April 13, 1926. 1,580,107

C. A. ANDERSON

METAL PARTITION WALL CONSTRUCTION

Filed Oct. 1, 1924 4 Sheets-Sheet 1

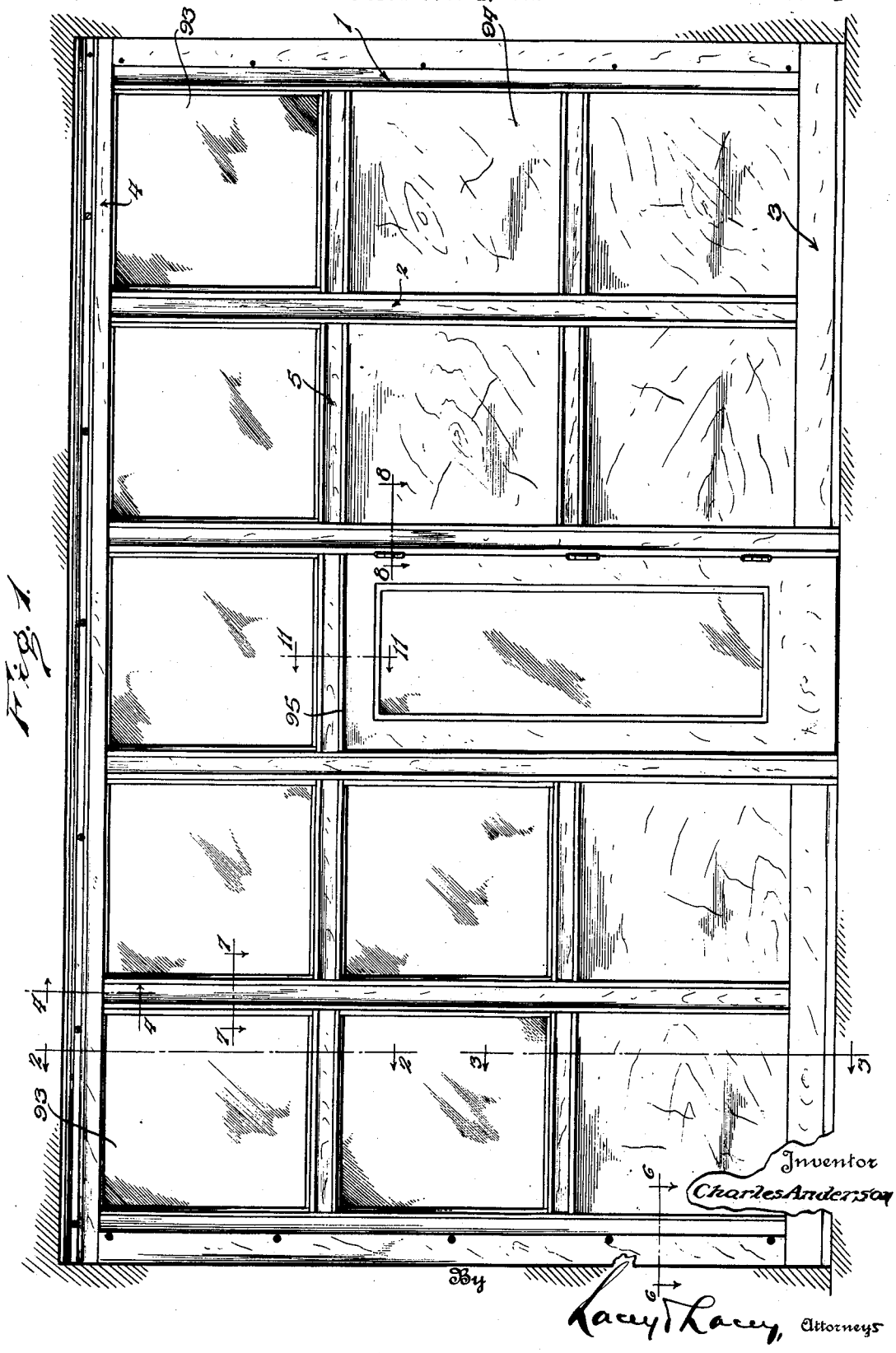


Fig. 1.

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Fig. 3.

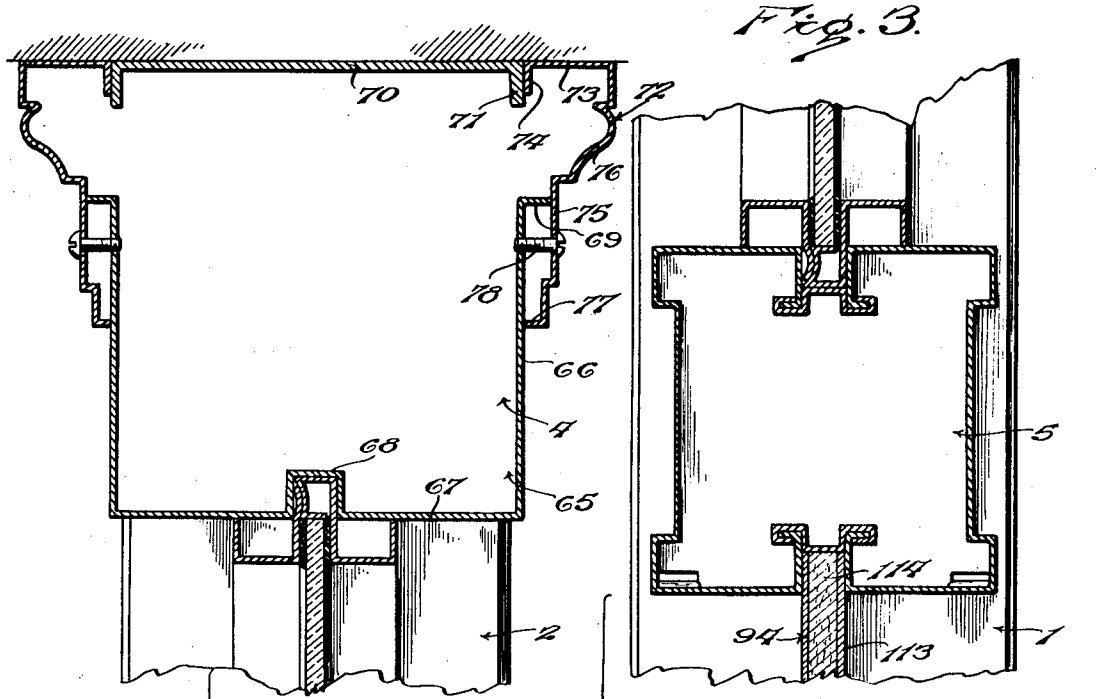
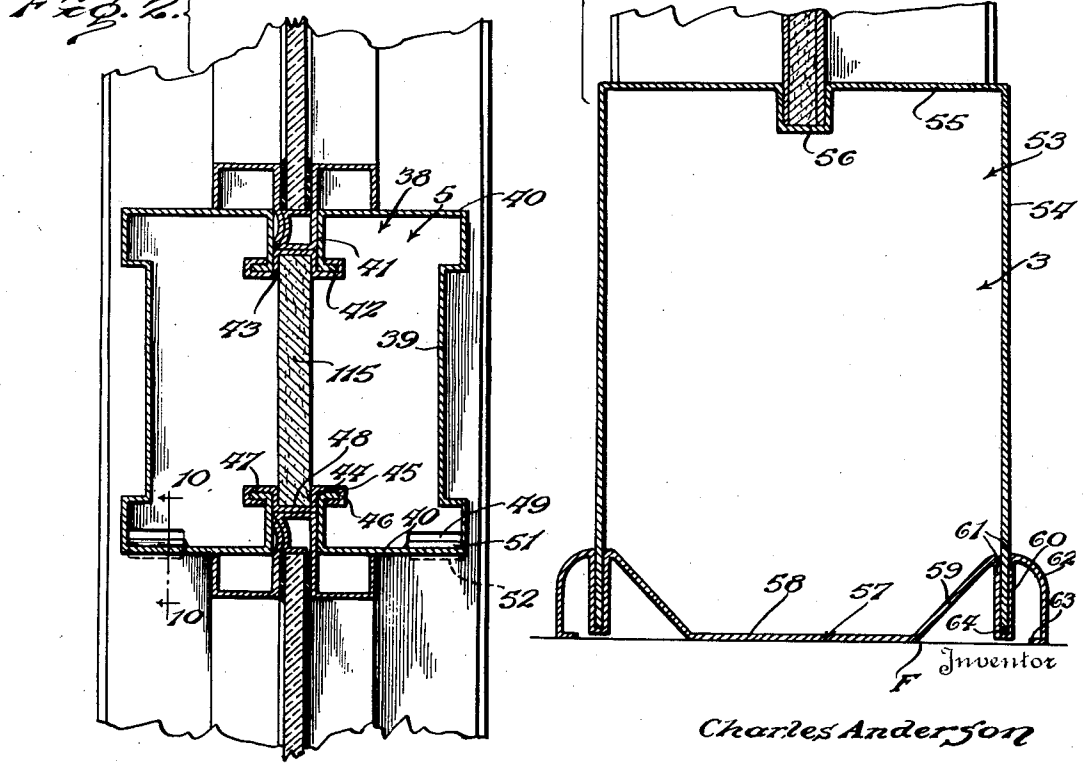


