March 5, 1940. T. F. ANDERSON 2,192,173

METAL PARTITION

Filed Aug. 26, 1936 3 Sheets-Sheet 1

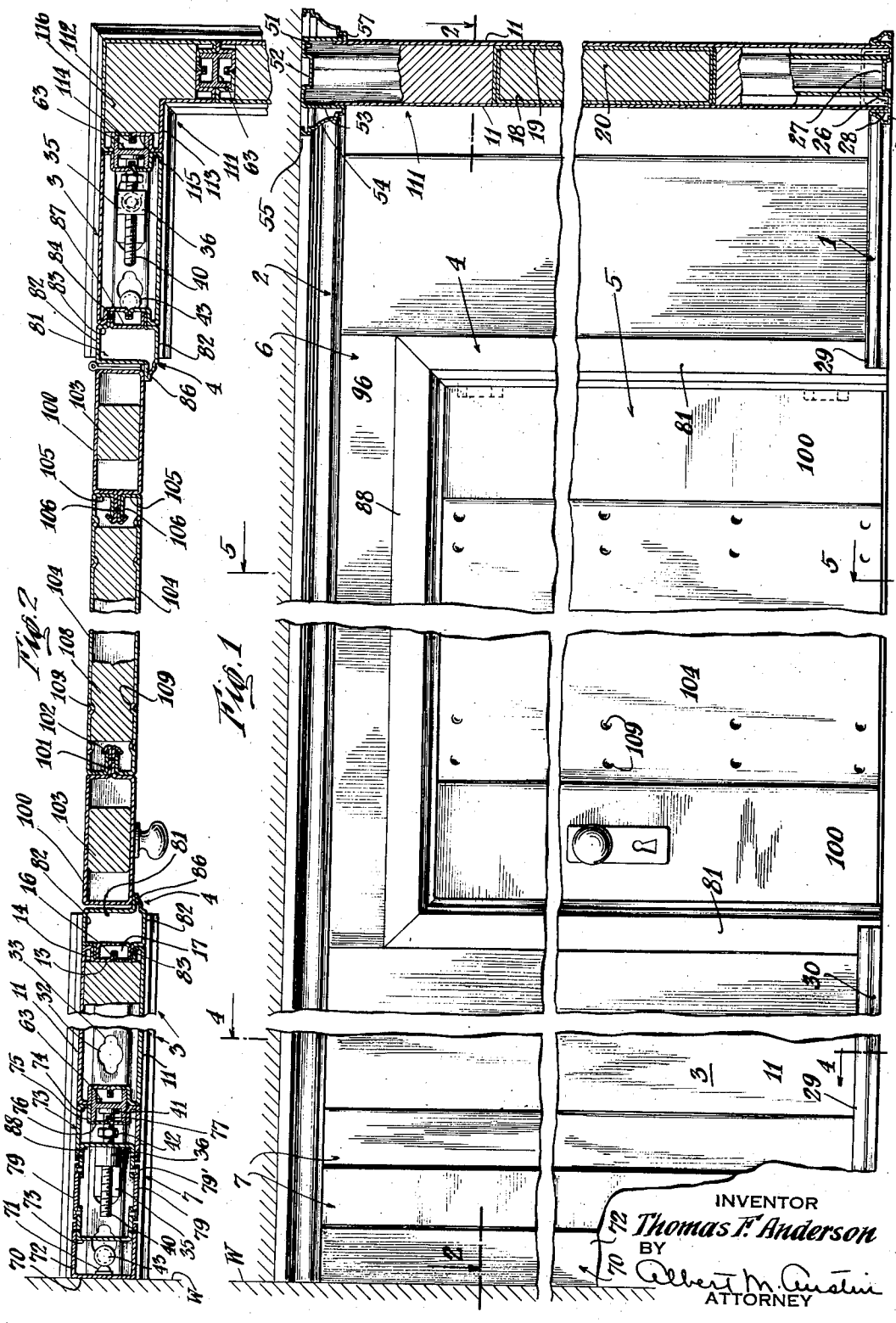


