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(54) House unit, and contruction of house unit frame

(57) Provided is a house unit (200) that can be easily disassembled and easily reerected as a different construction, and that can provide adequate security for the original construction and for the reerected construction.

According to the present invention, as the side faces of a rectangular parallelepiped frame construction (111) can be selectively bonded to another frame construction (113) or external wall panels (145,155, 161,168), expansion or rebuilding can be facilitated. Since the external wall panels (141,143,145,155,161, 163,165,167,169) can be easily removed without damaging the essential components of the construction of the frame (111,113) or of the external wall panels (141,143,145,155,161,163,165,167,169), the removed external wall panels can be used again. In addition, since the external wall panels (141,143,145,155,161, 163,165,167,169) can be removed only from inside the frame construction (111,113), the house unit (100) assembly can provide a high level of security.

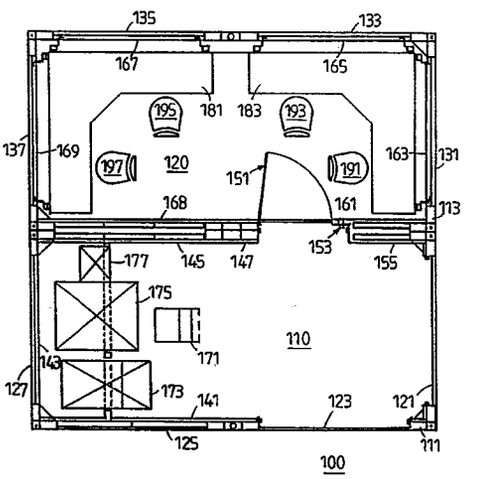

Fig. 1

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Description

The present invention relates to the structure of a house unit, and in particular to the structure of a prefabricated house unit that can be easily transported and erected.

As is described in Japanese Unexamined Patent Publication Nos. Hei 6-280405 and Hei 3-159510, there is a conventional method employed to attach internal wall panels to the frame construction, or to provide electric wiring that is installed in advance, that reduces the work performed at a construction site.

Therefore, for a conventional house unit, which is designed with the assumption that it is possible to reduce the work performed at a construction site, the described method is employed to attach internal wall panels to the frame of the structure, and to provide electric wiring installed in advance.

However, the design of a conventional house unit, which is based on the assumption that the On-site work can be reduced, does not provide for an installed house unit to be extended or to be reconstructed, or for the house unit to be dismantled and transported to another site for reuse. The wall panels used in the house unit can not be used again for different faces of a frame or for a different frame.

More specifically, when a house unit at a work place is to be expanded or rebuilt, or part of it is to be removed, as a consequence of an increase or a reduction in, or an alteration of, the work that is performed there, unnecessary walls must be torn down and new walls and units added. In addition, when an installed house unit is dismantled and moved to another place to be reused, the structure of the building that can be erected may be limited by the nature of the destination, or the dimensions and the shape of the land at the destination. Therefore, the reuse of the house unit may not be possible, and it may be necessary to erect a new house unit instead. Even when a house unit can be moved and reused, the conditions of a road adjacent to the location, or the building environment, at a destination may be different from those at the original area, and the erection of the house unit at the destination may not be appropriate.

Several methods have been proposed to resolve the above problems. As an example, for a house unit that is disclosed in Japanese Unexamined Patent Publication No. Hei 3-115634, the floor area can be arbitrarily altered by the employment of a plurality of units using panels to define three-dimensional space.

With this technique, however, since a unit, a construction unit, is formed of three or more panels, the ability to vary or to change the configuration of a structure is poor. To alter the floor area, for example, a unit located at an end of a structure must be moved and a new unit inserted into the gap that is opened between the ends, a job for which a great deal of effort is required. In addition, the floor area can be changed only linearly, and wall rearrangements, such as the alteration of one of the external walls to provide a doorway, are not possible. Furthermore, when electric wiring that extends through a plurality of units is required, new wiring must be installed.

In Japanese Examined Patent Publication No. Hei 7-35674 is disclosed a method for assembling a plurality of house units by using connection components coupled with house units having portions in which openings are formed. With this technique, however, wood screws are used to secure a wall to a roof or to another wall, and when the wall is removed to exchange it for an opening portion, a great deal of effort is required to remove the wood screws, especially those driven down from the roof. In addition, the holes that remain in the wall after the wood screws are removed may render a structure such as the above unsuitable for reuse. Further, when electric wiring is required that extends to a plurality of units, rearrangement of the wiring will be necessary.

When the above described house unit is used as a prefabricated office or a CD (cash dispenser) corner in a money facility, a desired condition is that the house unit have a construction that provides a high level of security and can defeat efforts to invade it from the outside. Conventionally, to provide a construction that can ensure a high level of security, the walls of a house unit are so designed that they can not be easily removed, and they can not be used again for the alteration of a layout, or for expansion or rebuilding.

Therefore, a need exists for a house unit that provides security when installed, but can easily be disassembled for moving, or for expansion or rebuilding, and that provides the same security when employed for the erection of another structure at a different location.

Depending on the operational purpose, there may be one unit in a house unit assembly for which a relatively high level of security is required, and another unit for which no particular security is required. In this case, the house unit assembly must have a construction that can deny entry to a high security unit from a low security unit.

It is one object of the present invention to provide a house unit that can be easily disassembled for moving, and for expansion and rebuilding.

It is another object of the present invention to provide a house unit having a layout that can be easily changed.

It is an additional object of the present invention to provide a house unit that can be reerected as a different construction at a location to which it is moved.

It is a further object of the present invention to provide a house unit that, in order to facilitate moving and expansion and rebuilding, requires minimum wiring.

It is still another object of the present invention to provide a house unit that provides security under any conditions, such as when it is first erected and when it is reerected.

It is a still further object of the present invention to provide a house unit assembly that provides a high level

of security and that can deny entry to a high security unit from a low security unit.

According to the present invention, as the side faces of a frame construction can be secured to other frame constructions or external wall panels, a house unit assembly having a desired construction can be built. Since the external panels can be easily removed without damaging the essential components of the frame construction or of the external wall panels, the alteration of a layout and expansion or rebuilding can be facilitated, and the removed wall panels can be used again. In addition, since the external wall panels can be removed only from inside the construction of the frame, the house unit assembly can provide a high level of security. Further, as primary wiring is provided in the frame, and there is no wiring in the wall panels, the labor for re-wiring can be considerably reduced, even though a layout is changed.

According to one aspect of the present invention there is provided a house unit assembly according to claim 1 or claim 3.

According to an additional aspect of the present invention, there is provided house unit as claimed in claim 4 or claim 6.

According to a further additional aspect of the present invention, there is provided a polyhedral frame construction as claimed in claim 8.

In the claims for this specification, the bonded surface can have any shape so long as it is to be bonded to a surface of another frame construction; it may not only have a square or a rectangular flat face, but also a curved face. Further, in the claims for this specification, the conditions under which a wall panel can be removed without damaging a bonded surface are implemented so long as the essential parts, such as the frame construction and the wall panels, can be used again, and the removal of welded accessories does not correspond to the damage. In addition, in the claims for this specification, bonding is not limited to direct bonding, but includes indirect bonding using Z clips or auxiliary attachment members. Furthermore, in the claims for this specification, the door wall panel is not only a door panel described in the preferred embodiment of the present invention, but also includes all constructions, such as a shutter panel and an automatic door panel, that can control access between house units. Moreover, in the claims for this specification, the house unit is not only the one for human beings that is described in the preferred embodiment of the present invention, but also includes a building for housing animals, such as domestic animals, a building in which various plants are cultivated, a model and a toy.

Embodiments of the invention will now be described with reference to the accompanying drawings, in which:

Fig. 1 is a plan view of a house unit assembly according to the preferred embodiment of the present invention.

Fig. 2 is a schematic diagram showing the house unit assembly according to the preferred embodiment of the present invention.

Fig. 3 is a diagram showing a frame according to the preferred embodiment of the present invention.

Fig. 4 is a diagram showing a connector panel provided for the frame according to the preferred embodiment of the present invention.

Fig. 5 is a diagram showing the condition where frames are bonded together according to the preferred embodiment of the present invention.

Fig. 6 is a diagram showing the condition where communication lines are passed between frames according to the preferred embodiment of the present invention.

Fig. 7 is a diagram showing a frame coupling member according to the preferred embodiment of the present invention.

Fig. 8 is a diagram showing the condition where frames are bonded together according to the preferred embodiment of the present invention.

Fig. 9 is a diagram illustrating the condition where an external wall panel and a decorative laminated panel are attached according to the preferred embodiment of the present invention.

Fig. 10 is a diagram illustrating the condition where an external wall panel and a decorative laminated panel are attached according to the preferred embodiment of the present invention.

Fig. 11 is a diagram illustrating the condition where an external wall panel and a decorative laminated panel are attached according to the preferred embodiment of the present invention.

Fig. 12 is a diagram illustrating the condition where an internal wall panel is attached according to the preferred embodiment of the present invention.

Fig. 13 is a diagram illustrating the condition where an internal wall panel is attached according to the preferred embodiment of the present invention.

Fig. 14 is a diagram illustrating the condition where an internal wall panel is attached according to the preferred embodiment of the present invention.

Fig. 15 is a diagram illustrating the condition where an internal wall panel is attached according to the preferred embodiment of the present invention.

Fig. 16 is a diagram illustrating the condition where an internal wall panel is attached according to the preferred embodiment of the present invention.

Fig. 17 is a diagram showing one example internal wall panel according to the preferred embodiment of the present invention.

Fig. 18 is a diagram showing another example internal wall panel according to the preferred embodiment of the present invention.

Fig. 19 is a diagram showing an additional example internal wall panel according to the preferred embodiment of the present invention.

Fig. 20 is a diagram showing one more example internal wall panel according to the preferred embodiment of the present invention.

Fig. 21 is a diagram showing still another example internal wall panel according to the preferred embodiment of the present invention.

Fig. 22 is a diagram showing a still further example internal wall panel according to the preferred embodiment of the present invention.

Fig. 23 is a diagram showing yet another example internal wall panel according to the preferred embodiment of the present invention.

