Nov. 10, 1970 K. MOOR 3,538,660

PREFABRICATED WALL ASSEMBLY FOR PARTITIONS AND THE LIKE

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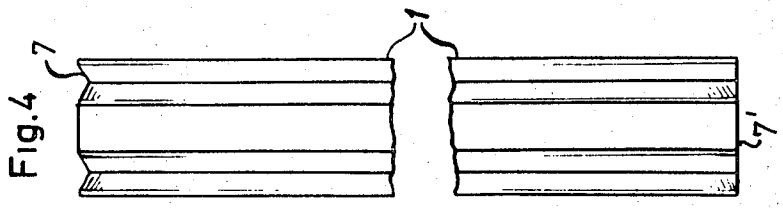


Fig. 4

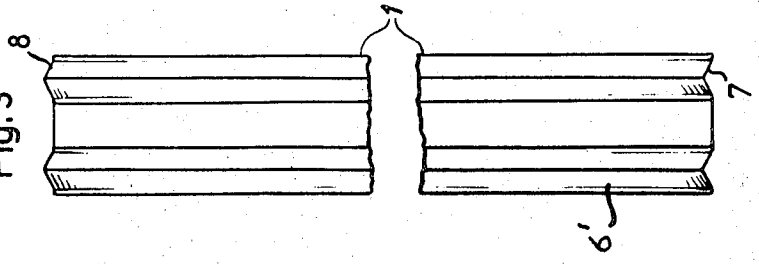


Fig. 3

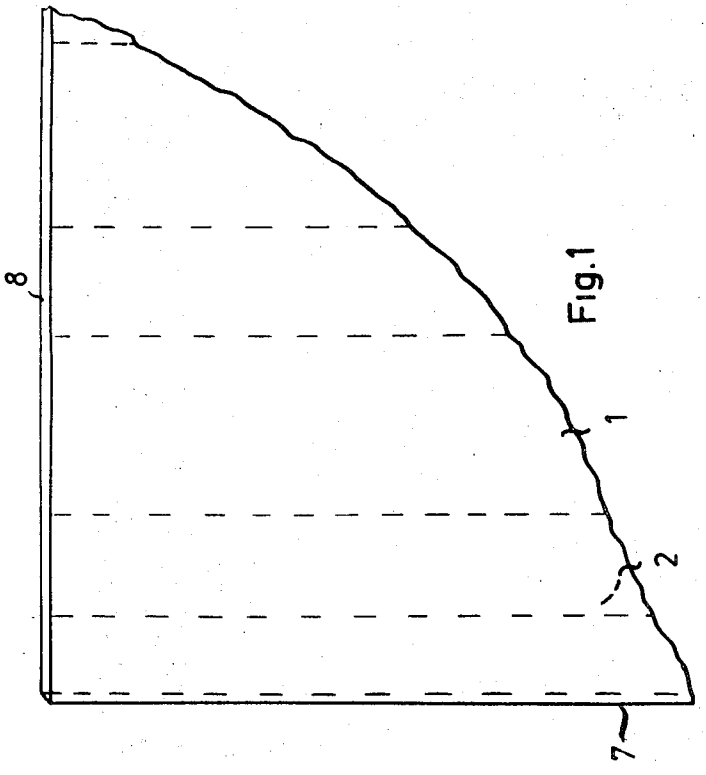


Fig. 1

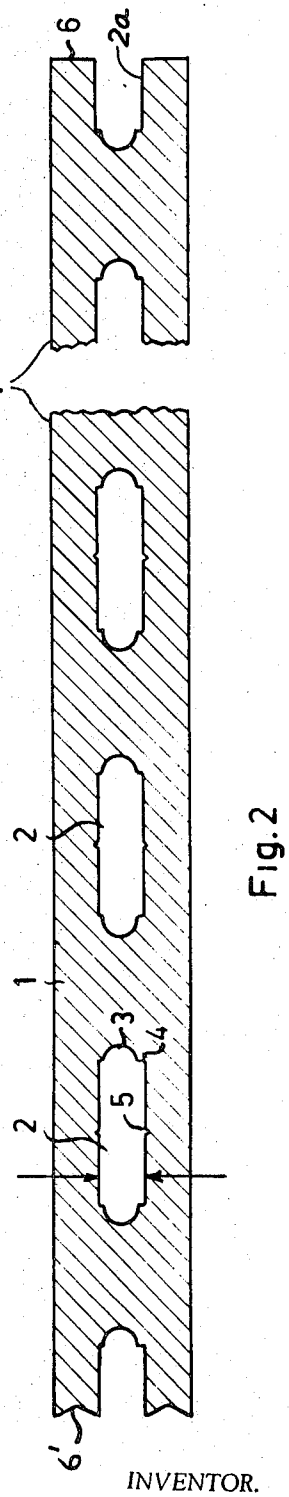


Fig. 2

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PREFABRICATED WALL ASSEMBLY FOR PARTITIONS AND THE LIKE

Filed Nov. 27, 1967 12 Sheets-Sheet 2

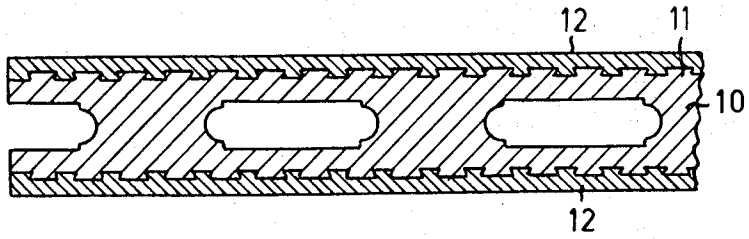


Fig.5

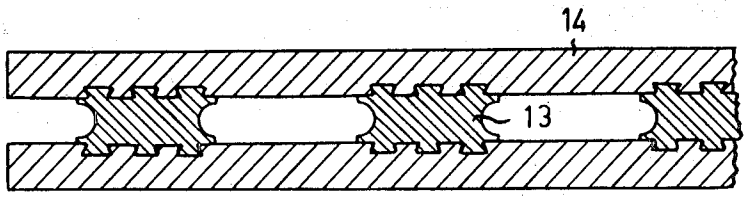


Fig.6

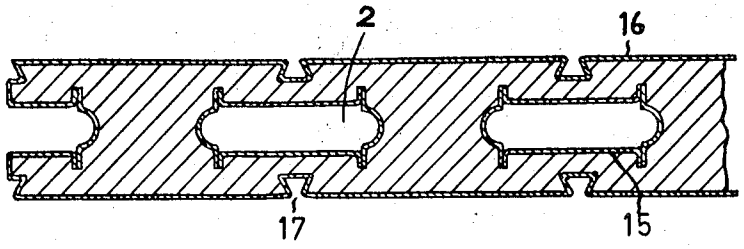


Fig.7

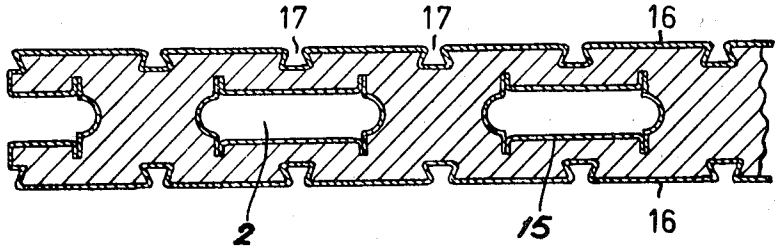


Fig.8

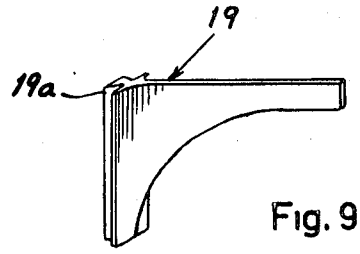


Fig. 9

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PREFABRICATED WALL ASSEMBLY FOR PARTITIONS AND THE LIKE