Fig. 2

Fig. 1

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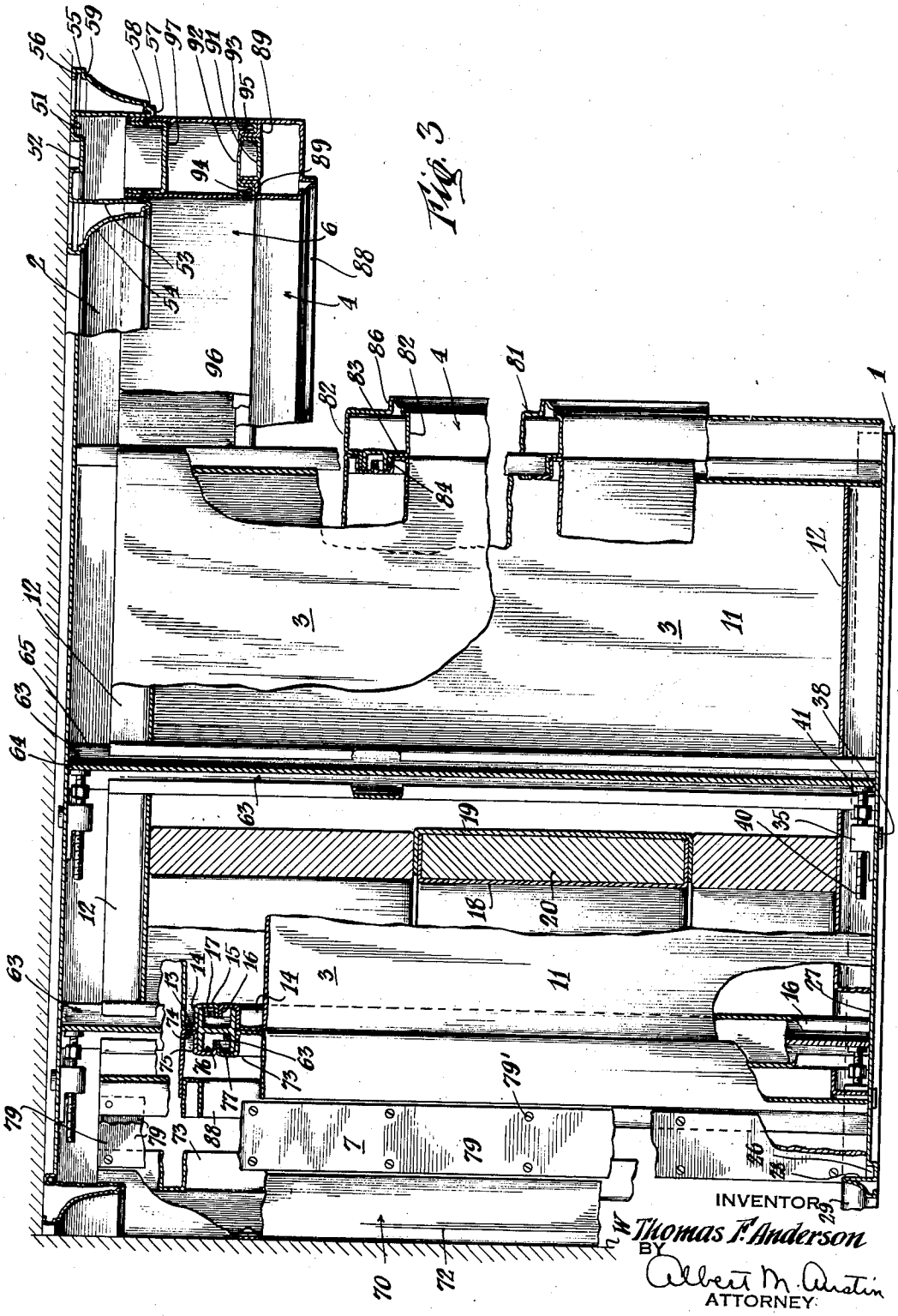