Fig. 24 is a diagram showing another frame according to the preferred embodiment of the present invention.

Fig. 25 is a diagram showing the extension and reconstruction of house units according to the preferred embodiment of the present invention.

Fig. 1 is a plan view of a house unit assembly 100 according to the preferred embodiment of the present invention. In the preferred embodiment, a house unit 110 is employed as an unmanned prefabricated shop for a monetary facility, and a house unit 120 is employed as a satellite office. In the house unit 110 are installed an ATM (Automatic Teller Machine) 173, an automatic loan contract machine 175, a shredder 177 and a chair 171. In the house unit 120 are installed fixed tables 181 and 183 and chairs 191 to 197.

These items can either be installed when a house unit is shipped from a factory, or delivered and installed after a house unit assembly is installed at a local area. In the preferred embodiment of the present invention, tables 181 and 183 are prepared in the factory to reduce the work performed at the building site as much as possible, whereas electric devices, such as the ATM 173, the automatic loan contact machine 175 and the shredder 177, in consideration of the impact damage they could sustain during the installation of the house unit, are delivered and installed after the house unit assembly is set up.

Fig. 2 is a schematic diagram illustrating a house unit assembly according to the preferred embodiment of the present invention. In this embodiment, the house unit assembly is constituted by house units 110 and 120, which are constructed on frames 111 and 113, and roof modules 190. The house unit 110 has an opening 121 for an entrance, and the house unit 120 has an external wall panel 163.

Two frames 111 like the one shown in Fig. 3 are employed to form the skeletal structure for the house unit assembly 100. In the preferred embodiment of the present invention, a frame has a size that is appropriate for transportation by truck, i.e., about 2,400 mm wide, about 4,800 mm long and about 2,500 mm high.

In the preferred embodiment of the present invention, the frame 111 shown in Fig. 3 is made of stainless steel, and is constructed by welding together two rectangular frame sections and two ladder-shaped frame sections, each of which is provided by assembling two rectangular frame sections. These frame sections are formed hollow to accept electric wiring for power and communication lines of various types.

The electric wiring and communication lines in a rectangular frame section and a ladder-shaped frame section can be connected to those in an adjacent rectangular (or ladder-shaped) frame via an opening (not shown) that is formed in a communication line corner cover 201. In this embodiment, various connection terminals are exposed at the communication line corner cover 201 to facilitate their connection to the electric wiring in another frame.

There are two kinds of corner covers: a corner cover for coupled portions and a corner cover for corners. When a communication line is to be connected to one in another frame, a coupled portion corner cover is employed to protect the connectors for the two frames. A corner cover for corners is positioned at a corner of a house unit assembly to protect a communication line connection between the frame sections of the same frame. The frame is thereby protected from the entry of water, such as rain. The corner covers for coupled portions and for corners are so designed that they can be locked to prevent their easy removal.

In the preferred embodiment of the present invention, all the frame sections of the frame have hollow rectangular cross sections of 100 mm × 200 mm, and the openings (where wall panels are attached) in the square frame sections and the ladder-shaped frames all have the same dimensions of 1,800 mm × 2,100 mm. With this structure, the internal wall panels that are used in the ladder-shaped frame sections can also be employed for the square frames. To use divided wall panels, the opening may be so designed that it is integer times the size of the divided wall panel. The cross section of the frame section can be changed in accordance with the purpose for which the house unit is employed. For example, to reduce unnecessary costs, for an application for which a thick communication line is required, the size of the cross section of the frame can be increased, and for an application that requires a smaller communication line, the size of the cross section of the frame can be reduced. In addition, the frame can have a curved cross section, or can be internally divided to define a plurality of spaces.

Attached to the frames 111 and 113 are anchor portions 203, and the frames are fixed to a surface by anchor bolts that pass through the openings in the anchor portions 203.

In the preferred embodiment of the present invention, maintenance openings are formed at predetermined intervals in the frames 111 and 113 to facilitate the installation of communication lines that are used for connection to lines in another frame. Plastic maintenance opening covers 205 are mounted over the maintenance openings. In accordance with the purpose for which a house unit is employed, a power source or a communication cable can be removed from the frame through a convenient maintenance opening. The maintenance openings can also be used to hook up cables

to lift a house unit at an installation site. These maintenance openings may be formed not only in the beams of a frame, but also at other locations in the frame, such as in the pillars.

In this embodiment, the frame 111 and 113 have a connector panel 810 shown in Fig. 4. In the connector panel 810 are provided power source outlets 801 and 803, coaxial cable outlets 805 and 807 and a modular telephone jack 809. A communication line removal opening 813 is also formed at the lower portion of the connector panel 810.

In the preferred embodiment, communication cables and electric wiring enter a frame from underneath, and wiring may be laid under a floor. In this embodiment, a hatch for checking beneath a floor is provided in floor material, and through this hatch, various types of connections located under the floor are connected to connections exposed on the frame. With this structure, it is possible to prevent communication cables from being externally exposed and to maintain security.

Figs. 5 through 8 are diagrams illustrating the connection of frames and the connection of roof members. In one example shown in Fig. 5, the frames 111 and 113 for the present invention are connected together by a bolt 251 and a nut 253. Since the connection using the bolt 251 and the nut 253 can be performed at maintenance openings, the work can proceed smoothly.

Separate roof modules 115 are provided for the house units 111 and 113, and are individually connected to the house units 111 and 113. Therefore, when only one house unit is to be removed, the above structure obviates the need to remove the roofs of all the house units.

C-shaped coupling members 241 are welded to the respective roof units 115, and connected thereto by using the frames and bolts. The roof unit 115 can be used as a frame. in this case, whether a house unit is separated from an adjacent house unit by a wall or is open can be selected in accordance with the security relative to the adjacent house unit and the air conditioning. According to the present invention, a four-leg frame obtained by welding four U-shaped frames is employed.

Two types of maintenance openings are provided, and as is shown in Fig. 6, a communication line opening 231 to another frame may be formed, in addition to the bolt opening in Fig. 5 used to connect frames together. With this opening 231, the length of wiring can be reduced. Since the bolt opening in Fig. 5 and the communication line opening in Fig. 6 will be exposed and will permit rain water to enter a frame when it is separated from another frame, special plastic covers are used to protect the openings. According to the present invention, the maintenance covers can be locked to prevent them from falling off by accident or from being removed by an unauthorized person.

Fig. 7 is a diagram showing a frame coupling member 250 that is used according to another example of the present invention. A frame coupling member 250 is formed of four flat metal plates that are connected together by hinges. Hooks 251 are formed at one end of the frame coupling member 250, and openings at which the hooks 251 are formed in the other end.

The frame coupling member 250 is employed as is shown in Fig. 8. More specifically, after the frame coupling member 250 encloses the frames 111 and 113 and the hooks 251 engage the openings 253, to secure the frame coupling member 250, a bolt 259 is threaded into a bolt opening 255, and the flat plate of the frame coupling member 250 in which the openings 253 are formed is pushed in a direction away from the frame. In this way, the hooks 251 can be prevented from falling through the openings 253. When the frame is separated from another frame, the frame coupling member 250 can prevent the opening from being externally exposed.

Fig. 9 is a diagram showing the attachment of an external wall panel and a decorative laminated panel according to the preferred embodiment of the present invention. An external wall panel 127 and a decorative laminated panel 143 are so attached that they cover the openings in the frame. In this embodiment, the bonded face of the frame is a square or a rectangular flat plane; however, the bonded face may have a curved face, so long as it can be bonded with a face of another frame.

In one example of the preferred embodiment of the present invention, L-shaped stainless steel auxiliary members 403 and 415 for wall panel connection are fixed to the frame 111 by welding or by using bolts. Bolts 407 and 409 are embedded in the external wall panel 127. The external wall panel 127 is fixed to the frame 111 by using nuts 411 and 417 to secure z clips 405 and 413. A gap between the frame 111 and the external wall panel 127 is sealed by foamed urethane.

The structure of a floor will be explained before an explanation is given for the attachment of decorative laminated panel in one example of this embodiment. In this example, a plurality of reinforcement frames 441 and 443, parallel to the square frames, are welded to the floor portions of the frames 111 and 113 at predetermined intervals. A floor material 115 is laid on the reinforcement frames 441 and 443. The floor material 115 and the reinforcement frames 441 and 443 can be fastened together by using an adhesive or small screws. Since the floor is not a required component of this invention (the present invention can be implemented by installing a floor-less house unit after the installation of the floor material is completed), a detailed explanation for it will not be given.

In the preferred embodiment of the present invention, the decorative laminated panel 143 is so fixed to the frame 111 that, by using small screws (431 and 435), it can be secured to an auxiliary member 433 attached to the frame 111, and an auxiliary member 401 attached to the floor.

In another example of the preferred embodiment of the present invention, as shown in Fig. 11, an auxiliary member 451 attached to an auxiliary member 483 and

the floor are welded to the frame 111. The decorative laminated panel 143 is then fixed to the frame 111 by using small screws to secure it to the auxiliary members 451 and 483. In an additional example of the embodiment, a coupling cover 473 and a coupling cover auxiliary member 471 are employed to maintain a fine appearance and to prevent the unauthorized removal of the decorative laminated panel and the external wall panel. Since the coupling cover 473 can be locked after being attached, the decorative laminated panel can not be removed mistakenly. Accordingly, the external wall panel can not be removed mistakenly.

Figs. 12 and 13 are diagrams showing the condition where an internal wall panel is attached according to one example of the preferred embodiment of the present invention. In this example, a door panel, which is one of internal wall panels, is shown. The door panel is arranged with the common internal walls to form a wall with a door.

As is shown in Figs. 12 and 13, a flat auxiliary connection plate 603 is attached to a frame 601 in this example. To attach a door panel, a door frame 617 is secured to the auxiliary connection plate 603 by small screws. In addition, the door frame 617 is fixed to the floor by inserting it into a internal wall insertion groove in the floor and by securing it with small screws. The common internal walls are attached in the same manner, except for securing them to the floor by using small screws. When an internal wall panel is removed to permit access to an adjacent house unit, the same material as is used for the floor is used to fill the groove in the floor.

