

June 26, 1962

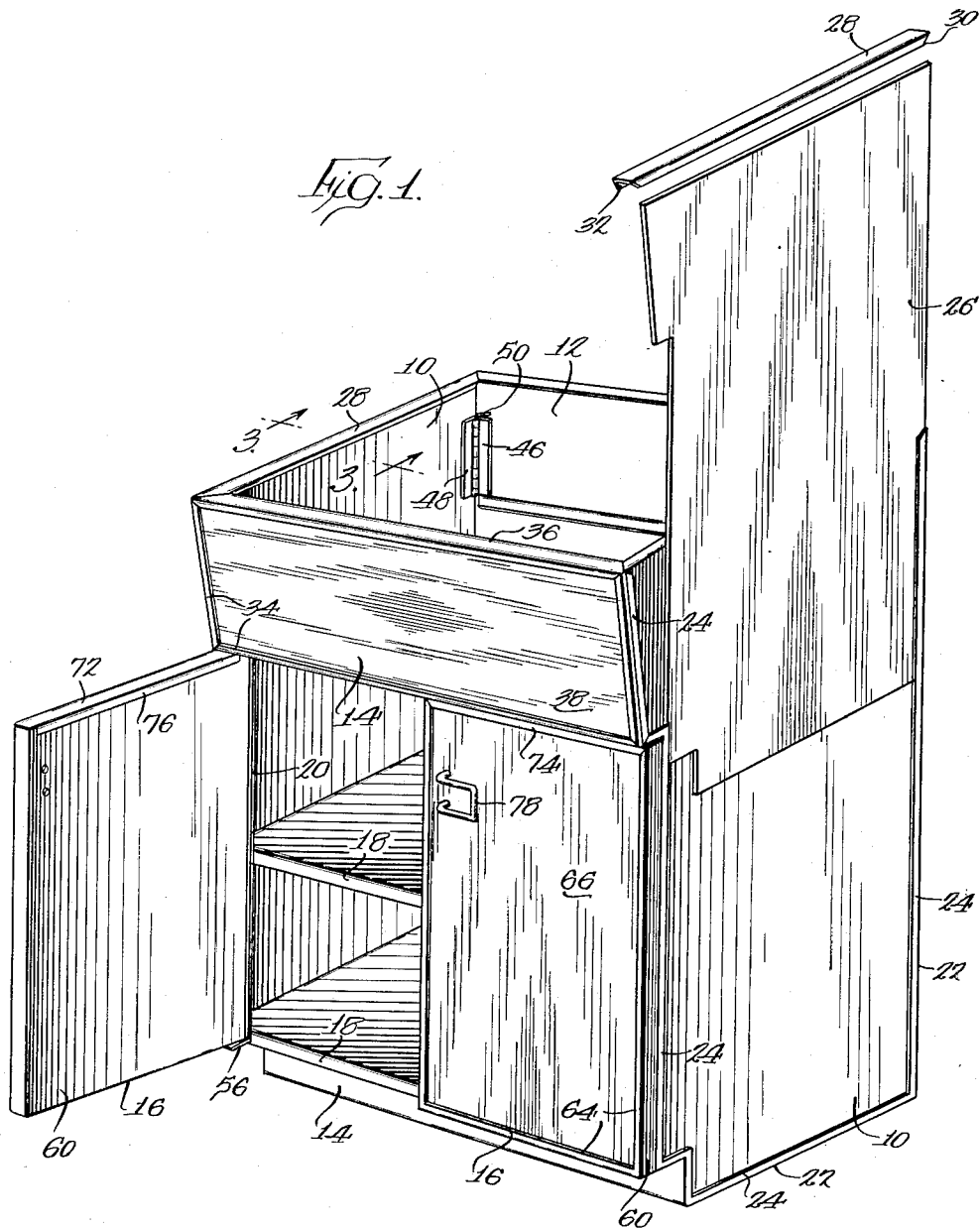
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3,040,848

