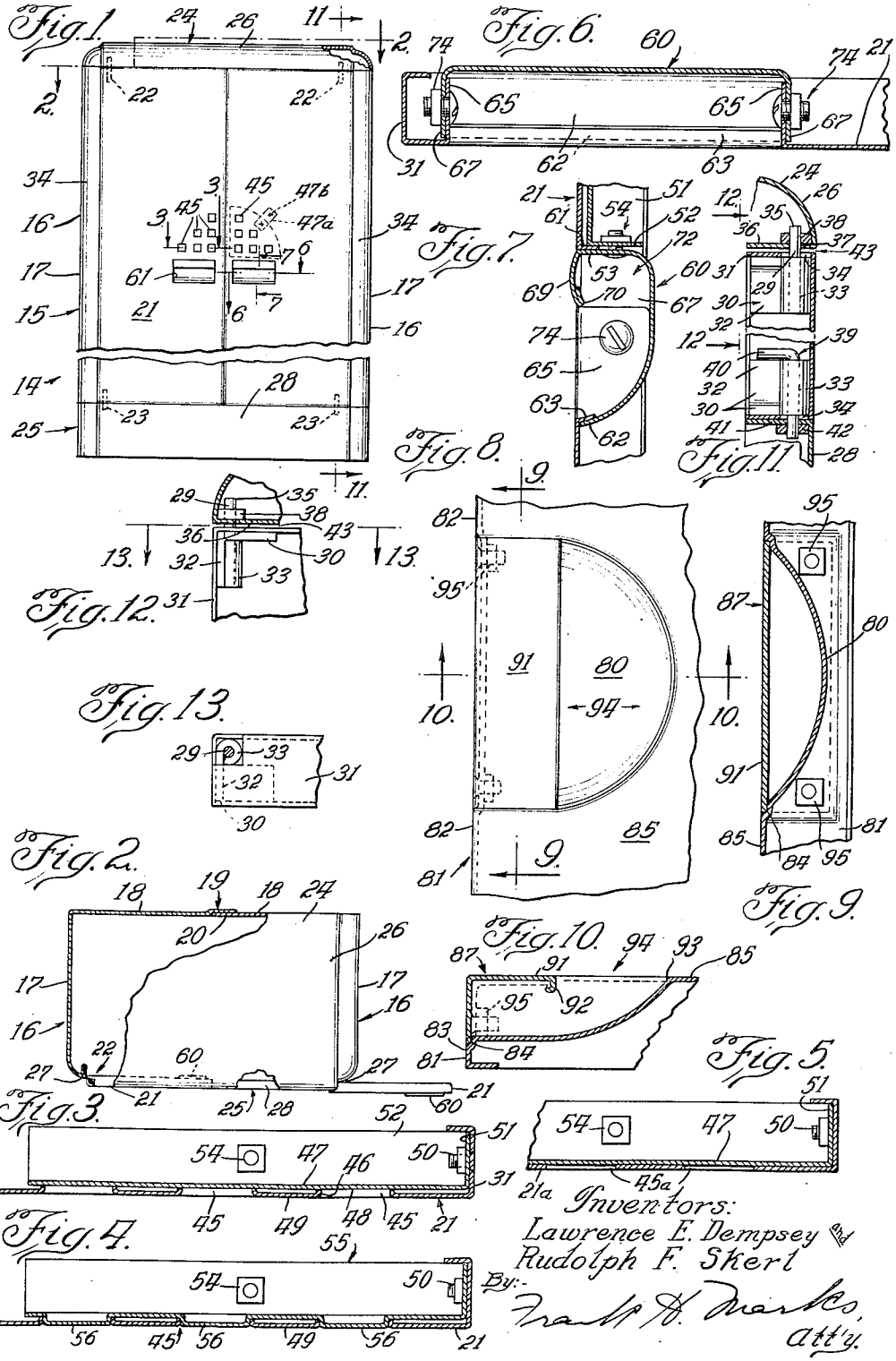
Feb. 23, 1943. L. E. DEMPSEY ET AL 2,311,645

CABINET CONSTRUCTION

Filed Aug. 14, 1939



Patented Feb. 23, 1943

2,311,645

# UNITED STATES PATENT OFFICE

2,311,645

## CABINET CONSTRUCTION

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Application August 14, 1939, Serial No. 290,020

3 Claims. (Cl. 312—141)

This invention pertains to cabinets and is concerned more particularly with those formed of sheet material such as sheet metal.

