(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 609 392 A1

(12) EUROPEAN PATENT APPLICATION
published in accordance with Art. 158(3) EPC

(43) Date of publication:
28.12.2005 Bulletin 2005/52

(21) Application number: **04722070.2**

(22) Date of filing: **19.03.2004**

(51) Int Cl.[7]: **A47B 88/04**

(86) International application number:
PCT/JP2004/003749

(87) International publication number:
WO 2004/082432 (30.09.2004 Gazette 2004/40)

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL LT LV MK

(30) Priority: **20.03.2003 JP 2003077191**

(71) Applicant: **Iris Ohyama Inc.**
Miyagi 9808510 (JP)

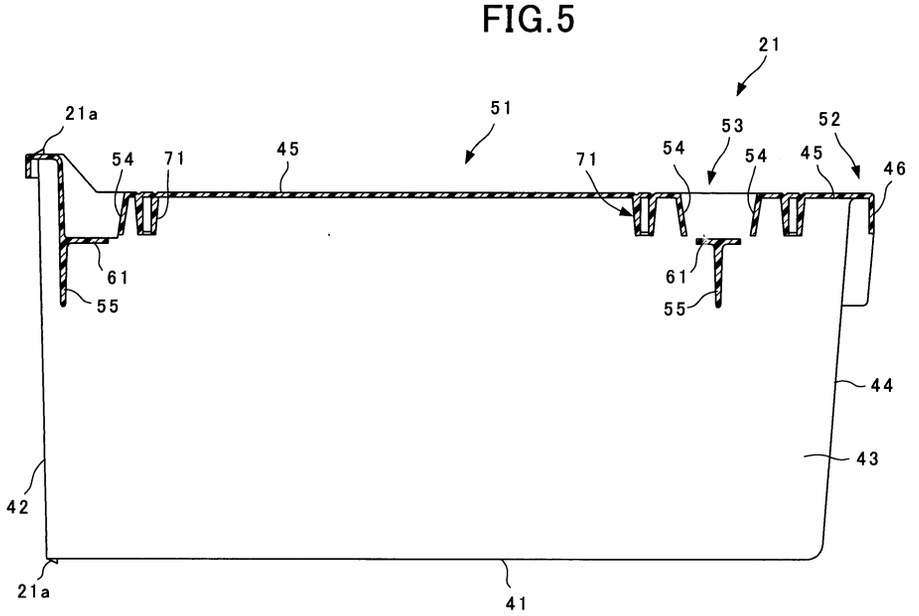
(72) Inventor: **KOBAYASHI, Susumu, KAKUDA PLANT, IRIS OHYAMA, INC.**
Miyagi 9811596 (JP)

(74) Representative: **Hallybone, Huw George et al**
Carpmaels and Ransford,
43-45 Bloomsbury Square
London WC1A 2RA (GB)

(54) RAIL FIXING PART STRUCTURE

(57) A rail fixing structure of a drawer which houses clothing and the like. The present invention provides a rail fixing part structure easy in a mounting operation. A chest is constructed by a wooden chest body and a drawer of a synthetic resin, and a drawer body 21 is formed into a rectangular containershape. Metal rails that slidably support the drawer at the chest body are fixed to both side portions of the body 21, and flanges which extend toward the drawer are provided at rail lower edge portions. A side folded part 51 and a rear folded part 52 which are each constituted of an outward extending surface 45 extending toward an outside and a downward extending surface 46 extending downward are provided at an upper edge portion of the body 21. Upper ribs 54 extending downward are provided at both ends of the side folded part 51 and the rear folded part 52, while lower ribs 55 extending in a vertical direction are provided at a side surface 43, so that the flange of the rail can be vertically sandwiched with the upper ribs 54 and the lower ribs 55.

FIG.5



EP 1 609 392 A1

Description

Technical Field

[0001] The present invention relates to a rail fixing part structure of a drawer that houses clothing and the like.

Background Art

[0002] Conventionally, chests are used on an occasion of housing clothing and the like.

[0003] The chest is constructedby a chest bodymade of a synthetic resin and a drawer made of a synthetic resin which is housed in the chest body to be able to be drawn.

[0004] When the chest body is changed to a wooden one in such a chest, the drawer made of a synthetic resin slides in contact with the wooden chest body. This brings about the problem of worsening slide of the drawer and reducing the operability.

[0005] In order to solve the problem, it is conceivable that a drawer part supported by the chest body is constructed by a metal rail.