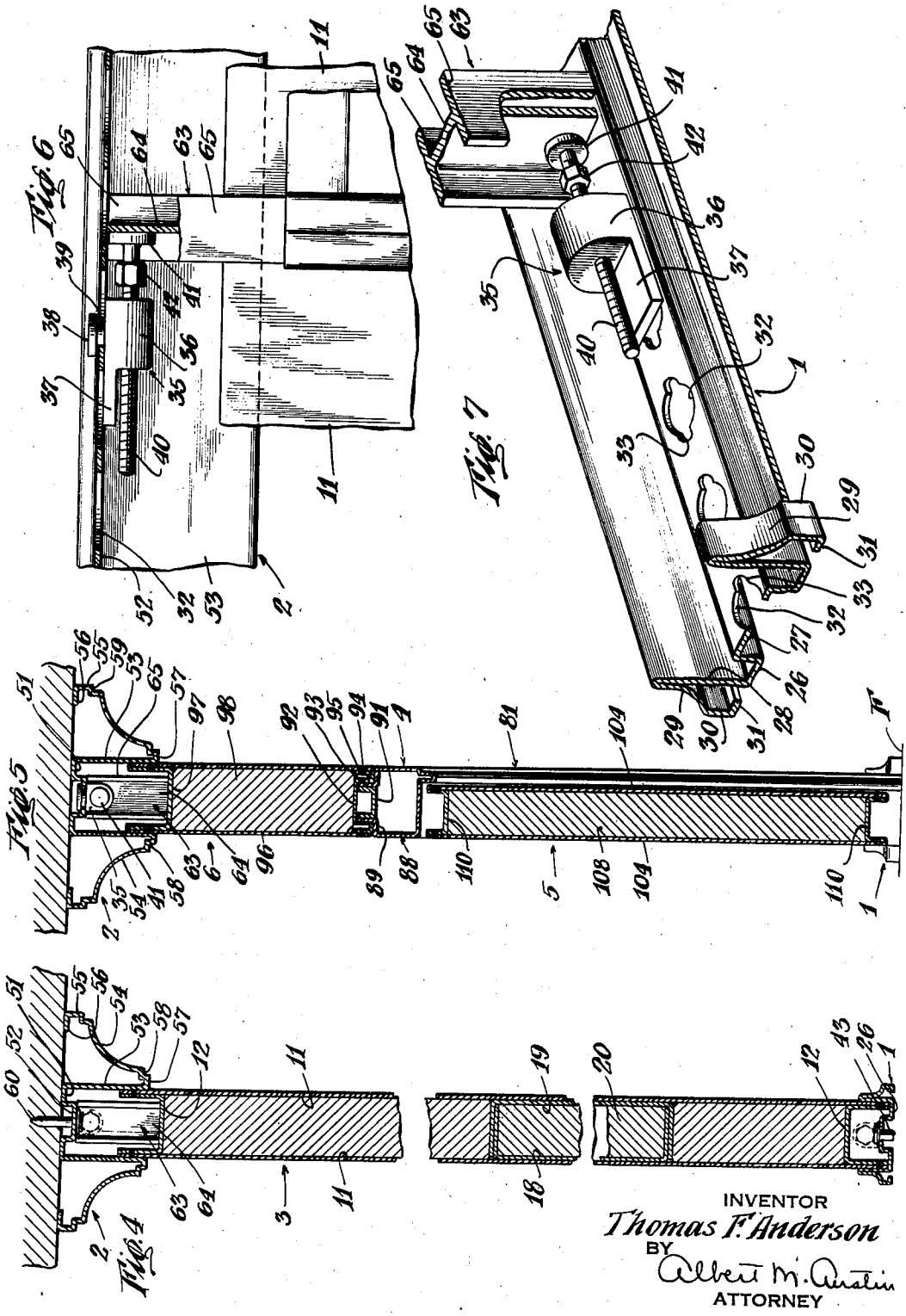
Fig. 3

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2,192,173

METAL PARTITION

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14 Claims. (Cl. 189—34)

This invention relates to partition structures and more particularly to a partition built up from preformed, interchangeable parts.