In the construction of sheet metal cabinets, it has been customary in the past to form the body portion of three pieces, comprising the side walls and the rear wall, necessitating two lines of welding. The welding is an important item from a cost standpoint. It has been proposed to form the body in a single piece, but the cost of dies and process of construction necessary in such case has been found to be prohibitive.

It is an object of our invention to provide an improved process of making sheet metal bodies for cabinets and like purposes whereby the cost of manufacture is substantially reduced.

It is another object to provide a cabinet construction comprising one or more doors mounted on concealed hinges yet adapted to be swung open 180°.

A further object of the invention resides in the provision of concealed hinge construction for a cabinet door.

It is also an object to provide an improved means for obtaining ornamental effects in cabinet and other constructions.

It is also an object to provide an improved sunken handle construction for cabinet doors and other devices.

Further objects and advantages of the invention will appear as the description proceeds.

The invention will be better understood upon reference to the following description and accompanying drawing, in which:

Fig. 1 is a front elevation of a cabinet constructed in accordance with certain features of the invention.

Fig. 2 is a fragmentary sectional plan view taken substantially as indicated by the line 2—2 in Fig. 1.

Fig. 3 is an enlarged fragmentary sectional view of an ornamental feature of our invention, taken as indicated by the line 3—3 in Fig. 1.

Figs. 4 and 5 are views similar to Fig. 3 but of modified constructions.

Fig. 6 is an enlarged fragmentary sectional view of a handle structure embodying the invention, taken as indicated by the line 6—6 in Fig. 1.

Fig. 7 is a fragmentary sectional view taken as indicated by the line 7—7 in Fig. 1.

Fig. 8 is an enlarged fragmentary elevation of a modified handle construction.

Fig. 9 is a fragmentary sectional view taken as indicated by the line 9—9 in Fig. 8.

Fig. 10 is a fragmentary sectional view taken as indicated by the line 10—10 in Fig. 8.

Fig. 11 is an enlarged fragmentary sectional view taken as indicated by the line 11—11 in Fig. 1.

Fig. 12 is a fragmentary elevation taken as indicated by the line 12—12 in Fig. 11.

Fig. 13 is a fragmentary plan view taken as indicated by the line 13—13 in Fig. 12.

Referring now more particularly to the drawing, there is shown generally at 14 a cabinet illustrating the invention, said cabinet comprising a body 15 having left and right sections 16 constituting in effect complemental halves of the body. The sections 16 have side panels 17 and integral rear panels 18 overlapping as at 19 at preferably the vertical center of the rear wall and integrally joined as by spot welding or other welding 20, riveting or any other suitable means throughout the height of the body.

In forming the sections 16, suitable dies and breaks (not shown) are used, and such apparatus is readily adjustable to obtain various side panel and rear panel dimensions by varying the size of the sheet of material used, as is understood by those skilled in the art. Accordingly, in the process of forming the cabinet body according to our invention, no new forming apparatus is needed. The making of the body in a single piece is unfeasible for the reasons, among others, that the forming operations and die structure are complex and expensive and that, in many cases, standard sizes of sheet metal produced in accordance with standard mill practice do not include the great width necessary in such cases, the maximum standard width being 48 inches. With the present invention, instead of using two sheets which terminate at the rear close to the bends and adding a third sheet for connecting the first two, we employ only two sheets, which overlap at the back. The three-piece construction thus requires the formation of one extra piece and also an extra welding job. The elimination of the extra piece and the extra line of welding results in a substantial saving (about 15% or more) in the cost of manufacturing the body.

Another feature of the invention embodies the support of the doors in such manner that the doors may be opened substantially 180° instead of the conventional angle of approximately 90°. The cabinet may have one or more doors, two being illustrated for exemplary purposes at 21.

These doors are hinged at 22 and 23 to the top or roof 24 and base 25. It will be observed that the top 24 has an embossed portion 26 which projects forwardly of the front plane of the foremost portions 27 of the body sections 16. It will likewise be observed that the base 25 has a forwardly embossed portion 28 likewise projecting forwardly of said plane. It is therefore evident that in accordance with this invention provision is made for the swinging of the doors completely out of the way without exposing any hinge construction whatever. A further advantage of the construction referred to is that the embossed portions 26 and 28 afford reinforcement for the respective parts upon which they are formed.

