Aug. 15, 1939. G. M. MILLS 2,169,274

PARTITION STRUCTURE

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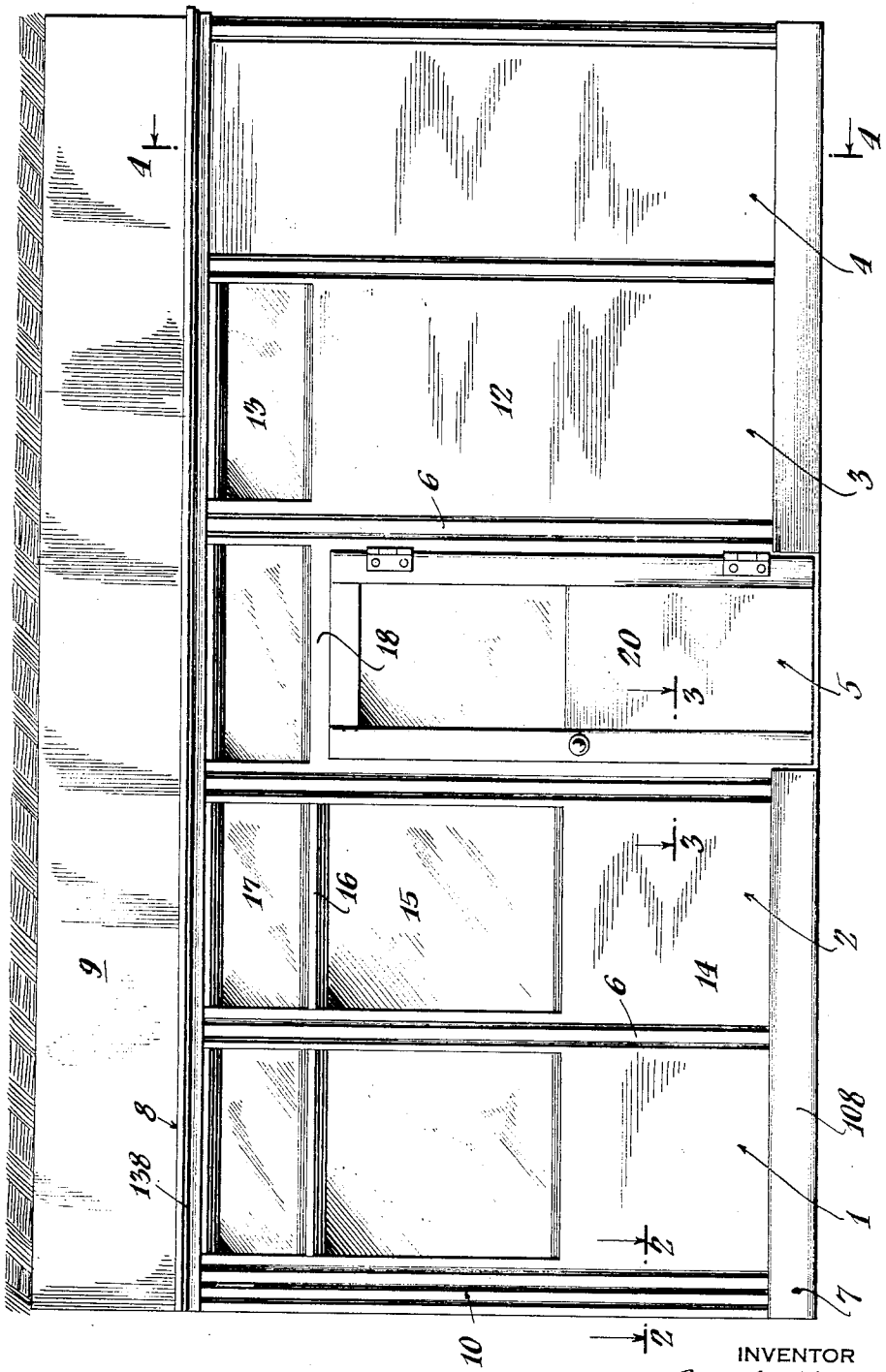