Figs. 14 and 15 are diagrams showing the condition where an internal wall panel is attached according to another example of the preferred embodiment of the present invention. An auxiliary attachment member 711 is fixed to a frame 701 in advance, and a reinforcement channel 719 is fixed to a frame 703 on the floor. A door frame section 715 is inserted into a gap between the auxiliary attachment member 711 and the frame 701, and a door frame section 727 is inserted into the reinforcement channel 719. Then, the section 715 is secured by small screws to fix the door panel to the frame. When the auxiliary attachment member 711 is not fixed to the frame 701 in advance, and instead is secured by small screws, the gap between the internal wall panel and the frame can be reduced.

Fig. 16 is a diagram showing an additional example of the attachment of an internal wall panel according to the preferred embodiment of the present invention. In this example, a bolt 727 is embedded in a frame 701 in advance and is welded in place. For the attachment of an internal wall panel, the bolt 727 is inserted into a bolt opening in the internal wall panel section 715, and is secured by a nut 729. The above described method for attaching an internal wall panel can be employed for attaching an external wall panel, and the above described method for attaching an external wall panel can be used for attaching an internal wall panel. Coupling pieces, such as bolts, nuts and small screws, that permit wall panels (internal or external wall panels) to be easily removed are employed in the preferred embodiment of the present invention. However, locked cover for preventing the removal of coupling pieces, such as are currently used for ski carriers on vehicles, are also effective for preventing unauthorized removal.

Figs. 17 through 23 are diagrams showing various types of internal wall panels according to the preferred embodiment of the present invention. These internal wall panels are produced in a standard size. A door panel in Fig. 17 is used with an internal wall panel having the opening shown in Fig. 18. The opening in the internal wall panel corresponds to the size of the opening for a door frame.

A glass window panel in Fig. 19 is used together with a wall opening panel in Fig. 20. The opening in the wall opening panel corresponds to the size of the glass window panel. In addition to these internal wall panels, an automatic door panel in Fig. 21, a division type internal wall panel in Fig. 22, and a shutter panel in Fig. 23 are prepared for the preferred embodiment of the present invention.

A user can employ these panels to make a desired layout of a house unit assembly. For example, in Fig. 1, the opening wall panels in Fig. 20 are employed for faces 121 and 123, and the common internal wall panel in Fig. 22 is used for faces 141, 143, 145, 163, 165, 167, 168 and 169. A door panel in Fig. 17 is employed for a face 161, and an opening wall panel in Fig. 18 is used as a face 155.

In the embodiment of the present invention, the external wall 127 is also divided vertically into three sections. A desired internal wall panel or external wall panel can be removed to perform maintenance for an ATM or an automatic contract machine, and a maintenance work area can be ensured.

According to this embodiment, an unmanned office for a monetary facility is employed to accept customers 24 hours a day. Since workers are resident in the satellite office only during a limited time, after the satellite office is closed, gaining entry to the satellite office from the unmanned monetary facility office must be as difficult as possible. For this reason, a door 151 is so designed that it can only be unlocked by inserting a magnetic card into a magnetic card reader 153.

If a door panel is provided for the unmanned monetary facility office and a wall opening panel is provided for the satellite office, the door panel can be easily removed from the unmanned office side and unauthorized persons can easily enter the satellite office. But when a door panel is provided for the satellite office, the door panel can be removed only from the satellite office side and can not be removed from the unmanned monetary facility office side, and adequate security for the satellite office can be maintained on the unmanned office side of the monetary facility.

Fig. 24 is a diagram showing a second frame according to the preferred embodiment of the present invention. The second frame is used together with the frame in Fig. 3. Employment examples for the second frame are shown in Fig. 25.

In a house unit assembly 500 in Fig. 25, the frame shown in Fig. 3 is used for areas 501 and 505, and the frame shown in Fig. 24 is used for areas 503 and 507. The areas 501 and 503 are used as CD corners and the areas 505 and 507 are used as entrance areas.

When one CD corner is removed from the house unit assembly 500 because of operational downsizing, an internal wall panel in the area 503 that is adjacent to another house unit is removed. Then, an external wall panel used in the area 503 is removed and is used as the external wall panel for the adjacent house unit. Thus, a house unit assembly 510 having a different construction can be provided. Similarly, a house unit assembly structured in various walls can be provided by the attachment and removal of external and internal wall panels, the installation and removal of house units, and the connection and separation of house units.

As is described above, according to the present invention, provided is a house unit that can be easily disassembled for moving, and for expansion and rebuilding.

In addition, according to the present invention, provided is a house unit having a layout that can be easily changed.

Further, according to the present invention, provided is a house unit that can be reerected as a different construction at a location to which it is moved.

Furthermore, according to the present invention, provided is a house unit that, in order to facilitate moving and expansion and rebuilding, requires minimum wiring.

Moreover, according to the present invention, provided is a house unit that provides security under any conditions, such as when it is first erected and when it is reerected.

Further, according to the present invention, provided is a house unit assembly that provides a high level of security and that can deny entry to a high security unit from a low security unit.

Claims

1. A house unit assembly comprising:

   a three-dimensional first frame construction formed with a frame and having a plurality of faces, including a first face to be bonded to another construction;

   a three-dimensional second frame construction formed with a frame and having a plurality of faces, including a second face to be bonded to said first face of said first frame construction; a door wall panel, which is so bonded to said first frame construction that said wall panel can be removed from inside said first frame construction without damaging said first face, and which includes a door serving as an entrance to said second frame construction; and

   a wall opening panel, which is so bonded to said second frame construction that said wall panel can be removed from inside said second frame construction without damaging said second face, and which has an opening at a position corresponding to that of said door in said door wall panel.

2. A house unit assembly according to claim 1 wherein said first face is formed on a frame having an internally mounted communication line.

3. A house unit assembly comprising:

   a first polyhedral frame construction formed on a frame;

   a second polyhedral frame construction formed on a frame that has one face to be so bonded with one face of said first frame construction that said face of said second frame construction can be removed without damaging said first frame construction; and

   a plurality of external wall panels to be so bonded with a different face of said first frame construction and a different face of said second frame construction that said external wall panels can be removed internally from said different faces of said first and second frame construction without damaging said first and said second frame construction.

4. A house unit that includes a plurality of wall panels and a frame construction having a first face and second face, said house unit comprising:

   said first face having a first wall panel connector and said second face having a second wall panel connector; and

   said plurality of wall panels, which can be removed without damaging said wall panels and said frame construction, and which are selectively bonded to said first wall panel connector or to said second wall panel connector.

5. A house unit as claimed in claim 4 wherein said wall panels are internal wall panels, said first face having a first internal wall panel connector and said second face having an internal wall panel connector, and a

communication line is provided for said frame construction.

6. A house unit comprising:

a polyhedral frame construction formed on a frame;

an external wall panel to be so bonded with said frame construction that said external wall panel can be removed internally from one face of said frame construction without damaging said frame construction, and to be so bonded with another face that said external wall panel can be removed internally without damaging said frame construction; and

an internal wall panel to be so bonded with said frame construction that said internal wall panel can be removed internally from one face of said frame construction without damaging said frame construction, and to be so bonded with another face that said internal wall panel can be removed internally without damaging said frame construction.

7. A house unit as claimed in claim 6 wherein said polyhedral frame is a rectangular parallelepiped frame;

said external wall panel is bonded with a face symmetrical to said face from which said external wall panel can be removed; and said internal wall panel is bonded with a face symmetrical to said face from which said internal wall panel can be removed.

8. A polyhedral frame construction formed on a frame comprising:

a frame bonding portion provided for one face of a frame construction to so bond said frame construction with a face of another frame construction that said frame bonding portion can be removed without damaging the main portions of both of said frame constructions; and

an external wall bonding portion provided for one face of an external wall to so bond said external wall with a frame construction that said external wall can be removed without damaging the main portions of said external wall and said frame construction.

9. A polyhedral frame construction as claimed in claim 8 comprising:

an internal wall panel bonding portion provided for one face of an internal wall panel to so bond said internal wall panel with a frame construction that said internal wall panel can be removed from inside without damaging the main portions of said internal wall panel and of said frame construction.

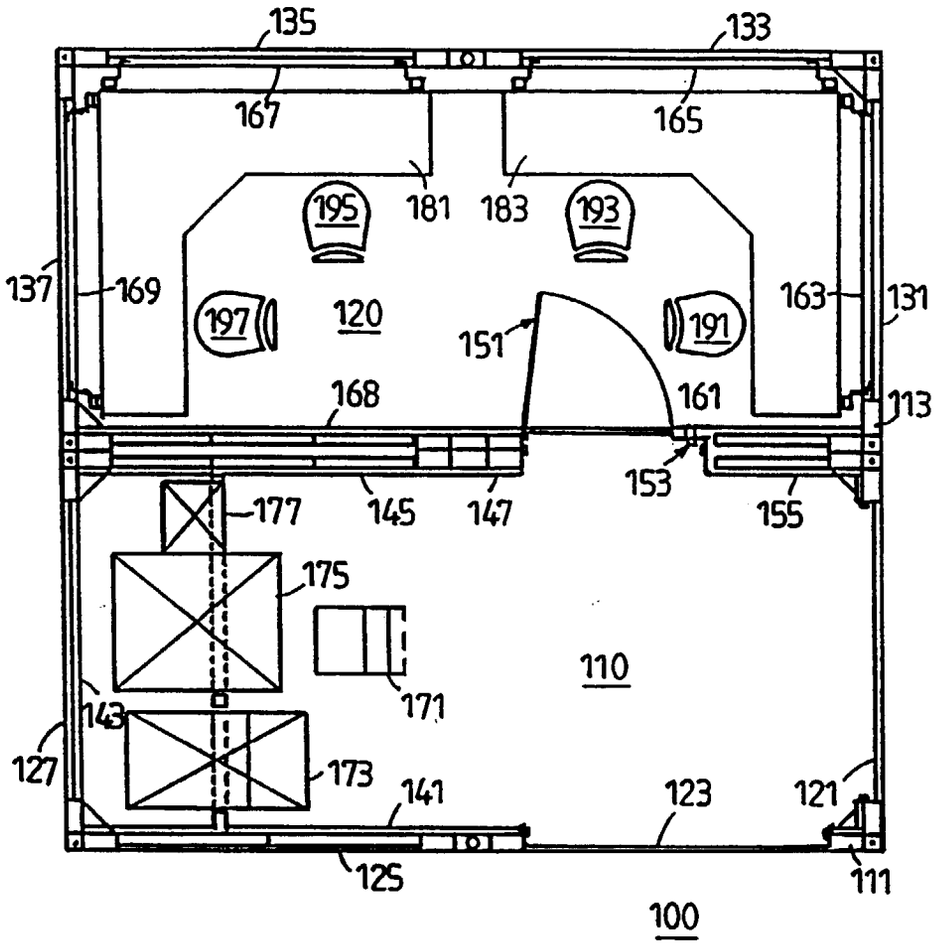
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Fig. 1