CABINET

Filed July 3, 1958

3 Sheets-Sheet 1



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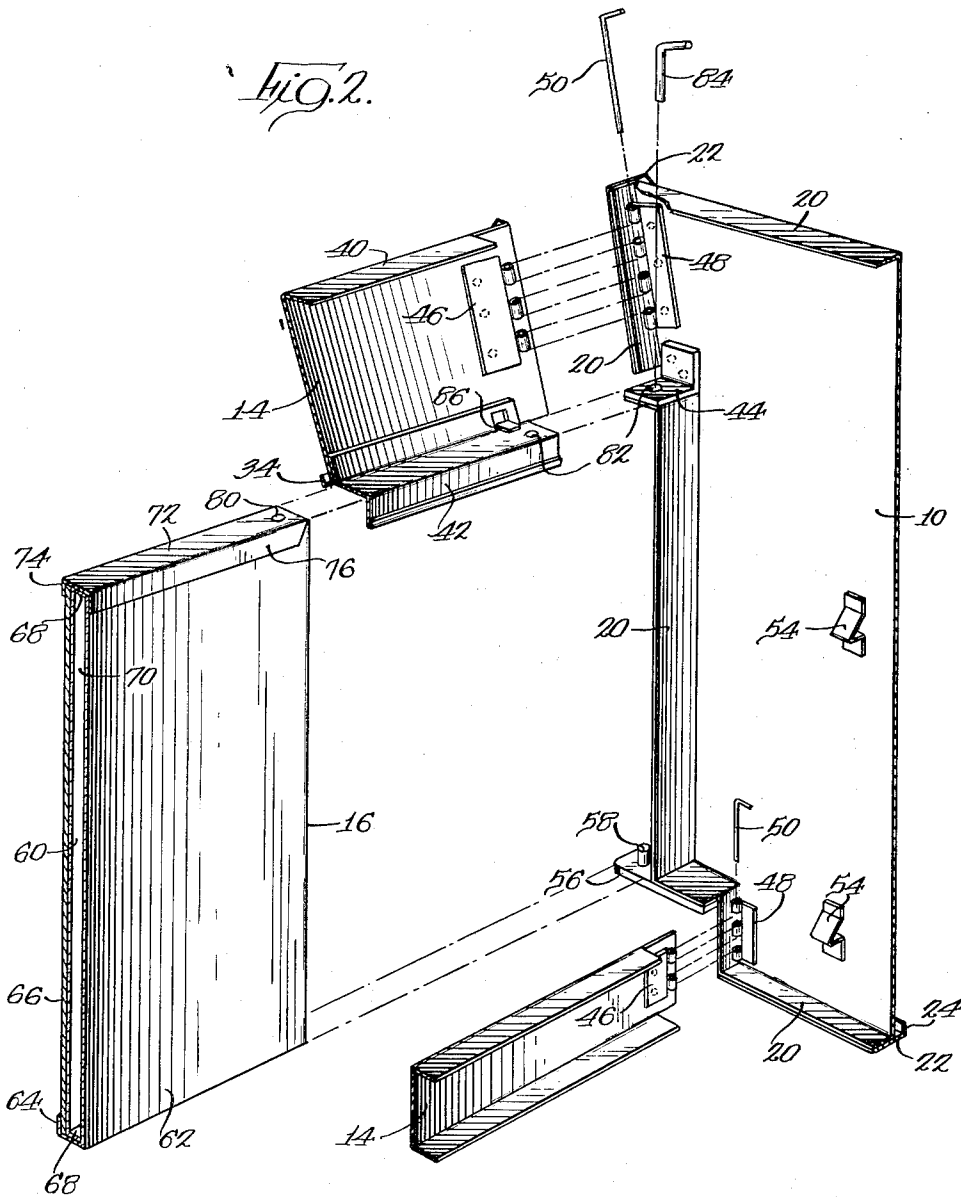
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3,040,848