Fig. 1

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PARTITION STRUCTURE

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Fig. 4

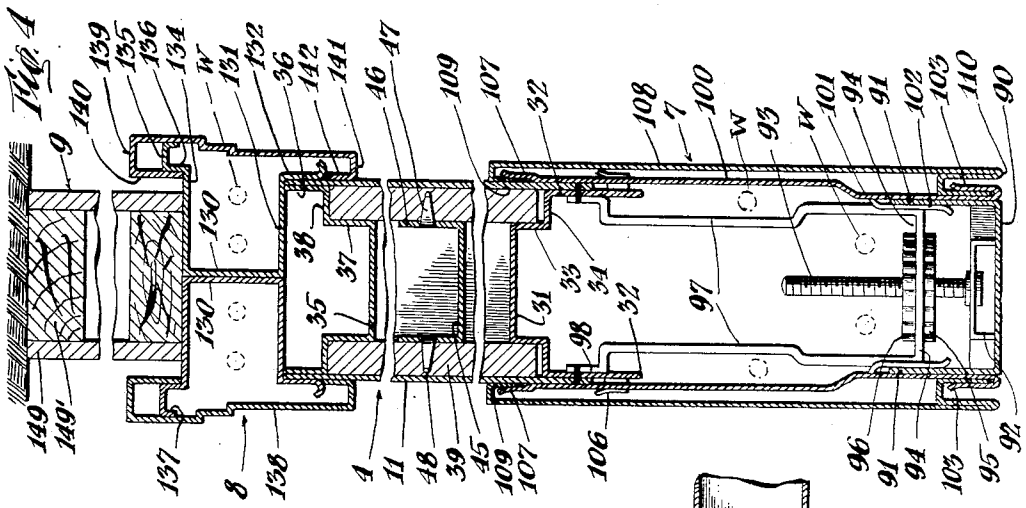


Fig. 2

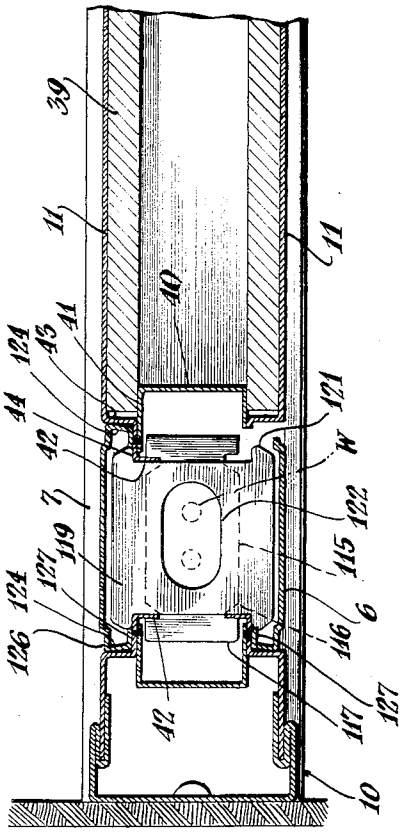
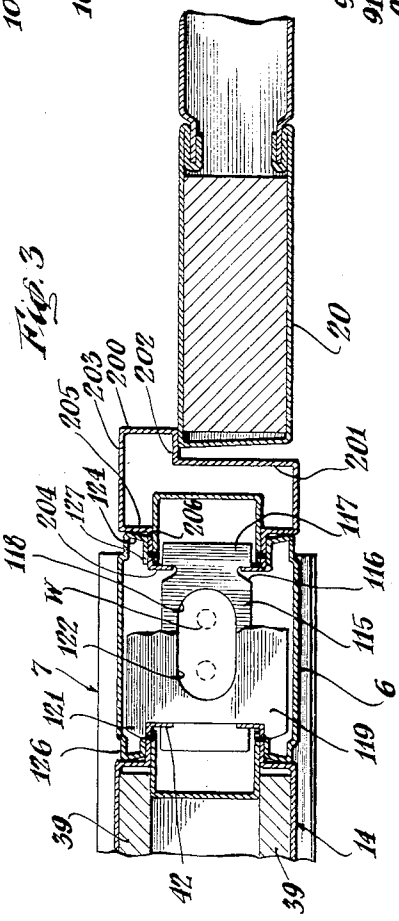