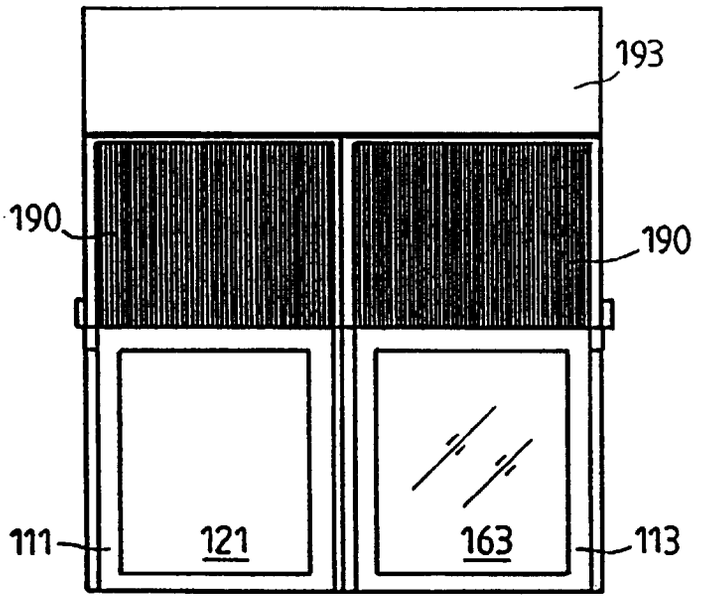
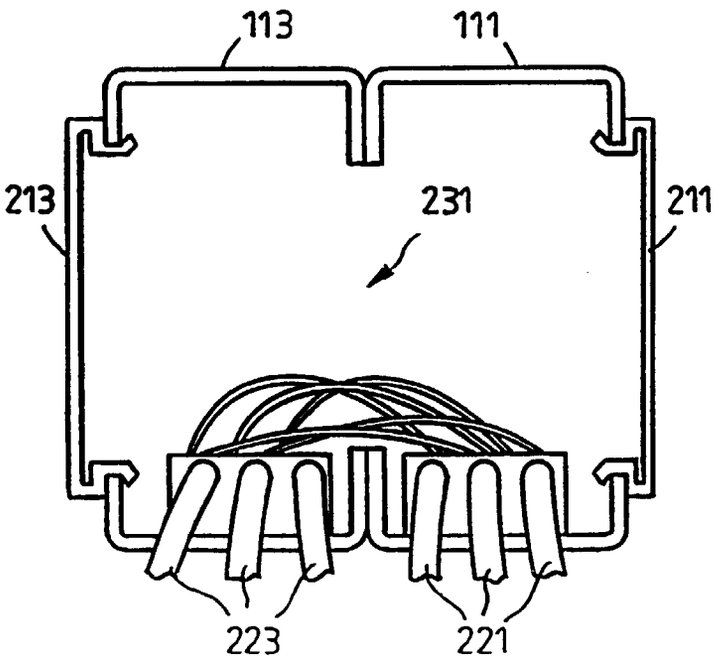


Fig. 2



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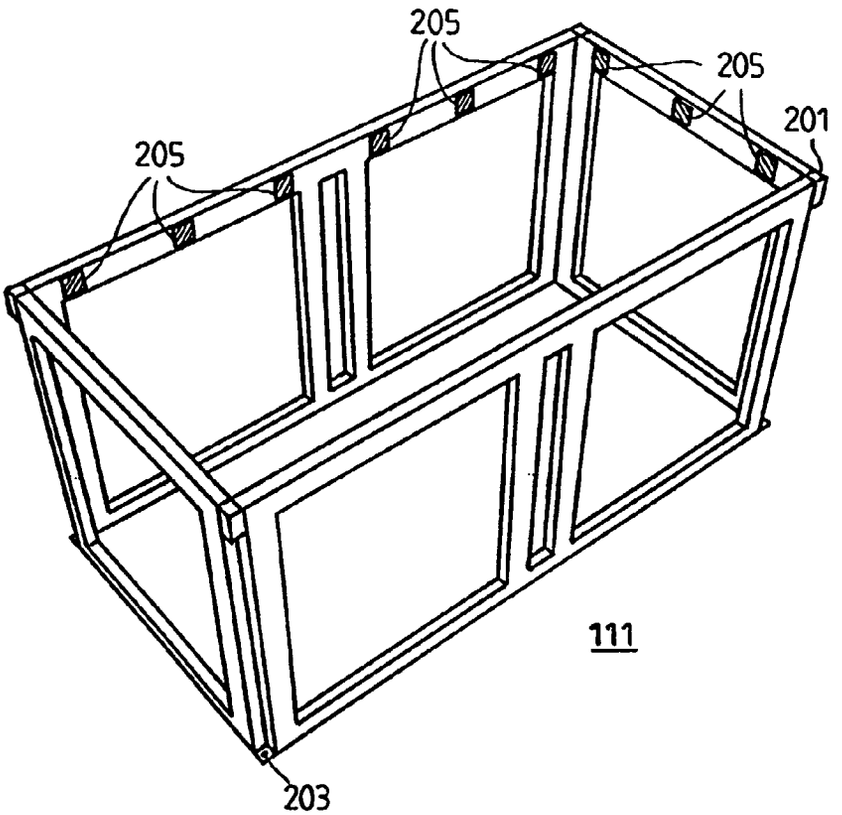

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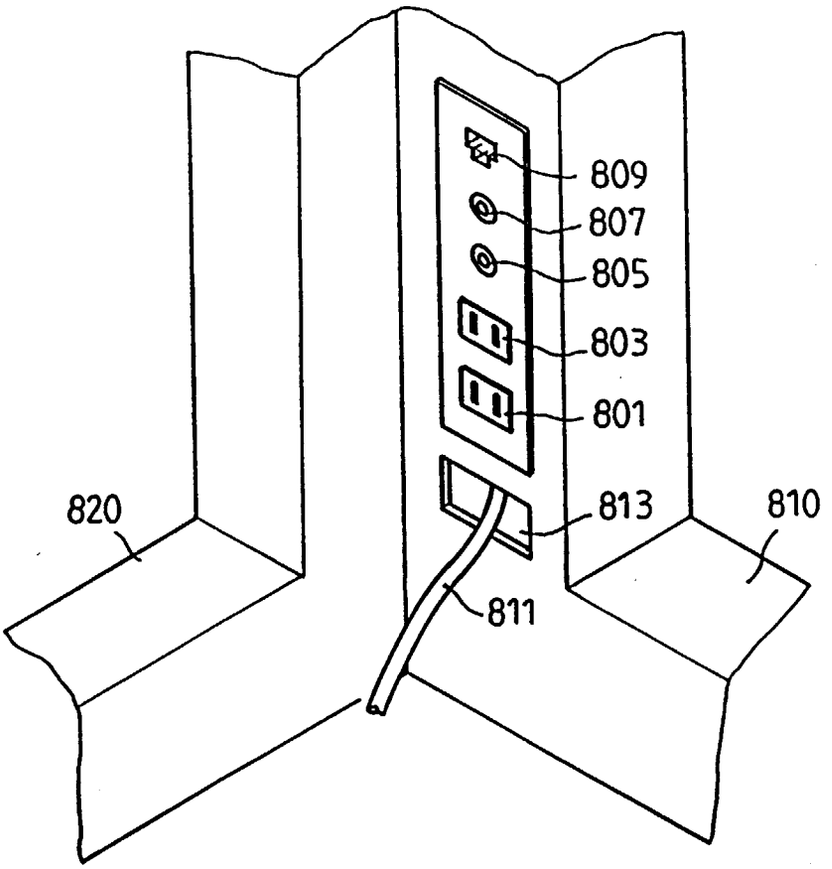

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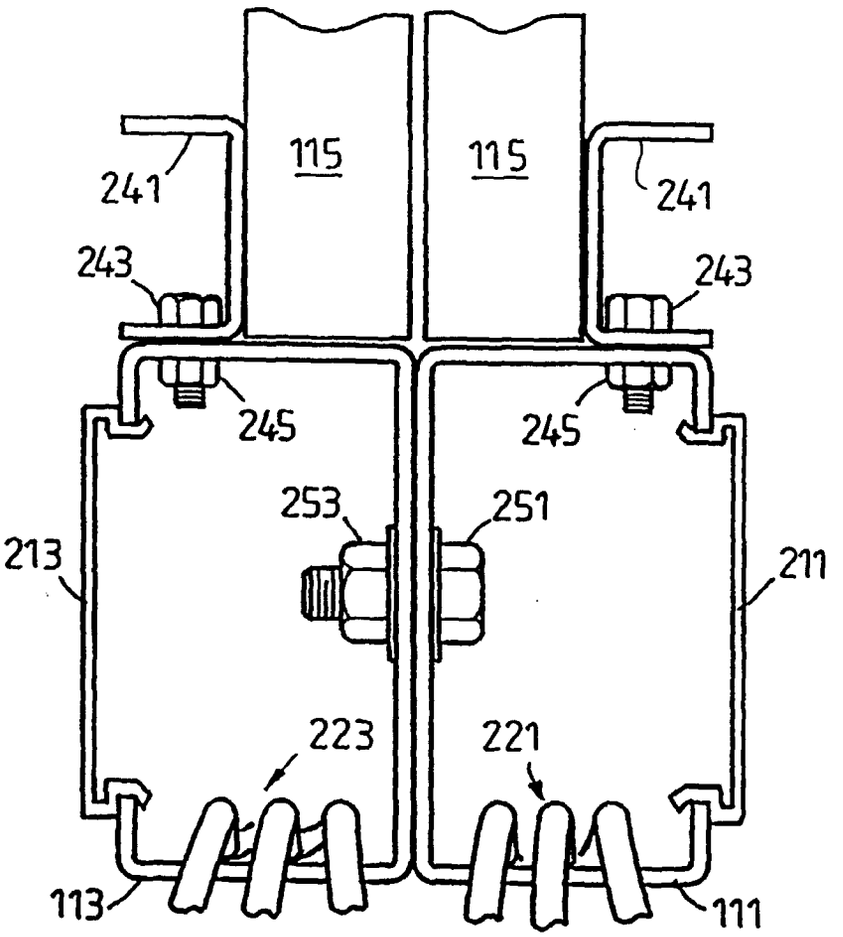

