



US 20060048457A1

(19) **United States**

(12) **Patent Application Publication**

Yang

(10) **Pub. No.: US 2006/0048457 A1**

(43) **Pub. Date:**

Mar. 9, 2006

(54) **CUBICLE EQUIPPED WITH DOOR PANELS**

(57)

ABSTRACT

(76) Inventor: **Young-II Yang**, Seoul (KR)

Correspondence Address:

**DICKSTEIN SHAPIRO MORIN & OSHINSKY
LLP**

**2101 L Street, NW
Washington, DC 20037 (US)**

(21) Appl. No.: **10/936,732**

(22) Filed: **Sep. 9, 2004**

Publication Classification

(51) **Int. Cl.**

A47F 10/00 (2006.01)

(52) **U.S. Cl. 52/36.1**

A cubicle with door panels is disclosed. The cubicle including frames composed of horizontal members and vertical members erected at both sides. Each frame is coupled with a plurality of panels at front and/or rear surfaces thereof, and at least one of the panels is formed with a vertically-openable door panel. The door panel comprises wiring hanger members each formed at the front side thereof with a plurality of wiring hangers and fixed lengthwise to the vertical member; a panel plate hinged to an upper distal end of the wiring hanger member for opening upwards; and resilient means coupled to a hinge connector of the wiring hanger member and the panel plate for maintaining an openness of the panel plate when the panel plate is opened, such that additional wirings, re-wirings or checks thereto can be easily conducted, and wirings can be performed at various heights of the frame.

