



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
27.06.2012 Bulletin 2012/26

(51) Int Cl.:
E04B 2/74 (2006.01)

(21) Application number: **11168404.9**

(22) Date of filing: **01.06.2011**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(71) Applicant: **Japan Rentall Co., Ltd.**
Kobe-shi
Hyogo 651-2122 (JP)

(72) Inventor: **Kago, Yoichi**
Kobe-shi, Hyogo 651-2122 (JP)

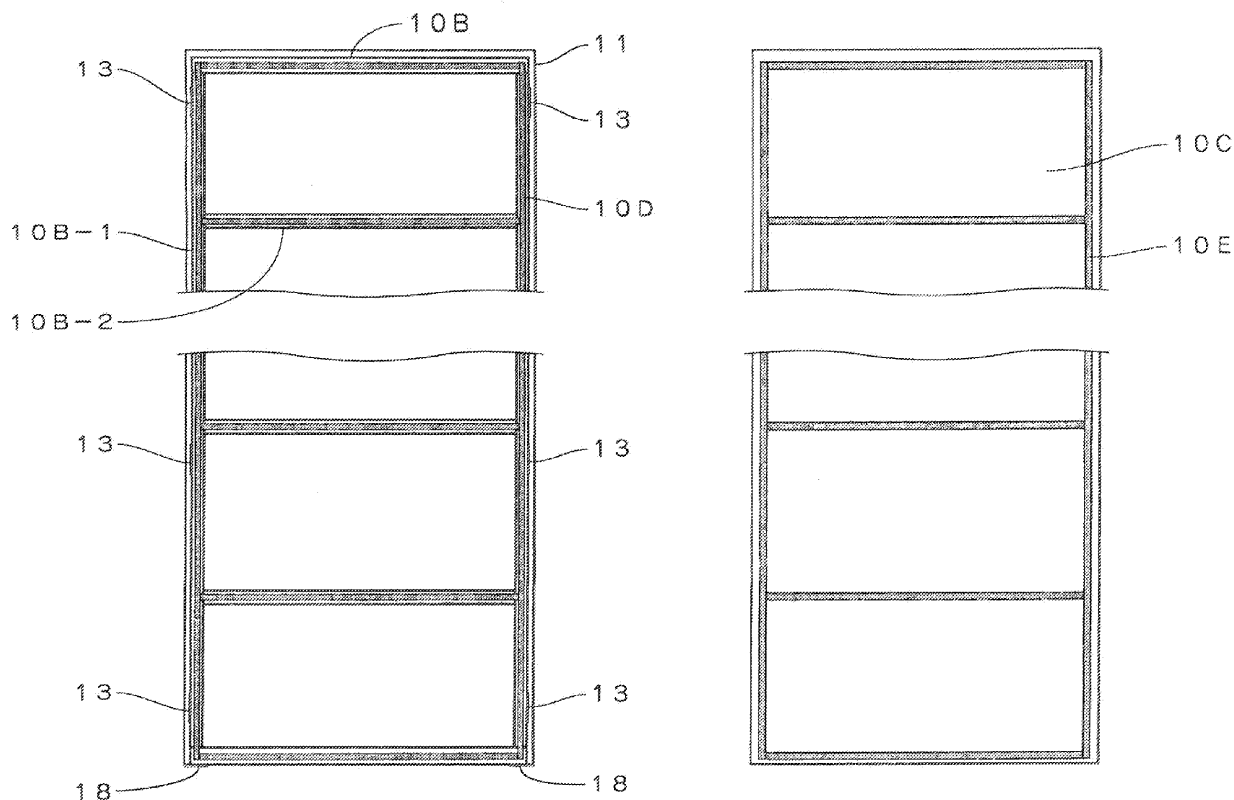
(30) Priority: **27.12.2010 JP 2010290013**

(74) Representative: **Sielewiesiuk, Jakub**
AOMB Polska Sp. z o.o.
Emilii Plater 53, 28th floor
00-113 Warszawa (PL)

(54) **Partition panel having a front and rear surface which is attached to a frame with hook and loop fasteners**

(57) A partition panel having a front and rear surface, said surfaces are attached to a frame (10B) with hook and loop fasteners (10D,10E).

Fig. 1



Description

Field of the Invention

[0001] The present Invention relates to a partition panel, a panel structure and a connection structure of panels, and more particularly to a partition panel, a panel structure and a connection structure, which allow easy change of decoration and design without producing and preparing a plurality of panels.

Background of the Invention

[0002] In various event spots such as trade fairs or exhibitions, a plurality of partition panels obtained by painting the surface of plywood and attaching fabrics or decoration sheets thereto is used to construct a booth using nails or the like. However, the partition panels are often scrapped after use.

[0003] There is suggested a booth structure that is constructed in a way that two rectangular thin frame panels made by painting their surfaces and attaching fabrics or decoration sheets thereto are overlapped with a gap so that metal members with concave sections are inserted to four peripheries thereof and fixed by metal fittings to make partition panels, then a double-sided adhesion tape or a Hook-and-Loop fastener is fixed to the concave portion of the partition panels so that a plurality of partition panels is fitted by insertion to a protrusion of a support pillar, and bars with a "⌢"-shaped section are inserted to upper and lower ends of the partition panels to improve its appearance and reinforce the partition panels in constructing a booth so that the partition panels may be assembled and dissembled in a simple way (Patent Literature 1).

[0004] However, in the partition panels disclosed in the Patent Literature 1, a double-sided adhesion tape or a Hook-and-Loop fastener is used for fixing the partition panel to the support pillar, and further the upper and lower bars with a "⌢"-shaped section are inserted to the upper and lower ends of the partition panel so that the partition panel may keep its standing state. Thus, if an impact is applied to the partition panel so that the partition panel is taken out from the upper or lower bar, there is a concern that the partition panel may fall down.

[0005] In addition, since the concave portion at the side surface of the partition panel is fitted with the protrusion formed on the support pillar, the support pillar protrudes from the surface of the panel at its joint portion, and thus it is difficult to use the partition panel as a wide and flat panel surface.

[0006] On the other hand, the Inventors of the present application proposed the connecting structure in which the bottom surface portion of side groove of the partition panel and the support pillar are magnetically attached with a magnet board, and also a connecting pillar portion of a connector is put into an upper opening of the support pillar and an insertion pin of the connector is put into a

pin insertion hole of the reinforcing component located at an upper edge portion of the partition panel to connect the support pillar with the partition panel. In this connection structure, the partition panels may be simply assembled and dissembled and have high strength so that the partition panels do not suddenly fall down by impact, and it is possible to use the partition panel as a wide and flat panel surface (Patent Literature 2).

10 Citation List

Patent Literature

[0007]

PLT1: Japanese Laid-open Patent publication No. 2001-90232

PLT2: Japanese Utility Model Registration No. 3151022

20 Disclosure of the Invention

[0008] However, in the partition panel disclosed in the Patent Literature 2, when it is intended to change a decoration or design of the panel in accordance with the taste of a user or the circumstance of an exhibition hall, the entire panel must be exchanged. As a result, a plurality of panels with different decorations or designs should be produced and prepared and carried to the exhibition hall, which causes a high cost.

[0009] An object of the present Invention is to provide a partition panel of which the decoration or design may be exchanged and be carried in a simple way.

[0010] According to an aspect of the present Invention, there is provided a partition panel including a rectangular frame and thin side panels at both sides thereof, wherein the rectangular frame is configured by connecting horizontal bars at least between upper and lower ends of right and left vertical bars;

one of Hook-and-Loop fasteners, which is manufactured to have a width with so coupling force as the thin side panel is not broken when being separated, is fixed to the panel attachment surface of the vertical bars and the horizontal bars of the rectangular frame with a continuous or discontinuous shape corresponding to the outer shape of the thin side panel;

the other of the Hook-and-Loop fasteners is fixed to the rear surface of the thin side panel with a continuous or discontinuous shape corresponding to the outer shape of the thin side panel; and

Hook-and-Loop fasteners are coupled, thereby the side panel is detachably attached to panel attachment surfaces of the vertical bars and the horizontal bars of the rectangular frame.

[0011] In one aspect of the invention, the rectangular frame and the thin side panel are detachably attached by the securing of Hook-and-Loop fasteners.

[0012] As a result, the thin side panel may be attached

to or detached from the rectangular frame and the side panel itself is thin and lightweight comparison to the partition panel. Thus, when the thin and lightweight side panels having different decoration or different design are made and prepared, the partition panel may be produced and carried at a low cost, thereby allowing great cost reduction.

[0013] The coupling force of Hook-and-Loop fastener may be controlled by changing its width. On the other hand, considering that the side panel is thin and lightweight, if the Hook-and-Loop fastener has too strong a coupling force, the thin side panel may be broken when being separated, though the thin side panel may be firmly attached to the rectangular frame. Thus, it is important that the Hook-and-Loop fastener has a width that ensures so coupling force without breaking the side panel when being separated.

[0014] If the rectangular frame comprised only the vertical bars and the horizontal bars, the strength of the partition panel may be deficient depending on the size or construction of booth that is constructed at an exhibition hall. Thus, a brace-shaped reinforcing bar may be fixed between the vertical bars and/or the horizontal bars of the rectangular frame to increase the strength thereof.

[0015] In addition, the rectangular frame may be firmly fixed by using nails or the like in a state that the vertical bars and the horizontal bars are assembled into a rectangular shape. However, when configured to be assembled and disassembled, the partition panel may be disassembled when transporting and then carried in a compact size, which ensures a simple transporting work and thus further reduces the transporting cost. In other words, the vertical bars and the horizontal bars may be detachably connected each other so that the rectangular frame may be disassembled into the vertical bars and the horizontal bars and then stored.

[0016] When the panel structure disclosed in the Patent Literature 2 is used, grooves may be formed in the right and left sides and upper periphery of the partition panel over the entire lengths by attaching the rectangular frame and the side panel so that the right and left vertical bars are at locations deviated inwards from the side periphery of the thin side panel and the upper horizontal bars are at locations deviated downwards from the upper end periphery of the thin side panel.

[0017] In addition, in a case that the panel structure disclosed in the Patent Literature 2, the support pillar for connecting adjacent partition panels configures a sectional appearance corresponding to the groove in the partition panel, a magnet board is fixed to any one of the side of the support pillar or the bottom of the side groove of the partition panel, and a magnet board or metal board magnetically attached to the magnet board is fixed to the other one. The support pillar may be made of metal material that allows magnetic attachment.

[0018] In more detail, a reinforcing component with a concaved section having a pin inserting hole may be inserted into at least an edge in the upper groove of the

partition panel to form the inserting hole in at least upper end among the upper and lower ends of the support pillar, and a connecting component for connecting the support pillar to the partition panel may include a connecting plate portion inserted into the upper groove of the partition panel, a connecting pillar portion fixed to the connecting plate portion and inserted into the upper end inserting hole of the support pillar, and an inserting pin fixed to the connecting plate portion and inserted into the pin inserting hole of the reinforcing component.

[0019] However, the panel structure disclosed in the Patent Literature 2 may be limited only an example of the connection between the support pillar having a rectangular section and the partition panel having a groove formed in a side thereof, it is impossible to connect the panel structure of Octanorm System™ which connects the support pillar and the partition panel or its partition panel by forming a dovetail groove in a length direction of the support pillar and then inserting the connecting component at the side of the partition panel into the dovetail groove.

[0020] As a result, when the user of Octanorm System™ intends to place its panel structure side by side with the panel structure disclosed in the Patent Literature 2, gaps are created between adjacent panel structures, so the difference between the booth in various event spots such as a trade fair or an exhibition hall is outstanding, thereby deteriorating the appearance.

[0021] According to the present Invention, there may be provided a connecting structure panels for connecting a first panel structure and a second panel structure; wherein the first panel structure includes a partition panel and a first support pillar, the partition panel comprises a rectangular frame and the thin side panels at both sides thereof;

the rectangular frame is configured by connecting horizontal bars at least between upper and lower ends of right and left vertical bars;

one of Hook-and-Loop fasteners, which is manufactured to have a width with so coupling force as the thin side panel is not broken when being separated, is fixed to the panel attachment surface of the vertical bars and the horizontal bars of the rectangular frame with a continuous or discontinuous shape corresponding to the outer shape of the thin side panel;

the other of Hook-and-Loop fasteners is fixed to the rear surface of the side thin panel with a continuous or discontinuous shape corresponding to the outer shape of the thin side panel; and

Hook-and-Loop fasteners are coupled, thereby the thin side panel is detachably attached to panel attachment surfaces of the vertical bars and the horizontal bars of the rectangular frame;

Wherein the rectangular frame and the thin side panel are placed so that the right and left vertical bars are at locations deviated in an inner direction from the side periphery of the thin side panel and the upper horizontal bars are at locations deviated in a lower direction from

the upper periphery of the thin side panel, so that grooves are formed in both right and left sides and the upper periphery over the entire length thereof;

the first support pillar has a sectional appearance corresponding to the groove of the partition panel to connect adjacent partition panels;

a magnet board fixed to any one of a side of the corresponding support pillar and a bottom of the side groove of the partition panel, and the magnet board or metal board fixed to the other one of the side of the support pillar and the bottom of the side groove of the partition panel and magnetically attached to the magnet board; and

the second panel structure is connected to the first panel structure when being placed side by side, wherein the second panel structure includes a second support pillar, a second partition panel and a second connecting component;

the second support pillar has an elongated groove with a dovetail shape over the entire length;

the second partition panel connects to the second support pillar,

the second connecting component for fixing the second partition panel to the second support pillar by attaching a front end thereof, which is expandable, to a side of the second partition panel, then inserting the second connecting component into the elongated groove of the second support pillar, and then expanding the second connecting component therein;

wherein the second connecting component is attached to the side of the partition panel in the first panel structure so as to protrude toward the side of the partition panel in the first panel structure, the protruded front end of the second connecting component is inserted into the dovetail groove of the second support pillar and then expanded and retained so that the partition panel in the first panel structure is connected to the second support pillar.