[0006] However, in such a drawer, the metal rail has to be mounted to the drawer made of the synthetic resin, thus requiring labor and efforts.

[0007] The present invention is made in view of the above conventional problems, and an object of the present invention is to provide a rail fixing part structure easy in mounting operation.

Disclosure of the Invention

[0008] In order to solve the above described problems, in a rail fixing part structure of claim 1 of the present invention, in a rail fixing part structure in which a metal rail that slidably supports a drawer at a body is fixed to the drawer of a synthetic resin that is housed in the body to be able to be drawn, a flange, which extends toward the aforesaid drawer, is provided at the aforesaid rail, while ribs which vertically sandwich the aforesaid flange are provided at a side surface of the aforesaid drawer.

[0009] Namely, on the occasion of fixing the metal rail to the drawer of the synthetic resin, the flange provided at the rail is inserted between the ribs which are provided at the flange, and the above described flange is vertically sandwiched with the ribs. Thereby, the above described rail is locked at the drawer.

[0010] Besides, in the rail fixing part structure of claim 2, a support surface which extends along the aforesaid flange is provided at an upper end portion of the rib which supports a lower surface of the aforesaid flange.

[0011] Namely, in the ribs which vertically sandwich the flange provided at the rail, the support surface which extends along the above described flange is provided at the upper end portion of the rib which supports the lower surface of the above described flange. Thereby, the fixed state of the flange is stabilized.

[0012] Further, in the rail fixing part structure of claim 3, a screw-in part in which a screw that is inserted through the aforesaid flange is screwed in the state in which the aforesaid flange of the aforesaid rail is sandwiched between the aforesaid ribs is provided at the aforesaid drawer.

[0013] Namely, the drawer is provided with the screw-in part in which the screw inserted through the above described flange is screwed is provided, and by screwing the above described screw into the above described screw-in part, the flange of the above described rail is fixed in the state in which the flange is sandwiched with the ribs of the drawer.

Brief Description of the Drawings

[0014] FIG. 1 is a front view showing one embodiment of the present invention. FIG. 2A is a plane view of the same embodiment. FIG. 2B is a side view. FIG. 3 is a perspective view showing a rail in the same embodiment. FIG. 4 is a side view showing a drawer body in the same embodiment. FIG. 5 is a side view showing a section of a folded part of the drawer body in the same embodiment.

Best Mode for Carrying Out the Invention

[0015] In order to explain the present invention in more detail, the present invention will be explained hereinafter with reference to the attached drawings.

[0016] Fig. 1 is a view showing a chest 1 including a rail fixing part structure according to an embodiment, and the chest 1 houses clothing and the like.

[0017] The chest 1 is constructed by a wooden chest body 11 and drawings 12 made of a synthetic resin. The above described chest body 11 is formed into a rectangular shape by a bottom plate 14 provided with leg parts 13, side plates 15 and 15 vertically provided at both side portions of the bottom plate 14, a back plate 16 vertically provided at a back side of the above described bottom plate 14, a top plate 17 provided at an upper end of the above described side plates 15 and 15, and the above described back plate 16, as shown in Fig. 1 and Fig. 2. Three of the above described drawers 12 are housed in a front opening of the chest body 11 to be able to be drawn, and are constructed to be able to house and store material goods in the drawers 12.

[0018] The above described drawer 12 is constructed by a drawer body 21 in a rectangular container shape, and a front plate 22 mounted in the state in which it is locked at claw parts 21a and 21a (see Fig. 4) of the drawer body 21, and the above described drawer body 21 and the above described front plate 22 are formed to be semitransparent and constructed to be able to confirm an inside.

[0019] The front plate 22 is formed to be light blue and

transparent, and the above described drawer body 21 is formed to be white and transparent. Note that the above described front plate 22 and the drawer body 21 may be formed to be not only semitransparent but also formed to be transparent, or opaque, and in the case of opaque, they can be also colored. At this time, the above described front plate 22 and the above described drawer body 21 are constructed by separate pieces, and therefore, the above described front plate 22 and the above described drawer body 21 can be set to be the same color, or can be set to be different colors. As a result, the appearance quality can be enhanced and variation can be increased.

[0020] A recessed part 23 is provided at a lower portion of the above described front plate 22, and a step part 24 on which a hand can be laid at the time of drawing is formed between the recessed part 23 and the ordinary part. The step part 24 is formed into a bow shape with a central portion projecting upward, and the operating force applied to the step part 24 is applied to a later-described rail 25 which supports the drawer 12 at the chest body 11.