According to the invention, the partition structure is constituted by a plurality of preformed panel units which are held in upright aligned position by a base member adapted to rest upon a supporting surface and engage the lower portions of the panel units and a cornice member adapted to be secured to a ceiling and engage the upper portion of the panel units. The panel units are maintained against longitudinal displacement by pressure members engageable with the base and cornice members respectively, and adapted to exert a force on one or more of the panel units in a direction longitudinally of the partition.

Preferably, an upright member is engaged with a vertical edge of one or more of the panel units, and pressure members in the form of adjustable take-up mechanisms are connected to the base and cornice members and adjusted to exert a pressure upon the corresponding upright member which bears against the edge of the panel unit to cause the other edge of the unit to bear against the next succeeding upright or panel unit. The edges of the panel units may be recessed to receive the uprights and may be adapted to engage the edges of adjacent panel units to constitute a substantially continuous wall surface.

The invention provides a partition structure constituted by relatively simple parts, which can be readily formed from sheet-metal and other relatively inexpensive materials with a minimum of machining or other relatively expensive operations. The structure can be quickly and readily installed in a building or other similar structure without the aid of special tools or apparatus to form a strong and attractive partition which can be modified or removed without materially damaging the structure in which it is installed.

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 characteristic 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 fragmentary front elevational view showing a portion of a partition constructed in accordance with the invention portions of the structure being shown in sections;

Fig. 2 is a horizontal cross-section taken along line 2—2 of Fig. 1;

Fig. 3 is an enlarged front elevational view showing a portion of the structure shown in Fig. 1 with portions of the structure being broken away and other portions shown in broken section to show the interior construction;

Fig. 4 is a view showing a vertical transverse cross-section taken along the line 4—4 of Fig. 1;

Fig. 5 is a view showing a vertical transverse cross-section taken along the line 5—5 of Fig. 1;

Fig. 6 is an enlarged fragmentary view in elevation partly in cross-section showing the upper take-up mechanism;

Fig. 7 is an enlarged fragmentary perspective view showing the lower take-up mechanism.

In the following description and in the claims, various details will be identified by specific names for convenience, but they are intended to be as generic in their application as the art will permit. Like reference characters denote like parts in the several figures of the drawings.

In the description of the invention and in the drawings accompanying and forming part of this specification, certain specific disclosure of the invention is made for purposes of explanation, but it will be understood that the details may be modified in various respects without departure from the broad aspect of the invention.

Referring now particularly to Figs. 1, 2 and 3, there is shown for the purposes of illustration a partition comprising a base 1, a cornice 2, a plurality of solid panel units 3, a panel unit including a door frame 4, door 5, and a top filler 6, and a side filler 7.

Referring to Figs. 2, 3 and 4, each solid panel unit 3 may comprise a pair of panel sheets 11, held in spaced parallel relation and connected at their upper and lower edges by channels 12 which may be secured to the panel sheets 11 by welding or in other suitable ways. The vertical edges of the panel sheets 11 may be formed as inturned flanges 13 each provided with a shoulder portion 14 and an offset edge portion 15 providing an edge recess 17. The edge 16 of each flange 13 is turned over and is adapted to abut the corresponding edge 16 of the opposite panel sheet. The edges 16 may be suitably joined, as, for example, by welding. Preferably the panel unit is assembled by applying a suitable cementing material to the fillers, or inside surfaces of the panel sheets, and the panel sheets are assembled over the fillers and clamped together in proper alignment. While thus clamped, the panel sheets are joined by welding the edges 16, thus forming unitary structure having the proper thickness and alignment of parts.