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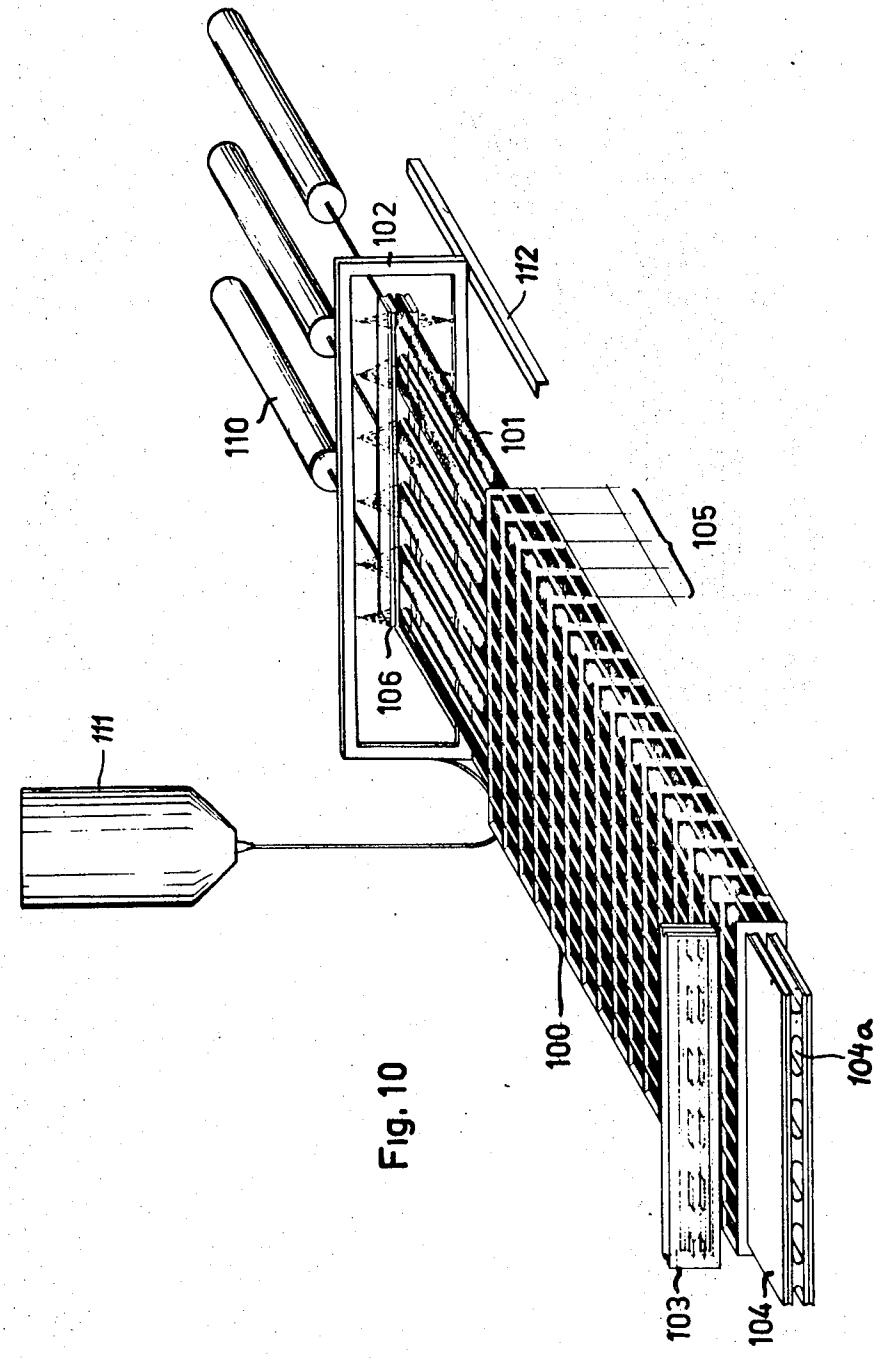


Fig. 10

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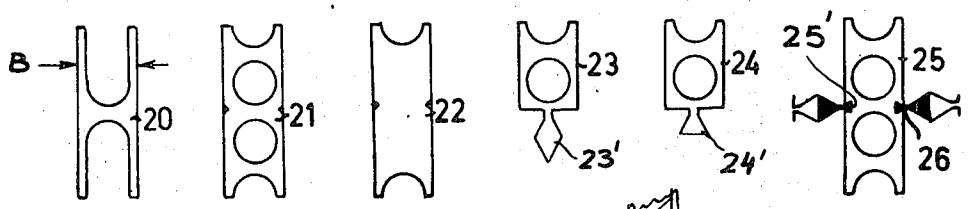
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Attorney

Nov. 10, 1970 K. MOOR **3,538,660**

PREFABRICATED WALL ASSEMBLY FOR PARTITIONS AND THE LIKE

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Fig.11 Fig.12 Fig.13 Fig.14 Fig.15 Fig.16



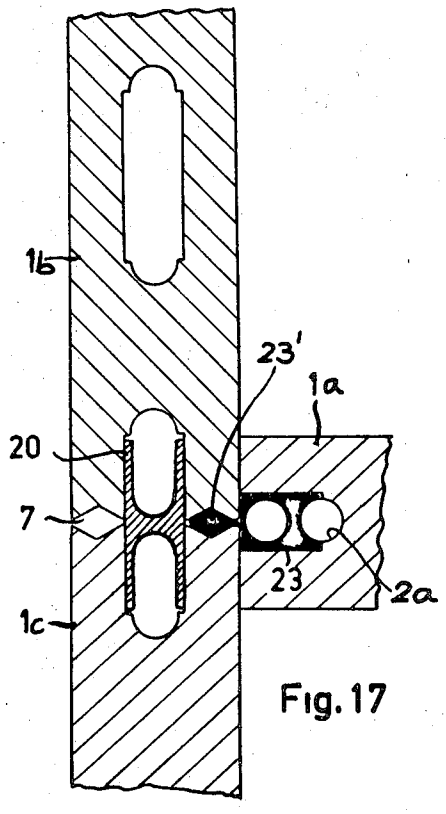


Fig.17

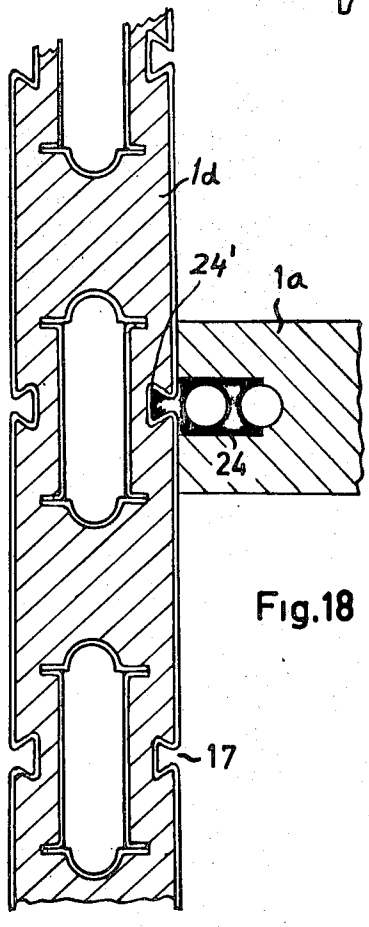


Fig.18

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PREFABRICATED WALL ASSEMBLY FOR PARTITIONS AND THE LIKE

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Fig.19

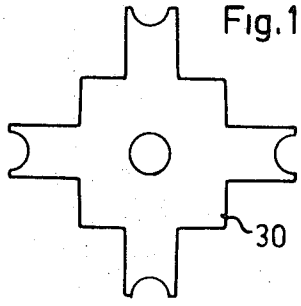


Fig.20

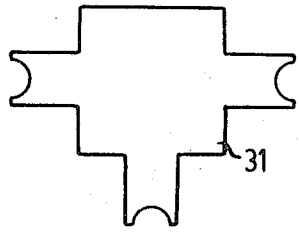
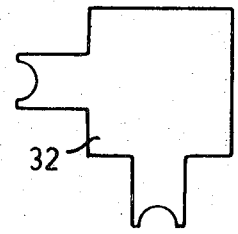


