Modular Cabinet Structure

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This invention relates to modular cabinet structures that may be readily assembled at the location where they are to be installed and used.

An object of this invention is to provide an improved modular cabinet structure in which a wide variety of compartment sizes may be readily obtained.

Another object of this invention is to provide an improved modular cabinet structure in which a single style of divider panel is used to provide a wide variety of compartment sizes in the cabinet structure.

Still another object of this invention is to provide an improved modular cabinet structure which is easily and readily assembled from prefabricated panel elements into a cabinet structure in which there is a wide choice of compartment sizes.

Other and further objects of this invention will be apparent to those skilled in the art to which it relates from the following specification, claims and drawings.

In accordance with this invention, there is provided an improved modular cabinet that is assembled from prefabricated panel members which are provided with rows of holes that may be aligned and which are adapted to receive dowels positioned on divider panels that are used for dividing the cabinet structure into suitable compartments. Members of these divider panels are also provided with rows of holes and these are adapted to receive dowels positioned on shelves and drawer supports so that the cabinet compartments may be further divided by such shelves or provided with suitable prefabricated drawers.

The above and additional features of this invention will be set forth in detail in the following specification and illustrated in the drawings in which, briefly:

FIG. 1 is a fragmentary perspective view of an embodiment of this invention;
FIG. 2 is a sectional view taken along the line 2--2 of FIG. 1;
FIG. 3 is a sectional view taken along the line 3--3 of FIG. 1;
FIG. 4 is a sectional view taken along the line 4--4 of FIG. 3;
FIG. 5 is a sectional view taken along the line 5--5 of FIG. 1;
FIG. 6 is an exploded detail view of a form of hinge that may be used for attaching the doors to this cabinet;
FIG. 7 is a perspective view of one of the divider panels employed in this cabinet;
FIG. 8 is a detail view of one of the drawer supports employed in this cabinet;
FIG. 9 is a detail view of one of the shelves employed in this cabinet; and
FIG. 10 is a detail view of a modified form of corner structure employed in this cabinet.

Referring to the drawing in detail, there is shown an embodiment of this invention employing a bottom panel 10 which may be made of plywood, plastic "Bakelite" or similar material. This bottom panel is provided with a row of substantially equally spaced front holes 10a and a back row of substantially equally spaced holes 10b. These rows of holes are substantially parallel and they are also positioned so that individual holes in these rows are substantially aligned with corresponding holes in the other row.

A front strip 11 is attached to the front edge of the bottom panel 10 after the divider panels 14 are assembled into the cabinet structure, and this strip may be either glued, nailed or otherwise attached to the bottom panel.

A back panel 12 is provided to this cabinet structure and this panel may also be of plywood, plastic "Bakelite" or the like. A back rail 13 is attached to the top portion of the back panel 12 with glue, nails, or the like and this rail 13 is provided with holes 13a which are spaced the same as holes 10a and 10b provided in the hole panels.

Divider panels 14, such as shown in FIGS. 1 and 7, are provided in this cabinet structure. The number of these divider panels will vary, depending upon the size of the cabinet structure and the way in which it is desired to divide the space therein. Each of these divider panels is provided with a frame including front members 15, 15a, back member 16, top member 17 and bottom member 18.

Each of the divider panels 14 is provided with dowels 20, 21, 22, 23 and 24 which are used to hold the panels assembled in the cabinet structure. The dowels 20 and 24 fit into the holes 10a and 10b, respectively, of the bottom panel 10. The dowels 23 fit into the back rail 13 aligned with a hole 10b of the bottom panel.

The dowel 21 fits into a hole 25b of the top rail 25 aligned with a hole 10a into which the bottom dowel 20 of the member 15 is placed. The upper front member 26 is provided with a groove for receiving the tongue 25a of the top rail 25, as shown in FIG. 3, and it is also provided with a plurality of holes such as the hole 26a which are spaced the same as holes 16a of the bottom panel and are adapted to be aligned therewith.