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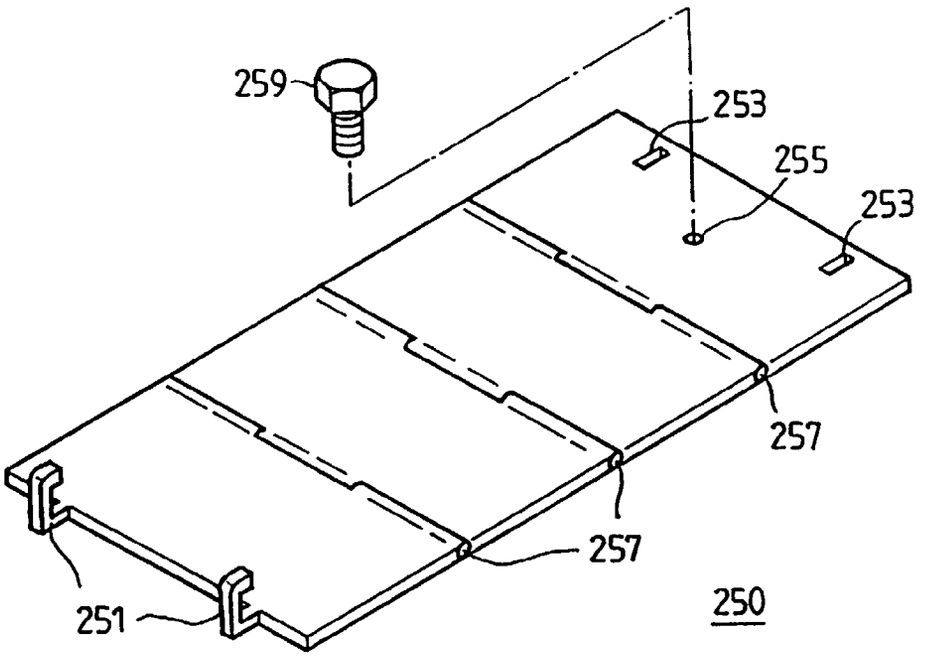

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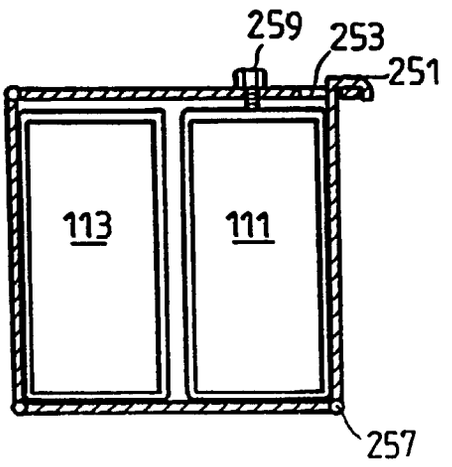

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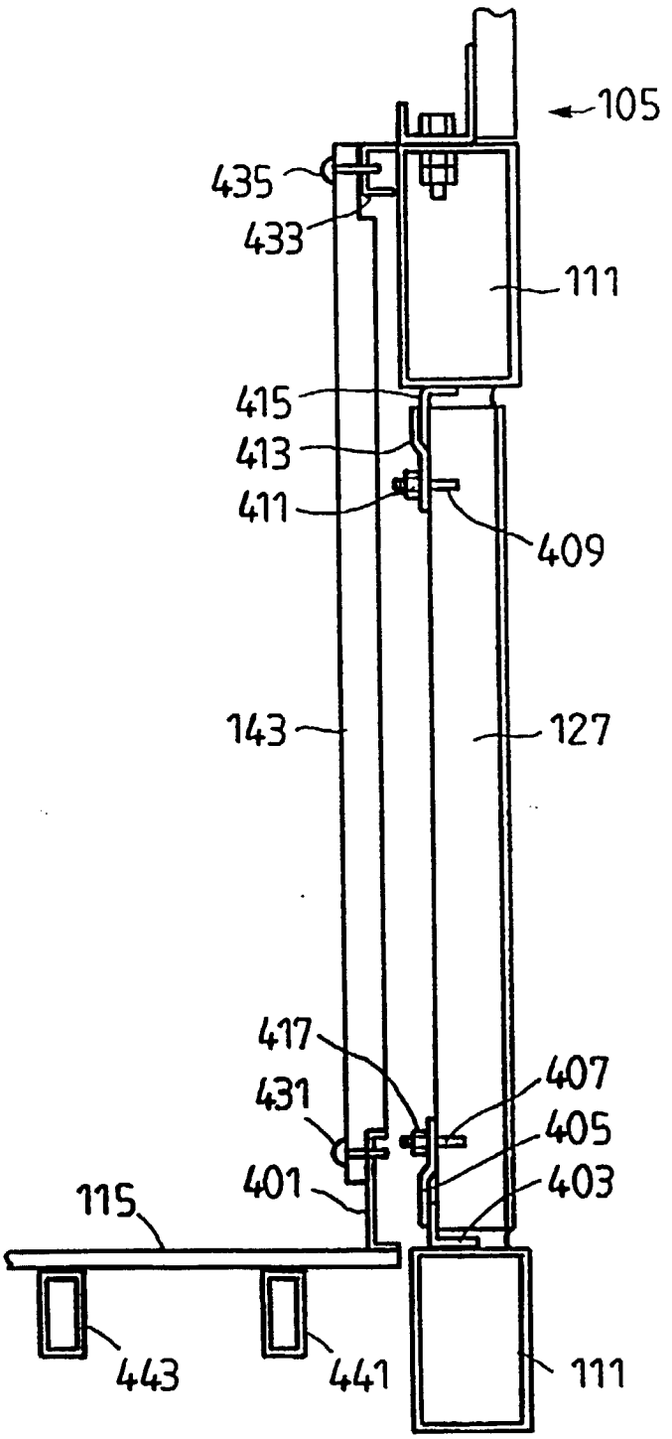
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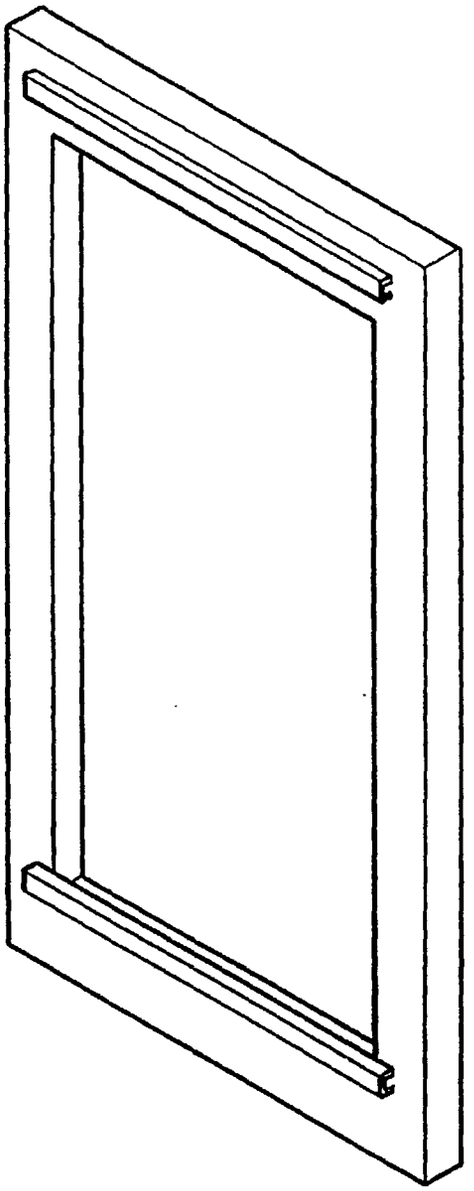
Fig. 9



