

[54] **CONTROL CENTER WITH EXPANDABLE FRAME CABINET**

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 [51] Int. Cl.**H02b 1/02**
 [58] Field of Search.....**317/117, 119-122; 312/199, 223, 257 A, 257 SM, 257 SK, 309, 320**

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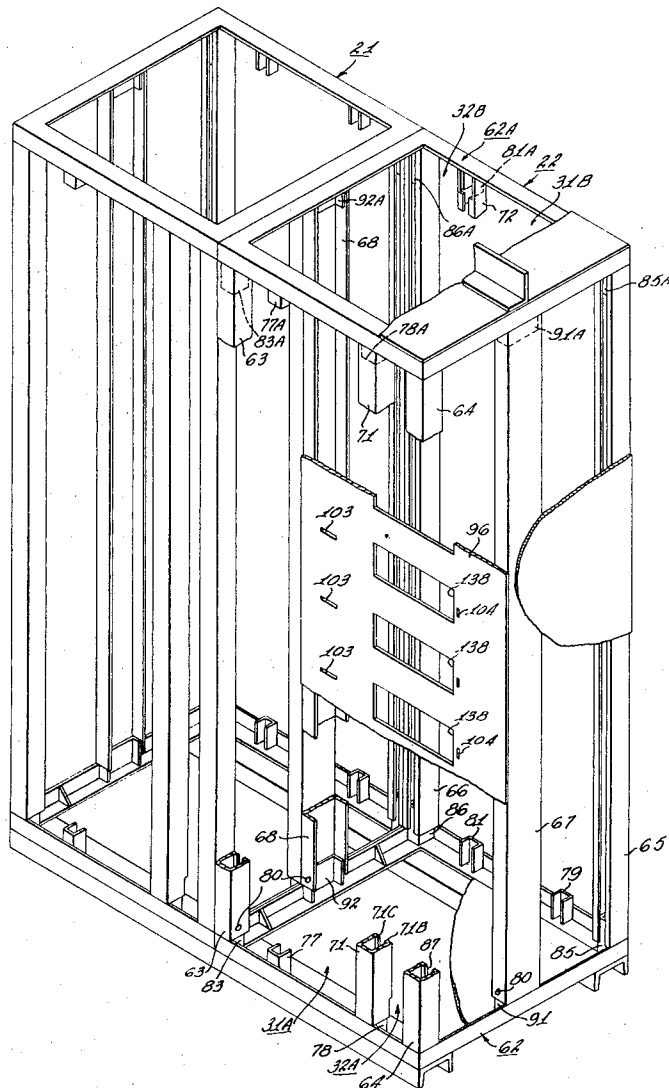
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[57] **ABSTRACT**

A control center comprising an integral die cast base and an integral die cast top which are rigidly joined together by structural upright members that provide modular expansability and convenience without sacrificing strength, safety or economy. Inherent with the arrangement is the unitized compartment for electrical control equipment which may be varied to suit a variety of sizes of controls. Included in the compartment is the provision of a wire raceway providing protection and affording ready accessibility for servicing. A bus bar compartment is formed as an integral part of the structural unit with convenient access being provided to easily and readily connect the controls to the busses.