[0021] Metal rails 25, which are supported at a rail not shown provided at an inner surface of each of the side plates 15 and 15 of the above described chest body 11 and slidably support the drawer 12 at the above described chest body 11, are fixed to both side portions of the above described drawer body 21, and the drawer body 21 opened upward has its upper end portion reinforced by the rails 25.

[0022] The rail 25 is formed by folding a long metal plate, and a flange 31 extending toward the above described drawer 12 is provided at the lower edge portion, as shown in Fig. 3. Screw insertion holes 32 and 32 are provided at both endportions of the flange 31 and a raised wall 33 rises from the side edge of the flange 31. A guide surface 34 extending in the direction to separate from the above described drawer 12 is provided at an upper edge of the raised wall 33, and a bent part 35 which is bent downward is formed at a side edge of the guide surface 34. The above described guide surface 34 is notched at one end portion of the rail 25, and a roller 37 a part of which projects from the above described guide surface 34 is rotatably supported at a region of the above described raised wall 33 in a notched part 36.

[0023] Meanwhile, as shown in Fig. 4, the above described drawer body 21 is formed to be opened upward by a rectangular bottom surface 41, a front surface 42 raised from a front edge of the bottom surface 41, side surfaces 43 raised from both side edges of the above described bottom surface 41, and a back surface 44 raised from a rear edge of the above described bottom surface 41. As shown in Fig. 5, an outward extending surface 45 which extends to an outside is formed at upper edges of the above described side surface 43 and the above described back surface 44, and a downward extending surface 46 which extends downward is formed at the extending surface 45. The downward extending surface 46 is constructed to be in surface contact with the raisedwall 33 of the mounted rail 25 to prevent tilt of the rail 25 and form a folded portion at the upper edge portions of the above described side surfaces 43 and the above described back surface 44 to be able to reinforce them.

[0024] The folded portion is constituted of side folded portions 51 formed at the above described both side surfaces 43, and a rear folded part 52 formed over the back surface 44 from the rear portions of both the side surfaces 43, and gaps 53 are formed between the above described both side folded portions 51 and the above described rear folded part 52. As shown in Fig. 5, upper ribs 54 and 54 extending downward from the above described outward extending surfaces 45 and 45 are formed at both ends of the above described side folded parts 51 and both ends of the above described rear folded part 52, and the upper ribs 54 and 54 are also provided to connect to the above described side surfaces 43.

[0025] Besides, on the side surface 43, a lower rib 55 extending in the vertical direction is formed at a lower portion of the above described gap 53 between the above described side folded part 51 and the above described rear folded part 52, and on the front surface 42 side from the above described side folded part 51, the lower rib 55 extending in the vertical direction is formed. Upper ends of both the lower ribs 55 and 55 are provided at a lower position from the position of the height of the lower end of the above described upper rib 54, so that the flange 31 of the above described rail 25 can be vertically sandwiched with the above described upper ribs 54 and the lower ribs 55.

[0026] Support surfaces 61 which extend along the above described flange 31 are integrally formed at upper end portions of the above described lower ribs 55 which support the above described flange 31 from the lower surface side, and the support surface 61 is constructed to be in surface contact with the lower surface of the above described flange 31.

[0027] Besides, cylindrical screw-in parts 71 which extend downward are integrally formed at both end portions at the above described outward extending surfaces 45 of the above described both side folded parts 51 and 51. The screw-in parts 71 are provided at positions corresponding to screw insertion holes 32 and 32 formed at the above described flange 31 in the state in which the above described rail 25 is mounted, and the lower end of the screw-in part 71 is set to have a length dimension that reaches the top surface of the above described flange 31. Thereby, tapping screws which are inserted through the above described screw insertion holes 32 and 32 of the above described flange 31 can be screwed into the above described screw-in parts 71 and 71 in the state in which the above described flange 31 of the above described rail 25 is sandwiched between the above described respective ribs 54 and 55.

[0028] In the above described embodiment with the above construction, on the occasion of fixing the metal rail 25 to the drawer 12 of the synthetic resin, the flange 31 provided at the rail 25 is inserted between the upper ribs 54 and the lower ribs 55 provided at the drawer 12, and the above described flange 31 is vertically sandwiched with both the ribs 54 and 55. Thereby, the above described rail 25 is locked at the drawer 12.