Fig. 3



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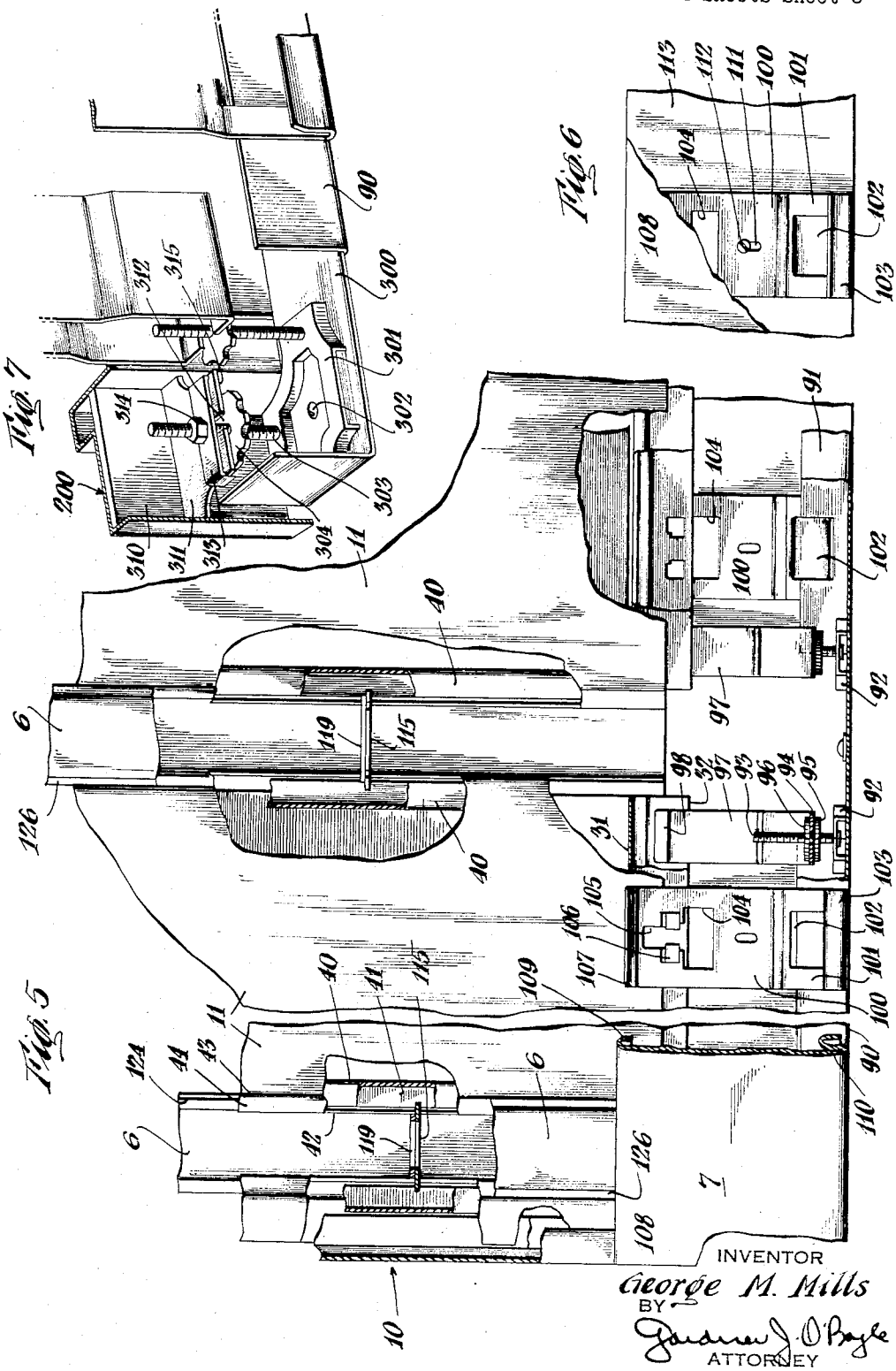
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Aug. 15, 1939. G. M. MILLS 2,169,274