[0022] Though it has been explained that the connecting component used in the second panel structure is provided to the partition panel in the first panel structure so that the connecting component is inserted into the dovetail groove of the support pillar of the second panel structure and then expanded and retained, it is also possible to attach a magnetically attachable connecting block (a fourth connecting component) to the support pillar of the second panel structure so that the connecting block is magnetically attached to the panel groove of the first panel structure by means of a magnet board.

[0023] According to the present Invention, there may be provided a connecting structure of panels for connecting a first panel structure and a second panel structure; wherein the first panel structure includes a partition panel and a first support pillar, the partition panel comprises a rectangular frame and the thin side panels at both sides thereof;

the rectangular frame is configured by connecting horizontal bars at least between upper and lower ends of right and left vertical bars;

one of Hook-and-Loop fasteners, which is manufactured to have a width with so coupling force as the thin side panel is not broken when being separated, is fixed to the panel attachment surface of the vertical bars and the horizontal bars of the rectangular frame with a continuous or discontinuous shape corresponding to the outer shape of the thin side panel;

the other of Hook-and-Loop fasteners is fixed to the rear surface of the side panel with a s continuous or discontinuous shape corresponding to the outer shape of the thin side panel; and

Hook-and-Loop fasteners are coupled, thereby the thin side panel is detachably attached to panel attachment surfaces of the vertical bars and the horizontal bars of the rectangular frame;

the rectangular frame and the thin side panel are placed so that the right and left vertical bars are at locations deviated in an inner direction from the side periphery of the thin side panel and the upper horizontal bars are at locations deviated in a lower direction from the upper periphery of the thin side panel, so that grooves are formed in both right and left sides and the upper periphery over the entire length thereof;

the first support pillar has a sectional appearance corresponding to the groove of the partition panel to connect adjacent partition panels;

a magnet board fixed to any one of a side of the corresponding support pillar and a bottom of the side groove of the partition panel, and the magnet board or metal board fixed to the other one of the side of the support pillar and the bottom of the side groove of the partition panel and magnetically attached to the magnet board; and

the second panel structure is connected to the first panel structure when being placed side by side, wherein the second panel structure includes a second support pillar and a second partition panel, the second support pillar has an elongated groove with a dovetail shape over the entire length and connects to the second partition panel; a second connecting component for fixing the second partition panel to the second support pillar by attaching a front end thereof, which is expandable, to a side of the second partition panel, then inserting the second connecting component into the elongated groove of the second support pillar, and then expanding the second connecting component therein; and

a fourth connecting component is attached to the side of the second support pillar so that the fourth connecting component is inserted into the side groove of the partition panel in the first panel structure and magnetically attached to the magnet board attached to a bottom of the corresponding groove, thereby connecting the partition panel in the first panel structure to the second support pillar.

[0024] According to the Invention, the partition panel and the support pillar of two panel structures having different connecting methods may be connected without any gap, and thus two panel structures may be placed

with no gap. Therefore, the appearance of booths may be greatly improved at various event spots such as product exhibition halls.

Brief Description of the Drawings

[0025]

[Fig. 1] Fig. 1 shows a partition panel according to a preferred embodiment of the Invention, from which a side panel is detached.

[Fig. 2] Fig. 2 shows that Hook-and-Loop fastener of a rectangular frame is attached to the partition panel of the embodiment.

[Fig. 3] Fig. 3 shows that a vertical bar and a horizontal bar of the rectangular frame are dissembled from the partition panel of the embodiment.

[Fig. 4] Fig. 4 shows a rectangular frame according to a second embodiment.

[Fig. 5] Fig. 5 is an enlarged view showing a reinforcing bar in Fig. 4.

[Fig. 6] Fig. 6 is a schematic perspective view showing an example of a panel structure using the partition panel according to the first embodiment.

[Fig. 7] Fig. 7 is a perspective view schematically showing a connection method between a support pillar and the partition panel by using a connecting component in the panel structure.

[Fig. 8] Fig. 8 is a perspective view showing that a lighting device is attached to the panel structure.

[Fig. 9] Fig. 9 shows the partition panel in the panel structure.

[Fig. 10] Fig. 10 shows a right portion of the partition panel in the panel structure.

[Fig. 11] Fig. 11 shows a reinforcing component in the panel structure.

[Fig. 12] Fig. 12 shows a connecting metal component in the panel structure.

[Fig. 13] Fig. 13 shows another connecting metal component in the panel connecting structure.

[Fig. 14] Fig. 14 is still another connecting metal component in the panel structure.

[Fig. 15] Fig. 15 is yet another connecting metal component in the panel structure.

[Fig. 16] Fig. 16 shows a reinforcing metal component in the panel structure.

[Fig. 17] Fig. 17 shows a partition panel according to a preferred embodiment in the panel connecting structure according to the present Invention.

[Fig. 18] Fig. 18 is a sectional view showing essential parts of the support pillar in Fig. 17.

[Fig. 19] Fig. 19 shows front and rear portions of a connecting component of a second partition panel in a second panel structure.

[Fig. 20] Fig. 20 is a sectional view showing a second support pillar in the second panel structure.

[Fig. 21] Fig. 21 is a front view showing the second support pillar.

[Fig. 22] Fig. 22 is a perspective view showing a state before the connecting in the embodiment of the panel connecting structure according to the Invention.

[Fig. 23] Fig. 23 is a perspective view showing a state after the connecting in the embodiment of the panel connecting structure according to the Invention.

[Fig. 24] Fig. 24 is a sectional view showing the second support pillar in the second embodiment of the panel connecting structure according to the Invention.

[Fig. 25] Fig. 25 shows side and front sides of the second support pillar.

[Fig. 26] Fig. 26 is a perspective view showing a state before the connecting in the embodiment of the panel connecting structure according to the Invention.

[Fig. 27] Fig. 27 shows another assembling method of the rectangular frame.

Description of Preferred Embodiments

[0026] Hereinafter, embodiments of the Invention are described in detail. Figs. 1 to 16 show a preferred embodiment of a panel structure of first panels. As shown in Fig. 6, a booth 100 that is a connected structure of the first panels has both right and left sides and a rear side, which are configured with walls 110, and a front side that is open, and the wall 110 is constituted with a plurality of first partition panels 10 and first support pillars 12. The first partition panel 10 may have various dimensions such as 2700 mm in height×1000 mm in width, 2500 mm in height×1000 mm in width, 2400 mm in height×1000 mm in width, 2100 mm in height×900 mm in width, and 1800 mm in height×900 mm in width.

[0027] The first partition panel 10 is configured so that a rectangular frame 10B is interposed detachably attached between thin side panels 10C, and decoration is applied to the surface of the thin side panel 10C by painting the surface and then attaching a fabric or decoration sheet thereto. The rectangular frame 10B has vertical bars 10B-1 and horizontal bars 10B-2 arranged with a vertical gap between the right and left vertical bars 10B-1 so that the rectangular frame 10B is detachable from the structure as shown in Fig. 3.

[0028] Also, when strength is demanded, Tacker needles may be driven and fixed into the horizontal bar 10B-2 to be fixed to the vertical bar 10B-1 of the partition panel 10. In addition, as shown in Figs. 4 and 5, a braced reinforcing bar 10G having a front end 10H processed perpendicularly may be fixed to the vertical bar 10B-1 and the horizontal bar 10B-2 by means of Tacker needles or the like to increase the strength of the partition panel 10.

[0029] Also, as shown in Fig. 27, attachment holes 10B-3 are perforated at both ends of the vertical bar 10B-1 so that an attaching metal component 10B-4 having a screw hole is inserted therein, while an insert hole 10B-6 is perforated in the upper and lower horizontal bars 10B-2 so that an attachment screw 10B-5 is inserted through the insert hole and is screwed with the corre-

sponding attaching metal component 10B-4, thereby constituting the rectangular frame 10B. As for an intermediate horizontal bar 10B-2, attachment holes 10B-3 are perforated at both ends of the horizontal bar 10B-2 so that an attachment tool 10B-4 having a screw hole is inserted thereon, while an insert hole 10B-6 is perforated in the vertical bar 10B-1 so that the attachment screw 10B-5 is inserted through the insert hole 10B-6 and screwed to the attaching metal component 10B-4, thereby attaching the intermediate horizontal bar 10B-2.

[0030] As described above, when the rectangular frame 10B is configured to be assembled and disassembled, the partition panel 10 is dissembled into the rectangular frame 10B and the side panels 10C, and then the side panels 10C are piled up and the rectangular frame 10B is dissembled into the vertical bars 10B-1 and the horizontal bars 10B-2. In this way, the partition panel 10 may be received in, for example, a corrugated box and then carried easily.

[0031] Here, one of Hook-and-Loop fasteners 10D, which is manufactured to have a width with so coupling force as the side panel 10C is not broken when being separated, is fixed to the panel attachment surface of the vertical bar 10B-1 and the horizontal bar 10B-2 of the rectangular frame 10B with a shape corresponding to the appearance of the side panel 10C by means of an adhesive or double-sided adhesive tape, and the other of Hook-and-Loop fasteners 10E is fixed to the rear surface of the side panel 10C with a continuous shape corresponding to the outer shape of the side panel 10C by means of an adhesive or double-sided adhesive tape so that the side panel 10C is detachably attached to the rectangular frame 10B.

[0032] Also, the rectangular frame 10B and the side panel 10C are installed so that the right and left vertical bars 10B-1 are at locations deviated in an inner direction from the side periphery of the side panel 10C and the upper horizontal bars 10B-2 are at locations deviated in a lower direction from the upper periphery of the side panel 10C. In this way, grooves are formed in both right and left sides and the upper periphery of the first partition panel 10 over the entire length thereof.

[0033] Reinforcing metal components 11, 18 are fixed to four upper and lower edges of the first partition panel 10 by screws or the like, and a reinforcing metal component 19 having a grooved section is inserted into the upper groove 10A of the first partition panel 10 and fixed thereto by screws or the like.

[0034] The reinforcing metal component 11 at the upper edge portion of the first partition panel 10 also has a grooved section with a L-shaped side, a pin inserting hole 11A is formed in a bottom of the upper side of the groove 10A. Also, the reinforcing metal component 18 at the other side has an L-shaped side, and the vertical side is formed at the grooved section.

[0035] Also, a plurality of, for example 5 sheets of magnet boards 13 are fixed with vertical intervals to the bottom of the grooves 10A at both sides of the first partition

panel 10.

[0036] On the other hand, a metal pipe having a rectangular section with a size inserted into the groove 10A in the edge of two partition panels 10 successively arranged is used for the first support pillar 12 so that the first support 12 has an open upper end.

[0037] In addition, the first partition panel 10 is connected to the first support pillar 12 by means of a connecting metal component 14. The connecting metal component 14 fixes a connecting pillar portion 14B to a center of a connecting plate portion 14A and fixes an inserting pin 14C to a side thereof so as to form a planar linear shape (Fig. 12), a planar L shape (Fig. 13), a planar T shape (Fig. 14) or a planar cross-shaped shape (Fig. 15) in the connecting plate 14A.

[0038] Also, as shown in Fig. 7, an insert hole 11B is elongated downward in the reinforcing metal component 11 and the edge portion of the upper groove 10A of the first partition panel 10 so that a power cord line 20B may pass through the partition panel 10.

[0039] When assembling the partition panel 10, the vertical bars 10B-1 and the horizontal bars 10B-2 are laid out into a rectangular pattern so that the vertical bars 10B-1 and the horizontal bars 10B-2 are connected by means of the insertion combination as shown in Fig. 3 to assemble the rectangular frame 10B, and the vertical bars 10B-1 are fixed to the horizontal bars 10B-2 by driving Tacker needles.

[0040] Then, one of Hook-and-Loop fasteners 10D with a predetermined width is fixed to the vertical bars 10B-1 and the horizontal bars 10B-2 of the rectangular frame 10B by means of an adhesive or double-sided adhesive tape with a continuous shape corresponding to the outer shape of the side panel 10C. On the other hand, the other of Hook-and-Loop fasteners 10E with a continuous shape according to the outer shape of the side panel 10C is fixed to the rear surface of the side panel 10C by means of an adhesive or double-sided adhesive tape, so that the side panel 10C may be detachably attached to the rectangular frame 10B by engaging Hook-and-Loop fasteners 10D, 10E with each other.

[0041] At this time, dimensions are set so that the side end periphery of the rectangular frame 10B is at a location deviated inwards from the side end periphery of the side panel 10C and the upper end periphery is at a location deviated downwards from the upper periphery, and then the grooves 10A are formed in both sides and the upper portion of the partition panel 10.

[0042] In a case that a decoration or design of the side panel 10C is changed, a side panel 10C having a decoration or design acceptable to the taste of a user or the circumstance of an exhibition hall may be prepared and replaced with the existing one.