[0029] By only inserting the flange 31 provided at the above described rail 25 between the respective ribs 54 and 55 provided at the drawer 12 as described above, the above described rail 25 can be locked at the drawer 12 in the state in which the above described flange 31 is vertically sandwiched between both the ribs 54 and 55. Thereby, the metal rail 25 can be easily mounted to the drawer 12 of the synthetic resin, and the mounting operation can be easily performed.

[0030] Besides, in the respective ribs 54 and 55 which vertically sandwich the flange 31 provided at the above described rail 25, the support surfaces 61 which extend along the above described flange 31 is provided at the upper end portions of the lower ribs 55 which support the lower surface of the above described flange 31.

[0031] Thereby, the fixed state of the above described flange 31 can be stabilized.

[0032] The screw-in parts 71 which extend downward are integrally formed at both end portions at the outward extending surfaces 45 of the both side folded parts 51 and 51 of the above described drawer 12, and the screw-in parts 71 and 71 are provided at the positions corresponding to the screw insertion holes 32 and 32 of the above described rail 25.

[0033] Therefore, the tapping screws are inserted through the screw insertion holes 32 and 32 of the above described flange 31 in the state in which the flange 31 of the above described rail 25 is sandwiched between the respective ribs 54 and 55, and the tapping screws are screwed into the above described screw-in parts 71 and 71, whereby the flange 31 of the above described rail 25 can be screwed in the state in which the flange 31 is sandwiched between the respective ribs 54 and 55 of the above described drawer 12. Thereby, fixation can be further enhanced.

Industrial Applicability

[0034] As explained thus far, in the rail fixing part structure of claim 1 of the present invention, on the occasion of fixing the metal rail to the drawer of the synthetic resin, the flange provided at the rail is inserted into the ribs provided at the drawer, whereby the rail can be locked at the drawer in the state in which the above described flange is vertically sandwiched with the ribs.

[0035] Thereby, the metal rail can be easily mounted to the drawer of the synthetic resin, and the mounting operation can be easily performed.

[0036] Besides, in the rail fixing part structure of claim 2, in the ribs which vertically sandwich the flange provided at the rail, the support surfaces which extend along the above described flange are provided at the upper end portions of the ribs which support the lower surface of the above described flange, and therefore, the fixed state of the flange can be further stabilized.

[0037] Further, in the rail fixing part structure of claim 3, the screw-in parts in which the screws inserted through the flange are screwed are provided at the drawer, and the flange of the above described rail can be fixed in the state in which the flange is sandwiched between the ribs of the drawer by screwing the above described screws into the above described screw-in parts. Thereby, fixation can be enhanced.

Claims

1. A rail fixing part structure in which a metal rail that slidably supports a drawer at a body is fixed to the drawer of a synthetic resin that is housed in the body to be able to be drawn, **characterized in that** a flange, which extends toward said drawer, is provided at said rail, while ribs which vertically sandwich said flange are provided at a side surface of said drawer.

2. The rail fixing part structure according to claim 1, **characterized in that** a support surface which extends along said flange is provided at an upper end portion of the rib which supports a lower surface of said flange.

3. The rail fixing part structure according to claim 1 or 2, **characterized in that** a screw-in part in which a screw that is inserted through said flange is screwed in the state in which said flange of said rail is sandwiched between said ribs is provided at said drawer.