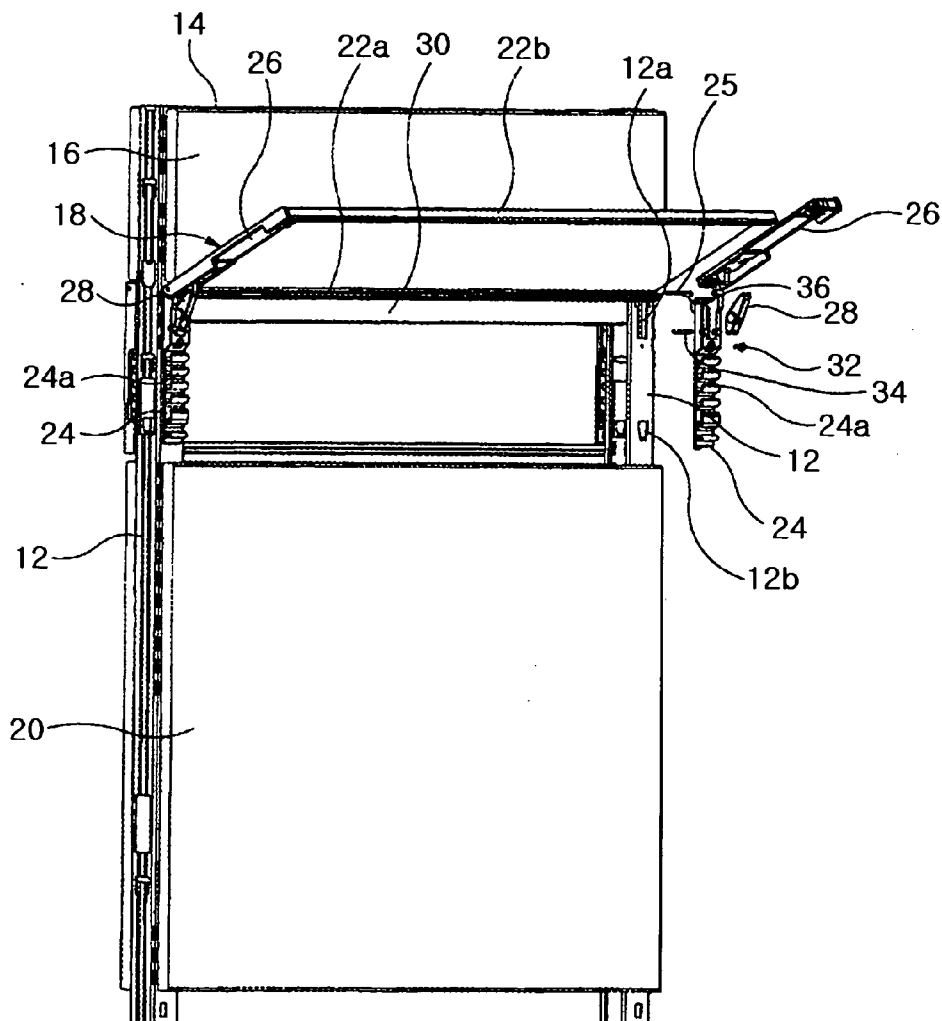


FIG. 1

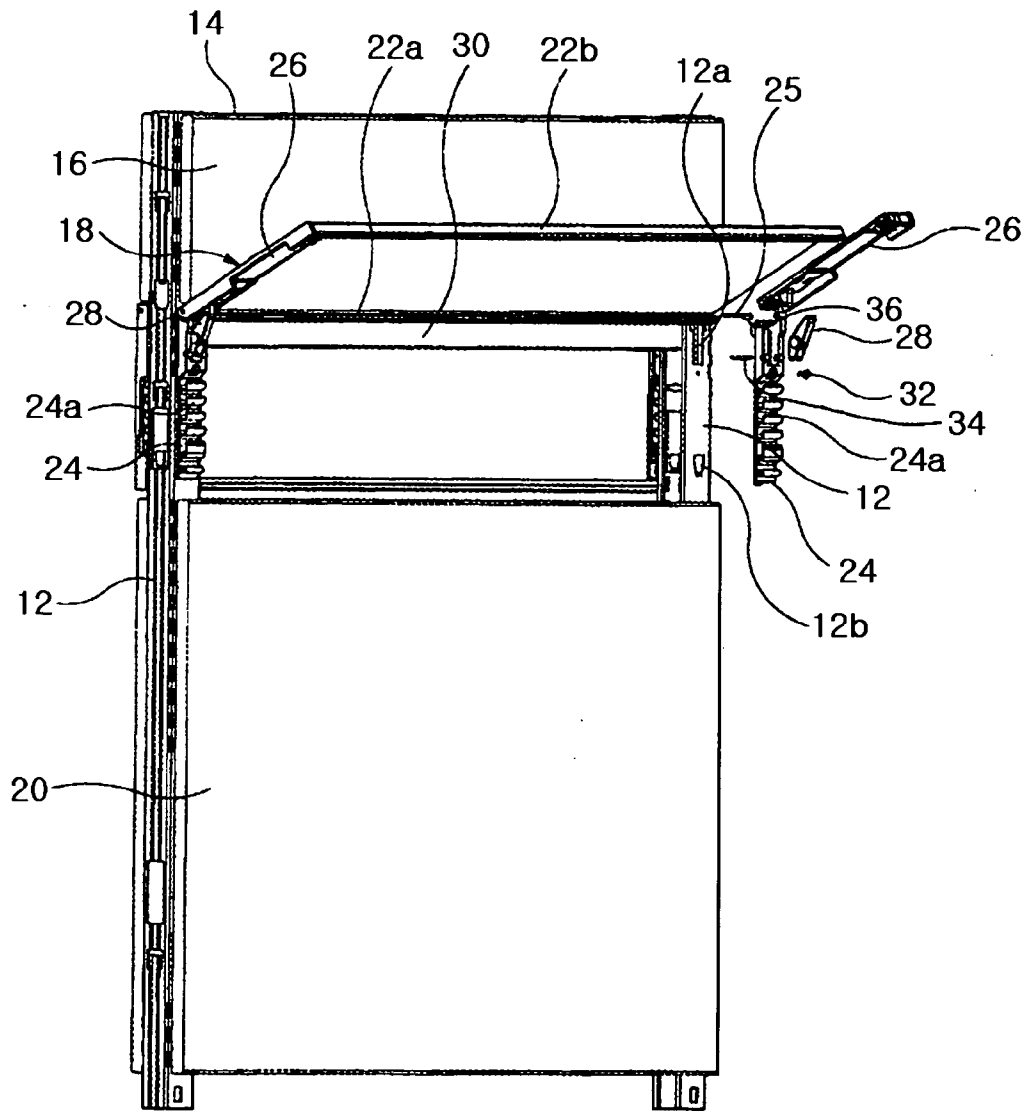


FIG. 2

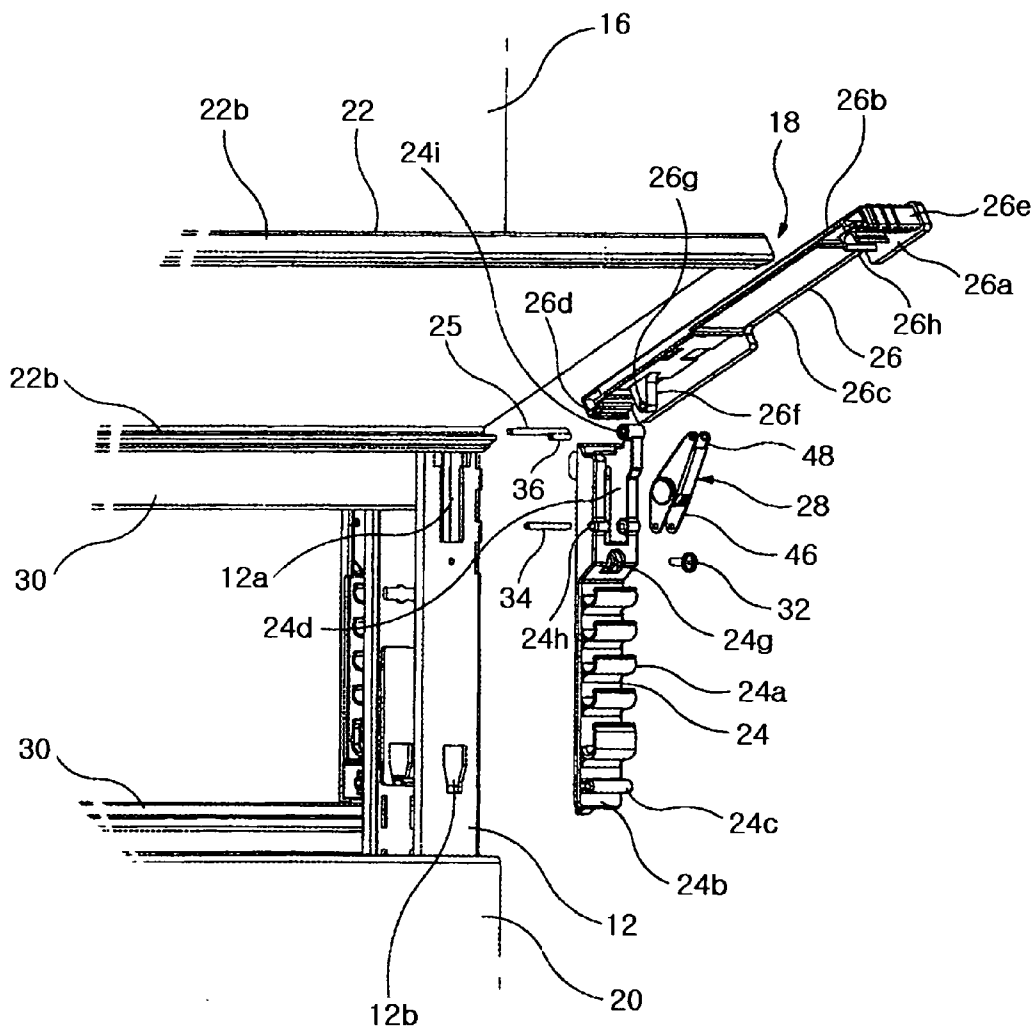


FIG. 3

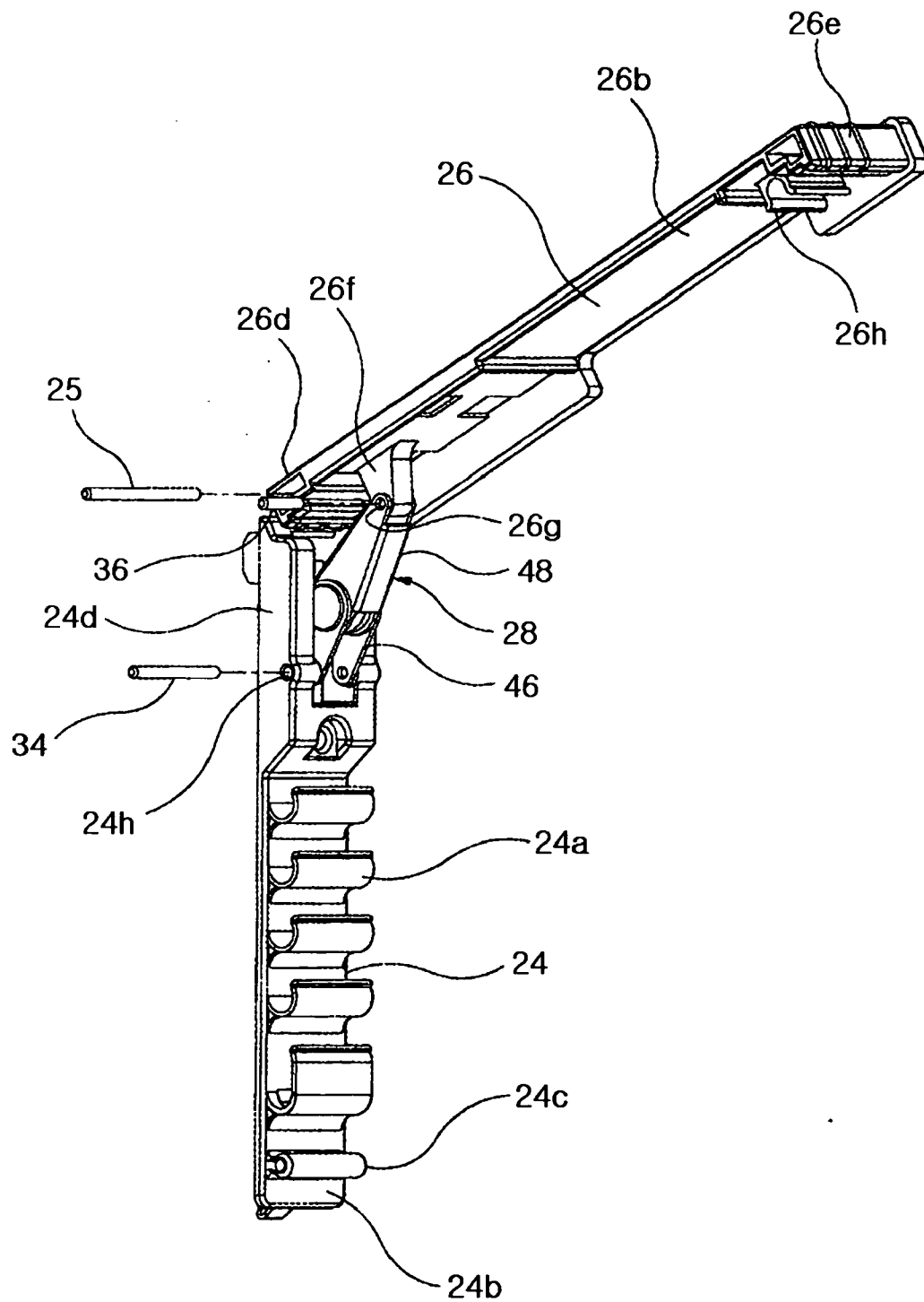


FIG. 4

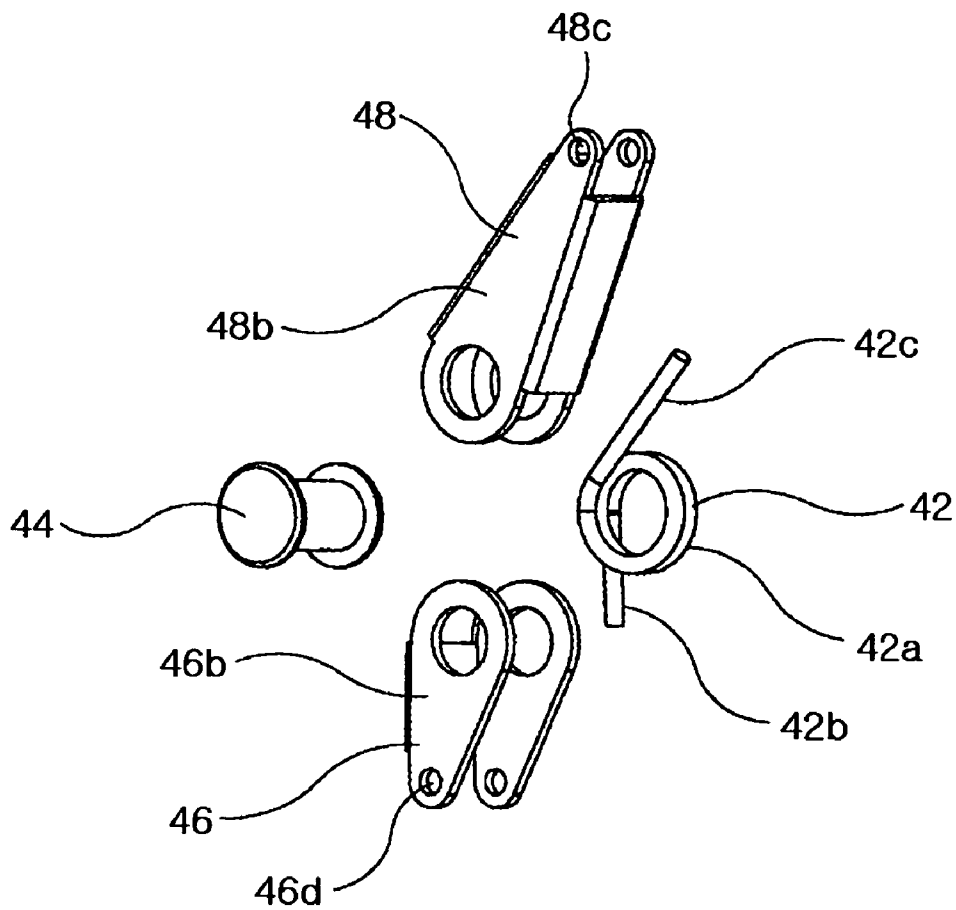


FIG. 5

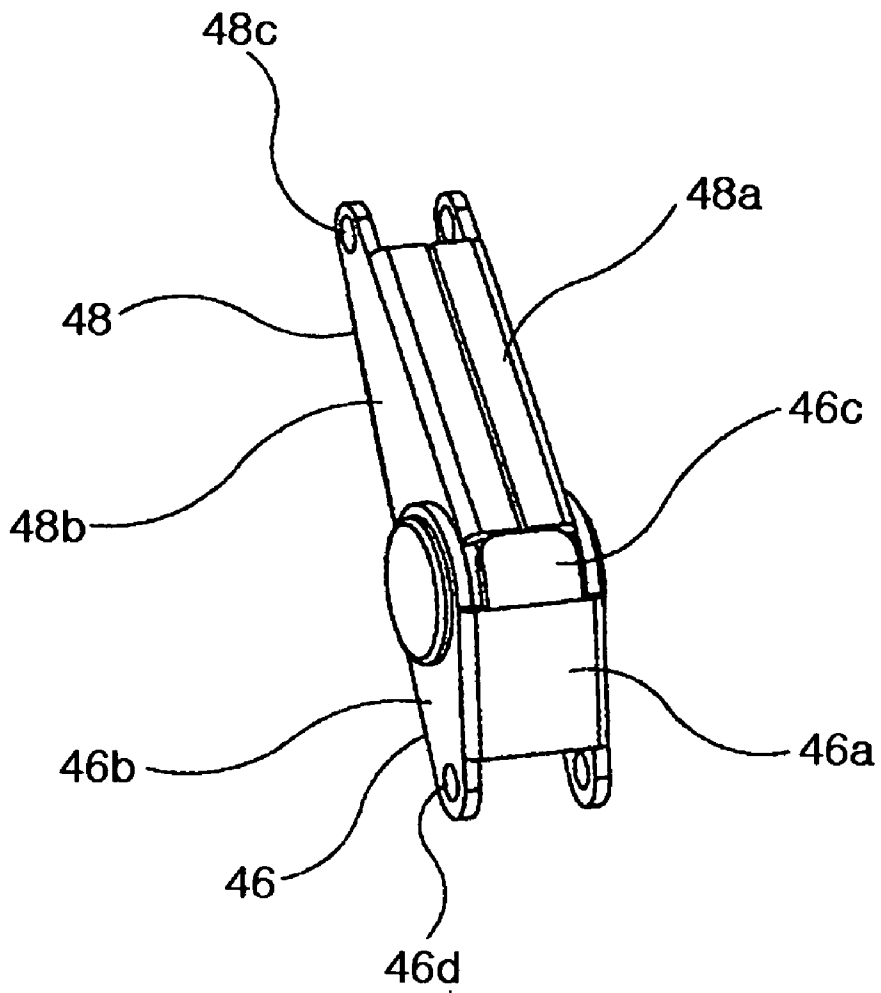


FIG. 6

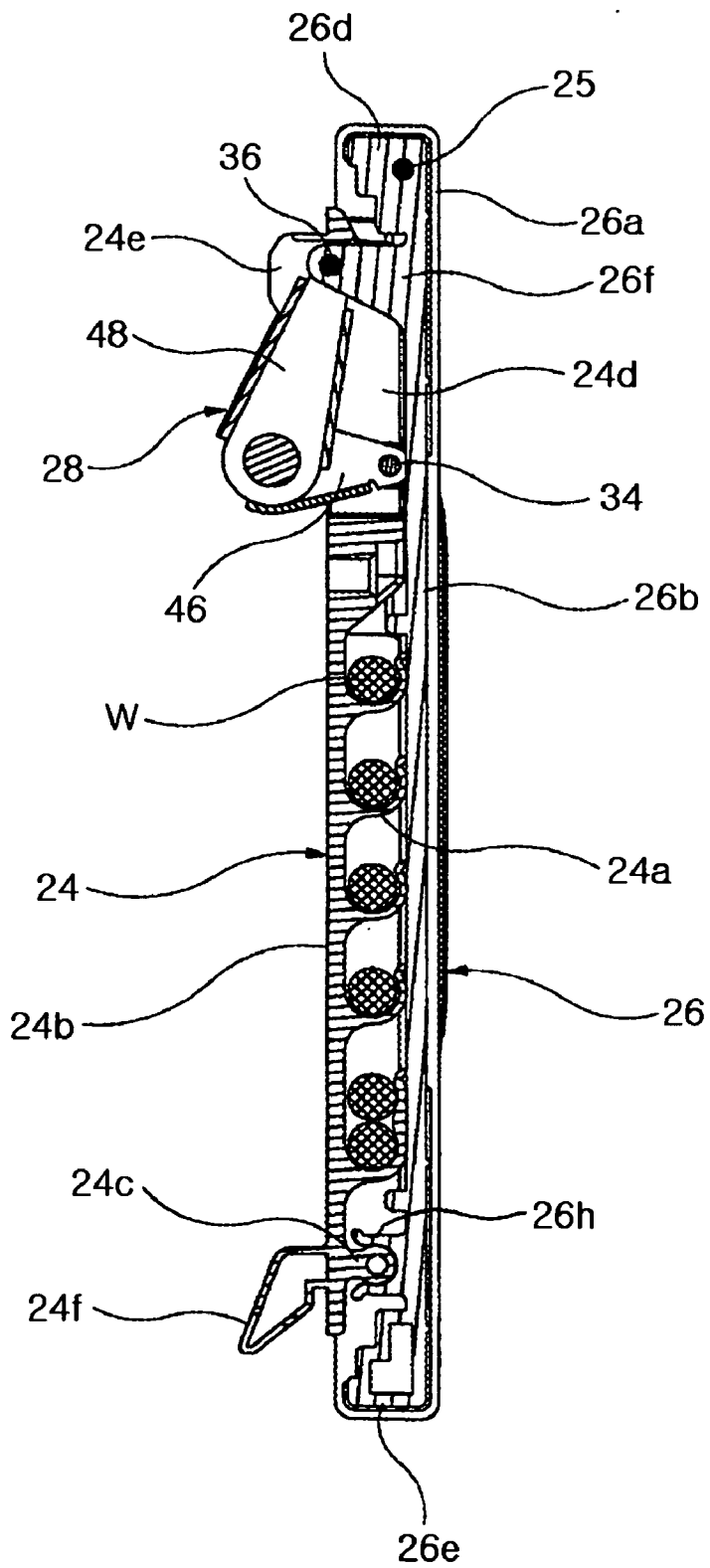


FIG. 7

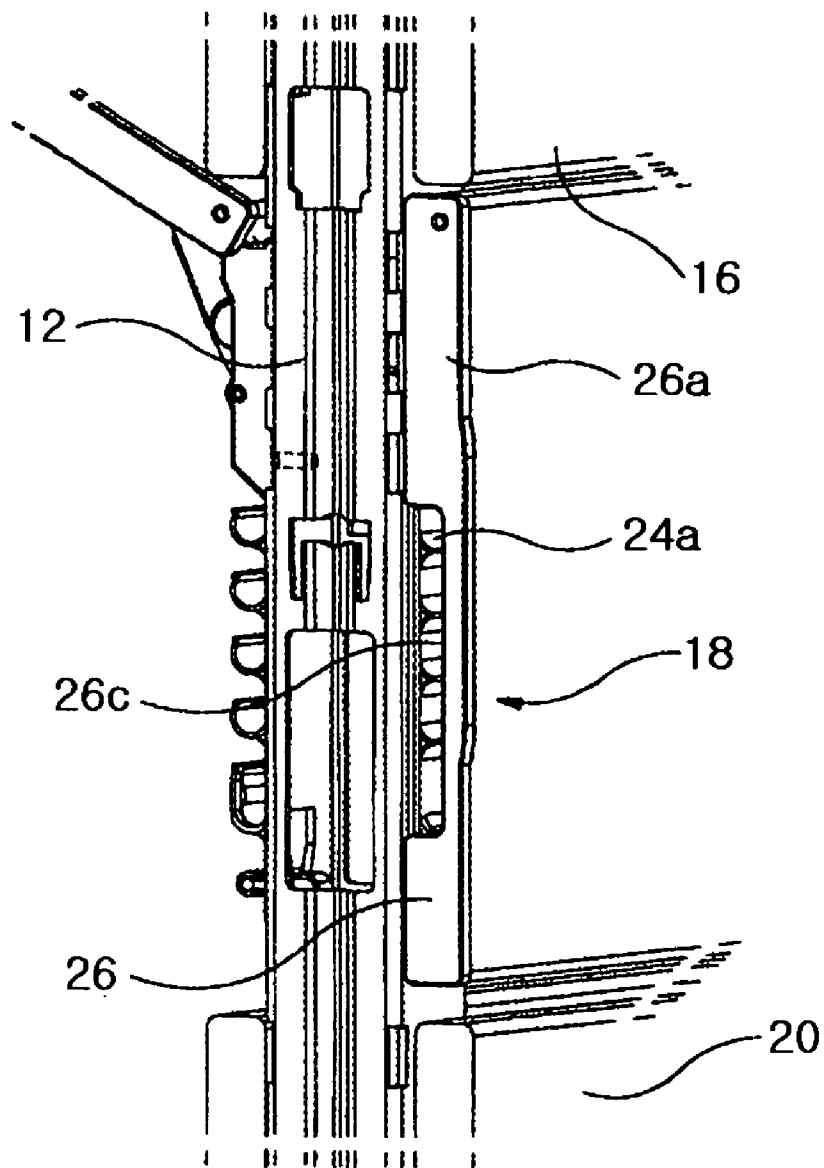


FIG.8a

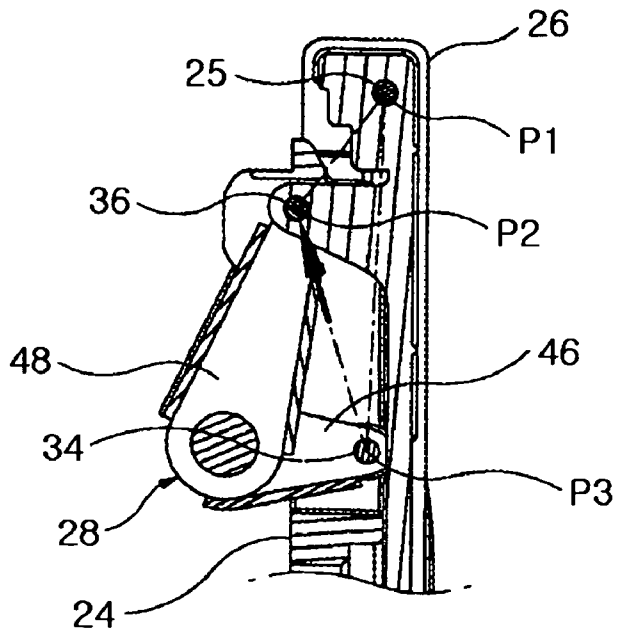


FIG.8b

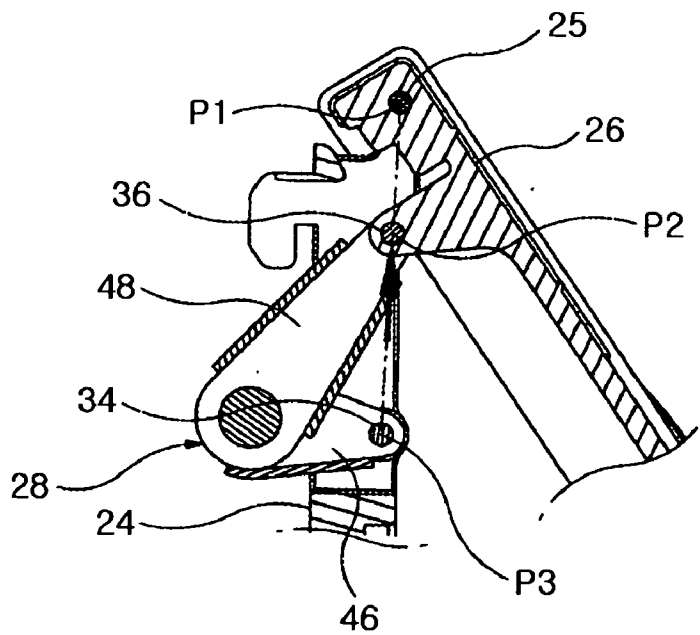


FIG.8c

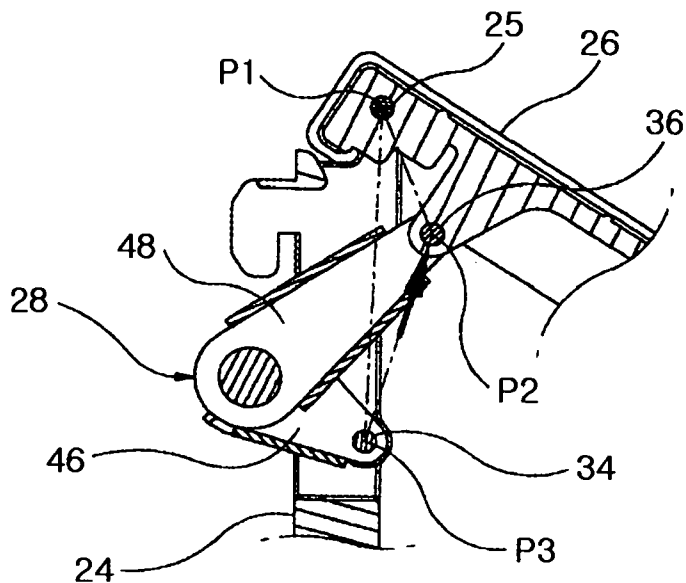
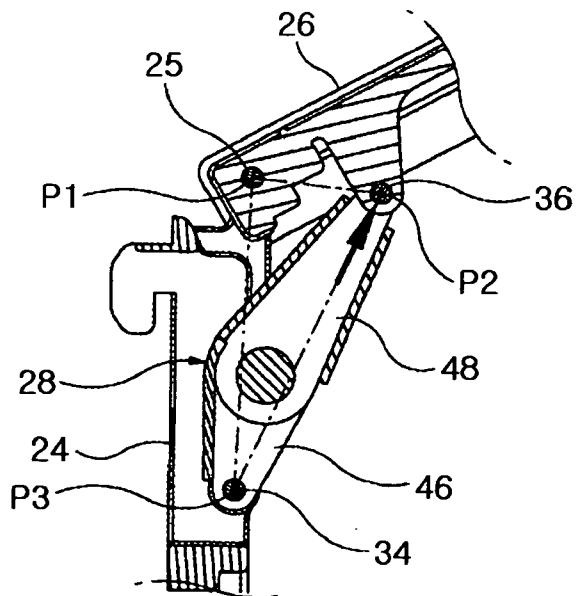


FIG.8d



CUBICLE EQUIPPED WITH DOOR PANELS

FIELD OF THE INVENTION

[0001] The present invention relates to a cubicle that efficiently uses up office space and, more particularly, to a cubicle equipped with door panels.