Disposed between the panel sheets 11 is a pair of oppositely facing, telescoped, reinforcing channels 18 and 19 which may be secured to the panel

sheets 11 in a suitable manner, and may enclose a suitable packing or filler 20 which may be insulating or sound-deadening material. Preferably, the filler 20 is formed of wood or other material of suitable strength and composition to receive fastenings for fixtures. Also, suitable packings or fillers 21 and 22 may be disposed between the remaining portions of the panel sheets, and may be secured thereto, the fillers being constituted by suitable insulation material such as asbestos, cork, wood, or other materials.

Referring to Figs. 4 and 7, the base 1 preferably is formed as a channel having a web 26 provided with an offset portion 27 and upstanding flanges 28. Integral with each flange 28 and extending from the top edge thereof, is an apron 29 which flares outwardly and is integral with vertical wall portion 30 spaced from the flange 28 and having an inturned edge portion 31 adapted to rest upon the floor or other supporting surface. The base 1 is provided with a series of spaced perforations 32 having diametrically opposite communicating slots 33. The base 1 may be secured to the floor or other supporting surface F by fastening members 43 such as nails, expansion bolts or the like passing through certain of the perforations 32.

The perforations 32 are adapted to receive a jack 35 which may have semi-cylindrical form, block portion 36 and a flange-like foot or extension 37, the purpose of which forms with the flat surface of the cylindrical portion a face of substantial area. Extending from the face of the jack is a lug 38 having a reduced neck portion 39, which head is adapted to enter any of the perforations 32 and to engage the portion of the base 1 surrounding the slot 33 to secure the jack 35 in the base 1.

Threaded through the block 36 is a screw 40 terminating in a circular head 41 and provided with a hexagonal shank 42 by which the screw can be adjusted in the jack 36.

The cornice 2 may have the same general form as the base 1, and may be constituted by a web 51 having an offset portion 52, depending flanges 53, reversely bent aprons 54, vertical wall portions 55, and inturned edge portions 56. The apron 54 may be joined to the flange 53 by a horizontal wall portion 57, and decorative grooves 58 and 59 may be formed at the ends of the apron 54. The cornice 2 may be secured to the ceiling by suitable fastenings 60 such as nails, bolts, or the like.

Disposed between adjacent panel units is an upright member 63 which may take the form of an H member having a web 64 and flanges 65, and which is adapted to be received in the space defined by edge recesses 17 of adjacent panel units, for transmitting the pressure of the jacks to one of the adjacent panel units. The jack head 41 is adapted to bear against the web 64 to force the edges of the flanges 65 into engagement with the recessed edge portion of the adjacent panel unit, and the other edge of the panel unit abuts the flanges of the next succeeding upright. The pressure exerted on the upright 63 can be adjusted by rotating the screw 40 in the block 36. Preferably, the upper and lower jacks 35, cooperating with each upright 63, are adjusted alternately a small amount so that they bear against the upright.

The upright serves both as a convenient means for transmitting force from the jacks to the panel unit and also as means for distributing the pressure of the jack heads over the edge of the panel units. Preferably the flanges of the upright are of such length to permit the edges of adjacent panel units to meet in tight abutment but are of sufficient length to limit the pressure between edges to prevent distortion thereof. The upright also may have a unit of sufficient length so that the flanges 65 abut the sides of the edge recesses 17.

Where the partition is to be run from a vertical surface such as the wall W, a wall filler 7 may be provided to fill the space between the endmost panel unit 3 and the wall W.

Referring particularly to Figs. 2 and 3, the wall filler 7 may comprise a wall channel 70 secured to the wall by screws 71 or the like, and having flanges 72 extending toward the endmost panel unit 3, and receiving a channel 73 secured thereto, as by welding, the flanges of which project beyond the ends of the channels 72.

An upright 63 is received in the recessed end of the endmost panel unit 3 and base and cornice jacks 35 are attached to the base and cornice and force the upright into engagement with the panel unit. Abutting the upright 63 is a pair of filler plates 73 each of which has an inturned flange 74, shoulder 75, recessed edge portion 76 and bent-up ends 77. The ends 77 of the paired plates 73 are secured, as by welding, to form an edge complementary to the edge of the panel unit.