CABINET

Filed July 3, 1958

3 Sheets-Sheet 2



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June 26, 1962

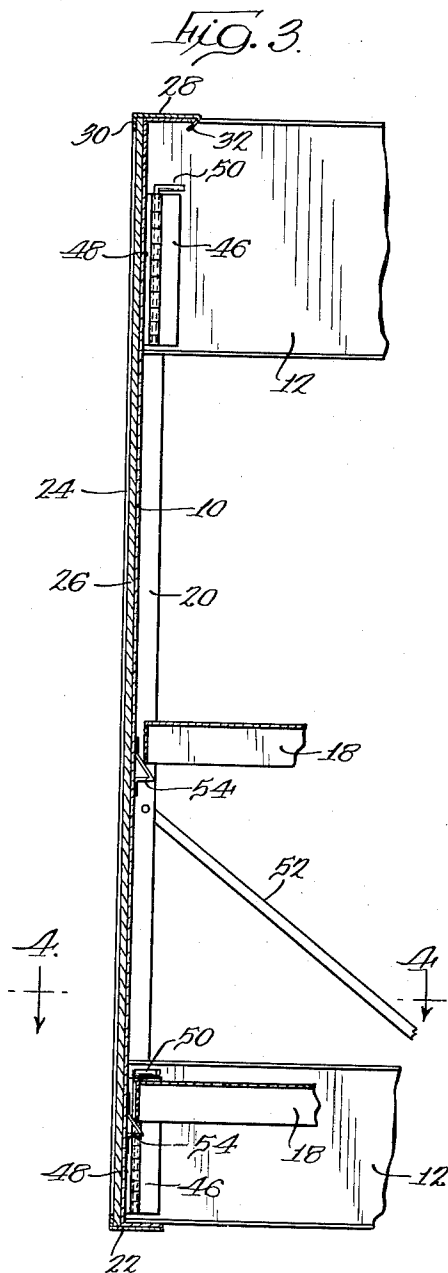
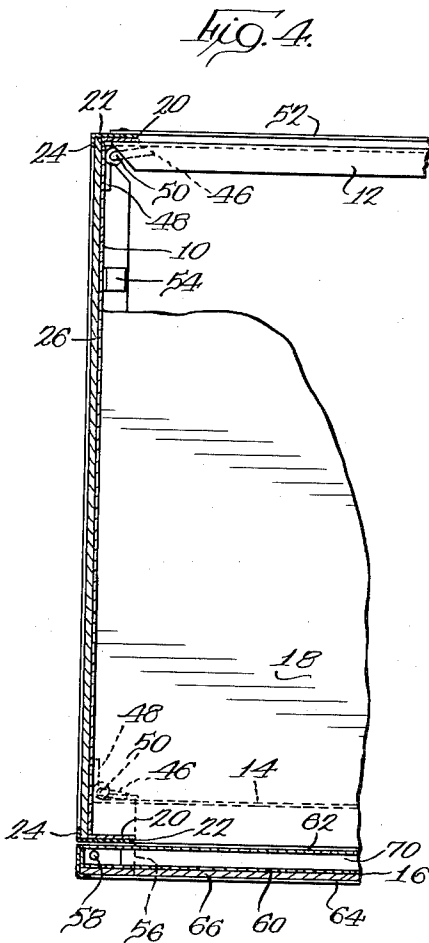
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3,040,848

CABINET

Filed July 3, 1958

3 Sheets-Sheet 3



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3,040,848
CABINET

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Filed July 3, 1958, Ser. No. 746,380
2 Claims. (Cl. 189—34)

The present invention relates to cabinets, chests, and like articles of furniture, and in particular, to an improved construction of such articles facilitating assembly, disassembly, storage, and shipment of the same, and ready finishing of the same to substantially any desired exterior decor.

This invention, while capable of broad application, was conceived in conjunction with the manufacture of bathroom vanities and it is therefore convenient to discuss the invention in terms of the particular product, from which example the full scope and true nature of the invention will become apparent.