10 Claims, 11 Drawing Figures



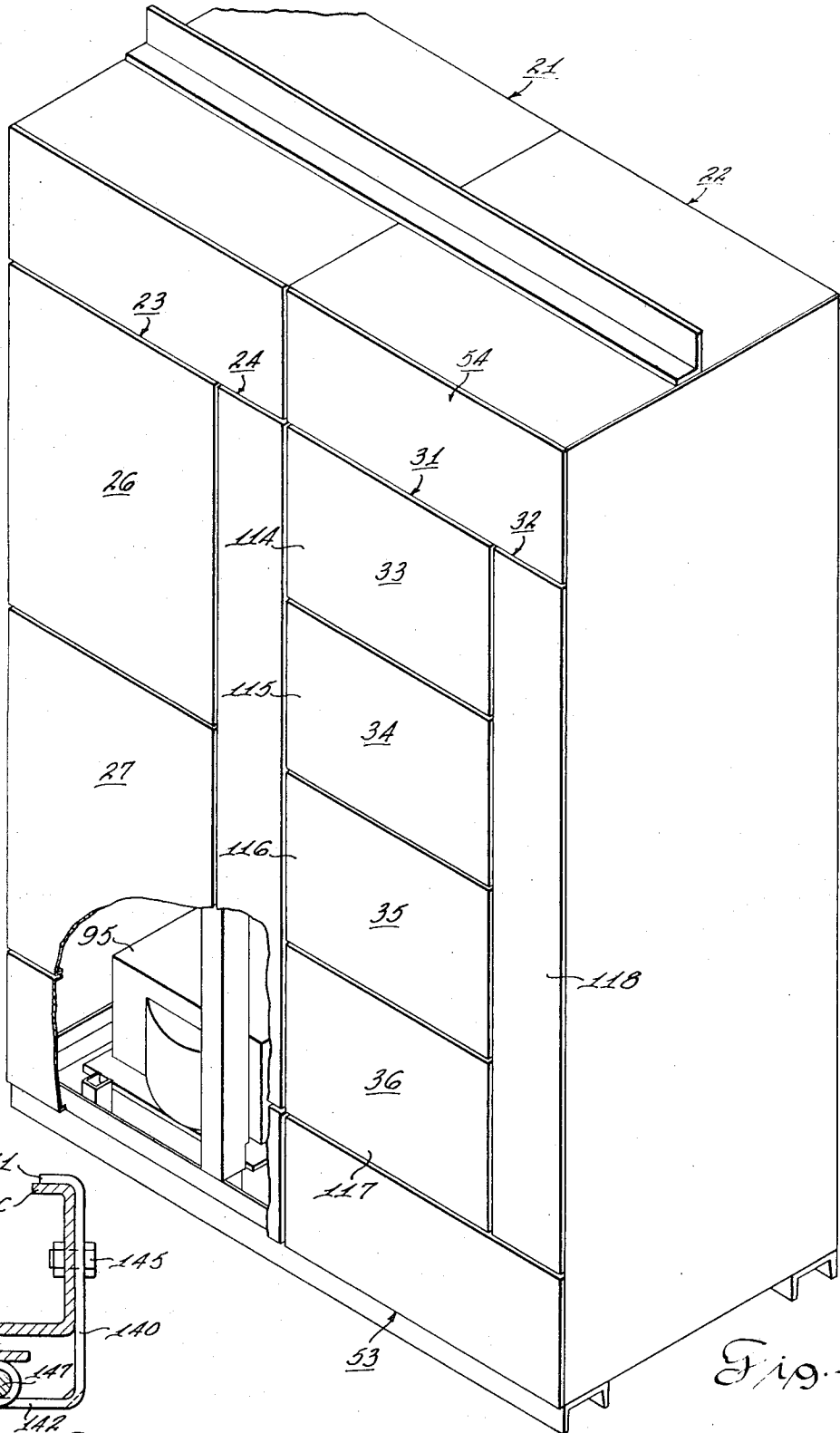


Fig. 1

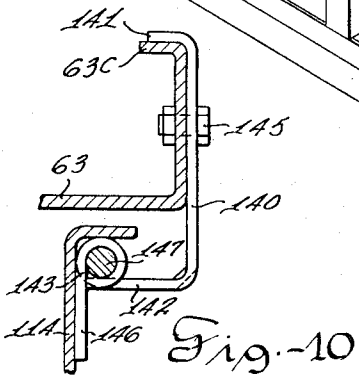


Fig. 10

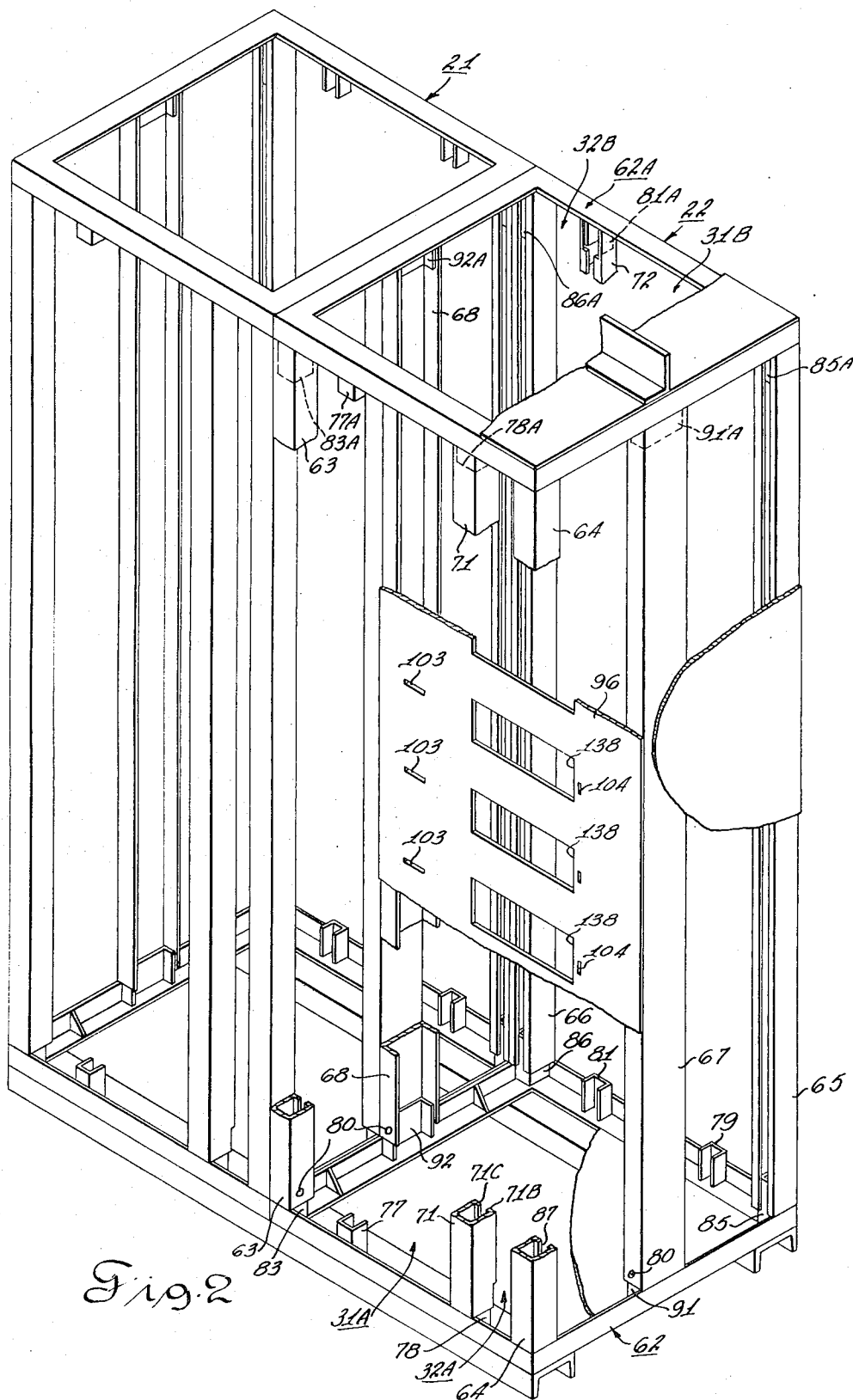


Fig. 2

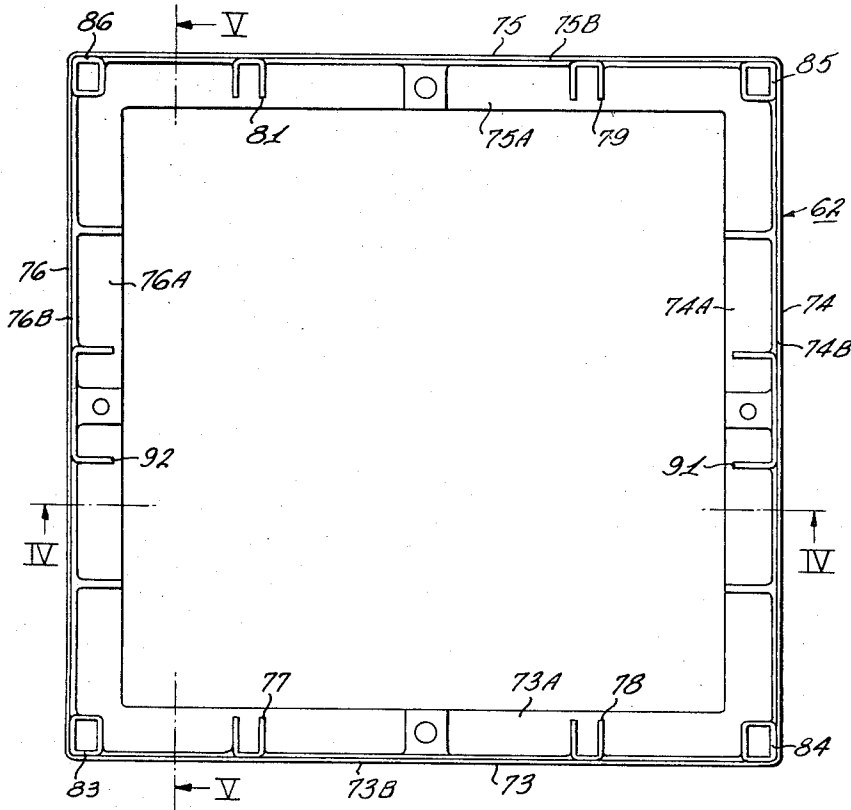


Fig. 3

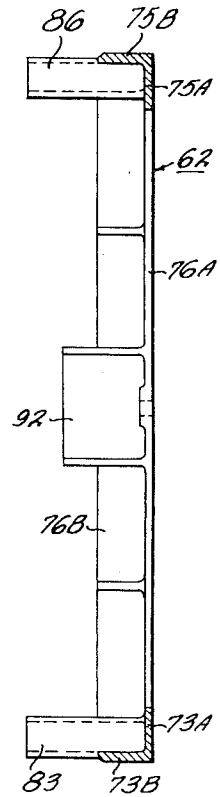


Fig. 5

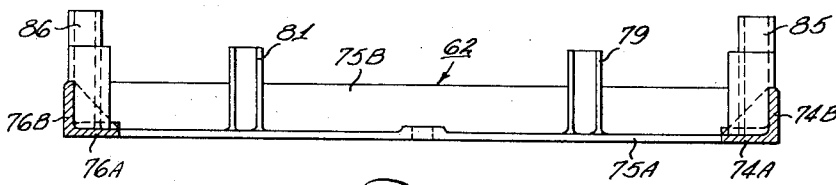


Fig. 4

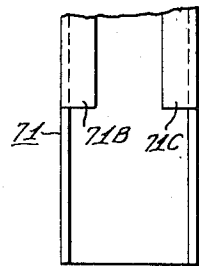


Fig. 11

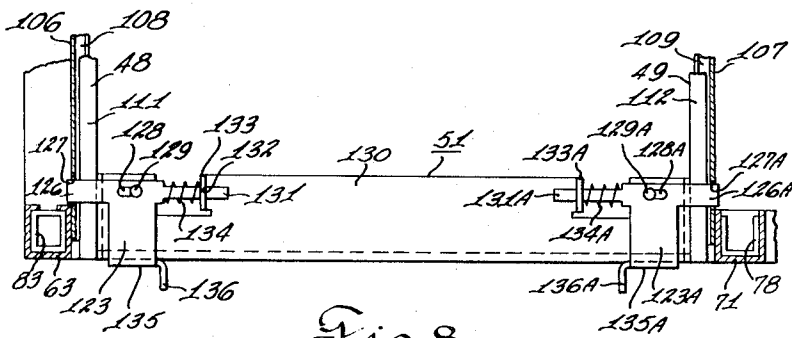


Fig. 8

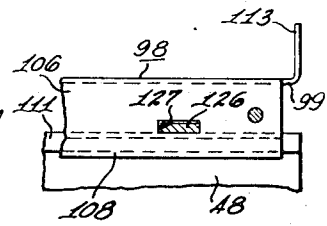


Fig. 9

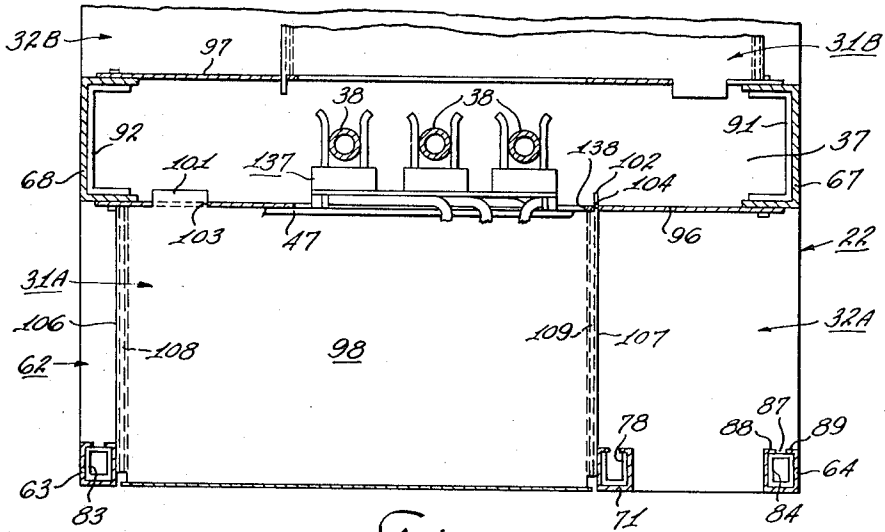


Fig. 7

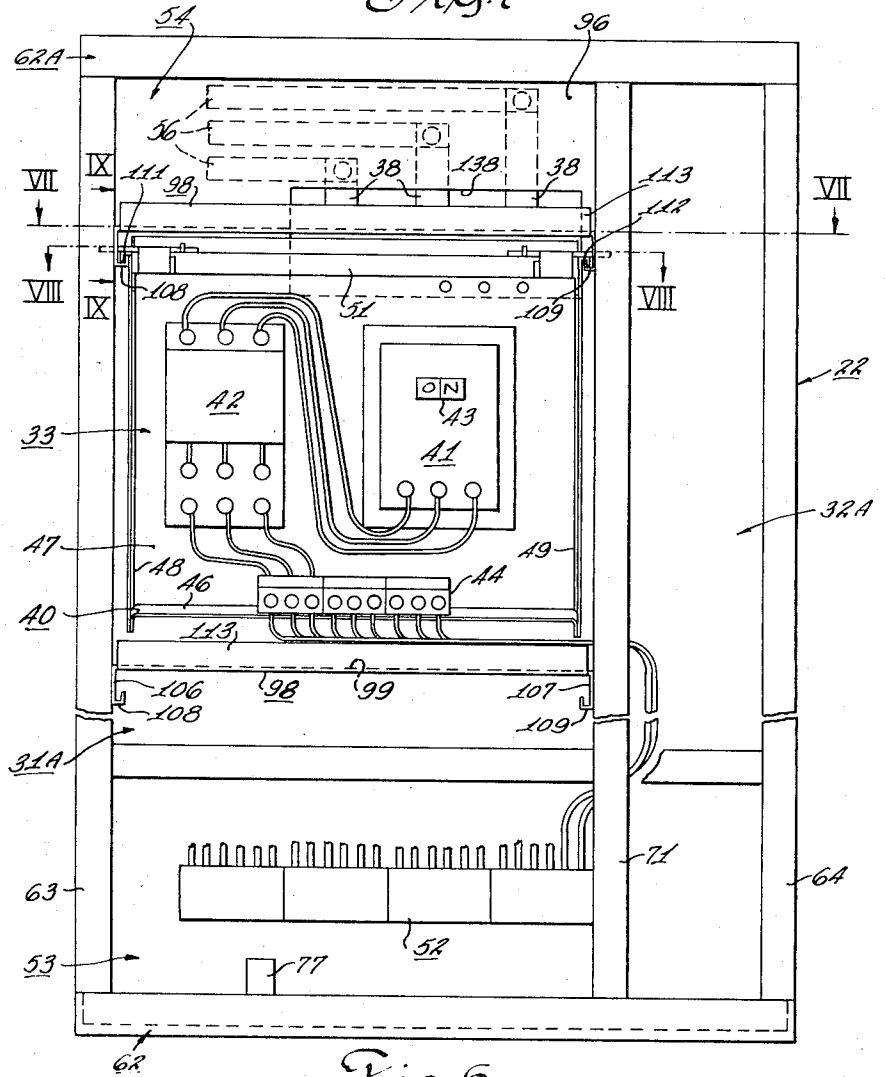


Fig. 6

CONTROL CENTER WITH EXPANDABLE FRAME CABINET

SUMMARY

This invention relates to electrical distribution system structure and is more particularly directed to an enclosing and supporting arrangement for electrical circuit controlling elements.

In present day industrial applications wherein a plurality of electrical devices for control and protection of electrical circuits and equipment are utilized, it has become more and more necessary to locate and arrange the devices in readily accessible locations and still offer adequate protection to the devices to lessen the danger which is inherent in electrical circuits. In providing protective enclosures for the electrical equipment a characteristic of the protective equipment must be one that considers a space and additions thereto so that expansion of the equipment can be accomplished with a minimum of effort and at a minimum expenditure of monies. It is also necessary that the protective equipment be so designed that the protective equipment requires a minimum of attention and any necessary maintenance can be easily accomplished. It is also necessary that with modern emphasis of environmental styling and appearance as well as function, the protective enclosure equipment must also meet these requirements.

OBJECTS