The holes 26a are provided for receiving the dowels 22 of the front members 15a of the divider panels. Thus, dowel 22 of the divider panel 14 fits into hole 36a of rail 25 aligned with hole 10a in which dowel 20 is positioned. These front members 15a are attached to the members 15 by a tongue and groove arrangement such as shown in FIG. 4. Thus the member 15a of each divider panel is provided with a groove for receiving the tongue 25a of the member 15, and these may be glued together. Other ways of attaching these members, such as glue, may be employed without the tongue and groove arrangement, if desired.

Also the central member of the divider panel is seated in suitable grooves in the frame members 15, 16, 17 and 18 and glue may be used for holding these parts assembled. Thus these divider panels may be made of a certain standard size and assembled and glued at the factory with the dowels 20-24 also glued in place thereon and the front member 15a included so that the divider panel as furnished for assembly into the cabinet structure appears as shown in FIG. 7.

Different numbers of divider panels 14 may be provided to the finished cabinet as desired and different widths of compartments between the divider panels may be obtained. After it is determined where the divider panels 14 are to be placed in the cabinet structure, the front strips 11 are attached to the exposed front edges of the bottom panel 10. A recess 11a is provided between adjacent front strips 11 to receive the bottom part of the front member 15a. Where desired, the front strip 11 may be made in one continuous piece and suitable recess cut in the bottom part of each of the front members 15a so that they arch over the front strip 11. In such case the recess 11a would not be necessary and the front strip 11 would be in one continuous piece.

Doors such as the door 27 may be provided to this cabinet structure to close the compartments formed between the divider panels 14. These doors may also be made of plywood, plastic "Bakelite" panel material and they may be made of different sizes simply by cutting them to different widths. The doors are hinged by means of hinges 28 to the front members 15a and for this purpose the hinge such as shown in FIG. 6 is provided. Each hinge includes a member 29 of angular configuration as shown, and this member is provided with several holes 30.
for receiving the wood screws 30a for attaching it to the door 27, as shown in FIG. 5. Loops 31 are provided to the other hinge member 32. When the hinge members 29 and 32 are assembled, the pin 33 is positioned in the loops 31 and 34. The hinge member 32 is also provided with a threaded member 35 which is adapted to be positioned in the hole formed in the front member 15a. A suitable nut 36 is provided to this threaded member for adjusting the hinge to the front member 15a and drawing the sharp wedge-shaped parts 37 thereof into the wood member 15a. The hinge member is thus kept aligned in the desired vertical position. Two or more hinges are provided to each door 27.

The modular cabinet structure shown in FIG. 1 is of L-shaped configuration and the branches thereof are of substantially like construction in that each is provided with a bottom panel 10 having a front row of holes 10a and a back row of holes 10b for receiving the dowels of the divider panels 14. Each arm is also provided with a back panel 12 having a rail 13 attached thereto which is provided with spaced holes such as the hole 13a shown in FIG. 2 for receiving the dowels 23 of the divider panels. Front members 25 and 26 which also have dowel receiving holes are provided to both arms. One set of the cross members 25 and 26 extends from the bottom of the cabinet to the back panel while the other set is cut and the abutting parts thereof attached to the first set as shown in FIG. 1.

A conventional rotating shelf and accompanying hardware (not shown) may be positioned in the corner area of this cabinet structure if desired. Access thereto is gained to the innermost part of this area for storage of articles. On the other hand, a corner post arrangement such as shown in the fragmentary view in FIG. 10 may be provided so that a divider panel 14 may be located extending from the corner 40 to one of the back panels 12. In such instance one side of the corner area is left open into a compartment that is accessible from the front of the cabinet. A set of rotatable shelves (not shown) of conventional construction may also be employed in the corner area in this latter case where one side of the corner area is enclosed by a divider panel 14 as shown in FIG. 10.

Where the divider panel 14 is used on one side of the corner area, an upright member 41 is also provided as shown in FIG. 10. This upright member has a groove 42 cut therein for receiving one side of the front member 15a.

The front and back members 15 and 16 of the divider panels may be provided with holes 15a and 16a, respectively, as shown in FIG. 1, so that suitable shelves 45 or drawer supports 48, such as shown in FIGS. 8 and 9, may be supported in the modular cabinet compartments at different levels, as desired. The shelf 45 is provided with a front member 46a and a back member 47 and these members have dowels 46a and 47a, respectively, projecting from the ends thereof. These dowels are adapted to be positioned in selected holes 15a and 16a, respectively, of the divider panels, depending upon the level at which the shelf is desired. These dowels extend only part way into the holes 15a and 16a so that other dowels may be placed into the same holes from the opposite sides of the divider panels.