In recent years, it has become the vogue to equip bathrooms and powder rooms with a vanity, i.e., a base cabinet within which the sink bowl is set, rather than simply to hang a sink from the wall. One style of vanity that has become particularly popular, due to its economy and scuff and wear resistance, comprises an economical wooden cabinet covered with a laminated plastic, such as those that are sold under the trademarks "Formica," "Textolite," and "Micarta." In the manufacture of such vanities, it is necessary to bond the laminated plastic to the exterior surface of all of the exteriorly revealed components of the cabinet, which in most cases are the two sides, the front panel and the doors. The components of the cabinet are then assembled in a conventional manner and fixed jointed together, whereafter a top, usually comprised of a plastic covered drain board within which the sink bowl is mounted, is secured to or rested on the top of the cabinet. The completed article is highly attractive and of substantial functional advantage.

However, the manufacturing process is relatively slow due to the necessity for bonding the laminated plastic to the components of the cabinet. The resultant product is subject to severe warping caused by bonding the plastic to wooden components of thin section, which are necessary if economy is to be maintained. Further, and of substantial importance, is the fact that the vanities must be shipped substantially as a completed unit, i.e., in assembled form, which creates an exceptionally large shipping cost. Due also to the fact that the vanity must be completely finished at the factory, and in view of the large number of colors and patterns available in laminated plastics, each dealer is required to maintain a large inventory of stock, and/or to subject his customers to long delays and extra expense by specially ordering each vanity.

The object of the present invention is to overcome the above enumerated disadvantages, and in particular, to provide improved vanity cabinets and like articles of furniture that may be manufactured economically according to modern mass production principles, will not be subject to warping, can be shipped in a completely knocked-down or unassembled condition as a substantially flat solid package, will simplify and minimize dealer inventories, may be assembled in a few moments without tools, and that can be provided quickly and simply with substantially any desired exterior decor by the manufacturer, the dealer, the building contractor, or the ultimate purchaser.

It is also an object of the present invention to provide an improved cabinet of exceptionally sturdy construction that is readily assembled and disassembled, and that can conveniently and economically be provided with an attractive exterior surfacing, such as laminated plastics,

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other laminated or built-up surfacing materials, wood veneers, fabrics, metals, baked enamel panels, etc. as desired by the ultimate user.

In brief, it is an object of the invention to provide articles of furniture, such as cabinets, chests, and the like, having the strength and economy of steel and the beauty of modern finishes.

Another object of the invention is the provision of improved articles of furniture as aforesaid which accommodate and facilitate ready change, by their owners, of their exterior decor.

A further object of the invention is the provision of improved articles of furniture as above described comprising sheet metal panels constituting the components of the article, complementary hinge leaves secured to adjacent edge portions of adjacent components, and pintle pins for securing each pair of complementary hinge leaves together for effecting assembly of the components. In the case of articles having doors, the assembly is likewise effected simply by dropping a pintle pin into place. With drawer equipped articles, the side components of the articles are pre-equipped with drawer guides, and the drawer is simply slid into place after the front, sides and back are assembled by the pintle pins.

A still further object of the invention is the provision of improved articles of furniture of the character defined in the preceding paragraph wherein the panels constituting the sides, front, doors, and/or drawer fronts of the articles are each bounded on three sides by a channel lip adapted for slidable reception of the edge portion of a sheet of finished material cut to appropriate size and form, and a clamping member also including a channel lip is provided for detachable association with the fourth or remaining side of the respective panel to completely enclose and detachably mount the finishing material on the panel.

Other objects and advantages of the invention will become apparent in the following detailed description.

Now, in order to acquaint those skilled in the art with the manner of making and using our improved articles of furniture, we shall describe, in connection with the accompanying drawings, a bathroom vanity cabinet made in accordance with the preferred embodiment of our invention.