[0043] In a case that a booth 100 is assembled, three or four partition panels 10 are arranged, and then the support pillar 12 is inserted into the groove 10A at the side periphery of adjacent partition panels 10. Then, the magnet board 13 of the partition panel 10 is strongly mag-

netically attached to the support pillar 12 so that three or four partition panels 10 are temporarily connected. At this time, if the magnet board 13 has a strong magnetic force, a vertical position of the partition panel 10 may be adjusted with respect to the support 12. Thus, the support pillar 12 and the partition panel 10 may securely stand in a stable way even on an uneven floor (or, ground).

[0044] Then, by using the connecting metal component 14 having a straight connecting plate portion 14A, the connecting metal component 14 is inserted into the groove 10A of the partition panel 10 through adjacent partition panels 10. Thus, if the connecting pillar portion 14B is inserted into the upper end opening 12A of the support pillar 12 and the inserting pin 14C is inserted into the pin insertion hole 11A, the adjacent partition panels 10 may be securely connected.

[0045] When the partition panels 10 may be connected as above, the partition panels 10 are made stand up to be perpendicular. Then, the support pillar 12 is inserted into the groove 10A at an outer end thereof, the partition panel 10 may be magnetically attached and thus temporarily connected to the support pillar 12 in an orthogonal state by means of the magnet board 13. Thus, finally, if the L-shaped connecting plate portion 14A is connected to the partition panel 10 at the outer end by using the connecting metal component 14, three or four partition panels stand up. Then, as shown in Fig. 6, if the walls 110 of both right and left sides and the rear sides and rear surfaces are formed to connect the front surface with the connecting plate 17, the booth 100 may be assembled.

[0046] Also, a clip 20A clamps the sidewall of the groove 10A of the partition panel 10, for example fixes the lighting device 20, as necessary, so that the power cord line 20B is arranged with well look in the groove 10A passes through the partition panel 10 from the insert hole 11B.

[0047] In a case that the booth is disassembled, the above processes may be performed in a reverse order.

[0048] As described, the support pillar 12 may be connected in a simple way by means of the partition panels 10 and also may be simply disassembled. Further, the partition panel 10 may strongly connect the support 12 not only by using a magnet but also by using the connecting metal component 14 having the connecting plate portion 14A, the inserting pin portion 14C and the connecting pillar portion 14B, and thus the partition panel 10 does not fall down even if a great impact is applied to the partition panel 10 for some reason.

[0049] In addition, since two partition panels 10 are orthogonally connected via the support pillar, the walls may stand alone though the support pillar 12 is not fixed to the floor, and thus the assembling or disassembling work becomes more simple.

[0050] Also, in a case that a plurality of booths 100 are arranged and assembled, the booths 100 with a complicated structure may be assembled by using a connecting metal component 14 with a planar T-shaped connect-

ing plate portion 14A and a connecting metal component 14 with a planar T-shaped connecting plate portion 14A.

[0051] In addition, though the partition panel 10 has a flat lower portion in the above example, a groove may be formed in the lower portion thereof to have the same structure as the upper portion.

[0052] Also, though the front surface is open in the above embodiment, a wall may be formed in the front surface so that an entrance is formed in the wall.

[0053] Then, Figs. 17 to 23 show an example of the panel connecting structure in a case that booths having different structures are established. A booth 100 having the first panel structure is configured by connecting the first support pillar 12 with the first partition panel 10, and a booth 200 having the second panel structure is configured by connecting a second support pillar 21 with the second partition panel 20. The booth of the second structure may adopt a known one, for example Octonorm System™.

[0054] The first partition panel 10 has three peripheries with a groove shape as described above, and the magnet boards 13 are fixed with vertical intervals to the bottom of the side groove 10A of the first partition panel 10 so that the first support pillar 12 is formed at the appearance inserted into the side groove 10A of the first partition panel 10, and thus the first support pillar 12 is magnetically fixed to the bottom of the side groove 10A of the first partition panel 10 by means of the magnet board 13.

[0055] On the other hand, the second partition panel 20 has the connecting component 22 fixed to an upper end of the side and a lower end thereof, and the connecting component 22 fixes bases of three small band pieces 22A, 22B, 22C as shown in Fig. 19 so that a front end of the screw is connected to the small band piece 22B at the center so that the small band pieces 22A, 22C at both sides are connected at the middle of the screw. Thus, the front ends of the small band pieces 22A, 22C at both sides and the small band piece 22B at the center are expanded from each other by rotating the hexagonal hole 22D or the screw 22E, and the front ends of the small band pieces 22A, 22C at both sides and the small band piece 22B at the center are closed by means of reverse rotation.

[0056] As shown in Fig. 20a, the second support pillar 21 has a rectangular section, and dovetail grooves 21A are formed at four sides over the entire length. Thus, as shown in Figs. 22 and 23, the second partition panel 20 is connected to the second support pillar 21 when the front end of the connecting component 22 of the second partition panel 20 is inserted, enlarged and drawn out. Also, the second support pillar 21 may have an octagonal section as shown in Fig. 20b, and a dovetail groove 21A may be formed in each side thereof.

[0057] Also, as shown in Fig. 18, a receiving space 10H is perforated in the side of the first partition panel 10 so that the connecting component 22 of the second partition panel 20 is received therein frequently without restriction. Thus, as shown in Fig. 22, the first partition panel

10 may be connected to the second support pillar 21 by inserting, enlarging and drawing out the connecting component 22 of the first partition panel 10 to the dovetail groove 21A of the second support pillar 21. Then, as shown in Fig. 23, the first partition panel 10 and the second partition panel 20, which have different connecting methods, may be connected to one panel by means of the second support pillar 21.

[0058] Figs. 24 to 26 show a second embodiment of the panel connecting structure. In the embodiment, a plurality of magnetically attachable connecting blocks (a fourth connecting component) 24 are fixed to the side of the second support pillar 21 by means of screws with gaps corresponding to the magnet board 13 at the bottom of the side groove 10A of the first partition panel 10.

[0059] In the embodiment, when the second support pillar 21 is inserted into the side groove 10A of the first partition panel 10, the second support pillar 21 is magnetically attached to the magnet board 13 at the bottom of the groove 10A. Thus, the first partition panel 10 is strongly connected to the second support pillar 21, and thus they may be connected like one panel as in the first embodiment.

Reference Signs List

[0060]

10: FIRST PARTITION PANEL
 10A: GROOVE
 10B: RECTANGULAR FRAME
 10B-1: VERTICAL BAR
 10B-2: HORIZONTAL BAR
 10C: SIDE PANEL
 10D, 10E: FACE FASTENER
 12: FIRST SUPPORT
 20: SECOND PARTITION PANEL
 21: SECOND SUPPORT
 100: FIRST PANEL CONNECTION STRUCTURE
 200: SECOND PANEL CONNECTION STRUCTURE

Claims

1. A partition panel comprises a rectangular frame and thin side panels at both sides of the rectangular frame;
 wherein the rectangular frame (10B) is configured by connecting horizontal bars (10B-2) at least between upper and lower ends of right and left vertical bars (10B-1);
 one of Hook-and-Loop fasteners (10D), which is manufactured to have a width with so coupling force as the side panel (10C) is not broken when being separated, is fixed to the panel attachment surface of the vertical bars (10B-1) and the horizontal bars (10B-2) of the rectangular frame (10B) with a con-

tinuous or discontinuous shape corresponding to the outer shape of the side panel (10C);
 the other of Hook-and-Loop fasteners (10E) is fixed to the rear surface of the side panel (10C) with a continuous or discontinuous shape corresponding to the outer shape of the side panel (10C); and
 Hook-and-Loop fasteners are coupled, thereby the side panel (10C) is detachably attached to panel attachment surfaces of the vertical bars (10B-1) and the horizontal bars (10B-2) of the rectangular frame (10B).

2. The partition panel according to claim 1, wherein a braced reinforcing bar (10G) is fixed between the vertical bars (10B-1) and/or the horizontal bars (10B-2) of the rectangular frame (10B).
3. The partition panel according to claim 1, wherein the rectangular frame (10B) is disassembled into or assembled from the vertical bars (10B-1) and the horizontal bars (10B-2) by detachably connecting each other.
4. The partition panel according to claim 1, wherein the rectangular frame (10B) and the side panel (10C) are installed so that the right and left vertical bars (10B-1) are at locations deviated in an inner direction from a side periphery of the side panel (10C) and the upper horizontal bars (10B-2) are at locations deviated in a lower direction from an upper end periphery of the side panel (10C), thereby forming grooves (10A) in right and left sides and upper end periphery of the partition panel over the entire length thereof.
5. A panel structure comprises a partition panel (10) including a rectangular frame and side panels at both sides of the rectangular frame;
 wherein the rectangular frame (10B) is configured by connecting horizontal bars (10B-2) at least between upper and lower ends of right and left vertical bars (10B-1);
 one of Hook-and-Loop fasteners (10D), which is manufactured to have a width with so coupling force as the side panel (10C) is not broken when being separated, is fixed to the panel attachment surface of the vertical bars (10B-1) and the horizontal bars (10B-2) of the rectangular frame (10B) with a continuous or discontinuous shape corresponding to the outer shape of the side panel (10C);
 the other of Hook-and-Loop fasteners (10E) is fixed to the rear surface of the side panel (10C) with a continuous or discontinuous shape corresponding to the outer shape of the side panel (10C);
 Hook-and-Loop fasteners are coupled, thereby the side panel (10C) is detachably attached to panel attachment surfaces of the vertical bars (10B-1) and the horizontal bars (10B-2) of the rectangular frame

(10B);

wherein the rectangular frame (10B) and the side panel (10C) are installed so that the right and left vertical bars (10B-1) are at locations deviated in an inner direction from the side periphery of the side panel (10C) and the upper horizontal bars (10B-2) are at locations deviated in a lower direction from the upper periphery, so that grooves (10A) are formed in both right and left sides and the upper periphery over the entire length thereof,

a support pillar (12) having a sectional appearance corresponding to the groove (10A) of the partition panel (10) connects adjacent partition panels;

a magnet board (13) fixed to any one of a side of the corresponding support pillar (12) and a bottom of the side groove (10A) of the partition panel (10); and

a magnet board or metal board fixed to the other one of the side of the support pillar (12) and the bottom of the side groove (10A) of the partition panel (10) and magnetically attached to the magnet board (13).

6. The panel structure according to claim 5, further comprising:

a reinforcing metal component (11) inserted into at least an edge portion in the upper groove (10A) of the partition panel (10) and having a concave section in which a pin insertion hole (11A) is formed;

the support pillar (12) having an insertion hole (12A) formed at least at an upper end between both upper and lower ends; and

a connecting component (14) including a connecting plate portion (14A) inserted into the upper groove (10A) of the partition panel (10), a connecting pillar portion (14B) fixed to the corresponding connecting plate portion (14A) and inserted into the insertion hole (12A) of the support pillar (12), and an insertion pin (14C) fixed to the connecting plate portion (14A) and inserted into the pin insertion hole (11A) of the reinforcing metal component (11), the connecting component (14) connecting the support pillar (12) to the partition panel (10).

7. A connecting structure of panels for connecting a first panel structure and a second panel structure, comprises;

the first panel structure includes;

a partition panel (10) including a rectangular frame, and the thin side panels at both sides, wherein the rectangular frame (10B) is configured by connecting horizontal bars (10B-2) at least between upper and lower ends of right and left vertical bars (10B-1);

one of Hook-and-Loop fasteners (10D), which is manufactured to have a width with so coupling force as the side panel (10C) is not broken when being separated, is fixed to the panel attachment surface

of the vertical bars (10B-1) and the horizontal bars (10B-2) of the rectangular frame (10B) with a continuous or discontinuous shape corresponding to the outer shape of the side panel (10C);

the other Hook-and-Loop fasteners (10E) is fixed to the rear surface of the side panel (10C) with a continuous or discontinuous shape corresponding to the outer shape of the side panel (10C);

Hook-and-Loop fasteners are coupled, thereby the side panel (10C) is detachably attached to panel attachment surfaces of the vertical bars (10B-1) and the horizontal bars (10B-2) of the rectangular frame (10B);

wherein the rectangular frame (10B) and the side panel (10C) are installed so that the right and left vertical bars (10B-1) are at locations deviated in an inner direction from the side periphery of the side panel (10C) and the upper horizontal bars (10B-2) are at locations deviated in a lower direction from the upper periphery of the side panel (10C), so that grooves (10A) are formed in both right and left sides and the upper periphery over the entire length thereof;

a first support pillar (12) having a sectional appearance corresponding to the groove (10A) of the partition panel (10) to connect adjacent partition panels;

a magnet board (13) fixed to any one of a side of the corresponding support (12) and a bottom of the side groove (10A) of the partition panel (10); and

a magnet board or metal board fixed to the other one of the side of the support pillar (12) and the bottom of the side groove (10A) of the partition panel (10) and magnetically attached to the magnet board (13); and

the second panel structure that is connected to the first panel structure when being established, wherein the second panel structure includes a second support pillar having an elongated groove with a dovetail shape over the entire length;

a second partition panel to which the second support pillar is to be connected;

a second connecting component for fixing the second partition panel to the second support pillar by attaching a front end thereof, which is expandable, to a side of the second partition panel, then inserting the second connecting component into the elongated groove of the second support pillar, and then expanding the second connecting component therein; wherein the second connecting component is attached to the side of the partition panel in the first panel structure so as to protrude toward the side of the partition panel in the first panel structure, the protruded front end of the second connecting component is inserted into the dovetail groove of the second support pillar and then expanded and retained so that the partition panel in the first panel structure is connected to the second support pillar.

