

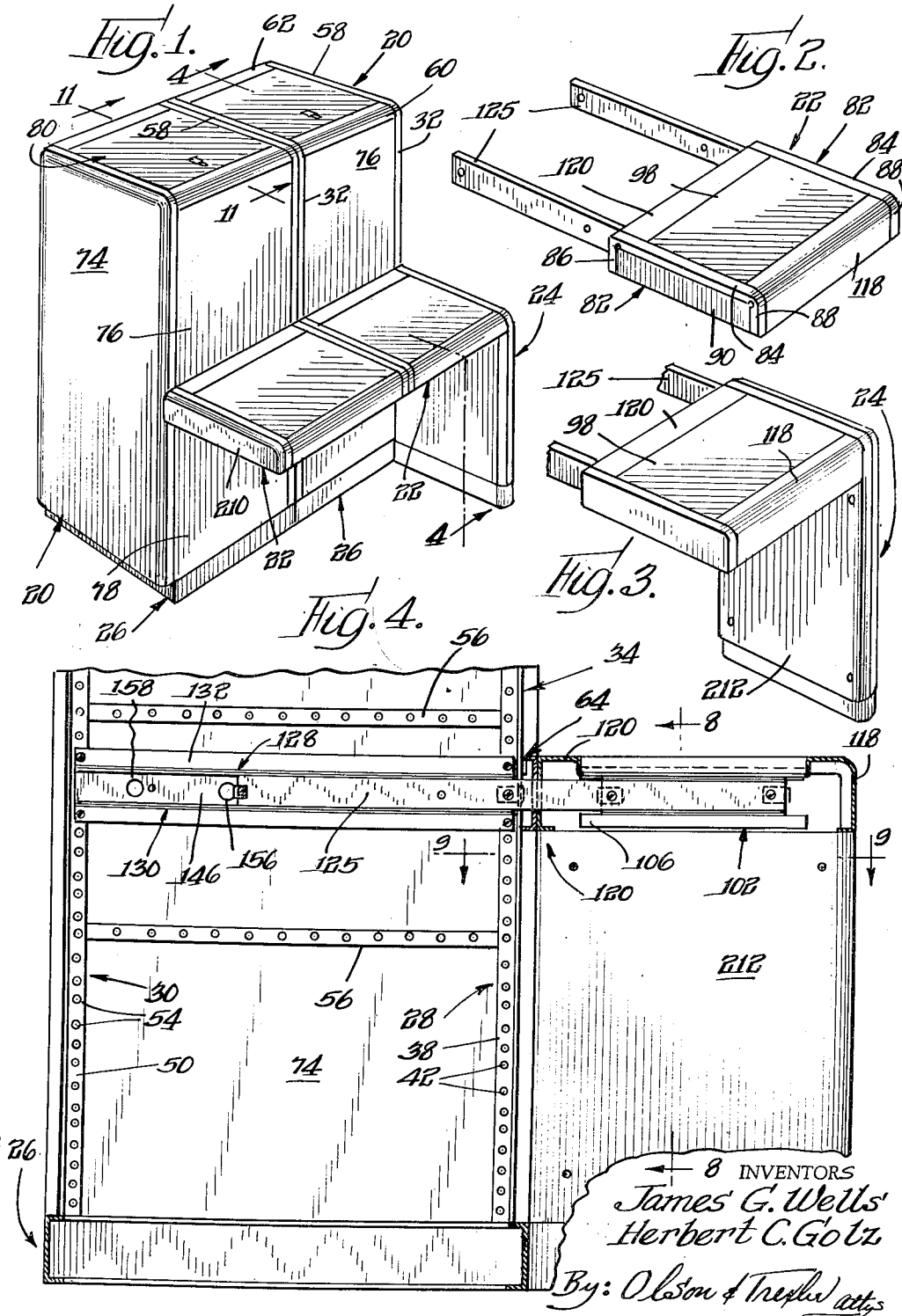
April 3, 1962

J. G. WELLS ETAL  
CABINET STRUCTURE

3,028,211

Filed May 14, 1958

3 Sheets-Sheet 1