PARTITION STRUCTURE

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Fig. 8

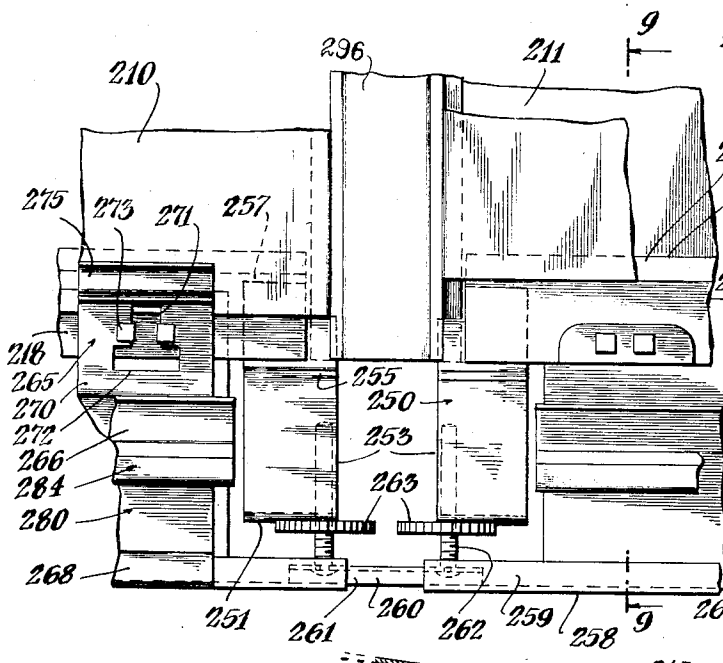


Fig. 9

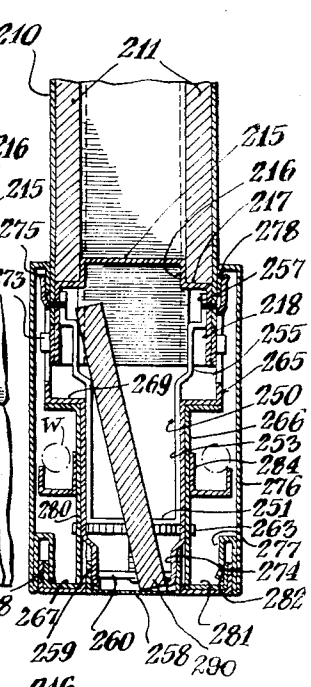
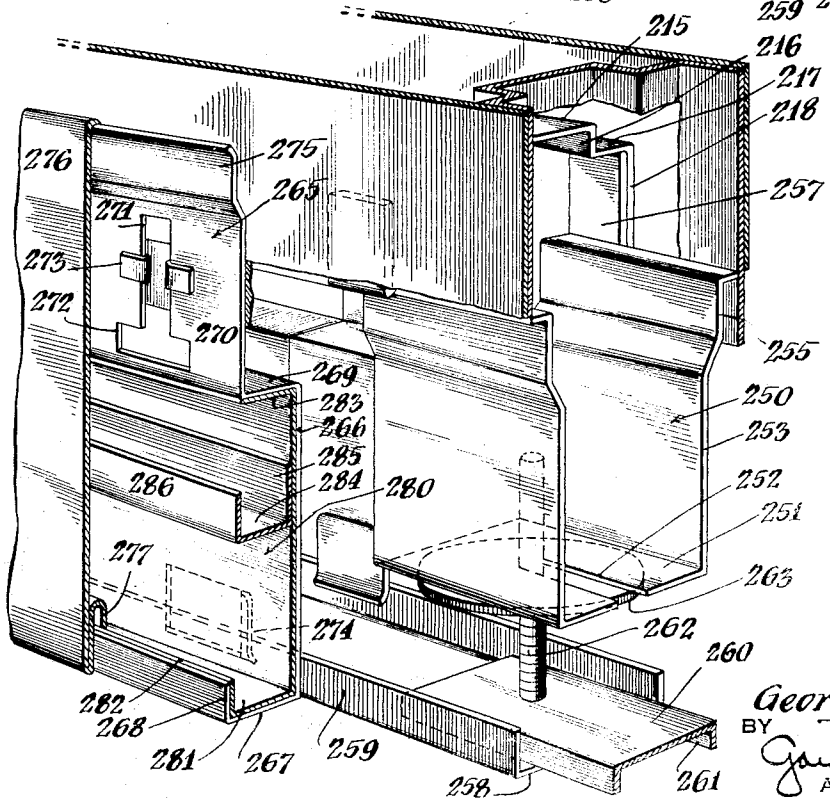


Fig. 10



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Patented Aug. 15, 1939

2,169,274

UNITED STATES PATENT OFFICE

2,169,274

PARTITION STRUCTURE

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Application March 1, 1937, Serial No. 128,527

8 Claims. (Cl. 189—34)

This invention relates to partition structures and more particularly to a partition built up from preformed interchangeable panel units and to a novel base and supporting structure therefor.

In a partition of the type to which this invention relates, it is desirable that the preformed panel units be supported in such a manner that they are firmly and rigidly held in place and can be easily erected, adjusted to the desired level and removed and replaced without necessitating disassembly of the entire partition. The partition should also be constructed to permit the quick and easy introduction of service lines, such as water and gas pipes, electric light and power conduits, telephone, buzzer, signal wires and the like, and also permit ready access to such lines.

According to the present invention, a partition structure is provided which is built up from a plurality of preformed metallic panel units which can be interchangeably connected. The panel units are constructed of spaced metal sheets supported by structural frame members and the panel units are connected at their upright adjacent edges by detachable connecting members to form a hollow post construction. Suitable covers may be provided for the space between the adjacent ends of the panel units and base covers or mop boards extend along the lower edges of the panel edges and span the space between the panel units and the floor.

The lower portion of the partition is so formed that a suitable and accessible conduit raceway is provided adjacent the base of the partition for the reception of service lines. The edges of the panel units are recessed to provide a space for vertically extending service lines when the units are in partition-forming position. A decorative cornice may extend along and cover the upper edges of the panel units and space may be provided within the cornice for additional service lines. The several spaces for service lines may be made to communicate with one another, thus permitting the lines to be run continuously throughout the partition.

An object of the invention is the provision of a preformed partition structure constructed of relatively simple and easily formed interchangeable units which are adapted to be assembled quickly and easily to form a sturdy attractive partition capable of being easily readjusted, modified or replaced without damage to the partition or the building in which it is installed.

Another object of the invention is the provision of a partition of the type described having convenient accommodation for service lines in one or more readily accessible portions of the partition.

Another object of the invention is the provision of a partition structure formed from prefabricated panel units which are securely and evenly maintained in wall-forming position when the partition is erected and which units can quickly and easily be removed for repair or replacement without disassembling the entire partition.

Another object of the invention is the provision of a partition structure which is admirably adapted for the reception of air conditioning conduits and apparatus.

Various other features and advantages of the invention will be apparent from the following particular description and from an inspection of the accompanying drawings.

Although the novel features which are believed to be chaarcteristic of this invention will be particularly pointed out in the claims appended hereto, the invention itself, as to its objects and advantages, and the manner in which it may be carried out, may be better understood by referring to the following description taken in connection with the accompanying drawings forming a part thereof, in which:

Fig. 1 is a view in elevation showing a partition structure embodying the present invention;

Fig. 2 is an enlarged fragmentary view showing a horizontal section taken along the line 2—2 of Fig. 1, illustrating the construction where the partition abuts the wall surface;

Fig. 3 is an enlarged fragmentary view showing a horizontal section taken along the line 3—3 of Fig. 1, illustrating a portion of a panel unit and the adjacent door frame;

Fig. 4 is an enlarged vertical cross-sectional view taken along the line 4—4 of Fig. 1, illustrating the interior construction of an opaque, panel unit;

Fig. 5 is an enlarged fragmentary elevational view showing the details of the base construction at the junction of two panel units, various portions of the structure being broken away to show the interior construction;

Fig. 6 is a fragmentary front elevational view illustrating the base clip and base cover construction connected to a plaster partition;

Fig. 7 is an enlarged fragmentary perspective view showing the floor connection at a door jamb;

Fig. 8 is a view similar to Fig. 5 only showing another form of base construction suitable for use with the panel units shown in Figs. 1 to 7;

Fig. 9 is a transverse vertical cross-sectional view taken along line 9—9 of Fig. 8; and

Fig. 10 is an enlarged fragmentary perspective view showing a portion of the second form of base construction.

