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SPECIFICATIONS

MOVABLE PARTITION WALL

FIELD OF THE ART

This invention relates to a movable partition wall
5 which is preferably used in an office or something like
this.

BACKGROUND ART

The necessity of storing wirings such as power cables
of large number of increasing OA equipment or telephone
10 lines, etc. in a form which harmonizes an appearance
without inhibiting usual works is getting increased in
offices these days. As the means, it has been developed
that a wiring space is equipped inside of a movable
partition wall. Usually movable partition walls are placed
15 close to each desks, and it is possible to make it minimum
to pull wirings around a floor face or a wall surface by
storing the wirings inside of the movable partition wall.

Of the above movable partition walls for facilitating
wiring works, it has been known that comprising a structure
20 frame body whose at least one of the front and rear faces a
panel is mounted on and a panel which is removably mounted
on a panel affixing face of the structure frame body,
wherein a wiring space is formed inside thereof, a concave
portion is formed along a width of the panel on the panel
25 affixing face of the side frame member which forms a side
end face of the structure frame body, and a wiring passage
portion is formed to connect the wiring space with outside
of the structure frame body. In accordance with the



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arrangement, wirings can be pulled outside from the wiring space or wired horizontally between the two movable partition walls arranged side by side without any inconvenience when the panel is removed so as to expose the concave portion and efficiency of wiring works can
5 extremely be improved because it does not require cutting off the power every time the wiring work is conducted like a conventional method of making use of a through hole to be inserted.

10 However, conventional movable partition walls, for example, require a processing work such as to provide a concave portion by cutting out a part of a side frame member or to fix a plurality of side pipes with an interval provided so as to form a concave portion on both sides of
15 the front and rear faces of a middle angle pipe, thereby to increase a number of processing steps and cost.

In addition, since a position where wirings are pulled from the wiring space to outside of the structure frame body is limited to a position where a concave portion is
20 provided, the position where the wirings are pulled around is restricted, thereby to make it difficult to pull the wirings around freely.

DISCLOSURE OF THE INVENTION

In order to solve the above problems in the invention
25 a wiring passage portion is formed, without providing a panel or a structure frame body with a special processing work, by means of making the width between front and rear faces of a cross frame member wider than that of a side

frame member and making at least one of the front and rear
faces of the cross frame member to be a panel affixing
face, or by means of mounting a panel affixing member on
the structure frame body and making a position of the panel
5 affixing member project from at least one of the front and
rear faces of the side frame member.

More specifically, as one preferred embodiment of the
movable partition wall in accordance with the invention it
is represented that a movable partition wall comprising a
10 structure frame body which is provided with a panel
affixing face at least in one of the front and rear sides
thereof and a panel which is removably mounted on the panel
affixing face so as to form a wiring space which is closed
by the panel and the structure frame body in the state that
15 the panel is mounted thereon,

characterized in that the structure frame body comprises a
pair of side frame members placed vertically each of which
forms a side end face of the structure frame body and cross
frame members placed crosswise which couple the side frame
20 members, that the width between the front and rear faces of
the cross frame member is made wider than that of the sides
frame member,

that at least one of the front and rear faces of the cross
frame member is placed at a position which projects outward
25 from the corresponding front or rear face of the side frame
members so as to form the panel affixing face,
and that a space formed between an inner surface of the
panel and at least one of the front and rear faces of the

side frame member in a side of the panel affixing face is made to be a wiring passage portion which connects the wiring space with outside of the structure frame.

5 In order to wire the wiring vertically in the wiring passage portion, it is preferable that the wiring passage portion is a space which is continuous in a vertical direction.

10 In order not to reduce a space of the wiring passage portion as well as to simplify an arrangement of the cross frame member, it is preferable that the cross frame member is mounted on the side frame member with the right and left side end faces of the cross frame member making an abutting contact with the side of the side frame member in a state that at least one of the front and rear faces of the side
15 frame member in the side of the panel affixing face is open.

As one preferable embodiment of the side frame member it is represented that the width between the front and rear faces of the side frame member is generally equal along
20 whole area of the vertical direction.

In case that wiring are to be wired horizontally, in order to fit the wiring in the wiring passage portion it is preferable that an anti-falling means is provided for prohibiting wiring from falling away from a predetermined
25 position in the wiring passage portion.

In order to prevent the wiring being seen through a space it is preferable to provide a concealing means which conceals the wiring crossing the space from outside in case

that the structure frame bodies are placed side by side, and a space is formed between side edges of the right and left panels in a state that the panel is mounted on each of the structure frame bodies.

5 As another preferred embodiment of the movable partition wall in accordance with the invention, it is represented that a movable partition wall comprising a structure frame body having a pair of side frame members each of which forms a side end face of the structure frame
10 body and cross frame members which couple the side frame members and a panel which can removably be mounted on at least one of the front and rear faces of the structure frame body so as to form a wiring space which is closed by the panel and the structure frame body in the state that
15 the panel is mounted thereon,

characterized in that the movable partition wall further comprises a panel affixing member which is to be mounted on the structure frame body, that the panel affixing member forms a panel affixing face at a position which projects
20 outward from at least one of the front and rear faces of the side frame member and the cross frame member so as to make a space between an inner surface of the panel and at least one of the front and rear faces of the side frame member and that a wiring passage portion is formed to
25 connect through the wiring space with outside of the structure frame body between the inner surface of the panel and at least one of the front and rear faces of the side frame member.

As a preferable embodiment of the structure frame body, it is represented that the width between front and rear faces of the side frame member is generally the same as that of the cross frame member.

5 In order to simplify an arrangement of the structure frame body and further simplify a mounting method for mounting the panel affixing member on the cross frame member, it is preferable that the cross frame member is in a shape of an angle pipe.

10 In order to provide a movable partition wall which can be used in an improved state it is preferable that the cross frame member is provided with a mounting groove for mounting an optional member on a side of the front or rear face thereof.

15 As one preferred embodiment, it is represented that the panel affixing member is removably mounted on the structure frame body.

In order to broaden an area of the wiring passage portion, it is preferable that the panel affixing member is
20 mounted on the cross frame member.

Especially, in case that panels are to be mounted on both of the front and rear faces of the structure frame body, it is preferable that the width between front and rear faces of the panel affixing member is wider than that
25 of the structure frame body and the front and rear faces of the panel affixing member are made to be a panel affixing face.

In order to give the structure frame body a function

of mounting a panel with a simple processing work, it is preferable that the panel affixing member has a function of mounting a panel.

As one preferable embodiment it is represented that
5 the panel affixing member comprises an engaging groove which can make an engagement with a nail projecting from the inner surface of the panel.

In case that a plurality of wirings are to be wired vertically, in order to improve a state in which the
10 wirings are wired, it is preferable that the panel affixing member comprises a wiring converging portion which can guide the wiring which are wired vertically in a converged state.

In order to facilitate the wiring to be wired
15 vertically in the wiring passage portion it is preferable that the panel affixing member is mounted in a state that the wiring passage portion is vertically continuous.

In order to wire the wiring vertically by connecting through a wiring space which is divided by the cross frame
20 members it is preferable that the panel affixing member is mounted in a state that the wiring passage portion is formed between at least one of the front and rear faces of the cross frame member as a side where the panel is mounted and the inner surface of the panel.

25 In order to prevent the wiring from being seen through a space it is preferable to provide a concealing means which conceals the wiring crossing the space from outside in a case that the structure frame bodies are placed side

by side, and a space is formed between side edges of the right and left panels in a state that the panel is mounted on each of the structure frame bodies.

5 In this case, as one preferable embodiment of the concealing means, it is represented that the concealing means is in a shape of two-halves and which can completely conceal a space between the right and left panels when mounted on the side frame members of each structure frame body when combined in a pair.

10 In case that the movable partition walls are connected at right angles, in order to effectively prevent the wiring from being seen through the space, it is preferable that the concealing means is so arranged that it can be mounted in pairs on each of the side frame members of the movable
15 partition walls arranged side by side at right angles and that the concealing means can almost completely conceal the space between the panels arranged side by side along a corner formed on the side frame members arranged side by side when combined in pairs.

20 In order to wire the wiring satisfactory it is preferable that the concealing means has a function of retaining wiring which can retain the wiring which is wired horizontally.

25 As a concrete embodiment, it is represented that a top beam is mounted by making use of the panel affixing member which is mounted on the highest cross frame member.

In this case, it is preferable that the panel affixing member comprises a relating portion which can make an

engagement with a related portion provided in the top beam.

Further, as one preferred embodiment it is represented that the movable partition further comprises an auxiliary structure frame body which can adjust a height of the movable partition wall by being added over the structure frame body.

In order to prevent the panel from being dented at a position where the panel affixing member is not provided and a gap is formed between the inner surface of the panel and the cross frame member, it is preferable that an anti-dent member is provided which prevents the panel from being dented when mounted on the cross frame member.

As mentioned above, as one embodiment of the movable partition wall in accordance with the invention, there is a movable partition wall wherein the width between the front and rear faces of a cross frame member is made to be wider than that of a side frame member each of which constitute a structure frame body, at least one of the front and rear faces of the cross frame member is placed at a position which projects outward from the corresponding front or rear face of the side frame members so as to form the panel affixing face, and a space formed between an inner surface of the panel and at least one of the front and rear faces of the side frame member in a side of the panel affixing face is made to be a wiring passage portion.

In accordance with the arrangement, it is possible to form the wiring passage portion between the panel and at least one of the front and rear faces of the side frame

member with an extremely simple method, namely the width between the front and rear faces of the cross frame member is made to be wider than that of the side frame member and at least one of the front and rear faces of the cross frame member is placed at a position which projects outward from the corresponding front or rear face of the side frame members, which does not require to provide the cross frame member, the side frame member and the panel with a particular processing. As a result, a troublesome processing like a conventional method such as to form a concave portion by cutting a part of the side frame member, thereby to expect drastic reduction in steps of processing and cost. Further, since generally whole area of the space formed between the inner surface of the panel and the side frame members becomes the wiring passage portion, an area of a space for the wiring passage portion is increased compared with the conventional one. As a result, a freedom in setting a position of dragging the wiring is improved, thereby to pull the wiring out of the wiring space or to wire the wiring horizontally among the movable partition walls arranged side by side without any inconvenience.

In addition to the above arrangement, if the wiring passage portion is a vertically continuous space, it is possible to wire the wiring vertically in the wiring passage portion.

Further, if the cross frame member is mounted on the side frame member with the right and left side end faces of the cross frame member making an abutting contact with the

side of the side frame member in a state that at least one of the front and rear faces of the side frame member in the side of the panel affixing face is open, the arrangement of the cross frame member can be simplified and an area of a space for the wiring passage portion is not reduced, especially an area for wiring the wiring vertically can be secured compared with a case that the right and left ends of the cross frame member are extended to the front and rear faces of the side frame member so as to entwine with the side frame member.

In addition, if the width between the front and rear faces of the side frame member is generally equal along whole area of the vertical direction, the side frame member can be made easily by making use of an angle pipe or the like and a vertically continuous wiring passage portion can be formed without causing a partially weak part of the side frame member in strength.

Further, if an anti-falling means is provided for prohibiting wiring from falling away from a predetermined position in the wiring passage portion, the wiring can be fit in the wiring passage portion.

In addition, in case that the structure frame bodies are placed side by side and a space is formed between side edges of the right and left panels in a state that the panel is mounted on each of the structure frame bodies, if a concealing means which conceals the wiring crossing the space from outside is provided, the wiring passing the wiring passage portion can be prevented from being seen

from outside through the space, thereby to improve appearance of the movable partition wall.

Further, as another embodiment of the movable partition wall in accordance with the invention, there is a movable partition wall wherein a panel affixing member is mounted on the frame body so as to form a panel affixing face at a position which projects outward from at least one of the front and rear faces of a side frame member and a cross frame member and a wiring passage portion which connects through the wiring space with outside of the structure frame body is formed between the inner surface of the panel and at least one of the front and rear faces of the side frame member.

