DISPLAY CABINET WITH MODULAR SLIDE DOOR

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ABSTRACT

A display cabinet with modular slide door is adapted to house a video display device. A cabinet top is spaced above a base, and is generally aligned with the base. The door is slidably connected with the top and adapted to selectively conceal and reveal the display device. The cabinet may have left and right module sections, each of a modular width. The door preferably has the same modular width and may slide from one section to the other and alternatively reveal or conceal each section. The cabinet may further have a center section of two modular widths and a second modular slide door. The center section may define a display space. The modular slide doors may alternatively slide to conceal the display space, revealing the left and right module sections, and slide to reveal the display space, concealing the left and right module sections.
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CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] Not Applicable.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable.

REFERENCE TO SEQUENCE LISTING


BACKGROUND OF THE INVENTION

[0004] The invention relates to furniture cabinets that are directed to housing a video display device. More specifically, a display cabinet with modular slide door of the invention is directed to concealment of the display device with a horizontally sliding panel door.

[0005] Video display devices, including thin panel LCD and plasma screens, compact LCD and DLP rear projection displays, and front projection displays, are well accepted and commonly seen in many home and office settings. These displays are also typically a visually large and imposing element, if not in fact physically large, in whatever room environment they may be located. Thus, one’s attention may be inappropriately drawn to the display, merely by its presence, even when it is not active. These displays may also present an undesired contrast in the aesthetics of a room environment in which they are located; clashing with the room decor.

[0006] While a large video display device must be readily seen in use, it is not always a desired visual element in many room environments when not in use. Thus, one may appreciate a desire to conveniently access and conversely conceal a display device in a manner in which the display does not impose upon its environment when not in use.

BRIEF SUMMARY OF THE INVENTION

[0007] Accordingly, a display cabinet with modular slide door of the invention provides a cabinet with a defined display space, that is adapted to house a display device and to conveniently conceal and access the display by sliding manipulation of the modular slide door.

[0008] The display cabinet has a top spaced above and generally aligned with a base. A first or left panel extends upward from the base toward the top. A second panel is parallel with and spaced a modular distance from the left panel, defining a left or first modular section. A right panel may be parallel with and spaced a modular distance from the second panel, defining another modular section, namely, a second or right modular section. A door extends between the base and the top and is connected in sliding engagement with one of the top and the base. The door is also of a modular width. Thus, the door is slidable to alternatively cover or reveal one or the other of the modular sections with the door presenting a closed appearance in either position.

[0009] In another aspect of the invention, a center modular section may be defined between the left and the right modular sections with the center section defining a display space. Thus, a third panel may be interposed between the second and the right panels, be parallel with and spaced two modular distance from the second panel, defining the center modular section. A second door may extend between the base and the top and be connected in sliding engagement with one of the top and the base. The second door is also of a modular width. Thus, the prior or first door and the second door may slide toward one another into a first position in which the doors conceal the center modular section and reveal the left and right, side sections. Alternatively, the doors may slide away from one another into a second position in which the side sections are concealed and the center section display space is revealed. The doors present a closed appearance in either position.

[0010] Further, an aspect of the invention is modular assembly, interconnection, and disassembly of the sections for manufacture and transport. Another aspect of the invention is that the base may be adapted to be supported by a floor. The base may also be adapted to be supported by a storage cabinet. The storage cabinet may further be provided with audio and video equipment and the like and may include a provision of an optical control signal repeater mechanism.

[0011] These and other features and benefits of the invention will be recognized by one having ordinary skill in the art and by those who practice the invention, from this disclosure, including the specification, the claims, and the drawing figures.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

[0012] FIG. 1 is a left front perspective view of a display cabinet with modular slide door of the invention, showing sliding doors in a center position;

[0013] FIG. 2 is the view of FIG. 1 with the doors in respective side positions; and

[0014] FIG. 3 is an exploded view thereof.