Referring now particularly to Fig. 1, the partition structure may be constituted by a plurality of preformed, interchangeable panel and door units 1, 2, 3, 4 and 5. Several units may be suitably supported on the floor of a building and connected together at their edges in a manner which will be pointed out more fully hereinafter, and the space between the edges closed by a suitable cap 6. A continuous base 7 may extend along all of the panel units, except the door unit 5 and a continuous cornice 8 may extend throughout the length of the partition. The space between the cornice and the ceiling may be filled by a ceiling filler 9, and the space between the end panel and the abutting wall filled by a side or wall filler 10.

For the purposes of illustration, various types of panel units are shown; the panel unit 4 being formed as a continuous opaque panel; the unit 3 being constituted by an opaque portion 12 and a glazed transom 13; the unit 2 including an opaque portion 14, a glazed portion 15, a transom bar 16 and a transom 17; and the door unit 5 may include a door frame 18 having a door 20 hinged therein.

Referring now particularly to Fig. 4, the panel unit 4 may be constituted by a pair of spaced, parallel, metallic panel sheets 11 secured to a lower structural or frame member 31 having depending flanges 32 provided with an angular shoulder constituted by portions 33 and 34, and to an upper structural or frame member 35 formed with a flange 36 and angular shoulder portions 37 and 38. Referring to Fig. 2, the panel sheets 11 are also joined to vertical end or frame members 40 having flanges 41, the vertical edges of each panel sheet 11 being provided with an inturned flange 42, a shoulder portion 43 and an offset portion 44.

Preferably, a pair of sheets 39 of packing or insulating material is disposed in the seats constituted between the panel sheets 11 and the frame members 31, 35 and 40. The insulating sheets 39 are spaced and secured by a plurality of horizontal struts 45 having flange portions 46 adapted to abut the inner surfaces of the sheet 39, and prongs 47 extending from the flanges 46 into the members 39 and having their ends 48 bent over to lock the sheets 39 to the horizontal members 45.

All of the panel units may be supported on the floor of the building by a base construction, as shown in detail in Figs. 4 and 5, to which reference now is made. A base channel 90, having flanges 91, rests upon the floor or other supporting surface, and a plurality of pressure pads or tables 92 are disposed on the channel 90 at spaced points, preferably adjacent the ends of the panel units. Supported by each pressure pad 92 is an upright leveling screw 93 supporting a U-shaped leg 94 which is positioned on the screw 93 by a leveling wheel 95, preferably having a scalloped edge and a lock wheel 96 which may be of similar form. The leg member 94 has side portions 97 extending upwardly and having at their upper ends offset portions 98 which may be suitably secured to the flanges 32 of the structural member 31, by welding, thereby to support the panel.

A base clip 100 has a portion 101 extending along the flange 91 of the base channel 90, and is provided with an offset hook portion 102 adapted to engage over the flange 91. The bottom edge of the clip 100 is turned upwardly to provide a hook portion 103. Adjacent the upper end, the clip 100 (Fig. 5) is provided with a cut-out portion 104 and a communicating slot 105 of less width, and the adjacent portion of the panel sheet 31 is formed with a pair of clips 106 adapted to be inserted through the opening 104 and moved into engagement with the portions of the clip 100 adjacent the slot 105. The clip 100 (Fig. 4) is formed with an offset clip portion 107, and a base cover 108 has a flange 109 adapted to engage the clip portion 107 and a doubly rebent flange 110 adapted to engage the clip portion 103 adjacent the floor.

Adjacent panel units may be secured together by a clip construction, shown in detail in Figs. 2 and 5, to which reference now is made. A planar clip member 115, preferably blanked from sheet or plate material, is provided with notches 116 and hook portion 117. The clip member 115 is adapted to receive the flanges 42 of the panel sheets 11 in the notches 116, to thus prevent separation of adjacent panel units longitudinally of the partition.

A cooperating planar clip member 119, also preferably blanked of sheet material, is provided with laterally extending flanges at its corners forming a pair of hook portions 121. The clip member 119 is inserted between adjacent panel units, and forced down into engagement with the first clip member 115, the side edges abutting the flanges 42 opposite the hook portions 117 and the flanges 121 engaging the shoulder portions 44. The clip member 119 assists the clip member 115 in preventing lateral separation of the panel units, and a sufficient number of similar pairs of clip members is provided to prevent twisting or displacement of the panel units to provide a rigid partitition structure. Preferably, the clip members 115 and 119 are provided with perforations 118 and 122, respectively, for permitting wiring conduits *W* or other members to be passed therethrough.