In accordance with the arrangement, if the panel is mounted on the panel affixing member in a state that the inner surface of the panel is affixed to the panel affixing member after the panel affixing member is mounted at a given position of the structure frame body, the inner surface of the panel is separated from at least one of the front and rear faces of the side frame member and the wiring passage portion which connects the wiring space with outside is formed between the inner surface of the panel and the side frame member, thereby to facilitate the wiring to pull out of the wiring space and to wire horizontally among the movable partition walls arranged side by side. As mentioned, since the wiring passage portion can be formed just by mounting the panel affixing member without providing the structure frame body or the panel with a

special processing, a number of processing steps and a cost can be drastically reduced compared with a conventional method in which a wiring passage portion is formed by means of a troublesome process such as a part of a side frame member is cut out to form a concave portion. In addition, the strength will not be sacrificed like a conventional method in which the width between the front and rear faces of the side frame member becomes thin because a wiring passage portion is provided. The panel affixing member can be mounted on any position of the structure frame body as far as the panel affixing member is arranged to project outward from at least one of the front and rear faces of the side frame member and the cross frame member, thereby to heighten a degree of freedom in selecting a position at which the panel affixing member is mounted and to make it possible to select the position tailored to a form of use.

In this case, if the width between front and rear faces of the side frame member is generally the same as that of the cross frame member, an arrangement of the structure frame body can be simplified.

Further, if the cross frame member is in a shape of an angle pipe, an arrangement of the structure frame body can be simplified and a mounting method for mounting the panel affixing member on the cross frame member can be simplified as well.

In addition, if the cross frame member is provided with a mounting groove for mounting an optional member on a side of the front or rear face thereof, the optional member

such as a shelf plate can be mounted at discretion by making use of the mounting groove, thereby to provide a movable partition wall which can be used in an improved state.

5 Further, if the panel affixing member is removably mounted on the structure frame body, a user can select whether to form a wiring passage or not by mounting or dismounting the panel affixing member.

10 If the panel affixing member is mounted on the cross frame member, it is possible to mount the panel affixing member on the structure frame body without reducing much area of the wiring passage portion, a degree of freedom in setting a position where the wiring is wired can be improved and the wiring can be pulled out of the wiring
15 space with ease, thereby to wire the wiring vertically in the wiring passage portion as well as to wire the wiring horizontally between the movable partition walls arranged side by side with ease.

20 In addition, if the width between front and rear faces of the panel affixing member is wider than that of the structure frame body and the front and rear faces of the panel affixing member are made to be a panel affixing face, the panel affixing member can deal with both of the panels mounted on the front and rear sides when the panel affixing
25 member is mounted at a position where the front and rear faces of the panel affixing member project outward from the front and rear faces of the side frame member especially in a case that panels are to be mounted on both front and rear

sides of the structure frame body.

Further, if the panel affixing member has a function of mounting a panel, a function of mounting a panel can be given to the structure frame body with a more simple processing work compared with a case that requires to provide a structure frame body with a processing work to give a function of mounting a panel.

If the panel affixing member comprises an engaging groove which can make an engagement with a nail projecting from the inner surface of the panel, the panel can be mounted steady with a simple mounting method.

If the panel affixing member comprises a wiring converging portion which can guide the wiring which are wired vertically in a converged state, a plurality of vertically wired wirings can be wired in an improved condition.

If the panel affixing member is mounted in a state that the wiring passage portion is vertically continuous, it becomes extremely easy for the wiring to wire vertically in the wiring passage portion.

If the panel affixing member is mounted in a state that the wiring passage portion is formed between at least one of the front and rear faces of the cross frame member as a side where the panel is mounted and the inner surface of the panel, a wiring space which is divided by the cross frame members can be connected through by making use of the wiring passage portion, thereby to wire the wiring vertically.

In a case that the structure frame bodies are placed side by side and a space is formed between side edges of the right and left panels in a state that the panel is mounted on each of the structure frame bodies, if a
5 concealing means which conceals the wiring crossing the space from outside is provided, the wiring can effectively be prevented from being seen through the space.

In addition, if the concealing means is in a shape of two-halves so as to completely conceal a space between the
10 right and left panels when mounted on the side frame members of each structure frame body when combined in a pair, not only it is possible to use the concealing means in a case that the structure frame bodies are arranged side by side but also the concealing means can be used alone in
15 a case that, for example, there is no adjacent structure frame body exists.

Further, if the concealing means is so arranged that it can be mounted in pairs on each of the side frame members of the movable partition walls arranged side by
20 side in case the movable partition walls are connected at right angles and that the concealing means can almost completely conceal the space between the panels arranged side by side along a corner formed on the side frame members arranged side by side when combined in pairs, the
25 wirings can effectively be prevented from being seen through the space in case that the movable partition walls are connected side by side at right angles.

In addition, if the concealing means has a function

of retaining wiring which can retain horizontally wired wiring, the wiring can be wired in an improved condition.

If a top beam is mounted by making use of the panel affixing member which is mounted on the highest cross frame member, there is no need of other members for mounting a
5 top beam, thereby to reduce a number of component parts.

If the panel affixing member comprises a relating portion which can make an engagement with a related portion provided in the top beam, the top beam can be steady
10 mounted on the panel affixing member.

Further, if the movable partition wall comprises an auxiliary structure frame body which can adjust a height of the movable partition wall by being added to a top of the structure frame body and, for example, the auxiliary
15 structure frame body comprises a side frame member and a cross frame member constituting the structure frame body, the wiring passage portion can be formed just by mounting the panel affixing member on the auxiliary structure frame body even if the height of the movable partition wall is
20 raised by making use of the auxiliary structure frame body without providing the auxiliary structure frame body with any processing work.

If the movable partition wall comprises an anti-dent member for preventing the panel from being dented when
25 mounted on the cross frame member, it is possible to prevent the panel from being dented by providing the anti-dent member properly at a position which might be dented due to a gap between the inner surface of the panel and the

cross frame member.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view showing one embodiment of the invention placed side by side. Fig. 2 is an exploded perspective view of a partial part shown in Fig. 1. Fig. 3 is a perspective view of a principle portion of the embodiment. Fig. 4 is a cross-sectional plane view of the principle portion of the embodiment. Fig. 5 is a front view of the principle portion of the embodiment. Fig. 6 is a cross-sectional plane view showing a modified form of the embodiment. Fig. 7 is a magnified perspective view of a principle portion of the embodiment. Fig. 8 is an exploded perspective view of the principle portion of the embodiment. Fig. 9 is a cross-sectional side view of the principle portion of the embodiment. Fig. 10 is a perspective view showing a second embodiment of the invention placed side by side. Fig. 11 is an exploded perspective view of a partial part of the second embodiment. Fig. 12 is an enlarged perspective view of the principle portion of the embodiment wherein a panel is omitted to draw. Fig. 13 is an exploded perspective view of the principle portion of the embodiment wherein the panel is omitted to draw. Fig. 14 is a front view of the principle portion of the embodiment. Fig. 15 is a cross-sectional view taken along the line I-I in Fig. 14. Fig. 16 is a cross-sectional view taken along the line II-II in Fig. 14. Fig. 17 is a cross-sectional plane view showing a modified form of the embodiment. Fig. 18 is an enlarged

perspective view of the principle portion of the embodiment wherein a panel is omitted to draw. Fig. 19 is an exploded perspective view of the principle portion of the embodiment wherein the panel is omitted to draw. Fig. 20 is a cross-sectional side view of the principle portion of the embodiment. Fig. 21 is a perspective view showing a third embodiment of the invention placed side by side. Fig. 22 is an exploded perspective view of a partial part of the third embodiment. Fig. 23 is an enlarged perspective view of the principle portion of the embodiment wherein a panel is omitted to draw. Fig. 24 is an exploded perspective view wherein the panel is omitted to draw. Fig. 25 is a cross-sectional view of the embodiment. Fig. 26 is a perspective view of a principle portion of the embodiment. Fig. 27 is a cross-sectional view of the principle portion of the embodiment. Fig. 28 is an enlarged perspective view showing one example of a cover in accordance with the embodiment. Fig. 29 is an exploded perspective view of the embodiment wherein a panel is omitted to draw. Fig. 30 is an exploded perspective view showing a principle portion of the embodiment wherein the panel is omitted to draw. Fig. 31 is a plane view of the embodiment. Fig. 32 is an exploded perspective view showing a principle portion of the embodiment wherein the panel is omitted to draw. Fig. 33 is a plane view of the embodiment. Fig. 34 is a perspective view showing a principle portion of the embodiment. Fig. 35 is a perspective view showing a forth embodiment of the invention. Fig. 36 is an exploded

perspective view of a part of the embodiment. Fig. 37 is an enlarged perspective view of a principle portion of the embodiment wherein a panel is omitted to draw. Fig. 38 is an exploded perspective view of the embodiment wherein a panel is omitted to draw. Fig. 39 is a perspective view showing a first panel affixing member. Fig. 40 is a perspective view showing a second panel affixing member. Fig. 41 is a partially cut-out plane view of the embodiment. Fig. 42 is a cross-sectional view taken along the line III-III in Fig. 41. Fig. 43 is a cross-sectional view taken along the line IV-IV in Fig. 41. Fig. 44 is a cross-sectional side view showing a modified form of a relating portion. Fig. 45 is a perspective view showing another modified form of the relating portion.

15 BEST MODES OF EMBODYING THE INVENTION

<First Embodiment>

The invention will be described in detail with reference to an embodiment thereof shown in the accompanying drawings.

20 A movable partition wall A1 in accordance with this embodiment comprises, as shown in Figs. 1 and 2, a structure frame body A2 which is to be a frame and panels 3 which are removably mounted on a panel affixing fate A2a of front and rear of the structure frame body A2 and inside of which a wiring function which can store wiring 4 is
25 provided.

The structure frame body A2 is made of metal and comprises right and left side frame members 26 placed along

the vertical direction each of which forms a side end face Ala of the movable partition wall A1, a top cross frame members 27, a bottom cross frame members 28 and three middle cross frame members 24, each of which is placed
 5 along the crosswise direction, the side frame members 26 are the cross frame members 27, 28, 24 are coupled so as to form a frame.

The side frame member 26 is of metallic angle pipe, as shown in Fig. 1 through Fig. 5, and an opening hook hole
 10 261 is made to open at a predetermined pitch in the front and rear faces 26a thereof.

The cross frame members 27, 28, 24 are mounted between the right and left side frame members 26 with a proper means such as welding in a state that the front and rear
 15 faces 26a of side frame member 26 are open and the right and left side end faces 27b, 28b, 24b make an abutting contact with the side 26b of the right and left side frame members 26. Then, the panel affixing face A2a is formed to be flush with the front and rear faces 27a, 28a, 24a of the
 20 cross frame members 27, 28, 24. In this embodiment, as shown in Fig. 1 and Fig. 2, a bottom cross frame member 28 is provided with an concave portion 281 which is recessed from the front and rear panel affixing faces A2 and a wiring passage portion which connects a wiring space S with
 25 outside of the bottom cross frame member 28 is formed by making use of the concave portion 281 and a middle cross frame member 24 placed at the lowest is provided with a concave portion 241 which is recessed from the front and

rear panel affixing faces A2 and a wiring passage portion which connects through the wiring space S vertically which is divided by the middle cross frame member 24 is formed by making use of the concave portion 241. The cross frame members 27, 28, 24 is made to have generally a H shape in a cross section so as to make an engagement with nails 33a, 34a of the panel 3 and the panel 3 can be fixed removably between optional two of the cross frame members 27, 28, 24. And, concave grooves 272, 282, 242 formed in the upper surface side of cross frame member 27, 28, 24 are utilized as a wiring guide groove.

The panel 3 is, as shown in Fig. 2, a shape of rectangular and is made of a panel body 31 of sheet metal whose inside is filled with cores 32 and a plurality of panels 3 are arranged on the panel affixing face A2a of the structure frame body A2 along vertical direction so as to cover generally whole area of the structure frame body A2. The panel 3 is provided with a resin member 34 having an upward nail 33a and a resin member 34 having a downward nail 34a at the inner surface side of the corner vicinity thereof so that the panel 3 can be removably mounted between optional two inside of the cross frame members 27, 28, 24 by making use of these nails 33a and 34a.

Then, the wiring space S is formed in a position closed by the side frame member 26 and the top cross frame member 27, the bottom cross frame member 28 and the middle cross frame member 24 each of which constitutes the structure frame body A2 and the panel 3.