It is a general object of the present invention to provide a control center structure for electrical control devices which is simple, flexible in installation and easily expandable and also modular in concept.

A further object of the invention is to provide a control center structure which incorporates safety standards that meet electrical safety codes.

Another object of the invention is to provide a control center structure which provides easily and manually adjustable selective variable capacity compartments in which control devices may be accommodated in a fully protected manner.

Still another object of the present invention is to provide a control center structure which provides an easily accessible fully protected wire way compartment and also provides adjacent fully enclosed control device compartment having lead-in facilities for effecting the connection between the control devices located in the compartment and the wiring which is located in the wire way compartment.

Yet another object of the invention is to provide a control center structure which includes a bus compartment fully separated from the compartments in which control devices are located and having means which vertically space and support the busses from each other and from the control center structure.

An additional object of the invention is to provide modular compartment supporting shelves which serve both as a top cover for the compartment below and as a bottom cover for an adjacent upper compartment, which is easy to insert in a plurality of different positions and that are firmly secured in the selected position.

DRAWINGS

FIG. 1 is a perspective view of a control center embodying features of the present invention;

FIG. 2 is a perspective view of the control center of FIG. 1 with the external sheathing removed to show the rigid simplified supporting frame;

FIG. 3 is a plan view of the base casting;

FIG. 4 is a view in vertical section through the base casting taken in the plane represented by the line IV-IV in FIG. 3;