FIG.1

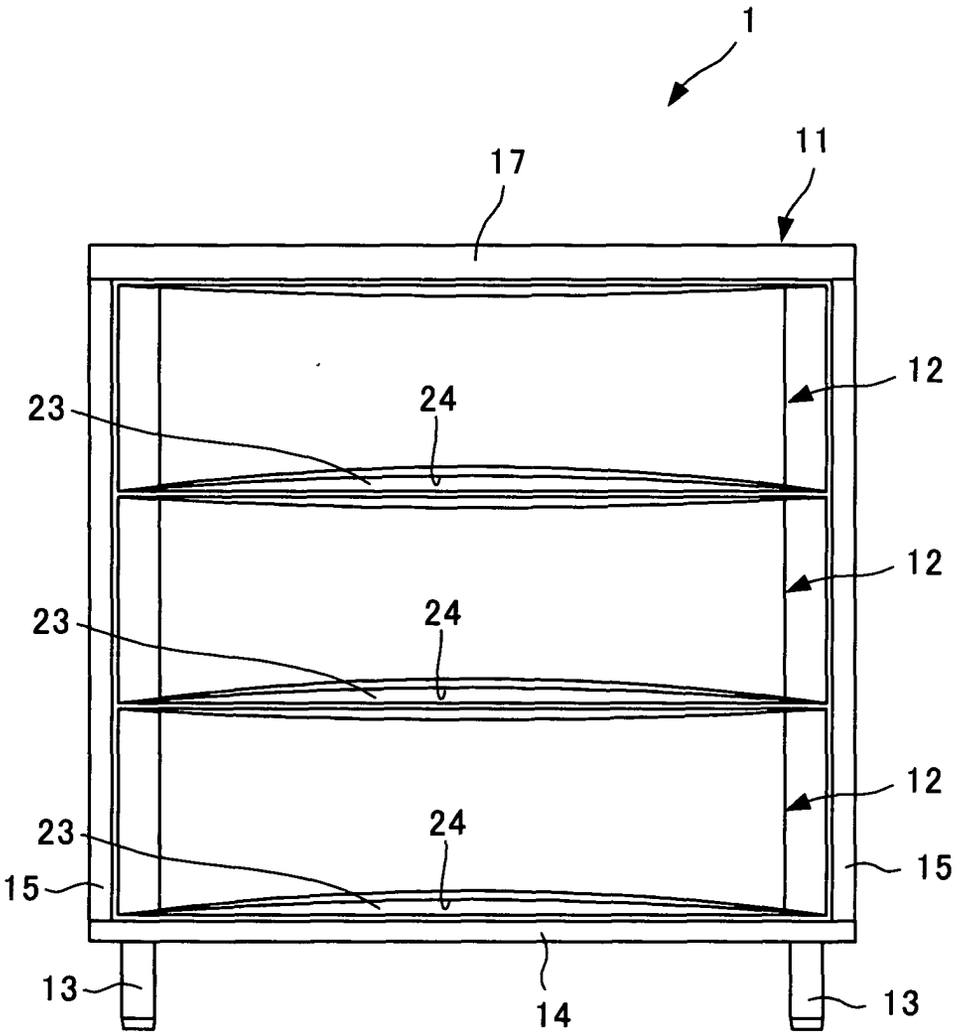


FIG.2A

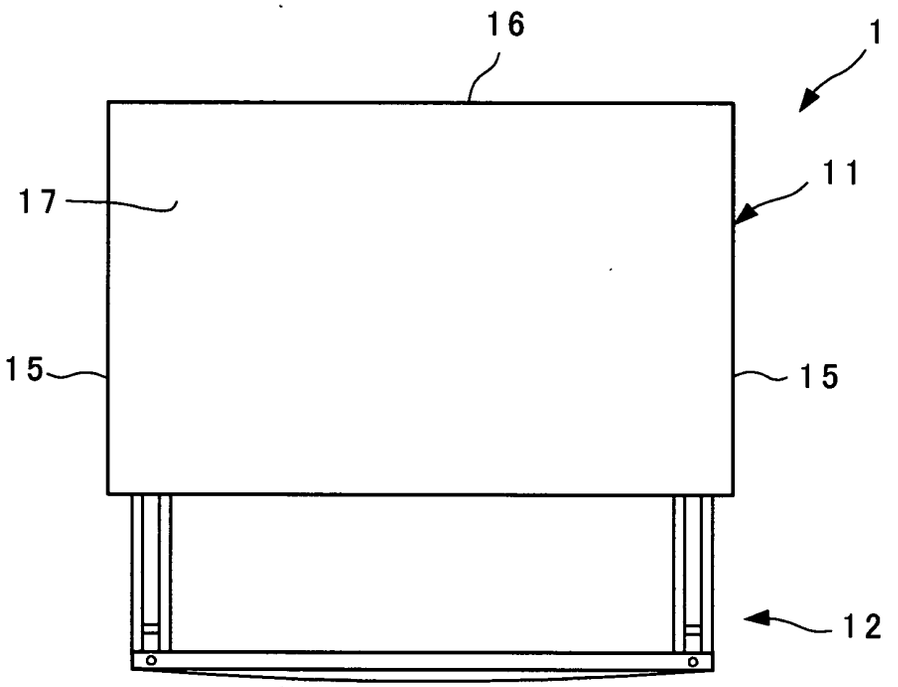