Seated between the other edges of the filler plates 73 is a channel 88 which is secured to the plates 73 as by welding and has its flanges extending beyond the edges of the plates 73. Cover plates 79 may be seated between the edges of the channel 70 and the filler plates 73, and flush with the faces of these members, and may be secured to the projecting portions of the channels 73 and 88 in a suitable manner, for example, by screws 79'. The cover plates 79 serve to cover the space between the wall channel 70 and the filler plates 73 and also maintain the latter against the upright 73 and panel unit 3.

Referring to Figs. 1, 2 and 3, the door frame 4 may comprise a pair of uprights 81 and a header 88. Each of the uprights 81 has a pair of flanges 82 formed with offset portions 83 and edge portions 84 secured to the flanges of the channel 85 and adapted to be received in the recessed end of the adjacent panel unit. The web portion of the upright 81 is formed with a projection 86 constituting a door abutment or strike.

The header 88 extends between the top ends of the uprights 81 and has a cross section generally similar to the uprights. The header 88 has offset edges 89 secured to a horizontal channel 91 which, with the edges, is received between the spaced flanges 93 of a channel 92. The flanges 93 are formed with an edge-forming portion 94 and rebent edges 95 which lie against and are secured to side plates 96, secured at their upper ends to the flanges of a channel 97. A suitable filler or packing 98 may be disposed in the space defined by the sheets 96 and the channels 92 and 97.

The door 5 may comprise side frame members 100 each of which is constituted by a sheet bent into the form of a closed tube having a rectangular cross-section. The ends of the sheets forming the side panels 100 may be brought together and may be secured together as by welding to constitute a projecting flange 101, and the extreme edge portions of the sheet may be bent apart to form hook-like extensions 102. A suit-

able filler or packing 103 preferably of cork or other light-weight insulating material may be disposed in the side members 100.

The side members 100 may be connected by a center panel constituted by spaced sheets 104 having inturned end walls 105, adapted to abut the end walls of the side panels, the extreme ends of which are bent over to constitute flanges 106 adapted to abut the flanges 101 and to enter the hook-like extensions 102. A packing or filler 108 may be disposed between the sheets 104 and may be secured thereto by indenting the sheets as indicated at 109.

Top and bottom channels 110 may be received between the sheets 104 into the side members 100, and may be secured to these members as by welding, thereby to prevent longitudinal displacement of the several panel members of the door. The door may be assembled by forming each of the portions independently, and thereafter telescoping the flanges 106 of the center panel into engagement with the flanges 101 of the side members 100, whereafter the top and bottom channels 110 are assembled and attached.

Where a corner condition is to be provided, a corner panel unit 111 may be constituted by a panel sheet 112 suitably formed and a complementary panel sheet 113 housing flanges 114, 115 formed and attached in a manner similar to that of panel sheets 11. A suitable filler 116 may also be provided. The base 1 may be suitably formed to define the corner, preferably by cutting two portions at proper angles and joining as by welding. The cornice 2 at the corner may be similarly formed.

The partition is assembled as follows: The base 1 is secured to the floor or other supporting surface in the proper position, and the cornice 2 is secured to the ceiling vertically above the base 1. If the partition is to be run from a corner, the corner unit 111 is inserted between the flanges 28 of the base and the flanges 53 of the cornice and a first upright 63 is disposed in the recessed end of the corner unit 111. A jack 35 is hooked into one of the perforations 32 in the base 1 adjacent the first upright 63, and another jack 35 is hooked into the cornice 2 in a similar manner. The jacks 35 are adjusted until the heads 41 abut the web 64 and force the upright 63 tightly against the corner unit 111. If the partition is to be run from a vertical surface, such as a wall, a wall filler unit, similar to that described, may be employed.