The space between adjacent panel units may be covered by a metal cap 6 formed with flanges 124 having inturned edge portions 127 adapted to abut the shoulder portions 44 and to engage the leg portions 121 of the clip members 119. The caps 6, preferably are so formed that their principal outer faces are flush with the faces of the panel sheets of adjacent panels and may have offset portions 126 for the purpose of providing decorative grooves.

Referring now to Fig. 4, a cornice structure may be provided at the upper ends of the panel units, and may have a pair of structural members, such as channels 130, arranged back to back. Each channel 130 has a flange 131 adapted to rest upon the tops of the panel units, and a clip portion 132 bent over and adapted to lie against the faces of the panel units. The channel 130 also has a flange 134 having a doubly bent edge portion 135 providing shoulders 136 and 137. A cornice cover 138 is formed with an upper flange 139 having its edge 140 bent over and adapted to engage the shoulder 136 and a lower flange 141 having its edge 142 bent over to lie against the face of the panel unit and resiliently engage the clip portion 132. The cornice covers 138 are removable for the purpose of permitting access to the space within the cornice channels 130 to permit laying in of electric conduits W, or other service lines without "fishing" or threading through the partition structure. The cornice channel 130 may be connected to the panel units by a suitable detachable connection not shown.

The superstructure or top filler 9 may rest upon and be secured to the flanges 134 of the cornice channels 130. For the purposes of illustration, there is shown a top filler comprising wall members 149 connected to horizontal structural members 149'.

Where a partition is run from a wall or other vertical surface, where a corner, angle condition, or three-way condition is desired, as where a glazed panel or transom is to be provided, the necessary structure may be provided and may be constructed as shown and described more in detail in my copending application referred to hereinafter.

Where a door is to be provided, the frame 18 may have vertical channel portions 200, each formed with a web 201 having a shoulder 202 constituting a vertical door check and flanges 203 constituting wall-forming surfaces. Flanges 203 are provided with inturned edges 204 having shoulder portions 205 and 206, whereby the channel portion 200 may be secured to an adjacent panel unit by clip members 115 and 119 in the same manner as that described for the connection of two adjacent panel units. The door may be hinged to the frame 18 as shown and described in my copending application hereinafter identified.

The construction at the floor connection for the door frame at a corner is illustrated in Fig. 7. Extending from the base channel 90 is a plate 300 on which rests a pressure pad 301, which may be secured by a screw 302 and may carry a stud 303 on which is threaded a leveling wheel 304. A clip angle 310 has one flange secured to the door frame channel 200, as by welding and a flange 311 extending therefrom and formed with a slot 312 to receive the stud 303. A channel-like clamp 313 having openings (not shown) for receiving the stud 303, is pressed down against the flange 311 by a nut 314 threaded on the stud 303. The flange 311 is formed with hooks 315 which retain the clamp 313. This construction serves to support the door frame member 200 at the desired level and position and also prevents twisting thereof.

The base clip 100 may be provided with a slot 111 for the purpose of receiving a screw 112 for attaching the clip 100 to a plaster partition 113 (Fig. 6) or other structure. Thus, the base cover 108 may be attached to a wall or partition of any suitable construction. This feature is advantageous, since the base cover may be extended continuously along a combined partition consisting of one or more sections of different construction, such as, a metallic partition and a plaster partition.

The partition may be assembled as follows:

The panel units are each constructed by forming a core consisting of the struts 45 and filler sheets 39, whereafter the frame members 31, 35 and 40 are disposed in their proper positions and finally the panel sheets 11 (or 14) are applied and welded to the frame members while held flat by suitable application of pressure.

The base channel 90 is secured to the floor, and the pressure pads 92 disposed thereon and the leveling wheels are all brought to the same level. Thereafter, the legs 94 of the first panel unit are mounted on the leveling wheels 95 and panel unit is thus supported at the desired level.

The next panel unit is then mounted in a similar manner and is connected to the first panel unit by clips 115 and 119. The clip 115 is applied by inclining it at an angle and engaging one of the hooked portions 117 with one pair of flanges 42 of the first panel, whereafter the clip 115 is tilted down to horizontal position with the other hooked portion 117 engaging the opposite pair of flanges 42. The second clip 119 is then applied by engaging one of the hooked portions 121 with the flanges 42 of adjacent panel units and is rocked into engagement with all four flanges 42 and is pressed down into face to face contact with the first clip 115.

Wherever the partition is to be run from a wall, as will generally be the case, and where a corner condition occurs, these portions will be assembled in a manner which will be apparent from the drawings and accompanying description.

Service lines, indicated by dotted lines W, may be inserted in the posts, cornice channels and/or base, as indicated in Figs. 2, 3 and 4. The lines in the base may be inserted either through the legs 94 or between the legs 94 and the clips 100. Preferably, the service lines are merely laid in between the clips 100 and the legs 94 so that no threading is required.