In this embodiment, in the movable partition wall A1 having the above arrangement, as shown in Fig. 1 through Fig. 5, the width between the front and rear faces of each cross frame members 27, 28, 24 is made to be wider than that of the side frame member 26, the cross frame members 27, 28, 24 are mounted so that the front and rear faces 27a, 28a, 24a thereof are placed at a position which projects outward from the corresponding front or rear face 26a of the side frame member 26. Then, each of the front and rear face 27a, 28a, 24a of the cross frame members 27, 28, 24 serves as the panel affixing face 3a, and the vertically continuous space S formed between the front or rear face 26a of the side frame member 26 and the inner surface 3a of the panel 3 is made to be the wiring passage portion 5 which connects the wiring space S with outside of the structure frame body 2.

More specifically, generally whole area of the vertical direction in a space formed between the front or rear face 26a of the side frame member 26 and the inner surface 3a of the panel 3 becomes the wiring passage portion 5, and the wiring 4 can be freely wired between the wiring space S and outside of the side frame member 26, when the panel 3 is mounted. Therefore, the movable partition wall A1 makes it possible to draw the wiring 4 into the wiring space S through the side end A1a thereof when used alone. The movable partition walls A1 also make it possible to wire the wiring 4 vertically in the wiring space S through the wiring passage portion 5. Moreover,

since the wiring passage portion 5 is continuous in the vertical direction, as shown in Fig. 3 through Fig. 5, the wiring 4 can easily be wired vertically.

The movable partition wall A1 of this embodiment
5 places is provided with an anti-falling means 6 which prohibits the wiring 4 from falling from a predetermined position of front and rear face 26a of the side frame member 26 away multiple movable partition wall A1 in case a plurality of the movable partition wall A1 are arranged
10 side by side and the wiring 4 is distributed horizontally between each wiring space S as shown in Fig. 3 through Fig. 5. The anti-falling means 6 is mounted by means of a concave-convex engagement of a nail (not illustrated) projecting from back thereof with the hook hole 261, and
15 provided with a wiring spillage stop 61 projecting upward from the top face thereof.

In addition, the movable partition wall A1, as shown in Fig. 4 and Fig. 5, forms a space m between side edges 3b of the panels 3 and kinds of optional members (not
20 illustrated) such as a shelf plate can be mounted by making use of the hook hole 261 when a plurality of structure frame bodies A2 are arranged side by side and the panels 3 are mounted on the structure frame bodies A2. However, the wiring 4 which passes through the wiring passage portion 5
25 is exposed to outside through the space m since the wiring 4 crosses the space m.

Then, in this embodiment a cover 307 as concealing means which covers the wiring 4 is provided at least at the

position where the wiring 4 is wired crosswise.

The cover 307 comprises, as shown in Fig. 3 through Fig. 5, a plate portion 3071 whose width generally corresponds to the width of the space m , an axis portion 3072 which is arranged at the top edge of the plate portion 3071, a bearing portion 3073 which supports the axis portion 3072 rotatably and a mounting portion 3074 which is to be mounted by making use of a concave-convex engagement of a nail (not illustrated) provided in a rear face with the hook hole 261. The cover 301 is so made that it can conceal the wiring 4 which passes through the wiring passage portion 5 at least at the position which corresponds to the space m when mounted on a position where the surface of the plate portion 3071 is generally flush with the panel affixing face A2a.

In accordance with the arrangement of the movable partition wall A1, in order to introduce the wiring 4 into the wiring space S through the wiring passage portion 5, the panel 3 is dismounted from the panel affixing face A2a, the cover 307 is open and the wiring 4 is wired to pass through the front and rear face 26a of the side frame member 26 by making use of the anti-falling means 6. Then the cover 307 is closed and the panel 3 is mounted on the panel affixing face A2a. In this embodiment, since the width between the front and rear faces of the concave grooves 272, 282, 242 formed in the cross frame members 27, 28, 24 is generally equal to that of the side frame member 26, the wiring 4 guided by the concave grooves 272, 282,

242 is wired after running up onto the front or rear upright wall. For making it smooth for the wiring 4 to be wired any suitable modifications can be made such as to make the width between the front and rear faces of the concave grooves 272, 282, 242 a little wider than that of the side frame member 26.

As mentioned above, the movable partition wall A1 of this embodiment makes it possible without any inconvenience to pull the wiring 4 out of the wiring space S through the wiring passage portion 5 into the outside thereof, to wire the wiring 4 horizontally among the two movable partition walls A1 arranged side by side and to wire the wiring 4 vertically in the wiring passage portion 5.

In accordance with the arrangement, the wiring passage portion 5 can be formed by means of an extremely easy way that the width between the front and rear face of the cross frame member 27, 28, 24 is made to be wider than that of the side frame member 26 without providing a special processing with the cross frame members 27, 28, 24, the side frame members 26 and the panel 3. Therefore, there is no need of a troublesome processing of removing a part of a side frame member and establishing a concave portion like a conventional method, thereby to expect drastic reduction of processing steps and cost. Moreover, since the wiring passage portion 5 is formed generally over the whole area of horizontal direction of the side frame member 26, a degree of freedom in setting a position of wiring the wiring 4 is improved. Then dragging the wiring 4 from the

wiring space S or wiring the wiring 4 horizontally between two movable partition walls A1 arranged side by side can be conducted without any inconvenience and it is also possible to wire the wiring 4 vertically in the wiring passage

5 portion 5. Still, in case that the width between the front and rear faces of the cross frame member 27, 28, 24 is made to be wider than that of the side frame member 26, it can be considered that the width between the front and rear faces of the cross frame member 27, 28, 24 is set to be
10 wider than that of the side frame member 26, or that the width between the front and rear faces of the side frame member 26 is set to be smaller than that of the cross frame member 27, 28, 24 so that the wiring 4 can pass through the wiring passage portion 5. In case of the former the width
15 between the front and rear faces of the movable partition wall A1 is to be so set not to be extremely wide and in case of the later the width between the front and rear faces of the side frame member 26 is to be so set that there is no problem in the strength of the side frame
20 member 26.

In addition since the cross frame member 27, 28, 24 is mounted on the side frame member 26 with the right and left side end faces 27b, 28b, 24b of the cross frame member 27, 28, 24 making an abutting contact with the inner side face
25 26b of the side frame member 26 and the front and rear faces 26a of the side frame member 26 being open, the arrangement of the cross frame member 27, 28, 24 can be simplified, an area of a space for the wiring passage

portion 5 is not reduced, and especially a vertical area for wiring can be secured.

Like this embodiment, if the side frame member 26 is made of an angle pipe or the like, the side frame member 26 which is provided with the vertically continuous wiring passage portion 5 can be made with ease. Since the width between the front and rear faces of the side frame member 26 is generally equal along whole area of the vertical direction, the wiring passage portion 5 can be formed without forming a partially weak part in strength.

Since the anti-falling means 6 is provided for prohibiting the wiring 4 from falling away from a predetermined position on the front and rear faces 26a of the side frame member 26, the wiring 4 can be fit in the front and rear faces 26a of the side frame member 26.

In addition, the movable partition wall A1 forms a space m between side edges 3b of the panels 3 when a plurality of structure frame bodies A2 are arranged side by side and the panels 3 are mounted on the structure frame bodies A2, however, an improved appearance of the movable partition wall A1 can be maintained because the cover 307 as a concealing means which conceals the wiring 4 is provided on the space m and which prevents the wiring 4 from being seen through the space m.

Each of the concrete arrangement of the parts is not limited to the explained above.

For example, the cross frame member 27, 28, 24 in this embodiment is mounted on the side frame member 26 with the

right or left end face 27b, 28b, 24b making an abutting contact with the inner side face 26b wherein the front and rear faces 26b of the side frame member 26 are completely exposed to outside, however, the arrangement is not limited to the described above and the cross frame member 27, 28, 24 may be mounted on the side frame member 26 by extending the right or left end toward the side frame member 26 and entwining this extending part around the front and rear faces 26a of the side frame member 26.

10 In addition, a space cover (not illustrated) may be mounted on the side frame member 26 for closing an opening space of the part which does not substantially function as the hook hole 261. And, in this case, if the space cover is made to have apparently the same surface as that of the cover 307 which conceals the wiring 4 from the outside, a shape recognized through the space m becomes generally continuous, thereby not to hurt the appearance.

20 The cover 307 may also serve as a anti-falling means for prohibiting the wiring 4 from falling from a predetermined position on the front and rear face 26a of the side frame member 26, when the cover 307 is closed. Thus, if the cover 307 functions as the anti-falling means for retaining the wiring 4 as well, it is possible to stabilize a state of the wiring 4 to be wired without increasing the number of the parts.

25 Further, the anti-falling means 6 and the cover 307 in this embodiment is mounted on the side frame member 26 of the adjacent panel 3 by making an engagement of a pair of

nails (not illustrated) provided in the back thereof with the hook holes 261 at the same time, however, it is not limited to this and the anti-falling means 6 or the cover 307 may have a shape of two-halves and mounted on the hook holes 261 of each of the side frame members 26. If the anti-falling means 6 or the cover 307 has a shape of two-halves, the anti-falling means 6 or the cover 307 can be used when there exists no adjacent panels 3 or in the corner part when two panels 3 are placed side by side at right angles.

Next, though not illustrated, a nail may be provided at the right and left edges of the cross frame member 27, 28, 24, to project upward so as to guide the wiring 4 which is wired to shift from a horizontal direction to a vertical direction. With this arrangement, for example, the wiring 4 guided on the cross frame member 27, 28, 24 can be properly positioned and guided on the front or rear face of the side frame member through the nail and shifted to be wired vertically.

As shown in Fig. 6, for example, the wiring passage portion 5 can be formed in either one of the front and rear panel affixing faces A2a. In addition, the panel affixing face can be formed only in the front side of the structure frame body. Then, it is needless to say that the number of the mounted panels is not limited to the described above.

Next, by referring to Fig. 7 through Fig. 9, a modification of the cross frame member will now be explained. Also, in this cross frame member 25, like the

cross frame member 27, 28, 24, the width between the front and rear faces of the cross frame member 25 is wider than that of the side frame member 26, and the front and rear face 25a project outward from the front and rear faces 26a of the side frame member 26 so as to be the panel affixing face A2a, and it produces a generally same effect as that of the movable partition wall of the above-described embodiment.

The cross frame member 25 has a mounting groove 251 for mounting an optional member Q such as a shelf plate in the front and rear faces 25a, and the optional member Q such as a shelf plate is mounted by making use of a mounting member N inserted into spaces which are formed between the panels 3. Followings are a concrete explanation about this cross frame member 25.

The cross frame member 25 comprises a cross frame body 252 which cross section is a channel shape in cross section, the mounting grooves 25a provided in pairs on the front and rear of the cross frame body 252 and hanging walls 253 which are provided in pairs in the front and rear of the mounting groove and as the front and rear faces 25a which are to be affixed on the inner surface 3a of the panel 3. The cross frame body 252 is so arranged that top and bottom channel members each having a channel shape in cross section are combined. The mounting groove 251 is a concave groove and comprises a hanging wall which constitutes the top channel member, a horizontal wall which extends toward generally horizontal direction from the

lower end of the hanging wall and an upright wall which is made to stand upright from the tip of this horizontal wall. In addition, the hanging wall 253 is made to hang down from the tip of the horizontal wall which extends toward a
5 generally horizontal direction from the upper end of the upright wall of the mounting groove 251.

For the cross frame member 25 having the above described arrangement, in mounting the optional member Q such as a shelf plate, first dismount the upper panel 3 and
10 then engage the mounting member N whose cross section is a character of "L" with the mounting groove 251, next mount the optional member Q such as a shelf plate on the mounting member N by making use of an appropriate means and finally mount the upper panel 3.

15 In addition, the cross frame body 252 has its right and left ends extending from the mounting groove 251 and the hanging wall 253 in the crosswise direction, and the panel affixing member 108 for mounting the panel 3 is mounted on the extending portion of the cross frame body
20 252 so as to removably mount the panel 3 on the structure frame body A2 by making use of the panel affixing member 108.