Fig.21



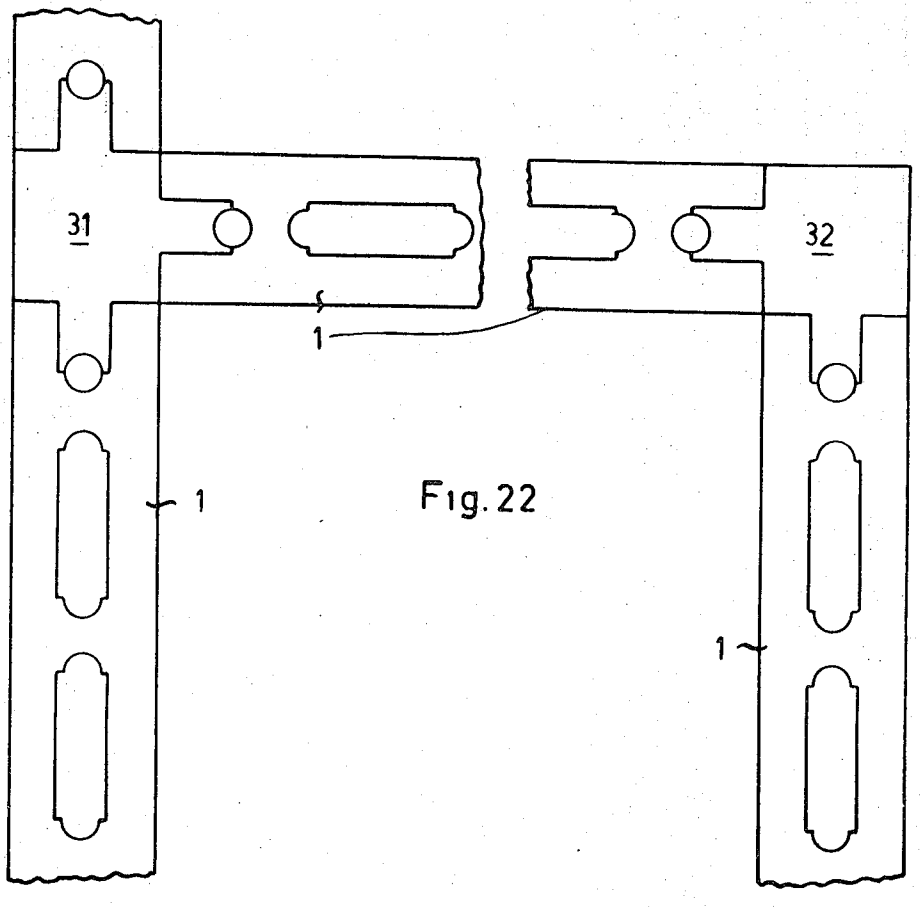


Fig. 22

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PREFABRICATED WALL ASSEMBLY FOR PARTITIONS AND THE LIKE

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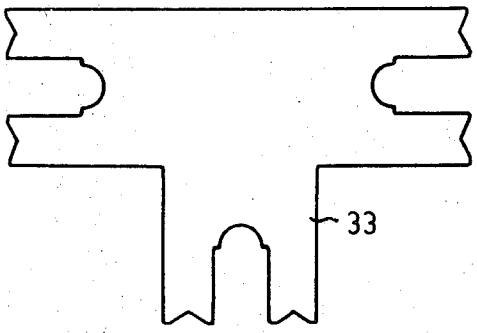


Fig. 23

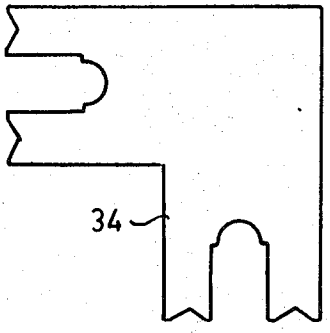


Fig. 24

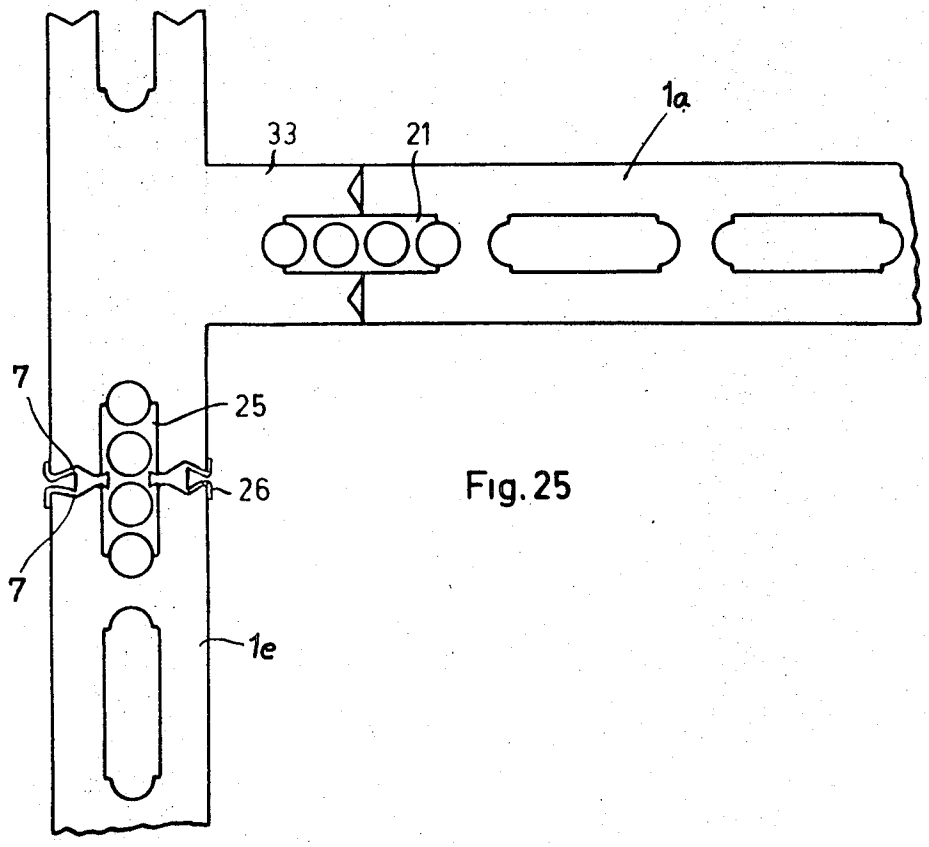


Fig. 25

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PREFABRICATED WALL ASSEMBLY FOR PARTITIONS AND THE LIKE

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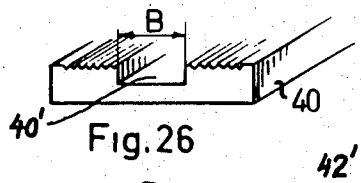