Fig. 2.



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Fig. 4.

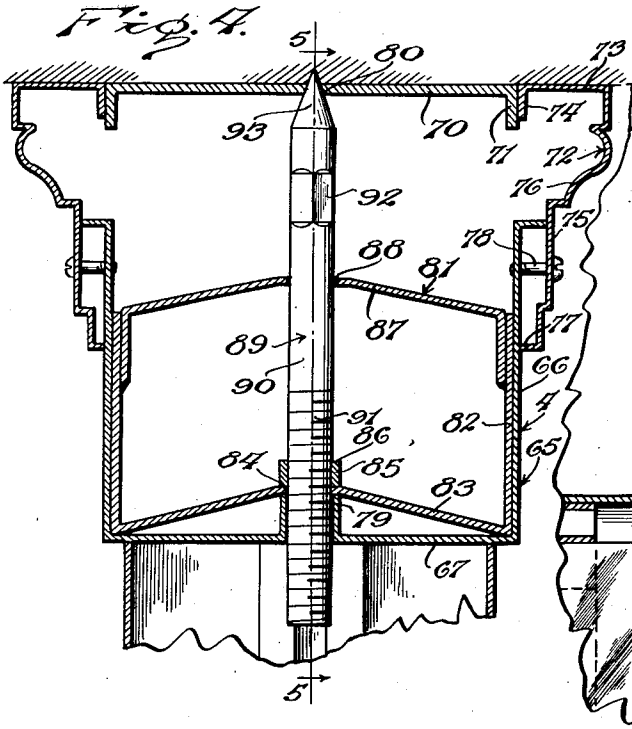


Fig. 5.

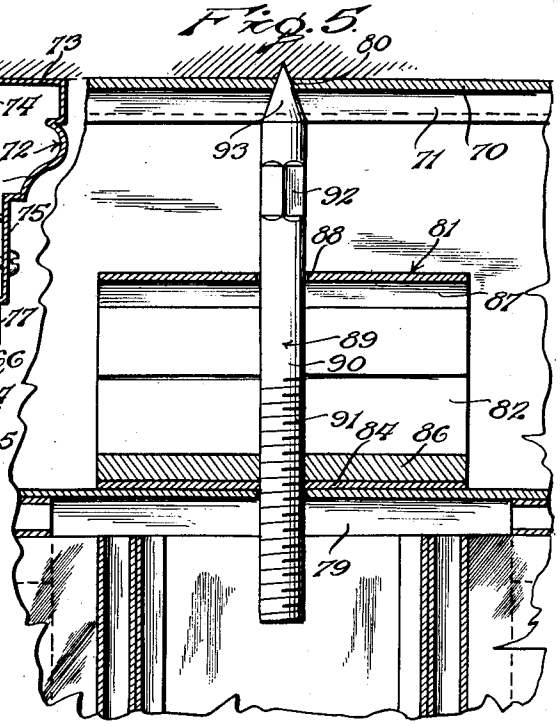


Fig. 6.

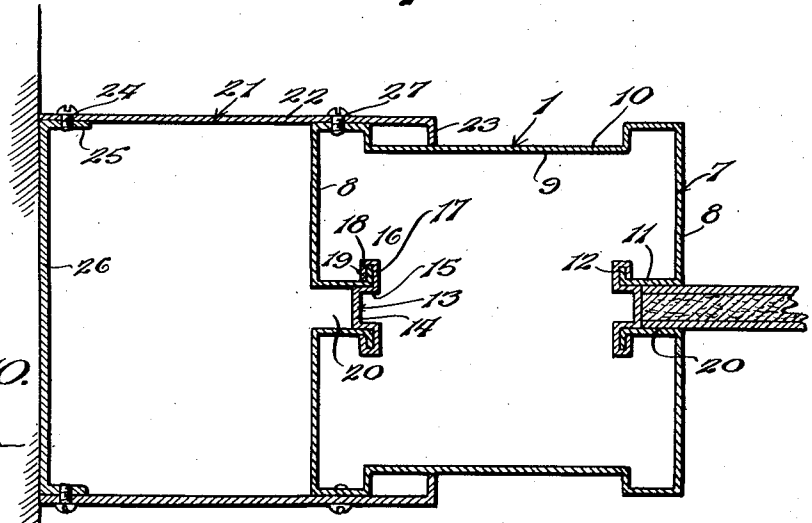
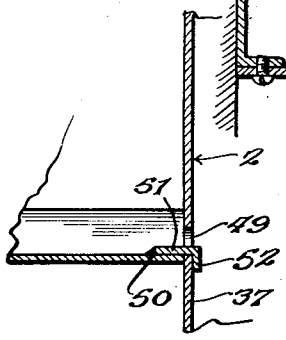


Fig. 10.



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Fig. 12.

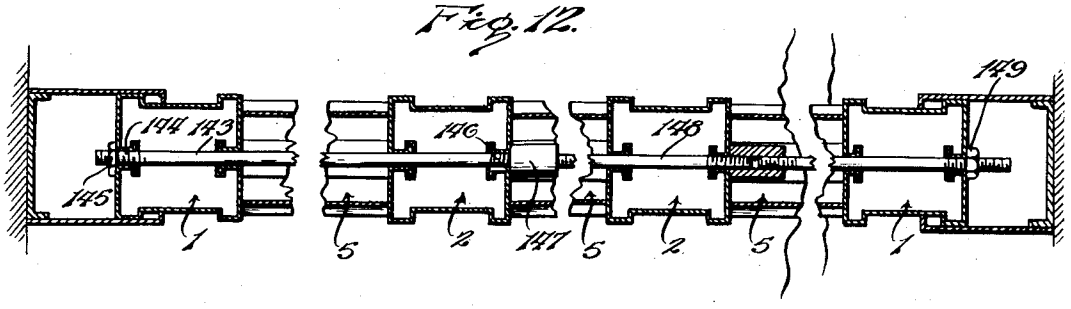


Fig. 7.