8. A connection structure of panels for connecting a first panel structure and a second panel structure, comprises;
 the first panel structure that includes;
 a partition panel (10) including a rectangular frame, and side panels at both sides, wherein the rectangular frame (10B) is configured by connecting horizontal bars (10B-2) at least between upper and lower ends of right and left vertical bars (10B-1);
 one of Hook-and-Loop fasteners (10D), which is manufactured to have a width with so coupling force as the side panel (10C) is not broken when being separated, is fixed to the panel attachment surface of the vertical bars (10B-1) and the horizontal bars (10B-2) of the rectangular frame (10B) with a continuous or discontinuous shape corresponding to the outer shape of the side panel (10C);
 the other of Hook-and-Loop fasteners (10E) is fixed to the rear surface of the side panel (10C) with a continuous or discontinuous shape corresponding to the outer shape of the side panel (10C);
 Hook-and-Loop fasteners are coupled, thereby the side panel (10C) is detachably attached to panel attachment surfaces of the vertical bars (10B-1) and the horizontal bars (10B-2) of the rectangular frame (10B), and the rectangular frame (10B) and the side panel (10C) are installed so that the right and left vertical bars (10B-1) are at locations deviated in an inner direction from the side periphery of the side panel (10C) and the upper horizontal bars (10B-2) are at locations deviated in a lower direction from the upper periphery, so that grooves (10A) are formed in both right and left sides and the upper periphery over the entire length thereof;
 a first support pillar (12) having a sectional appearance corresponding to the groove (10A) of the partition panel (10) to connect adjacent partition panels;
 a magnet board (13) fixed to any one of a side of the corresponding support (12) and a bottom of the side groove (10A) of the partition panel (10);
 a magnet board or metal board fixed to the other one of the side of the support 12 and the bottom of the side groove (10A) of the partition panel (10) and magnetically attached to the magnet board (13); and
 the second panel structure is connected to the first panel structure when being established; wherein the second panel structure includes a second support pillar having an elongated groove with a dovetail shape over the entire length;
 a second partition panel to which the second support pillar is to be connected;
 a second connecting component for fixing the second partition panel to the second support pillar by attaching a front end thereof, which is expandable, to a side of the second partition panel, then inserting the second connecting component into the elongated groove of the second support pillar, and then expanding the second connecting component therein,

and
 wherein a fourth connecting component is attached to the side of the second support pillar so that the fourth connecting tool is inserted into the side groove of the partition panel in the first panel connecting structure and magnetically attached to the magnet board attached to a bottom of the corresponding groove, thereby connecting the partition panel in the first panel connecting structure to the second support pillar.