Fig. 26

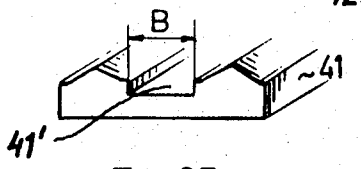


Fig. 27

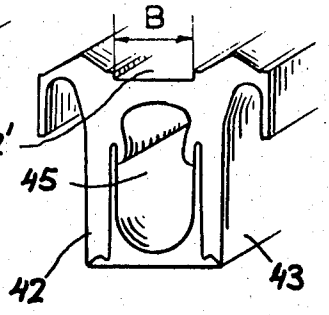


Fig. 28

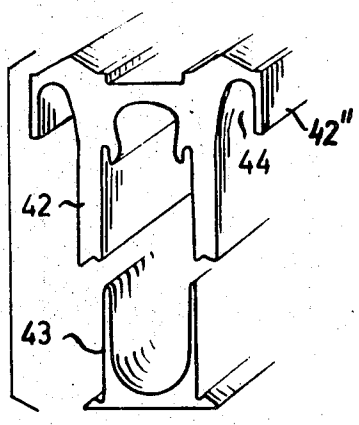


Fig. 29

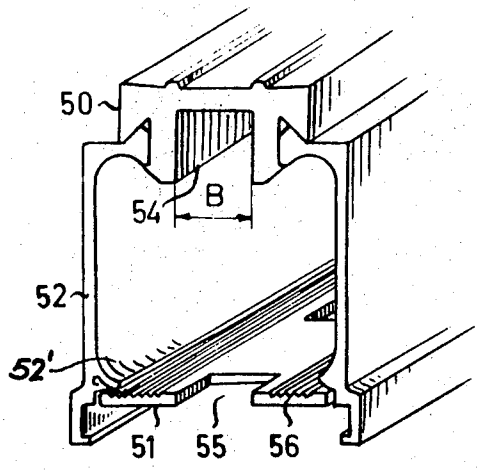


Fig. 30

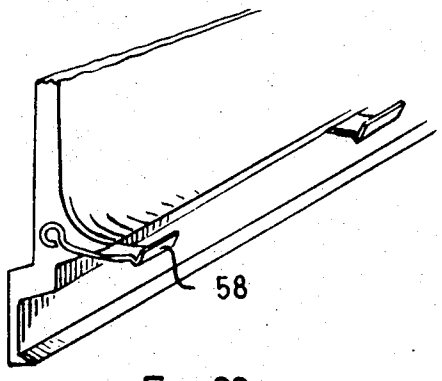


Fig. 32

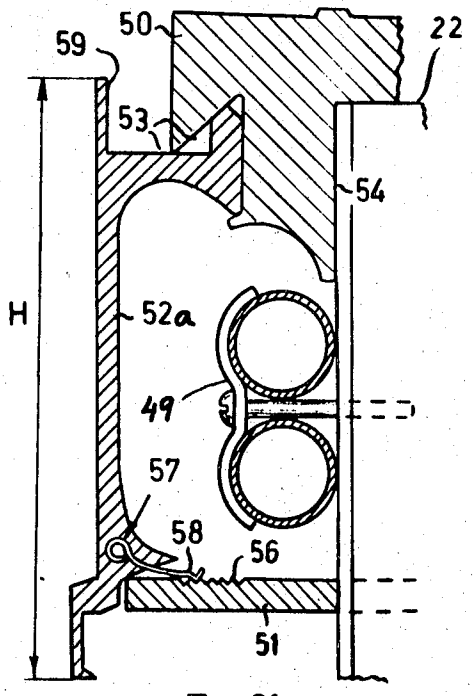


Fig. 31

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PREFABRICATED WALL ASSEMBLY FOR PARTITIONS AND THE LIKE

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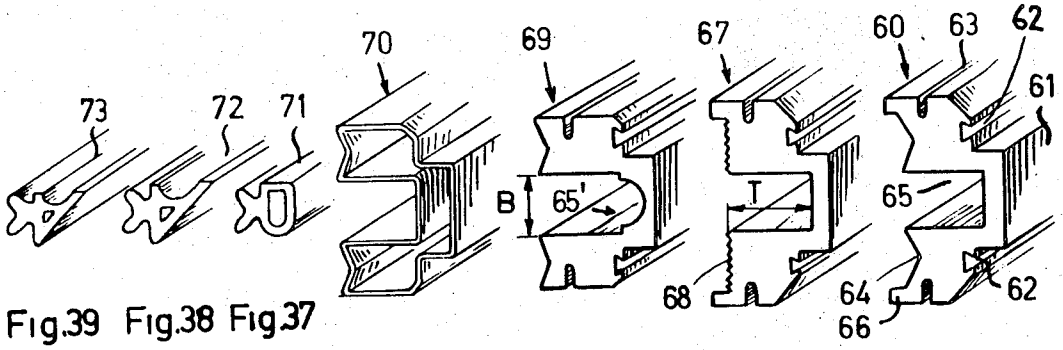