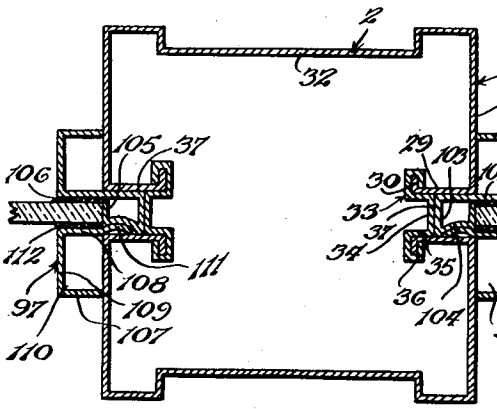


Fig. 8.

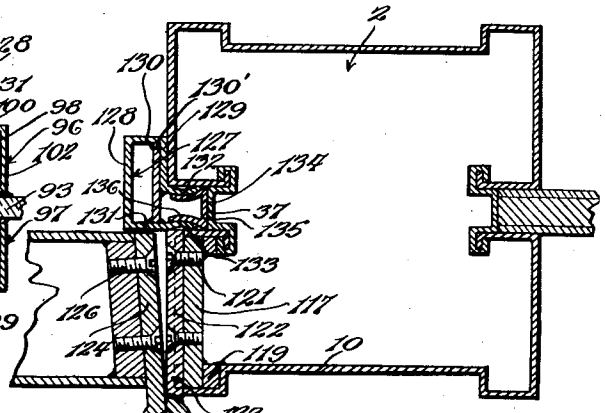


Fig. 11.

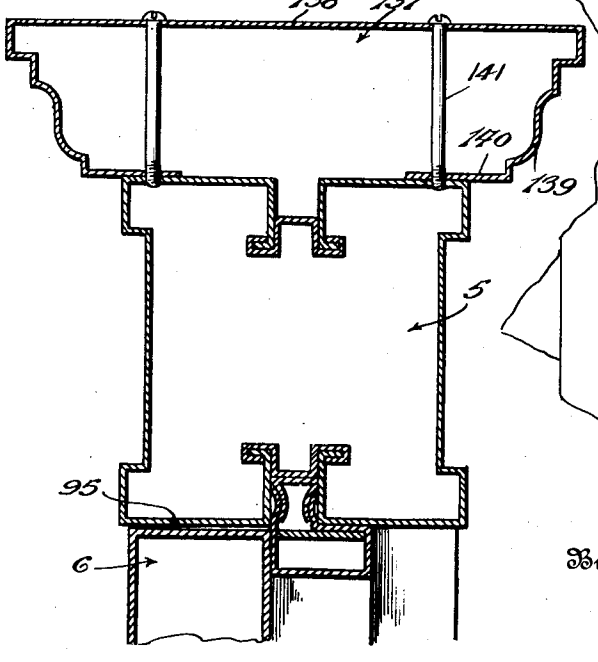
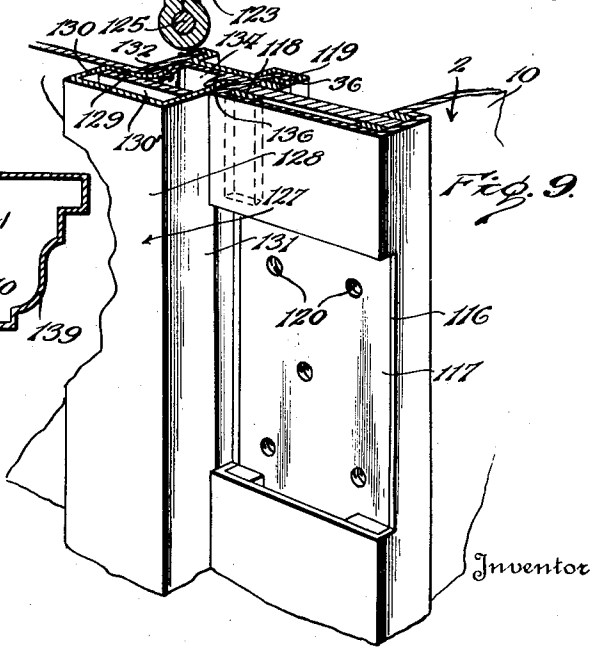


Fig. 9.



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By Lacey & Lacey Attorneys

Patented Apr. 13, 1926. 1,580,107

UNITED STATES PATENT OFFICE.

CHARLES A. ANDERSON, OF CANTON, OHIO.

METAL PARTITION-WALL CONSTRUCTION.

Application filed October 1, 1924. Serial No. 741,012.

To all whom it may concern:

Be it known that I, CHARLES A. ANDERSON, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Metal Partition-Wall Constructions, of which the following is a specification.

This invention relates to improvements in partition wall structures.

Ordinarily, partition walls are erected by building up the walls in the room or rooms in which they are to become permanent fixtures. Such a procedure, however, involves considerable time and labor and such walls, as ordinarily constructed, cannot be erected without permanently defacing the other walls of the room as well as the ceiling and the floor. Therefore, one of the important objects of the present invention is to provide a partition wall structure the component parts or units of which may be drawn or fabricated at the factory, being of metal, and a suitable selection made of a number of the units preparatory to the erection of a partition wall of suitable dimensions and possessing the desired arrangement of panelled sections, transparent window sections or units, doorways and doors, transoms, etc., and in this connection, the invention contemplates so constructing the various units of the structure that after the desired selection of units has been made, the units may be shipped to the place where the wall is to be erected, and assembled and the entire structure set up with the expenditure of but little labor, and, the work accomplished in a very short period of time.

Another important object of the invention is to provide a partition wall structure which may be built up of units and the construction of which is such as to permit of an interchange of units so that the position of doors may be changed if occasion requires, as well as the position of panelled sections or units and windows or transparent sections or units, thereby providing for a wide range of choice in the arrangement of the various units both before and after erection of the wall, the invention contemplating the provision of a wall of such construction that the various parts thereof may be readily disassembled, interchanged and reassembled, as in the initial erection of the wall.

It is well known that even where building structures are erected in a careful and skillful manner, there are liable to be inequalities in the walls, ceilings and floors of such structures which, while they might not ordinarily be noticeable, offer obstacles to the erection of partition walls by the ordinary methods and, therefore, the present invention has as another important object, to provide a partition wall of such construction that, at the time of assembling the component parts thereof, to effect its erection, such inequalities as referred to above may be compensated for.

A further important object of the invention is to so construct the partition wall that in its erection it will not necessitate any defacement or injury to the walls, ceilings, and floors of buildings in which it may be installed, so that in the event it is desired at any time to remove the partition wall either permanently, or to change its location, the fact that it has previously occupied another position will not be evident, due to the fact that the walls, ceilings and floors are left intact when the partition wall is taken down.

Another object of the invention is to so construct the wall that while its component parts or units are securely connected together in the course of their assemblage with one another, the presence of the connections between the parts will not be apparent to the ordinary observer, the invention, in this connection, contemplating the employment of securing means of such character as to be concealed and, at the same time, employ a minimum number of the securing devices or means so as to materially simplify the task of erecting the wall.