A panel unit 3 is next inserted in the base 1 and cornice 2 and forced into abutment with the upright 63 and the corner unit 11. Where a door frame is to be inserted, preferably the header 88 is secured to the uprights 81 as by welding and the frame is inserted in the base 1 and cornice 2, and the door filler 6 assembled thereon, whereafter the entire door frame 4 and filler 6 is forced to the right so that the flanges 84 of the right hand upright 81 enter the recessed end of the panel unit 3. If desired, the header 88 may be secured to the uprights 81 or after the frame is assembled in the partition.

The panel unit 3, to the left of the door frame, is inserted in the base 1 and cornice 2 and is slid into abutment with the edge of the left-hand upright 81, with the recessed edge receiving the flanges 83. Thereafter jacks 35 are hooked into the base 1 and cornice 2 adjacent the left-hand end of the panel unit 3 and adjusted to force the panel unit 3 into tight abutment with the door frame 4 and filler 6, whereafter the next adjacent panel unit 3 is inserted and locked in a similar manner. The vertical joints between adjacent panel units may be filled, as by welding.

After the panel unit at the left-hand end of the partition has been mounted and locked in position, the connected filler plates 73 and attached channel 88 are inserted and slid into engagement with the upright 63 and panel unit 3, and cover plates 79 are inserted and secured to the channels 73 and 88. Preferably the cover plates 79 will be cut to the proper width so as to just fill the space between the flanges 72 of the channel 70 and the edges of the filler plates 73, and the holes for the screws 75 will be drilled and tapped after the plates 79 have been placed in position.

From the foregoing it will be seen that the present invention provides a partition construction which is comparatively simple and inexpensive to manufacture, and which can be assembled quickly and easily with a minimum of expense and difficulty, and without the use of special tools or apparatus. The edges of the panel sheets, the frame members of the door, panel frame members, door frame members, door filler members, and wall filler members preferably are formed so that the portions to be joined when the various units so constructed are exposed and thus these portions can be joined quickly and easily by welding, riveting, or the like. Inasmuch as the portions of the partition are locked together merely by the detachable jacks, the partition can be disassembled quickly and easily and various portions can be removed and replaced without the aid of special tools and without damaging the partition or adjacent structure in any material way.

The several partition units are locked tightly together and thus misalignment or gapping is eliminated and the units may be held tightly in abutment, thus preventing the entry of dirt or other foreign matter. Inasmuch as the jacks are readily adjustable, the partition can be tightened at any time if it should become loosened by reason of vibration or settling of the building. This tightening may be done without completely disassembling the partition and without replacing any parts except possibly the cover plates.

I claim:

1. In a partition structure, in combination, means including a channel member extending along said partition and adapted to receive an edge of each of said panel units to maintain said panel units substantially in alignment to form a substantially continuous partition, and means carried by said channel member and adapted to exert a compressive force on said panel units longitudinally of said partition to maintain said panel units against displacement longitudinally of said partition.

2. In a partition structure, in combination, a plurality of panel units, means including a member extending along said partition for maintaining said panel units substantially in transverse alignment to form a continuous partition, and means including a member detachably engageable with said first member and adapted to exert a compressive force on said panel units longitudinally of said partition to maintain them against displacement.

3. A partition structure including in combination a plurality of panel units each having recessed upright edges, top and bottom channel members receiving said panel units to maintain them in alignment, upright members disposed

in said recessed edges, and adjustable means engageable with said upright members and abutting said top and bottom channels respectively for exerting a force on said panel units longitudinally of said partition for retaining said panel units in abutment.

4. In a partition structure, in combination, a plurality of panel units arranged in a series to form a partition wall, an adjustable jack for exerting a compressive force on at least one of said panel units longitudinally of said partition, and a member fixedly mounted adjacent at least one of said panel units, and having a portion adapted to receive said jack in any one of a series of positions spaced longitudinally of said partition and serving as a fixed abutment therefor.

5. A partition structure including in combination, a plurality of panel units disposed in alignment, members extending longitudinally of said panel units adjacent the top and bottom thereof, means associated with each panel unit adjacent the top and bottom thereof for exerting a longitudinal thrust on said panel units, said means including a jack having a base, a member adjustable in said base for exerting a thrust against a panel unit, and means for rigidly securing said base to said longitudinally extending member selectively in various positions of adjustment longitudinally of said partition.