[0015] FIG. 4 is a fragmentary cross section view, partially in elevation, showing a known coupler;

[0016] FIG. 5 is an end elevation view thereof, both ends are noted to appear the same in elevation; and

[0017] FIG. 6 is an exploded elevation view thereof, partially in elevation.

[0018] FIG. 7 is a cross section view along line VII-VII of FIG. 2;

[0019] FIG. 8 is a fragmentary, enlarged, elevation view of detail VIII of FIG. 2;

[0020] FIG. 9 is a fragmentary, enlarged, perspective view of detail IX of FIG. 2;

[0021] FIG. 10 is an enlarged view of the center section base storage cabinet of the view of FIG. 7, showing an infrared control repeater system;

[0022] FIG. 11 is a fragmentary front elevation view thereof, showing the repeater system; and

[0023] FIG. 12 is a fragmentary top plan view thereof, showing the repeater system.
FIG. 13 is a cross section view of a side section hutch-top, showing a lighting installation.

FIG. 14 is a front elevation of the display cabinet of FIGS. 1 and 2;

FIG. 15 is a front elevation of the display cabinet of FIG. 1; and

FIG. 16 is a front elevation of the display cabinet of FIG. 2.

DETAILED DESCRIPTION

A preferred and exemplary embodiment 100 of a display cabinet with a modular slide door according to the invention is generally shown in the drawing figures and discussed below. More specifically, the display cabinet 100 is shown supported above a floor by a cooperating storage cabinet 200, which together define a break front hutch, with the display cabinet being a hutch top (FIGS. 1-3).

The display cabinet hutch top 100 and the lower storage cabinet 200 may be provided with various configurations for upper and lower storage, including the hutch top shelving as shown. Alternatively, the hutch top and lower storage may be configured to accommodate speaker placement, including insert panels that are transparent to sound. While such an insert panel 210 is shown as provided for a center channel speaker placement (FIGS. 1-3), sound transparent insert panels may be provided according to a user’s preferences, including in selected storage doors for left and right channel speaker placement of a multi channel or surround style audio system.

More specifically as to a lower storage cabinet center section 204, one of various storage configurations is adapted to house supporting equipment for a display device that is housed in the display space 120. The supporting equipment may include various audio and video electronic signal processing components and speakers. The sound transparent insert 210 is again noted at the top center section of the lower storage cabinet. Further, enhancements in consideration of the supporting equipment may include provisions in the nature of a power strip 212, which may provide power conditioning and electronic component protection, and a hidden optical remote control signal repeater 214, which may enable optical remote control access of electronic components housed in the storage cabinet 200.

The display cabinet 100 has a top 102 that is spaced above and generally aligned with a base 104. A first or left side panel 112 extends upward from the base toward the top and extends between a front 106 and an opposing back 108 of the display cabinet. A second panel 114 is spaced a first distance from the left panel. The second panel is parallel with the left panel and also extends upward from the base 104 toward the top 102 and between the front 106 and the back 108. The left and the second panels define a left section or module of the display cabinet.

A third panel 116 is spaced a second distance from the second panel 114, so the second panel is interposed between the first and the third panels. The third panel is also parallel with the first panel 112, extends upward from the base 104 toward the top 102, and extends between the front 106 and the back 108. The second and the third panels define a center section or module of the display cabinet.

More specifically, a display space 120 is defined between the second 114 and third 116 panels and the base 104 and top 102. The display space is an open space that is adapted to receive a display device 140. The display device may be any of various presently known or yet to be developed display devices, including thin panel LCD and plasma screens, compact LCD and DLP rear projection displays, and front projection display screens or panels.

Finally, a fourth or right side panel 118 is spaced a third distance from the third panel 116, so the third panel is interposed between the second 114 and the fourth panels. The fourth panel is also parallel with the first panel 112, extends upward from the base 104 toward the top 102, and extends between the front 106 and the back 108. The third and the right panels define a right section or module of the display cabinet.