In the drawings:

FIGURE 1 is a perspective view of a vanity cabinet embodying our invention and showing one sheet of finishing material in the process of being associated with one side panel of the cabinet;

FIGURE 2 is a fragmentary exploded view of the cabinet, the view being in the perspective and taken from the interior of the cabinet to illustrate the manner of assembly and disassembly thereof;

FIGURE 3 is a fragmentary vertical section of the cabinet taken substantially on a line 3—3 of FIGURE 1; and

FIGURE 4 is a fragmentary horizontal cross section of the cabinet taken substantially on line 4—4 of FIGURE 3.

Referring now to the drawings, we have illustrated a base cabinet intended primarily as a bathroom vanity and adapted for reception on the upper surface thereof of a top within which a sink bowl is mounted. Since the top and bowl are of well known conventional construction, the same are not illustrated herein.

The cabinet per se, in its preferred embodiment, includes a pair of side pieces or panels 10, a pair of vertically spaced horizontal back pieces 12, a pair of vertically spaced horizontal front pieces 14, two doors 16, and a pair of vertically spaced horizontal shelves 18, all preferably formed of sheet metal.

The two side panels 10 are of the same construction

as one another, but are of opposite hand. Each side panel comprises a planar main surface of the desired size and configuration, which may, if desired, be formed of one or more pieces of sheet metal suitably secured together. The panel is provided at the edges thereof with inwardly directed reinforcing flanges 20, whereby each side piece is formed basically as a shallow pan. Secured to the side and bottom edges of this pan, on the flange 20 thereof, are angle members 22 which form a continuous channel lip about the side and bottom edges of the panel, the lip 24 of the angle members being spaced outwardly from the planar surface of the pan to define a channel for reception of the corresponding edge portions of a sheet 26 of finishing material cut or formed to the same configuration as the side panel. The angle members 22, like the pan, are preferably formed of sheet metal and are preferably secured to the flanges 20 by spot welding.

The finishing material employed may, as previously noted, comprise laminated plastics, other laminated or built-up surfacing materials, wood veneers, fabrics, metals, baked enamel panels, etc. When fabrics are employed, it is preferred that the same be mounted on a relatively stiff backing material, such as cardboard, thin plywood, or the like. The lip 24 of the angle members 22 is spaced outwardly from the surface of the side pan a distance to accommodate the material to be used. For example, if a laminated plastic $\frac{1}{16}$ inch thick is to be employed as the finishing sheet, the channel for reception of the same is suitably $\frac{5}{64}$ inch wide and about $\frac{3}{8}$ inch deep.

To enclose the upper edge portion of the finishing sheet 26 applied to each side panel, a clamping or retaining member 28 is provided, the same preferably being of generally channel form in cross section and including a bight portion slightly wider than the flange 20 of the side piece, a lip 30 corresponding to the lips 24 of the angle members 22, and an inclined inner leg 32 adapted to engage the inner edge of the flange 20 to hold the member 28 in place. When in place, the lip 30 of the member 28 complements the lips 24 of the members 22 to complete the sheet receiving channel about the full perimeter of the side panel. In use, the clamp 28 may readily be removed from the flange 20 at the top of the side panel 10 by rotating the same about the inner edge of the flange 20 as though the latter were a pivot. When the member 28 is removed, one side (i.e., the top edge) of the channel is open to accommodate slidable insertion into or removal from the remainder of the channel lip of the sheet 26 of finishing or surfacing material, as is illustrated in FIGURE 1. The sheet 26 is slid into or removed from the panel in a simple and convenient manner, and when inserted is fixedly retained against the planar surface of the pan 10. The clamping member is then reapplied to complete the assembly. If desired, the member 28 may also be retained in place by screws extending through the bight portion thereof into the flange 20, or such screws could be used as an alternative to the inclined leg 32 of the member. Another alternative would be to substitute spaced bendable tabs for the leg 32, the tabs being bent, as is known in the art, under the flange 20 after assembly on the panel of the sheet 26.