6. A partition structure including, in combination, a plurality of panel units, a channel having flanges adapted to receive said panel units therebetween to retain them in partition-forming position, and a web having an offset portion, and a pressure-applying device engageable with said offset portion of the web and adapted to apply a force against one of said panel units for urging it longitudinally of said partition.

7. A partition structure including, in combination, a plurality of panel units, each of said panel units comprising spaced panel sheets having inturned flanges defining recessed edges of said panel unit, top and bottom rails extending along the top and bottom edges of said panel unit, said panel units being disposed in alignment with their recessed edges in abutment to define recesses between adjacent panel units, upright members disposed in said recesses, and means engaging each of said upright members above said top rail and below said bottom rail respectively for urging said upright member against one of said abutting panel units.

8. A partition structure comprising a plurality of panel units disposed in alignment, a channel extending along a plurality of panel units and including a pair of flanges adapted to receive said panel units and a web connecting said flanges, an upright member adjacent the upright edge of each panel unit and means engageable with said web and said upright for exerting a thrust against said upright longitudinally of said partition.

9. A partition structure comprising a plurality of panel units disposed in alignment, a channel extending along a plurality of panel units and including a pair of flanges adapted to receive said panel units and a connecting web having an offset portion, an upright member adjacent the upright edge of each panel unit and means including a jack adjacent each upright and having a lug engageable with said offset portion, and an adjustable head portion engageable with said upright for exerting a thrust against said upright longitudinally of said partition.

10. In a partition structure, in combination, a plurality of panel units, each having spaced, face forming sheets provided with inturned abutting flanges defining recessed edge portions, means securing said panel units together to form a partition, and a door frame interposed between two of said panel units, said door frame including a tubular member having side faces adapted to lie substantially in the planes of the faces of the partition units, and spaced projecting flanges adapted to enter the recessed edge of the adjacent panel unit and abut said inturned flanges, the flanges on said tubular member having shoulders seating against the edges of said panel unit.

11. In a partition structure, in combination, a plurality of panel units, each of said panel units including spaced, thin metal, panel sheets formed with inbent abutting edge portions defining edge recesses intermediate the wall forming faces of the panel units, uprights received in the edge recesses of adjacent panel units, said edge recesses being shaped to receive said uprights slidably in a direction longitudinally of said partition, and means urging each of said uprights against the edge of one of said adjacent panel units respectively for maintaining said panel units against longitudinal displacement, said uprights being engageable with the sides of said edge portions defining said recesses and adapted to exert a lateral restraining force thereon for maintaining said panel units in transverse alignment.

12. In a partition structure, a panel unit including a pair of spaced, wall-forming panel sheets having their edges inturned and abutting to define spaced, substantially planar edge portions and an inset edge portion therebetween, and a tubular frame member including a generally channel-shaped member having portions exposed as wall surfaces substantially flush with said panel sheets and inturned edge portions defining substantially planar, shouldered seats for snugly abutting said spaced edge portions, and extensions adapted to enter said inset edge portion, and a channel member having its flanges extending along and secured to said extensions and entering said edge recess.

13. A partition structure comprising a plurality of panel units, a channel extending along said panel units and including side flanges and a connecting web extending therebetween, said web having at least a portion inwardly offset, and a panel unit securing member formed with a shank and an enlarged head, the said offset portion of said web being provided with a perforation of the bayonet slot type having an enlarged portion to receive said head therethrough and a narrowed portion to receive said shank.

14. A partition structure comprising a plurality of panel units, a channel extending along said panel units, and means maintaining said panel units against displacement, said channel including rebent side flanges and a web extending therebetween having an offset portion formed with perforations, said side flanges having inner walls adapted to receive the adjacent edges of said panel units and outer walls integral with and rebent from said inner walls and providing exposed decorative trims for said partition.

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