**April 3, 1962**

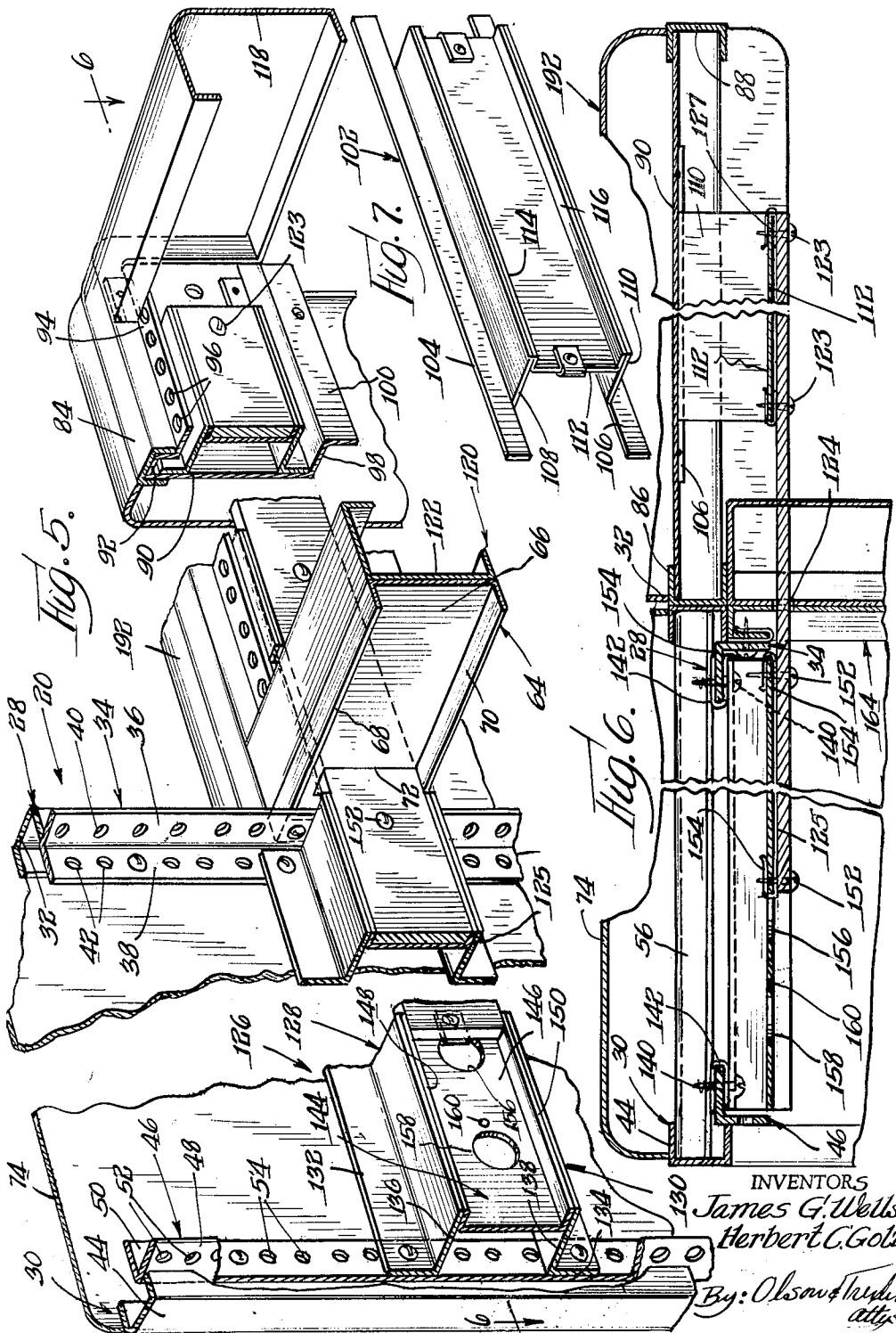
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## CABINET STRUCTURE