The panel affixing member 108 is a member of a different body from the structure frame body A2 and mounted
25 on the cross frame member 25 so that the front and rear faces 108a locates flush with the front and rear faces 25a of the cross frame member 25 or at a recessed position from the front and rear faces 25a. In this modified embodiment,

the upper and lower panel affixing members 108 are mounted in pairs on both right and left ends of the cross frame member 25, and an example of the panel affixing member 108 mounted on the upper side will now be explained. The panel affixing member 108 comprises an affixing member body 1081 whose cross section is generally a shape of "H", and a pair of wing portions 1082 whose plane view is generally a shape of "L" and which extend toward the front and rear faces 26a of the side frame member 26 from one side of the affixing member body 1081. The affixing member body 1081 has an engaging groove 1081a which can make an engagement with a downward nail 34a in a top face thereof and a concave groove 1081b which can fit over the extending portion of the cross frame body 252 in a bottom face thereof. The wing portions 1082, as shown in Fig. 7, locate to cross the front and rear faces 26a of the side frame member 26 when mounted. Then, the wiring 4 vertically wired in the wiring passage portion 5 is guided to be converged by making use of the wing portions 1082. In addition, for mounting the panel affixing member 108 on the cross frame member 25, an engaging nail (not illustrated) projecting from the affixing member body 1081 makes an engagement with an opening (not illustrated) provided in the top face of the cross frame member 25, however, the method for mounting the panel affixing member 108 is not limited to this. Further, the panel affixing member 108 mounted in the bottom face of the cross frame member 35 is mounted by the same method with the panel affixing member having the same arrangement

as that of the panel affixing member 108 mounted on the top face being capsized. Then, for mounting the panel 3 by making use of the panel affixing member 108, as shown in Fig. 8, hook the engaging groove 1081a of the panel affixing member 108 mounted in the top face over the downward nail 34a of the panel 3 and hook the engaging groove 1081a of the panel affixing member 108 mounted in the bottom face over the upward nail 33a of the panel 3 so as to mount the panel 3 with the inner face 3a affixed along the front and rear faces 25a of the cross frame member 25. The wing portions 1082 may be provided in a side of anti-side frame member, or may be omitted as the need arises.

The invention is not limited to the above-mentioned embodiments, but there may be various modifications without departing from the spirit or essential characteristics thereof.

<Second Embodiment>

The invention will be described in detail with reference to a second embodiment thereof shown in Fig. 10 through Fig. 19.

A movable partition wall B1 in accordance with this embodiment comprises, as shown in Figs. 10 and 11, a structure frame body B2 which is to be a frame and front and rear panels 3 which are removably mounted on the structure frame body B2 and inside of which a wiring function which can store wiring 4 is provided. The same code will be given to the same element having the same

arrangement as that of the first embodiment.

The structure frame body B2 is made of metal and comprises right and left side frame members 21 placed along the vertical direction each of which forms a side end face
5 Bla of the movable partition wall B1 and a plurality of cross frame members 22 placed along the crosswise direction, and the side frame members 21 and the cross frame members 22 are coupled so as to form a frame.

The side frame member 21 is, as shown in Fig. 10
10 through Fig. 16, of sheet metal and generally channel-shape in a cross section so as to open toward an inner side face thereof, and each of which is combined in pairs so as to be in a shape of an angle pipe.

The cross frame member 22 is of an angle pipe having
15 generally the same width between the front and rear faces as that of the side frame member 21. The cross frame member 22 is mounted on the side frame member 21 with a proper means such as welding in a state that the right and left side end faces make an abutting contact with the inner
20 side face of the right and left side frame members 21.

The panel 3 is, as shown in Fig. 11, a shape of rectangular and is made of a panel body 31 of sheet metal whose inside is filled with cores 32 and a plurality of panels 3 are arranged along vertical direction so as to
25 cover generally whole area of the structure frame body B2. The panel 3 is provided with a resin member 34 having an upward nail 33a and a resin member 34 having a downward nail 34a at the inner surface side of the corner vicinity

thereof so that the panel 3 can be removably mounted between optional two inside of the cross frame members 22 by making use of these nails 33a and 34a.

Then, the wiring space S is formed in a position closed by the side frame member 21, the cross frame member 22, each of which constitutes the structure frame body B2 and the panel 3.

In the movable partition wall B1 of the above arrangement, in this embodiment, as shown in Fig. 10 through Fig. 16, a panel affixing member 8 is mounted on the cross frame member 22 so as to form a panel affixing face P which is to be affixed to the inner side 3a of the panel 3 at a position projecting outward from the front and rear faces 21a, 22a of the side frame member 21 and the cross frame member 22 and the inner surface 3a of the panel 3 and the front and rear faces 21a of the side frame member 21 is made to be separated, and a wiring passage portion 5 which connects the wiring space S with outside of the structure frame body B2 is formed between the inner surface 3a of the panel 3 and the front and rear faces 21a of the side frame member 21.

Next, the panel affixing member 8 will be explained in detail.

The panel affixing member 8 is a member of a different body from the structure frame body B2, and can removably mounted on the right and left edges of the cross frame member 22. The panel affixing member 8 is wider than the side frame member 21 and the width framing member 22 in the

width between the front and rear faces and the front and rear faces 8a of the panel affixing member 8 are placed at a position projecting outward from the front and rear faces 21a, 22a of the side frame member 21 and the cross frame member 22 so as to form the panel affixing face P. In this embodiment, each of the panel affixing members 8 is mounted on the bottom face side of the top cross frame member 22, the top face side of the bottom cross frame member 22 and the top and bottom face sides of the middle cross frame member 22. As an example, the panel affixing member 8 mounted on the top face side of the middle cross frame member 22 will be explained. The panel affixing member 8 comprises an affixing member body 81 having generally an "H" shape in a cross section and a wiring converging portion 82 which extends toward the front and rear faces 21a of the side frame member 21 from one end of the affixing member body 81 in a pair and has generally an "L" shape in a plane view. The affixing member body 81 is provided with an engaging groove 81a which can make an engagement with the downward nail 34a of the panel 3 in the top face and a concave groove 81b which can fit over the cross frame member 22 in the bottom face. The wiring converging portion 82 is, as shown in Fig. 10 through Fig. 15, mounted in a state of overhanging from the front rear faces 21a of the side frame member 21 and making the wiring passage portion 5 continuous in the vertical direction. Then, the wiring 4 wired vertically in the wiring passage portion 5 is guided in a converged state by making use of

the wiring converging portion 82. The panel affixing member 8 forms the front and rear faces 8a by making the front and rear faces of the affixing member body 81 flush with that of the wiring converging portion 82, the front and rear faces 8a become the panel affixing face P which is affixed to the inner surface 3a of the panel 3 when the panel 3 is mounted. In addition, for mounting the panel affixing member 8 on the cross frame member 22 an engaging nail (not illustrated) projecting from the affixing member body 81 is made an engagement with an opening (not illustrated) provided on the top face of the cross frame member, however, a means for mounting the panel affixing member 8 is not limited to this. Further, the lower panel affixing member 8 is the same as the upper panel affixing member 8 and mounted in a capsized position with the same method.

Next, a case in which the panel 3 is mounted on the structure frame body B2 by making use of the panel affixing member 8 will now be explained. In this case, as shown in Fig. 16, the panel 3 is mounted on panel affixing member 8 with the inner surface 3a thereof affixed to the front and rear faces 8a by making an engagement of the downward nail 34a of the panel 3 with the engaging groove 81a of the upper panel affixing member 8 and making an engagement of the upward nail 33a with the engaging groove 81a. Since the panel affixing member 8 is mounted both of the right and left ends of the cross frame member 22, a space is formed between the front and rear faces 22a of the cross

frame member 22 and the inner surface 3a of the panel 3.

Then in this embodiment, the space is referred as a wiring passage inlet s1 as the wiring passage space which connects the vertical wiring space S which is divided by the middle cross frame member 22. In the same way as the above, the wiring passage inlet s1 which connects the wiring space S with outside of the structure frame body B2 is formed between the top and bottom cross frame members 22 and the panel 3.

10 The movable partition wall B1 forms a space m between side edges 3b of the panels 3 when a plurality of structure frame bodies B2 are arranged side by side and the panels 3 are mounted on the structure frame bodies B2. However, the wiring 4 which passes through the wiring passage portion 5 is exposed to outside through the space m since the wiring 4 crosses the space.

Then, in this embodiment, a cover 7 to cover the wiring 4 as a concealing means is provided at least at a position where the wiring 4 crosses.

20 The cover 7 is, as shown in Fig. 10 through Fig. 14, mounted on the side frame member 21 of each structure frame bodies B2 and a shape of two-halves so as to almost completely conceal the space m between the panels 3 arranged side by side when combined in pairs. The cover 7 comprises a plate portion 71 whose width between the right and left is set to be a little larger than a half of the width between the right and left of the space m, top and bottom walls 72 which are made to bent the top and bottom

edge of the plate portion 71 at generally right angles and engaging nails 73 provided at the tip of the top and bottom walls 72. The cover 7 is mounted on the front and rear faces 21a of the side frame member 21 by making a
5 concave-convex engagement of the engaging nail 73 with an engaging hole 211 provided at a proper position on the front and rear faces 21a of the side frame member 21. The cover 7 is a shape of two-halves and can almost completely conceal the space m when mounted in pairs on each of the
10 adjacent side frame members 21, however, the cover 7 can be used alone in case the side frame member 21 is arranged at an end part, there is no adjacent structure frame body B2 existing or the structure frame bodies B2 are arranged at right angles.

15 In accordance with the arrangement, if the panel 3 is mounted on the panel affixing member in a state that the inner surface 3a of the panel is affixed to the panel affixing face P after the panel affixing member 8 is mounted at a given position of the cross frame body 22,
20 the inner surface 3a of the panel 3 is separated from the front and rear faces 21a of the side frame member 21 and the wiring passage portion 5 which connects the wiring space S with outside is formed between the inner surface 3a of the panel 3 and the side frame member 21, thereby to
25 facilitate the wiring 4 to pull out of the wiring space S and to wire horizontally among the movable partition walls B1 arranged side by side. As mentioned, since the wiring passage portion 5 can be formed just by mounting the panel

affixing member 8 without providing the structure frame body B2 or the panel 3 with a special processing, a number of processing steps and a cost can be drastically reduced compared with a conventional method in which a wiring passage portion is formed by means of a troublesome process such as a part of a side frame member is cut out to form a concave portion. In addition, the strength will not be sacrificed like a conventional method due to a wiring passage portion. The panel affixing member 8 can be mounted on any position of the structure frame body B2 as far as the panel affixing member 8 is arranged to project outward from the front and rear faces 21a, 22a of the side frame member 21 and the cross frame member 22, thereby to heighten a degree of freedom in selecting a position at which the panel affixing member 8 is mounted and to make it possible to select the position tailored to a form of use.

Since the width between front and rear faces of the side frame member 21 is generally the same as that of the cross frame member 22, an arrangement of the structure frame body B2 can be simplified.

Since the cross frame member 22 is in a shape of an angle pipe, an arrangement of the structure frame body B2 can be simplified and a mounting method for mounting the panel affixing member 8 on the cross frame member 22 can be simplified as well.

Since the panel affixing member 8 is removably mounted on the structure frame body B2, a user can select whether to form a wiring passage 5 or not by mounting or

dismounting the panel affixing member 8.

Since the panel affixing member 8 is mounted on the cross frame member 22, it is possible to mount the panel affixing member 8 on the structure frame body B2 without
5 reducing much area of the wiring passage portion 5, a degree of freedom in setting a position where the wiring 4 is wired can be improved which makes it possible to pull the wiring 4 out of the wiring space S with ease, to wire the wiring 4 vertically in the wiring passage portion 5 as
10 well as to wire the wiring 4 horizontally between the movable partition walls B1 arranged side by side with ease.

Since the width between the front and rear faces of the panel affixing member 8 is wider than that of the structure frame body B2 and the front and rear faces 8a of
15 the panel affixing member 8 are made to be a panel affixing face P, the panel affixing member 8 can deal with both of the panels 3 mounted on the front and rear sides, like this embodiment, especially in a case that panels 3 are to be mounted on both front and rear sides of the structure frame
20 body B2.

Since the panel affixing member 8 has a function of mounting a panel, there is no need of providing the structure frame body B2 with a function of mounting a panel, thereby to reduce a cost.

25 Since the panel affixing member 8 comprises an engaging groove 81a which can make an engagement with a nail 33a, 34a projecting from the inner surface 3a of the panel 3, the panel 3 can be mounted steady with a simple

mounting method.

Since the panel affixing member 8 comprises a wiring converging portion 82 which can guide the wiring 4 which are wired vertically in a converged state, a plurality of
 5 vertically wired wirings 4 can be wired in an improved condition.

Since the vertically continuous wiring passage portion 5 is formed on the front and rear faces 21a of the side frame member 21, it becomes extremely easy for the wiring 4
 10 to wire vertically in the wiring passage portion 5.