Drawer supports 48 such as shown in FIG. 8 may be provided in the modular cabinet compartments. Each of these drawer supports is provided with a front member 51 and a rear member 52 which are attached to the front and back, respectively, of the divider panels. Drawer guide 50 is attached to these members. The front member 51 is provided with dowels 51a extending from the ends thereof and these dowels are adapted to be positioned in selected holes 15b of the front members of the divider panels. Likewise the back member 52 is provided with dowels 52a extending from the ends thereof and these dowels are adapted to be positioned in holes 16a formed in the rear members of the divider panels. Thus the drawer supports may be positioned at different levels and spaced crosswise between the loops 34 formed on the other hinge member 32. When the hinge members 29 and 32 are assembled, the pin 33 is positioned in the loops 31 and 34. The hinge member 32 is also provided with a threaded member 35 which is adapted to be positioned in the hole formed in the front member 15a. A suitable nut 36 is provided to this threaded member for adjusting the hinge to the front member 15a and drawing the sharp wedge-shaped parts 37 thereof into the wood member 15a. The hinge member is thus kept aligned in the desired vertical position. Two or more hinges are provided to each door 27.

In the assembly of this cabinet structure in the kitchen or other room of the house or apartment, suitable members 2 x 4's 10c are first laid down on the floor and the bottom panels 10a are positioned on the top of these members and securely attached thereto by nails or the like. Thereafter the divider panels 14 are erected on the bottom panel 10 by placing the dowels 20 and 24 thereof in the selected holes 10a and 10b, respectively, so that the desired sized cabinet compartments between the divider panels are established. The back panel 12 is then positioned on the divider panels by inserting the dowels 23 of the divider panels into the selected holes 13a of the member 13 attached to the back panel 12, and the bottom parts of the back panel are attached to the bottom panel and to the divider panels by nails or the like. The front members 25 and 26 are then attached to the divider panels by placing the selected dowels 25b and 26a thereof over the selected dowels 21 and 22, respectively. The front strip parts 11 are then cut to the desired lengths and attached to the front edges of the bottom panel 10. A suitable top which is plywood or the like is then attached to the top edges of the divider panels by screws or the like, and ceramic may be placed on top of the plywood.

On the other hand, a top made of Formica may be attached to the top of the divider panels by means of screws or the like. Where desired, a Formica panel may be cemented to the top of a plywood panel which is held to the top of the divider panels by screws or the like.

Where compartment shelves such as the shelves 45 are to be assembled with the cabinet structure as well as drawer supports 48, these must, of course, be assembled with the dowels thereof positioned in the selected holes in the divider panels before the positioning of the back panel 12 and the front members 25 and 26 thereon as otherwise it would be impossible to insert the dowels thereof into the selected holes. On the other hand, where the dowels 46a and 47a are not assembled with the shelf 45 when this shelf is inserted between the selected divider panels, then it is, of course, impossible to insert these dowels through the selected holes 15b and 16a of the divider panels from the opposite side of these panels, even after said panels are assembled in the desired positions in the cabinet structure. Suitable glue or cement could, of course, be injected into the holes in the shelf 45 ahead of the dowels so that they would be cemented thereto. A similar procedure may be followed in assembling the drawer supports 48 between the selected divider panels 14 after such panels are located and positioned in the cabinet.

The holes 15b and 16a in addition to functioning as positioning holes for receiving the dowels of the shelves and drawer supports also provide ventilation apertures between the compartments formed in the cabinet structure. The holes 10a and 10b in the bottom panel also function as ventilation holes in addition to providing means for receiving the divider panel dowels as previously described. In addition, the rear holes 16a in the divider panels between which the drawers are positioned function as air pressure relief holes when the drawers are being pulled in and out of their compartments.