After the panel units have been mounted and leveled, the post caps 6 are applied by snapping the flanges 125 over the projections 120 of the clips 119 so that the inner faces of the flanges 125 seat against the outer faces of the offset portions 44 of the panel seats, thus closing the space between adjacent panel units. The base clip 100 is applied by hooking the portion 101 over the flange 91 of the base channel 90 and passing the clip portions 106 of the panel sheets through the opening 104, whereafter the clip is dropped into position. The base cover 108 can then be assembled by inserting the flanges 109 and 110 in the clip portions 107 and 103 of the base clip. The cornice cover is applied by hooking the flange 140 over the shoulder 136 of the cornice channel 130, and then snapping the lower flange 142 over the clip portion 132 of the channel 130.

Various modifications may be made in the structure and particularly the base and supporting structure for the panel units. Referring now to Figs. 8, 9 and 10, there is shown another form of base and supporting structure for the panel units which is particularly adapted for the convenient reception of service lines.

The partition structure includes a plurality of panels, each of which may be formed in a manner generally similar to that described in connection with the partition shown in Figs. 1 to 7. Each panel unit may include a pair of spaced panel sheets 210 which may be connected, in a manner similar to that above described, by struts, of which only the bottom strut 215 is shown in Figs. 8 to 10. Insulating sheets 211 may be provided in a manner which will be apparent from the foregoing.

Each bottom strut 215 is formed with flanges 216, shoulder portions 217 and flange extensions 218, which latter portions may be secured to the lower margins of the respective panel sheets 210, as by welding. The insulating sheets 210 are fitted in the seats provided by the panel sheets 210 and the flanges 216 and seat against the shoulder portions 217. It will be seen that each panel unit, in this form of the invention, constitutes a unitary structure in a manner similar to that previously described.

Each panel unit is supported on a plurality of feet 250, one of which is shown. Each foot 250 is secured to the bottom edge of the unit, one adjacent each end edge. Each foot includes a web 251 having a slot 252 therein and upright flanges 253 formed with offset portions 255, and

upstanding and offset flange extensions 257. The flange extensions 257 may be of substantially less width than the flanges 253 and are seated against the flanges 218 of the lower struts 215 and secured thereto as by welding. If desired, the flange extensions 257 may bear against the shoulder portions 216 of the lower strut 215. Thus the foot 250 is rigidly secured to the panel unit and is adapted to support the same in upright position.

A base channel 258, having flanges 259, is provided and a shoe 260 having supporting flanges 261 is secured therein in a suitable manner. A pair of leveling studs 262 are secured in and extend upwardly from the foot 260 and are adapted to enter the slots 252 of the feet 250 of adjacent panel units. A leveling wheel 263 is threaded on each leveling stud 262 and is adapted to support the panel unit. One or more base clips are provided for cooperation with the base channel 258 and the panel unit for securing the base cover in position and for supporting a service line trough or receptacle as hereinafter described.

Each base clip 265 is formed with a web 266 having a base flange 267 formed with an upturned lip 268 at its free end. An offset portion 270 is connected to the web 266 by shoulder 269 and the offset portion 270 is formed with a slot 271 having an enlarged portion 272. The enlarged portion 272 is adapted to receive clip fingers 273 extending from the flange of the lower strut 215 which fingers 273 engage the edges of the slot 271 to assist in securing the clip in position. A clip finger 274 is bent out from the web 266 and is adapted to engage over the flange 259 of the base channel 258 to assist in securing the clip 265 in position.

The base clip 265 is formed with an offset clip portion 275 and a base cover 276 is formed with a flange 278 adapted to engage the clip portion 275. The base cover also has a flange 277 adapted to engage over the flange 268 of the clip 265 for securing the base cover in position along the base of the partition.

From an inspection of Fig. 9 of the drawings, it will be noted that the foot 250 has its flanges 253 relatively closer together than the distance between the panel sheets 210 thereby providing a substantial space between the flanges 253 and the base cover 276. The base clip 265 is adapted to have its web 266 lie in approximately the same plane as the flange 253 and thereby to provide considerable space between the web 266 and the base cover 276. This space may be utilized for running service lines such as gas, water and electric lines. If desired, a trough or receptacle 280 may be disposed in this space for receiving and protecting the service lines. Inasmuch as the electrical service lines are customarily insulated electrically, the trough 280 may be formed of metal, but in certain cases, if additional electrical insulation is desired, the trough 280 may be formed of insulating material or may have an insulating lining.

The trough 280 is preferably formed to fit against the web 266 of the base clip 265. The trough 280 has a flange 281 adapted to lie against the flange 267 and a lip 282 corresponding to the lip 268. The trough 280 has an outturned flange 283 extending along the shoulder 269. Preferably, the trough 280 is formed so that it can be sprung into position in the base clip 265, but in certain cases the base clip may be bent around the trough to fit snugly against the latter. The trough may have one or more shelves 284 forming channels, each having one flange 285 secured to the inner face of the upper wall of the trough 280 and the other flange 286 serving to retain the service lines and conduits in the channel 284.

Additional insulating of the partition may be provided by inserting an elongated insulating slab 290 in the space between the base clips 265 which engage opposite flanges of the base channel 258. The slab 290 may be secured in upright position but preferably it rests against opposite clips in the manner shown in Fig. 9.

