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

(11) EP 1 369 059 A1

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

(43) Date of publication:
10.12.2003 Bulletin 2003/50

(21) Application number: **02701719.3**

(22) Date of filing: **05.03.2002**

(51) Int Cl.[7]: **A47B 81/06**, A47B 88/00, A47G 5/02, G03B 21/58

(86) International application number:
PCT/JP02/01995

(87) International publication number:
WO 02/074131 (26.09.2002 Gazette 2002/39)

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

(30) Priority: **15.03.2001 JP 2001074792**

(71) Applicant: **Os Co., Ltd**
Osaka-shi, Osaka 557-0063 (JP)

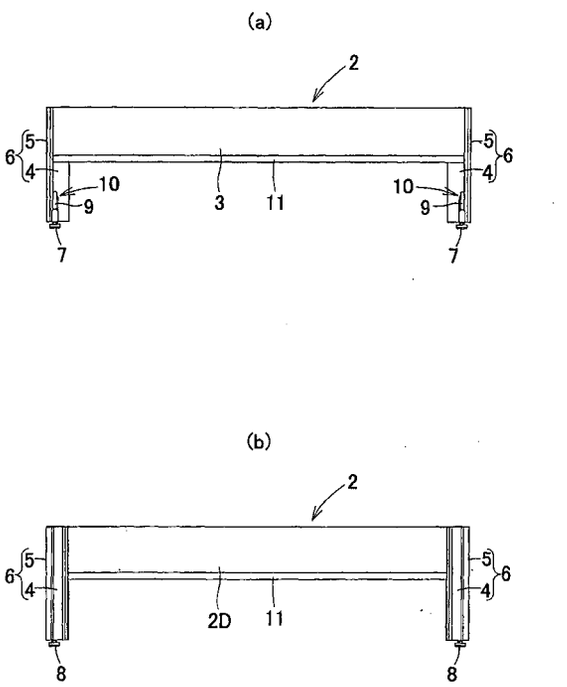
(72) Inventor: **KITA, Toshiyuki,**
c/o I.D.K. DESIGN LABORATORY LTD.
Osaka-shi, Osaka 530-0043 (JP)

(74) Representative: **Lemoine, Robert et al**
Cabinet Malémont
42, Avenue du Président Wilson
75116 Paris (FR)

(54) FURNITURE WITH SCREEN

(57) In order to achieve a reduction in weight and convenience in terms of handling, a piece of furniture with a screen according to the present invention comprises a main body and a drawer provided therein. A screen is rolled up and stored in the interior of the drawer. Corner supporting members constituted with a smaller front-back dimension than the front-back dimension of the main body are connected respectively to the left and right end portions on the rear side of the main body in order to support the main body, and base portions which contact the ground frontward of the screen are provided on the left/right pair of supporting members.

Fig. 1



EP 1 369 059 A1

Description

TECHNICAL FIELD

[0001] The present invention relates to furniture with a screen in which various objects can be placed on the upper face of a main body, and in which a screen, when not in use, can be completely stored inside the main body.

BACKGROUND ART

[0002] In recent years projection screens for projecting images, or simply screens, have come to be used in homes so that larger images may be enjoyed.

[0003] Accordingly, a large variety of cabinets, pieces of furniture, and the like provided with such a screen have been proposed.

[0004] Typical of these cabinets and pieces of furniture provided with a screen are large, heavy pieces such as those having upper and lower storage portions with doors, those having storage portions with doors on the left and right sides, and so on, and hence a great deal of labor is required during transportation and movement thereof.

[0005] Further, in furniture comprising storage portions with doors, a casing or the like in which the screen is rolled and stored is typically provided on the upper end, and since the screen is provided on the upper end, the lower space must be preserved when the screen is in use. Hence the overall size and height of the piece of furniture increases , causing a further increase in weight.

[0006] Moreover, the part in which the screen is housed must be caused to protrude forward from the constitutional members of the cabinet (or furniture) so that these constitutional members do not contact the screen when in use. As a result, care must be taken during transportation and installation that the storage part does not contact other objects, which is extremely troublesome in terms of handling.

[0007] The present invention has been designed in consideration of the situation described above, and it is an object thereof to provide a piece of furniture with a screen in which a reduction in weight can be achieved and which is favorable in terms of handling.

DISCLOSURE OF THE INVENTION

[0008] In the present invention, when a main body and a drawer provided therein which is freely movable between a pulled-out position in which the drawer is pulled-out frontward and a storage position in which the drawer is stored inside the main body are comprised, a screen is rolled up and stored in the interior of the drawer, the screen is constituted to be freely modifiable in attitude between a usage attitude in which the screen stored inside the drawer is raised upward when the drawer is pulled out and a storage attitude in which the screen is rolled up and stored inside the drawer, corner supporting members having a smaller front-back dimension than the front-back dimension of the main body are connected to the respective left and right end portions on the rear side of the main body to support the main body, and support legs comprising a base portion which contacts the ground frontward of the screen in at least the usage attitude thereof are provided on the left/right pair of supporting members, the screen can be set in its usage attitude by pulling the drawer forward using the electric power of an electric motor or the like or using manual power and then raising (pulling) the screen which is rolled up and stored in the drawer upward using the electric power of an electric motor or the like or using manual power. By rolling up the unfurled screen, the screen can be rolled up and stored inside the drawer. Once the screen has been stored, the drawer is pushed into the main body using the electric power of an electric motor or the like or using manual power. By constituting the screen so as to be raised (pulled) upward, a tall main body such as that of a conventional piece of furniture need not be provided, and thus a reduction in weight can be achieved. Further, the main body is supported by corner supporting members with a smaller front-back dimension than that of the main body, and thus a reduction in the weight of the supporting members themselves can be achieved. Although supporting members with a small front-back dimension are used such that when the drawer is pulled forward to place the screen in its usage attitude, the screen is positioned far toward the front side, the main body can be securely prevented from falling forward by the base portions which contact the ground frontward of the screen.

[0009] In the present invention, when the supporting member is constituted by a plate-form member formed in a substantially L-shaped form when seen from above which is connected to the main body so as to contact the rear face of the main body on the left and right corner portions and the adjacent side face thereto on either the left or right side, the supporting member can be made thinner and lighter than a member in planar form, and the supporting member can be connected to the main body without the need for gutters.

[0010] In the present invention, when the main body is constituted in a box shape with an open front face comprising a single space in which the drawer storing the screen can be stored, and when the height of the upper end of the supporting member is set to be substantially equal to the height of the upper end of the main body, further reductions in the size and weight of the main body can be achieved.

[0011] In the present invention, when the main body is constituted in a box shape with an open front face comprising a single space in which the drawer storing the screen can be stored, the upper end of the supporting member is set higher than the upper end of the main body so as to be positioned thereabove, and a fitting

portion is provided on the end portion of the respective rear plate portions of the two corner supporting members, a back board can be attached by simply fitting the back board into the fitting portion. The back board may also be used as a board member for attaching a plasma display, liquid crystal display, or similar to the back board. Moreover, since the back board is positioned rearward, the center of gravity of the entire piece of furniture with a screen does not move greatly forward even when a heavy weight such as the plasma display or liquid crystal display described above is attached to the back board.

[0012] In the present invention, by forming a protruding portion which protrudes outward or inward to form an interior space over the entirety of the vertical direction of the supporting member, an increase in strength is achieved and the interior space formed in the protruding portion can be used as a space for providing a wiring duct to supply power to audio equipment placed on the main body, or as a space for storing a cord for the audio equipment and so on placed on the main body.

[0013] In the present invention, by providing an attachment portion to which a speaker can be attached on the front end portion of the supporting member, a speaker can be attached easily and quickly.

[0014] In the present invention, by forming a space into which a movable tray for carrying audio equipment can be inserted and stored in the lower portion of the main body, wiring and maintenance work can be performed easily and quickly on the audio equipment placed on the tray in an open area by pulling the tray out of the main body. Once the wiring or maintenance work is complete, the tray can be pushed quickly back into the space in the lower portion of the main body.

[0015] In the present invention, by forming tray spaces into which two movable trays for carrying audio equipment can be inserted and stored and a speaker space in which a center speaker can be disposed between the two trays in the lower portion of the main body, audio equipment can be placed on each of the two trays in an open area by pulling the trays out of the lower portion of the main body, and wiring and maintenance work can be performed thereon easily and quickly. Once the wiring or maintenance work is complete, the trays can be pushed quickly back into the space in the lower portion of the main body: Further, by disposing a center speaker between the trays, no special installation space need be provided, and sound or the like can be output from an optimum position in relation to the screen.

[0016] In the present invention, when the tray is constituted by a carrying portion for carrying audio equipment and a left/right pair of vertical wall portions which rise upward from the left and right end portions of the carrying portion, and the tray is provided with a concave portion formed on the rear face of the carrying portion into which a power outlet for the audio equipment carried on the carrying portion is embedded, the front face and rear face of the tray are both open, and thus operations (including remote control operations) from the front face of the tray, maintenance work, or wiring and maintenance work from the rear face of the tray can be performed easily. Further, by inserting a power plug of the audio equipment carried on the tray into the power outlet, trouble which occurs when a power plug attached to the distal end of a power cord of the audio equipment is inserted directly into an outlet attached to a wall, such as the power cord catching on a part of tray and becoming damaged, can be avoided.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017]

Fig. 1 illustrates a piece of furniture with a screen in a storage attitude, (a) being a front view thereof, and (b) being a rear view thereof;
Fig. 2 is a side view of the piece of furniture with the screen in the storage attitude;
Fig. 3 is a plan view of the piece of furniture with the screen in the storage attitude;
Fig. 4 is a front view of the piece of furniture with the screen in a usage attitude;
Fig. 5 is a side view of the piece of furniture with the screen in the usage attitude;
Fig. 6 is a rear view of the piece of furniture with the screen in the usage attitude;
Fig. 7 is a perspective view showing the shape of a main body and a carrying member;
Fig. 8 illustrates a tray, (a) being a perspective view thereof and (b) being a rear view thereof;
Fig. 9 illustrates the tray, (a) being a bottom view thereof and (b) being a longitudinal sectional side view thereof;
Fig. 10 is a perspective view of a corner supporting member;
Fig. 11 is a plan view showing the main parts of the corner supporting member when provided with a speaker;
Fig. 12 is a front view showing another piece of furniture comprising a back board;
Fig. 13 is a rear view showing the other piece of furniture comprising the back board;
Fig. 14 is a side view showing the other piece of furniture comprising the back board;
Fig. 15 is a front view showing a screen provided on the piece of furniture shown in Fig. 12 in a usage attitude;
Fig. 16 is a plan view showing an attachment portion of the back board and the supporting member; and
Fig. 17 is a front view showing a plasma display attached to the back board of the piece of furniture shown in Fig. 13.