Since the panel affixing member 8 is mounted in a state that a space is formed between the front and rear faces 22a of the cross frame member 22 and the inner surface of the panel 3, a wiring through aperture s1 which
 15 connects the wiring space S divided by the middle cross frame members 22 and a wiring through aperture s1 which connects the wiring space S with outside of the structure frame body B2, thereby to improve a degree of freedom in wiring the wiring 4.

20 In addition to the above, in the movable partition wall B1 of this embodiment, the structure frame bodies B2 are placed side by side and a space m is formed between side edges of the right and left panels 3 in a state that the panel 3 is mounted on each of the structure frame
 25 bodies B2, however, since the cover 7 as a concealing means which conceals the wiring 4 from outside is provided at the space m, the wiring 4 can effectively be prevented from being seen through the space m, thereby to maintain a good

appearance of the movable partition wall B1.

In addition, since the cover 7 is in a shape of two-halves so as to completely conceal a space m between the right and left panels 3 when mounted on the side frame members 21 of each structure frame body B2 when combined in a pair, not only it is possible to use the cover 7 in a case that the structure frame bodies B2 are arranged side by side but also the cover 7 can be used alone in a case that, for example, there is no adjacent structure frame body B2 exists.

A concrete arrangement of each components is not limited to the described above.

For example, the shape of the panel affixing member 8 is not limited to the described above, and the wiring converging portion 82 may be provided at the anti-side of the side frame member when mounted, at both right and left ends of the affixing member body 81 or may be omitted. The position on which the panel affixing member 8 is mounted is not limited to the above-described right and left ends of the cross frame member 22, but may be any as far as the panel affixing face P is formed at a position projecting outward of the front and rear faces 21a, 22a of the side frame member 21 and the cross frame member 22. Further, the panel affixing member may be mounted on the side frame member 21 by modifying a shape of the panel affixing member 8.

In addition, in case a plurality of movable partition walls B1 are arranged side by side and the wiring 4 is

wired horizontally in each of the wiring space S, an anti-falling means may be provided for prohibiting the wiring 4 from falling away from a predetermined position on the front and rear faces 21a of the side frame member 21.

5 Further, the cover 7 may also serve as an anti-falling means for prohibiting the wiring 4 from falling away from a predetermined position on the front and rear faces 21a of the side frame member 21. If the cover 7 functions as the anti-falling means as well for retaining the wiring 4, a
10 condition that the wiring 4 is wired can be much more secured without increasing a number of components.

 The front and rear faces 21a of the side frame member 21 may be provided with hook holes at a predetermined pitch and an optional member such as a shelf plate or the cover 7
15 may be mounted by means of the hook holes.

 In addition, for example, as shown in Fig. 17, the wiring passage portion 5 may be provided on either one of the front and rear faces of the structure frame body B2. And it is needless to say that the number of the panels 3
20 mounted is not limited to the above.

 Next, one modified embodiment of the cross frame member will be explained with referring to Fig. 18 through Fig. 20. The cross frame member 25 has, as shown in Fig. 18, a mounting groove 251 for mounting an optional member Q
25 such as a shelf plate at a side of the front and rear faces 25a, and the optional member Q such as the shelf plate is mounted between spaces formed between panels 3 which are placed side by side vertically. The movable partition wall

C1 using the cross frame member 25 will be explained, however, an explanation of other arrangement except the cross frame member 25 will be omitted since the other arrangement is the same as that of the side frame member 21, the panel 3, the panel affixing member of the above described movable partition wall B1.

The cross frame member 25 comprises a cross frame body 252 having a square shape in a cross section, a mounting groove 251 provided in pairs along a front-back direction of the cross frame body 252 and a front and rear hanging walls 253 provided outside of each mounting grooves 251. The cross frame body 252 has generally the same width between the front and rear faces as that of the side frame member 21 and is arranged in combination of two channel members one of which is capsized. The mounting groove 251 is a concave groove comprising a hanging wall constituting the upper channel member, a level wall extending generally horizontally from a bottom end of the hanging wall and an upright wall rising up from a tip of the level wall. The front and rear hanging walls 253 are made to extend generally horizontally from a top end of the upright wall and then to hang down from a tip of the upright wall.

For mounting the optional member Q such as a shelf plate on the cross frame member 25, first dismount the upper panel 3 and then engage a mounting member Q whose cross section is a character of "L" with the mounting groove 251, next mount the optional member Q such as a shelf plate on the mounting member Q by making use of an

appropriate means and finally mount the upper panel 3.

In the structure frame body C2 using the cross frame member 25 of the above arrangement, like the above mentioned structure frame body B2, a panel affixing member 8 is mounted on the cross frame member 25 so as to form a panel affixing face P which is to be affixed to the inner side 3a of the panel 3 at a position projecting outward from the front and rear faces 21a, 25a of the side frame member 21 and the cross frame member 25 and the inner surface 3a of the panel 3 and the front and rear faces 21a of the side frame member 21 is made to be separated, and a wiring passage portion 5 which connects the wiring space S with outside of the structure frame body C2 is formed between the inner surface 3a of the panel 3 and the front and rear faces 21a of the side frame member 21.

Concretely, the cross frame body 252 of the cross frame member 25 has its right and left ends extending from the mounting groove 251 and the hanging wall 253 in the crosswise direction, and the panel affixing member 8 is mounted on the extending portion of the cross frame body 252 so as to mount the panel affixing member 8. The panel affixing member 8 is mounted at a position where the front and rear faces 8a project outward from the side frame member 21 and the cross frame member 25. The same effect is produced as that of the movable partition wall B1 of the above-described embodiment.

The arrangement of this invention is not limited to

the above described arrangement, but there may be various modifications without departing from the spirit or essential characteristics thereof.

<Third Embodiment>

5 The invention will be described in detail with reference to a third embodiment thereof shown in Fig. 21 through Fig. 34.

A movable partition wall D1 in accordance with this embodiment comprises, like the second embodiment, a
10 structure frame body D2 which is to be a frame and front and rear panels 3 which are removably mounted on the structure frame body D2 and inside of which a wiring space S which can store wiring 4 is provided. A first and a second panel affixing members 18, 19 are mounted on the
15 cross frame member 22 which constitutes the structure frame body D2, the first and second panel affixing members 18, 19 form the panel affixing face P which is to be affixed to the inner surface 3a of the panel 3 at a position which projects outward from the front and rear faces 21a, 22a of
20 the side frame member 21 and the cross frame member 22 so as to make a space between the inner surface 3a of the panel 3 and the front and rear faces 21a of the side frame member 21 and the wiring passage portion 5 is formed to connect through the wiring space S with outside of the
25 structure frame body between the inner surface 3a of the panel 3 and the front and rear faces 21a of the side frame member 21.

The same code will be given to the same element having

the same arrangement as that of the second embodiment and explanation will be omitted.

The movable partition wall D1 of the embodiment is different from the first embodiment in the panel affixing member and the first and second panel affixing members 18, 19 each has a different shape is mounted on the top and down faces 22c, 22d of the cross frame member 22.

Next, the first and second panels affixing members 18, 19 will be explained.

10 The first panel affixing member 18 is, as shown in Fig. 23 through Fig. 25, removably mounted on the right and left edges of the cross frame member 22 in upper surfaces 22c. The first panel affixing member 18 is wider in the width between the front and rear faces 18a than that of the side frame member 21 and the cross frame member 22 and the front and rear faces 18a of the first panel affixing member 18 are formed to project from the front and rear faces 21a, 22a of the side frame member 21 and the cross frame member 22 so as to be the panel affixing face P. The first panel affixing member 18 comprises an affixing member body 181 having generally an "H" shape in a cross section and a wiring converging portion 182 which is formed to extend from one end of the affixing member body 181 in pairs of the front and rear and generally "L" shapes in a plane view.

25 The affixing member body 181 comprises an engaging groove 1811 which is provided on the top face side thereof so as to make an engagement of the downward nail 34a of the

panel 3, a concave groove 1812 which is provided on the bottom face side thereof so as to be inserted over the cross frame member 22, a projecting body 184 projecting in a pair from the right and left of the bottom face, a
 5 downward engaging nail 185 which is elastically deformable and provided on the outer wall 184a of the projecting body 184, an opening window 186 which is provided on the right and left of the top face of the affixing member body 181 at a position corresponding to the engaging nail 185 and an
 10 insertion hole 187 which is to insert a fixture b for fixing the affixing member body 181 on the cross frame member 22. The engaging nail 185 has its front tip exposed to upside through the opening window 186 so as to be a manipulating end 185a manipulated by making use of elastic
 15 deformation.

The wiring converging portion 182 is mounted to hang over the side of the front and rear faces 21a of the side frame member 21 in a state that the wiring passage portion
 5 is vertically continuous. The vertically wired wirings 4 in the wiring passage portion 5 are guided, as shown in
 20 Fig. 21, in a converged state by making use of the wiring converging portion 182. The first panel affixing member 18 forms the panel affixing face P, namely, the front and rear faces 18a by making the front and rear faces of the
 25 affixing member body 181 to be generally flush with the front and rear faces of the wiring converging portion 182.

The second panel affixing member 19 is removably mounted on the right and left edges of the cross frame

member 22 in the lower surface 22d. The second panel affixing member 19 has generally the same width as that of the first panel affixing member 18. Therefore, like the first panel affixing member 18, the front and rear faces

5 19a are formed to project from the front and rear faces 21a, 22a of the side frame member 21 and the cross frame member 22 so as to be the panel affixing face P. The

second panel affixing member 19 comprises an affixing member body 191 having generally an "H" shape in a cross section. The affixing member body 191 comprises an engaging groove 1911 which is provided on the bottom face side thereof so as to make an engagement of the upward nail 33a of the panel 3, a projecting body 194 projecting in a pair from the right and left of the top face, an upward engaging nail 195 which is elastically deformable and provided on the inner wall 194a of the projecting body 194, an opening window 196 which is provided on the right and left of the bottom face of the affixing member body 191 at a position corresponding to the engaging nail 195 and an insertion hole 197 which is to insert the fixture b for fixing the affixing member body 191 on the cross frame member 22. The engaging nail 195 has its front tip 195a project from the downside through the opening window 196 so as to be manipulated by making use of elastic deformation.

25 The first and second panel affixing members 18, 19 are mounted at corresponding positions on the top and bottom faces 22c, 22d of the cross frame member 22, in which case the projecting body 184 of the first panel affixing member

18 is inserted into outer side of the opening 221 provided on the top and bottom faces 22c, 22d of the cross frame member 22 and the projecting body 194 of the second panel affixing member 19 is inserted into inner side of the opening 221 so that the engaging nail 185 of the first panel affixing member 18 makes an engagement with the outer edge of the opening 221 and the engaging nail 195 of the second panel affixing member 19 makes an engagement with the inner edge of the opening 221.

10 In this embodiment, the first and second panel affixing members 18, 19 are mounted on the top and bottom face 22c, 22d of the middle cross frame member 22 each, the second panel affixing member 19 is mounted on the bottom face 22d of the highest cross frame member 22 and the first panel affixing member is mounted on the top face 22c of the lowest cross frame member 22.

Then, as shown in Fig. 26 and Fig. 27, a top beam 11 is mounted by making use of the second panel affixing member 19 mouter on the highest cross frame member 22.

20 Concretely, the top beam 11 is mounted by making an engagement of an elastically deformable nail 1916 as a relating portion projecting from both of the front and rear side of the second panel affixing member 19 with a continuous concave groove 111 as a related portion provided to both of the front and rear side of the top beam 11.

Like the second embodiment, if the first and second panel affixing members 18, 19 are mounted on the cross frame member 22 at a given position, the inner surface 3a

of the panel 3 locates separated from the front and rear faces 21a of the side frame member 21 and the wiring passage portion 5 which connects the wiring space S with outside is formed between the inner surface 3a of the panel 3 and the side frame member 21, thereby to facilitate the wiring 4 to pull out of the wiring space S and to wire horizontally among the movable partition walls D1 arranged side by side. As mentioned, since the wiring passage portion 5 can be formed just by mounting the first and second panel affixing members 18, 19, a number of processing steps and a cost can be drastically reduced compared with a conventional method in which a wiring passage portion is formed by means of a troublesome process such as a part of a side frame member is cut out to form a concave portion. In addition, the strength will not be sacrificed like a conventional method due to a wiring passage portion. The first and second panel affixing members 18, 19 can be mounted on any position of the structure frame body D2 as far as the panel affixing face P is arranged to project outward from the front and rear faces 21a, 22a of the side frame member 21 and the cross frame member 22, thereby to heighten a degree of freedom in selecting a position at which the first and second panel affixing members 18, 19 is mounted and to make it possible to select the position tailored to a form of use.