Another object of the invention is to so construct the various units and parts which are to constitute the finished wall, that the wall in its completed form will be extremely attractive in appearance and will have every semblance of a permanently built in structure rather than a knock-down structure or one which might be readily disassembled.

In the accompanying drawings:

Figure 1 is a view in front elevation of a partition wall constructed in accordance with the present invention.

Figure 2 is a detail vertical front to rear sectional view through the upper portion of

the structure, taken substantially on the line 2—2 of Figure 1, looking in the direction indicated by the arrows.

Figure 3 is a similar view on the line 3—3 of Figure 1, looking in the direction indicated by the arrows, and constituting substantially a continuation of Figure 2.

Figure 4 is a detail vertical sectional view taken substantially on the line 4—4 of Figure 1, looking in the direction indicated by the arrows.

Figure 5 is a vertical transverse sectional view on the line 5—5 of Figure 4, looking in the direction indicated by the arrows.

Figure 6 is a horizontal sectional view in detail, on the line 6—6 of Figure 1, looking downwardly.

Figure 7 is a horizontal sectional view taken substantially on the line 7—7 of Figure 1, looking in the downward direction.

Figure 8 is a similar view on the line 8—8 of Figure 1.

Figure 9 is a perspective view illustrating a portion of the structure shown in Figure 8.

Figure 10 is a detail vertical sectional view taken substantially on the line 10—10 of Figure 2, looking in the direction indicated by the arrows.

Figure 11 is a vertical front to rear sectional view in detail, taken substantially on the line 11—11 of Figure 1, looking in the direction indicated by the arrows, but illustrating, however, a slight modification of the invention.

Figure 12 is a horizontal sectional view illustrating a further modification of the invention.

The partition wall structure embodying the invention consists essentially of a frame structure including end stiles indicated in general by the numeral 1, intermediate stiles indicated by the numeral 2, a sill rail indicated by the numeral 3, a top or ceiling rail indicated by the numeral 4, and intermediate rails indicated in general by the numeral 5, together with one or more doors indicated in general by the numeral 6, and panels and glass panes as will presently be more specifically described.

Figure 1 of the drawings is illustrative of one embodiment of the invention but it is to be understood that various arrangements of the several units of the structure may be produced to meet varying requirements and that a greater or less number of units may be embodied in any particular partition wall, as required.

Referring first to the end stiles of the structure, one of which stiles is most clearly illustrated in Figure 6 of the drawings, the said stile includes, in its structure, a hollow upright of sheet or pressed metal made up of two sections which are of counterpart form and which are indicated in general by the numeral 7. Each section is formed from an integral metal blank drawn or otherwise worked in the factory to provide side walls indicated by the numeral 8, and a connecting wall indicated by the numeral 9, the connecting wall 9 extending between the outer edges of the side walls 8 and being formed with an inward offset indicated by the numeral 10. The relatively adjacent edges of the side walls 8, in the assembled relation of the sections 7, are provided with inwardly right angularly extending wings 11 terminating at their inner edges in flanges 12 which project in the general direction of the respective connecting wall 9. In the assembled relation of the sections 7, corresponding ones of the wings 11 will be oppositely located and relatively spaced, as clearly shown in Figure 6, with their flanges 12 projecting in opposite directions. For the purpose of connecting the relatively adjacent sides of the sections 7 and for a further purpose to be presently explained, locking and bracing members 13 are employed and each of said members is formed from a strip of metal formed to provide an intermediate body portion 14, right angularly extending flanges 15 at the longitudinal edges of said body portion, and channels 16 formed by extending each flange 15 at right angles in an outward direction as at 17, thence again at right angles as at 18, and finally inwardly or retrorsely as at 19. Thus, each bracing and locking member is provided at the opposite sides of its intermediate portion and flanges 15, with a channel interiorly of dimensions to accommodate the outer marginal portion of a respective one of the wings 11 and its associated flange 12, and in assembling the members 13 with the sections 7, one of the said members is disposed endwise with relation to the properly spaced section and in position to receive the said marginal portions of the wings 11 and flanges 12 of the said sections, and the said member 13 is then slid into place until its ends are in registration with the ends of the sections 7, at one side of the stile, the other locking member 13 being, in a like manner, slid into place at the other side of said stile. It will be observed by reference to Figure 6 of the drawings, that the edge of the retrorsely bent flange 19 is spaced from the outer side of the respective flange 15 a distance substantially equal to the thickness of the wing 11 which is to be received, together with its flange 12, within the channel 16, and that the outer faces of the flanges 15 of the members 13 abut against the relatively opposed faces of the wings 11, with the intermediate portion 14 of each member 13 extending between the said wings, so that the wings are securely braced by the locking member 13, the said locking member,

therefore, serving not only to lock the sections 7 together, but also to relatively brace the said wings 11 of the sections. It will further be observed that these wings and the intermediate portions 14 of the respective members 13 provide channels 20 extending longitudinally of the side walls of the stiles 1, and these channels serve a useful purpose, as will presently be explained. The side stiles 1 are, of course, located at the opposite ends of the partition wall structure as a whole, and in order that the stiles may snugly and squarely abut the faces of the walls of the room, between which the partition wall extends, each of said end stiles includes, in addition to the hollow stile proper, just described, a pair of spaced face plates indicated in general by the numeral 21 and each formed from a metal strip of suitable width and of a length equal to the length or height of the hollow body of the stile. Each plate, indicated by the numeral 22, is provided along one longitudinal edge, with an inwardly projecting flange 23, and the plates are disposed in spaced relation in the manner illustrated in Figure 6, and receive between them one side of the stile body comprising the sections 7, the flanges 23 of the said plates 22 extending into the offsets 10 of the said sections 7 and marginally contacting the outer faces of the connecting walls 9 of said sections. The other marginal portions of the plates 22 are secured, by any suitable fastening elements 24, to the outstanding flanges 25 of a wall plate 26, which plate is disposed snugly against the face of the wall of the room at which the particular end stile is to be located. In this manner, the plates 22 are relatively braced in their spaced relation and, at the time of assembling the stile body with the said plates, the stile body at one side is disposed between the plates at their flanged marginal portions and the stile body is then adjusted inwardly or outwardly as may be found necessary in order to symmetrically arrange or position the remainder of the frame structure with relation to the two walls of the room between which it extends. When the required adjustment has been obtained, fastening elements, such for example as bolts 27, are secured through the plates 22 and through the connecting walls 9 of the sections 7 at one side of the offset 10 therein, as clearly shown in Figure 6.

The intermediate stiles 2 of the frame structure are all of counterpart construction and consequently, a description of one will suffice for all. One of these stiles is most clearly shown in horizontal section in Figure 7 of the drawings, and by casual reference to this figure and a comparison of the same with Figure 6, it will be observed that the said intermediate stile 2 illustrated in Figure 7, is substantially identical with the body of the stile illustrated in Figure 6. The stile 2 comprises a pair of counterpart sections 28 corresponding to the sections 7 previously described and having wings 29 and flanges 30 corresponding to the wings 11 and flanges 12 of the stile 1. Likewise, the stile 2 comprises side walls 31 and connecting walls 32, and the sections of the stile are connected together by locking and bracing members 33 corresponding to the members 13 heretofore described, the members 33 each comprising an intermediate portion 34, side flanges 35, and retrorsely bent flanges 36, the latter to slidably interlock with the wings 29 and flanges 30 of the associated sections. Thus, in the instance of the intermediate stiles 2, there are present channels 37 corresponding to the channels 20 of the end stiles 1. The stiles 2 will presently be more specifically referred to and their manner of connection with the other elements of the structure more specifically described.