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April 3, 1962

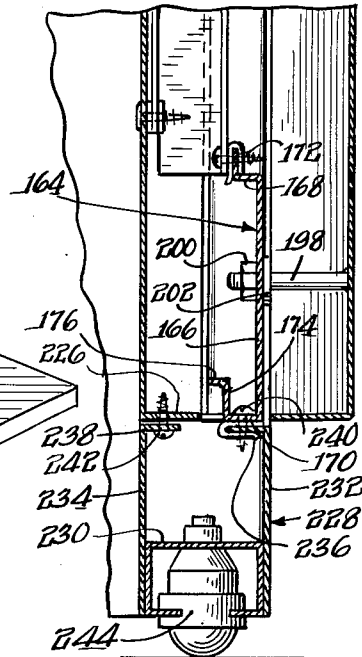
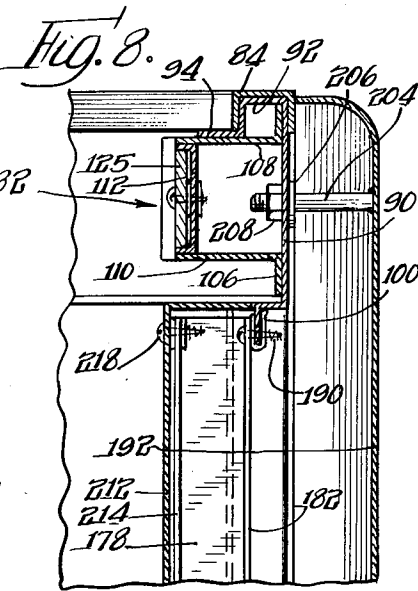
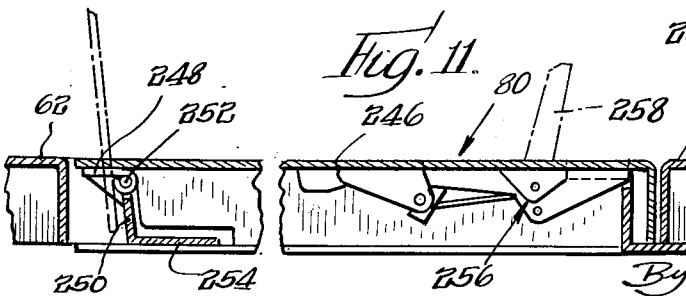
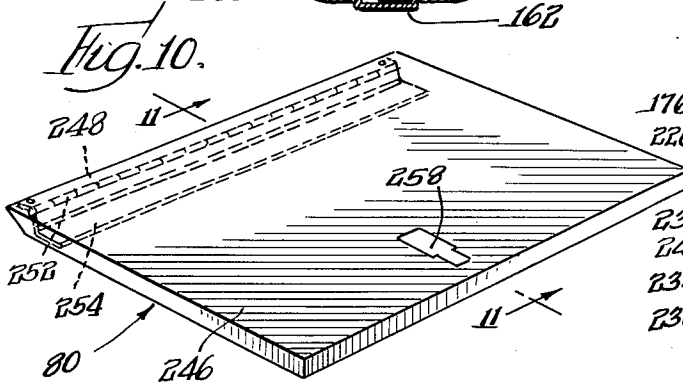
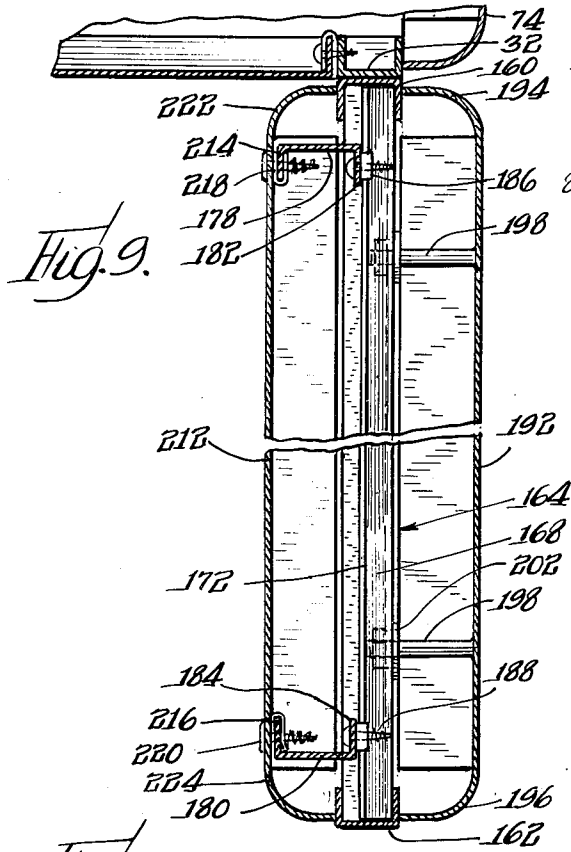
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CABINET STRUCTURE