In addition, since the top beam 11 is mounted by making use of the second panel affixing member 19 which is mounted on the highest cross frame member 22, there is no

need of other members for mounting the top beam 11, thereby to reduce a number of parts.

Since the second panel affixing member 19 comprises the nail 1916 which can make an engagement with the concave groove 111 of the top beam 11, the top beam 11 can steady be mounted on the second panel affixing member 19.

In addition, the movable partition wall D1 forms a space m between side edges of the panels 3 when a plurality of structure frame bodies D2 are arranged side by side and the panels 3 are mounted on the structure frame bodies D2. However, the wiring 4 which passes through the wiring passage portion 5 is exposed to outside through the space m since the wiring 4 crosses the space m.

Then in this embodiment, like the first and second embodiments, a cover 107 as a concealing means for cover the wiring 4 is provided at least at a position where the wiring crosses.

The cover 107 is, as shown in Fig. 23 and Fig. 24, in a shape of two-halves and which can completely conceal the space m between the panels 3 arranged side by side when mounted on the side frame member 21 of each structure frame body D2 when combined in a pair. The cover 107 comprises a cover body 107a having a channel shape in a side view whose width between the right and left is set to be a little larger than a half of the width between the right and left of the space m, an axis portion 107b which is arranged at the bottom edge of the cover body 107a, an upright wall 107c which are made to stand from the top edge of the cover

body 107a, an opening window 107d provided at the center of the top edge of the upright wall 107c and an upward engaging nail 107e which is elastically deformable and whose tip projects outside of the opening window 107d. The

5 engaging nail 107e has its front tip 185a exposed to outside through the opening window 107d so as to be manipulated by making use of elastic deformation. The cover 107 is mounted on the side frame member 21 with the axis portion 107b and the engaging nail 107e making an
10 engagement with a pair of top and bottom slits provided at appropriate positions on upside and downside of the front and rear faces 21a of the side frame member 21.

Concretely, each of the top and bottom slits 211 is an opening having a reversed convex shape, namely, a top

15 portion is made to open wider than a bottom portion. For mounting, insert the axis portion 107b into a top portion of the bottom slit 211, next push the axis portion 107b downward to be placed at the inside of the bottom portion of the bottom slit 211 and then mount the cover 107 on the
20 side frame member 211 tentatively. Rotate the cover 107 on the axis portion 107b to make the engaging nail 107e approach toward the upper slit 211 so that the engaging nail 107e makes an engagement with the top edge of the top slit 211. The cover body 107a has a function of retaining
25 wiring for retaining the wiring 4 wired horizontally. The cover 107 is in a shape of two-halves and used in pairs to conceal the space m completely when mounted on the side frame members 21 arranged side by side, however, the cover

107 may be used alone when the side frame member locates at an end or there is no structure frame body 2 existing.

The shape of the cover 107 is not limited to the described above.

5 Next, a cover 207 will be explained which is preferably used when the structure frame bodies D2 are placed side by side at right angles.

 The cover 207 is, as shown in Fig. 28 and Fig. 29, mounted on each of the side frame members 21 arranged side
10 by side when the structure frame bodies D2 are connected at right angles and has a shape which can almost completely conceal the space m between the panels 3 arranged side by side along a corner having an angle of about 90 degrees formed on the side frame members 21 arranged side by side
15 when combined in pairs. The cover 207 comprises a cover body 207 having a channel shape in a side view whose width between the right and left faces generally equals to that of the side frame member 21, an extending portion 207b continuously extending from one end of the cover body 207a,
20 top and bottom face portions 207c projecting from the center of the top and bottom edges of the cover body 207a, an opening window 207d provided on the center of the projecting end side of the top and bottom face portions 207c, an elastically deformable engaging nail 207e which
25 locates in the opening window 207d and whose tip projects outward so as to make an engagement with the slit 212 provided on the side frame member 21. The engaging nail 207e has its front tip exposed to outside through the

opening window 207d so as to be manipulated by making use of elastic deformation. The extending portion 207b has its one end bent at generally 45 degrees to form a slanted face so as to be arranged along the corner when combined in pairs and mounted on the side frame members 21 placed side by side at right angles. The cover body 207a has a function of retaining the wirings 4 which is wired horizontally.

In accordance with the arrangement, the wiring 4 can effectively be prevented from being seen through the space when the movable partition walls D1 are arranged side by side at right angles.

In addition, since the cover 207 has a function of retaining the wiring 4 wired horizontally, the wiring 4 can be wired in an improved condition.

The cover 207 is preferably mounted on the side frame members 21 which are arranged at right angles, however, is may be mounted on the side frame members 21 which are arranged in a straight line. The cover 207 may be used alone for the side frame member 21 which locates at an end or in a case that there is no adjacent structure frame body D2 exists.

In this embodiment, a plurality of hook holes 216 are provided at a given pitch on the front and rear faces 21a of the side frame member 21 and an optional member such as a top plate, for example, is mounted on the front and rear faces of the movable partition wall D1 by making use of the hook holes 216.

Followings are an explanation of how a top plate T as an optional member is mounted on the front and rear faces of the movable partition walls arranged side by side. Two methods, one of which makes use of a bracket 12, and the other makes use of a panel leg 14 will be explained.

First, a concrete method for mounting a plurality of top plates T on each front faces of the plurality of movable partition walls D1 arranged side by side by making use of the bracket 12 corresponding to each movable partition walls D1 will be explained referring to Fig. 30 and Fig. 31.

The bracket 12 is a shape of reverse "L" in a front view and comprises a top plate support wall 121 which is placed horizontally and supports a bottom face of the top plate T and a hanging wall 122 which hangs from one end of the top plate support wall 121. The top plate support wall 121 is provided with an opening 123 which is rectangular in a plane view at the front and rear of one end thereof and also provided with an insertion hole 124 for a screw b to fix a top plate at a position which corresponds to the opening 123 on other end. The hanging wall 122 is provided with nails 125 which make an engagement with the hook holes 216 of the side frame member 21 at vertical five positions. In this embodiment, two different kinds of brackets are used, one of which has an arrangement that the hanging wall 122 hangs from a right end of the top plate support wall 121, and other has an arrangement that the hanging wall 122 hangs from a left end of the top plate support wall 121.

The bracket 12 wherein the hanging wall 122 hangs from the right end of the top plate support wall 121 is used for the movable partition wall D1 which locates the left end among the plurality of movable partition walls D1 arranged side by side and the bracket 12 wherein the hanging wall 122 hangs from the left end of the top plate support wall 121 is used for other movable partition walls D1. The bracket 12 is used alone when mounted on the side frame member 21 which locates at an end of the movable partition wall D1 where there is no adjacent movable partition wall. For mounting the bracket 12 on the other end of the movable partition wall D1, the bracket 12 is mounted together with an auxiliary support member 13 on the side frame member 21 of the adjacent movable partition wall D1.

The auxiliary support member 13 comprises a level wall 131 which is to be affixed to the bottom face of the top plate T and a mounting wall 132 which is to be inserted into the opening 123 of the bracket 12 from upward and screwed on the hanging wall 122.

In accordance with the arrangement, as shown in Fig. 31, a single bracket 12 can support two top plates T arranged side by side by making use of the auxiliary support member 13. And since other bracket 12 which is mounted on the other end side is mounted on the side frame member 21 of the adjacent movable partition wall D1, the top plate T mounted on the front of the adjacent movable partition wall D1 is supported not by the auxiliary support member 13 alone but by a part of the bracket 12 and the

auxiliary support member 13, thereby to support the top plate T steady.

Next, a concrete method for mounting a plurality of top plates T on each front faces of the plurality of movable partition walls D1 arranged side by side by making use of the panel leg 14 corresponding to each movable partition walls D1 will be explained referring to Fig. 32 and Fig. 33.

The panel leg 14 is self standing and made of a core pasted with melamine surfaced decorative laminates. The panel leg 14 is provided with edge members 141 on the front and rear faces thereof and provided with adjusters 141 for adjusting a height on the bottom face 14c. The panel leg 14 is mounted on the front face of each movable partition walls D1 through mounting members 15 fixed to two points at the rear face 14b side in a manner that, when the panel leg 14 is mounted on the side frame member 21 which locates at a position where there is no other movable partition wall D1, a side face 14d of the panel leg 14 is generally flush with the side face 21e of the side frame member 21, while when the panel leg 14 is mounted on the side frame member 21 which locates other side, namely, at a position where there is an adjacent movable partition wall D1, a position of the center in the thickness of the panel leg 14 generally coincides with the side end 21e of the side frame member 21. In other words, a distance between the hook holes 216 is set to be generally half of the thickness of the panel leg 14.

The mounting member 15 comprises a fixed wall 151 which is fixed in an inner surface of the panel leg 14 with a screw b, a mounting wall 152 having a nail 153 which makes an engagement with the hook hole 216 of the side frame member 21 and a connecting wall 154 which connects the fixed wall 151 and the mounting wall 152 and which is mounted along the rear face 14b of the panel leg 14. The plate mounting member 16 is utilized for mounting the top plate T on the panel leg 14 wherein the mounting member 16 has a shape of a plate and is mounted on two concave portions provided at a front and a rear of the top face of the panel leg 14. The plate mounting member 16 is a rectangular in a plane view and has screw insertion holes 161, 162, 163 at equal intervals of three points on the right and left of a plate portion thereof wherein each of the screw insertion holes can be arbitrarily selected to use according as whether the panel leg 14 is arranged at a position where there is an adjacent movable partition wall D1 or not. For a panel leg 14 arranged at a position where there is no adjacent movable partition wall D1 the plate mounting member 16 is fixed to the panel leg 14 by making use of the screw insertion hole 163 or 161 of the right end or the left end of the plate portion. Then a top plate T is fixed by making use of either one of the remaining screw insertion holes. For a panel leg 14 arranged at a position where there is an adjacent movable partition wall D1 the plate mounting member 16 is fixed to a top face of the panel leg 14 by making use of the center screw insertion

hole 162. Then one of the top plates T is fixed by making use of the left insertion hole 161 and the other top plate T is fixed by making use of the right insertion hole 163.

In accordance with the arrangement, as shown in Fig. 33, a single panel leg 14 can support edges of both two top plates T arranged side by side by making use of the plate mounting member 16. In addition, the side end 14d of the panel leg 14 placed at a position where no other movable partition wall D1 exists is generally flush with the side end 21e of the side frame member 21, thereby to improve appearance.

Further, as shown in Fig. 34, the height of the movable partition wall D1 can be adjusted by adding an auxiliary structure frame body 202 to the top of the structure frame body D2. Concretely, the auxiliary structure frame body 202 is generally a channel shape comprising the side frame member 21 and the cross frame member 22 each of which is the same as that of the structure frame body D2 and a mounting plate 29 whose bottom end extends downward is mounted on the inside member 217 of the side frame member 21. Concretely, the mounting plate 29 is a channel shape opening outward and fixed in a state that an top edge side of an inner wall 291 makes an abutting contact with an outside face of the inside member 217 of the side frame member 21 by means of a proper method. At a proper point on the outside face of the inside member 217 a nut member n is welded. In order to add the auxiliary structure frame body 202 to the top of

the structure frame body D2, place the mounting plate 29 on the side frame member 21 in a state that the inner surface of the inside wall 291 of an extending end 29a locates along the outer surface of the inside member 218 so that the bottom face of the auxiliary structure frame body 202 is affixed and supported by the top face of the structure frame body D2. Then fix the extending end 29a to the side frame member 21 of the structure frame body D2 by helically connecting a fixture b such as a screw inserted through an insertion hole 218a provided on the inside member 218 of the side frame member 21 of the structure frame body D2 with the nut member n of the mounting plate 29.