The intermediate rails 5 are all of counterpart construction and do not differ in any material respect from the end stiles 1 and intermediate stiles 2. The said intermediate rails 5 are shown in cross section in Figures 2 and 3 of the drawings and each rail comprises a pair of sections 38 corresponding to the sections 7 of the stile 1, and each section comprises a connecting or vertical wall 39 and top and bottom walls 40. The sections are provided with wings 41 and flanges 42 corresponding to the wings 11 and flanges 12 of the sections 7 of the stile 1, and bracing and locking members 43 corresponding to the members 13 are provided for uniting the sections of each rail, each member 43 comprising an intermediate portion 44, side flanges 45, and retrorsely formed flanges 46 providing channels 47 to accommodate the marginal portions of the wings 41 and the flanges 42 associated therewith, the intermediate portion 44 and flanges 45 of each of the members 43 providing a channel 48 corresponding to the channel 20 heretofore referred to.

Be reference now to Figure 1 of the drawings, it will be observed that the intermediate stiles 2 extend vertically between the sill rail 3 and the top rail 4 of the structure, in parallel relation to each other and to the end stiles 1, and that the intermediate rails 5 extend horizontally between adjacent ones of the intermediate stiles 2 and likewise between said intermediate stiles and the said end stiles, and in order that the rails 5 may be connected at their ends with the end or intermediate stiles, as the case may be, the structure shown in Figures 2 and 10 may be employed, or it may be found desirable to employ the modified structure shown in Figure 12, which modified structure will be presently more specifically described. Re-

ferring to Figures 2 and 3, it will be observed that the stiles 1 and 2 are formed in their side walls near the opposite edges of said walls, with slots 49, and in each end of each of the rail sections 5 there is secured, by spot welding or otherwise, as at 50, a pair of hook members 51 having flat, right angularly downwardly extending bills 52 which are of dimensions to be engageable through the slots 49 and to overhang the portions of the walls 8 or 37, as the case may be, defining the lower sides of the said slots 49, as clearly shown in Figure 10, the end edges of the walls of the rails 5 abutting squarely against the side walls of the stiles 1 and 2, depending upon the location of the said rail sections 5.

Referring now to Figures 1 and 3 of the drawings, it will be observed that the end stiles 1 and intermediate stiles 2 rest at their lower ends upon the sill rails 3, except in the instance of a pair of the intermediate stiles 2 which, as will be observed in Figure 1, form the opposite sides of the frame for the door 6. The sill rail 3 is best shown in Figure 3 of the drawings and comprises a hollow rectangular body 53 of sheet metal comprising front and rear walls 54 and a top 55, all constituting one integral piece, and the said top 55 formed longitudinally medially with a channel 56 corresponding in dimensions to the channels 20, 37 and 48 heretofore referred to. The sill rail is open at its bottom and further comprises a base member which is indicated in general by the numeral 57 and which is likewise formed from sheet metal and comprises an intermediate flat portion 58 designed to rest upon the surface of the floor of the room in which the partition structure is to be set up, the sheet of metal from which the base member is formed being provided with upwardly oppositely inclined portions 59 extending longitudinally of the opposite sides of the intermediate portion 58, and with relatively narrow and deep channels 60 immediately outwardly of the upper edges of the portions 59. The channels 60 in the base members 57 are formed by folding the metal of which the member is formed, downwardly beyond each portion 59 and thence back upon itself in upward direction so as to provide the channel walls 61, one wall of each channel, namely the outer wall, being extended to provide an overturned, preferably rounded, supporting flange 62 which extends downwardly and is provided along its lower edge with an inturned flange 63 designed to rest flat upon the floor surface, which surface is indicated by the reference character F in Figure 3. It will be observed by reference to this figure, that the under side of the intermediate portion 58, and the undersides of the inturned marginal portions of the flanges 62, occupy a common plane and, therefore, these portions rest upon the floor surface. However, the under sides of the channels 60 are spaced slightly above this plane, as shown in Figure 3, and it will be observed that the said channels receive the lower edge portions of the front and rear walls 54 of sill rail 3. If the floor surface should not be truly level, as illustrated in an exaggerated manner in Figure 3, then a shim or spacing strip 64 may be arranged within the bottom of one or the other of the channels 60 so as to bring the upper surface of the top 55 of the body 53 to a true level and thereby adapt the lower ends of the end and intermediate stiles to rest squarely upon the same. It will furthermore be observed by reference to Figure 3, that inasmuch as the lower sides of the channels 60 are somewhat spaced above the plane of the under side of the intermediate portion 58 and the under sides of the inturned marginal portions 63, and consequently are spaced above the floor surface, the weight imposed upon the body member 53 of the sill rail will tend to force the channel portions of the member 57 downwardly but this will resolve itself into a firm clamping of the walls 54 of the said body member 53 by and between the walls 61 of the channels so that the structure will be rendered firm and secure.

Reference will now be had to the ceiling or top rail 4, which is best illustrated in cross section in Figures 2 and 4 of the drawings, these two figures being sections taken on different planes, as set forth in the preceding brief description of the drawings. The ceiling rail or top rail comprises a body 65 consisting of spaced upright side walls 66 and a bottom 67, which bottom is formed with a longitudinally extending channel 68, as in the instance of the top of the floor rail 53. The said body 65 of the ceiling or top rail is formed of one piece of sheet metal and is open at its top, the upper edges of the side walls 66 of the body being provided with horizontally outstanding flanges 69 which serve a purpose to be presently explained. The numeral 70 indicates a ceiling plate which is disposed against the under side of the ceiling of the room in which the partition wall is to be erected, and this plate is of a length substantially equal to the distance between the walls between which the partition structure is to extend and is provided at its opposite longitudinal edges with depending flanges indicated by the numeral 71. As heretofore explained, and as illustrated in Figure 3, it is not infrequent that the floor of a room will be slightly inclined, and this is likewise true of the ceiling. Furthermore, it is desirable to allow for some latitude in variation of dimensions as was done in the instance of the side stiles 1 and as shown in Figure 6. It will be ob-

served by reference to Figure 2, that in the assembled relation of the various parts the upper edges of the side walls 66 of the body member 65 are spaced a short distance below the ceiling plate 70 and this space must be closed. This is best accomplished by providing ornamental molding sections which are indicated in general by the numeral 72 and these molding strips or sections may be of any desired ornamental design but each consists essentially of a top portion 73 provided at its free margin with a depending flange 74, and a vertical lower portion 75 which preferably extends beneath a more ornamental intermediate portion 76 of the molding strip and which is provided at its lower edge with a projecting horizontal flange 77. In assembling the molding members 72 with the ceiling or top rail 4, the said molding members or sections are disposed at opposite sides of the said rail with their flanges 74 engaging against the respective flanges 71 of the ceiling plate 70 and with the lower portion 75 of each molding section resting against the free edge of the flange 69 of the respective walls 66 of the said rail 4, the edges of the flanges 77 of the said molding sections engaging against the outer faces of the said walls 66. The parts are so proportioned that when assembled in the manner illustrated and described, they will fit to one another with the nicety illustrated in Figure 2. At suitable intervals in the lengths of the molding sections 72, small bolts or other fastening elements of an inconspicuous character, indicated by the numeral 78, are secured through the side walls 66 of the body member 65 and through the lower portions 75 of the respective molding sections and in this manner the sections 72 are secured to the ceiling rail 4 in a manner to conceal the space between the upper side of the said ceiling rail and the under side of the ceiling. At this point, it will be evident that the openings for the bolts 78 will be formed in the walls 66 and portions 75 at the time the final adjustment is made, although, if desired, the openings in either the walls 66 or the molding sections 72 may be formed in the factory and thereby constitute guides for the workman in applying a drill to the parts not provided with bolt openings.