Filed May 14, 1958.

3 Sheets-Sheet 3



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3,028,211

## CABINET STRUCTURE

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1 Claim. (Cl. 312-257)

This invention relates to a novel cabinet structure, of the type frequently used as an enclosure for electrical or electronic equipment. In industry, various electrical, electronic, instrument and similar installations require numerous different cabinet or enclosure structures and arrangements. Frequently it is desirable to provide the cabinet or enclosure structure with a laterally projecting shelf or writing top while such a shelf may not be necessary for many other installations. In an effort to provide such cabinet structures or enclosures more economically, it has been proposed that various basic units be produced which can be combined in numerous ways to satisfy the requirements of many different installations.

It is an important object of the present invention to provide a novel structure of the above described type wherein shelf or writing top means may be detachably mounted at the side of a cabinet in a manner so that the interior of the cabinet is not unduly obstructed while at the same time the shelf means is well supported.

A further object of the present invention is to provide a cabinet or shelf means of the above described type which is of relatively simple, economical and rugged construction.

Another object of the present invention is to provide a novel structure of the above described type wherein the shelf or writing top means may be vertically adjusted to satisfy different requirements.

Still another object of the present invention is to provide a novel structure of the above described type which may selectively include an apron extending from a margin of the shelf or writing top means so as to at least partially enclose a space beneath the shelf.

A more specific object of the present invention is to provide a novel cabinet structure having an improved top closure assembly for permitting access to the interior of the cabinet.

Other objects and advantages of the present invention will become apparent from the following description and the accompanying drawings wherein:

FIG. 1 is a perspective view showing an assembly of basic units incorporating features of the present invention;

FIG. 2 is a perspective view showing a shelf or writing top basic unit incorporating features of the present invention;

FIG. 3 is a perspective view showing a shelf or writing top having a side apron depending therefrom and constructed in accordance with the features of the present invention;

FIG. 4 is an enlarged fragmentary sectional view taken generally along line 4-4 in FIG. 1;

FIG. 5 is a further enlarged fragmentary perspective view partially broken away and showing a portion of a shelf and cabinet structure incorporating features of the present invention;

FIG. 6 is a fragmentary horizontal sectional view taken generally along line 6-6 in FIG. 5;

FIG. 7 is a perspective view showing a portion of side frame means included in the shelf structure of the present invention;

FIG. 8 is an enlarged fragmentary sectional view taken generally along line 8-8 in FIG. 4;

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FIG. 9 is an enlarged fragmentary sectional view taken generally along line 9-9 in FIG. 4;

FIG. 10 is a perspective view showing closure means for the top of the cabinet structure and incorporating features of the present invention; and

FIG. 11 is an enlarged fragmentary sectional view taken generally along line 11-11 in FIG. 1.