FIG. 5 is a view in vertical section through the base casting taken in a plane represented by the line V-V in FIG. 3;

FIG. 6 is an enlarged fragmentary view in front elevation of the control center with sheathing removed and showing a pan control unit in operative position;

FIG. 7 is a fragmentary view in horizontal section taken in the plane represented by the line VII-VII in FIG. 6;

FIG. 8 is an enlarged fragmentary view in horizontal section of the pan latching arrangement taken in a plane represented by the line VIII-VIII in FIG. 6;

FIG. 9 is an enlarged fragmentary view in vertical section of the upper portion of the pan member taken in the plane represented by the line IX-IX in FIG. 6.

FIG. 10 is a fragmentary view showing a door hinge assembly; and,

FIG. 11 is a fragmentary view of one end of a front and rear side upright.

Referring to the drawings, and particularly to FIG. 1, there is shown two control centers 21 and 22 which are disposed in side-by-side relationship. The control centers 21 and 22 are identical, but the interior arrangement may be varied to suit particular control unit components for particular installations. The control center 21 includes two vertical compartments 23 and 24. The vertical compartment 23 is designated the control unit compartment and is adapted, in this particular instance, to accommodate two control units 26 and 27. The vertical compartment 24 is a separate compartment to accommodate the wiring which is necessary for the control units located in the compartments 26 and 27. The control unit 22 is similarly arranged having a vertical control unit compartment 31 and a vertical wire way compartment 32. Compartment 31 is adapted to accommodate four control units 33 to 36, inclusive. The vertical wire way compartment 32 extending alongside the control unit compartment 31 will accommodate the various wiring necessary for the control units in the compartments 33 to 36, inclusive.