In the movable partition wall D1 of this embodiment, as mentioned above, since the wiring passage portion 5 can be formed just by mounting the affixing members 18, 19 without providing the structure frame body D2 with a special processing work, in case that a height of the movable partition wall D1 is to be raised, it is possible to form the wiring passage portion 5 without providing the auxiliary structure frame body D2 with a special processing work by mounting the panel affixing members 18, 19 after the height of the structure frame body D2 is raised by making use of the auxiliary structure frame body 202. In addition, since the mounting plate 29 is generally a shape of channel, the strength of the mounting plate 29 is stronger than a mounting plate having a shape of a plate.

Further, since the first and second panel affixing members 18, 19 are mounted on right and left ends of the

cross frame member 22, a gap is formed between the inner face 3a of the panel 3 and the front and rear faces 22a of the cross frame member 22 at a center area where the panel affixing members 18, 19 are not provided. Then, in this embodiment, as shown in Fig. 21 and Fig. 22, an anti-dent member 23 for preventing the panel 3 from being dented is provided generally at a center of the right and left direction of the cross frame member 22. The anti-dent member 23 is a channel in a cross section and also serves as a wiring retainer.

The invention is not limited to the above-mentioned embodiments, but there may be various modifications without departing from the spirit or essential characteristics thereof.

In a case such as mentioned above in which the panel affixing members 18, 19 are mounted on the structure frame body D2, for example, openings are provided at corresponding positions on face portions facing each other at a predetermined interval of a mounted member and relating portions projecting from each of the mounting members are engaged with the openings so that the mounted member is held between two mounting members. More concretely, openings are provided at corresponding positions on top and bottom face portions facing each other of the mounted member such as a cross frame of an angle pipe and the relating portions projecting from each of the first and second mounting members are engaged with the opening so as to mount the first and second mounting

members.

If, however, a sum of the projecting lengths of the relating portions exceeds a distance between the top and bottom face portions of the mounted member, an interference
5 may occur between the relating portion of the first mounting member and the relating portion of the second mounting member inside the mounted member. Therefore, a degree of freedom in designing the mounting members becomes low such as the projecting length can not be secured enough or a size
10 of each component parts is required to be adjusted in a strict way to avoid interference.

In addition, a distance between top and bottom faces of the related member should be set big in order to secure the projecting length of the relating portion, thereby to make
15 the mounted member unnecessarily large.

In order to solve the above problems, in the next forth embodiment a mounting structure applied to a movable partition wall will be explained, wherein the mounting structure is characterized by that when two mounting members
20 are to be mounted at positions of face portions facing each other on a mounted member, a position where relating portions projecting from each of the mounting members make an engagement with an opening provided in the mounted member are placed shifted so that no interference occurs between
25 the relating portions and the opening.

<Forth Embodiment>

In this embodiment in a case that openings are provided at positions on each of face portions facing each other at a

predetermined interval of a mounted member and relating portions projecting from each of two mounting members make an engagement with the openings so that the mounted member is held between two mounting members, a mounting structure
5 which is characterized by that the relating portions of each mounting members are arranged at shifted positions so that no interference occurs between the relating portions is applied to a movable partition wall.

In accordance with the arrangement, for example, it is
10 possible to mount the mounting members on the mounted member without causing an interference between the relating portions even though a distance between two face portions facing each other of the mounted member is relatively short and a sum of the projecting length of each relating
15 portions might exceed the distance. In addition a certain amount of the projecting length can be secured without making a size of the mounted member unnecessarily large and there is no need of adjusting a size of each component parts in a strict way, thereby to improve a degree of
20 freedom in designing the component parts.

As an arrangement of the relating portion it may be represented that a sum of projecting lengths is larger than a distance between the two face portions which face each other.

25 As a preferable embodiment, it is represented that a relating portion of one of the mounting members makes an engagement with an outer edge of the opening provided on the mounted member and a relating portion of the other

mounting member makes and engagement with an inner edge of the opening.

In order to make it possible to use a mounting member having the same arrangement in a capsized position, it is preferable that two mounting members are so arranged that a
5 concave and a convex formed by the relating portion of one of the mounting members face to a convex and a concave formed by the relating portion of the other mounting member respectively wherein a plurality of relating portions are
10 arranged on the mounting member so as to form a concave and a convex unsymmetrically in each of adjacent rows and the mounting member and another mounting member having the same arrangement of the relating portion of the mounting member in a capsized state are mounted to face each other on both
15 faces of the mounted member.

In order to mount the mounting member on the mounted member steady without using a screw it is preferable that the relating portion has a projecting body to be inserted into the opening and an elastically deformable engaging
20 nail which elastically deforms temporarily by being pushed by a part of the face portion of the mounted member and then restores itself inside the opening at a position where the engaging nail has completely been inserted so as to make an engagement with the part of the face portion of the
25 mounted member.

In this case, in order to make it easy to separate the mounting member from the mounted member, it is preferable that the engaging nail has its front tip exposed to outside

of the mounting member so as to be manipulated.

As a concrete embodiment, it is represented that the openings are provided in pairs and each of the mounting members has a pair of relating portions each makes an engagement with the opening respectively, and the engaging nails provided on the relating portion of one of the mounting members are arranged to face each other while the engaging nails provided on the relating portion of the other mounting member are arranged so that each faces toward a contrary direction.

As a concrete embodiment, it is represented that the mounting members are mounted on a structure frame body of the movable partition wall wherein a panel is attached to the front and rear faces of the structure frame body and the mounting member is a panel affixing member whose front and rear faces are a panel affixing face to which the inner surface of the panel is affixed, and a wiring passage portion is formed between the inner surface of the panel and at least one of the front and rear faces of the side frame member constituting the structure frame body to connect a wiring space formed between the structure frame body and the panel with outside of the structure frame body.

An embodiment wherein the mounting structure is applied to the movable partition wall D1 will be described more concretely with referring to drawings. Since the movable partition wall D1 has generally the same arrangement as that of the third embodiment, the same code

will be given to the same element having the same arrangement.

A movable partition wall D1 in accordance with this embodiment comprises, as shown in Figs. 35 and 36, a structure frame body D2 which is to be a frame and front and rear panels 3 which are removably mounted on the structure frame body D2 and inside of which a wiring function which can store wiring 4 is provided.

The structure frame body D2 is made of metal and comprises right and left side frame members 21 placed along the vertical direction each of which forms a side end face D1a of the movable partition wall D1 and a plurality of cross frame members 22 placed along the crosswise direction, and the side frame members 21 and the cross frame members 22 are coupled so as to form a frame.

The panel 3 is, as shown in Fig. 36, a shape of rectangular and is made of a panel body 31 of sheet metal whose inside is filled with cores 32 and a plurality of panels 3 are arranged along vertical direction so as to cover generally whole area of the structure frame body B2. The panel 3 is provided with a resin member 34 having an upward nail 33a and a resin member 34 having a downward nail 34a at the inner surface side of the corner vicinity thereof so that the panel 3 can be removably mounted between optional two inside of the cross frame members 22 by making use of these nails 33a and 34a.

Then, the wiring space S is formed in a position closed by the side frame member 21, the cross frame member

22, each of which constitutes the structure frame body D2 and the panel 3.

Further, as shown in Fig. 35 and Fig. 36, the first and a second panel affixing members 18, 19 are mounted on a side of the top and bottom portions 22c, 22d of the cross frame member 22 so as to form the panel affixing face P which is to be affixed to the inner surface 3a of the panel 3 at a position which projects outward from the front and rear faces 21a, 22a of the side frame member 21 and the cross frame member 22, a space is made between the inner surface 3a of the panel 3 and the front and rear faces 21a of the side frame member 21. Then the wiring passage portion 5 is formed to connect through the wiring space S with outside of the structure frame body between the inner surface 3a of the panel 3 and the front and rear faces 21a of the side frame member 21.

In accordance with the arrangement, in this embodiment, the above-described mounting structure is applied to a case that the first and second panel affixing member 18, 19 as mounting members are mounted on the cross frame member 22 as a mounted member.

The cross frame member 22, the first and second panel affixing member 18, 19 will be described concretely referring to Fig. 37 through Fig. 43.

25 The cross frame member 22 is of an angle pipe whose cross section is generally rectangle and which has generally the same width between the front and rear faces as that of the side frame member 21. The cross frame

member 22 is mounted on the side frame member 21 with a proper means such as welding in a state that the right and left side end faces make an abutting contact with the inner side face of the right and left side frame members 21. The cross frame member 22 has a top and bottom faces 22c, 22d as a mounting face portion for mounting the first and second panel affixing members 18, 19 and a pair of openings 221 which are provided at the right and left ends and which make an engagement with a relating portion 183, 193 projecting from the first and second panel affixing members 18, 19. A distance between the top and bottom face portions 22c, 22d of the cross frame member 22 is smaller than a sum of the projecting lengths of the relating portions 183 and 193.

The first panel affixing member 18 is, as shown in Fig. 37 through Fig. 39 and Fig. 41 through Fig. 43, removably mounted on the top face portion 22c side of the right and left ends of the cross frame member 22. The first panel affixing member 18 is wider in the width between the front and rear faces 18a than that of the side frame member 21 and the cross frame member 22 and the front and rear faces 18a of the first panel affixing member 18 are formed to project outward from the front and rear faces 21a, 22a of the side frame member 21 and the cross frame member 22 so as to be the panel affixing face P. The first panel affixing member 18 comprises the affixing member body 181 having generally an "H" shape in a cross section, the wiring converging portion 182 which is formed to extend

from one end of the affixing member body 181 in pairs of the front and rear and generally "L" shapes in a plane view and the relating portions 183 projecting in pairs from the right and left of the bottom face of the affixing member body 181.

The affixing member body 181 comprises the engaging groove 1811 which is provided on the top face side thereof so as to make an engagement of the downward nail 34a of the panel 3 and the concave groove 1812 which is provided on the bottom face side thereof so as to be inserted over the cross frame member 22.

The wiring converging portion 182 is, as shown in Fig. 35 through Fig. 37, mounted to hang over the side of the front and rear faces 21a of the side frame member 21 in a state that the wiring passage portion 5 is vertically continuous. The vertically wired wirings 4 in the wiring passage portion 5 are guided in a converged state by making use of the wiring converging portion 182. The first panel affixing member 18 forms the panel affixing face P, namely, the front and rear faces 18a by making the front and rear faces of the affixing member body 181 to be generally flush with the front and rear faces of the wiring converging portion 182.

The relating portion 183 comprises generally tubular-shaped projecting bodies 184 which project in pairs from the right and left of the bottom face and which are to be inserted into outer edge 221a of a pair of openings 221 provided on the top face portion 22c of the cross frame

member 22, a downward engaging nail 185 which is elastically deformable and provided on the outer wall 184a of the projecting body 184 and an opening window 186 which is provided on the right and left of the top face of the affixing member body 181 at a position corresponding to the engaging nail 185. The engaging nails 185 provided on the projecting bodies 184 are so arranged that each projects toward a contrary direction. The engaging nail 185 has its front tip 185a exposed to upside through the opening window 186 so as to be manipulated by making use of elastic deformation. When the projecting body 184 is inserted into the opening 221, the engaging nail 185 elastically deforms temporarily by being pushed by the outer edge 221a of the opening 221 and then restores itself inside the opening 221 at a position where the engaging nail 185 has completely been inserted and makes an engagement with the outer edge 221a of the opening 221 so as to prevent the first panel affixing member 18 from being apart from the cross frame member 22.

In this embodiment, the first panel affixing member 18 is mounted on the cross frame member 22 by inserting the fixture b through the insertion hole 187 which is provided generally at the center of the affixing member body 181.

The second panel affixing member 19 is, as shown in Fig. 37, Fig. 38 and Fig. 40 through Fig. 43, removably mounted on the right and left end of the bottom face portion 22d of the cross frame member 22. The second panel affixing member 19 is generally the same in a width between

the front and rear faces of the first panel affixing member 18. Therefore, like the first panel affixing member 19, the front and rear faces 19a of the second panel affixing member 19 are formed to project outward from the front and rear faces 21a, 22a of the side frame member 21 and the cross frame member 22 so as to be the panel affixing face ~~E~~. The second panel affixing member 19 comprises the affixing member body 191 having generally an "H" shape in a cross section and the relating portions 193 projecting in pairs from the right and left of the bottom face of the affixing member body 191.

The affixing member body 191 has the engaging groove 1911 which is provided on the bottom face side so as to make an engagement of the upward nail 33a of the panel 3. The numeral code of 1912 shows a nail for mounting a top beam which is utilized when the second panel affixing member 19 is mounted on the highest cross frame member 22.