Fig. 1

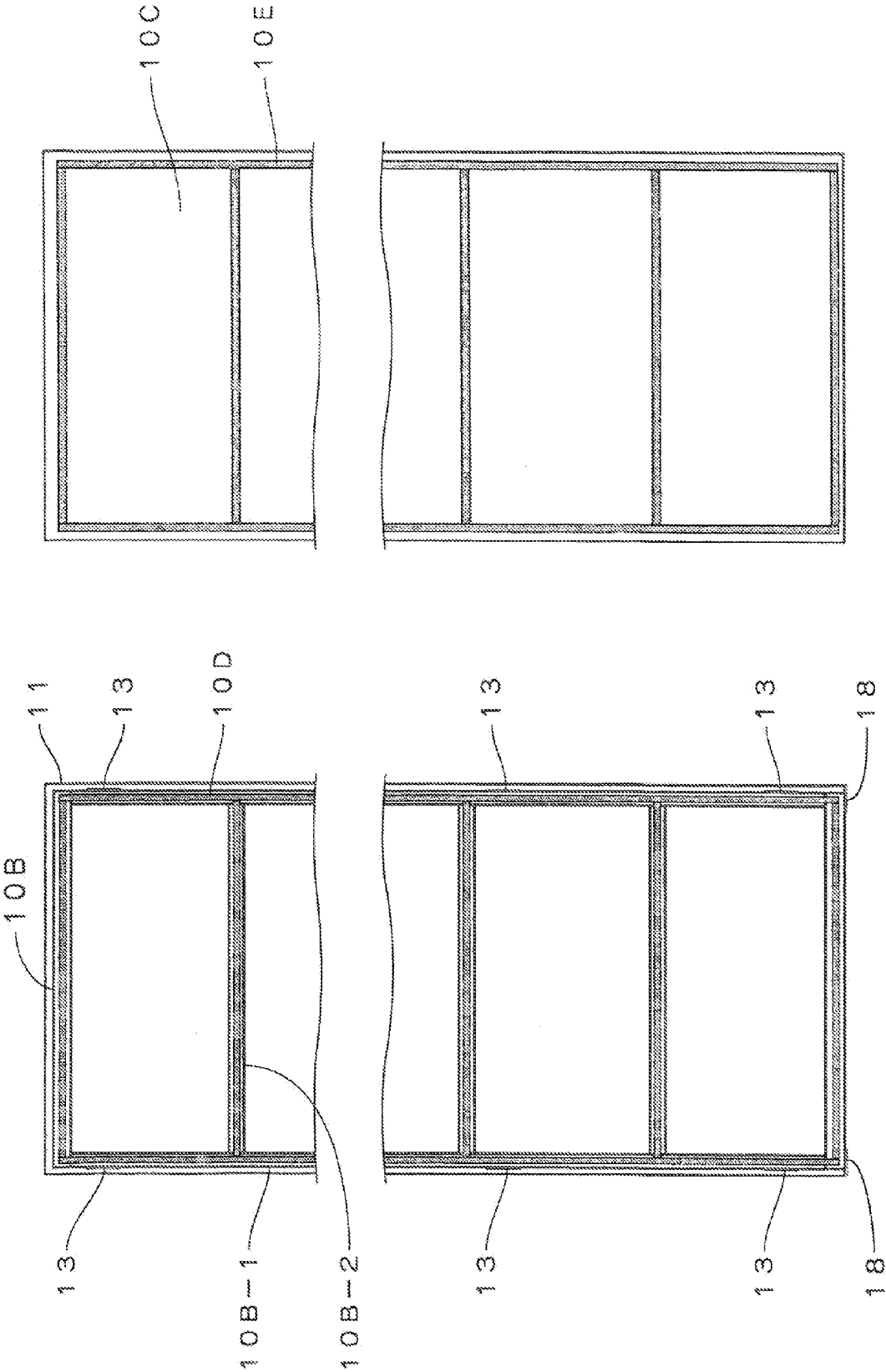


Fig. 2

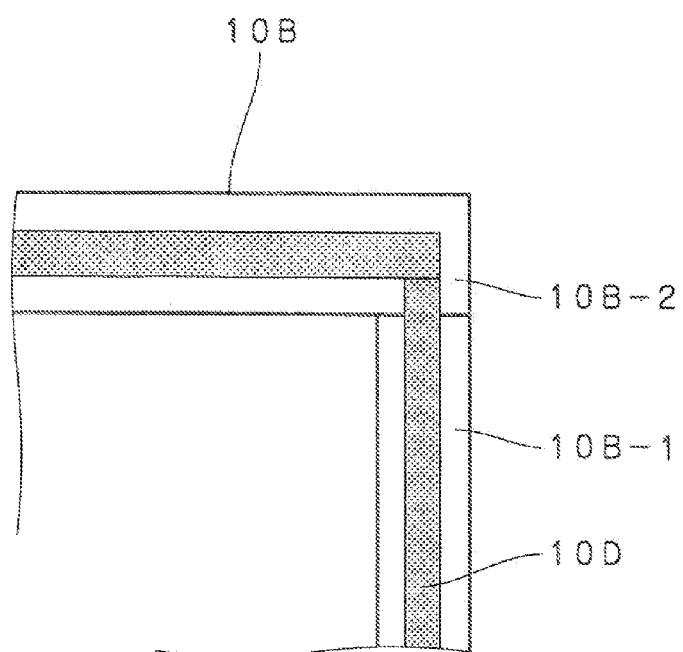


Fig. 3

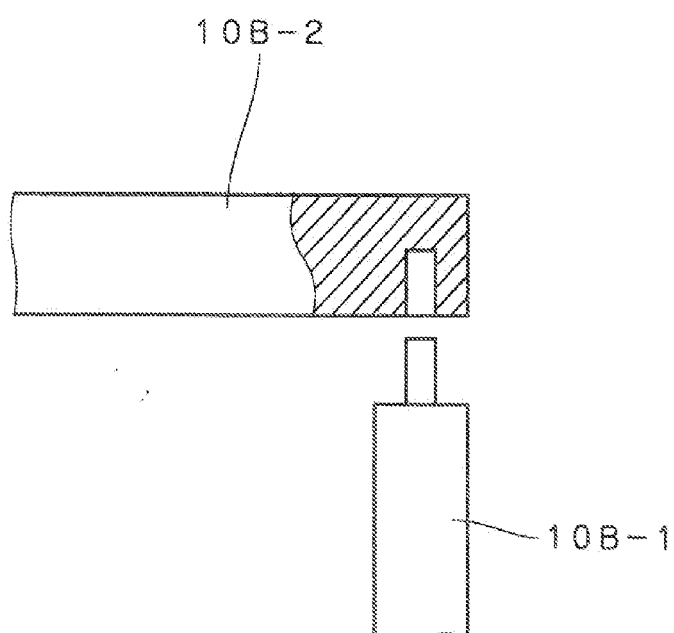


Fig. 4

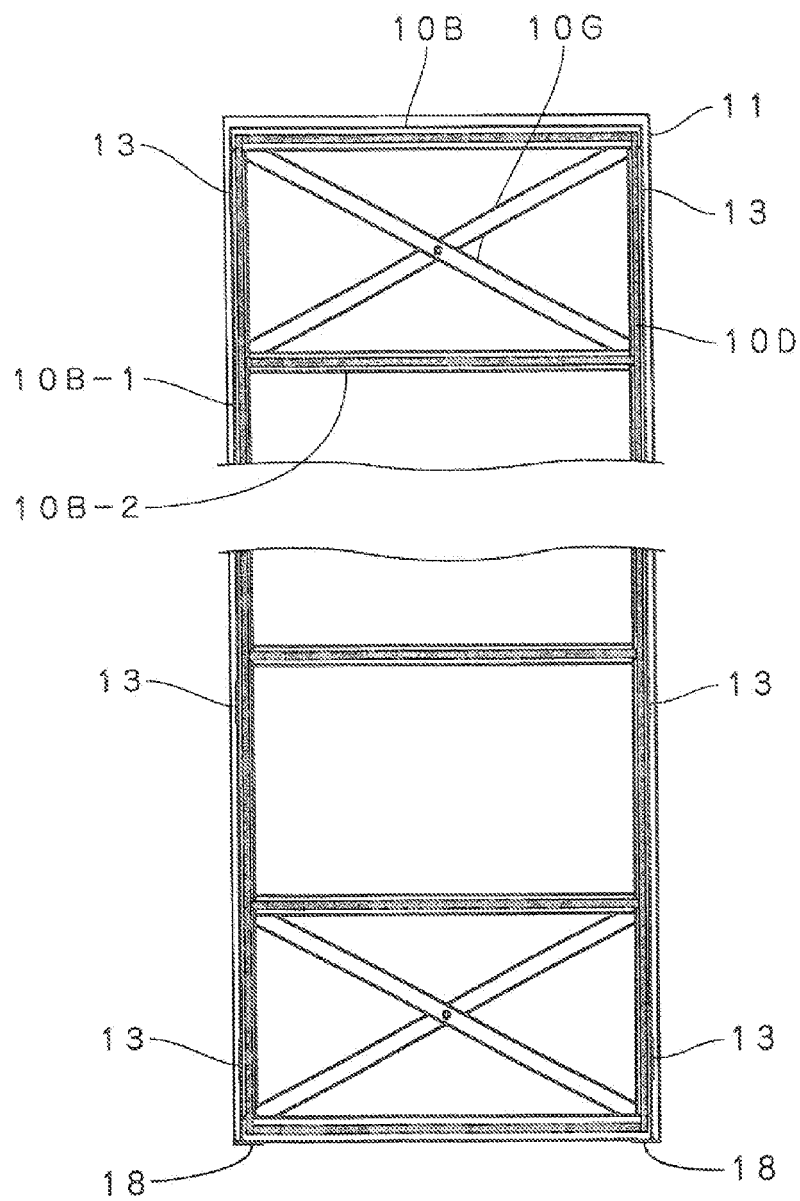


Fig. 5

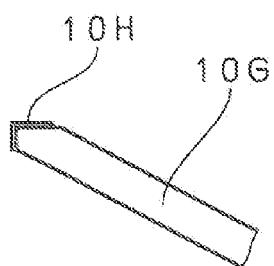


Fig. 6

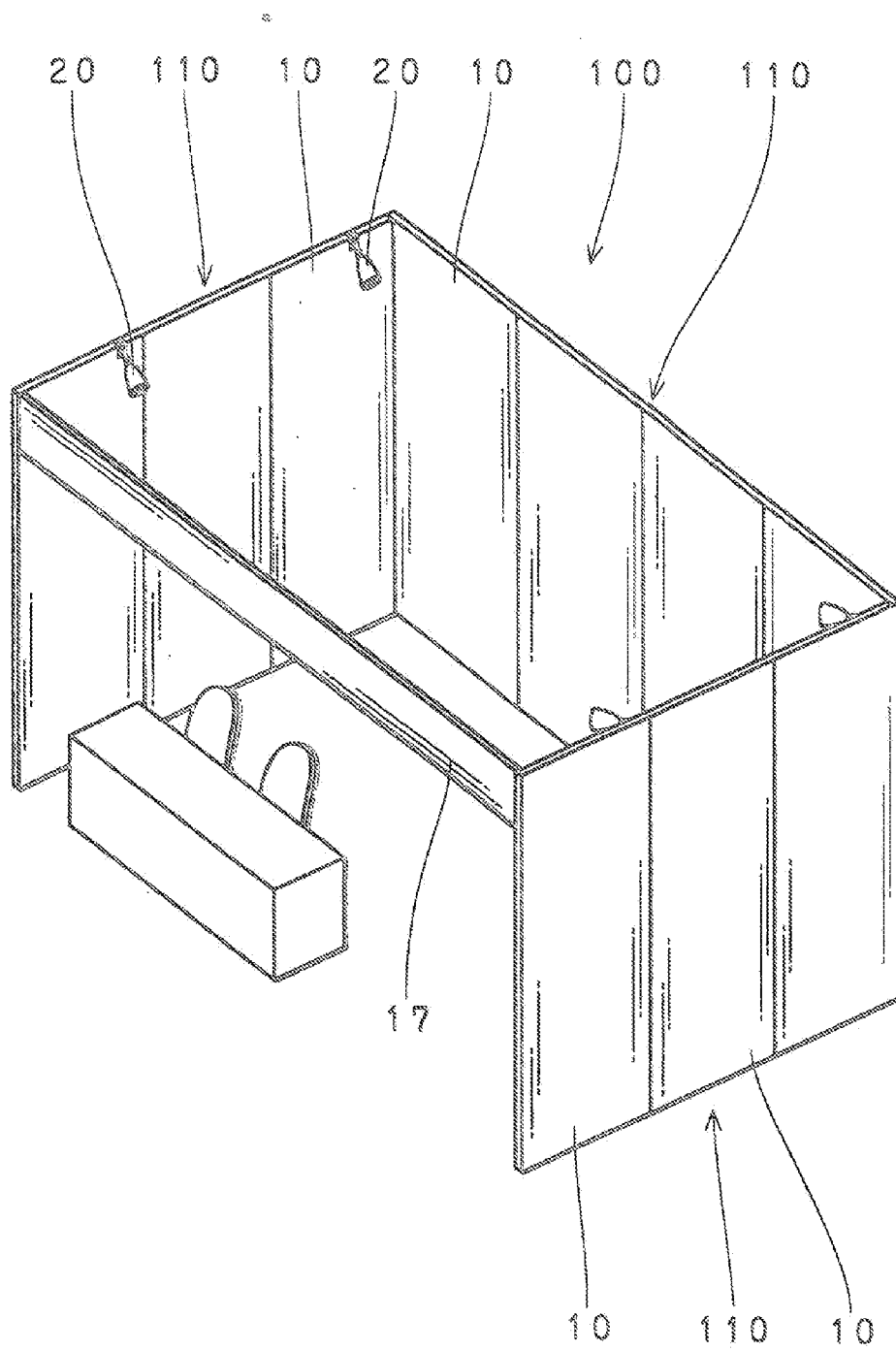


Fig. 7

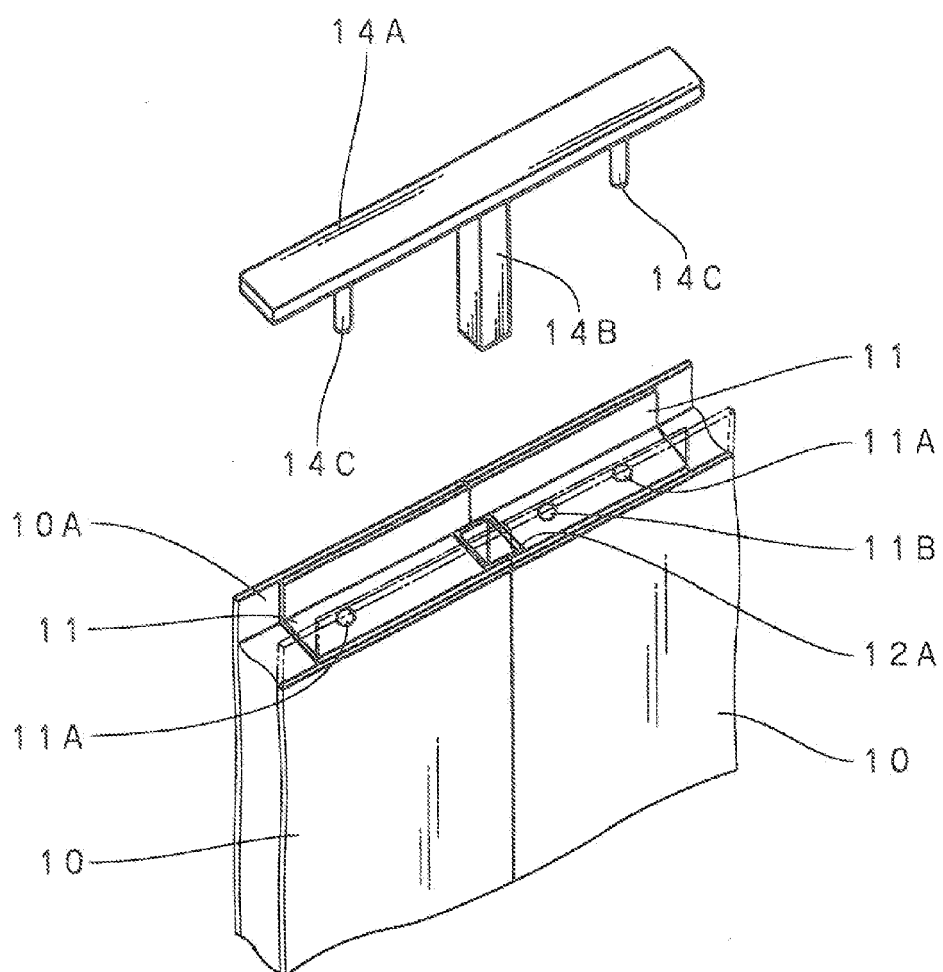


Fig. 8

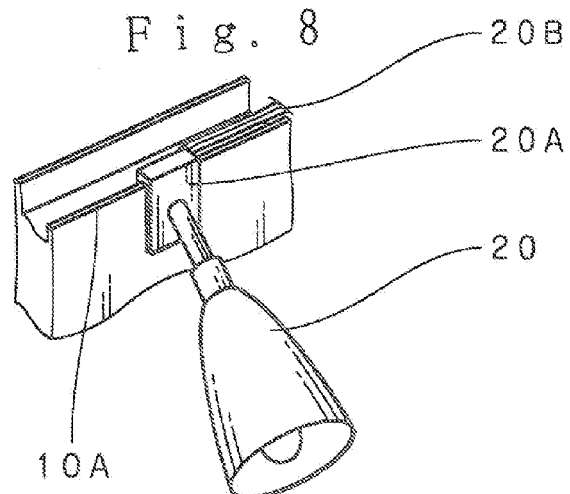


Fig. 9

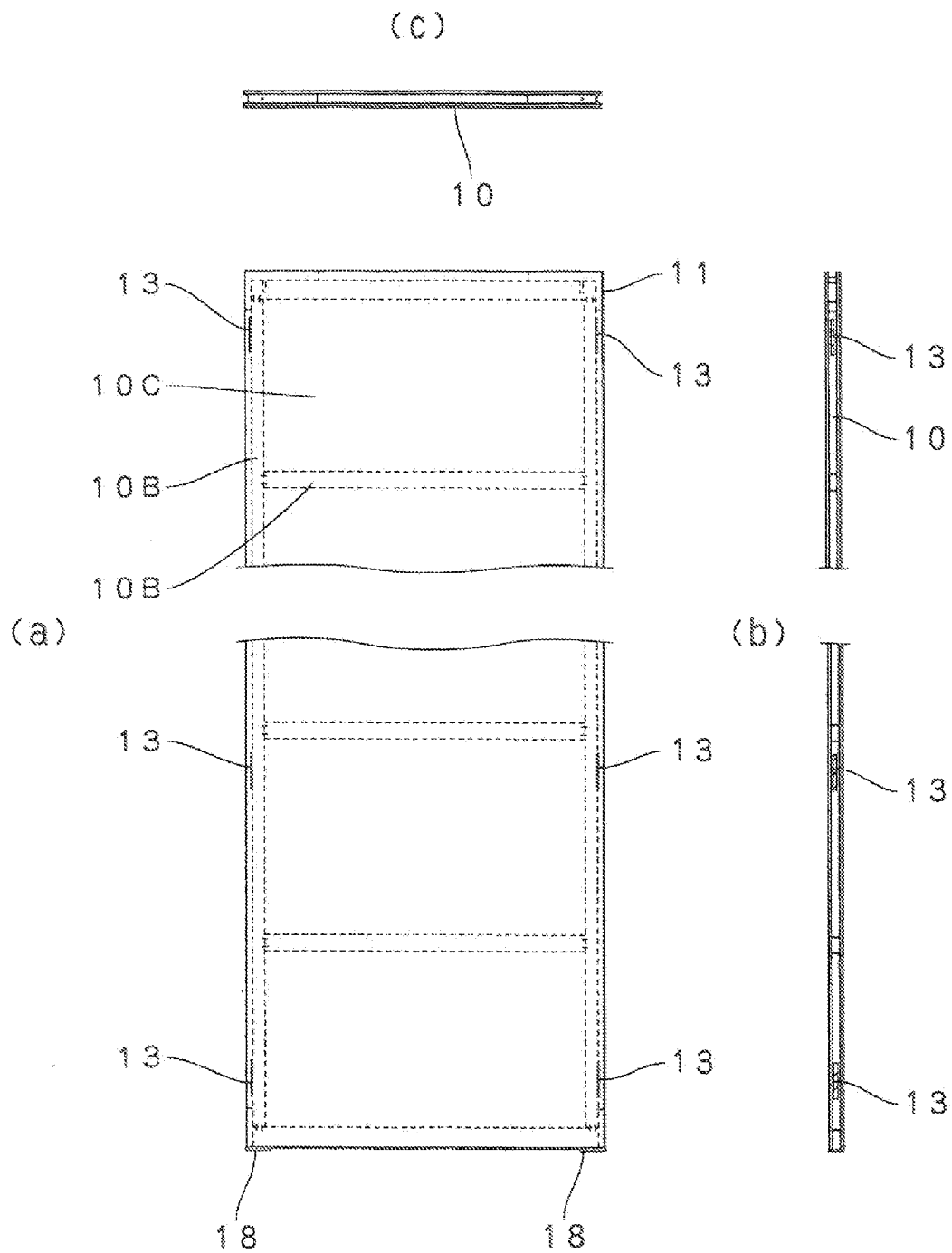
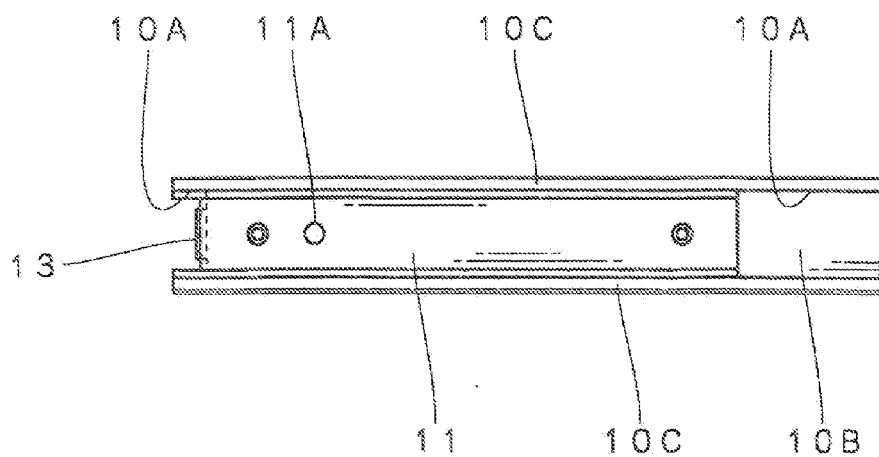


Fig. 10

(a)



(b)

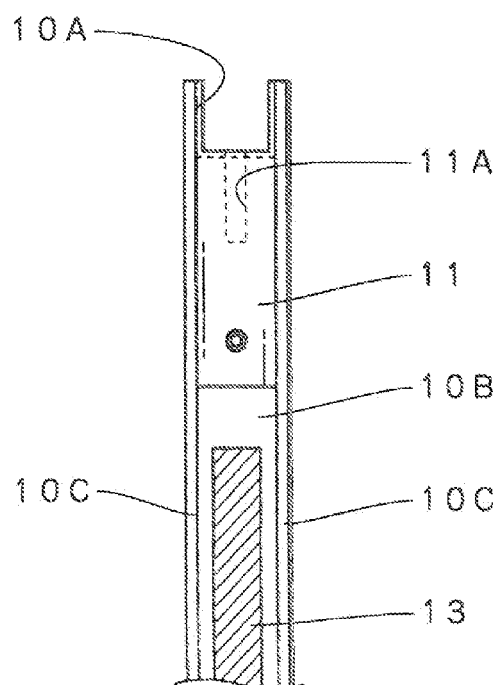
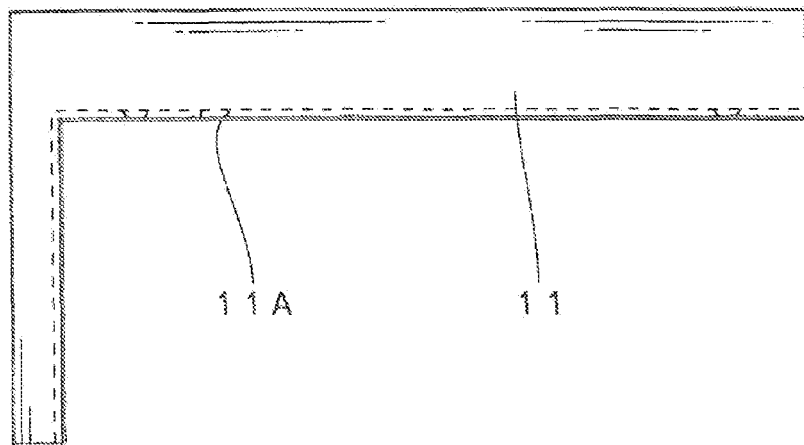