The upper one of the front pieces 14 is also formed in such manner as to define a channel lip 34 about the bottom and side edges thereof, and the same includes a clamping member 36 similar to or the same as the members 28, whereby the upper front piece is adapted for reception of a sheet 38 of finishing or surfacing material in the same manner as the side panels. The upper front piece or panel 14, however, is made in a somewhat different manner, as this piece is not provided with an inwardly directed flange about its full perimeter. Specifically, as best shown in FIGURE 2, the upper front piece of the cabinet includes a sheet metal panel comprising a planar surface and bottom and side edge portions that

are bent forwardly of and then parallel to the planar surface to define the channel lip 34. At its upper edge, the panel is bent inwardly to define a flange 40 for reception of the clamping member 36. Secured to the inner surface of the panel adjacent the lower edge thereof is an angle member 42 which defines the lintel for the door 16. The member 42 at its ends is spaced inwardly of the side edges of the panel, so that the panel may fit flush against the flanges 20 of the side panels at the mating portions thereof, and the member 42 may fit between the side panels 10.

The horizontal leg of the Z-bar member 42 rests on top of an angle bracket or ledge 44 provided on the side panel 10 for a purpose to be described, and the vertical leg engages behind this ledge 44 and behind the flange piece 20 which extends vertically downward from the ledge. At the adjacent edge portions of the upper front piece 14 and the side pieces 10—10, each pair of adjacent pieces are provided with complementary hinge leaves 46 and 48, respectively, the loops of which interfit with one another to form a pinned coupling. To secure the respective pair of pieces or panels together, a pintle pin 50 is dropped into the aligned hinge loops, whereby the assembly is effected in a most expedient manner and disassembly is facilitated. With the pins 50 in place, the flanges 20 of the side panel 10 abut against the mating surfaces of the front panel 14 and its supporting member 42, and the edge of the member 42 abuts against the inner side of the side panel 10, thereby to mitigate relative movement of the two.

The lower one of the front pieces 14 and the two back pieces 12 are not normally exposed to view and we do not, therefore, provide these surfaces with finishing material. For this reason, these three pieces are formed essentially as simple sheet metal channels, with the legs or flanges thereof extending inwardly of the cabinet. Like the upper front piece 14, these pieces are assembled to the side panels by means of complementary pairs of hinge leaves 46—48 and pintle pins 50, the adjacent edge portions of the respective pairs of pieces including surface portions abutting one another to mitigate relative movement between the two pieces of each pair. In the illustrated embodiment of the cabinet, the lower front piece 14 comprises the kick plate within the customary toe space, and the back pieces 12 are located, respectively, adjacent the upper and lower edges of the cabinet.

Further to brace the cabinet, a pair of diagonal struts 52 are extended between the center of the lower back piece 12 and the central portion of the flange 20 on the back edge of each side panel.

Secured to the inner surface of each side panel are two corresponding pairs of brackets 54, each secured adjacent its lower edge to the panel and each including an inclined upper portion defining a wedge surface. The shelves 18 of the cabinet are rested on respective sets of the brackets and are forced downwardly against the wedge surfaces thereof, thereby further to brace the cabinet and constitute the side, front, and back pieces thereof a rigid assembly. The lower one of the shelves is preferably located immediately above the lower one of the front pieces 14 so as to constitute the upper surface of the toe space of the cabinet. The shelves 18 are preferably made of sheet metal in the form of inverted shallow pans, whereby the same have substantial structural rigidity.

At the edge portion of each side panel defining the upper surface of the toe space of the cabinet, a ledge defining member 56 is secured to the lower surface of the flange 20, which member projects horizontally forwardly of the cabinet. This ledge is aligned vertically with the ledge 44 and adjacent its outer end carries an upwardly extending pin 58 for hinged mounting the respective one of the doors 16.