It is, of course, essential that some means be provided for preventing displacement of the partition wall structure after it has been set up between the walls and the floor and ceiling of the room which it is to divide, and a satisfactory means for accomplishing this result is shown in Figures 4 and 5 of the drawings. These figures illustrate the structure shown in Figure 2 so far as the ceiling or top rail is concerned, this structure being in no respect altered except that at points immediately above the upper ends of the stiles 2, the connecting or bottom wall of the channel 68 is formed with an opening 79, and likewise, the ceiling plate 70 is formed in vertical alinement with each opening 79, with an opening 80. The numeral 81 indicates in general a bearing member which is arranged within the ceiling rail 4 at the point of location of each opening 79, and this bearing member comprises a hollow sheet metal body consisting of side walls 82 which engage the inner surfaces of the walls 66 of the said rail 4 and which are connected at their lower ends by a bridge piece 83 which is bowed upwardly toward its central portion and has its central portion straddling the channel 68, this portion being formed with an opening 84 for registration with the opening 79 in the bottom wall of the said channel. A bar or heavy piece of metal 85 is welded or otherwise permanently secured to the upper side of the arched intermediate portion of the bottom member 83 and is formed with a threaded opening 86 in alinement with the openings 79 and 84. The bearing member 81 further includes a top member 87 which extends between the upper ends of the side walls 82 of the said member and is preferably arched and is formed in its intermediate portion with an opening 88 in vertical alinement with the openings 79, 84 and 86 heretofore referred to.

The numeral 89 indicates in general an anchoring member comprising a shank 90 which has its lower portion threaded as at 91 and fitted through the threaded opening 86 in the member 85 and loosely through the openings 84 and 79. The upper portion of the said shank 90 extends through the opening 88, and the shank is provided near its upper end with a squared portion 92 for the application thereto of a wrench whereby the anchoring member 89 may be rotated to thereby longitudinally adjust the same through the several openings. The upper extremity of the shank 90 is conical as indicated by the numeral 93 and tapered to a sharp point, and when the structure is set up, except for one or both of the molding sections 72, the several anchoring members 89 are adjusted to force their tapered ends through the openings 80 in the ceiling plate 70 and into the material of the ceiling. It is not necessary that the tapered ends of the anchoring members penetrate the ceiling to any considerable depth so as to mar the same, as the thrust exerted by the members 89 against the ceiling plate will materially add to the purchase gained by the entry of the ends of the members into the ceiling.

When the frame structure is essembled and set up as above described and as illustrated in Figure 1 of the drawings, the fitting together and the intersection of the several rails and stiles results in rectangular

openings within certain of which may be arranged glass panes indicated by the numeral 93, or panels 94, of a construction to be presently described, which may be arranged within these openings. In a similar manner, the doorway or opening for the door 6 is provided, and the doorway is indicated by the numeral 95. The arrangement of the various component parts or units may, of course, be such as to vary the size of the openings for the panes 93, the panels 94, and the door or doors 6, and a wide range of choice is permitted in the relative arrangement of these various openings and the parts arranged within the same.

As an example of the manner in which the glass panes 93 are to be mounted in their respective openings, it will be assumed that, as shown in Figures 1 and 7 of the drawings, panes of glass are to be mounted within the upper left hand corner of the partition wall structure, one of the panes being in the opening defined by the ceiling rail 4, the left hand end stile 1, the next adjacent intermediate stile 2, the stile 2 next adjacent the first mentioned stile 2, and the intermediate rails 5 which are uppermost in this portion of the structure. The grooves or channels 37 in the said intermediate stiles 2, the corresponding channels 44 in the horizontal rail sections 5, the channel 20 in the end stile 1, and the channel 68 in the ceiling or top rail 4, are designed to accommodate means, which will now be described, for securing the marginal portions of the panes 93 in place and thus holding the panes within their respective openings. As the means referred to is identical in each instance, description of a single example will be sufficient. As shown in Figure 7, the pane securing or retaining means comprises two members, one indicated in general by the numeral 96 and the other in general by the numeral 97. Each member is formed from sheet metal and comprises a hollow rectangular open-sided body portion which in the instance of the member 96, is indicated by the numeral 98, and in the instance of the member 97, by the numeral 99. These body portions of the two members are designed to bind between them the margin of the pane to be held, and the body 98 of the member 96 comprises side walls 100 and 101 and a connecting wall 102. The wall 101 is of greater width than the wall 100 and the excess width thereof is adapted to be received within the channel which, in this instance, is the channel 37. A portion 103 constitutes a right angular extension of the wall 101 and extends across the wall 34 of the said channel 37 and at the opposite side of the channel the metal is formed to provide a transversely concavo convex extension of the portion 103, indicated by the numeral 104, which extension at its edge which is presented at the open side of the channel, is formed with a flange 105 extending across the said open side of the channel 37. The metal of which the members 96 and 97 are formed is more or less resilient and normally the part 104 will occupy substantially the position shown in Figure 7 of the drawings, the free edge of the flange 105 being slightly spaced from the inner face of the wall 101 of the member 96. A packing or cushioning strip or filler 106 is disposed between one face of the pane at the marginal portion thereof and the outer face of the wall 101, as the pane is disposed in place within the opening in which it is to be mounted, and the structure is then ready for the positioning of the other member 97 of said retaining means. This member 97 comprises side walls 107 and 108 and a connecting wall 109, thereby providing a rectangular body 110 which corresponds to the body 98 of the member 96 previously described. The wall 108 of the member 97 is provided with a transversely curved extension 111, and in placing the member 97 in proper position, a packing strip 112 is disposed against the other face of the pane 93 at the marginal portion thereof and the extension 111 of the wall 108 is forced into the channel 37 past the free edge of the extended portion 104 of the member 96 until the convex side of the extension 111 is received within the concavity of the extension 104, the curvature of the extensions being such as to provide for a secure interlocking of the same, thereby not only retaining them in place in the channel 37 but also securely anchoring the bodies 98 and 99 of the members 96 and 97 firmly against the side wall 31 of the stile 2 in which the said channel 37 is formed. The packing or filler strips 106 and 112 may be of any desired material and serve to prevent direct contact of the glass pane 93 with any metallic parts except that the edge of the pane may rest against the flange 105, which flange, however, is free to yield to a slight extent if there should be any unevenness in the edge of the said pane. It will be evident that similar locking members 96 and 97 will be provided in the grooves or channels in the stile 1 and other stiles 2, and in the rail 4 and the rails 5, the channel 56 in the floor or sill rail 3 being likewise capable of accommodating pane retaining elements in the event it should ever be desired to locate glass panes this low in the structure, which, however, is unlikely. It will be evident at this point that the body portions 98 and 99 of the members 96 and 97, fitting snugly at opposite sides of the pane 93 and snugly against the outer surface of the wall 31, for example, of the intermediate stile 2, serves to impart to this portion of the structure an attractive, finished and artistic appearance at the same time they perform

their function of mounting and securing the pane.