BEST MODE FOR CARRYING OUT THE INVENTION

[0018] Embodiments of the present invention will be

described below with reference to the drawings.

[0019] Figs. 1(a), (b), 2, and 3 illustrate a piece of furniture with a screen (to be referred to as "piece of furniture" or "furniture" below) in which a screen (the size (magnitude) of which may differ from that shown in the drawing) 1 shown in Fig. 4 is stored. This piece of furniture comprises a wooden (metallic, synthetic resin, or other constitutions are also possible) main body 2 which is substantially rectangular when seen from above, and a drawer 3 provided therein which is movable between a pulled-out position in which the drawer 3 is pulled-out frontward and a storage position in which the drawer 3 is stored inside the main body 2. The screen 1 is rolled up and stored inside the drawer 3. As shown in Figs. 1 (a), (b), 2, and 10, corner supporting members 6 formed in a substantially L-shaped form when seen from above and constituted by a rear plate portion 4 and a side plate portion 5 which contact each other along the rear face of the supporting member main body 2 and the adjacent side face thereto on either the left or right side are connected to the respective rear side corner portions on both sides of the main body 2 in the left/right direction by screws B2, and support legs 10 constituted by a front side base portion 7 which contacts the floor surface in a position frontward (any position is possible provided it is in front of the screen 1 as shown in Fig. 2) of the front end face of the closed drawer 3, a rear side base portion 8 which contacts the ground slightly rearward of the central position of the side plate portion 5 in a front-back direction, and a plate-form support portion 9 which is attached to the base portions 7, 8 and fixed to the supporting member 6 by screws B4, are provided on the left/right pair of supporting members 6, 6. By setting the upper end of the supporting members 6, 6 at a substantially equal height to the upper end of the main body 2, reductions in the overall size and weight of the furniture can be achieved. Further, by forming the supporting members 6, 6 in an L-shape, strength is improved in comparison with a planar member, although the supporting member may be constituted by a slightly thickened planar member. Forming the main body 2 in a rectangular, square, or similar shape is advantageous from the point of view of manufacture of the supporting members 6 and handling, such as transportation and the like, of the furniture. However, the main body 2 may be constituted in any form, including an elliptical form or polygonal forms such as a triangle.

[0020] The front side base portion 7 and rear side base portion 8 are respectively attached to the support portion 9 by screwing using screws, and by rotating the base portions 7, 8, they can be moved up and down in respect of the support portion 9. This is advantageous in that the height at which the furniture contacts the ground can be adjusted in accordance with irregularities, protrusions, and so on in the ground surface, for example. However, support legs in which ground contact height adjustment is not possible may be provided. If support legs 10 which cannot alter the ground contact height are used, the base portions 7, 8 and the support portion 9 may be constituted integrally. The ground contact positions of the base portions 7, 8 are advantageous in that by disposing the base portions 7, 8 further to the front or rear in the front-back direction, the furniture is less likely to fall over. However, in order to reduce the size of the furniture, the base portions 7, 8 may be set so as not to protrude greatly from the front end and rear end portions of the furniture.

[0021] As shown in Figs. 2, 3, and 7, the main body 2 is formed in a box form with an open front face having a single space 2K into which the drawer 3 can be inserted and stored, this space 2K being formed by a top plate portion 2A serving as an upper face on which objects can be placed, left and right side plate portions 2B, 2C (in the drawing, only the right side is shown), a back (rear) plate portion 2D, and a bottom plate portion 2E. However, the main body 2 may have a constitution other than that shown in the drawings. As shown in Fig. 5, the drawer 3, which can be freely pulled out from and inserted into the main body 2, is constituted by a front plate portion 3A, left and right side plate portions 3B, 3C (in the drawing, only the left side is shown), a bottom plate portion 3D on which the screen 1 is placed, and so on. However, the drawer 3 may have a constitution other than that shown in the drawings. Notch portions 2H into which the rear plate portion 4 of the supporting members 6 are inserted are formed on both the left and right sides on the rear side of the main body 2 to move the center of gravity of the main body 2 slightly rearward in respect of the supporting member 6 such that the furniture is reliably prevented from falling forward. However, the main body 2 may be provided without the notch portions 2H. The drawer 3 is constituted to be slidable in the front-back direction by the electric power of an electric motor (not shown) or the like, but may be caused to slide by manual force.

[0022] As shown in Figs. 1(a), 2, and 7, a metallic carrying member 11 formed with a smaller front-back dimension than the front-back dimension of the main body 2 in order to carry and support the main body 2 and increase the overall strength of the furniture is connected between the left/right pair of supporting members 6, 6 using screws B3. The carrying member 11 and the main body 2 are connected in a vertical direction by screws B1.

[0023] As shown in Fig. 7, the carrying member 11 is constituted by a frame body with a hollow interior comprising an angled tube form rear side portion 12, right and left L-shaped side portions 13, 14 fixed to the two ends of the rear side portion 12 by welding or the like and bent forward therefrom at a 90° angle, and a tubular front side portion 15 which connects the front end portions of the left and right side portions 13, 14. Hence a reduction in weight is achieved and the main body 2 can be securely carried and supported. The material and form of the carrying member 11 are freely modifiable. Further, if the strength of the main body 2 itself is in-

creased, then the carrying portion 11 may be omitted. When fixing the carrying member 11 and supporting member 6 together, screws B2 are screwed into screw holes 11b (see Fig. 7) formed in the carrying member 11 through through holes 6K formed in the corresponding supporting member 6, as will be described below and as is shown in Fig. 10.

[0024] As shown in Figs. 10 and 11, the side plate portion 5 of the supporting member 6 is formed with a protruding portion 17 which protrudes outward in the front-back direction from a substantially central portion of the side plate portion 5 to form an interior space 16 which extends over the entirety of the vertical direction. This enables strength to be enhanced and also, as shown in the drawings, allows a cord 18 to be inserted into the interior space 16 and guided downward. Since the cord 18 inserted into the interior space 16 (although not shown in the drawings, the cord is a cord for other electrical equipment placed on the upper face of the main body 2, for example a cord for a plasma display, and may also be a power cord for the electric motor which drives the screen 1 or the electric motor which slide operates the drawer 3) can be seen from the lower interior of the furniture, a cover may be attached to the interior space 16 from the inside so that the interior space 16 cannot be seen from the lower interior of the furniture. Alternatively, the protruding portion 17 may be caused to protrude inward. In this case, the interior space can be seen from the exterior of the furniture, and hence a cover which seals the interior space from the outside may be attached. By inserting [into the interior space 16] a wiring duct (also known as a power source duct) or the like for supplying a power source, which is formed as a channel and buried in the floor, for example, the power source of the plasma display or other electrical equipment placed on the main body 2 may be easily ensured from the wiring duct through an attachment power source plug outlet instead of using the cord 18. A plug outlet may be used in place of the wiring duct. In Figs. 10 and 11, the protruding portion 17 is formed in a substantially trapezoid form when seen from above, but may take any form such as an arc form, a rectangular form, or an angled form. In Figs. 10 and 11, the reference numeral 19 indicates vertical positioning grooves (which are formed over the entirety of the vertical direction but may be formed partially) which are used when screws are inserted to securely position the distal end (blade tip) of an electric drill or the like used to form the screw through holes 6K by locking the distal end of the drill so that the distal end does not deviate from its position. The vertical grooves 19 are advantageous in that the through holes 6K may be formed securely and swiftly in the positions at which the screws B2 used to fix together the carrying member 11 and supporting member 6 are inserted. However, the vertical grooves 19 may be omitted. A vertical groove 19 is also formed in the protruding portion 17 to aid in the formation of screw holes for fixing a wiring duct (plug outlet or similar) inserted into the interior space 16, but this vertical groove 19 may also be omitted.

[0025] The reference symbol K in Fig. 3 indicates cover members which, by latching onto the upper end of the supporting member 6, cover the interior space 16 from above, and which are also used to provide a cosmetically pleasing upper end to the supporting member 6.

[0026] A curved portion 5A curved outward into arc form is provided on the end portion of the side plate portion 5, and as shown in Fig. 11, this curved portion 5A may be used as an attachment portion 5A for attaching a small speaker 20. More specifically, the distal end of a rod-form arm 21 which protrudes from the small speaker 20 is provided with a fitting portion 22 which is inserted into the attachment portion 5A, a screw portion 22A is formed in the fitting portion 22 so that a hexagon socket set screw 23 can be screwed therein, and by screwing the hexagon socket set screw 23 into the screw portion 22A such that the distal end thereof is forced to contact the inner face of the attachment portion 5A, the speaker 20 can be fixed into position. However, the speaker 20 may be fixed according to another configuration. Also, an object other than the speaker 20 may be attached via the attachment portion 5A.