The display cabinet is provided as shown with at least one modular slide door and more preferably a pair of doors 122 and 124. The slide doors may be connected with the display cabinet 100 in sliding engagement and may be suspended from the top with a sliding door trolley mechanism 130 as shown (FIG. 8). Thus, the doors may slide laterally across the front of the display cabinet to cover the side display cabinet sections separately (FIG. 2) or cover the center section, and more specifically the display space, together (FIG. 1).

The trolley 130 has a track 132 and a pair of cooperating slides 134 for each door of conventional hardware as is known to one having ordinary skill in the art. The track extends along a length of the display cabinet 100 and between the opposing left and right side panels 112 and 118, respectively. A generally C-shaped channel that opens downward may be used for the track as shown. The back of the channel, which is oriented upward as installed, may be variously adapted for attachment to the top 102. In the exemplary embodiment shown, the back of the track is a flattened segment. The flattened segment is provided with an array of openings that are disposed along a length of the track. The openings are adapted to receive screw fasteners that extend into the top, thereby attaching the track to the top. The slides 134 may also be provided with various configurations that cooperate with the track 132, connect with a door (122 and 124), and provide sliding of the door along the track length. Further, a guide 136 may be provided on the base 104 near each of the second panel 114 and the third panel 116 to guide a bottom edge of each respective door 122 and 124. As shown, each guide may be a tab that extends upward from the base and is received in sliding engagement into a cooperating groove that is provided in the bottom of the door.

One having ordinary skill in the art understands the concepts and the details of door slide devices, including the following, which are a few variations. The track 132 may be constructed of any suitable structural material by any process that is appropriate to the chosen material. While the track is shown as a downward opening C-shaped channel, the track may also be configured as a sideways opening C-shaped channel or a J-shaped channel according to personal preference or manufacturing benefits. The slides 134 may also be constructed of any suitable structural material by any process that is appropriate to the chosen material. The slides may further include rolling wheel-like members or
skid members. Further, the guides 136 may be constructed of any suitable structural material by any process that is appropriate to the chosen material. The guides shown are upward extending tab members that are captured into the doors. An alternative configuration may include a tab member that abuts an outward or face surface of the door or an upward opening channel member into which the door is received and captured in sliding engagement.

[0038] Considering again that the doors may slide laterally inward across the front of the display cabinet to a first position in which the doors cover the center section together (FIG. 1) and that the doors may slide laterally outward across the front of the display cabinet to a second position in which the doors cover the side display cabinet sections separately (FIG. 2), one understands that the center section extends along about half the length of the display cabinet 100. Thus, the second distance is about half the length of the display cabinet and a remaining about half the length of the display cabinet is divided between the left and the right side modules. While the third distance, between the third and the fourth panels, may be different from the first distance, between the first and the second panels, one having ordinary skill in the art appreciates an aesthetic desirability of having each of the first and the third distances the same. Having a common or modular width across the side sections also yields fabrication benefits in minimizing the number of unique components required and increasing use of duplicate components.

[0039] More specifically in the design example shown and considering the left door 122, the door has a first door edge 126 that is adjacent to the second panel 114 when in the first position and the door extends toward the third panel 116 to an opposite second door edge 128. The first door edge 126 is preferably flush with a surface of the second panel that faces the left panel 112. The same arrangement is noted regarding the right door 124 in mirror image and relative to the third panel 116, however.

[0040] The left door 122 second door edge 128 is adjacent the second panel 114 when in the second position and the door extends toward the left panel 112 to the opposite first door edge 126. The second door edge is preferably flush with another surface of the second panel 114 that faces the third panel 116. Further in the design example shown, the first door edge 126 is preferably flush with an outer surface of the left panel 112, which surface faces away from the display cabinet. Thus, the first door aligns with and fully overlays the display cabinet left module with the opposing door edges, 126 and 128, flush with outer panel surfaces of the module. Again, the same arrangement is noted regarding the right door 124 in mirror image and relative to the third panel 116, the right panel 118, and the right module, however.