Since the control center units 21 and 22 are identical in construction, the variation affected merely being in the size of the individual compartments within the vertical control control unit compartment, the description herein given for the control center unit 22 will apply to both the control units. As shown in FIGS. 2, 6 and 7 the compartment 31 is of sufficient depth to contain control units in both a forward control unit compartment 31A and a rearward facing control unit compartment 31B. As best indicated in FIG. 7, the control unit compartment 31A and the control unit compartment 31B are off-set relative to each other so as to provide for noninterference between the control devices located in the forward compartments 31A or the control devices in the rearward compartment 31B. The control units

34, 35 and 36 are similarly arranged with respect to the rearward units which may or may not be the same cubic capacity as the forward units, but the rearwardly disposed units will be located in an offset relationship to the forward units.

As shown in FIG. 7, the motor control center 22 is provided with a centrally located transversely extending bus bar compartment 37 in which vertically extending bus bars 38 are disposed and are accessible to control units located in both the front and rear compartments 31A and 31B. In FIG. 6, the particular control unit 33 illustrated therein accommodates a control unit pan unit 40 which includes a motor disconnect device 41 and a motor starter 42. The disconnect device 41 is an automatic circuit breaker or fusible disconnect having an operating handle 43 mounted thereon. Other various apparatuses may be contained in the various compartments as may suit a particular installation. A plurality of terminal block assemblies 44 are mounted at the front of the control unit on an upwardly tilted tie bar or cross-brace 46.

As shown more clearly in FIG. 6, the control unit pan 40 comprises a U-shaped wrapper having a backwall portion 47 and sidewall portions 48 and 49 with the top and bottom being open. The side wall portions 48 and 49 are tied together at their front by the tie bar 46 which is located at the bottom of the unit and by a tie bar 51 located at the top thereof. The devices 41 and 42 are mounted on the backwall portion 47 with the wiring necessary for each control unit extending from the control devices to the plug-in type modular receptacles or terminal blocks 44 mounted on the lower tie bar. The wiring extends from the terminal blocks in neatly arranged bundle packs and are extended under the right wall portion 49 into the wireway 32 where they extend downwardly to a terminal block assembly 52 located in a bottom horizontally extending wire compartment 53. As shown in FIG. 6, there is provided an upper horizontally extending bus bar compartment 54 in which horizontally extending bus bars 56 are supported and to which the vertical bus bars 38 are connected.

Heretofore, control centers have been manufactured from square sections and of specially fabricated sections to provide additional space if necessary. However, it has been found that the prior square sections are difficult to modify in the user's plant and require a great deal of alteration which in some instances have practically resulted in the rebuilding of the sections. Likewise, the addition of specially fabricated partial units result in additional costs and also interrupt the symmetry of the control center so that a resulting control center was a grouping of nonsymmetrical units. The present invention eliminates the problem heretofore encountered and provides a control center unit which in itself provides additional compartment space which may be utilized for future expansion and facilitates the side-by-side installation of additional units into one composite control center.

The control centers 21 and 22 are identical in construction and vary only in the size and type of pan unit utilized therein. As shown more clearly in FIG. 2, the present control center 22 utilizes standardized components with a single bottom frame casting 62 and a single identical top frame casting 62A which facilitates

the manufacturing and assembling of the control center, thus reducing the cost both to the manufacturer and to the ultimate purchaser. Individual corner uprights 63, 64, 65 and 66 are provided to rigidly unite the top and bottom frame castings 62 and 62A into a rigid control center. Side uprights 67 and 68 add structural reinforcing to the control center and at the same time define the front and rear compartments 31A, 32A and 31B, 32B, respectively. A front upright 71 provides added rigidity to the front panel of the center and also defines the vertical wire way compartment 32A. In a similar manner, a rear upright 72 provides rigidity to the rear panel and also serves to define the vertical wire way 32B associated with the rear control unit compartment 31B.

The bottom and top frame castings 62 and 62A are identical so that their use is interchangeable requiring no consideration as to which is the top and bottom casting. As shown in FIG. 3, the bottom frame casting 62 is an integrally cast unit having four equal length rail members 73, 74, 75 and 76. For purposes of description, the rail 73 is designated as the front of the casting, but it will be appreciated that the diametrically opposite rail 75 could also be utilized as the front, since the geometry of the two rails 73 and 75 are identical. In a similar manner, the rails 74 and 76 are herein designated as side rail members either one of which could be the left or right side depending upon which of the rail members 73 and 75 are utilized as the front. Thus, the rails 73 and 75 are identical in length and configuration while the rails 74 and 76 are identical in length to the rail members 73 and 75 and to each other but vary from the rails 73 and 75 only by the number of projections provided thereon and to be described hereinafter.

As herein shown in FIGS. 2, 3, 4 and 5, the rail members 73, 74, 75 and 76 are L-shaped in cross-section. The horizontal leg portions 73A, 74A, 75A and 76A of each of the rail members form the base of the casting or in the case of the top frame casting 62A, form the top surface of the casting. The vertical leg portions 73B, 74B, 75B and 76B of the rail members provide a smooth exterior surface against which the base of an adjacent control center, such as the control center 21, abuts to provide a rigid smooth exterior surface. As previously mentioned, the control center 22 includes the front vertical control unit compartment 31A and the front vertical wire way compartment 32A which, as shown in FIG. 2, are disposed on the left and right hand sides respectively of the structure. This arrangement can be readily varied as desired by merely interchanging the front upright vertical member 71 which extends between the bottom frame casting 62 and the top frame casting 62A and which serves to divide the front portion of the center into the two vertical front compartments.