Fig.39 Fig.38 Fig.37 Fig.36 Fig.35 Fig.34 Fig. 33

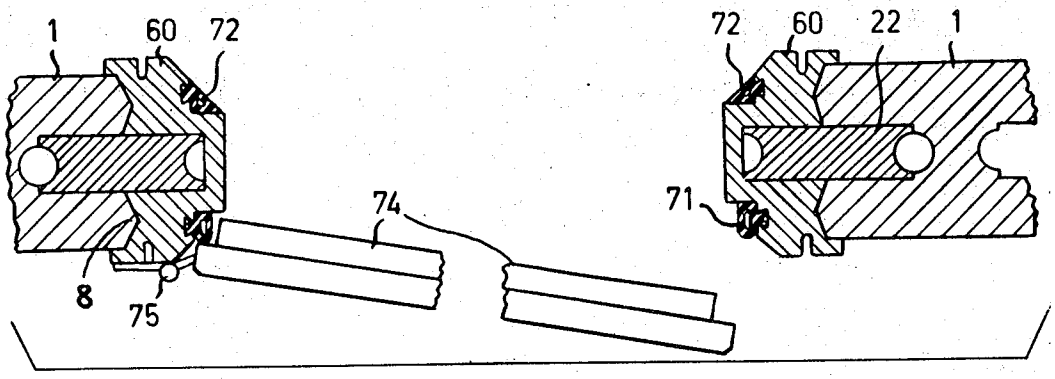


Fig. 40

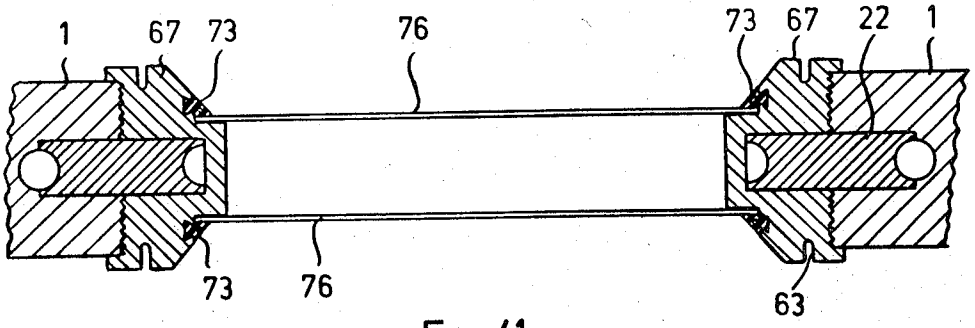


Fig. 41

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PREFABRICATED WALL ASSEMBLY FOR PARTITIONS AND THE LIKE

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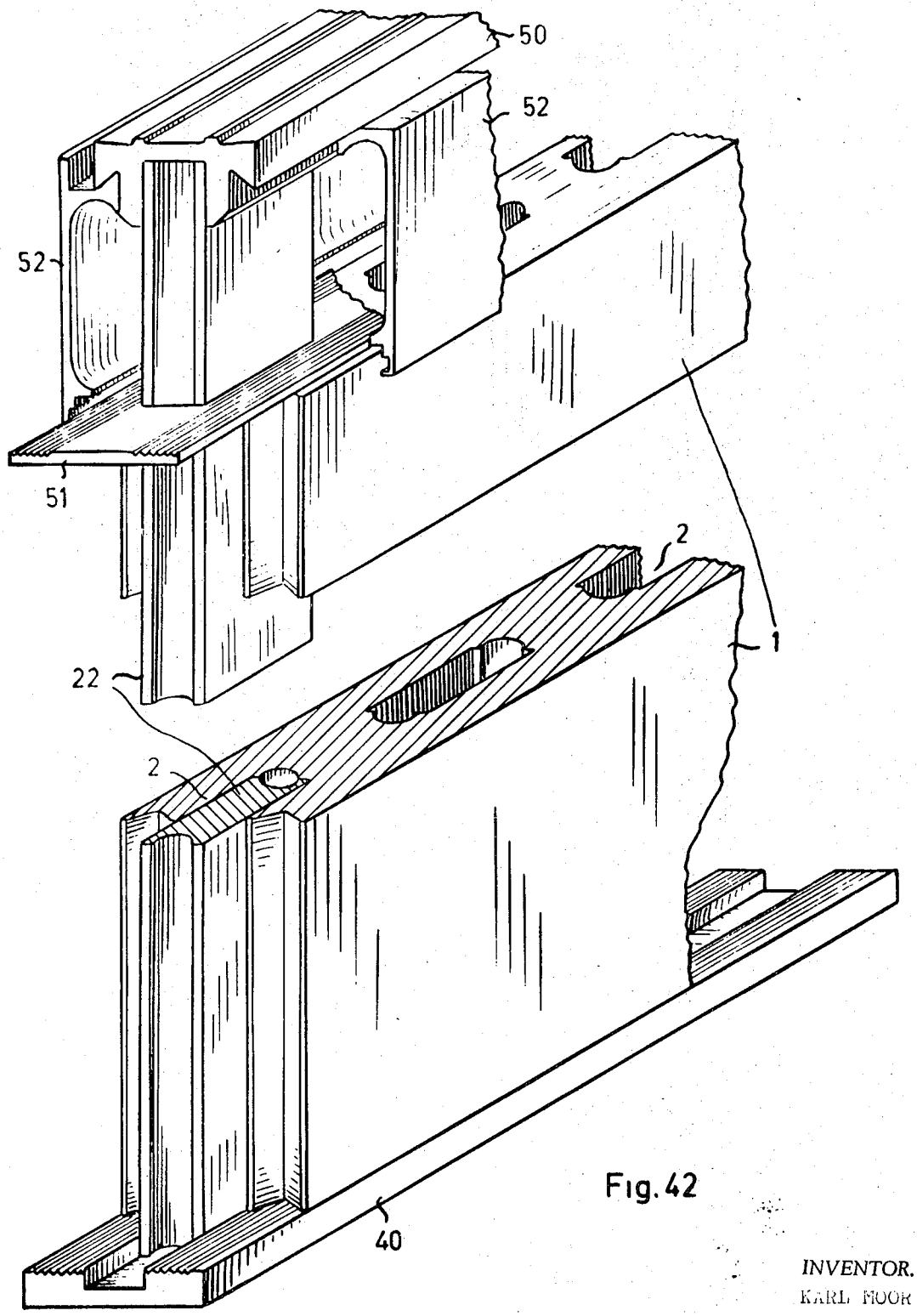


Fig. 42

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PREFABRICATED WALL ASSEMBLY FOR PARTITIONS AND THE LIKE

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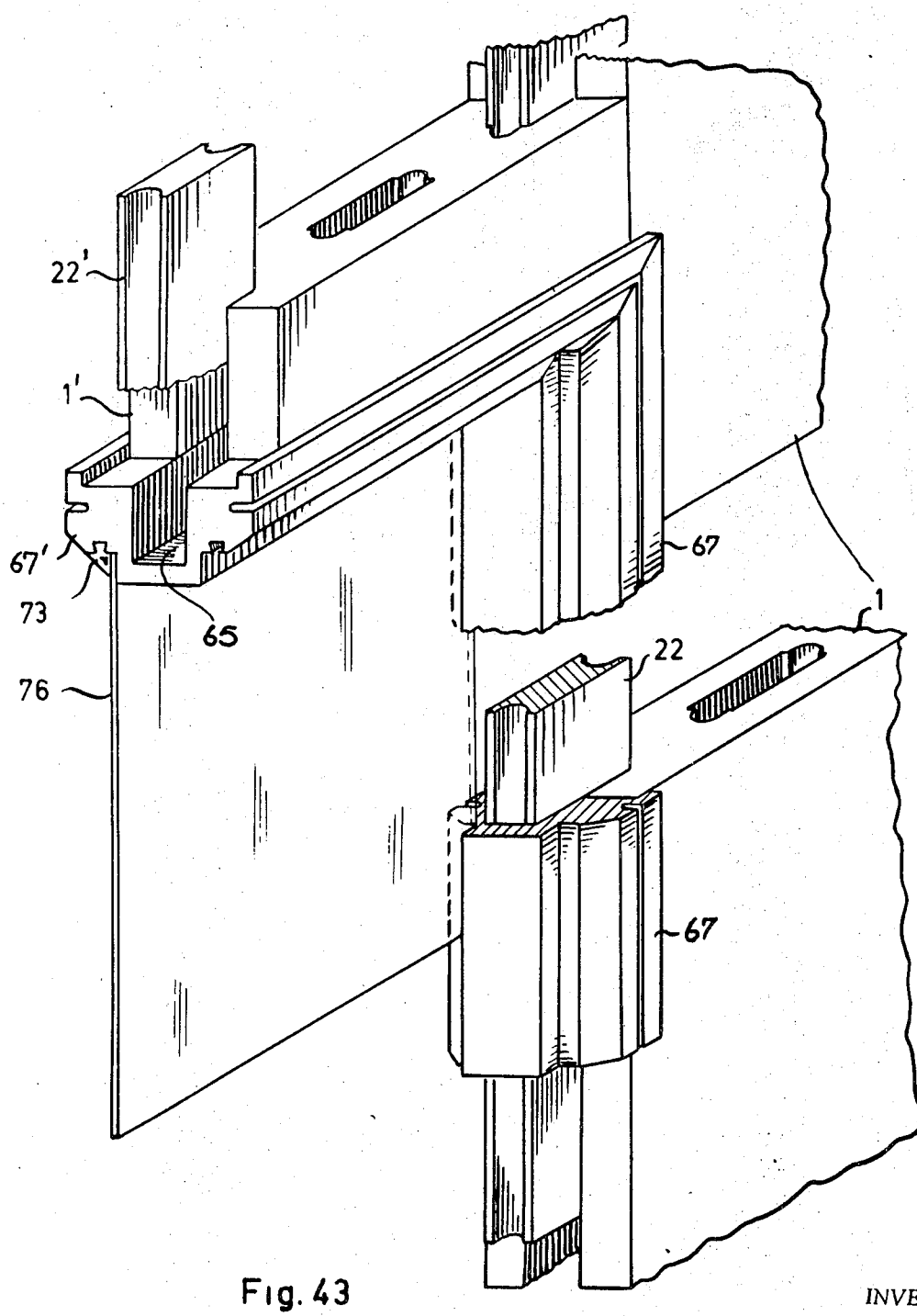