BACKGROUND OF THE INVENTION

[0002] The continuing quest for efficiently using up office space has led to the creation of various forms of modular offices or work areas. In general, such modular offices are formed as cubicles by attaching together a plurality of pre-fabricated partition panels that are inter-connected onto frames, generally at right angles to each other for forming an exterior appearance. In the cubicles thus described according to the prior art, each frame is inter-connected by vertical members and horizontal members to form a square shape, and the frame is horizontally disposed with a plurality of reinforcing members to reinforce the vertical members. The pre-fabricated partition panels are inserted and assembled to the vertical members via hook members.

[0003] The horizontal members according to the prior art are formed with wiring ducts for disposing electric wirings. The vertical members are formed with holes or jaws through which electric wirings can pass to allow the wirings disposed within the ducts to pass over to the frames.

[0004] However, there is a disadvantage in the cubicles thus described according to the prior art in that the panels should be completely dismantled for additional wirings and re-wirings or checks of said wirings inside the ducts.

[0005] There is another disadvantage in that wiring cannot be arranged at various positions due to the limited positions of wiring heights and wiring jobs are done through the ducts disposed at the horizontal frames of the cubicles.

SUMMARY OF THE INVENTION

[0006] The present invention is disclosed to overcome the above-mentioned disadvantages, and it is an object of the present invention to provide a cubicle with door panels adapted to allow additional electric wirings and re-wirings, allow the wirings to be easily checked, and enable the electric wirings to be set at various heights in the frames.

[0007] In accordance with a preferred embodiment of the present invention, there is provided a cubicle with door panels, the cubicle including frames composed of horizontal members and vertical members, and each frame coupled with a plurality of panels at front and/or rear surfaces thereof, wherein at least one of the panels is formed with a vertically-openable door panel, and wherein the door panel comprises: wiring hanger members each formed at the front side thereof with a plurality of wiring hangers and fixed lengthwise to the vertical member; a panel plate hinged to an upper distal end of the wiring hanger member for opening upwards; and resilient means coupled to a hinge connector of the wiring hanger member and the panel plate for maintaining an openness of the panel plate when the panel plate is opened.

[0008] Preferably, the panel plate comprises: a panel plate member for covering an opening of the frame; and panel finishing members each hinged to an upper distal end of the

wiring hanger member and connected to an upper distal end of the wiring hanger member and fixed to a lateral surface of the panel plate member by the resilient means.