FIG.2B

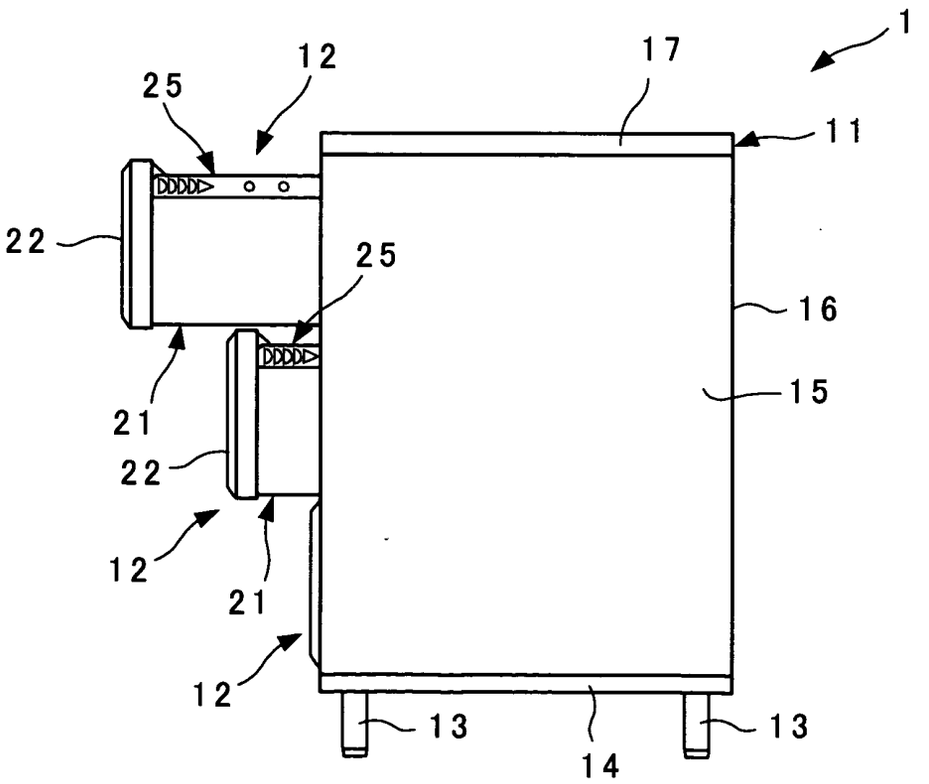


FIG.3

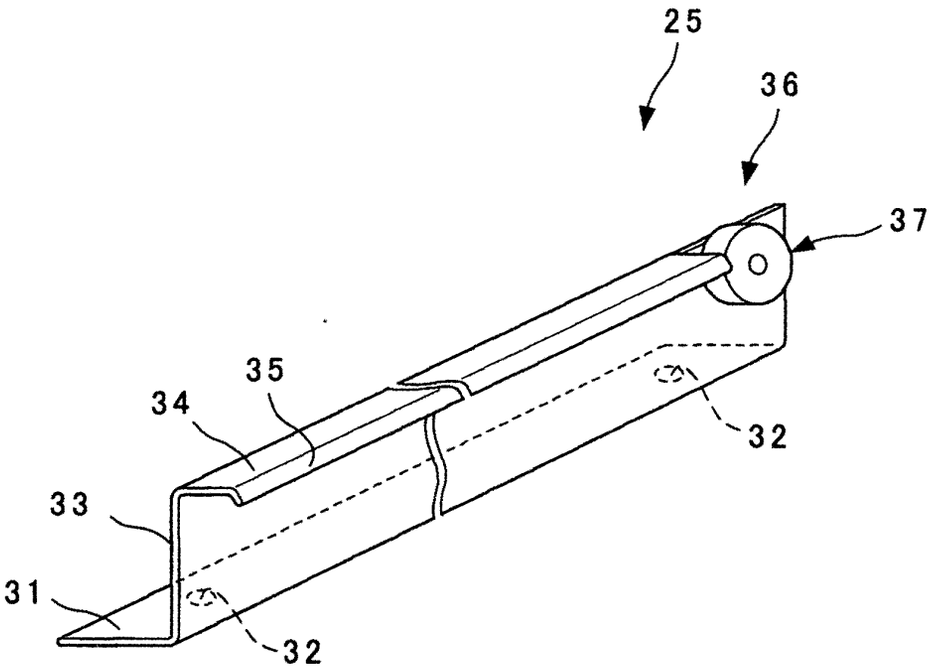