Fig. 43

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PREFABRICATED WALL ASSEMBLY FOR PARTITIONS AND THE LIKE

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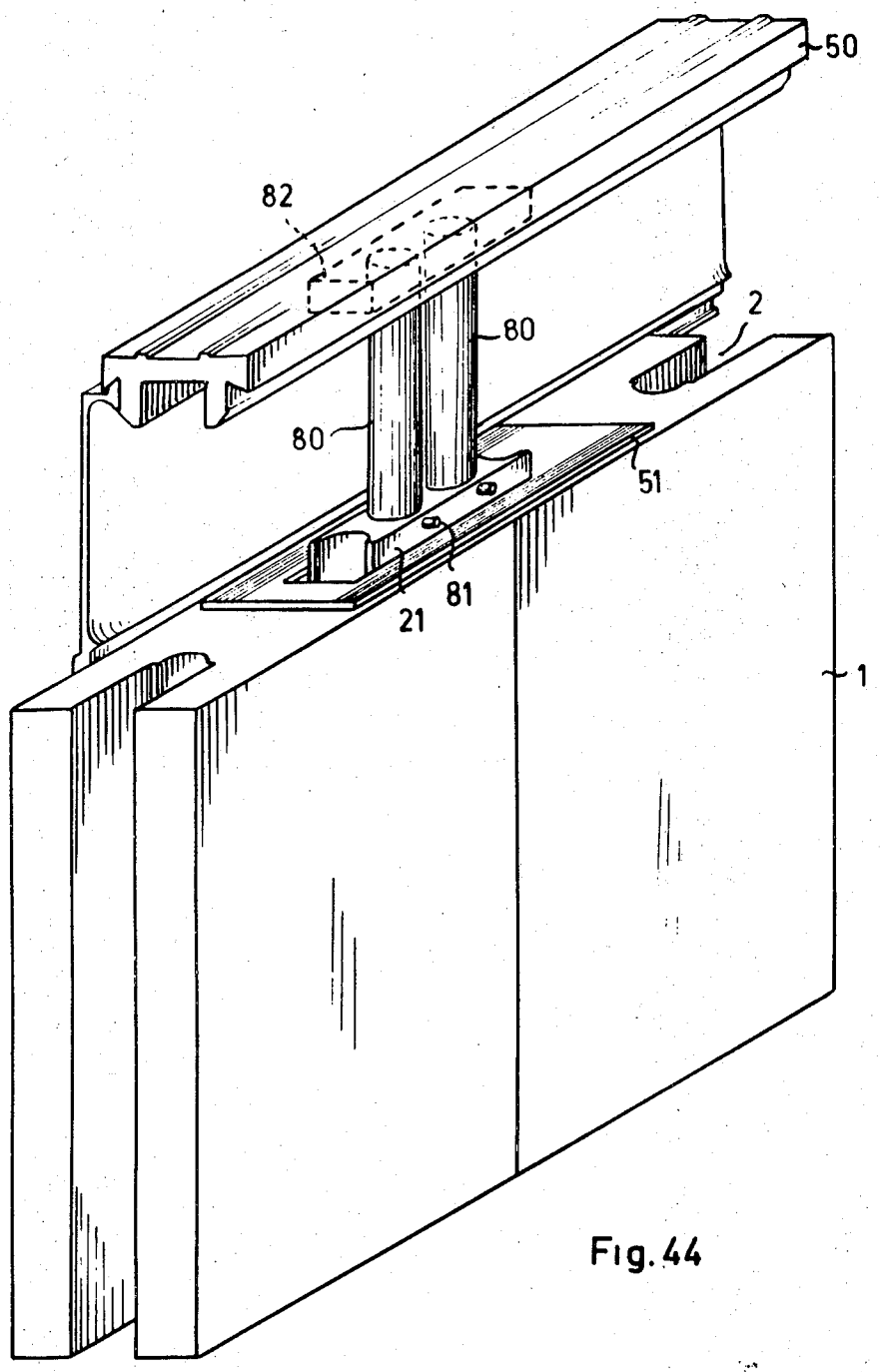


Fig. 44

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PREFABRICATED WALL ASSEMBLY FOR PARTITIONS AND THE LIKE

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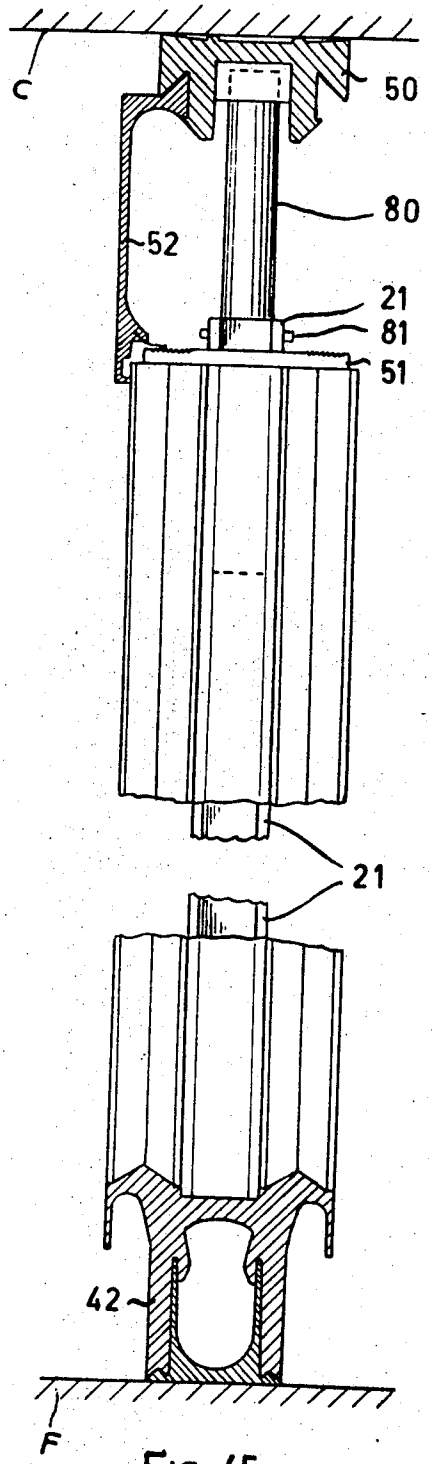


Fig. 45

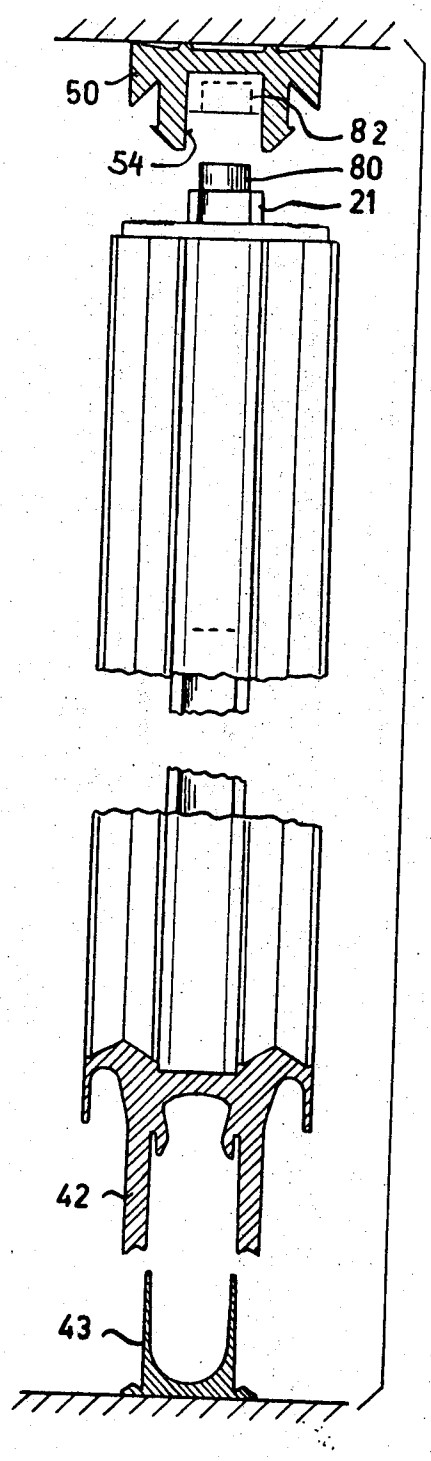


Fig. 46

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United States Patent Office 3,538,660 Patented Nov. 10, 1970

3,538,660

PREFABRICATED WALL ASSEMBLY FOR PARTITIONS AND THE LIKE

Karl Moor, Dupourstrasse 81—8008, Zurich, Switzerland

Filed Nov. 27, 1967, Ser. No. 685,811
Int. Cl. E04b 2/46; E04c 2/52
U.S. Cl. 52—242 23 Claims

ABSTRACT OF THE DISCLOSURE

Partitions or other walls without major supporting function are assembled from prefabricated rectangular wall elements formed with equispaced vertical channels to accommodate web-shaped connectors designed to secure the wall element to an underlying base molding and an overlying top molding. Upon a cutting of the prefabricated wall element along a vertical mid-plane of one of its channels, a web similar to the aforedescribed connectors may be used to couple this wall element to one or more adjoining wall elements.