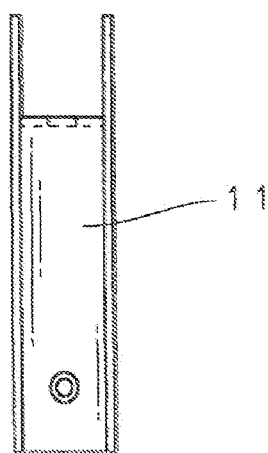
Fig. 11
(a)



(b)



(c)



(d)

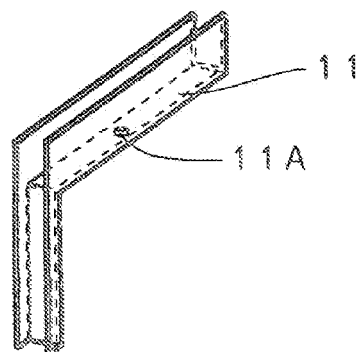


Fig. 12

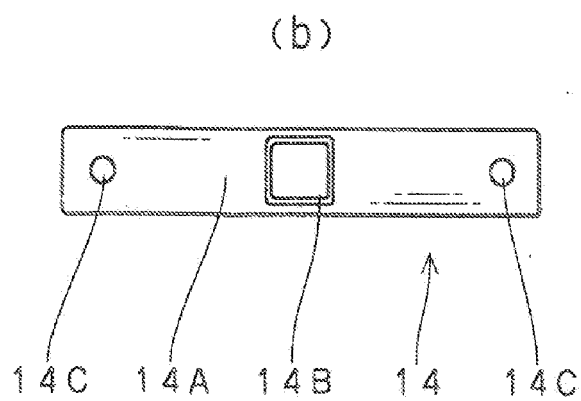
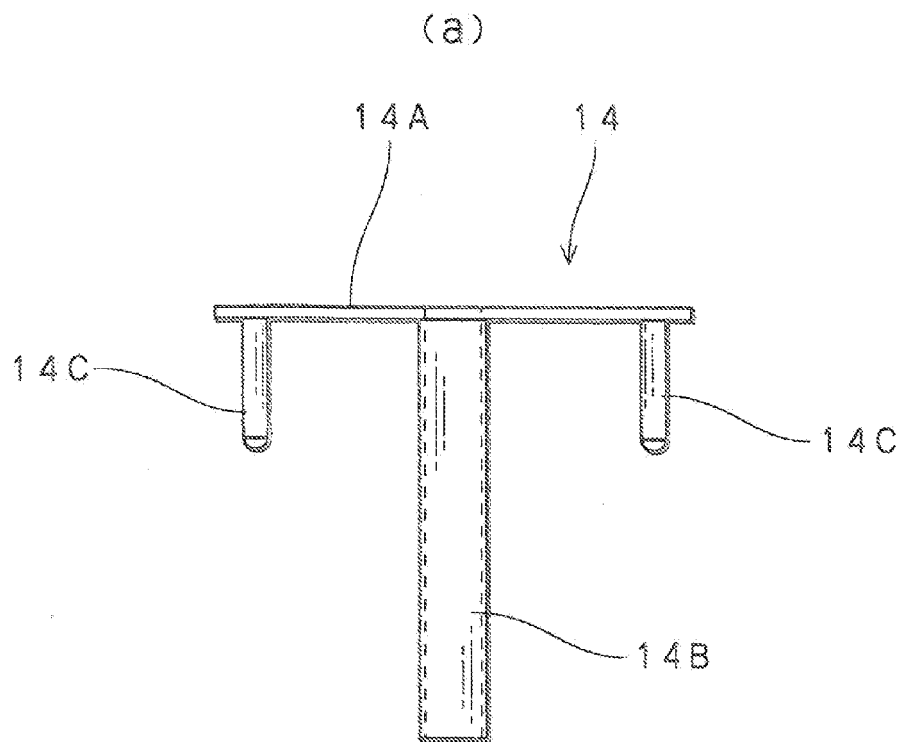
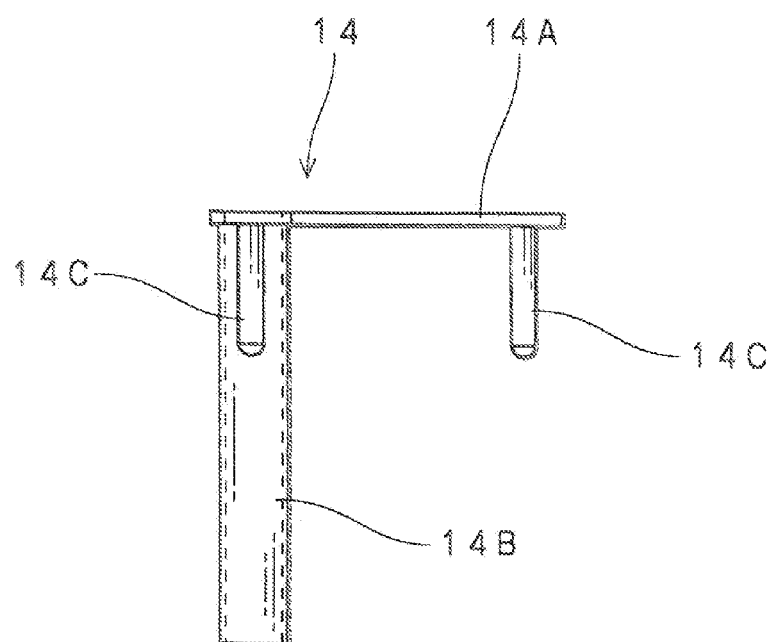


Fig. 13

(a)



(b)

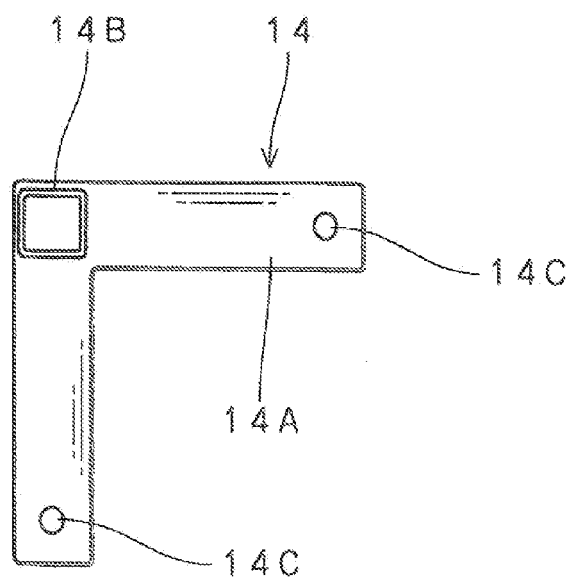
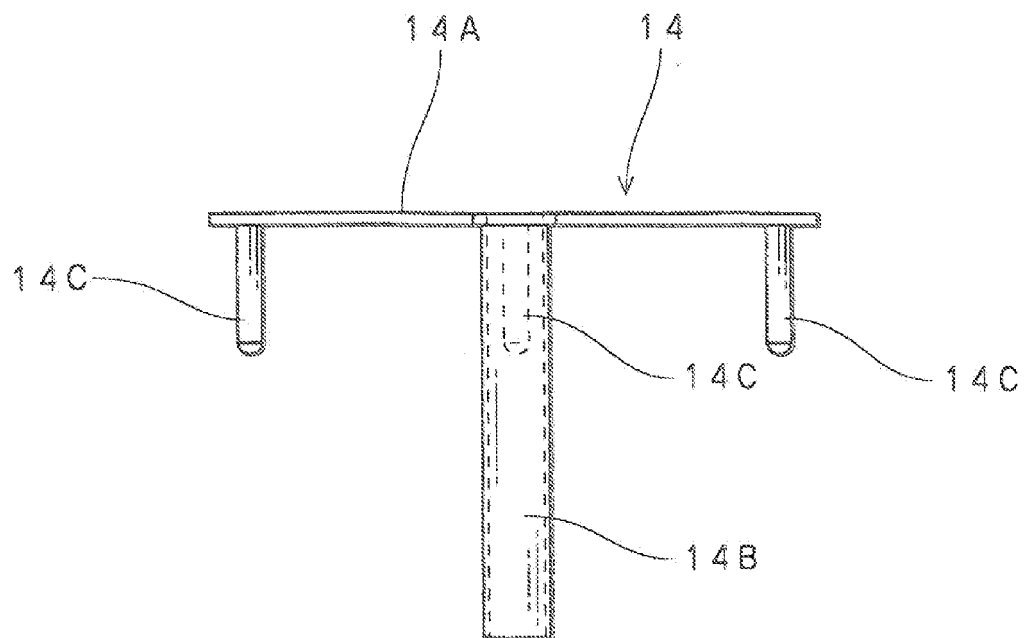


Fig. 14

(a)



(b)

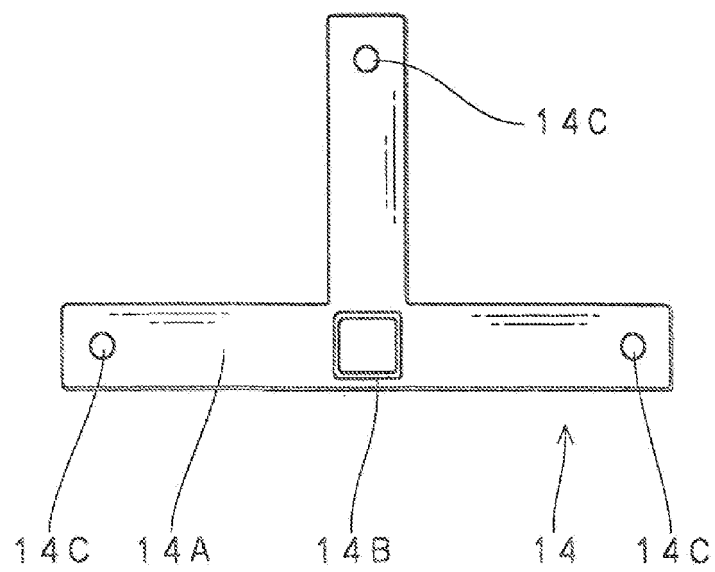
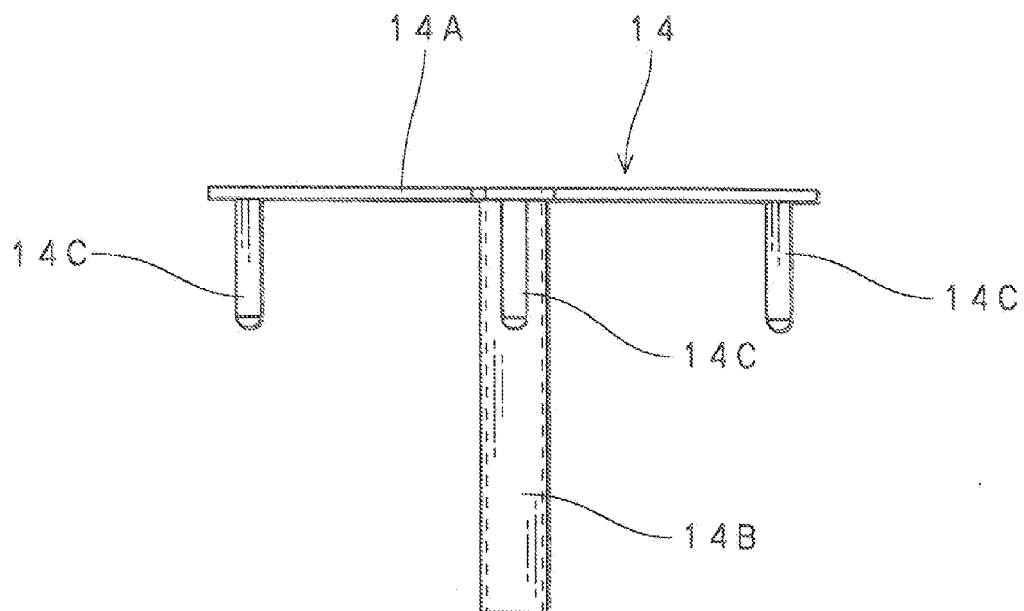
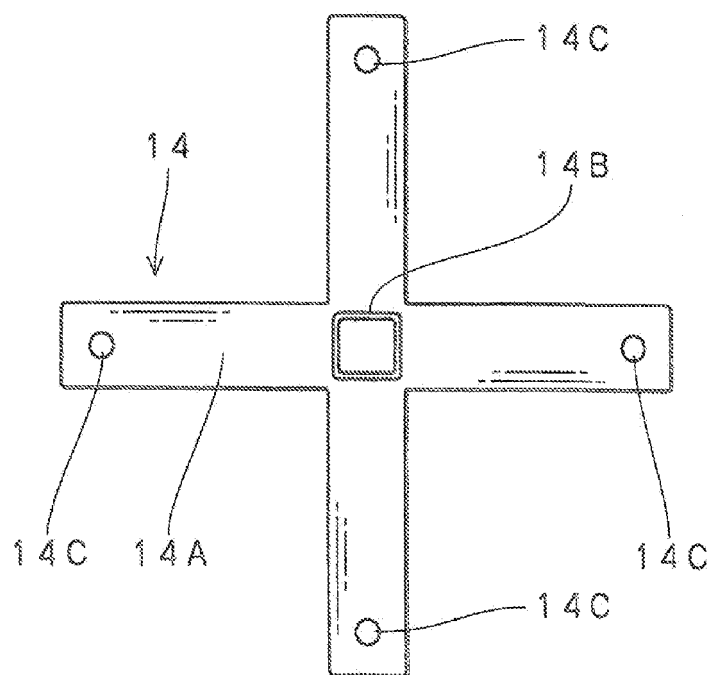