Each of the doors 16, as best illustrated in FIGURE 2, is constructed of two slidably associated members comprising inner and outer pans 60 and 62, respectively. The

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outer pan 62 comprises a planar portion defining the inner surface of the door and the same is bent at its lower and side edges to define a wide or deep channel lip 64 corresponding generally to the lips 24 and 34 on the side panels 10 and the upper front panel 14. In particular, the lip 64 of the channel is the same as the lips 24 and 34. The channel is entirely open at the upper edge of the door to accommodate slidable insertion therein of the inner pan 60 and a sheet 66 of finishing material. The inner member 60 of the door is formed as a shallow sheet metal pan having an inturned flange 68 at all four edges thereof. The flange 68 is of a height to space the planar surface of the inner pan from the planar surface of the outer pan, thereby to define a space 70 for reception of a sound deadening filler, if desired, and also to provide a door of customary thickness. The pan 60 is sufficiently shallow to define between its planar surface and the lip 64 a channel of appropriate size for the sheet 66 of finishing material. At its upper edge, the inner pan includes a channel 72 which is secured at its bight portion to the adjacent portion of the flange 68. This channel 72 includes an outer lip 74 corresponding to and complementing the lip 64 on the outer pan for enclosing the upper edge of the finishing sheet 66, and the same also includes an inner lip 76 which is adapted to overlie the upper edge of the outer pan 62 to prevent exposure of a sharp and potentially dangerous metallic edge. If desired, the two pans can be secured together by sheet metal screws extending through the lip or flange 76 into the planar portion of the pan 62. To complete the assembly, holes are drilled through the planar portions of the two pans, and through the finishing sheet, adjacent the inner vertical edge thereof to accommodate mounting on the respective door of a suitable handle 78. If the cabinet were equipped with drawers, the drawer fronts would preferably be made in the same manner as the doors.

Adjacent the outer vertical edge thereof, each door is provided in its upper and lower surfaces with aligned holes 80, the hole in the lower surface of the door being adapted for reception of the hinge pin 58 and the hole in the upper surface of the door being adapted to be aligned with hole 82 in the angle member 42 and ledge 44 for reception of a pintle pin 84, by means of which the respective door is hingedly mounted on the respective side panel. Preferably, the inner pan 60 of each door includes a reinforcing plate at each portion thereof provided with a hole 30, thereby to assure proper hinged mounting of the doors. The pintle pin 84, like the pins 50, is preferably of inverted L shape, and the horizontal leg thereof is adapted to be swung under and retained in position by a clip 86 secured to the angle member 42 of the upper front piece 14.

By virtue of the above described construction, we have afforded an improved cabinet that in itself is exceptionally economical, and we have also rendered it possible to ship and merchandise such cabinets in an economical manner. In particular, our cabinets can be shipped and inventoried in a knocked-down condition as a substantially flat package. The two side panels can be laid flat on top of one another, and the doors, the front and back pieces, the bracing struts and shelves can be laid flat on top of them, the whole package being of about the same planar dimensions as one side panel. Inserted in the package is an envelope or bag containing the 10 pintle pins, a few sheet metal screws, and the door handles. Such packaging effects significant savings in shipping costs and the cost of inventory space. At the dealer's place of business, all but one of the packages shipped can be stored in their initial condition and only one cabinet need be set up for display purposes.

The cabinet is erected in a simple manner, as will be obvious from the preceding description, involving only the setting up of the two side pieces, the two front pieces, and the two back pieces, and the insertion of the eight pintle pins 50. The struts 52 are then attached, the shelves 13 put in place and the doors hung by means of the two pins 84. Before setting the cabinet up, however, it would