[0041] Understanding the relational geometry of the doors 122 and 124 with the display cabinet 100 and its various respective components as suggested above, one having ordinary skill in the art will also understand that the doors constantly conceal a little more than half of the display cabinet. If the panels 112-118 had no physical thickness, then the doors would cover exactly half of the display cabinet. The panels do have thickness, however, which has a subtle and significant influence upon the relational geometry of the doors. A further influence of the same nature includes a foreseeable modification in which the doors do not overlay the side panels and abut them instead.

[0042] In another aspect of the invention, the left 142, center 144, and right 146 sections of the display cabinet 100 may comprise three separate pieces of furniture and be modular components of the display cabinet. Again, the display cabinet 100 preferably is supported above a floor by the storage cabinet 200. The cooperating storage cabinet therefore may also have corresponding left 202, center 204, and right 206 modular storage sections.

[0043] One who fabricates or otherwise uses the invention may, therefore, segment the track 132 according to the segmenting of the display cabinet 100. The track may further be adapted with segment couplings as is understood by one having ordinary skill in the art. One who uses the invention may, in the alternative, choose to incorporate the track as a coupler to secure the display cabinet modules together. In this variation the track may be provided as a unitary item or as an assembly of track lengths. A manufacturer may find that two or three modular sections of track may be adapted to securely tie together the display cabinet sections and to provide advantages in at least one of fabrication and assembly.

[0044] The left and right side display cabinet modules and storage cabinet sections may further be respectively mirror image components, as shown, or may be identical and are substantially similar either way. As shown, addition of trim molding 208 on opposing ends surfaces of the left and right components distinguish them from being identical. Further, with the display cabinet 100 being an assembly of three modular components, one having ordinary skill in the art understands that the second 114 and the third 116 panels discussed above comprise abutting panel portions of the left and center sections and the center and right sections, respectively.

[0045] In consideration of convenient manufacture, transportation, and installation, the display cabinet 100 and cooperating lower storage cabinet 200 are preferably provided in modular form as shown. Thus, abutting sides of the side modules 142, 146, 202, and 206 and the center section 144 and 204 may be adapted to accommodate alignment and fastening of the modules or sections together. Alignment of the modular or sectional components may be enhanced with a corresponding peg 220 and aperture arrangement, which one having ordinary skill in the art understands.

[0046] The modular components may further be interconnected orfastened together with various couplers, including a known screw coupler 230 as shown in drawings FIGS. 4-6. Each coupler is a two part device with a male or bolt part 232 and a cooperating female or nut part 240. The bolt part has a head 234 and a threaded leg 236 that extends away from the head to a terminal end 238. Each nut has a head 242 with a tubular shaft 244 extending away from the head to a terminal end 246. The tubular shaft 244 is internally threaded to cooperate with the threaded leg of the bolt in screw thread engagement. Each of the abutting sides of the display cabinet components are provided with pairs of assembly apertures 250 that are positioned for mutual alignment when the components are arranged and positioned in their final position for use. With the assembly apertures 250 aligned, the tubular shaft 244 of a nut 240 may be inserted to extend into a selected assembly aperture and a cooperating bolt 232 may be inserted to extend through an aligned corresponding assembly aperture so the bolt and nut may
meet and be screw threaded together. As the nut and bolt are screw engaged together, the respective components are drawn tightly together and the arrangement of components is secured, becoming a unified display cabinet assembly as seen in FIGS. 1 and 2.

[0047] In another aspect of the invention, a side module 142 and 146 of the display cabinet 100 may be provided with lighting (FIG. 13). Any of various lighting configurations may be used. A conventional, downward illuminating, recessed can, lighting fixture 260 is shown. The more notable feature is that the power for the lighting is connected with positioning of the respective slide door 122 or 124. For example, a switch 262 may be located and mounted upon the side module so the light is turned off when the door is in the second position, covering the side module. While the switch is conspicuously shown in the drawing, a more discreet may be used in practice. Lighting may also be provided in the center section 144, although this would commonly be contrary to the utility of the display space 120.