FIG.4

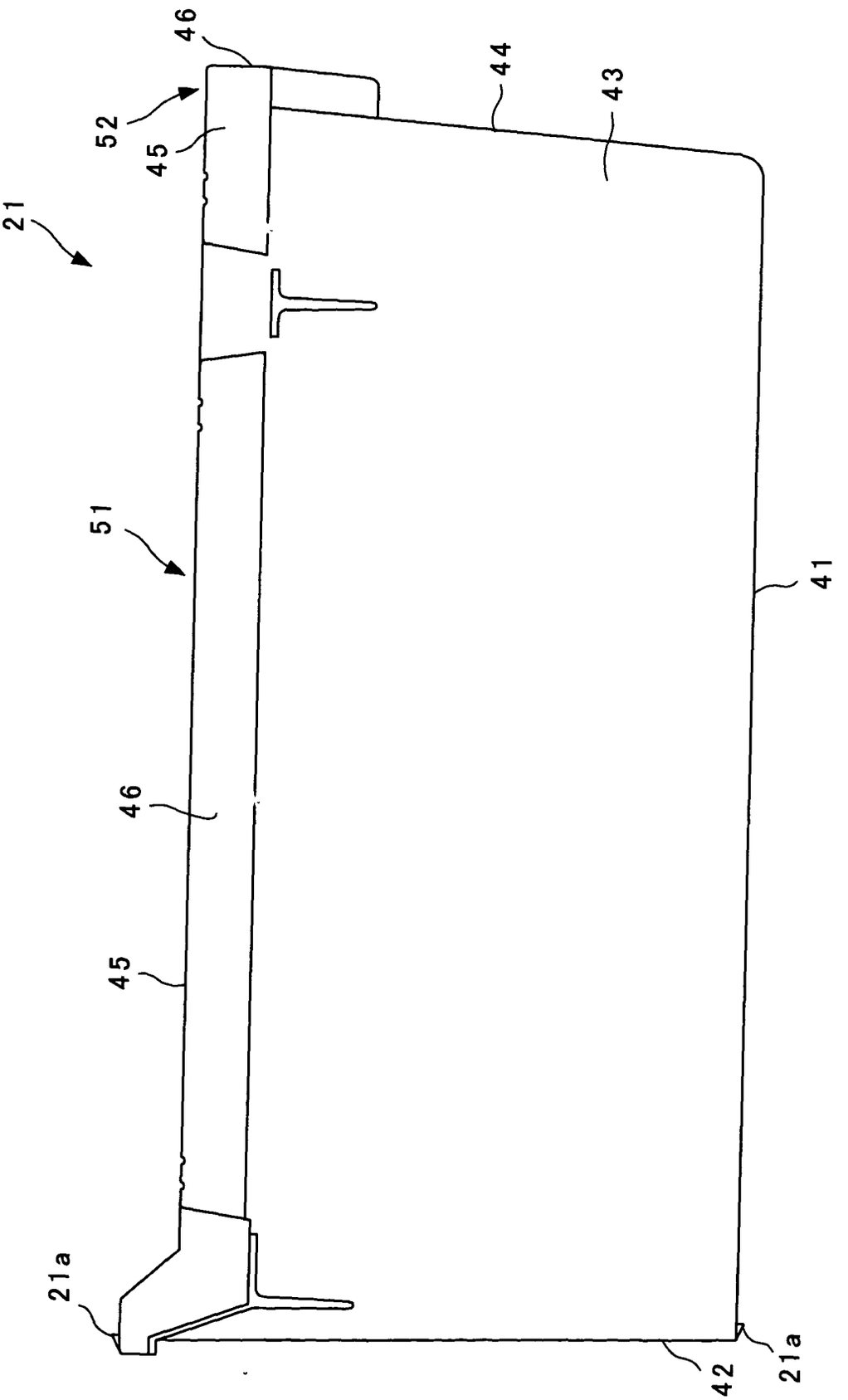
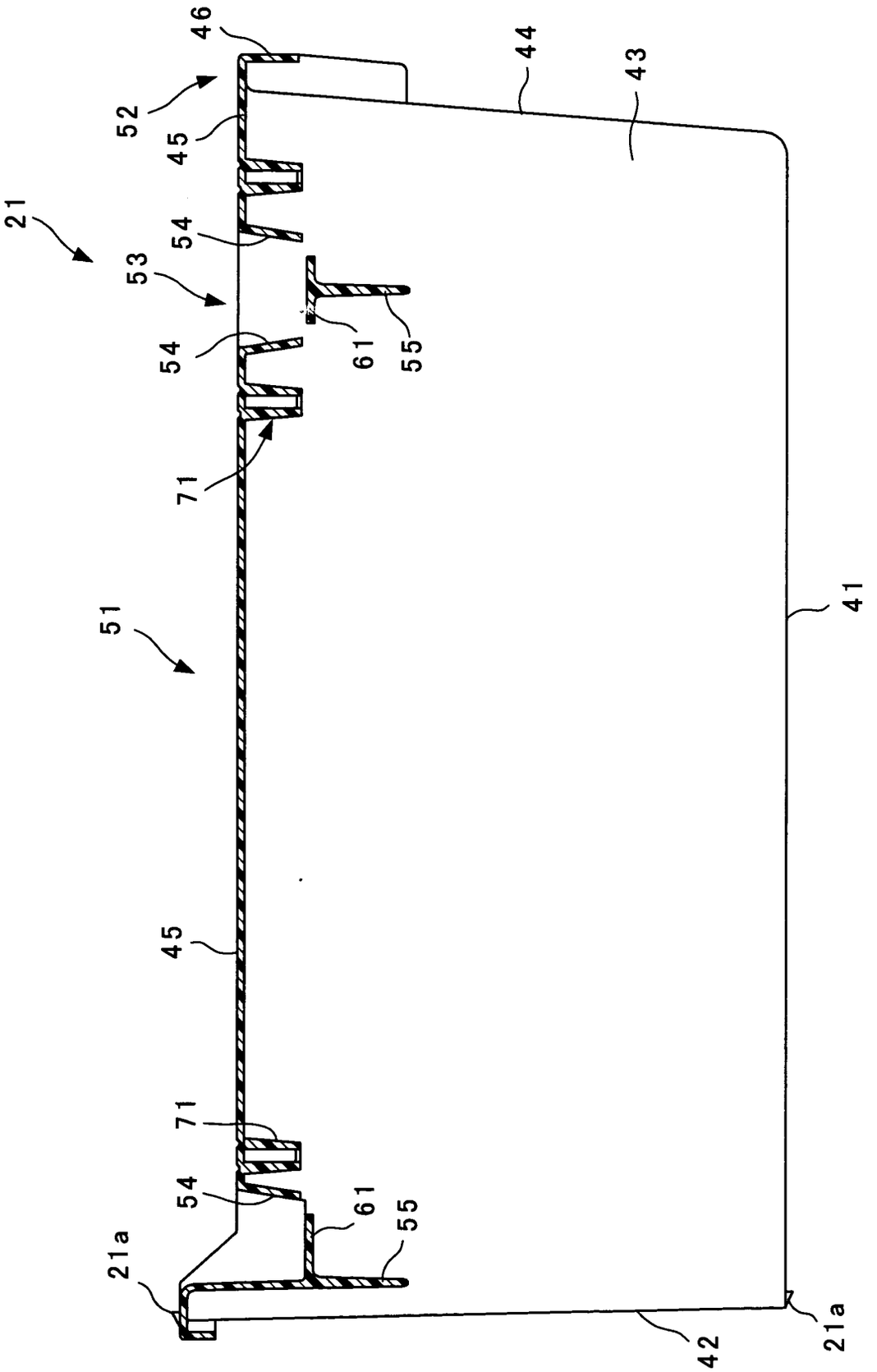