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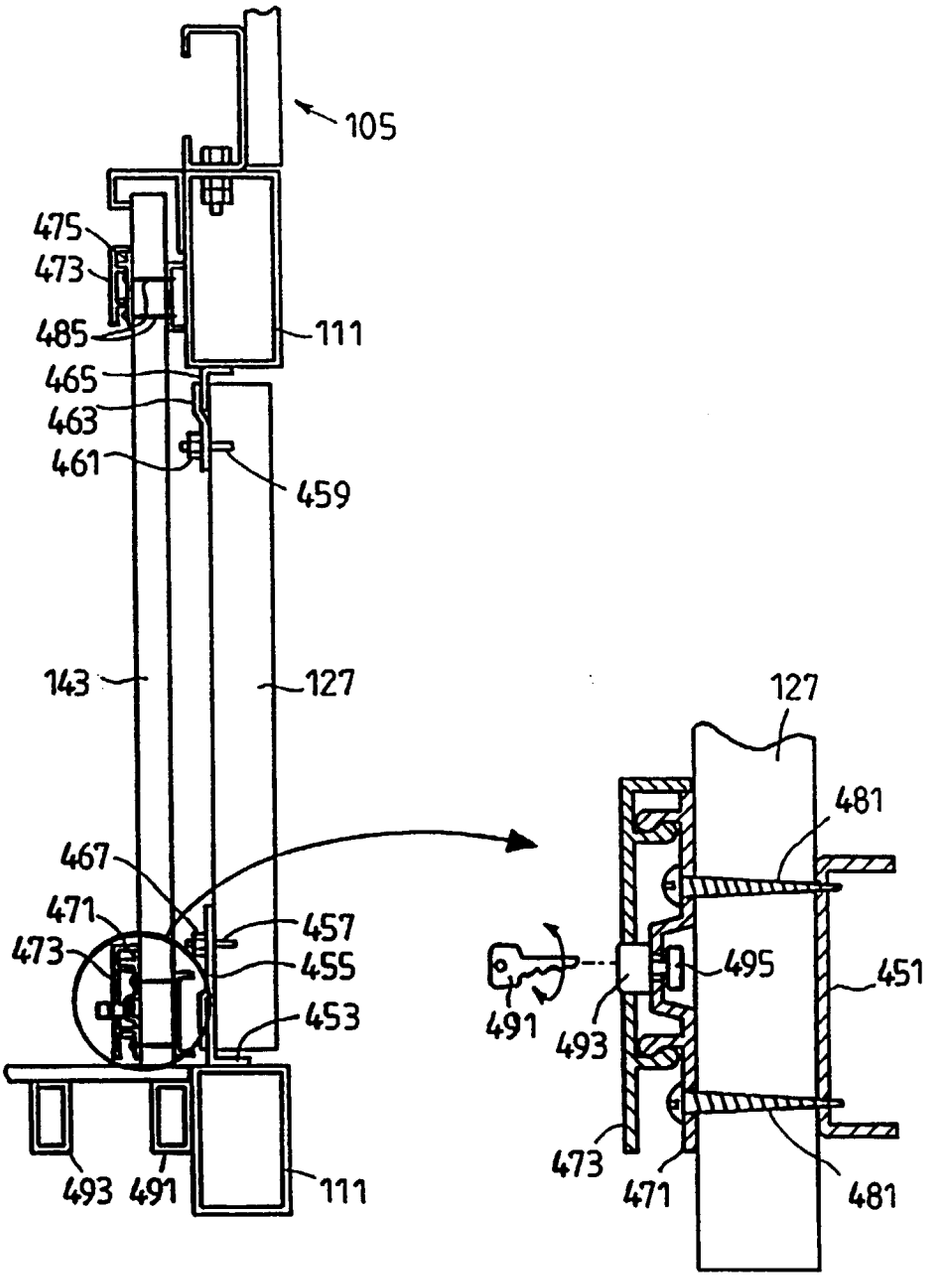
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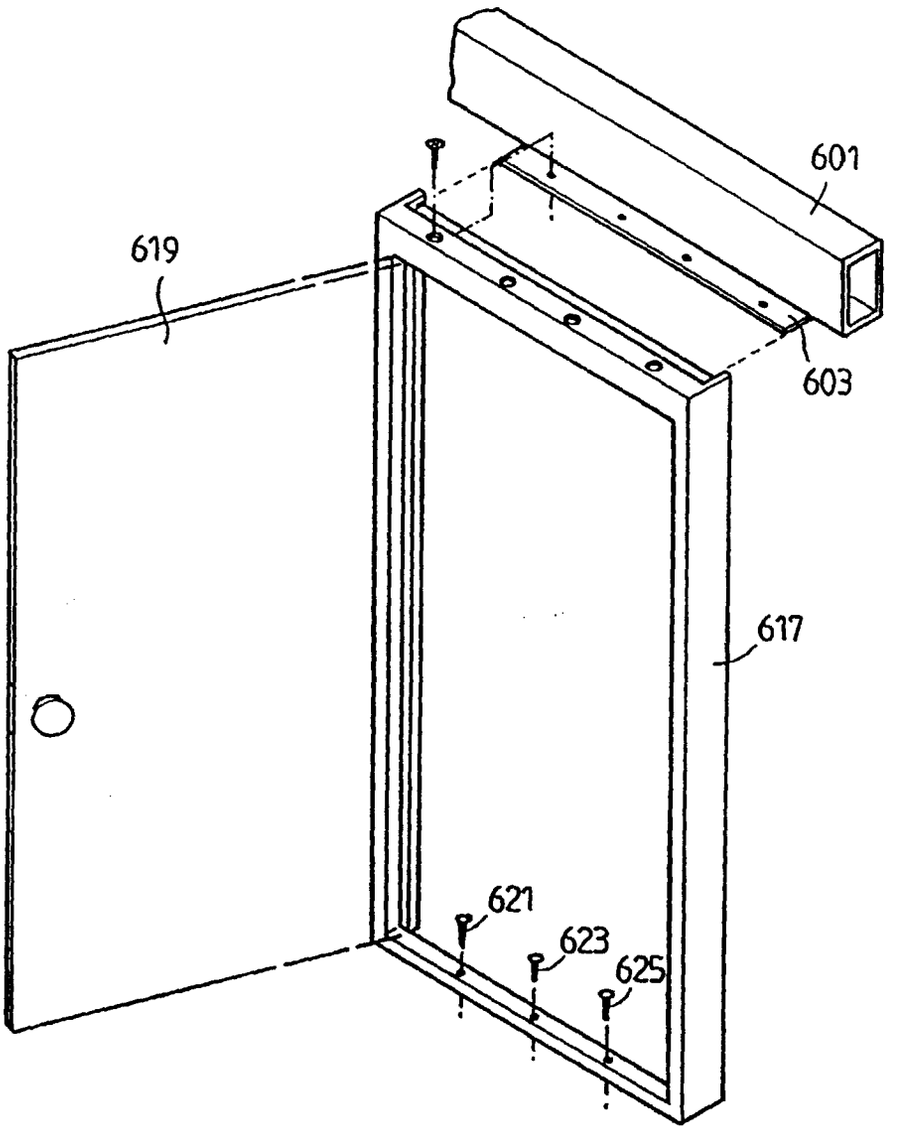
Fig. 11



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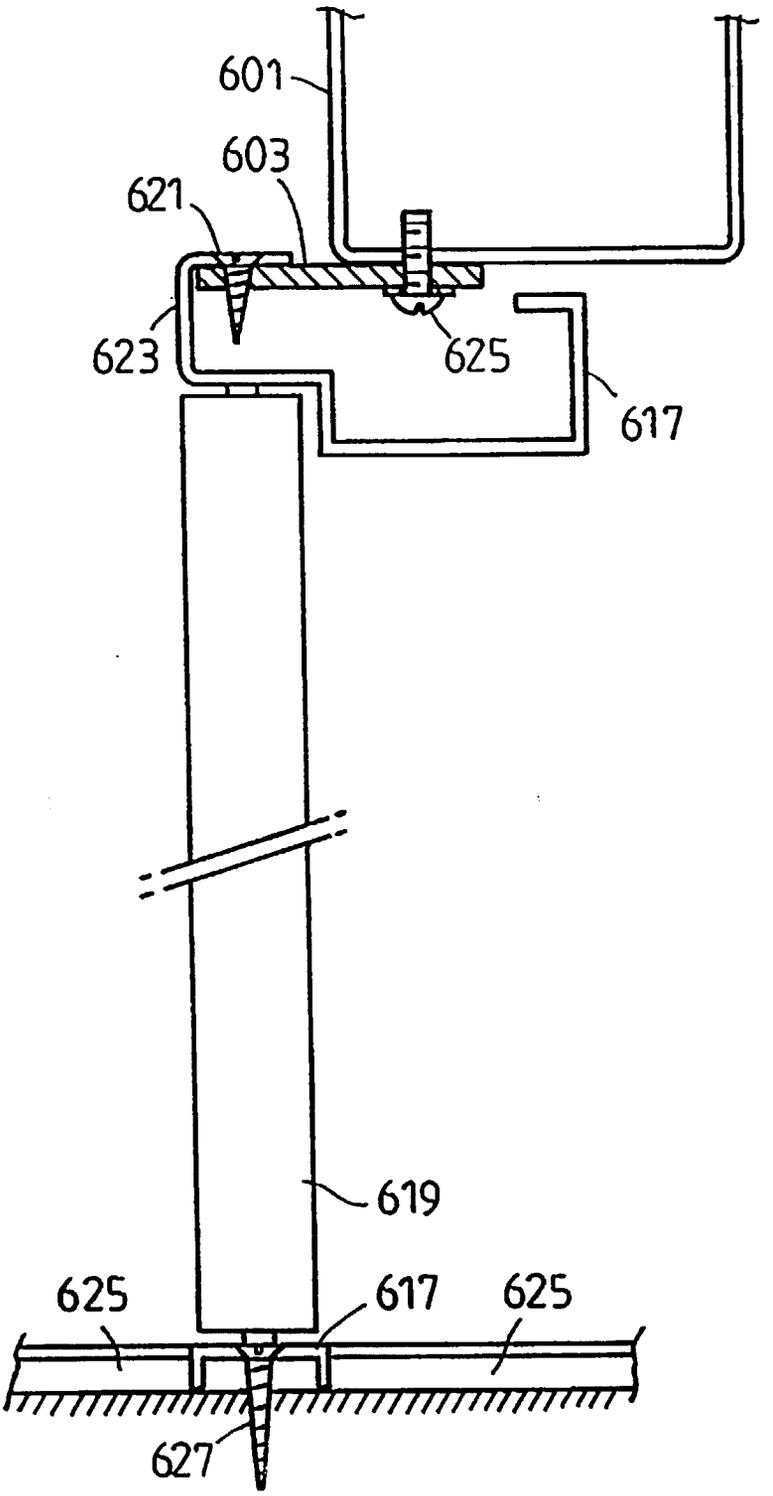