[0027] As shown in Figs. 10 and 16, the end portion of the rear plate portion 4 is provided with a fitting portion 4A substantially in the form of a reverse C when seen from above into which a back board 24 may be fitted. This is advantageous in that the back board 24 can be attached easily and swiftly, but may be omitted. If the back board 24 is provided, as shown in Figs. 12 to 15, the upper ends of the supporting members 6, 6 are constituted to be higher than the upper end of the main body 2 so as to be positioned thereabove, and the back board 24 is fitted into the fitting portions 4A, 4A from the upper face of the main body 2 to the upper ends of the supporting members 6, 6. Note that in Fig. 15, a state is shown in which the screen 1 is raised into its usage attitude and two trays 31, 31 and a center speaker 33 to be described below are provided in the lower portion of the main body 2. As shown in Fig. 17, a plasma display (a liquid crystal display or the like is also possible) 25 may be attached to the front face of the back board 24 which is attached in the manner described above. By providing a constitution as that described above, in which the back board 24 can be attached, increases in size and weight may occur in comparison with the furniture shown in Figs. 1 through 6, but since [the back board 24 forms] the rear end, the center of gravity of the furniture can be moved rearward, which is advantageous in that the furniture becomes unlikely to fall forward. Further, by attaching the plasma display to the back board 24 attached in this manner, the plasma display can be attached with stability and without moving the center of gravity of the entire piece of furniture greatly forward. The other constitutions shown in Figs. 12 through 17 are identical to those described above, and hence identical reference symbols have been allocated

thereto and description thereof has been omitted.

[0028] As shown in Figs. 4 through 6, the upper end of the screen 1 is supported by a supporting member 26 in angled tubular form positioned at one end (the upper end) of a pantographic link mechanism 27, and the lower end of the screen 1 is attached to a screen winding spindle (a pipe may be used) J provided inside the drawer 3. The pantographic link mechanism 27 comprises a pair of upper links 29, 29, one end (the upper end) of which is pivotably connected to a bracket 28 attached to the rear face of the supporting member 26 in a substantially central position in the left/right direction, and lower links 30, 30, one end (the upper end) of which is pivotably connected to the lower ends of the upper links 29, 29 and the other end (the lower end) of which is pivotable connected to an attachment member (not shown) fixed to the bottom plate portion of the drawer 3. Accordingly, when the screen 1 is modified in attitude to the usage attitude, the drawer 3 is caused to slide forward in respect of the main body 2 using the electric power of an electric motor or the like, as described above, and then the screen winding spindle J around which the screen 1 is wound is rotated by the electric power of an electric motor or the like not shown in the drawing such that the screen 1 is unfurled, the link mechanism 27 is raised, and the screen 1 can be modified in to its usage attitude (see Figs. 5 and 6). When the screen 1 in its usage attitude is to be stored, the screen winding spindle J is rotated in the opposite direction using the electric power of the electric motor, whereby the screen 1 is wound around the screen winding spindle J and stored. Thus the screen 1 can be modified in attitude to the storage attitude. The drawer 3 is then caused to slide backward using the electric power of the electric motor or the like, whereby the drawer 3 can be stored inside the main body 2 (see Fig. 2). The drawer 3 and screen 1 may be operated by manual power rather than electric power.

[0029] As shown in Figs. 4 through 6, tray spaces 32, 32 in which two trays 31, 31 constituted so as to move freely when audio equipment is placed thereon may be stored and a speaker space 34 into which a center speaker 33 can be inserted and stored between the trays 31, 31 are formed in the lower portion of the main body 2, or more specifically between the carrying member 11 and the floor surface. However, a space in which only one tray 31 can be stored or spaces in which three or more trays 31 can be stored may be formed. In Figs. 4 and 6, the three spaces 32, 32, 34 are constituted by a single space, but may be constituted by three spaces using partition plates or the like. By providing the center speaker 33 in the manner described above, sound may be output in a real fashion from a substantially central position in the left/right direction of the screen 1.

[0030] The two trays 31, 31 have an identical constitution, and hence one of the trays 31 will be described. As shown in Figs. 8(a), (b) and 9(a), (b), the tray 31 comprises a plate-form carrying portion 35 made of wood on which audio equipment is placed, and a left/right pair of metallic plate-form vertical wall portions 36 which rise upward from the left and right end portions of the carrying portion 35. The vertical wall portions 36 each have a horizontal portion which is formed by folding the lower ends thereof in a horizontal direction and screwed to the lower face of the carrying portion 35. The reference symbol 36A in the drawings indicates three holes formed in the vertical wall portions 36, but these holes 36A may be omitted.

[0031] A concave portion 37 recessed toward the front side is formed on the rear face of the carrying portion 35, and an audio equipment power outlet (in the drawing, two plug holes are provided for the two pieces of audio equipment that can be carried on the trays, but one, three, or more plug holes may be provided) 38 is embedded in the concave portion 37 so that the power cords of the audio equipment are not positioned on the exterior of the trays 31. Substantially rectangular concave portions 39 recessed upward are formed in two locations, on the left and right side, of the front side and rear side respectively on the lower face of the carrying portion 35, and non-direction changing casters 40 (constituted with rollers that are attached so as to be rotatable only along a left/right horizontal axis) are attached to each of the four concave portions 39, thereby making the gap between the floor surface and the carrying portion 35 as small as possible and allowing easy handling of the trays 31 which can only move forward and backward, in contrast to a case in which direction-changing casters are attached such that the trays 31 move unexpectedly. However, direction-changing casters may be attached to the tray 31. A concave portion 41 into which a hand can be inserted is also formed on the lower face of the carrying portion 35 in a substantially central position between the left and right ends of the front side, thereby enabling the tray 31 to be easily moved and manipulated by a hand inserted into the concave portion 41. Alternatively, a handle or the like which protrudes slightly frontward may be attached to the front face of the carrying portion 35.

INDUSTRIAL APPLICABILITY

[0032] According to the present invention, the screen is constituted so as to be raised (pulled) upward, and thus a tall main body such as that of a conventional piece of furniture need not be provided, leading to a reduction in weight and convenience from the point of view of handling. Further, the main body is supported by corner supporting members with a smaller front-back dimension than that of the main body, and thus a reduction in the weight of the supporting members themselves can be achieved, thereby further enhancing the weight reduction effect described above. Although supporting members with a small front-back dimension are used such that when the drawer is pulled forward to place the screen in its usage attitude, the screen is positioned far toward the front side, the main body can be securely

prevented from falling forward by the base portions which contact the ground frontward of the screen. Hence a piece of furniture with both reduced weight and superior product reliability can be provided.

[0033] In the present invention, the supporting member is constituted by a plate-form member in a substantially L-shaped form when seen from above which is connected to the main body so as to contact the rear face of the main body on the left and right corner portions thereof and the adjacent side face thereto on either the left or right side, and thus the supporting member can be made thinner and lighter than a member in planar form. Also, the supporting member can be connected to the main body without the need for gutters, which is advantageous from the point of view of handling and product finishing.

[0034] In the present invention, the main body is constituted in a box shape with an open front face comprising a single space in which the drawer storing the screen can be stored. By setting the height of the upper end of the supporting member to be substantially equal to the height of the upper end of the main body, the weight and size of the main body can be reduced even further, which is even more advantageous from the point of view of handling.

[0035] In the present invention, the main body is constituted in a box shape with an open front face comprising a single space in which the drawer storing the screen can be stored, the upper end of the supporting member is set higher than the upper end of the main body so as to be positioned thereabove, and a fitting portion is provided on the end portion of the respective rear plate portions of the two corner supporting members. Hence a back board can be attached by simply fitting the back board into the fitting portion, which is advantageous in terms of assembly, and particularly advantageous in that the center of gravity of the entire piece of furniture can be prevented from moving forward when the drawer is pulled forward and the screen is raised. The back board attached in the manner described above may also be used as an attachment member for attaching a plasma display or liquid crystal display, for example, thereto.

[0036] In the present invention, the supporting members are formed with a protruding portion which protrudes outward or inward to form an interior space over the entirety of the vertical direction. Thus an increase in strength is achieved and the interior space formed in the protruding portion can be used conveniently as a space for providing a wiring duct to supply power to the audio equipment placed on the main body, or as a space for storing a cord for the audio equipment and so on placed on the shelf boards.

[0037] In the present invention, an attachment portion to which a speaker can be attached is provided on the end portion of each side plate portion of the supporting members. Thus a speaker can be attached easily and swiftly such that the system can be set up simply.

[0038] In the present invention, a space into which a movable tray for carrying audio equipment can be inserted and stored is formed in the lower portion of the main body. This is convenient and useful in that wiring and maintenance work can be performed easily and quickly on the audio equipment placed on the trays in an open area by pulling the trays out of the main body.

[0039] In the present invention, tray spaces into which two movable trays for carrying audio equipment can be inserted and stored and a speaker space in which a center speaker can be disposed between the two trays are formed in the lower portion of the main body. This is convenient and useful in that audio equipment can be placed on the two trays in an open area by pulling the trays out of the lower portion of the main body, and wiring and maintenance work can be performed thereon easily and quickly. Further, by disposing a center speaker between the trays, no special installation space need be provided, and sound can be output from an optimum position in relation to the screen. As a result, the value of the furniture with a screen can be increased.

[0040] In the present invention, the tray is constituted by a carrying portion on which audio equipment is carried and a left/right pair of vertical wall portions which rise upward from the left and right end portions of the carrying portion, and a concave portion for inserting a power outlet for the audio equipment placed on the carrying portion is formed on the rear face of the carrying portion. Thus operations (including remote control operations) from the front face of the tray, maintenance work, or wiring and maintenance work from the rear face of the tray can be performed easily, which is advantageous in terms of usability. Further, by inserting a power plug of the audio equipment carried on the tray into the power outlet, trouble which occurs when a power plug attached to the distal end of a power cord of the audio equipment is inserted directly into an outlet attached to a wall, such as the power cord catching on a part of tray and becoming damaged, can be avoided, and thus usage is favorable.

Claims

1. A piece of furniture with a screen comprising:

a main body is provided with a drawer which is freely movable between a pulled-out position in which said drawer is pulled-out frontward and a storage position in which said drawer is stored inside said main body;
a screen is rolled up and stored in the interior of said drawer; wherein:

the piece of furniture is constituted to be freely modifiable in attitude between a usage attitude in which said screen stored inside said drawer is raised upward when said drawer is pulled out and a storage at-

titude in which said screen is rolled up and stored inside said drawer;
corner supporting members having a smaller front-back dimension than the front-back dimension of said main body are connected to the respective left and right end portions on the rear side of said main body to support said main body; and
support legs comprising a base portion which contacts the ground frontward of at least said screen in the storage attitude are provided on the left/right pair of supporting members.