A post cap 296 formed generally similar to the post cap 6 shown in Figs. 2 and 3 and cooperating with adjacent panel units in a similar manner, may be provided for closing the space between adjacent panel units.

The partition also may serve as a conduit for conducting conditioned air which has been suitably cooled or heated and humidified or dried. This air may be conducted through the space between the base covers, the space between the adjacent end members and the space between the cornice covers. Suitable outlets and inlets for circulating the air through the room may be provided.

It will be understood that the partitions can be made in accordance with the invention in varying widths or thicknesses. Where the partition is to be employed to constitute or house air conditioning conduits, it will be of sufficient size to provide the necessary air conducting capacity.

From the foregoing it will be seen that the present invention provides a partition structure which can be easily and economically formed from a minimum number of stock parts. The parts are of such design that substantially all of them can be formed readily from sheet or plate material by simple punching, drawing, bending and other relatively inexpensive operations. The construction provided by the present invention is adaptable for meeting substantially all ordinary conditions, such as corners, intersections, doors, odd lengths and the like, without necessitating the use of parts of special size or shape.

The partition structure is one which can be quickly and easily erected in the field without the aid of special tools or apparatus. Inasmuch as the panels, base construction, panel connections, cornice connections and other important parts are detachable, the partition may be disassembled, adjusted or altered without necessitating demolishing the partition or destroying or injuring any of the parts or adjacent portions of the building in which the partition is installed.

While certain novel features of the invention have been disclosed and are pointed out in the annexed claims, it will be understood that various omissions, substitutions and changes may be made by those skilled in the art without departing from the spirit of the invention.

This application is in part a continuation of my copending application, Serial No. 77,268, filed April 30, 1936.

What is claimed is:

1. A partition structure comprising a plurality of panel units, each including a wall-forming portion and supporting means depending therefrom, means connecting said panel units to form a partition, a floor member extending along said partition, a base clip extending between and engaging with said floor member and one of said panel units and formed with a recessed pocket, a base cover extending along said panel unit and

having detachable engagement at its upper and lower portions with said clip, and a receptacle for service lines disposed in the pocket in said base clip.

2. A partition structure comprising a plurality of panel units, each including a wall-forming portion and supporting means depending therefrom, means connecting said panel units to form a partition, a floor channel extending along said partition and having a web and an upstanding flange, a base clip having detachable hooking engagement with said flange and one of said panel units, a base cover extending along said panel unit and having detachable engagement at its upper and lower portions with said clip, and a receptacle for service lines disposed between said clip and said base cover.

3. A partition structure comprising a plurality of panel units, each including a wall-forming portion and a supporting foot depending therefrom, means connecting said panel units to form a partition, a floor member extending along said partition, a base clip engaging said floor member and one of said panel units, a base cover extending along said panel unit and having hooking engagement at its upper and lower portions with said clip, and a receptacle for service lines disposed between said clip and said base cover, said foot and said base clip being offset inwardly, whereby said receptacle lies substantially within the planes of the partition faces.

4. A partition structure comprising a plurality of panel units, each comprising a wall-forming portion and a supporting member depending therefrom, means connecting said panel units to form a partition, a floor channel extending along said partition and having a web for attachment to a supporting base or floor and an upstanding flange, a base clip having a body extending between said floor channel and one of said panel units, a shoulder, a clip portion engaging said upstanding flange, and a flange adjacent said floor channel, a base cover extending along said panel unit and engaging at its upper and lower portions said clip, and a receptacle for service lines disposed between said clip and said base cover and lying against said shoulder and said flange of said base clip.

5. A partition structure comprising a plurality of panel units, each comprising a wall-forming portion and supporting means depending therefrom, means connecting said panel units to form a partition, a floor member extending along said partition, a base clip engaging said floor member and one of said panel units, and having an offset portion, a receptacle for service lines disposed in and positioned by said offset portion, and a base cover extending along the lower portion of said partition and hiding said receptacle.

6. A partition structure comprising a plurality of panel units, each comprising a wall-forming portion and a supporting member depending therefrom, means connecting said panel units to form a partition, a floor member extending along said partition, a base clip engaging said floor member and one of said panel units, and having a shoulder and flange forming a recess, a generally channel shaped receptacle for service lines disposed in said recess and having its flanges seated against said shoulder and flange respectively, and a base cover extending along the lower portion of said partition and covering said receptacle.

7. A partition structure comprising a plurality of panel units, each comprising a wall-forming portion and a supporting foot depending therefrom, means connecting said panel units to form a partition, a floor channel extending along said partition, a base clip having engagement with and positioned by said floor channel and at least one of said panel units, and a base cover extending along said panel unit and having engagement at its upper and lower portions with said clip, said foot and said base clip being offset to provide space for service lines between said clip and said cover.

8. A partition structure comprising a plurality of panel units, a floor member extending along said panel units, means mounting said panel units for vertical adjustment relative to said floor member, a base member engaging and extending between said floor member and a panel unit and having a sliding connection with at least said panel unit, a service line receptacle positioned by said base member, and a base cover extending along the base of said partition and hiding said receptacle.

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