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usually prove convenient to install the finishing material on the panels and the doors. To cut the material to size, the respective panels and doors themselves may serve as templates, since the channel lips are located at the immediate edges of the respective components. The configuration is simply traced on the material and the material cut slightly inside the tracing line. The respective clamping members 28 and 36 are removed from the panels 10 and 14, the respective sheets 26, 38 of finishing material inserted, and the clamping member reapplied. In the case of the doors, the inner pan is slid partially out of the outer pan, the respective sheet 66 of finishing material inserted and the inner pan returned to its assembled position. The handles may then suitably be installed. If the dealer desires to do so, he can cut finishing sheets from a variety of colors and patterns of laminated plastics, from metals, and so on, and thereby be prepared to change the decor of the cabinet in a few moments to satisfy the customer's taste and aid in prompt selection of finishing material. As will be apparent from the preceding description, the sheets of finishing material can be changed on the side and front panels simply by removing the clamping members 28 and 36. In the case of the doors, it is necessary to remove the pintle pins 84, remove the doors from the cabinet, and remove the handles. However, this can all be accomplished in a short space of time.

When a cabinet is ordered, the dealer can conveniently cut the sheets of finishing material from bulk supplies of stock, or can supply the sheets out of pre-cut stock and/or pre-finished stock and simply ship from stock a knocked-down cabinet, thereby further simplifying handling. The metallic components of the cabinet can be painted in a variety of colors to blend with various finishing materials, or can be left unfinished, especially when made of non-tarnishing, non-corroding metals, thereby further to simplify supply and inventory and yet accommodate prompt satisfaction of a purchaser's order. The cabinet can be set up on the job in a matter of moments by unskilled personnel. Also, the ultimate purchaser can conveniently change the decor of the cabinet or disassemble and reassemble the cabinet at will. In all its forms, the cabinet is exceedingly attractive, as will be appreciated from FIGURE 1.

Thus it is seen that the objects and advantages of this invention have been attained in a convenient, economical and practical manner. It will be particularly apparent to those skilled in the art that the invention may readily be applied to a wide variety of articles of furniture, such as base and top kitchen cabinets, chests, dressers, buffets, highboys, etc.

While we have shown and described what we regard to be the preferred embodiment of our invention, it will be appreciated that various changes, rearrangements, and modifications may be made therein without departing from the scope of the invention, as defined by the appended claims.

We claim:

1. A construction for doors, drawer fronts and the like in articles of furniture, comprising a first panel having a generally plane surface defining one side of the door and including a channel lip at all but one side thereof, and a second panel of a size only slightly smaller than said first panel and of a thickness less than the spacing of said channel lip from said plane surface of said first panel, said second panel being slidably insertable into the channel lip of said first panel through the open side thereof and including at the side thereof corresponding to said one side of said first panel a channel lip complementing the channel lip on said first panel and closing the lip at said one side, said second panel including a generally plane surface spaced inwardly of the door from said channel lips and said channel lips defining a recess for reception of the edge portions of a sheet of finishing material formed to the same configuration as said panels, the channel lip on said first panel slidably receiving the edge portions of the sheet through the open side thereof and the channel lip

on said second panel enclosing the edge of the sheet and detachably securing the sheet on the panels to form the exterior surface of the door.

2. A construction for doors, drawer fronts and the like in articles of furniture, comprising a first panel having a generally plane surface defining one side of the door and including a channel lip at all but one side thereof, and a second panel of a size only slightly smaller than said first panel and of a thickness less than the spacing of said channel lip from said plane surface of said first panel, said second panel being slidably insertable into the channel lip of said first panel through the open side thereof and including a generally plane surface and a flange for spacing said plane surface from the plane surface of said first panel, the space between said plane surfaces of said panels being adapted for reception therein of a sound deadening filler, said second panel at the side thereof corresponding to said one side of said first panel including a channel lip spaced from said plane surface thereof, said channel lip on said second panel complementing the channel lip on said first panel and closing the lip at said one side, said channel lips defining a recess for reception of the edge portions of a sheet of finishing material formed to the same configuration as said panels, the channel lip on said

first panel slidably receiving the edge portions of the sheet through the open side thereof and the channel lip on said second panel enclosing the edge of the sheet and detachably securing the sheet on the panels to form the exterior surface of the door.

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