Fig. 13

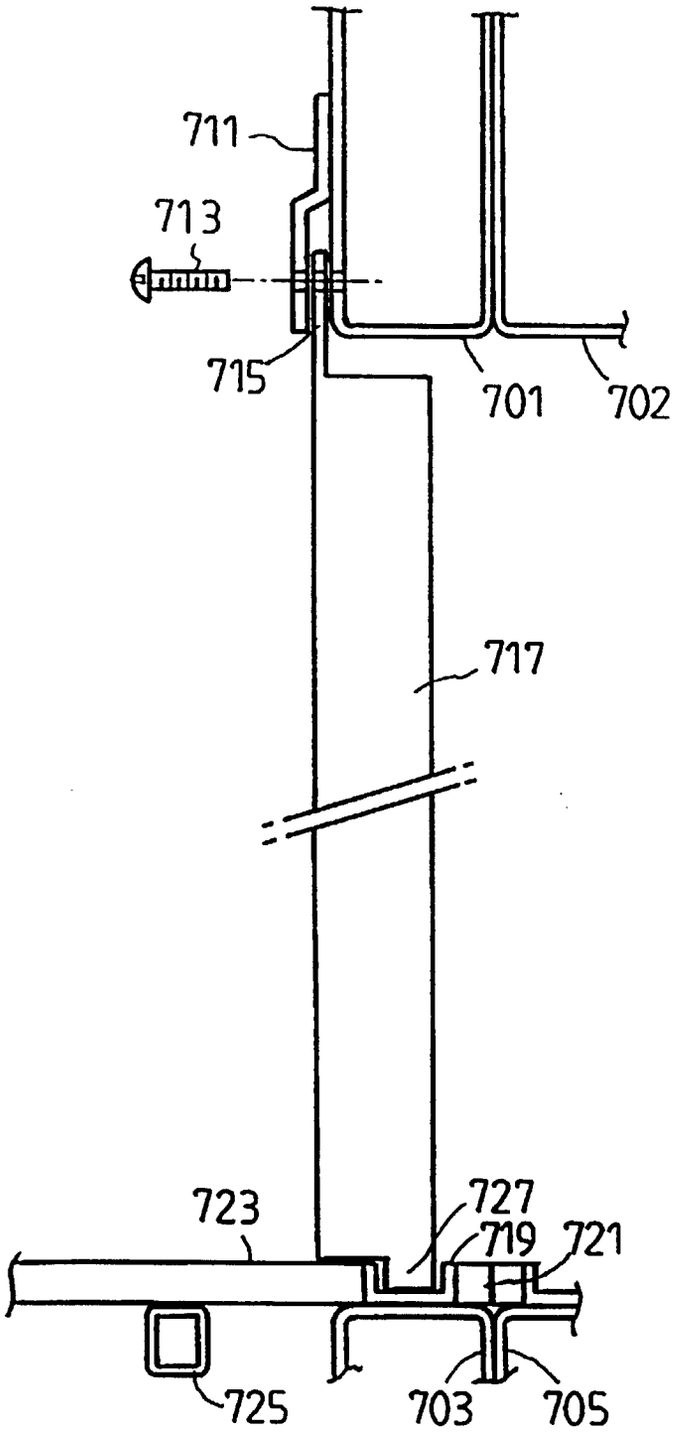


Fig. 14

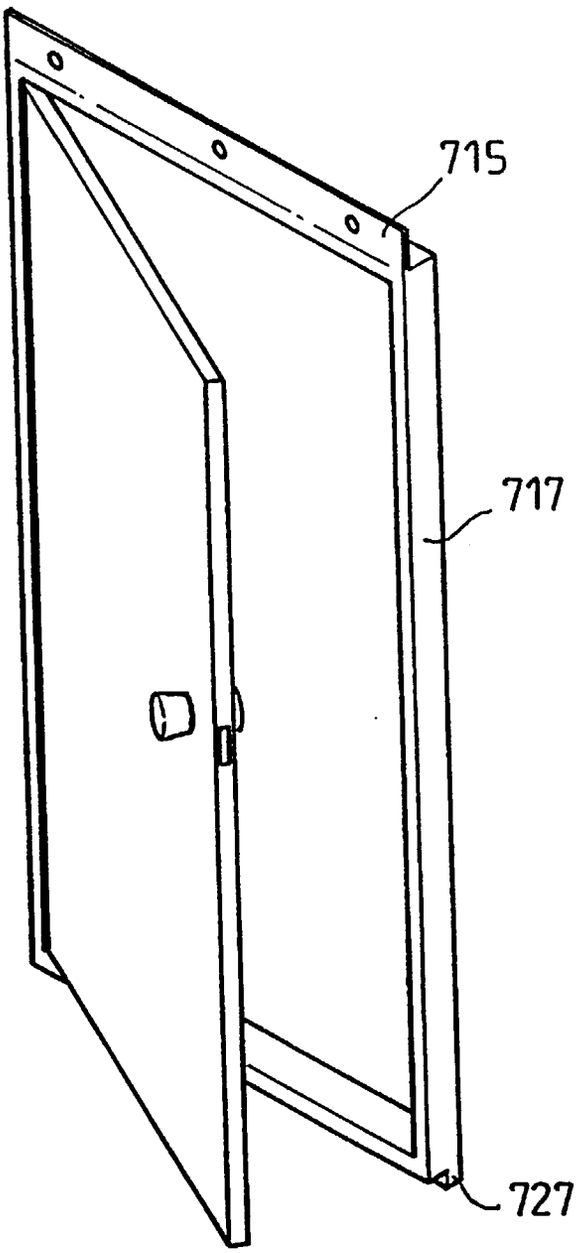


Fig. 15

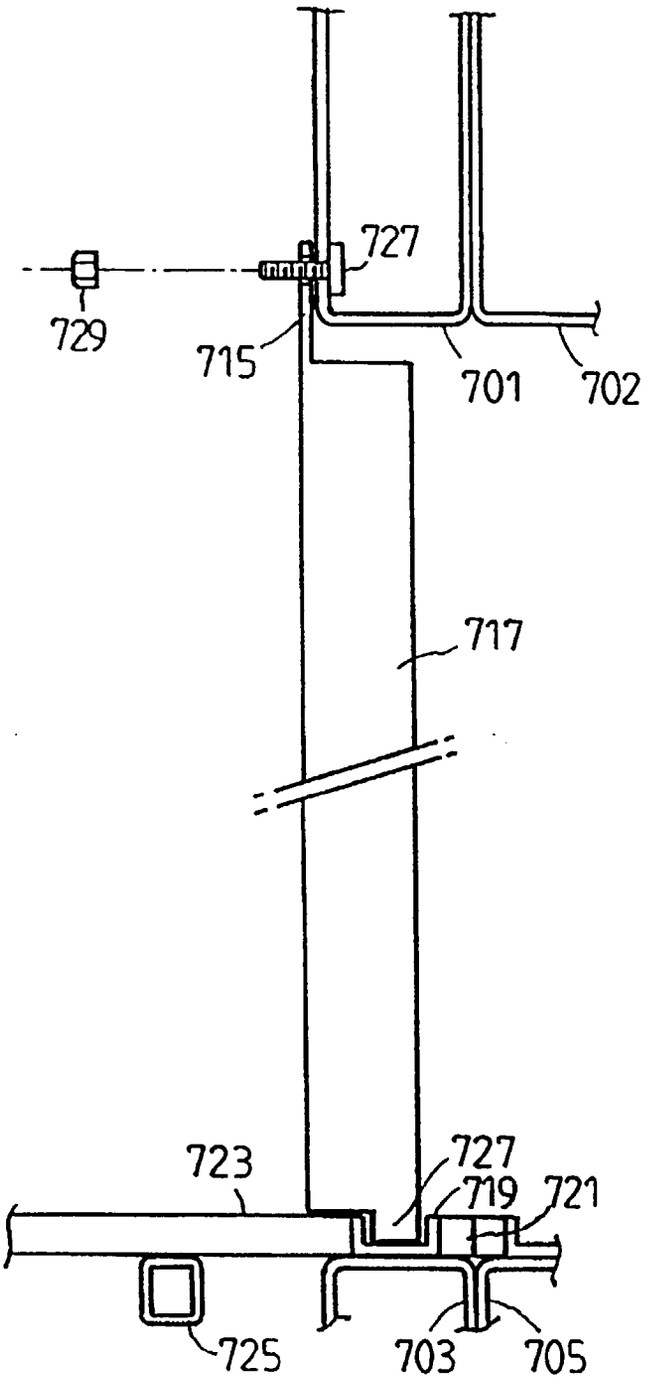


Fig. 16

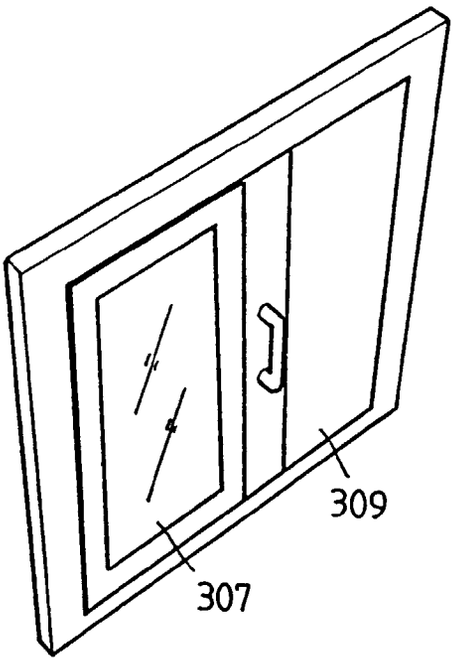
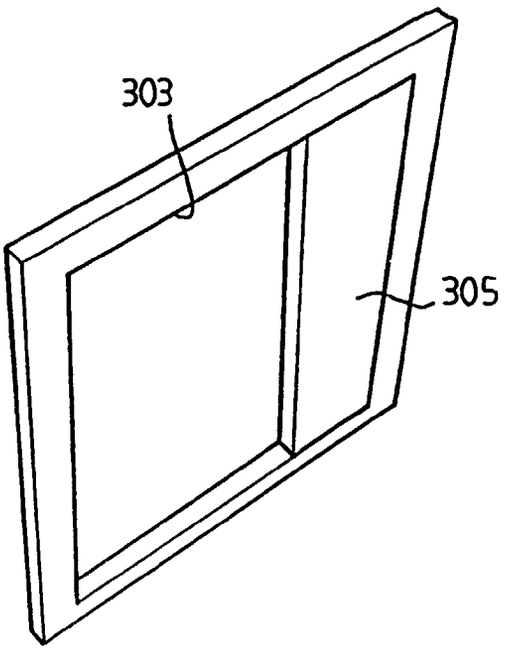