Referring now more specifically to the drawings wherein like parts are designated by the same numerals throughout the various figures, a pair of identical cabinets 20 having identical shelf or writing top structures 22 projecting therefrom are shown in FIG. 1 in side-by-side assembled relationship. In addition an apron 24 is shown connected to and depending from a free side margin of one of the writing top structures 22. It is to be understood however that the combination and arrangement shown in FIG. 1 is for illustrative purposes only and could be varied by adding other of the basic units 20, 22 and 24 to those shown or by omitting certain of the units.

The cabinet 20 is provided with a generally rectangular base 26 which is shown in part in FIGS. 1 and 4. Extending upwardly from the four corners of the base 26 are two pairs of identical but oppositely disposed front and back corner post means 28 and 30. Of these corner post means, only one pair is shown in detail in FIGS. 4, 5 and 6. As shown in these figures, the front corner post means 28 includes an upstanding inwardly facing channel member 32 and an upstanding angle iron 34 having one flange 36 parallel to the front of the cabinet and another flange 38 parallel to the side of the cabinet. A row of vertically spaced apertures 40 is provided in the flange 36 and a row of similar apertures 42 is provided in the flange 38 for facilitating adjustable assembly of various parts of the structure as will be described more in detail below. The corner post means 30 also includes an upstanding inwardly facing channel member 44 and an adjacent angle iron 46. The angle iron 46 has a flange 48 parallel to the back of the cabinet and to the above mentioned flange 36. A second flange 50 of the angle iron 46 is disposed along the side of the cabinet. Vertically spaced apertures 52 and 54 are provided in the flanges 48 and 50 respectively. A plurality of vertically spaced and horizontally disposed side frame members 56 is provided between the front and back corner post means at opposite sides of the cabinet, which side frame members have opposite end portions connected with the corner post means and extending to the upstanding channel member of the corner post means.

As shown broadly in FIG. 1, upper ends of the pairs of the front and back corner post channel members 32 and 44 merge with downwardly facing horizontal top channel members 58. In addition, opposite sides of the cabinet frame means provided by corner post means are connected by front and back horizontal frame members 60 and 62. Additional front and back transverse frame members may be provided, if desired. For example, an additional front transverse frame member 64 is shown in FIGS. 4-6, which frame member is in the form of an inwardly facing channel having an upstanding web portion 66 and upper and lower inturned flanges 68 and 70. The web portion 60 is provided with a pair of apertures 72, only one of which is shown, for accommodating support elements of a shelf structure 22 as will be described below.

The interior of the cabinet 20 may be enclosed by means including opposite side panels 74 and various front panels 76 and 78. These panels are preferably detachably connected to the various apertured frame members or angle irons by means of suitable fastening elements, not shown, extending through the apertures in the frame members or angle irons. It will be appreciated that by omit-

ting the side panels from the adjacent sides of the two cabinets 20 shown in FIG. 1, the cabinets may be readily connected together by bolt means, not shown, extending through the adjacently disposed apertured side frame members or angle irons. Closure means 80 which will be described more in detail below is provided for normally closing the top of the cabinet 20.

The shelf or writing top structure 22 is provided with a pair of oppositely disposed and identical said frame means 82. Each of the frame means 82 comprises a channel member having a generally U-shaped transverse cross section and disposed so as to include a generally horizontal downwardly facing section 84 and depending opposite end portions 86 and 88. Each of these side frame means 82 includes a second member having an upstanding web portion 90 extending within the adjacent channel member sections 84, 86 and 88 and secured thereto by spot welding or other suitable means. As shown best in FIGS. 5 and 8, the upper margin of the web portion 90 of each of the opposite frame means 82 provides a part of a U-shaped channel section 92 which fits snugly within the associated U-shaped channel section 84. A generally horizontally extending flange 94 projects from a margin of the channel section 92 and laterally inwardly of the adjacent channel section 84. The flange 94 is provided with a plurality of spaced apertures 96 and is selectively suitable for supporting a writing top panel 98 or various instrument panels or the like. A lower margin of the web portion 90 of each side frame means 82 is integrally joined with a horizontally extending flange 98 which terminates in a depending flange 100 for the purpose discussed below.