Not only are the channels 20, 37, 44 and 68 designed to accommodate the pane securing means comprising the parts 96 and 97, but they are also designed to accommodate the margins of the panels 94, as illustrated for example, in Figures 2, 3, 6 and 8 of the drawings. Each of the panels 94 preferably comprises a pair of rectangular metal plates 113 between which is disposed a flat-sided rectangular filler 114 which may be of any suitable sound insulating material such as fiber or the like, or a composition of materials, and the said panels are engaged at their marginal portions in the several channels, where it is desired that they shall be located, and at the time of assembling the component rails and stiles of the frame structure. Inasmuch as the thickness of the panels 94 is equal to the width of the channels in which the marginal portions of the panels are to be received, it is unnecessary to provide any securing or holding means such as employed in connection with the glass panes and previously described.

By reference to Figure 2 of the drawings, it will be observed that the channels 48 in the locking members for the sections 35 of the rails 5 may accommodate the upper margins of strips 115 of any suitable sound insulating material, and similar strips may be arranged in all of the said rails as well as in the end stiles 1 and the intermediate stiles 2, or these strips may be dispensed with, either as desired.

Referring now to Figures 1, 8, 9 and 11 of the drawings, it will be observed that these figures illustrate the manner in which the door 6 is to be mounted in the door opening 95. It will be observed in Figure 1, that one of the lower intermediate rails 5 between two of the intermediate stiles 2 is omitted so that the door opening is defined or bounded by said intermediate stiles and by the upper one of the intermediate rails 5 which extends into the stiles. The door 6 may be of any desired construction and in order that the same may be hingedly mounted upon one of the intermediate stiles 2, the stile is cut away or recessed at its side which is presented to the door opening 95, at the points at which the hinges are to be located, as indicated by the numeral 116. A comparatively heavy plate 117 is arranged within the recessed side of the stile at the point of location of each of the recesses 116, and filler strips 118 and 119 are disposed respectively between the side wall of the said stile and the outer face of the plate 117 at the four corners thereof and, in the instance of the strip 119, between the inner face of said plate 117 at the corners thereof and the shoulders formed interiorly of the stile 2 by the offset 10 of the connecting wall of one of the sections of the stile and the channel portion 36 of the locking member for the said stile section. The said plate 117 is provided with a plurality of threaded or tapped openings 120 to receive screws 121 which are passed through corresponding openings 122 in the respective leaf of the hinge which is indicated in general by the numeral 123. The other leaf of the hinge is indicated by the numeral 124, and the pintle of the hinge is indicated by the numeral 125. The other leaf 124 of the hinge is secured by screws 126 to the inner side of the door 6 and in this manner, through the medium of the several hinges 123, the door is supported for swinging movement within the door opening. As it is customary, in ordinary building construction, to provide means extending along the inner sides of the stiles and the under side of the top rail of a door frame to limit the closing movement, similar means is provided in the structure of the present invention, and is indicated in general by the numeral 127. The abutment means or member 127 is formed of sheet metal and is in the nature of a hollow strip-like body of substantially rectangular form and comprising a side wall 128, another side wall 129, and end walls 130 and 131 relatively braced by a strip 130', extending between them and welded thereto. The side walls 128 and 129 occupy parallel planes and the said wall 129 terminates short of the plane of the wall 131 and is formed with a substantially right angularly extending wing 132 which is transversely curved as shown in Figure 8, for example. In a like manner, the wall 131 is extended to provide a similar transversely curved wing 133, and the wings have their convex faces presented toward each other, the wings being suitably spaced and directly opposed. In conjunction with the member 127, there is provided a locking member 134 comprising a strip of metal formed to provide a flat-sided wall 135 and spaced side walls 136 which project from one side of the wall 135 at the opposite longitudinal edges thereof and are transversely curved and have their convex faces presented inwardly toward each other and their concave faces presented outwardly. The members 127 and 134 are cut to proper length and one of the members 134 is disposed within the channel 37 in the side wall of each stile 2 which is presented at the door opening, and the companion members 127 are then disposed with their walls 132 and 133 presented edgewise to the open side of the channel and forced into the channel, engaging snugly between the walls 136 of the respective member 134 and the side walls of the said channel 37, the outer face of the wall 129 of the member 127, at such time, resting against the said side face of the respective stile 2. It will be observed that when the

parts are so assembled, the outer face of the wall 131 will be presented toward the face of the door when the door is in closed position and, similar members 127 and 134 having been arranged within the groove corresponding to the groove 37, in the under side of the intermediate rail section 5, the said walls 131 of all of the members 127 will constitute abutments for the side and upper marginal portions of the said face of the door.

Figure 11 of the drawings is, in part, representative of a section taken on the line 11—11 of Figure 1, but illustrates a slight modification of the invention. In referring to this Figure 11, it will be presumed that it is not desired to extend the partition to the ceiling of the room but to erect a relatively low partition. In such event, the structure above the upper one of the two intermediate rails 5 shown in Figure 1, will be omitted and the said rails 5 would support a top rail indicated in general in the said Figure 11 by the numeral 137, the said rail being formed from an integral sheet metal blank and in a manner to provide a top 138 of a width somewhat greater than the transverse width of the rails 5, the metal at the opposite longitudinal edges of the said top 138 being formed to provide depending ornamental molding sides indicated by the numeral 139, these molding sides terminating at their lower edges in inwardly projecting flanges 140 disposed to rest upon the upper side of the rails 5, bolts 141 being fitted through openings in the top 138 and threaded into registering openings in the said flanges and in the said upper wall of the rail 5 and likewise through the top 138 of the rail 137. In this manner an ornamental finish is given the top rail and the upper portion of the partition wall made attractive in appearance.

Figure 12 of the drawings illustrates a modified means for connecting together the various units of the structure and which means may be substituted for the tongue and slot connections 49 and 52 heretofore described or, may be employed in addition thereto. By reference to the said figure it will be observed that the intermediate portions 14 of the end stiles 1 are formed with openings, a rod 143 being threaded at one end as at 144 and fitted through the opening in the said intermediate portion of the locking and bracing member 13 of the said section 1 which is next adjacent the wall of the room in which the partition structure is arranged a nut 145 being threaded onto this end of the rod and being tightened to bear against the outer face of the side wall of the stile with which the said locking member is associated. The rod is extended through the opening in the connecting or intermediate portion of the other locking member of the stile and longitudinally through the next adjacent rail section 5, and thence at its other end portion through similar openings formed in the locking members for the sections of the intermediate stile next adjacent the first mentioned end stile. This last mentioned end of the rod is threaded as indicated by the numeral 146, and its threaded end projects beyond the side wall of the stile 2 which is the more remote from the stile 1, and an interiorly threaded sleeve 147 is fitted at one end onto the said threaded end 146 of said rod, the sleeve being housed within the end of the intermediate rail 5 which is disposed against the said side of the said stile 2. A similar rod 148 is threaded into the other end of the sleeve 147 and leads through the rail section 5, last mentioned, and transversely through the next adjacent intermediate stile 2, and this arrangement is continued throughout the entire width of the structure until the other end stile 1 is reached, whereupon the threaded end of the rod which passes transversely through the stile has a nut 149 applied to it to bind against the side wall of the stile 1. It will be evident at this point that by first applying the nut 145 as previously explained and, after assemblage of the parts, tightening the sleeve 147 upon the threaded end 146 of the first rod in the series, the several stiles and rails will be drawn tightly together, and this process is followed throughout the entire series of rods, thereby drawing all of the members of the structure together at the lines of intersection of the stiles and rails.