The hinge construction shown generally at 22 comprises a pin 29 which may be mounted either in a door or in the cooperating stationary part 24 of the cabinet. As shown, it is mounted in the door 21. Any suitable mounting may be employed, although the mounting shown is preferred. This comprises a supporting member 30 which may serve as a corner reinforcement for the door flanges 31. This member is preferably L-shaped in development, providing arms preferably welded to the inner faces of the corner-forming door flanges 31. One arm 32 of said member is curled to form an eye 33 in which is welded or otherwise fixed the hinge pin 29. The horizontal flange 31 of the door has an opening 34 through which the free end 35 of the pin projects. The juxtaposed flange 36 of the cabinet top has a hole 37 above which is welded or otherwise fastened a washer or sleeve serving as a bearing for the end 35 of the pin.

The cooperating hinge structure shown generally at 23 is quite similar to that above described, except that it employs a different pin 39 having an arm or handle portion 40 by means of which the pin may be manipulated, the pin preferably being removably fitted in the lower eye 33 and the opening in the base boss flange 41 and the bearing 42 welded thereon. The arm 40 limits the penetration of said pin. The eyes of each door are axially alined.

Each door is readily assembled with the cabinet body by first manipulating the door so as to insert the pin 29 upward into the top opening 37 and bearing 38, swinging the door to aline its lower eye with the bearing 42, and then inserting the pin 39 in the lower eye and the alined bearing 42. The door in operative position rests on the flange 41, and when it does there remains between the door and the top flange 36 a slight clearance 43 which does not detract materially from the appearance of the cabinet and yet is sufficient to enable the door to be assembled with the body as explained above and to be disassembled therefrom should the occasion require.

An additional feature of the improved cabinet construction embodied in this invention resides in the provision of multitone ornamentation. To this end, any suitable part, preferably a door, is formed with perforations 45, the walls defining which are preferably flanged backward, as at 46, to impart substantial depth to the perforations. Behind said perforations is secured a back plate 47 suitably secured to the door as by a strap 47a which may be welded in place as at 47b or secured in any other suitable manner. The plate 47 has an exposed surface 48 preferably contrasting in color with the exposed surface 49 of the door to provide the desired ornamental effect. The back plate may assume any desired shape depending among other things upon the arrangement of the perforations, and may be conveniently and securely mounted in place as by means 50 passing through a flange 51 in the plate and the flange 31 in the door, the flange 31, if desired, defining the free longitudinal edge of the door. The back plate 47 may be additionally anchored by means of a flange 52 thereon and a portion 53 of a handle member, with which flange and portion suitable screw means 54 or other suitable fastening means cooperates. The back plate 47 may have its ornament-providing surface 48 substantially flat so that, with the walls of the perforations 45, they form wells, as shown in Fig. 3. If desired, as shown in Fig. 4, the back plate 55 may project so as to terminate forwardly flush with the surface 49 as shown at 56, the portions 56 in such case being embossings on the plate 55. Or, as shown in Fig. 5, the door as shown at 21a may be flat and perforated as at 45a, the back plate lying flush against the door.

Also in accordance with the invention there is provided an improved handle construction which preferably terminates forwardly substantially flush with the forward surface of the door. One form of such construction is shown in Figs. 1, 6 and 7. It comprises a handle member 60 which is in the form of a shell fitted in an opening 61 in the door. The shell may have its upper portion 53 in substantial engagement with a rearwardly bent upper portion 61 on the door and its lower portion 62 under and in engagement with a similar flange 63 extending rearward from the front of the door. If desired, the flanges 61 and 63 of the door may be spot welded or otherwise suitably secured to the adjacent upper and lower portions 62, respectively, of the shell 60. At said opening, the door is provided with rearwardly extending flanges 65, the lateral portions 67 of the shell respectively straddling the door flanges 65. The top portion 53 has a forward extension 69 which is bent downward in substantially flush relation to the adjacent front surface of the door, and has a beaded edge 70 which terminates adjacent the upper ends of the flanges 65. There is thus formed a pocket or recess 72 in the shell and the fingers of a person may be slipped into the recess 72 as the person grasps the handle portion 69, whereby the door may be conveniently manipulated about its hinges 22 and 23. The lateral portions 67 of the shell may be conveniently secured as at 74 to the flanges 65. The means 54 for anchoring the ornamental back plate 47 or 55 may be employed to serve as additional anchoring means for the handle.