Each of the opposite side frame means 82 also includes a subassembly 102 shown in FIGS. 5 through 8. The subassembly 102 includes a pair of vertically spaced horizontally extending angle members respectively having vertical flanges 104 and 106 which abut and are welded to the web portion 90 of the associated side frame means. Horizontally disposed flanges 108 and 110 extend from the flanges 104 and 106, and a channel member having an upstanding web portion 112 and intumed upper and lower flanges 114 and 116 is disposed between and welded to the flanges 108 and 110.

The opposite side frame means 82 of the shelf or writing top structure are interconnected by front and rear transverse frame members 118 and 120 which extend between and are welded to the side frame means 82. It will be noted that the frame member 120 has an upstanding web portion 122 provided with openings 124, only one of which is shown, similar in size and shape to and adapted to be aligned with the above mentioned openings 72 when the shelf is assembled with the cabinet structure.

In order to provide means for supporting the shelf structure and securing it to a cabinet, elongated elements or bars 125 are associated with and extend rearwardly from the opposite side frame means 82. As shown best in FIGS. 5, 6 and 8, each bar 125 is relatively thick and rugged and has a rectangular cross sectional shape such that the bar is adapted to fit snugly between the channel member flanges 114 and 116 of an associated subassembly or side frame structure 102. Each of the bars 125 is secured to an associated channel web portion 112 by means of screws 123 extending through suitable apertures in the bars and channel portions 112 and cooperable with complementary fastening devices 127 such as sheet metal nut members having a generally U-shaped configuration and applied over margins of the channel web portion 112. It will be noted that with this structure a rigid and secure connection is obtained between the bars and the side frame means 82, and the bars combine with the various channel members and box-like overall configuration of the side frame means 82 to provide the shelf structure with great strength and rigidity. At the same time, the weight of the shelf structure is not unduly increased and a space defined by the opposite side frame means and front and

back frame members of the shelf structure remains unobstructed so that the shelf structure may accommodate various devices or instruments as well as the above mentioned panel 98 if desired.

The support elements or bars 125 of the shelf structure are adapted to extend through the openings 72 provided in the front frame member 64 of a cabinet as shown in FIGS. 4, 5 and 6. In order to support free end portions of the bars 125 securely and rigidly within a cabinet 20, substantially identical but oppositely disposed side frame assemblies or structures 126, only one of which is shown, are provided at opposite sides of the cabinet. Each of the side frame structures 126 comprises upper and lower angle members 128 and 130 respectively having vertically extending flanges 132 and 134 and horizontally extending flanges 136 and 138. The flanges 132 and 134 are adapted to be secured to side flanges 38 and 50 of adjacent angle irons 36 and 46 of the adjacent corner post means. More specifically, the flanges 132 and 134 are provided with apertures therethrough adapted to align with the apertures 42 and 54 so that the flanges 132 and 134 may be secured to the angle irons by means of screws 140 and nut members 142 as indicated in FIG. 6. It will be appreciated that the vertical position of the side frame structure 126 and thus the height of the shelf or writing top may be adjusted by proper selection of the apertures 42 and 54 in the upstanding angle irons to which the screws 140 are applied.