2. The piece of furniture with a screen according to claim 1, wherein said supporting member is constituted by a plate-form member formed in a substantially L-shaped form when seen from above which is connected to said main body so as to contact the rear face of said main body on the left and right corner portions thereof and the adjacent side face thereto on either the left or right side.

3. The piece of furniture with a screen according to claim 1, wherein said main body is constituted in a box shape with an open front face comprising a single space in which the drawer storing said screen can be stored, and the height of the upper end of said supporting member is set to be substantially equal to the height of the upper end of said main body.

4. The piece of furniture with a screen according to claim 1, wherein:

said main body is constituted in a box shape with an open front face comprising a single space in which the drawer storing said screen can be stored;
the upper end of said supporting member is set higher than the upper end of said main body so as to be positioned thereabove; and
a fitting portion for fitting a back board is provided on the end portion of the respective rear plate portions of said two corner supporting members.

5. The piece of furniture with a screen according to claim 1, wherein a protruding portion which protrudes outward or inward is formed in said supporting member to form an interior space over the entirety of the vertical direction thereof.

6. The piece of furniture with a screen according to claim 1, wherein an attachment portion to which a speaker can be attached is provided on the front end portion of said supporting member.

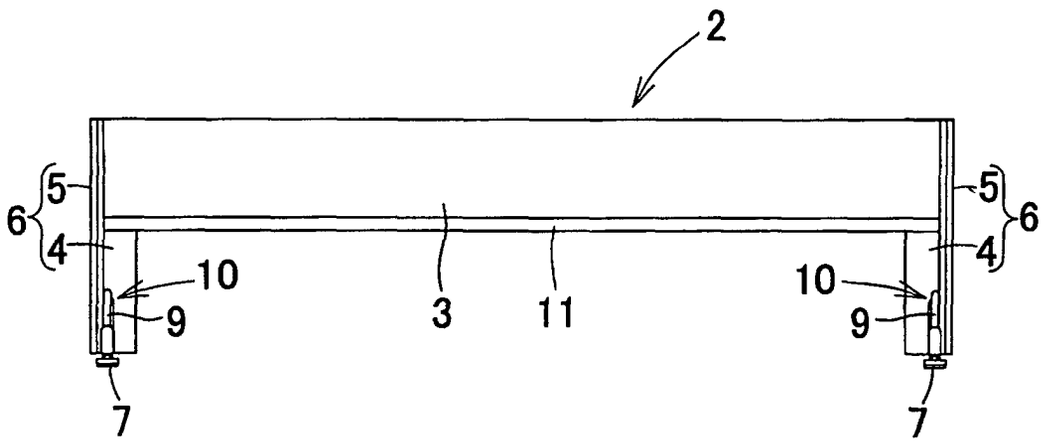
7. The piece of furniture with a screen according to claim 1, wherein a space into which a movable tray for carrying audio equipment can be inserted and stored is formed in the lower portion of said main body.

8. The piece of furniture with a screen according to claim 1, wherein tray spaces into which two movable trays for carrying audio equipment can be inserted and stored and a speaker space in which a center speaker can be disposed between the two trays are formed in the lower portion of said main body.

9. The piece of furniture with a screen according to claim 7 or claim 8, wherein said tray is constituted by a carrying portion for carrying audio equipment and a left/right pair of vertical wall portions which rise upward from the left and right end portions of said carrying portion, and is provided with a concave portion formed on the rear face of said carrying portion into which a power outlet for the audio equipment carried on said carrying portion is embedded.

Fig. 1

(a)



(b)