In accordance with another form of handle construction included in the invention, the door may be formed with a depression 80 in its front face adjacent the longitudinal free edge flange 81 so that the corner 82 of said edge is interrupted as shown in Fig. 8, and said flange defining a border 83 of said depression formed with a rabbet 84 extending longitudinally and transversely within the flange. Said rabbet also extends in the front portion 85 of the door from the flange. A handle member for use in this construction may be of angular form as shown at 87 to conform to the angle between the flange 81 and the front portion 85 of the door, and the configuration of the handle member is such that it seats in the rabbet as shown in Figs. 8, 9 and 10, the thickness of the handle 87 being substantially equal to the depth of the rabbet so that, when properly seated, the exposed sur-

faces of the handle are substantially flush with the adjacent exposed surfaces of the flange 81 and front portion 85 of the door. The depression 80 is bridged by the handle member 87, and the portion 91 of the handle member extending at the front of the door terminates in an edge 92 which may be beaded as a safety measure and which is substantially spaced from the portion 93 of the depression most remote from the flange 81, leaving ample clearance 94 for the admission of one's fingers, whereby the portion 91 may be grasped as a handle for manipulating the door. The handle may be secured in place by threaded means 95 or any other suitable means.

The various parts other than hinge pins and fastening means are preferably formed of sheet material such as sheet steel although any other suitable material may be employed if desired. The various phases of the invention involve extremely simple construction requiring a minimum of parts which are produced by simple stamping or screw machine operations enabling the cabinet as a whole to be constructed at substantially lower cost than is true of past cabinet constructions. The handle constructions in addition to being simple and attractive are capable of being embodied in a variety of esthetic designs without departing from the principles of the invention. It will be observed that the means for anchoring the handles in place are substantially concealed from view in the use of the cabinet.

The exposed surfaces of the handles 60 and 87 may be colored to contrast with the exposed surfaces of the doors with which the handles are associated. For example, white enamel doors and black enamel handles provide an attractive contrast.

Various modifications may suggest themselves to those skilled in the art without departing from the spirit of our invention, and, hence, we do not wish to be restricted to the specific form shown or uses mentioned, except to the extent indicated in the appended claims, which are to be interpreted as broadly as the state of the art will permit.

We claim:

1. A cabinet construction comprising a frame member, having a rearwardly extending horizontal flange and a hole through said flange, a bearing sleeve secured to the unexposed side of said flange with the bore of said sleeve in line with said hole, a door having angularly related rearwardly extending horizontal and vertical flanges meeting at a corner of said door, a reinforcing angle member joined to the inner faces of said door flanges, the horizontal flange of said door having a hole, the vertical arm of said angle member being curled into an eye whose bore is alined with said hole in said door, and a hinge pin secured in said eye and disposed in said holes and bearing sleeve.

2. A cabinet comprising a sheet metal body having a back and sides and having front portions projecting toward each other from said sides, a top cover plate resting on and projecting upward from and substantially flush with the back, sides and front portions of said body, said plate intermediate said front portions having an overhanging portion projecting forwardly of said front portions, a base closing the bottom of said body and on which said body rests, said base projecting downward from and substantially flush with the back, sides and front portions of said body, said base intermediate said front portions projecting forwardly of said front portions and being substantially coplanar with the corresponding forwardly projecting portion of said top plate, and a pair of exposed doors, each door connected to each of said forwardly projecting portions by hinges spaced forwardly from said front portions a sufficient distance to enable said door to open substantially 180°, said doors, when closed, being coplanar with said forwardly projecting portions, said hinges being concealed when said doors are closed, said doors while hinged and closed being disposed within the width of said body.

3. A cabinet comprising a sheet metal body having a back and sides and having front portions projecting toward each other from said sides, a top cover plate resting on and projecting upward from and substantially flush with the back, sides and front portions of said body, said plate intermediate said front portions having an overhanging portion projecting forwardly of said front portions, a base closing the bottom of said body and on which said body rests, said base projecting downward from and substantially flush with the back, sides and front portions of said body, said base intermediate said front portions projecting forwardly of said front portions and being substantially coplanar with the corresponding forwardly projecting portion of said top plate, and a door connected to said forwardly projecting portions by hinges spaced forwardly from said front portions a sufficient distance to enable said door to open substantially 180°, said door, when closed, being coplanar with said forwardly projecting portions, said hinges being concealed when said door is closed, said door while hinged and closed being disposed within the width of said body.

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