To effect the assembly of the control center 22, the casting 62 is formed with upstanding projections which operate as bayonet connectors that accommodate the vertical upright members. As shown in FIGS. 2 and 3, the front rail member 73 is provided with integral upright projections 77 and 78 which extend upwardly from the base leg of the rail 73A of the member 73 and along the inner surface of the vertical leg portion 73B. In forming the projections along the inner edge of the

vertical leg portion 73B of the rail member, the top edge surface of the vertical leg serves as an abutment against which the lower edge of a vertical member such as the vertical member 71 will abut when mounted in position on one or the other of the projections 77 or 78. In a similar manner, the rail member 75 is provided with projections 79 and 81 and they are formed with respect to their rail portion in the same manner as the projections 77 and 78. The projections 79 and 81 are positioned in the same geometrical relationship to their associated rail members 75 as the projections 77 and 78 have to their associated rail 73. Thus, either rail member 73 or 75 may be the front rail. By mounting a vertical riser member such as the upright member 71 on the projection 78 and on the complimentary projection 78A associated with the top casting 62A, as depicted in FIG. 2, the vertical wire way compartment 32A is defined to the right of the upright 71 as previously mentioned. If it is desired that the wire way 32A be to the left of the control unit compartment. It is merely necessary that the upright member 71 be mounted on the projection 77 and the complimentary projection 77A associated with the top casting 62A.

Four corner projections 83, 84, 85 and 86 are also integrally formed with the base casting 62 and are identical in form. As shown in FIG. 3, the corner projection 83 extends upwardly from the base legs of the rails along the inner surfaces of the vertical leg portions 73B and 76B so that the upper edge portions of the vertical legs provide an abutment against which the corner upright member 63 abuts when it is mounted on the projection 83, as depicted in FIG. 2. A complimentary projection 83A is formed with the top casting 62A and depends downwardly to receive the upper end of the upright 63, as shown in FIG. 2. In a similar manner, each of the other corner projection members 84, 85, and 86 with the associated complementary projections 84A, 85A and 86A formed with the upper top casting 62A receives the associated upright 64, 65 and 66, as depicted in FIG. 2.

In a similar manner, the rear wire way compartment 32B is delineated by means of the vertical upright 72 which is received on the lower base projection 81 and the depending top casting projection 81A. To retain the uprights in position on their respective projection, screw means such as self tapping screws 80 are utilized.

Each of the upright corner members 63, 64, 65 and 66 are formed identical and as can be seen in FIG. 2, are constructed as a hollow bar member which in cross section present a box shaped configuration. One side of each corner member is relieved to provide a longitudinally extending shaft 87 to form opposed longitudinally extending short leg portions 88 and 89. With this arrangement, the corner member may be constructed by roll-forming to facilitate manufacturing and reduce the cost thereof. In addition, in providing the longitudinal slot 87, a certain amount of resiliency is provided so that the corner member tends to bind on the projection when engaged thereon.

Intermediate the ends of the side rail members 74 and 76 there are provided channel projection 91 and 92, respectively. The channel projections 91 and 92 in cooperation with associated depending top casting projections 91A and 92A serve to receive upstanding side vertical channel members 67 and 68 and are held in

place by aforementioned self tapping screws 80. The upright side vertical channel members 67 and 68 serve to delineate the front vertical compartments 31A and 32A from the rear vertical compartments 31B and 32B, previously mentioned.

Under some conditions, the present control center may require that a device such as a transformer 95 having a greater width dimension than that of the standard pan unit 40 normally utilized in the various control compartments must be housed within the control center. To provide for this contingency, the front upright 71 or rear upright 72 depending upon where it is desired that the transformer device be located is removed. With the upright 71 removed, the transformer 95 may be easily slipped into the base of the control center and thereafter the upright 71 returned to its position on the projections 78 and the complimentary depending projection 78A associated with the top casting 62A. It is apparent that with the arrangement provided herein, it is not required that the control center itself be disassembled or that any structural portions of the control unit be cut or deformed to accommodate oversize electrical devices.

To facilitate the removal and assembly of the front and rear uprights 71 and 72 with respect to their associated projection without necessitating the disassembly of the entire control center, the bottom and top portions of the uprights are modified. To this end, the upright 71, as shown in FIG. 11 and which is representative of both the top and bottom ends of both of the uprights 71 and 72, a portion of the opposed short legs 71B and 71C are removed for a distance slightly greater than the height of the front and rear side projections 77, 78, 79 and 81. Thus, to remove the front or rear upright 71 or 72 from their associated projections, it is only necessary to remove the self tapping screws at the bottom and top end thereof. With the screws removed, the upright can be easily and quickly removed laterally thereby opening up the entire bottom base compartment 53 of the control center. With the oversize equipment located in the base compartment 53 of the control center, the front or rear side upright is again slipped laterally on to the associated projections and the screws replaced.

A barrier plate 96 is mounted on the side legs of the side channel member uprights 67 and 68, as depicted in FIGS. 2 and 7, by means of self tapping screws previously mentioned. The barrier plate 96 serves to define the rear wall of the front compartments 31A and 32A and separates the bus bar compartment 37 from the control unit and wire way compartments. In a similar manner, a rear barrier plate 97 as depicted in FIG. 7, is mounted on the opposite inwardly extending legs of the side uprights 67 and 68 and is secured there in position by means of self tapping screws. The barrier plate 97, of course, serves to separate the rear control unit compartment 31B and wire way compartment 32B from the bus bar compartment 37. As thus far described, the control center 22 provides an easily assembled and easily disassembled unit which requires no welding as heretofore been experienced in the prior arrangements and the present control center requires a minimum amount of labor to assemble.

The control units, such as the pan unit 40, available for incorporating with the control center 22 are a

minimum of twelve inches in vertical height but are available in larger sizes in increments of 6 inches. The control center 22 is designed to have an overall height of ninety inches, and since the control unit compartment 31A is designed to accommodate a maximum of six pan units 40, which have a minimum dimension of 12 inches, a total of 72 inches of control unit space is required. Thus, there remains 18 inches of space which is divided approximately equally between the top and bottom of the unit so as to provide the upper horizontal bus bar compartment 54 and a lower wiring compartment 53 as previously mentioned. With the front control unit compartment 31A accommodating a maximum of six control units and the rear control unit compartment 31B likewise accommodating maximum of six control units, a total of 12 control unit pans 40 may be enclosed within the control center if so desired. It is, of course, realized that the user may vary the controls in the compartment to suit his own requirements. That is, he may require an intermixture of various sizes of control unit pans to meet specific requirements. In any case, the simplified construction and arrangement permits future changes and additions which may be readily made without requiring extensive modifications or remanufacturing of the control center.