Fig. 15

(a)



(b)



F i g . 1 6

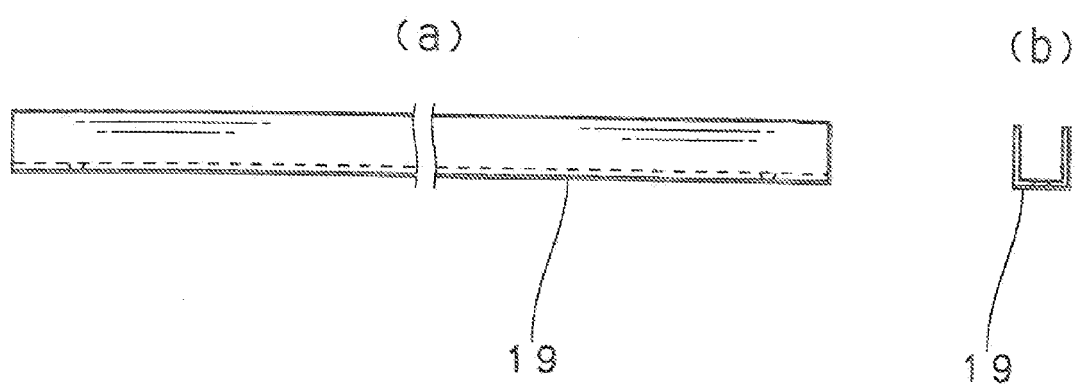


Fig. 17

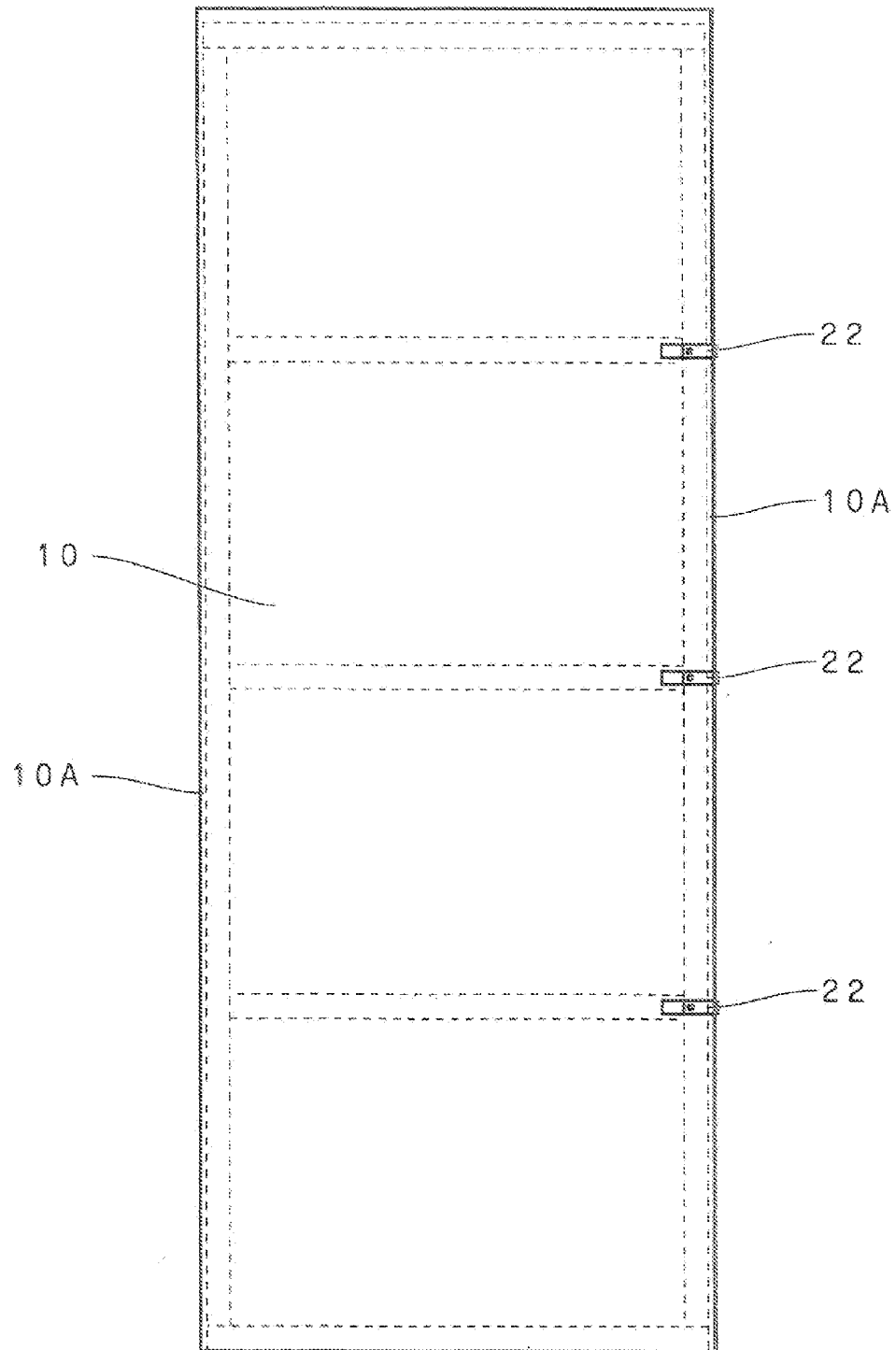


Fig. 18

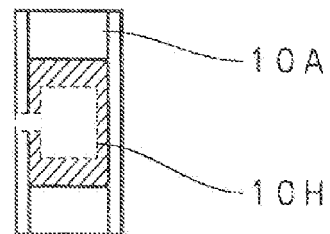


Fig. 19

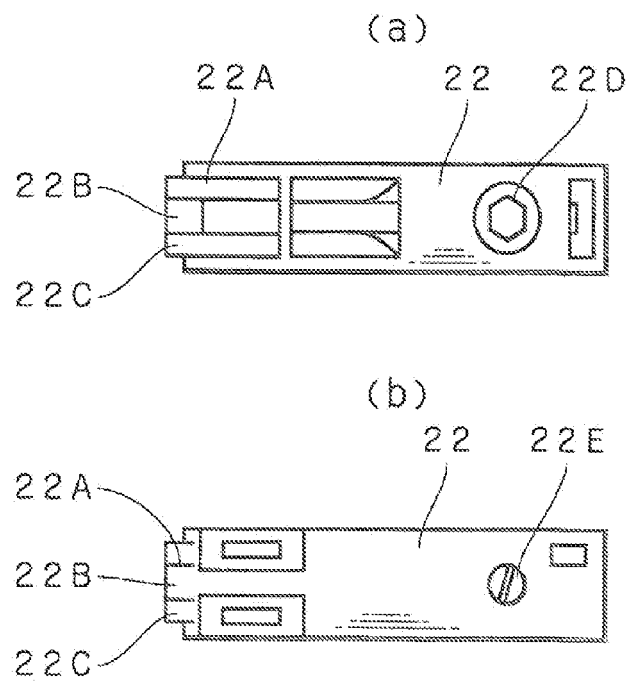


Fig. 20

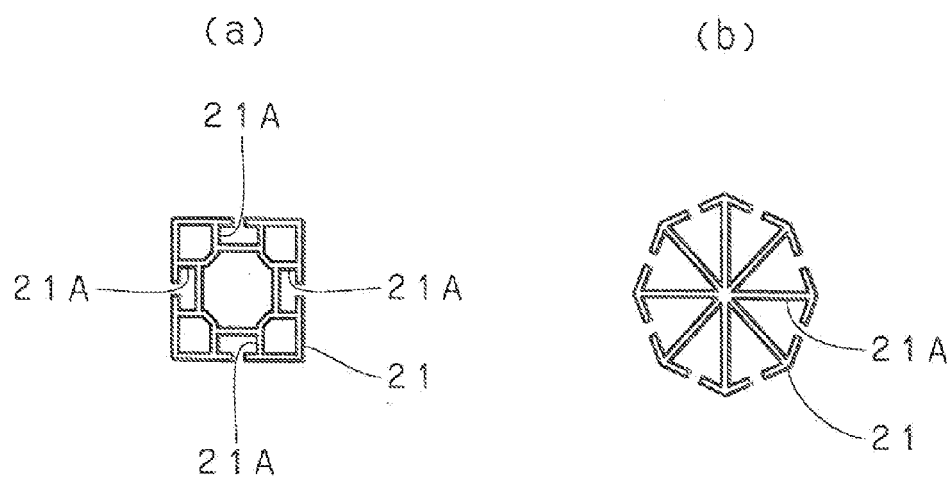


Fig. 21

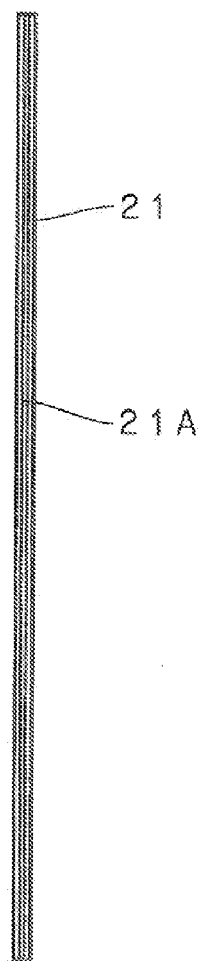


Fig. 22

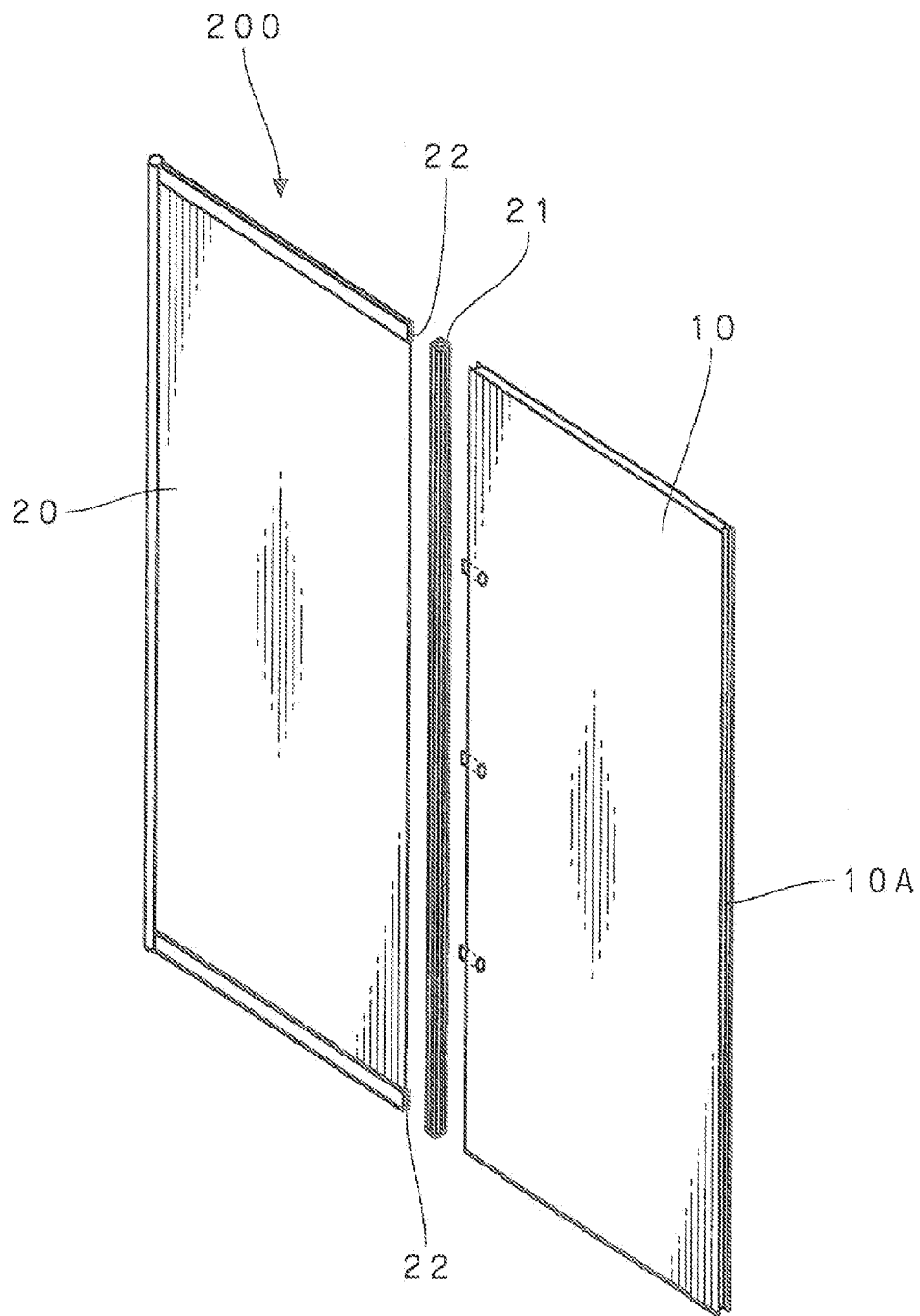