My present invention relates to a wall assembly adapted to be used in partitioning a room, the term "partition" being here used to designate any wall-like structure not intended to support a ceiling or other substantial loads.

The general object of my invention is to provide an assembly of this description which can be used in the erection of partitions of various dimensions from prefabricated wall elements of standard and, therefore, mass-producible design.

A more particular object of my invention is to provide simple means for attaching such partitions to one another, and/or to posts designed to support door or window frames, as well as to the floor and the ceiling of the room.

It is also an object of my invention to provide means for prefabricating the aforementioned standard wall elements.

A wall assembly according to my invention comprises, generally, one or more prefabricated wall elements each having a plurality of preferably equispaced vertical channels of generally rectangular cross-section, the major sides of the rectangle being parallel to the broad surfaces of the respective wall element. Through these channels pass respective web-shaped connectors whose projecting upper and lower ends are received in horizontal grooves of base and top moldings by which the partition is thus attached to the floor and the ceiling.

Advantageously, according to a more specific feature of my invention, the webs are subdivided into a main body and an adjustable upward extension engaging the top molding, this adjustability allowing for use of the same basic elements in rooms of different height.

The above and other features of my invention will become more fully apparent from the following detailed description, reference being made to the accompanying drawing in which:

FIG. 1 is a fragmentary front view of a wall element according to the invention;

FIG. 2 is a fragmentary horizontal cross-sectional view of the wall element of FIG. 1;

FIG. 3 is a fragmentary side view of the same wall element;

FIG. 4 is a view similar to FIG. 3, showing a modification;

FIGS. 5–8 are views generally similar to FIG. 2, showing further modifications;

FIG. 9 is a perspective view of a bracket adapted to be used with the wall elements of FIGS. 7 and 8;

FIG. 10 is a perspective view illustrating, somewhat

diagrammatically, a mold for prefabricating a wall element as shown in FIGS. 1–8;

FIGS. 11–15 are end views of different connector webs adapted to be used with the wall elements of the preceding figures;

FIG. 16 is an end view of a connector representing a further development of the member of FIG. 12;

FIGS. 17 and 18 are cross-sectional views, generally similar to FIGS. 5–8, showing junctions between several wall elements;

FIGS. 19–21 are end views of other connecting members to be used with such wall elements;

FIG. 22 is a top view of an assembly including a plurality of wall elements and connecting members of the type shown in FIGS. 19–21;

FIGS. 23 and 24 are top views of still further connecting members;

FIG. 25 is a view similar to FIG. 22, showing a modified assembly;

FIGS. 26–29 are fragmentary perspective views of a variety of base moldings to be used with the wall elements of preceding figures;

FIG. 30 is a fragmentary perspective view of a top molding to be used with one of these wall elements;

FIG. 31 is a vertical cross-sectional view through part of a top molding similar to that of FIG. 30;

FIG. 32 is a perspective view of a portion of the molding of FIG. 31;

FIGS. 33–36 are fragmentary perspective views of uprights adapted to be joined to the wall elements of earlier figures to serve as supporting posts for door or window frames;

FIGS. 37–39 are fragmentary perspective views of sealing strips adapted to serve as bumpers for such door or window frames;

FIGS. 40 and 41 are horizontal sectional views of an assembly according to the invention including a door and a window, respectively;

FIG. 42 is a fragmentary perspective view of a complete assembly with wall element, base molding and top molding;

FIG. 43 is a view similar to FIG. 42, showing an assembly incorporating a window frame;

FIG. 44 is a perspective view of the upper part of a further wall assembly with adjustable connector members; and

FIGS. 45 and 46 are end views, partly in section, of the assembly of FIG. 44, illustrating two different positions thereof.

In FIGS. 1–3 I have shown a wall element **1** of suitable cementitious material such as ordinary or microporous plaster, foamed concrete or foamed plastic (e.g. as available under the name "rigid Moltoprene"). The wall element is formed with a multiplicity of vertical channels **2** of generally rectangular cross-section, the major sides of the profile being parallel to the broad faces of the element. The narrow end faces **3** of the channel are semicylindrically concave and terminate in shoulders **4** designed to constitute abutments for elongate connectors described hereinafter. The channels may be longitudinally notched along their transverse plane of symmetry, as indicated at **5**, to facilitate the cutting of the wall element into two or more smaller sections each bounded by at least one side face **6** which is recessed at **2***a* to a depth corresponding to half the major dimension of the channel profile. The lower and upper edges of the wall element may be fluted or ribbed as indicated at **7** and **8** in FIG. 3; a similar undulating formation may also be given to either or both lateral edges of the wall element as shown at **6'** in FIGS. 2. and 3. The wall element of FIG. 4 has a flat underside **7'**.

FIG. 5 shows a wall element in the form of a cementitious body **10** clad with outer layers **12**, e.g. of metal or of plastic sheet material, held in position by mortise-and-tenon formations **11**. According to FIG. 6, the body of the element consists of two parallel plates **14** separated by vertical spacers **13**, e.g. of metal, plastic or wood, in interlocking engagement therewith. As shown in FIGS. 7 and 8, the plate body may have outer layers of sheet material **16** forming dovetail-shaped vertical flutes **17**, the channels **2** being lined by layers **15** of similar sheet material (e.g. aluminum).

In FIG. 9 I have shown a bracket **19** adapted to be mounted on the bracket of FIGS. 7 and 8, this element having a trapezoidal rib **19***a* fitting into any of the flutes **17**; the bracket can be maintained at a desired elevation by suitable fastening means, e.g. nails or screws not shown.

MOLDING DEVICE (FIG. 10)

In FIG. 10 I have illustrated a device for prefabricating a wall element **1** of the type described above. This device comprises a prismatic injection or compression steel mold **100** having end walls **103** and **106**. Mold **100** is subdivided into a multiplicity of transverse sections **105** which are interconnectable by clamps or other fastening means and whose number may be varied to change the length of the element **104** molded therein. Elongate cores **101**, forming rigid extensions of the pistons of hydraulic or pneumatic cylinders **110**, pass through cutouts in end walls **103**, **106** to form the voids **104***a* of body **104** which correspond to the longitudinal channels **2** of preceding figures. End plate **106** may be solid with the group of cores **101** so as to be displaceable together with these cores toward and away from stationary end plate **103**, the latter being removable from the mold **100** to facilitate the extraction of the finished plate **104**. A frame **102**, slidable along rails **112**, carries sprinklers **106** through which a lubricant may be sprayed onto the cores **101** prior to their insertion into the mold; the same sprinkler system can also be used to deposit a nonadhering film of thermoplastic resin or the like on the cores **101** to form inner linings similar to those shown at **15** in FIGS. 7 and 8. The lubricant or the coating material is delivered to the upper and lower sprinkler nozzles **106** from a reservoir **111**.