[0009] A pair of generally opposing hook units are formed at the lower end of the wiring hanger member and the lower end of the panel finishing member for preventing the panel plate from being opened when the panel plate is closed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] For a better understanding of the nature and objects of the present invention, reference should be made to the following detailed description with the accompanying drawings, in which:

[0011] **FIG. 1** is a perspective view for illustrating a cubicle equipped with a door panel that is partially opened according to an embodiment of the present invention;

[0012] **FIG. 2** is a partially detailed view of **FIG. 1**;

[0013] **FIG. 3** is a schematic drawing for illustrating a wiring hanger member being coupled to a hinge unit of a panel finishing member;

[0014] **FIG. 4** is an exploded perspective view of resilient means of **FIG. 3**;

[0015] **FIG. 5** is a perspective view of a rear side of the resilient means of **FIG. 3** as seen from the rear side;

[0016] **FIG. 6** is a lateral section view of the panel finishing member inserted to the wiring hanger member when the door panel is closed in **FIG. 1**;

[0017] **FIG. 7** is a partial perspective view for illustrating a lateral surface of the panel finishing member when the door panel is closed in **FIG. 1**; and

[0018] **FIGS. 8a-8d** are operational constitutional views when the door panel is opened.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0019] The preferred embodiment of the present invention will now be described in detail with reference to the annexed drawings, where the present embodiment is not limiting the scope of the present invention but is given only as an illustrative purpose.

[0020] As shown in **FIG. 1**, between vertical members (12, 12) erected at both sides, there are upper and lower horizontal members (14), each coupled to form a frame, and a plurality of panels (16, 18, 20) are coupled to a front side of the frame.

[0021] Although a lower side of the frame is not shown in the drawing, the lower side of the frame is coupled with a height adjusting member, a mop pan panel (tile) and the like, and the frame is coupled at a rear side thereof with a plurality of panels in the same manner as that of the front side.

[0022] A mid panel (18) (hereinafter referred to as door panel) out of the plurality of panels is a vertically-openable door panel, and panels (16, 20) coupled to upper and lower sides are known in the art.

[0023] As illustrated in **FIG. 2**, the door panel (18) includes a panel plate member (22) for covering an opening of the frame, wiring hanger members (24) each frontally

formed with a plurality of wiring hangers (24a) and fixed lengthwise to the vertical member (12), panel finishing members (26) each hinged to the upper end of the wiring hanger member (24) via a first hinge pin (25) and fixedly inserted to a lateral surface of the panel plate member (22), and resilient means (28) coupled to a hinge connector between the panel finishing member (26) and the wiring hanger members (24) for maintaining an opening of the panel plate member (22) and the panel finishing members (26) when the panel plate member (22) and the panel finishing members (26) are opened.

[0024] Preferably, each wiring hanger member (24) is coupled to vertical members (12, 12) at both sides of the panel, and respective panel finishing members (26) are inserted into both lateral ends of the panel plate member (22). The panel plate member (22) and the panel finishing members (26) may be integrally formed.

[0025] The frame formed by the vertical member (12) and the horizontal member (14) is internally and horizontally formed with reinforcing members (30). As shown in the drawing, preferably, the reinforcing members (30) are installed at each border area of the plurality of panels.

[0026] The vertical member (12) is frontally formed with hitching holes at which hook units (not shown) of the panels (16, 20) can be hitched. The vertical member (12) is also formed with hitching holes (12a, 12b) so that hook units (described later) of wiring hanger members (24) can be hitched thereat.

[0027] The panel plate member (22) is formed with flanges (22a, 22b) along the upper and lower edges, and both lateral ends of the flanges (22a, 22b) are press-fitted by both ends of the panel finishing member (26).

[0028] Referring now to FIGS. 2-6, each wiring hanger member (24) is formed lengthwise at a front mid-section of a strip-shaped base unit (24b) adhered to the vertical member with a plurality of wiring hangers (24a), each at a prescribed interval.

[0029] The base unit (24b) is protrusively formed at a lower front side thereof with a male hook unit (24c) so that a female hook unit (described later) at the panel finishing member (26) can be hitched thereat. The base unit (24b) is hinged at an upper front side thereof to a spring cover (described later) of the resilient means (28) and is protrusively formed with a hinge bracket unit (24d) that is hinged to a reinforcing member (described later) of the panel finishing member.

[0030] The base unit (24b) is protrusively formed at both upper and lower rear surfaces thereof with upper and lower hook units (24e, 24f) that are insertedly hitched at the hitching holes (12a, 12b) of the vertical member (12), and is also formed with fastening hole (24g) so as to be fixed to the vertical member (12) by a fastening member (32).

[0031] The base unit (24b) has a shape of a strip whose width is a little narrower than that of the vertical member (12). The wiring hanger (24a) protruding at the front of the base unit (24b) is generally arched at the cross-section thereof and bent towards the upper end of the base unit (24b) and is longitudinally formed along the width of the base unit (24b). The male hook unit (24c) is a cylindrical hitching jaw protruding from the base unit (24b) and formed along the width of the base unit (24b).

[0032] The hinge bracket unit (24d) is formed thereunder with a hitching hole (24h) at which a first spring cover (described later) of the resilient means (28) is hinged via a second hinge pin (34), and is formed thereon with a hinge hole (24i) into which the hinge pin (25) is inserted.

[0033] The panel finishing member (26) is vertically and protusively disposed with an insertion unit (26b) that is inserted into the panel plate member (22) in relation to a lateral plate unit (26a). As shown in FIG. 7, The lateral plate unit (26a) is formed at a mid-section thereof with a recess unit (26c) such that wirings (W in FIG. 6) arranged on the wiring hanger (24a) can easily slip out therefrom.

[0034] Furthermore, at both longitudinal ends of the insertion unit (26b), there are formed square box-shaped reinforcing units (26d, 26e) for being adhesively inserted into the flanges (22a, 22b) of the panel plate member (22) and for reinforcing the insertion unit (26b). The reinforcing unit (26d) is formed with a hole (not shown) into which the first hinge pin (25) is inserted.

[0035] At a lateral surface formed with the reinforcing unit (26d) at the insertion unit (26b), there is equipped a bracket unit (26f) formed with a hitching hole (26g) into which a second spring cover is hinged via a third hinge pin (36) (described later) of the resilient means (28).

[0036] FIG. 3 is a schematic drawing for illustrating a coupled state of a hinge connector where the wiring hanger member (24) and the panel finishing member (26) are coupled via a hinge.