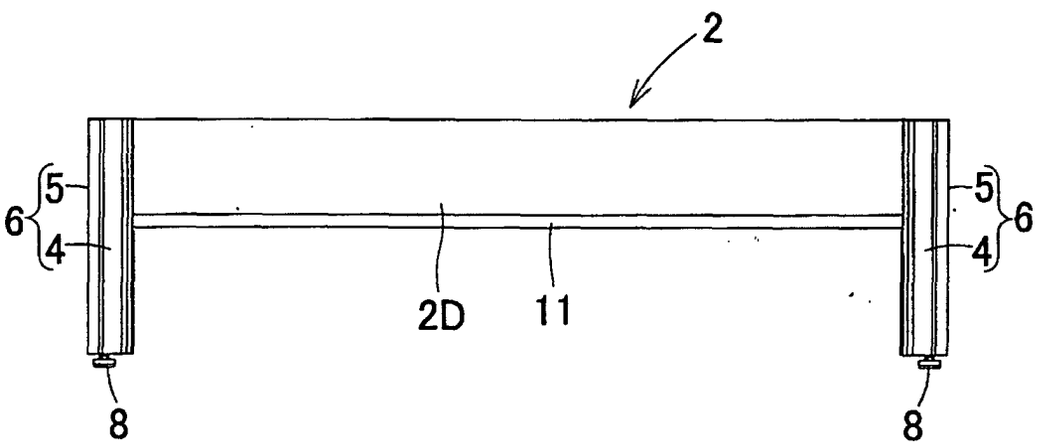


Fig. 2

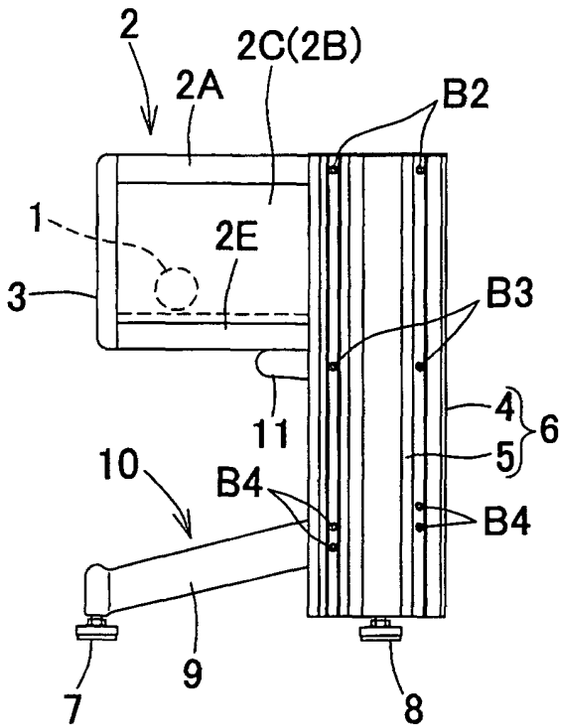


Fig. 3

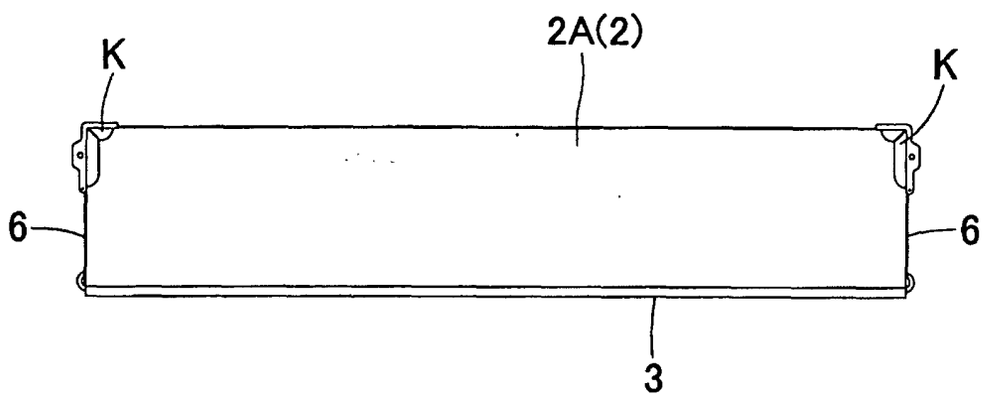


Fig. 4

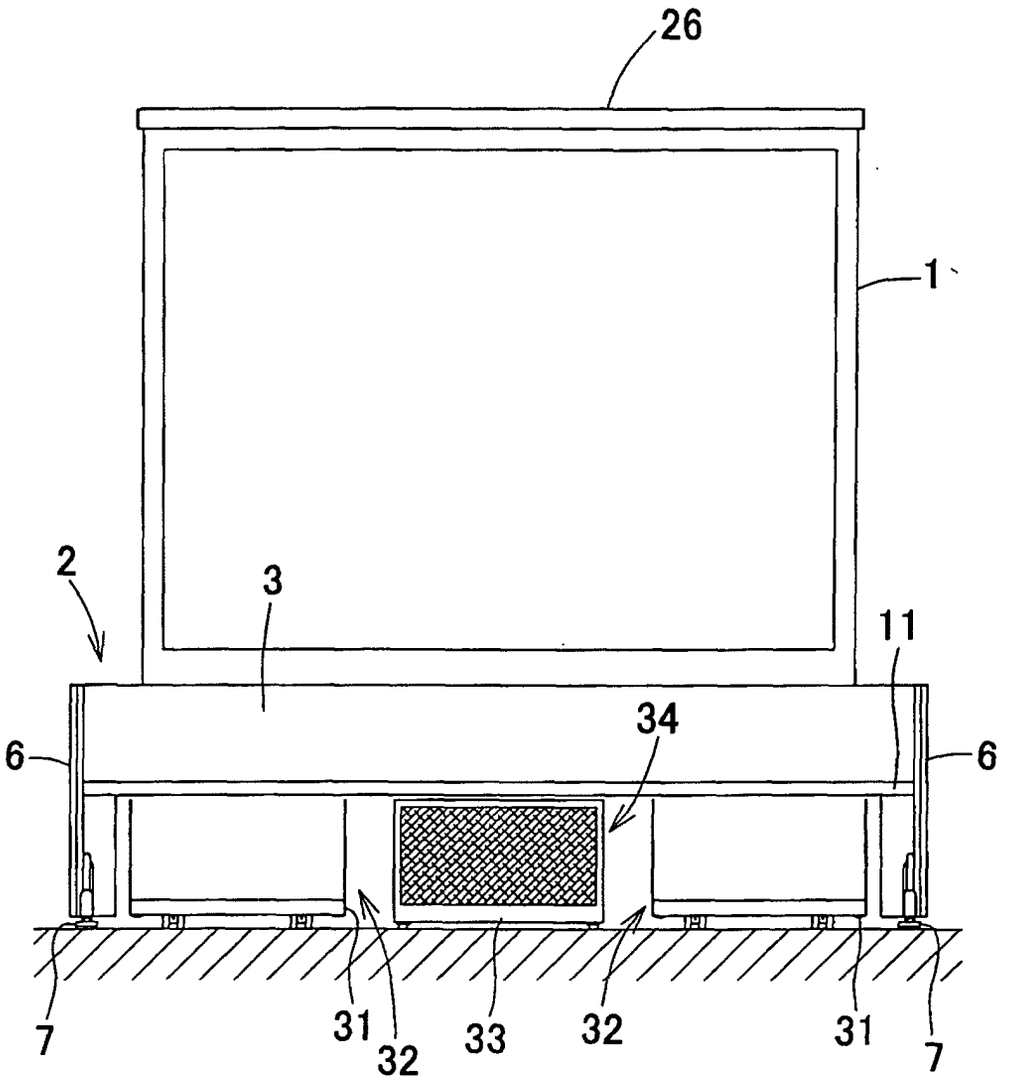


Fig. 5