From the foregoing description of the invention, it will be seen that there is provided a partition wall structure which may be readily set up in a room to become, if desired, a permanent fixture, or, on the other hand, should it at any time be desired to take down the partition wall structure or modify the arrangement of the component units thereof, this may be readily accomplished by disconnecting the several units. It will also be evident that all of the component parts of the structure may be made at the factory and the required number of parts shipped from the factory, on order, to anyone who is to erect the partition wall, thereby avoiding the confusion and annoyance and additional labor and time required in cutting and fitting the parts of a partition wall structure at the point within the room where it is to be erected.

As will be evident from the foregoing description, and from the drawings, the rail and stile sections of the frame structure of the partition wall are provided with channels in their faces which are presented toward the openings defined by said sections, to receive, in one instance, sound insulating panels and, in another instance, the locking

or retaining means for the panes of glass, and in certain of the claims the word "pane", where employed, is intended to be generic and to be interpreted to mean a panel as well as a pane of glass.

It will be understood from the foregoing description of the invention that the structure may be erected with a minimum of spot welding and that where it is necessary to weld, the joints are not exposed to view.

Having thus described the invention, what I claim is:

1. In a partition structure of the character specified, a panel unit comprising complemental sections having inwardly disposed wings to provide a panel receiving channel, and a locking member having an intermediate portion arranged between the said wings to close the inner side of the said channel and prevent inward displacement of the sections, and having its outer portions engaged about the said wings to secure the parts when assembled.

2. In a partition structure of the character specified, a panel unit comprising complemental sections having inwardly disposed wings to provide a panel receiving channel and having lateral flanges at the inner edges of the wings, and a locking member having an intermediate portion arranged between the said wings to close the inner side of the said channel and prevent inward displacement of the sections, and having its outer portions engaged about the said lateral flanges.

3. In a partition structure of the character specified, a panel unit comprising complemental sections having inwardly disposed wings to provide a panel receiving channel and a locking member having an intermediate portion arranged between the said wings to divide the said channel into independent inner and outer channels and also to prevent inward displacement of the sections, and having its outer side portions engaged about the said wings to secure the parts when assembled.

4. In a partition structure of the character specified, a panel unit comprising complemental sections having inwardly disposed wings to provide a channel, a locking member having an intermediate portion arranged between the wings to close the inner side of the channel and limit inward movement of the sections, and having its outer side portions engaged about the wings, and panel retaining members upon opposite sides of the channel and having interlocking elements fitted within the said channel and maintained in locking engagement by abutting opposite walls of the channel.

5. In a partition structure of the character specified, a panel unit comprising similar sections, each of the sections embodying an outer and side walls, the side walls having inwardly disposed wings terminating in lateral flanges, the sections being arranged with the wings spaced apart to form opposite channels, and locking members having an intermediate portion between corresponding to wings to close the inner side of the channel and properly space the sections, and having their outer portions engaged about the said flanges to secure the parts when assembled.

6. A frame unit for sheet metal partition wall structures comprising a hollow body having a channel in one wall, and pane receiving means comprising a pair of members each consisting of a hollow sheet metal body portion resting against the wall of the said unit at a respective side of the channel therein, the said members having their contiguous walls provided with wings extending into the channel, one of said wings having a locking portion substantially filling the channel and at one side of transversely curved form, the said wall of the other member having a correspondingly transversely curved portion frictionally engaged between the wing of the first mentioned member and the adjacent wall of the channel, whereby to maintain the said retaining members assembled with the said unit.

7. In a sheet metal partition wall structure, a frame structure comprising end and intermediate stiles, and rails extending between the same to form pane receiving openings, each of the end stiles comprising a hollow stile body, a wall section for disposal against a wall from which the structure is to extend and including spaced sides telescopically receiving between them one side of the said stile body, and means securing the parts in positions of adjustment.

8. In a sheet metal partition wall structure, a frame structure comprising end and intermediate stiles, and rails extending between the same to form pane receiving openings, each of the end stiles comprising a hollow stile body provided in its opposite side faces with inward offsets, means for connecting said end stiles and respective ones of the rails together at another side of the stile, the said end stile further comprising a wall section for disposal against the wall from which the structure is to extend, the said wall section including spaced side plates telescopically receiving between them the other side portion of the said end stile and provided at their free end margins with inwardly projecting flanges engaging in the offsets in the first mentioned faces of the said end stile, and means securing the said side plates of the wall section to the said first mentioned side of the stile at one side of the offsets therein.

9. In a sheet metal partition wall structure, a frame structure comprising stiles and rails joined together to provide pane receiv-

ing openings, a ceiling rail extending above the upper ends of the said stiles, the said ceiling rail including spaced side walls having outstanding flanges at their upper edges, molding members disposed against the outer faces of the said walls of the ceiling rail and provided at their lower edges with inwardly directed flanges engaging the said outer faces of the said walls, the flanges upon the upper edges of the walls engaging the inner sides of the lower portions of the respective molding members, the said molding members including top portions, and a ceiling plate for disposal against the under side of the ceiling and engaged by and spacing the said top portions of the molding members.

10. In a sheet metal partition wall structure, a frame structure comprising stiles and rails joined together to provide pane receiving openings, a ceiling rail extending above the upper ends of the said stiles, the said ceiling rail including spaced side walls having outstanding flanges at their upper edges, molding members disposed against the outer faces of the said walls of the ceiling rail and provided at their lower edges with inwardly directed flanges engaging the said outer faces of the said walls, the flanges upon the upper edges of the walls engaging the inner sides of the lower portions of the respective molding members, the said molding members including top portions, a ceiling plate for disposal against the under side of the ceiling and engaged by and spacing the said top portions of the molding members, and means secured through the walls of the ceiling rail and through the said lower portions of the molding members between the said flanges for connecting the molding members and walls of the ceiling rail together.

11. In a sheet metal partition wall structure, a frame structure comprising a plurality of upright stiles, and rail units extending between the stiles to form pane receiving openings, a ceiling rail extending above the upper ends of the said stiles, a ceiling plate for disposal against the under side of the ceiling to extend above the ceiling rail, a bearing member within the ceiling rail above the upper end of one of the stiles and comprising upper and lower parts, each part including side walls and an upwardly deflected connecting element, a reinforcing bar at the crest of one of the connecting elements, and an anchoring member comprising a threaded shank threaded in the said reinforcing bar and passing through the bearing member and received at its lower end in the said stile and at its upper end being tapered to provide an entering point, the said ceiling plate having an opening to accommodate the tapered end of said shank whereby the said end of the shank may bite into the underside of the ceiling when the shank is rotatably adjusted.

12. In a sheet metal partition wall structure, stiles, hollow rails extending between the stiles, the said stiles being likewise hollow, a rod anchored at one end with relation to one of the stiles and extending longitudinally through the associated rail and through the next adjacent stile and beyond the remote side thereof, a threaded sleeve fitted onto the end of the said rod within that end of the next adjacent rail which abuts the said relatively remote side of the last mentioned stile, a rod fitted into the other end of the sleeve and extending through the last mentioned rail and through the next adjacent stile, and means upon the other end of the last mentioned rod adjustable to bind against the relatively remote side of the third mentioned stile whereby to bind the parts together.

In testimony whereof I affix my signature.

CHAS. A. ANDERSON. [L. S.]