As shown in FIGS. 6 and 7, isolation of the various pan units 40 within the control unit compartment is affected by means of dividers 98. The dividers 98 are all structured in a similar manner and comprise a horizontal flat body portion 99 which is formed with a rear horizontal tab 101 and rearwardly extending vertical tab 102 that extend through slots 103 and 104, respectively, formed in the barrier plate 96. The side edges 106 and 107 of the divider body 99 are turned downwardly and then upwardly to form U-shaped trackways 108 and 109 which extend the entire depth of the pan unit. As viewed in FIGS. 6 and 7, the righthand edge of the shelf extends beyond body portion to form the tab 102 that locates within the slot 104, as previously mentioned. The front edge of the divider body 99 is secured to the corner upright 63 and to the front side upright 71 by means of self tapping screws (not shown). The side wall 48 of the pan unit 40 at its upper left side is provided with an outwardly and downwardly bent portion 111 that cooperates with the depending leftside trackway 106 of the divider 98 for providing a guide and support arrangement. In a like manner, the upper right side of the pan unit 40 is bent outwardly and downwardly to form a slide portion 112 that cooperates with the depending rightside trackway 107 of the divider 98. The front edge of each divider 98 is turned upwardly to provide a transverse horizontally extending vertical stroke plate 113 against which the lower edge of an adjacent upper compartment door such as the door 114 and the upper edge of an adjacent lower compartment door such as the door 115 abuts when in closed position as depicted in FIG. 1.

The pan unit 40 is locked in operative position within the control unit compartment by means of a pair of latches 123 and 123A. As shown in FIGS. 8 and 9, the latch 123 is formed as a generally T-shaped member having an outwardly extending thumb portion 126 that is biased into engagement in a slot 127 formed in the depending downward depending side portion of the divider 98. The latch 123 is provided with an elongated

slot 128 that engages on an upwardly extending pin member 129 carried by the rearward extending horizontal leg portion 130 of the upper tie bar 51. The latch has an inwardly extending rodlike portion 131 which extends through an opening 132 forming in an upturned tab 133 of the tie bar 51. A spring 134 acting between the tab 133 and a shoulder formed by providing the rodlike portion 131 on the latch operates to bias the latch in a direction to maintain the thumb portion 126 within the associated slot 127. The latch 123A is similarly constructed and the description for the latch 123 applies to the latch 123A and like parts being identified with the same reference numbers following a letter suffix. To effect disengagement of the latch 123 from its associates slot 127, the latch is provided with a forward and downwardly depending lug portion 135 having an edge thereof bent outwardly to form a horizontally extending finger abutment 136. To release the pan unit 40 all that is necessary is that the operator apply an inwardly acting force to the finger abutments 136, 136A thereby disengaging the thumb portions 126, 126A from their respective slots 127, 127A. With the thumb portions 126 and 126A disengaged from the slots, a forward pulling force on the pan 40 will move the pan outwardly of the compartment with the pan being slidably guided on the trackway 106 and 107. It is apparent, therefore, that with the arrangement provided the trackway 106 and 107 serve as support hangers which maintains the pan unit 40 in operative positions within the compartment and also provides a slideway for slidably guiding the pan unit 40 into and out of the compartment.

For effecting an electrical connection between the pan unit 40 and the busses 38, each of the pan units 40 are provided with a stab assembly 137 which include three resilient bus bar connectors. To effect the engagement of the stab connector assembly 137 with the bus bars 38, the barrier plate 96 as shown in FIGS. 2 and 7, is provided with a plurality of spaced apart rectangular openings 138 to provide access for the stab assembly to the bus bars within the bus bar compartment 37. The openings 138 which are not being utilized to accommodate the stab connector assemblies are barricaded by means of a protective insulator shield (not shown).

As shown in FIG. 1, each control unit compartment 31A is closed by a separately hinged door 114 through 117, inclusive, which are hinged from the left side. The hinges are fastened to the corner upright 63. The wire way compartment 32A is likewise provided with a hinged door 118 which pivots on hinges (not shown) secured to the corner upright 64. A similar arrangement is provided for the control center 21. A door hinge assembly which exemplifies all hinge assemblies utilized for supporting the doors of the control center is depicted in FIG. 10 and includes a first support having a flat horizontal body portion 140 adapted to engage flatly against the exterior side surface of the vertical corner member 63. The body portion 140 is provided with an inner terminal end 141 bent in a direction so as to engage flatly against the outer surface of the inner short leg portion 63C of the vertical corner member 63 in a manner to prevent movement of the body portion in a vertical plane. The outer terminal end portion 142 is bent in a direction to extend parallel with and in the

same direction as the inner terminal end portion 141 extends. The free end 143 of the outer end portion 142 is bent inwardly towards the inner terminal end portion to form an elongated circular hinge pin opening. A single bolt 145 extends through the horizontal body portion 140 and the adjacent side wall of the corner upright 63 and operates to maintain the hinge in position.

A second support having a flat horizontal body portion 146 is adapted to engage against the inner surface of the door 114. One end of the hinge portion 146 is bent in a manner to form an elongated hinge pin opening similar to the hinge pin opening of the hinge portion 140. An elongated circular hinge pin 147 is engaged in the aligned hinge pin openings of the first and second body portions 140 and 146. In operation, the bracketing engagement of the first hinge body support 140 with the corner upright member 63 prevents deflection of the entire door assembly in a vertical plane.

From the foregoing description, it is apparent that the invention provides a control center structure which is simple in construction and assembly, flexible and adaptable to variations in use and accessible for servicing devices therein. The arrangement is not found in prior art control centers, and the arrangement is extremely economical to manufacture and to install.

The embodiments of the invention in which an exclusive property is claimed are defined as follows:

1. A control center comprising identical top and bottom castings;

individual vertical corner members secured to complementary opposite corners of said top and bottom castings;

individual right and left side members extending between said top and bottom castings and being secured thereto to provide front, center and rear sections;

individual front and rear vertical members extending between said top and bottom castings and being secured thereto to divide said front and rear sections into two vertical compartments each, one larger than the other;

vertical bus bars disposed in said center section between said front and rear sections;

a plurality of horizontal dividers supported by said vertical members in vertical spaced relationship in each of said larger compartments to divide said compartments into a plurality of vertically spaced control unit compartments, each of said horizontal dividers having depending horizontally extending side rails, the free edges of which are bent inwardly and backwardly to form a horizontally extending slideway;

control unit pan members removably disposed in at least one of said vertical control unit compartments and having connectors releasably engaging said vertical bus bars in said center section, said control unit pan members each comprising a U-frame open at the top, bottom and front, the upper edges of the sides of said U-frame being bent outwardly and downwardly to provide a slide member engageable in the slideways depending from a horizontal divider to slidably support said control unit pan member in said control unit compartment.