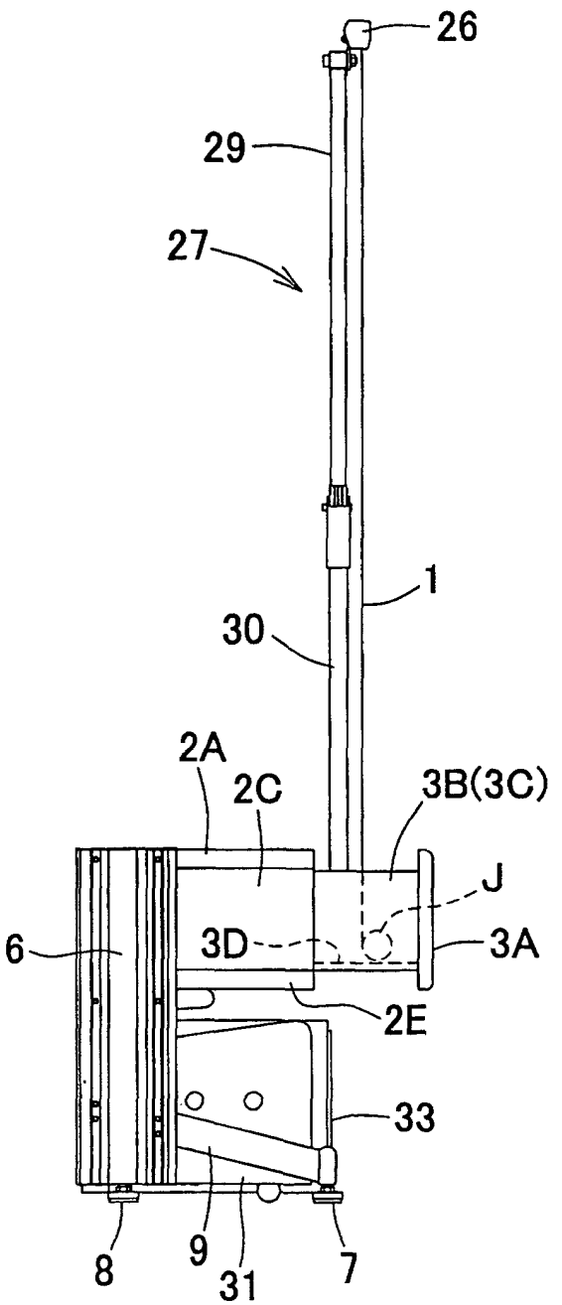


Fig. 6

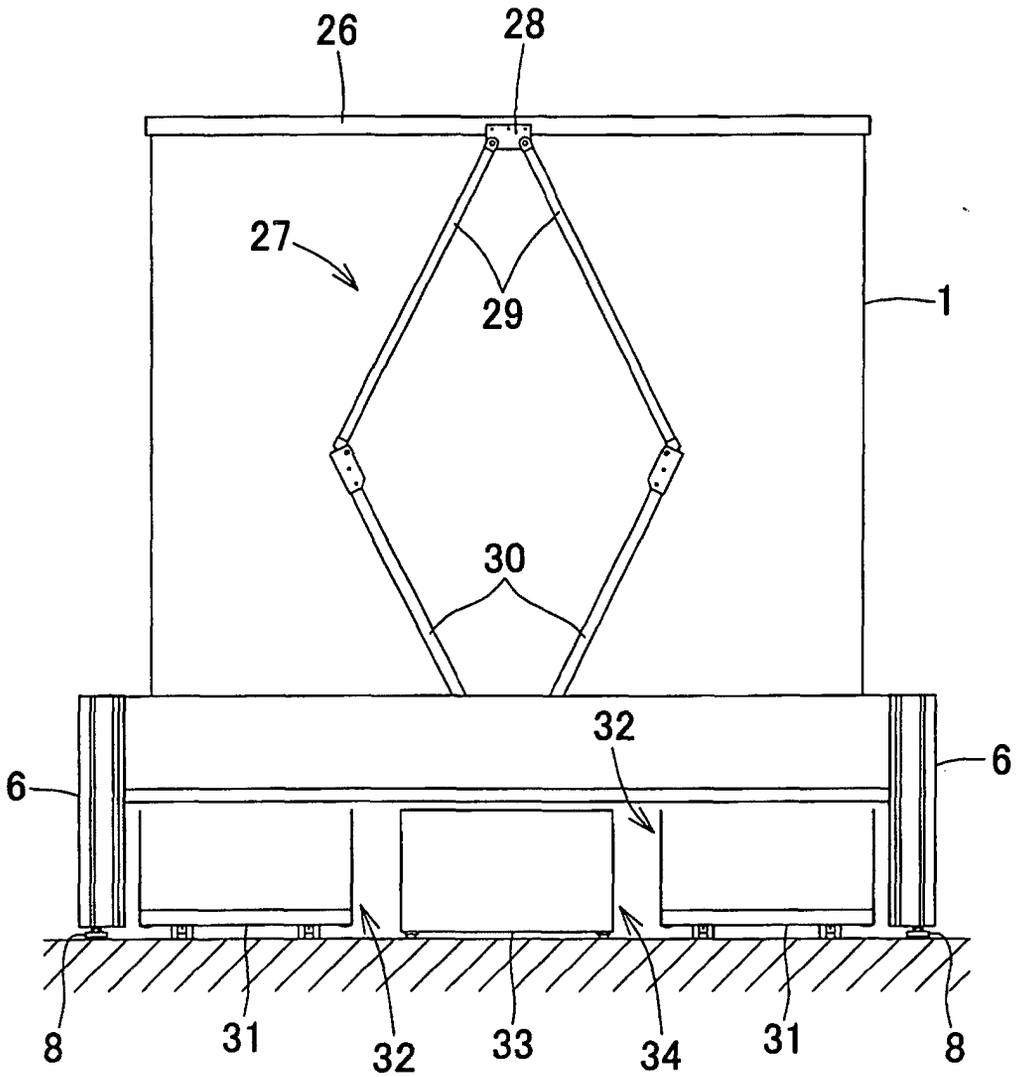


Fig. 7

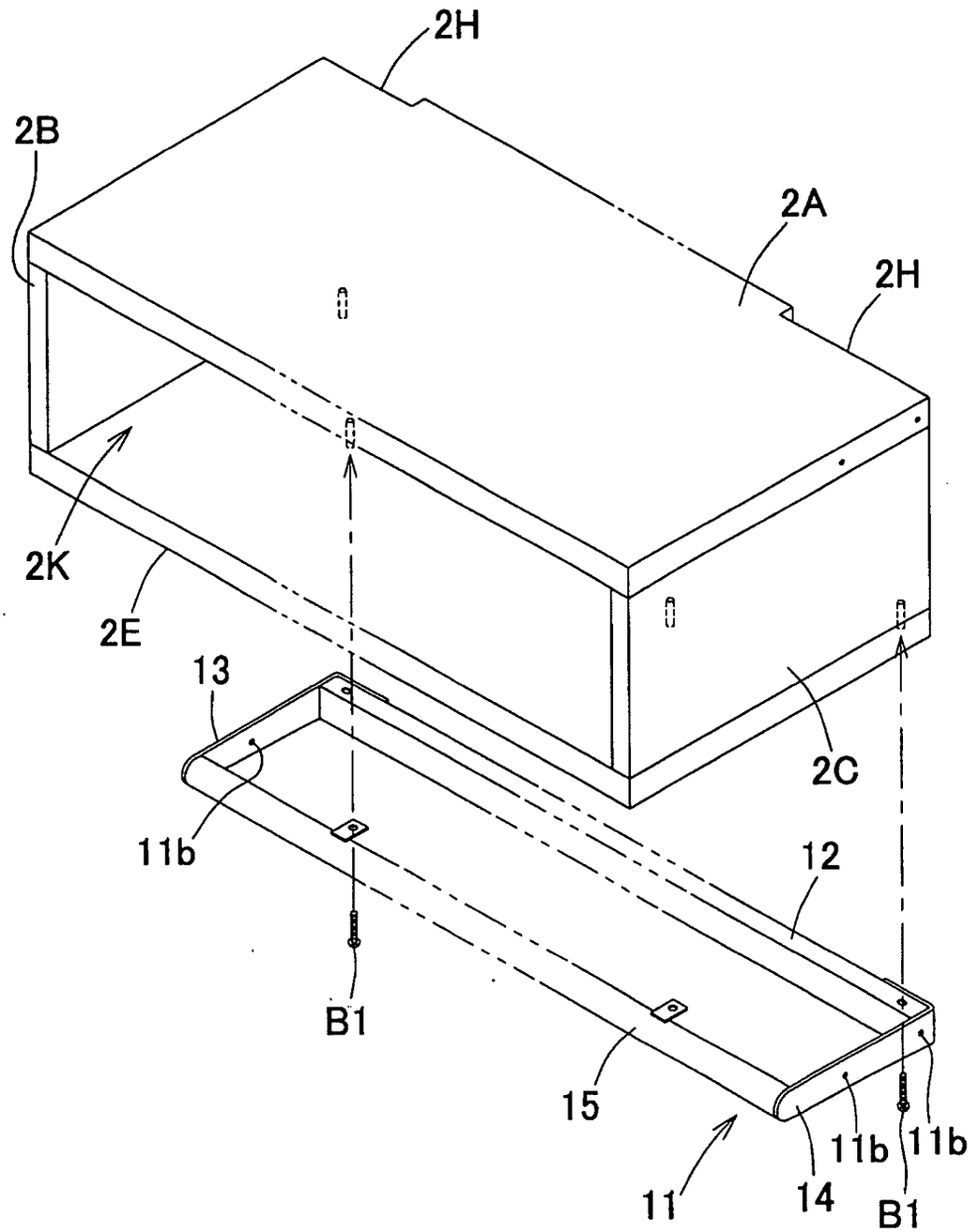


Fig. 8

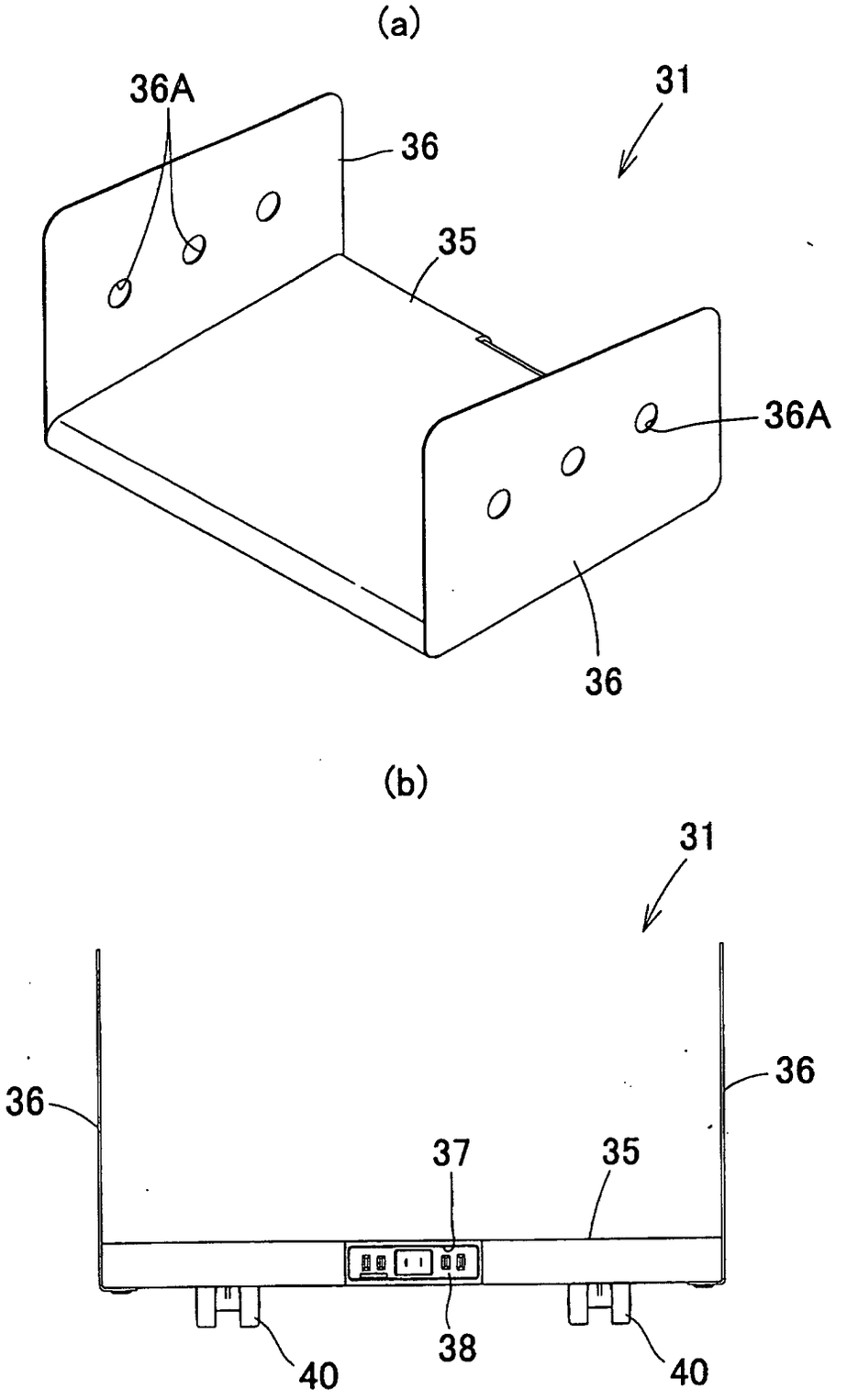


Fig. 9

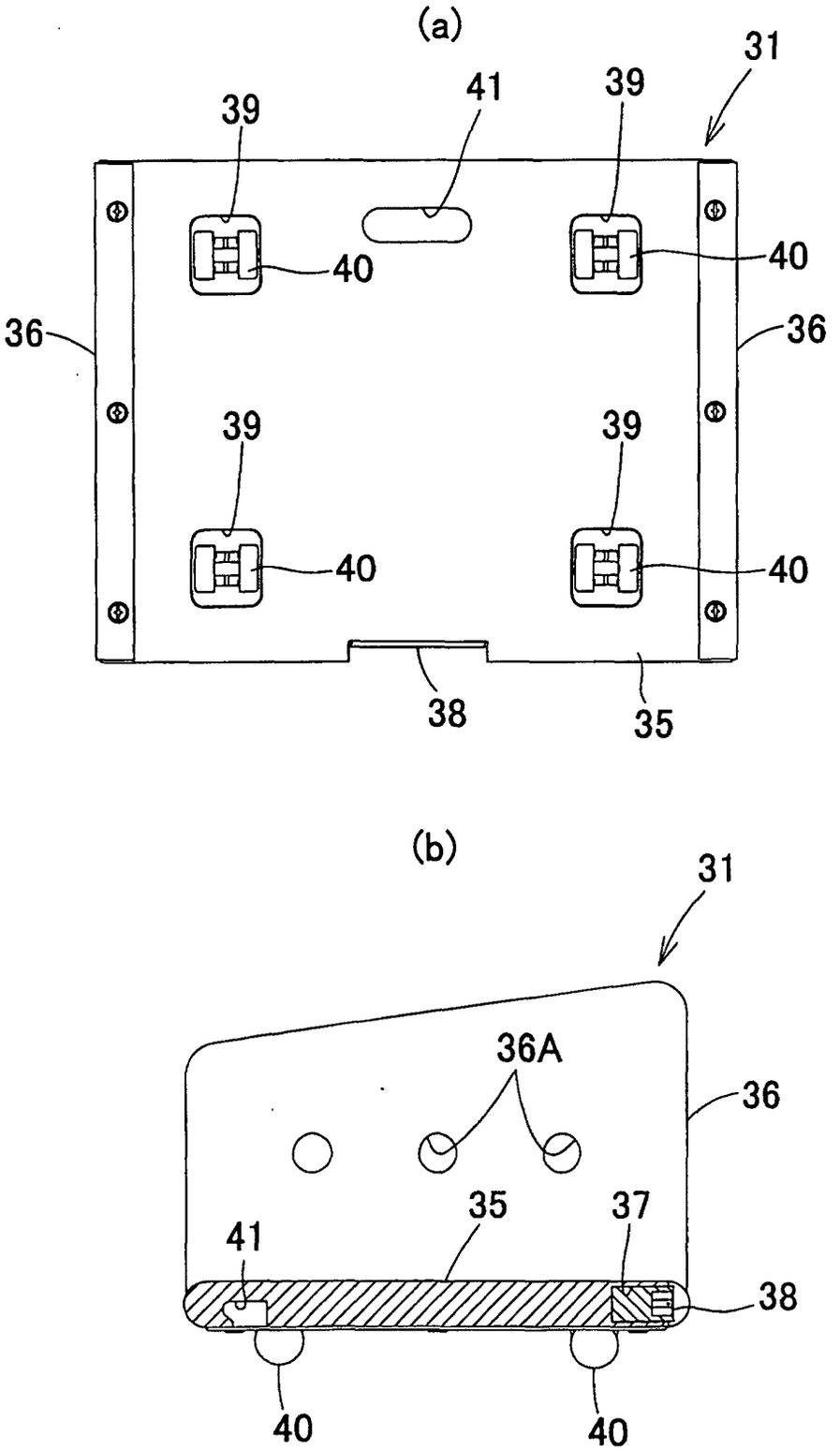