While one of the divider panels 14 is shown in FIG. 1 as an end panel on the cabinet, a suitable plywood panel may be provided on the ends of the cabinet, either over the divider panel shown or in place thereof. Such a panel may be attached to the ends of the members 10c, 13, 25 and 26 and a suitable front finishing member such as 15a may be attached to the front edge thereof.

While we have shown a preferred embodiment of the invention, it will be understood that the invention is ca-

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pable of variation and modification from the form shown so that its scope should be limited only by the scope of the claims appended hereto.

What we claim is:

1. In a modular cabinet structure the combination of a bottom panel having a front row of dowel receiving holes substantially parallel to the front thereof and having a back row of dowel receiving holes substantially parallel to the back thereof, a back panel structure having a row of dowel receiving holes near the inner top thereof, top front rail structure having receiving holes in the bottom part thereof, a plurality of divider panels, the bottom of each of said divider panels having dowels for engaging said bottom panel in selected holes of said front row and of said back row, respectively, the top of each of said divider panels also having dowels engaging a selected hole in said back panel structure, said front rail structure having a front member and a rear member at different elevations, both of said members of said front rail structure having aligned dowel receiving holes, each of said divider panels having dowels at the front top thereof at different elevations to fit into the aligned holes of said front member and said rear member of said front rail structure, said rows of holes in said bottom panel, said back panel structure and said top front rail structure being substantially parallel and said holes in said rows being substantially equally spaced and aligned so that the positions of said divider panels may be arranged to provide compartments of different sizes in the cabinet structure, the respective dowels of each of said divider panels being adapted to be placed only into the aligned holes of said rows.

2. In a modular cabinet that is adapted to be assembled at the site of use from previously designed parts joined by friction joints to provide modules of different sizes in the cabinet, the combination comprising bottom panel means having a front surface and a rear surface parallel thereto, said bottom panel means having a front row of substantially equally spaced dowel receiving holes parallel to said front surface and a rear row of correspondingly substantially equally spaced dowel receiving holes parallel to said rear surface, the holes of said front row being aligned with the holes of rear row, a plurality of divider panels positioned on said bottom panel means, each of said divider panels having a width equal substantially to the width of said bottom panel means, each of said divider panels having a pair of bottom dowels attached thereto, said bottom dowels being spaced such that they may be placed only in a pair of aligned holes of said front row and said bottom row so that said divider panels cannot be attached to said bottom panel means in any position other than substantially right angles to said front and rear surfaces, a top front rail and a top rear rail supported on the tops of said divider panels, each of said rails having a row of dowel receiving holes that are spaced the same as the holes in said front row and said rear row, the individual holes of said rows in said front rail and said rear rail being aligned with individual holes of said front row and said rear row of said bottom panel means when one of the ends of each of said rails are aligned with one end of said bottom panel means, said divider panels having dowels attached to the top thereof near the front and rear thereof spaced apart such that they may be placed only in aligned holes of said front and rear rails when the bottom dowels of said divider panels are placed in corresponding holes of said bottom panel means, said dowels comprising the principal means for holding said divider panels, said bottom panel means, said top front rail and said top rear rail of the modular cabinet assembled in normally rigid fashion.

3. In a modular cabinet that is adapted to be assembled at the site of use from previously designed parts joined by friction joints to provide modules of different sizes in the cabinet, the combination as set forth in claim 2 further characterized in that said top front rail comprises a pair of parallel members one in front of the other, said front one of said parallel members extending downward below the other and engaging the top of a vertical front member of each of said divider panels.

4. In a modular cabinet that is adapted to be assembled at the site of use from previously partially assembled parts that are joined by friction joints to provide modules of different sizes in the cabinet, the combination as set forth in claim 3 further comprising a dowel attached to the top of said vertical front member and said front one of said pair of members having a row of equally spaced holes aligned with the holes in the other of said pair of members for receiving said last mentioned dowel.

5. In a modular cabinet that is adapted to be assembled at the site of use from previously partially assembled parts that are joined by friction joints to provide modules of different sizes in the cabinet, the combination as set forth in claim 2 further characterized in that said dowel receiving holes provided in said bottom panel means and said top front rail and said top rear rail and the corresponding dowels attached to said divider panels and positioned in selected ones of said holes hold the modular cabinet assembled, and a back panel attached to said rear top rail.

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