Each of the opposite side frame structures or subassemblies 126 also includes an inwardly facing channel member 144 having an upstanding web portion 146 and intumed horizontal flanges 148 and 150. The flanges 148 and 150 are welded or otherwise secured to free marginal portions of the flanges 136 and 138 in a manner so that the channel member 144 of the opposite side frame subassemblies or structures 126 may be aligned with the openings 72. The channel member 144 of each of the opposite side frame members 126 is constructed so that it is adapted snugly to receive and therefore securely and rigidly support a free end portion of one of the bars 125. In order to secure an end of a bar 125 to a channel member 144, screws 152 are inserted through aligned apertures in a bar and a channel member web portion 146 and also in sheet metal nut member 154 applied to margins of the web portion. As shown in FIGS. 4, 5 and 6, one of the nut members may be applied to a front end margin of a web portion 146. Another of the nut members 154 may be applied to an internal margin of the web portion 146 which is provided by a relatively large opening 156 formed in the web portion. Another similar opening 158 may be provided in the web portion adjacent another screw accommodating aperture 160 so that the structure is adapted for accommodating bars 125 of various lengths. It will be appreciated that the structure just described provides a strong and rigid support for the shelf without unduly obstructing the interior of the cabinet.

Referring particularly to FIGS. 1, 3, 8 and 9, the depending apron structure 24 will now be described. The apron 24 is of relatively light weight and rugged construction and is adapted to be detachably connected to one of the side frame means 82 of the shelf structure. More specifically, the apron 24 includes a pair of upstanding oppositely disposed generally U-shaped channel members 160 and 162. Lower ends of these members are connected by a transverse frame member 164 extending therebetween and welded thereto. As shown best in FIG. 8, the transverse member 164 is constructed so that it has an upstanding web portion 166 from which upper and lower marginal flanges 168 and 170 project horizontally. The flange 168 terminates in an upstanding flange 172, and another upstanding flange 174 extends from a margin of the flange 170 and terminates in a horizontally extending flange portion 176. In order to connect the apron with a side frame means 82 of the shelf structure, another

pair of oppositely disposed upstanding channel members 178 and 180 is provided, which members have innermost flanges 182 and 184 respectively detachably connected to the flange 172 by screw and nut means 186 and 188. The flanges 182 and 184 are similarly detachably connectable with the depending flange 100 of the side frame means 82 by means of a plurality of screw and nut means 190.

The apron 24 is provided with an outside panel 192 having rounded or inturned flange portions 194 and 196 along opposite upstanding edges thereof adapted to abut the channel members 160 and 162. The panel 192 is detachably secured to the frame member 164. This is accomplished by a plurality of studs 198 which are welded or otherwise secured to the panel 192 and extend through apertures in the web portion 166 and receive complementary nut members 200. Shoulders 202 are provided on the studs 198 for limiting passage of the studs 198 through the apertures in the web portion 166. An upper portion of the panel 192 extends above the upper ends of the channel members 160 and 162 and covers the outer surface of the associated side frame means 82 of the shelf structure. In order further to connect the apron securely and rigidly to the shelf structure, additional studs 204 are welded or otherwise secured to the panel 192 adjacent the upper margin thereof for extending through suitable apertures in the web portion 90 of the side frame means 82. Shoulders 206 are fixed to or made integral with the studs 204, and nut members 208 are applied to the studs 204 for clamping the web portion 90 against the shoulders 206. In the event the apron 24 is to be removed from the shelf structure, the exposed outersurface of the side frame means 82 may be covered by an end panel similar to the panel 210 shown in FIG. 1 and connected to the side frame means web portion 90 in substantially the same manner as the panel 192.

The apron 24 is provided with an inner side panel 212 which is detachably secured to flanges 214 and 216 of the channel members 178 and 180 respectively by screw and nut means 218 and 220. The side panel 212 also has rounded inturned opposite margins 222 and 224 which extend to and abut the upstanding channel members 160 and 162. A lower margin of the panel 212 terminates in an inturned horizontal flange 226.