Fig. 17



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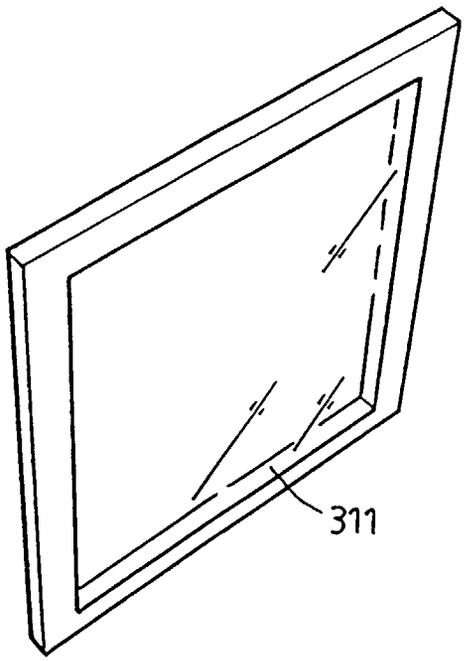

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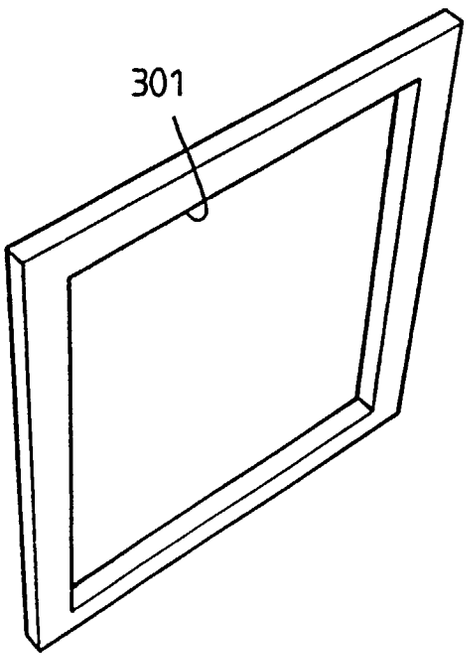


Fig. 20

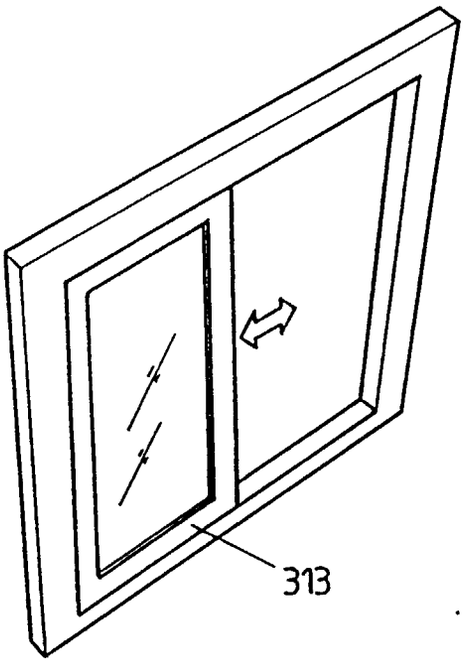
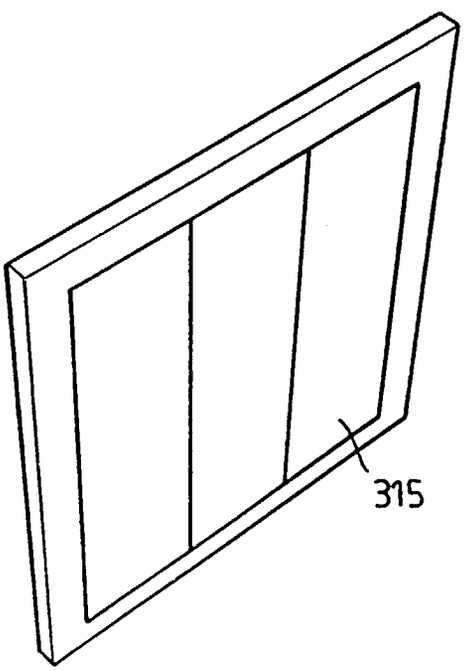


Fig. 21



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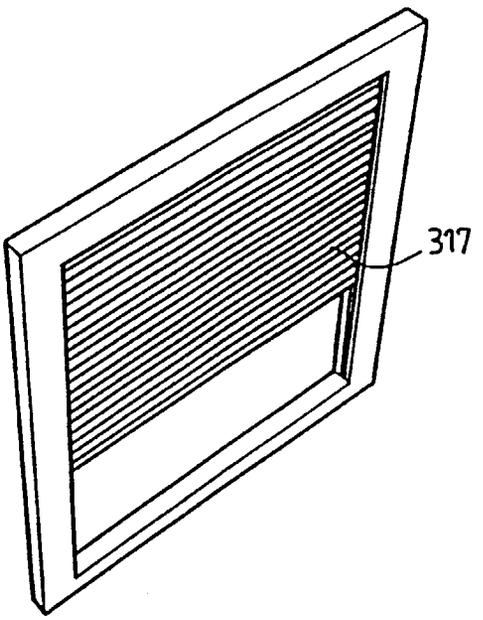

Fig. 23

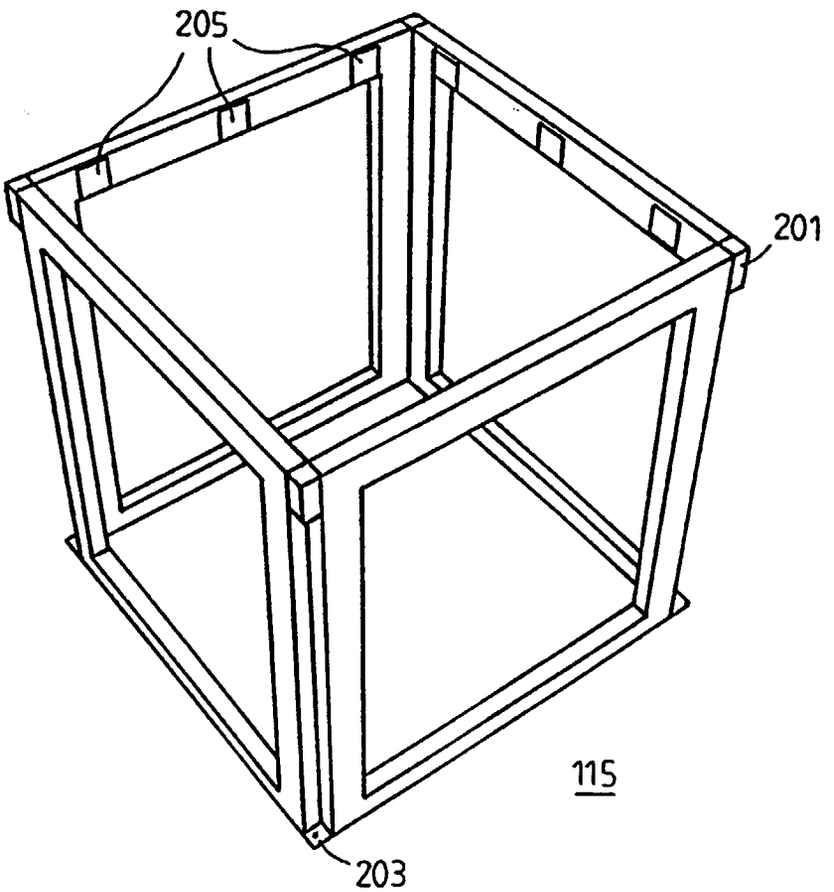

Fig. 24

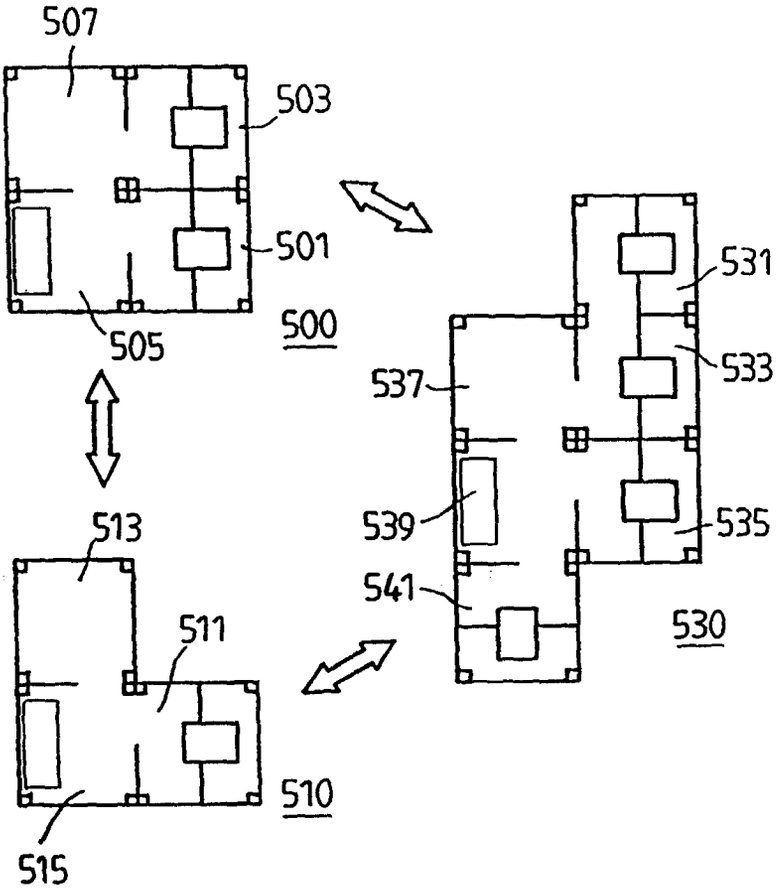

Fig. 25