Fig. 10

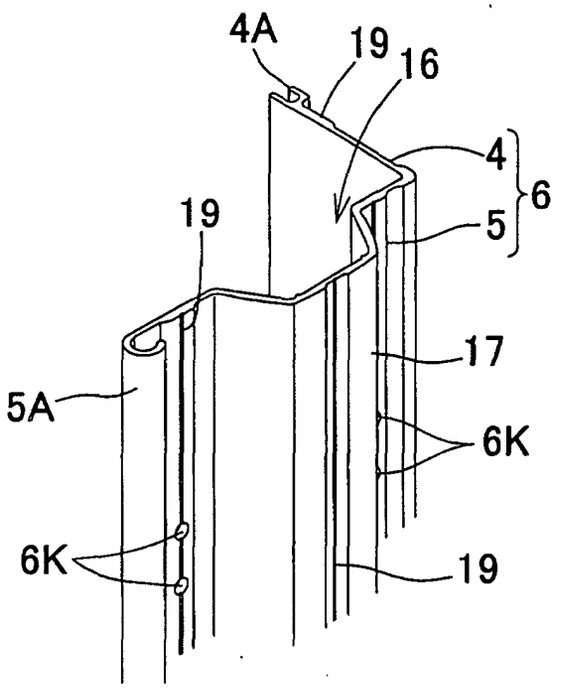

4A
19
16
4
6
5
19
17
5A
6K
6K
19

Fig. 11

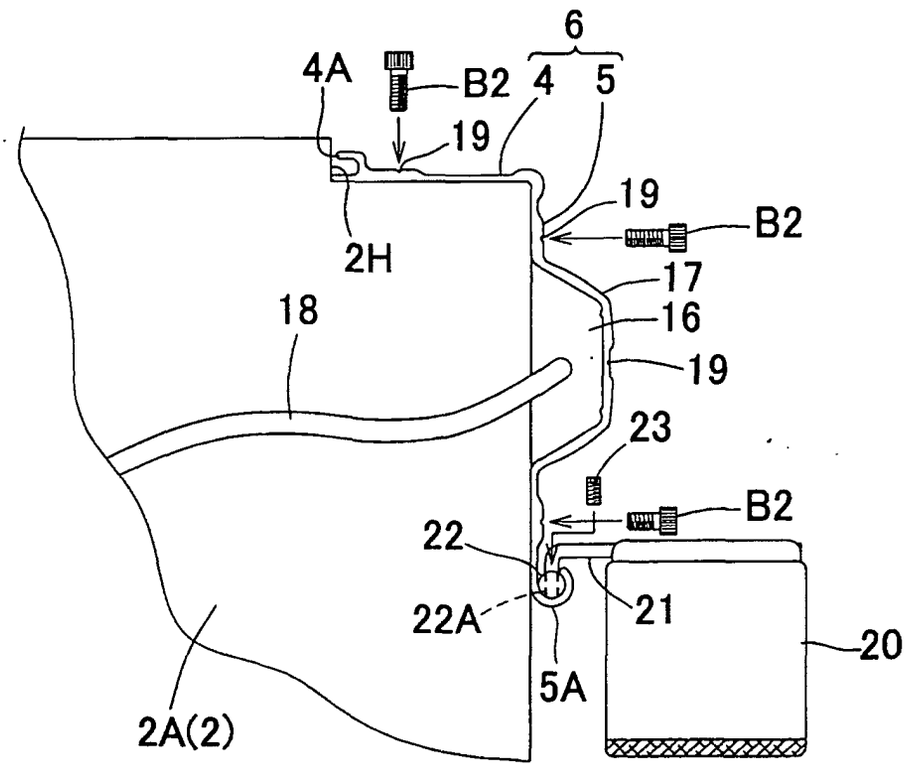

6
4A
B2
4
5
19
19
B2
2H
17
18
16
19
23
B2
22
22A
21
20
5A
2A(2)

