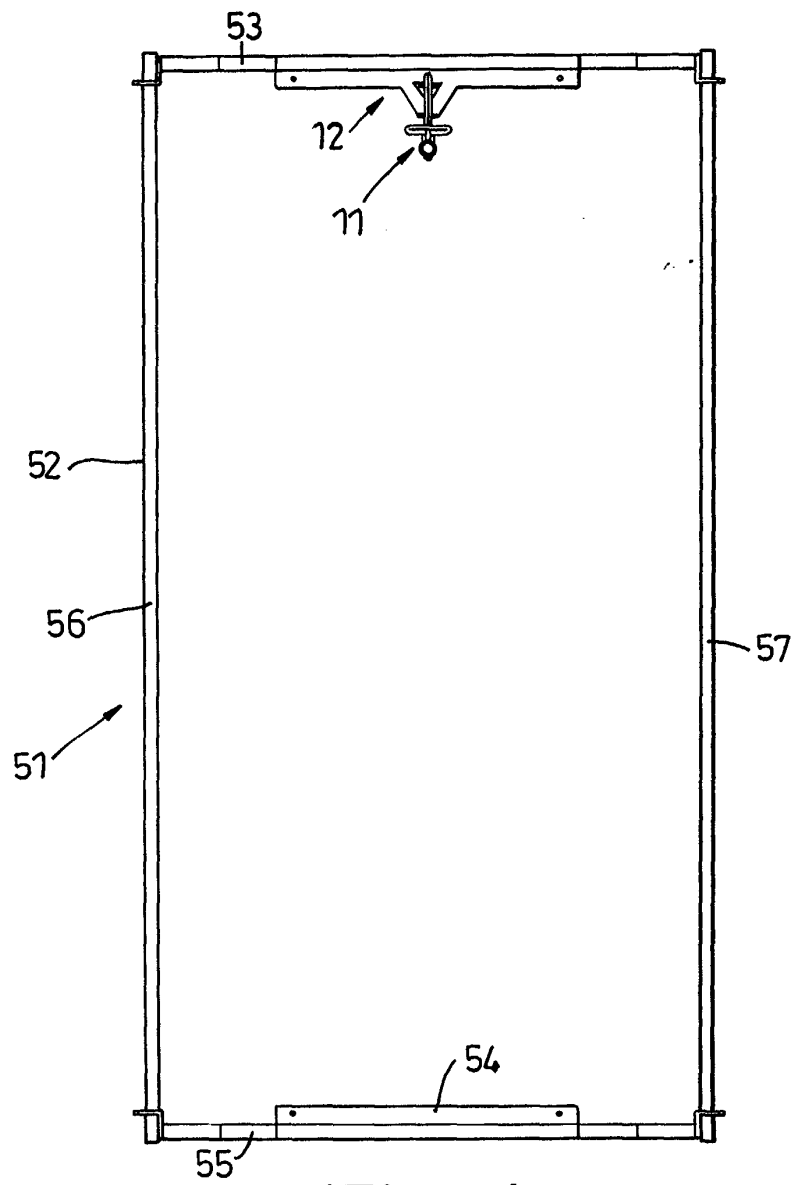


Fig. 4

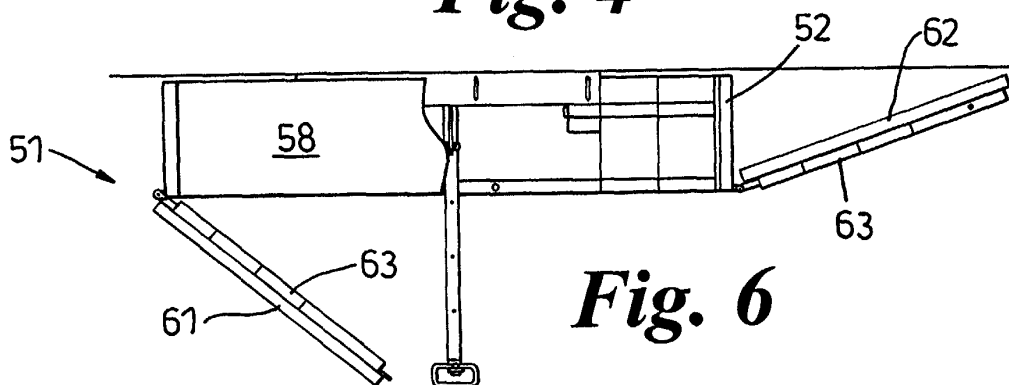


Fig. 6

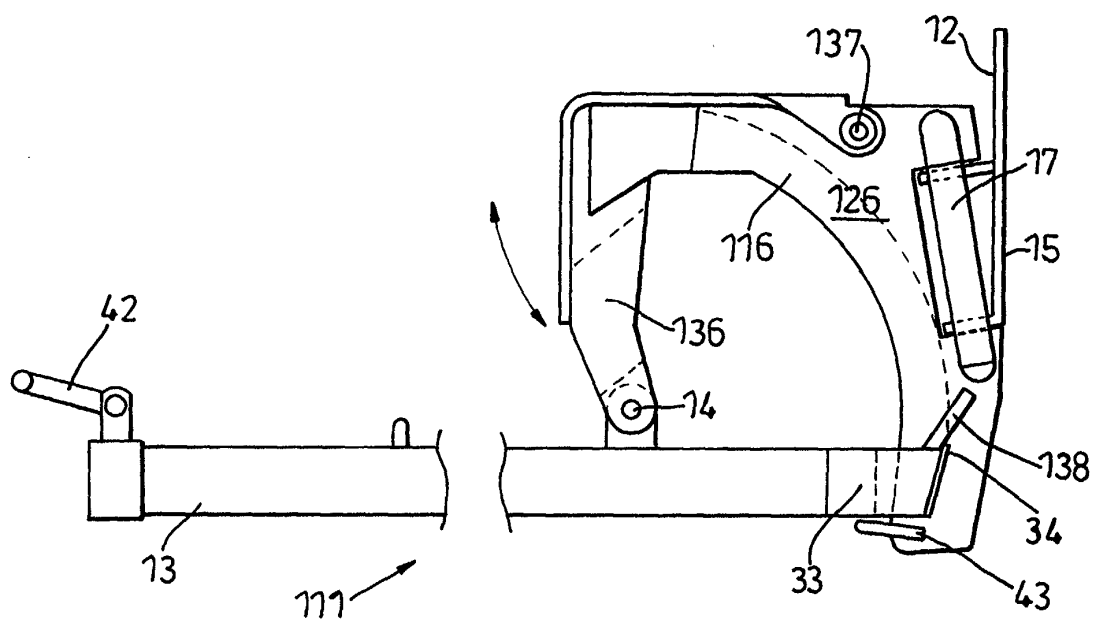


Fig. 8

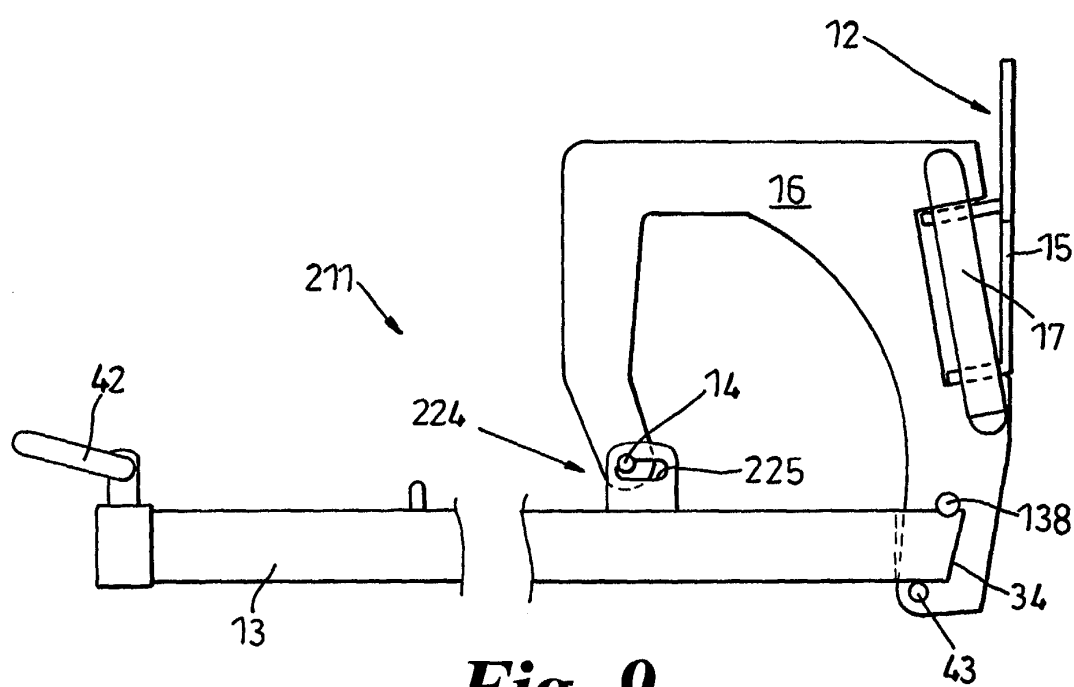


Fig. 9



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 03 25 6481

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)
X	US 1 891 250 A (ALANSON THOMPSON IRVING) 20 December 1932 (1932-12-20) * page 1, line 50 - page 2, line 97 * * figures 1-3 *	1-4,6,7,9,10	A47B61/02
A	US 2 142 830 A (WENDELL ELMER R) 3 January 1939 (1939-01-03) * page 1, column 1, line 3 - page 1, column 1, line 44; figures 1-4 *	1-10	
A	FR 752 315 A (LEVY CHARLES-PAUL) 20 September 1933 (1933-09-20) * page 1, line 27 - page 1, line 36; figures 1,2 *	4	
A	EP 0 624 326 A (AMBOS SRL) 17 November 1994 (1994-11-17) * abstract; figure 1 *	1-10	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A47B
Place of search		Date of completion of the search	Examiner
MUNICH		19 February 2004	MacCormick, D
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 03 25 6481

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