The relating portion 193 comprises generally tubular-shaped projecting bodies 194 which project in pairs from the right and left of the bottom face of the affixing member body 191 and which are to be inserted into the outer edges 221a of a pair of the openings 221 provided on the top face portion 22c of the cross frame member 22, a downward engaging nail 195 which is elastically deformable and provided on the outer wall 194a of the projecting body 194 and an opening window 196 which is provided on the right and left of the top face of the affixing member body 191 at a position corresponding to the engaging nail 195.

The engaging nail 195 has its front tip project from the downside through the opening window 196 so as to be a manipulating end 195a manipulated by making use of elastic deformation. When the projecting body 194 is inserted into the opening 221, the engaging nail 195 elastically deforms temporarily by being pushed by an inner edge 221b of the opening 221 and then restores itself inside the opening 221 at a position where the engaging nail 195 has completely been inserted and makes an engagement with the inner edge 221b of the opening 221 so as to prevent the second panel affixing member 19 from being apart from the cross frame member 22.

In this embodiment, the second panel affixing member 19 is mounted on the cross frame member 22 with the fixture b inserted into the insertion hole 197 provided on the affixing member body 191.

Next a process of mounting the first and second panel affixing member 18, 19 will be explained.

First, insert the projecting body 184 projecting from the bottom face of the first panel affixing member 18 into the outer edge 221a of the opening 221 provided on the top face portion 22c of the cross frame member 22. At this time the engaging nail 185 provided on the outer wall 184a of the projecting body 184 elastically deforms temporarily by being pushed by the outer edge 221a of the opening 221. Then the engaging nail 185 restores itself at a position where the concave groove 1812 completely fits over the top face portion 22c of the cross frame member 22 in the

opening 221 and mounted on the top face portion 22c of the cross frame member by making an engagement with the outer edge 221a of the opening 221. For mounting the second panel affixing member 19, insert the projecting body 194
5 projecting from the top face of the second panel affixing member 19 into the inner edge 221b of the opening 221 provided on the bottom face portion 22d of the cross frame member 22. At this time since the projecting body 184 of the first panel affixing member 18 is inserted into the
10 outer edge 221a of the opening 221, no interference occurs between the projecting body 184 and the projecting body 194. And the engaging nail 195 provided on the inner wall 194a of the projecting body 194 elastically deforms temporarily by being pushed by the inner edge 221b of the
15 opening 221. Then the engaging nail 195 restores itself inside the opening 221 at a position where the engaging nail 195 has completely been inserted and makes an engagement with the inner edge 221b of the opening 221 so as to be mounted on the bottom face portion 22d of the
20 cross frame member 22 by making an engagement with the inner edge 221b of the opening 221. Next, both of the first and second panel affixing members 18 and 19 are fixed steady with the fixture b.

In accordance with the arrangement, if the sum of the
25 amount that the relating portions 183 and 193 project exceeds a distance between the top and bottom faces 22c and 22d facing each other, interference between the facing relating portions 183 and 193 can be prevented. As

mentioned above, since the relating portions 183 and 193 are arranged at a shifted position so as not to interfere each other, a work of mounting the first and second panel affixing members 18, 19 can be conducted without considering interference. The amount that the relating portion 183, 193 projects can be secured at a given amount without making the cross frame member 22 unnecessarily large and the size of the relating portions 183, 193 can be set easily without considering a size of each component parts in a strict way, thereby to improve a degree of freedom in designing the component parts.

Since the relating portion 183 of the first panel affixing member 18 makes an engagement with the outer edge 221a of the opening 221 and the relating portion 193 of the second panel affixing member 19 makes an engagement with the inner edge 221b of the opening 221, interference between the relating portions 183 and 193 can effectively be prevented with a simple arrangement, thereby to bring about an operation and an effect of this invention.

Since the relating portion 183, 193 has the elastically deformable engaging nail 185, 195 which elastically deforms by being pushed by the projecting body 184, 194 inserted into the opening 221 and the outer or inner edge 221a, 221b of the opening 221 and restores itself at a position where the projecting body 184, 194 has completely been inserted inside the opening 221, the first and second panel affixing members 18, 19 can be steady fixed to the cross frame member 22 with the fixture b after

fixed provisionally.

Since the engaging nail 185, 195 has its front tip exposed to outside through the opening window 186, 196 so as to be a manipulating end 185a manipulated by outside, it can be easy to separate the first and second panel affixing member 18, 19 from the cross frame member 22.

Since the openings 221 are provided in pairs, the first and second panel affixing members 18, 19 have pairs of relating portions 183, 193 each makes an engagement with the opening 221, the engaging nails 185 provided on the relating portions 183 of the first panel affixing member 18 are arranged so that each faces toward a contrary direction and the engaging nails 195 provided on the relating portions 193 of the second panel affixing member 19 are arranged to face each other, the engaging nails 185 and 195 of the relating portions 183 and 193 can make an engagement with the opening 221 in a state that interference between the engaging nails 185 and 195 is effectively prevented.

The arrangement of this invention is not limited to the described above.

For example, as shown in Fig. 44, the relating portion 193 of the second panel affixing member 19 may make an engagement with the outer edge 221a of the opening 221 and the relating portion 183 of the first mounting member 18 may make an engagement with the inner edge 221b of the opening 221.

Further, as shown in Fig. 45, in case that a plurality of relating portions R of a panel affixing member U are

arranged so as to form a concave and a convex unsymmetrically in each of adjacent rows and the panel affixing member U and another panel affixing member U having the same arrangement of the relating portion R as that of the panel affixing member U in a capsized state are mounted to face each other on both faces of the mounted member, the panel affixing members U may be so arranged that a concave portion a formed by the relating portion R of one of the panel affixing member U faces to a convex portion c formed by the relating portion R of the other panel affixing member U. In accordance with the arrangement, the mounting member having the same arrangement can be used in a capsized position, thereby to reduce a number of component parts and a burden in a producing process.

Other arrangement may be variously modified without departing from the spirit or essential characteristics of the invention.

POSSIBLE APPLICATIONS IN INDUSTRY

As mentioned above, the movable partition wall in accordance with the invention is ideally used as a movable partition wall in which wirings are wired horizontally.

CLAIMS

1. A movable partition wall comprising a structure frame body which is provided with a panel affixing face at least in one of front and rear sides thereof and a panel which is removably mounted on the panel affixing face so as to form a wiring space which is closed by the panel and the structure frame body in a state that the panel is mounted thereon,
 characterized in that the structure frame body comprises a pair of side frame members placed vertically each of which forms a side end face of the structure frame body and cross frame members placed crosswise which couple the side frame members, that the width between the front and rear faces of the cross frame member is made wider than that of the side frame member,
 that at least one of the front and rear faces of the cross frame member is placed at a position which projects outward from the corresponding front or rear face of the side frame members so as to form the panel affixing face,
 and that a space formed between an inner surface of the panel and at least one of the front and rear faces of the side frame member in a side of the panel affixing face is made to be a wiring passage portion which connects the wiring space with outside the structure frame.

2. The movable partition wall, described in claim 1 and characterized in that the wiring passage portion is a space which is continuous in a vertical direction.



3. The movable partition wall, described in claim 1 or 2 and characterized in that the cross frame member is mounted on the side frame member with the right and left side end faces of the cross frame member making an abutting contact with a side of the side frame member in a state that at least one of the front and rear faces of the side frame member in the side of the panel affixing face is open. *Antecedent*

10 4. The movable partition wall, described in claim 1, 2 or 3 and characterized in that the width between the front and rear faces of the side frame member is generally equal along whole area of the vertical direction.

15 5. The movable partition wall, described in claim 1, 2, 3 or 4 and characterized in that an anti-falling means is provided for prohibiting the wiring from falling away from a predetermined position in the wiring passage portion.

20 6. The movable partition wall, described in claim 1, 2, 3, 4 or 5 wherein the structure frame bodies are placed side by side, and a space is formed between side edges of the panels mounted on each of the structure frame bodies, characterized in that a concealing means which conceals the wiring crossing the space from outside is provided.

7. A movable partition wall comprising a structure frame body having a pair of side frame members each of which

forms a side end face of the structure frame body and cross frame members which couple the side frame members and a panel which can removably be mounted on at least one of the front and rear faces of the structure frame body so as to form a wiring space which is closed by the panel and the structure frame body in a state that the panel is mounted thereon,

characterized in that the movable partition wall further comprises a panel affixing member which is to be mounted on the structure frame body, that the panel affixing member forms a panel affixing face at a position which projects outward from at least one of the front and rear faces of the side frame member and the cross frame member so as to make a space between an inner surface of the panel and at least one of the front and rear faces of the side frame member and that a wiring passage portion is formed to connect through the wiring space with outside of the structure frame body between the inner surface of the panel and at least one of the front and rear faces of the side frame member.

✓ 8. The movable partition wall, described in claim 7 and characterized in that the width between the front and rear faces of the side frame member is generally the same as that of the cross frame member.

✓ 9. The movable partition wall, described in claim 1, 2, 3, 4, 5, 6, 7 or 8 and characterized in that the cross

D.P.

frame member is in a shape of an angle pipe.

10. The movable partition wall, described in claim 1, 2,
3, 4, 5, 6, 7 or 8 and characterized in that the cross
5 frame member is provided with a mounting groove for
mounting an optional member on a side of the front and rear
thereof.

11. The movable partition wall, described in claim 7, 8, 9
10 or 10 and characterized in that the panel affixing member
is removably mounted on the structure frame body.

12. The movable partition wall, described in claim 7, 8,
9, 10 or 11 and characterized in that the panel affixing
15 member is mounted on the cross frame member.

13. The movable partition wall, described in claim 7, 8,
9, 10, 11 or 12 and characterized in that the width between
the front and rear faces of the panel affixing member is
20 wider than that of the structure frame body and [the front
and rear faces of the panel affixing member are made to be
a panel affixing face.]

14. The movable partition wall, described in claim 7, 8,
25 9, 10, 11, 12 or 13 and characterized in that the panel
affixing member has a function of mounting the panel.

15. The movable partition wall, described in claim 14 and

characterized in that the panel affixing member comprises an engaging groove which can make an engagement with a nail projecting from the inner surface of the panel. D.P.

5 16. The movable partition wall, described in claim 7, 8, 9, 10, 11, 12, 13, 14 or 15 and characterized in that the panel affixing member comprises a wiring converging portion which can guide the wiring wired vertically in a converged state.

10 17. The movable partition wall, described in claim 7, 8, 9, 10, 11, 12, 13, 14, 15 or 16 and characterized in that the panel affixing member is mounted in a state that the wiring passage portion is vertically continuous.

15 18. The movable partition wall, described in claim 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17 and characterized in that the panel affixing member is mounted in a state that a wiring passage space is formed between at least one of the front and rear faces on which side where the panel is mounted of the cross frame member and the inner surface of the panel.

25 19. The movable partition wall, described in claim 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 or 18 wherein the structure frame bodies are placed side by side, and a space is formed between side edges of the panels mounted on each of the structure frame bodies, characterized in that a

concealing means which conceals the wiring crossing the space from outside is provided.

20. The movable partition wall, described in claim 19 and characterized in that the concealing means is in a shape of two-halves and which can completely conceal the space between the panels when mounted on the side frame members of each structure frame body when combined in pairs.

21. The movable partition wall, described in claim 19 and characterized in that the concealing means is so arranged that it can be mounted in pairs on each of the side frame members of the movable partition walls arranged side by side in case movable partition walls are connected at right angles and that the concealing means can almost completely conceal the space between the panels arranged side by side along a corner formed on the side frame members arranged side by side when combined in pairs.

22. The movable partition wall, described in claim 19, 20 or 21 and characterized in that the concealing means has a function of retaining wiring which can retain the wiring horizontally wired.

23. The movable partition wall, described in claim 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 or 22 and characterized in that a top beam is mounted by making use of the panel affixing member which is mounted on a highest

cross frame member.

24. The movable partition wall, described in claim 23 and characterized in that the panel affixing member comprises a relating portion which can make an engagement with a related portion provided in the top beam.
25. The movable partition wall, described in claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 or 24 and characterized in that comprising an auxiliary structure frame body which can adjust a height of a movable partition wall by being added over the structure frame body.
26. The movable partition wall, described in claim 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 or 25 and characterized in that comprising an anti-dent member to be mounted on the cross frame member for preventing the panel from being dented.