Fig. 12

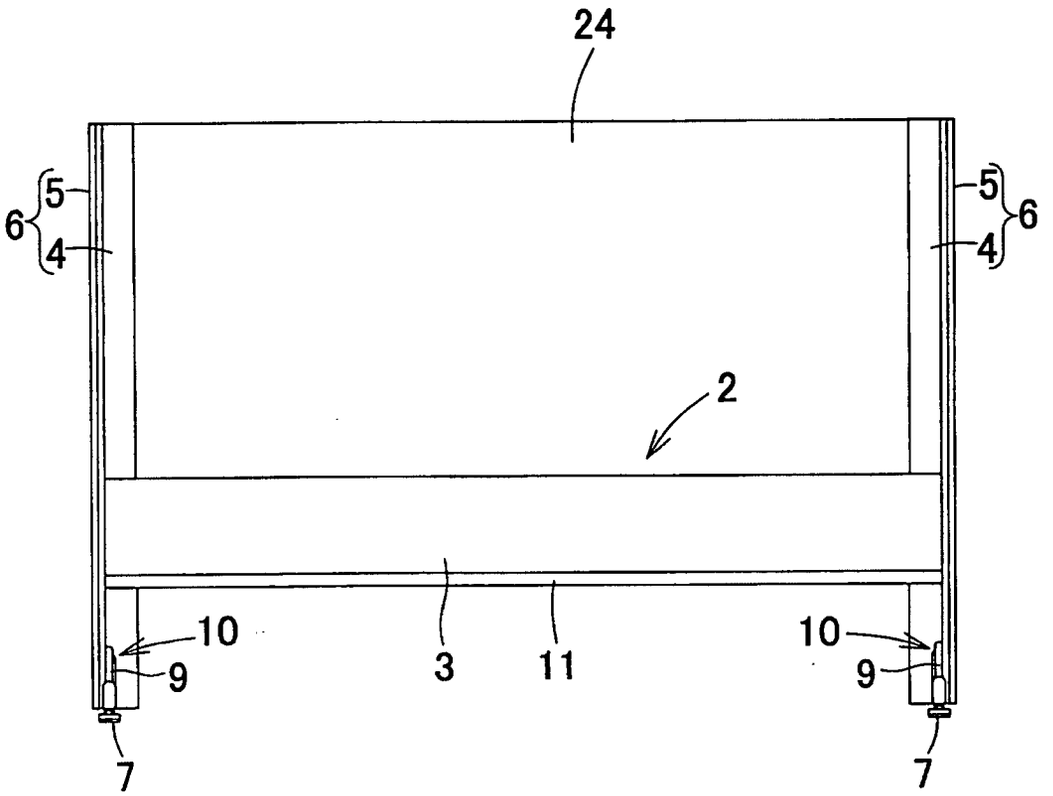


Fig. 13

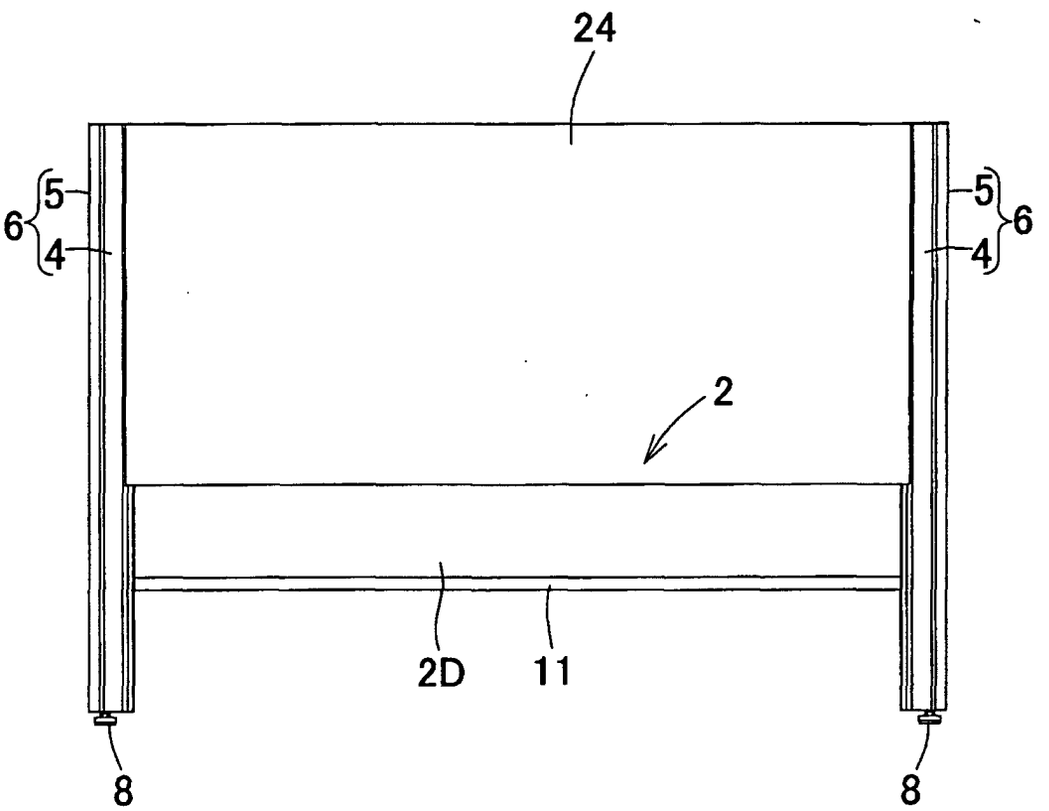


Fig. 14

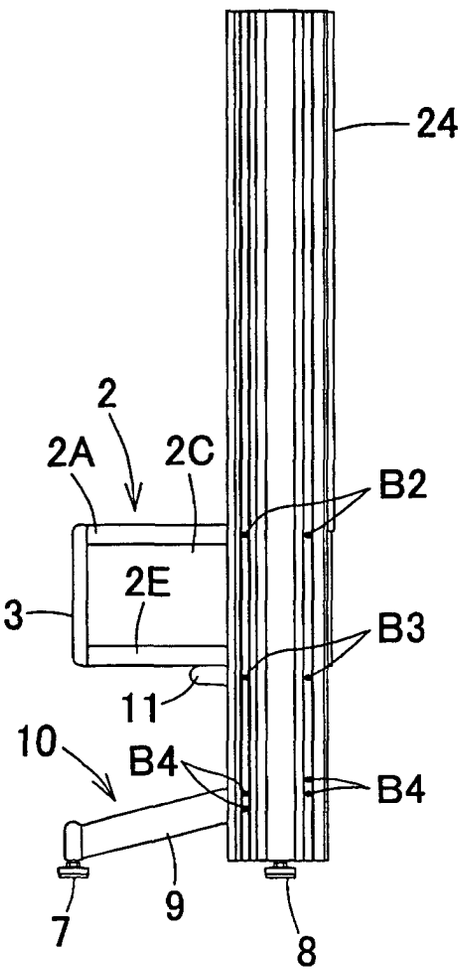


Fig. 15

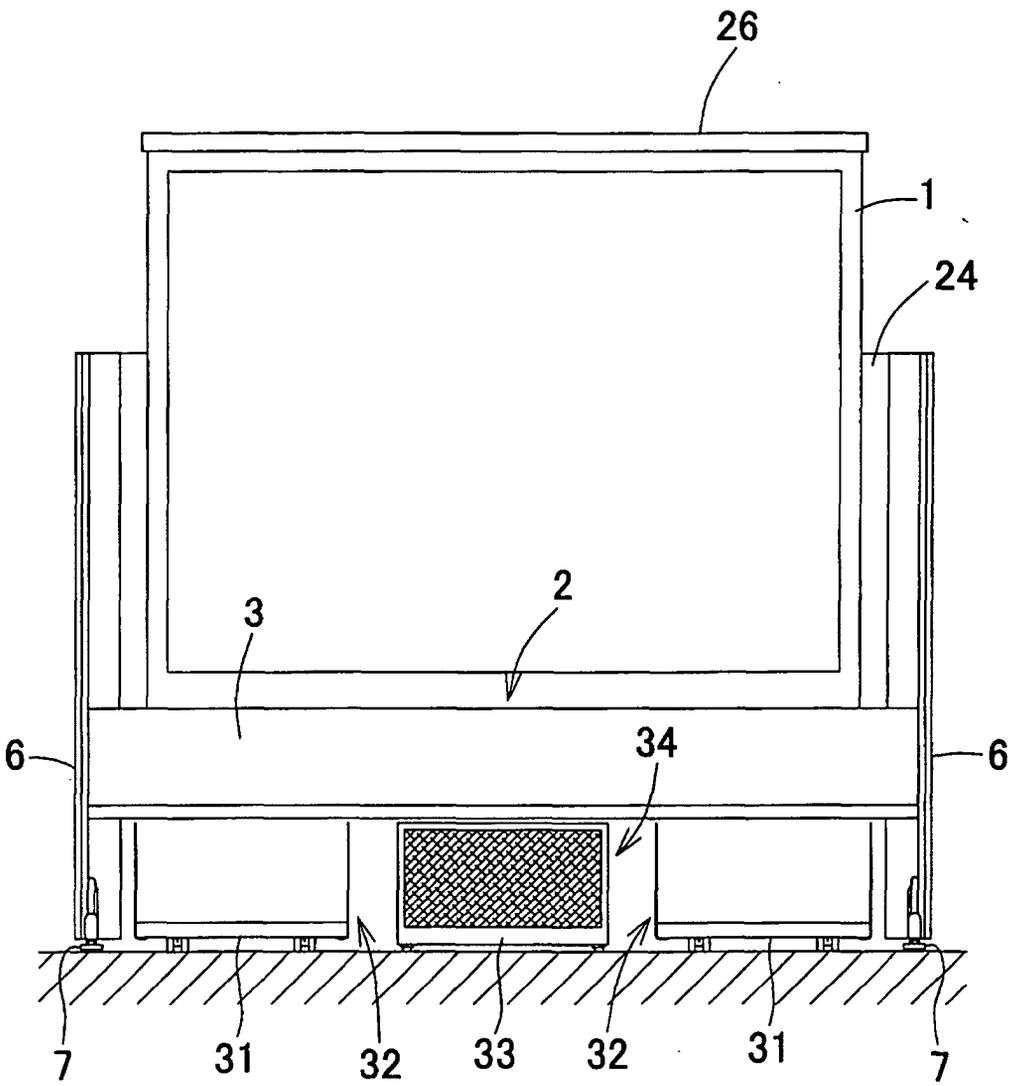


Fig. 16

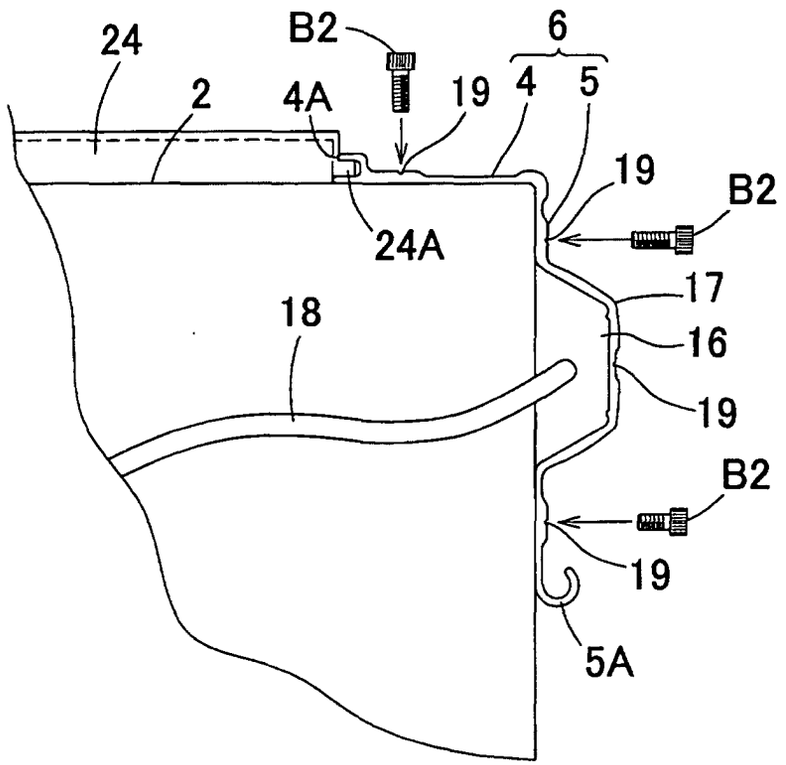
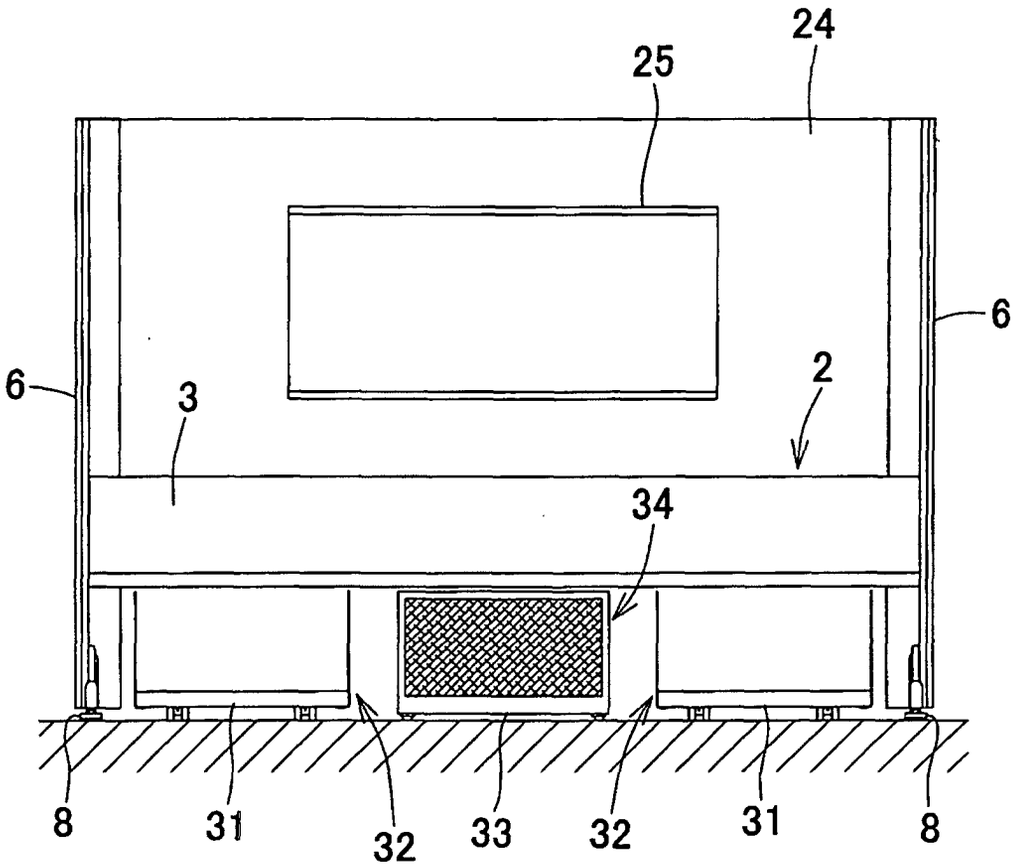


Fig. 17



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP02/01995

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl[7] A47B81/06, A47B88/00, A47G5/02, G03B21/58

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] A47B81/06, A47B88/00, A47G5/02, G03B21/58

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	1996-2002
Kokai Jitsuyo Shinan Koho	1971-2002	Toroku Jitsuyo Shinan Koho	1994-2002

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	JP 4-237033 A (Victor Company Of Japan, Ltd.), 25 August, 1992 (25.08.92), Full text; Figs. 1 to 10 (Family: none)	1-9
Y	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 74798/1990(Laid-open No. 32126/1992) (Matsushita Electric Works, Ltd.), 16 March, 1992 (16.03.92), Full text; Figs. 1 to 6 (Family: none)	1-9
Y	JP 2000-296027 A (Kokuyo Co., Ltd.), 24 October, 2000 (24.10.00), Full text; Figs. 1 to 21 (Family: none)	1-9

☒ 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 document 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
28 May, 2002 (28.05.02)	11 June, 2002 (11.06.02)
Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
Facsimile No.	Telephone No.

Form PCT/ISA/210 (second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP02/01995

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 11-299549 A (Kokuyo Co., Ltd.), 02 November, 1999 (02.11.99), Full text; Figs. 1 to 8 (Family: none)	2,4
Y	JP 2528187 Y2 (Matsushita Electric Works, Ltd.), 05 March, 1997 (05.03.97), Fell text; Figs. 1 to 5 (Family: none)	3,4,7,8
Y	JP 3-198810 A (Steelcase Strafor S.A.), 30 August, 1991 (30.08.91), Full text; Figs. 1 to 5 & DE 69008133 C & CA 2031007 A & FR 2655251 A & EP 433197 A & US 5144896 A & US 5277131 A & AT 104120 T & PT 96053 B	5
Y	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 41611/1987(Laid-open No. 148238/1988) (Sony Corp.), 29 September, 1988 (29.09.88), Full text; Figs. 1 to 3 (Family: none)	6
Y	JP 4-219997 A (Matsushita Electric Works, Ltd.), 11 August, 1992 (11.08.92), Full text; Figs. 1 to 3 (Family: none)	9

Form PCT/ISA/210 (continuation of second sheet) (July 1998)