Fig. 23

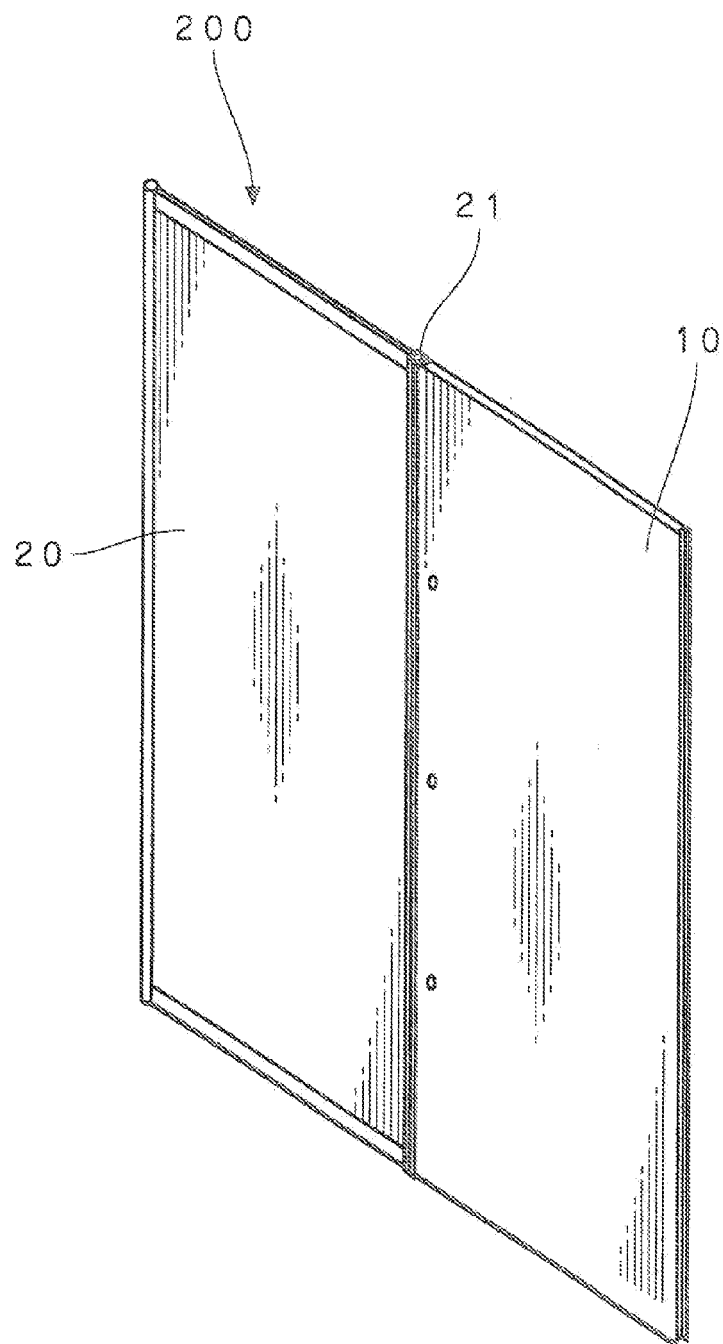


Fig. 24

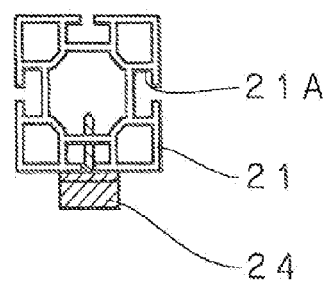
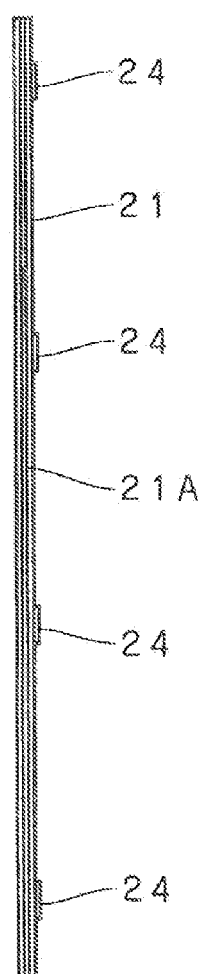


Fig. 25

(a)



(b)

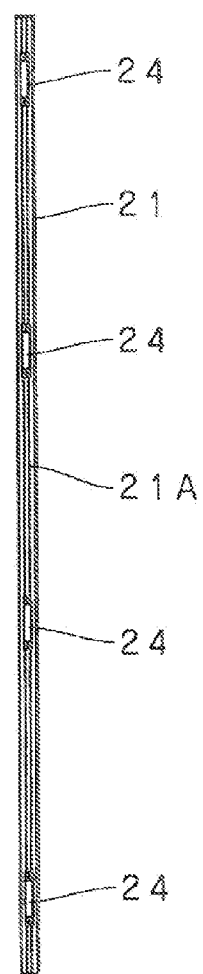


Fig. 26

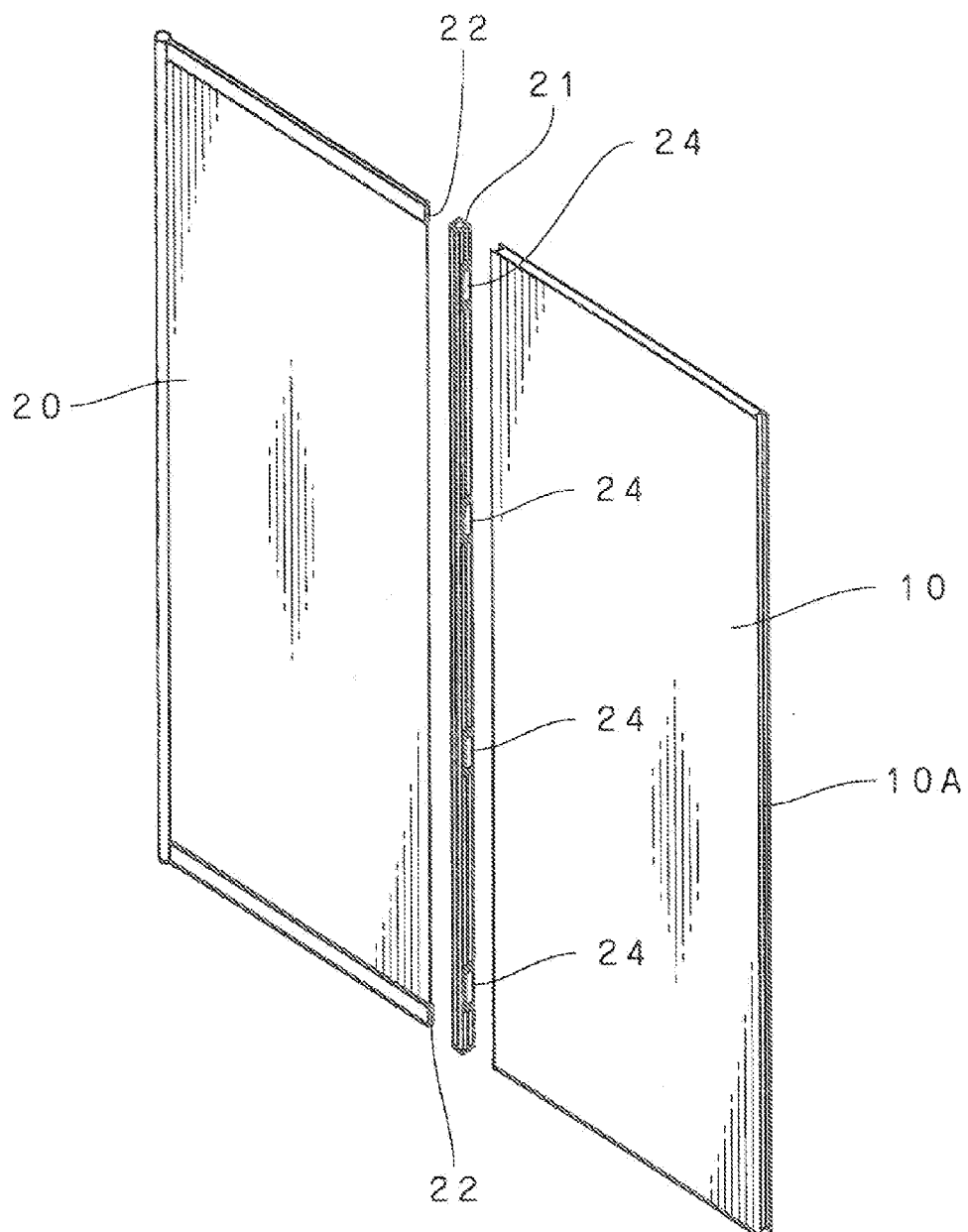
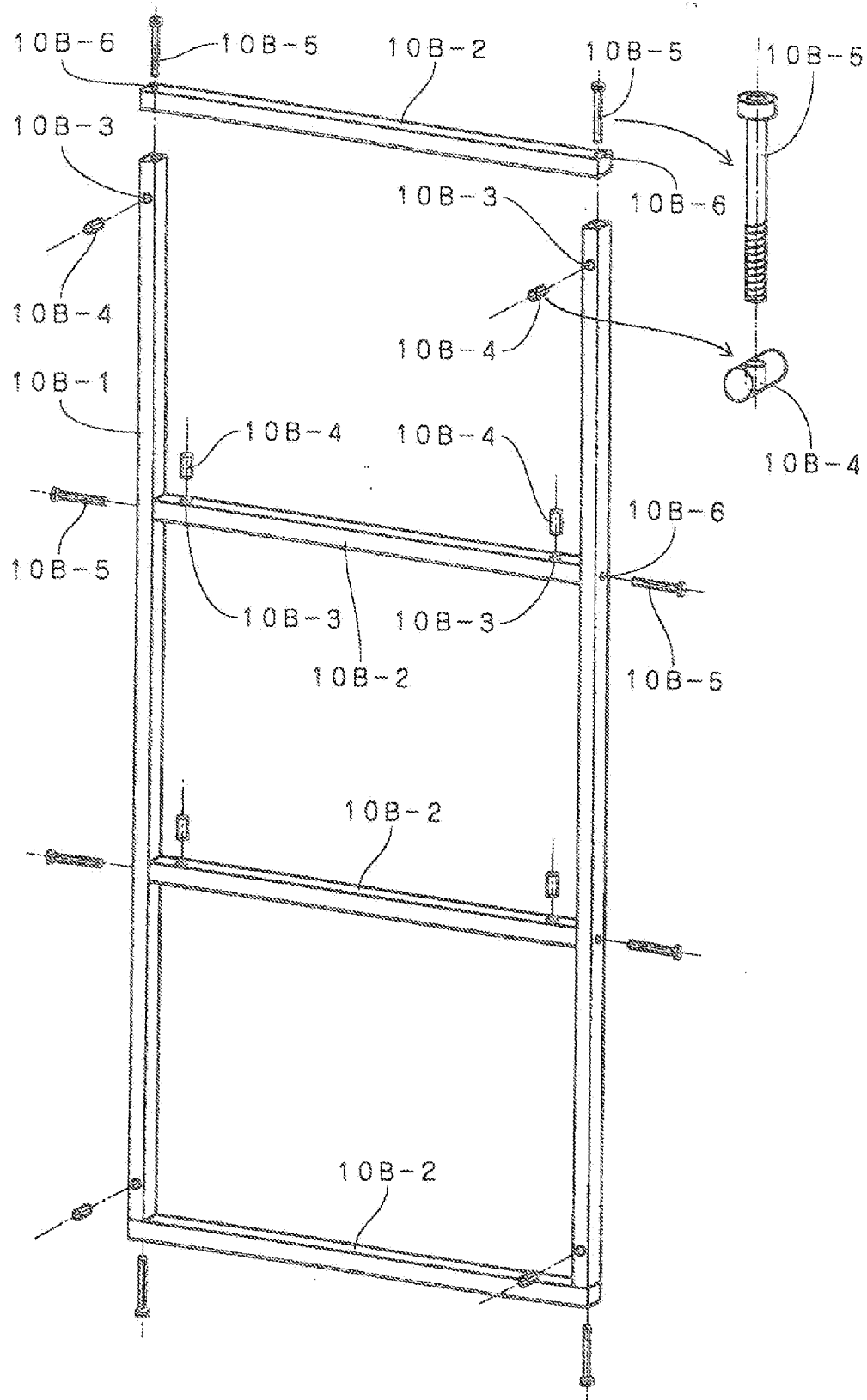


Fig. 27



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2001090232 A [0007]