2. A control center comprising a top casting having four substantially equal length rail members each of which are L-shaped in cross section, said top casting defining a horizontally disposed top frame;

four corner projections integrally formed with and extending downwardly from said top frame;

first projections integrally formed with each of two diametrically disposed rail members, said first projections being formed on their respective rail members in position to divide their respective rail members into a short portion and a relatively longer portion with respect to one end of their associated rail members;

second projection integrally formed with each of said two diametrically disposed rail members, said second projections being located in a position to divide their respective rail members into a short portion and into a relatively long portion with respect to the opposite ends of their respective rail members, said diametrically opposed rail portions thereby presenting identical configurations divided into two outer short portions of substantially the same length and a longer midportion of a length equal to the length of both of said short portions;

third projections integrally formed with each of the other diametrically disposed rail members of said top casting said third projections on each of said other rail members being located midway between the ends of the respective rail members and extending in a direction parallel to the direction in which said first and second projections extend;

a bottom casting of identical configuration to said top casting and defining a horizontally disposed bottom frame arranged in opposing relationship to said top frame;

individual vertical corner members extending between said top and bottom frames and engaged on and secured to associated ones of said corner projections to define said control center;

vertical front and rear members extending between said top and bottom frames and engaged on and secured to selected ones of said first and second projections of said first mentioned diametrically disposed rail members to define a wire way compartment and a control unit compartment;

vertical side members extending between said top and bottom frames and engaged and secured to said midway located third projections of said other pair of diametrically opposed rail members to divide said wire way and said control unit compartments into two identical front and rear sections and a center section;

a plurality of horizontally disposed dividers supported by said vertical side members and arranged in predetermined spaced relationship to define individual control unit compartments; and,

control unit pan assemblies in said individual compartments and slidably supported from said horizontal dividers immediately adjacent the top of a control unit pan assembly for movement into and out of said compartment.

3. A control center according to claim 2 wherein there is provided a plurality of vertically spaced support members secured to said vertical side members as-

sociated with the other diametrically disposed rail members to define a center compartment;

vertical bus bars disposed between the front and rear control unit compartments in said center compartment and supported in position by said vertically spaced support members; and,

stab connectors operatively carried by said individual control unit pan assemblies in position to releasably engage said vertical busses when said control unit pan assemblies are slidably inserted into said control unit compartments.

4. A control center according to claim 3 wherein there is provided a barrier carried by said vertical side members and extending vertically from the lowermost control unit compartment to the uppermost divider defining the top of the uppermost control unit compartment, said barrier being provided with preformed openings therein to permit the passage of said stab connectors of said control unit pan assemblies into engagement with the vertically supported busses.

5. A control center according to claim 4 wherein there is provided a clear horizontal compartment at both the top and the bottom of said control center which is defined by the uppermost control unit compartment and the lowermost control unit compartment to thereby provide an upper and lower horizontal auxiliary compartments.

6. A control center according to claim 5 wherein there is provided individual doors for said control unit compartments, said control unit compartment doors being hinged from one of said vertical corner members and constructed and arranged so as to overlap a portion of said vertical corner member to which it is hinged and the vertical member which defines the front portion of the control unit compartment and the wire way compartment to thereby seal the opening of each of said control unit compartments; and,

said wire way compartment being provided with a door which is hinged from the opposite vertical corner member and which is constructed and arranged to overlap a portion of the corner member to which it is hinged and the vertical member against which said control unit compartment doors are engaged to thereby seal the opening of said wire way compartment.

7. A control center according to claim 4 wherein said horizontal dividers are provided with downwardly extending side flanges the lower edges of which are turned inwardly and upwardly to define a supporting slideway; and,

said control unit pan assemblies have side members the top edges of which extend outwardly and downwardly to form slide hangers, said control unit pan assemblies being slidably supported in said compartments by the interengagement of the pan assembly slide hangers with the downwardly

extending slideway of said dividers.

8. A control center according to claim 7 wherein each of said control unit pan assemblies are provided with releasably latching means engageable with said depending side tracks of an associated divider to lock said pan assemblies in operative position within an associated one of said control unit compartments.

9. A control center according to claim 6 wherein said compartment door hinges comprises a first support having a horizontal body portion adapted to engage flatly against the inner side surface of said vertical corner member, said body portion having an inner terminal end bent in a direction so as to engage flatly against a surface of said vertical corner member in a manner to prevent movement of said body portion in a vertical plane, said body portion having an outer terminal end portion bent in a direction to extend parallel with and in the same direction as the inner terminal end portion extends, said outer terminal end portion having a free end bent inwardly towards said inner terminal end portion to form an elongated circular hinge pin opening;

a second support having a horizontal body portion adapted to engage flat against the inner surface of said door and being secured thereto, said second body portion having one end thereof bent in a manner to form an elongated circular hinge pin opening similar to the hinge pin opening formed on said first body portion; and,

an elongated circular hinge pin engageable in said hinge pin openings of said first and second body portions,

whereby said second support is disposed when in a closed condition in a manner that said circular hinge opening of said second body portion overlaps said circular hinge opening of said first support in coaxial relationship therewith and the bracketing engagement of said first body support with the surfaces of said vertical corner member prevents said door from moving in a vertical plane.

10. A control center according to claim 2 wherein said vertical members present a hollow box shaped configuration in cross section, one of the sides of said vertical member being grooved longitudinally to form opposed longitudinally extending short leg portions, said vertical front and rear members having a first end from which a portion of the opposed short leg portion are removed, and a second end from which a portion of the opposed short leg portion are removed, whereby said vertical front and rear members are engageable on associated ones of the projections of said top and bottom castings by sliding said vertical member laterally thereon, and said vertical corner member by operation of the longitudinally extending groove resiliently engaging on their respective upper and lower corner projections.

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