FIG.5



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2004/003749

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl[7] A47B88/04

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)
Int.Cl[7] A47B88/04

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2004
Kokai Jitsuyo Shinan Koho 1971-2004 Toroku Jitsuyo Shinan Koho 1994-2004

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.
A	Japanese Utility Model Registration No.3066057 (Iris Ohyama Inc.), 18 February, 2000 (18.02.00), Full text; Figs. 1 to 4 (Family: none)	1-3
A	Japanese Utility Model Registration No.3060633 (Iris Ohyama Inc.), 07 September, 1999 (07.09.99), Full text; Figs. 1 to 4 (Family: none)	1-3
A	JP 7-223394 A (Komatsu Wall Industry Co., Ltd.), 22 August, 1995 (22.08.95), Full text; Figs. 1 to 6 (Family: none)	1-3

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

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"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
"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
"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
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
07 April, 2004 (07.04.04)	18 May, 2004 (18.05.04)
Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
Facsimile No.	Telephone No.

Form PCT/ISA/210 (second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2004/003749

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2002-325664 A (Kabushiki Kaisha Yoshikawakuni Kogyosho), 12 November, 2002 (12.11.02), Full text; Figs. 1 to 8 (Family: none)	1-3
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 134258/1989(Laid-open No. 72742/1991) (Sekisui Chemical Co., Ltd.), 23 July, 1991 (23.07.91), Full text; Figs. 1 to 5 (Family: none)	1-3

Form PCT/ISA/210 (continuation of second sheet) (January 2004)