[0048] One having ordinary skill in the art understands that the display cabinet 100 is a piece of furniture that is assembled of various components, including the above panels, top, and base. Each component may be fabricated of any suitable material and employing methods appropriate to the material. Further, the cabinet components may be interconnected with various suitable methods or connectors. Materials technology and fabrication methods appear to develop and change fairly continually. One having ordinary skill in the art has knowledge of suitable materials and of effective methods for furniture fabrication, each of which is ancillary to the present invention of a configuration of a display cabinet with modular slide door.

[0049] One having ordinary skill in the art and those who practice the invention will understand from this disclosure that various modifications and improvements may be made without departing from the spirit of the disclosed inventive concept. One will also understand that various relational terms, including left, right, front, back, top, and bottom, for example, are used in the detailed description of the invention and in the claims only to convey relative positioning of various elements of the claimed invention.

What is claimed is:

1. A display cabinet that is adapted to house a video display device, the display cabinet having a front and an opposing back and having a sliding door that is adapted to selectively conceal the display device, the cabinet comprising:

   a base;
   a top spaced above the base, the top being generally aligned with the base;
   a first panel extending upward from the base toward the top and extending between the front and the back;
   a second panel spaced a first distance from the first panel, extending upward from the base toward the top, and extending between the front and the back, the second panel being generally parallel with the first panel;
   a third panel spaced a second distance from the second panel so the second panel is interposed between the first and the third panels, the third panel extending upward from the base toward the top and extending between the front and the back, the third panel being generally parallel with the first panel;

2. The display cabinet defined in claim 1 wherein at least one of the first, the second, and the third panels supports the top.

3. The display cabinet defined in claim 1 wherein the cabinet further includes a fourth panel spaced a third distance from the third panel so the third panel is interposed between the first and the fourth panels, extending upward from the base toward the top, and extending between the front and the back, the fourth panel being generally parallel with the first panel.

4. The display cabinet defined in claim 3 wherein the cabinet further includes a second door extending between the base and the top, the door being connected with the top in sliding engagement whereby the door slides between a first position in which a first edge of the door is adjacent the second panel and the door extends from the first edge adjacent the second panel to an opposite second edge toward the third panel and a second position in which the second edge of the door is adjacent the second panel and the door extends from the second panel toward the first panel.

5. The display cabinet defined in claim 4 wherein the second distance is a sum of the first and the third distances.

6. The display cabinet defined in claim 5 wherein the first and the third distances are equal.

7. The display cabinet defined in claim 6 wherein the display space is concealed by the first and the second doors when the first and the second doors are in their respective first positions, with the first door extending from the second panel to the second door and the second door extending from the third panel to the first door.

8. The display cabinet defined in claim 4 wherein the first and the third distances are equal.

9. The display cabinet defined in claim 4 wherein the first door second edge abuts the second door second edge and the display space is concealed by the first and the second doors when the first and the second doors are in their respective first positions.

10. The display cabinet defined in claim 4 wherein at least a portion of the storage cabinet is adapted to house a sound radiating speaker device.

11. The display cabinet defined in claim 4 wherein the display cabinet is adapted to house audio equipment and video equipment and the storage cabinet is provided with an equipment control signal repeater.
13. A display cabinet that is adapted to house a video display device, the cabinet having a front and an opposing back, having a left side and an opposing right side, and having at least three modular sections from the left side to the right side, the cabinet comprising:

a base;

a top spaced above the base, the top being generally aligned with the base;

a left side panel extending upward from the base toward the top and extending between the front and the back;

a second panel spaced a modular distance from the left side panel, extending upward from the base toward the top, and extending between the front and the back, the second panel being generally parallel with the left side panel;

a left modular section of one modular distance wide being defined by the left side panel and the first panel;

a third panel spaced two modular distances from the first panel so the first panel is interposed between the left side panel and the second panel, the third panel extending upward from the base toward the top and extending between the front and the back, the third panel being generally parallel with the left side panel;

a center modular section of two modular distances being defined by the first panel and the second panel;