The apron 24 is provided with a base portion 228 which includes a box-like horizontally extending bottom member 230 and a pair of upstanding opposite side members 232 and 234 welded or otherwise secured to opposite sides of the bottom member. The side members respectively terminate in inturned horizontal flanges 236 and 238 at their upper margins, which flanges are respectively detachably connected to the above mentioned flanges 170 and 226 by suitable screw means 240 and 242. The box-like bottom member 230 is provided with suitable openings for receiving and retaining a caster 244.

FIGS. 10 and 11 show the closure means 80 for the upper end of a cabinet 20 in considerable detail. More specifically, a door 246 is provided which is adapted to close the space between the opposite side frame members 58 and the front and back frame members 60 and 62. The door or closure 246 has a rearwardly disposed margin welded or otherwise secured to a leaf 248 of a hinge structure which substantially completely traverses the closure. Another leaf 250 of the hinge structure is pivotally connected to the leaf 248 by a pin 252. It is to be noted that the leaf 250 extends upwardly and is inclined slightly rearwardly. Furthermore, the arrangement is such that the pivotal connection between the leaves is spaced forwardly from the rearmost edge of the closure 246 and the leaf 250 is spaced forwardly of the rear frame member 62. Thus, when the closure is raised from a closed position as shown in solid lines in FIG. 11 to an opened position as indicated in broken lines in FIG. 11, the leaf 248 and the rear margin of the closure may

swing downwardly until the leaf 248 abuts the stop provided by the leaf 250. Since the leaf 250 is inclined rearwardly, the door or closure 246 will remain in the opened position until manually closed. The leaf 250 is integrally formed with a generally horizontally disposed flange 254 which extends between and is rigidly operatively interconnected with the opposite side frame members 58 in any suitable manner. The closure 246 is provided with latch means generally designated by the numeral 256 for normally locking the closure in the solid line position shown in FIG. 11 until an actuating element 258 of the latch means has been raised to the broken line position. It will be appreciated that with this structure just described, a simple and rugged hinged connection is provided between the door 246 and the remainder of the cabinet structure, and the door is selfsupporting in an opened position so as to facilitate access to the interior of the cabinet.

While the preferred embodiments of the present invention have been shown and described herein, it is obvious that many structural details may be changed without departing from the spirit and scope of the appended claim.

The invention is claimed as follows:

1. A cabinet structure of the type described comprising first and second pairs of front and back upstanding corner post means, each of said corner post means including an upstanding member having a vertically extending series of spaced apertures therein, first and second horizontal side frame means respectively extending between and secured to the first and second pairs of post means, each of said side frame means including a pair of vertically spaced apart horizontal angle members, an inwardly facing channel member disposed between said angle members and having an upstanding web portion and inwardly extending upper and lower marginal flanges, each of said flanges secured to one of said pairs of horizontal angle members, a front horizontal frame member extending between and secured to the front corner post means, said front frame members being formed with a pair of rectangular holes respectively aligned with said channel member of the horizontally extending side frame means, a pair of shelf side frame members extending horizontally forwardly from said front post means; a second pair of angle members spaced from each other fixed to each of said side frame members, channel members respectively fixed to and between each said pair of second mentioned angle members, said second mentioned channel members being respectively aligned with the first mentioned channel member of the horizontally extending side frame means, a pair of elongated bars respectively extending within said aligned inwardly facing channel members and through said openings in the horizontal front frame member, means securing said bars to the respective channel members, a pair of substantially parallel upstanding channels connected at the upper end thereof to one of said shelf side frame members, a lower frame member secured to lower ends of said upstanding channels, an interior panel secured to the upstanding channels, an exterior panel having its periphery defined by marginal flanges covering one of said shelf side frame members and said lower frame member, a plurality of threaded studs fixed to the interior of said exterior panel, a number of said studs extending through said covered side frame member and the remainder of said studs extending through said lower frame member, and a nut threadably engaging each of said studs and securing the exterior panel to said covered members.

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