[0037] A female hook unit (26h) fitted into the male hook unit (24c) is formed at a lateral surface formed with the reinforcing unit (26e) at the insertion unit (26b). The female hook unit (26h) has flanges protruding at both ends thereof to encompass the male hook unit. The male hook unit (24c) and the female hook unit (26b) may be made of identically-shaped hitching protruders holding each other.

[0038] Now, referring to FIGS. 4 and 5, the resilient means (28) includes a torsion spring (42), a hinge axle (44) where a coil unit (42a) of the torsion spring (42) is inserted, a first spring cover (46) inserted into the hinge axle (44) and where a first hanger unit (42b) of the torsion spring (42) is hitched and then covered, and a second spring cover (48) inserted into the hinge axle (44) and where a second hanger unit (42c) of the torsion spring (42) is hitched and then covered.

[0039] The first and second spring covers (46, 48) formed with flanges (46b, 48b) at both sides of webs (46a, 48a) allow the first hanger unit (42b) of the torsion spring or the second hanger unit (42c) to be hitched at the webs (46a, 48a), thereby preventing deformation of the torsion springs, and function as spring arms. The web (46a) of the first spring cover (46) is formed with a jaw (46c) for restricting rotation of the first spring cover (48).

[0040] The first spring cover (46) is formed at flanges thereof with a hole (46d) into which the second hinge pin (34) is inserted, and the second spring cover (48) is formed at flanges thereof with a hole (48c) into which the third hinge pin (36) is inserted.

[0041] In a cubicle with door panels thus constructed according to the present invention, the wiring hanger (24a) of the wiring hanger member (24) is hung and arranged with

electric wires, where wiring hangers, each formed at a prescribed vertical interval, can be arranged with various electric wires at different heights. Furthermore, door panels can be positioned at an upper side or a lower side of the cubicle to allow the electric wires to be arranged at different heights.

[0042] The panel finishing member (26) rotates about the first hinge pin (25) for opening and closing, and when the panel finishing member (26) is closed, the female hook unit (26*h*) connects and hitches with the male hook unit (24*c*) of the wiring hanger member (24) to prevent the panel finishing member (26) from being opened.

[0043] When internal wirings arranged on the frame are to be added, re-wired or checked, a lower end of the panel finishing member (26) is gripped and lifted up to allow the door panel to be opened by elastic force and to maintain the openness via the resilient means (28). The panel plate member (22) cooperates with the rotation of the panel finishing member (26) for opening and closing.

[0044] Meanwhile, when the panel plate member (22) and the panel finishing member (26) are to be opened and closed, these members (22, 26) are automatically opened and closed if a user rotates same up to a prescribed angle. The operation thereof will be described as per FIGS. 8*a-8d*. For convenience sake, the panel plate member (22) and the panel finishing member (26) are all put together to be referred to as a panel plate.

[0045] FIG. 8*a* illustrates a closeness of the panel plate, where a hinge point (P1) into which the first hinge pin (25) is inserted, a moving point (P2) into which the third hinge pin (36) is inserted and a fixed point (P3) into which the second hinge pin (34) is inserted collectively form a triangle. Although the moving point (P2) is variable in position thereof according to the opening and closing of the panel plate, the hinge point (P1) and the fixed point (P3) do not change in positions thereof. When a user grips and lifts up the lower end of the panel plate in FIG. 8*a*, the moving point (P2) moves to the right to constitute a state as shown in FIG. 8*b* where the hinge point (P1), the moving point (P2) and the fixed point (P3) are positioned on a straight line. When panel plate is lifted up beyond this line, the moving point (P2) moves farther to the right than a definite straight line connecting P1 and P2, such that the panel plate is completely and automatically opened from a state of FIG. 8*a* to that of FIG. 8*c* by way of the elastic force of the resilient means (28) even without any force being applied to the panel plate.

[0046] Meanwhile, when a user grips and lifts the panel plate in FIG. 8*d*, the moving point (P2) moves to the left to pass a state of FIG. 8*c* to a state of FIG. 8*b* where the hinge point (P1), the moving point (P2) and the fixed point (P3) form a straight line. When the panel plate is pulled down beyond the line, the moving point (P2) is moved farther to the left than a definite straight line connecting P1 and P3, such that the female hook unit (26*h* in FIG. 6) of the panel

finishing member can be easily hitched by the male hook unit (24*c*) of the wiring hanger member even with a small amount of force via the elastic region of the resilient means (28), thus allowing the panel plate to be easily closed.

[0047] The foregoing description of the preferred embodiment of the present invention has been presented for the purpose of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed, and modifications and variations are possible in light of the above teachings or may be acquired from practice of the invention. It is intended that the scope of the invention be defined by the claims appended hereto, and their equivalents.

[0048] As apparent from the foregoing, there is an advantage in the cubicle with door panels thus described according to the embodiment of the present invention in that additional wirings and re-wirings or checks thereto can be easily conducted. There is another advantage in that wirings can be performed at various heights of the frames. There is still another advantage in that the door panels can be easily opened and closed.

What is claimed is:

1. A cubicle with door panels, the cubicle including frames composed of horizontal members and vertical members, wherein each frame is coupled with a plurality of panels at front and/or rear surfaces thereof, and at least one of the panels is formed with a vertically-openable door panel, and wherein the door panel comprises:

wiring hanger members each formed at the front side thereof with a plurality of wiring hangers and fixed lengthwise to the vertical member;

a panel plate hinged to an upper distal end of the wiring hanger member for opening upwards; and

resilient means coupled to a hinge connector of the wiring hanger member and the panel plate for maintaining an openness of the panel plate when the panel plate is opened.

2. The cubicle as defined in claim 1, wherein the panel plate comprises:

a panel plate member for covering an opening of the frame; and

panel finishing members each hinged to an upper distal end of the wiring hanger member and connected to an upper distal end of the wiring hanger member and fixed to a lateral surface of the panel plate member by the resilient means.

3. The cubicle as defined in claim 1, wherein a pair of generally opposing hook units are formed at the lower end of the wiring hanger member and the lower end of the panel finishing member for preventing the panel plate from being opened when the panel plate is closed.

* * * * *