a right side panel spaced a modular distance from the third panel so the third panel is interposed between the left and the right side panels, the right side panel extending upward from the base toward the top and extending between the front and the back, the right side panel being generally parallel with the left side panel;

a right modular section of one modular distance being defined by the second panel and the right side panel;

a display space defined in the center modular section, between the first and the second panels, between the base and the top, and between the front and the back, the display space being adapted to receive and display a video display device;

a first door extending between the base and the top, having a width of about one modular distance, and being connected with the top in sliding engagement whereby the first door slides between a center position in which a first edge of the door is adjacent the second panel and the door extends from the first edge adjacent the second panel to an opposite second edge toward the third panel and a side position in which the second edge of the door is adjacent the third panel, in which the door extends from the second panel to the right side panel, and in which the right modular section is concealed by the second door, the first and the second doors concealing the display space in their respective first positions.

14. The display cabinet defined in claim 13 wherein the base is supported above a floor by a storage cabinet.

15. The display cabinet defined in claim 14 wherein at least a portion of the storage cabinet is adapted to house a sound radiating speaker device.

16. The display cabinet defined in claim 14 wherein at least a portion of the storage cabinet is adapted to house audio equipment and video equipment and the storage cabinet is provided with an equipment control signal repeater.

17. A display cabinet that is adapted to house a video display device, the cabinet having a front and an opposing back, having a left side and an opposing right side, the cabinet comprising:

a base;

a top spaced above the base, the top being generally aligned with the base;

a left side panel extending upward from the base toward the top and extending between the front and the back;

a second panel spaced a modular distance from the left side panel, extending upward from the base toward the top, and extending between the front and the back, the second panel being generally parallel with the left side panel;

a left modular section of one modular distance wide being defined by the left side panel and the first panel;

a third panel spaced two modular distances from the first panel so the first panel is interposed between the left side panel and the second panel, the third panel extending upward from the base toward the top and extending between the front and the back, the third panel being generally parallel with the left side panel;

a center modular section of two modular distances being defined by the first panel and the second panel;

a right side panel spaced a modular distance from the third panel so the third panel is interposed between the left and the right side panels, the right side panel extending upward from the base toward the top and extending between the front and the back, the right side panel being generally parallel with the left side panel;

a right modular section of one modular distance being defined by the second panel and the right side panel;

a display space defined in the center modular section, between the first and the second panels, between the base and the top, and between the front and the back, the display space being adapted to receive and display a video display device;

a first door extending between the base and the top, having a width of about one modular distance, and being connected with the top in sliding engagement whereby the first door slides between a center position in which a first edge of the door is adjacent the second panel and the door extends from the first edge adjacent the second panel to an opposite second edge toward the third panel and a side position in which the second edge of the door is adjacent the third panel, in which the door extends from the second panel to the right side panel, and in which the right modular section is concealed by the second door, the first and the second doors concealing the display space in their respective first positions.
from the first edge toward the third panel to an opposite second edge when the door is in the center position, the second edge of the door is flush with the second panel on a side of the second panel that faces the third panel and the door extends from the second panel to the left side panel whereby the left modular section is concealed by the first door when the door is in the side position;

a second door extending between the base and the top and being connected in sliding engagement with one of the top and the base, the second door sliding between a center position and a side position, the door has a first edge flush with the third panel on a side of the third panel that faces the right side panel and the door extends from the first edge toward the second panel to an opposite second edge when the door is in the center position, the second edge of the door is flush with the third panel on a side of the third panel that faces the second panel and the door extends from the third panel to the right side panel whereby the right modular section is concealed by the second door when the door is in the side position.

18. The display cabinet defined in claim 17 wherein the base is supported above a floor by a storage cabinet.

19. The display cabinet defined in claim 18 wherein at least a portion of the storage cabinet is adapted to house a sound radiating speaker device.

20. The display cabinet defined in claim 18 wherein at least a portion of the storage cabinet is adapted to house audio equipment and video equipment and the storage cabinet is provided with an equipment control signal repeater.

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