CONNECTORS (FIGS. 11–25)

In FIGS. 11–13 I have shown three elongate web-shaped members **20**, **21**, **22** fitting into the channels **2** of wall element **1** in a manner best illustrated in FIGS. 42 and 43 described hereinafter. These connectors, differing from one another only by the presence or absence of voids designed to reduce their weight, may consist of metal (e.g. aluminum), glassfiber-reinforced plaster or synthetic resin. Advantageously, the end faces of their generally rectangular cross-section are hollowed out in a manner complementary to that of the channel end walls **3** (FIG. 2) so as to form ducts therewith to accommodate electric wires, fluid conduits or other utility lines.

FIGS. 14 and 15 illustrate modified connectors **23** and **24** whose cross-sections are partly rectangular, corresponding to half the length of the rectangular section of members **20–22**, and are provided with reduced projections **23'**, **24'** positively engageable with complementary recesses of one or more adjoining wall elements. Thus, I have shown in FIG. 17 three wall elements **1***a*, **1***b* and **1***c* of substantially identical construction, element **1***a* terminating in a laterally open half-channel **2***a* receiving the connector **23** of FIG. 14 whose projection **23'** fits between confronting flutes **7** of adjoining end faces of wall elements **1***b*, **1***c* which are joined in turn by a connector **20** of the type shown in FIG. 11. In FIG. 18, the wall element **1***a* adjoins a wall element **1***d* perpendicular thereto, the latter being of the type illustrated in FIG. 7 and having the tongue **24'** of connector **20** received in one of its dovetail-shaped flutes **17**. According to FIG. 16, a member **25** similar to member **21** has lateral triangular recesses **25'** to receive elastic clips **26**, such as rubber strips, which enter between a wall element **1***e* and a connecting post **33**, FIG. 25, having confronting faces with flutes **7** accommodating the strips **26**; post **33** of FIG. 25, shown by itself in FIG. 23, is of T-shaped profile and is seen to be connected by respective web members **21** and **25** to wall elements **1***a* and **1***e*. FIG. 24 illustrates a similar upright **34** adapted to serve as a corner post interconnecting two orthogonally adjoining wall elements. Other connecting and corner posts are shown at **30**, **31**, **32** in FIGS. 19–21; FIG. 22 illustrates how the two last mentioned posts can be assembled into a structure together with several wall elements **1**.

FLOOR CONNECTIONS (FIGS. 26–29)

In FIGS. 26 and 27 I have shown two base moldings **40** and **41** with grooves **40'**, **41'** designed to receive the lower ends of connector members or webs **20–25** as shown in FIGS. 11–16, the width B of either of these grooves being substantially equal to that of the connector members and of the channels **2**. As illustrated in FIGS. 28 and 29, the base molding may be made from two interfitting parts **42**, **43**, part **42** being downwardly concave and part **43** being upwardly concave so that these parts together define a horizontal duct **45** adapted to receive gas or water lines, electric cables and the like. The upper part **42** has a groove **42'** of width B accommodating the lower connector ends. Overhanging lips **42''** of upper base part **42** form recesses **44** which can also be used to conceal cables, fluid lines and so on. The moldings **40** and **41** or the lower molding part **43** may be pasted, screwed or otherwise fastened to the floor of a room; parts **42** and **43** may be held interengaged by friction or, if desired, by adhesive bonding, pins or similar fastening means.

CEILING CONNECTIONS (FIGS. 30–32)

FIG. 30 shows a top molding **50** having a groove **54** of the same width B as the grooves **40'**, **41'** and **42'** of the preceding four figures. Since, to facilitate installation, it will generally be desirable to let the wall elements **1** terminate somewhat below the ceiling of the room, top molding **50** is elevated above the upper edge of the wall element (see FIG. 42), this upper edge being overlain by a cover plate **51** having apertures **55** which generally register with the channels **2** of the wall element and give clearance to the connector webs **20**, **21** etc. traversing these channels. The upper ends of the connector webs fit into the groove **54** and are flanked by two masking strips **52** which depend from the molding **50** and from abutments **52'** bearing upon the corrugated upper surface **56** of cover plate **51**.

In the modified construction of FIGS. 31 and 32, each side strip **52***a* has an upwardly projecting flange **59** separated from the layeral edge of molding **50** and forming therewith a space **53** which may accommodate fluorescent lamps, wirings or other accessories. An undercut **57** near the bottom edge of panel **52***a* receives several leaf springs **58** whose free ends bear resiliently upon the corrugations **56** of plate **51**. The space between panel **52***a* and connector webs **22** may be used for pipes, cables or the like as illustrated at **49**. Depending on the actual height of the room, connectors **22** of different length may be used with corresponding changes in the height H of the side panels or strips **52***a*.

WINDOWS AND DOORS (FIGS. 33–41)

FIGS. 33–36 show a variety of uprights **60**, **67**, **69**, **70** to be used as door posts or frame members for doors or windows. Each of these uprights has a vertical groove **65** (FIG. 33) or **65'** (FIG. 35) whose width B is the same as that of the channels **2** (FIG. 2) and whose depth T equals half the length of the channel profile. Upright **60** of FIG. 33 has a fluted seating surface **64** adapted to engage a ribbed end face **8** of a wall element **1** as illustrated in

FIGS. 3 and 40; lateral flanges **66** straddle the wall element **1**. Longitudinal grooves **63** may again accommodate antenna wires, telephone cords etc. Further grooves **62** are adapted to hold packing strips of the type shown at **71**, **72** and **73** in FIGS. 37–39, these strips being made of rubber or other resilient material and differing from one another by their profile. Thus I have shown in FIG. 40 packing strips **71** serving as bumpers for a door frame **74** which is swingably attached to one of two confronting posts **60** by hinges **75**; other strips **72** on the opposite side of each post serve merely as fillers for the unused grooves **62**. Profile member **73** may serve as a weather strip bearing upon a window pane **76** as illustrated in FIG. 41.

Upright **67** of FIG. 34 differs from upright **60** of FIG. 33 by having a corrugated seating surface **68** adapted to contact a smooth end face **6** (FIG. 2) or a similarly corrugated end face of a wall element **1** as shown in FIG. 41. Upright **69** (FIG. 35) is of reduced width, owing to to omission of the lateral flanges **66** of FIG. 33. Upright **70** (FIG. 36) is formed entirely of sheet metal and has a hollow profile.

ASSEMBLY (FIGS. 42–46)

FIG. 42 shows an assembly consisting of the base molding **40** of FIG. 26, a wall element **1** of the type illustrated in FIG. 2, a top molding **50** with side panels **52** and cover plate **51** as illustrated in FIG. 30, and connector webs **22** (only one shown) passing through vertical channels **2** of element **1**. Molding **50** may be pasted or otherwise fastened to the ceiling of a room and should, of course, be accurately aligned with molding **40**. The side panels **52** can be slid into place after the assembly is otherwise completed.

As shown in FIG. 43, two bars **67**, **67'** of the type illustrated in FIG. 35 are joined together with a miter cut to form a frame for a window having two parallel panes **76** as in FIG. 41, one of these panes being omitted in FIG. 43. A web member **22** joins the wall element **1** to post **67** whereas a second, much shorter web member **22'** fits into the groove **65** of member **67'** and connects it with an overlying wall portion **1'** similar to element **1** but of greatly reduced height; the bottom edge of the window may also rest on such a wall portion through the intermediary of a frame member identical with member **67'** and disposed symmetrically with reference thereto.

In FIGS. 44–46 I have shown means for varying the effective length of a connector member to fit rooms of different height. Thus, the connector **21** shown in these figures has a body receivable in a channel of a wall member **1** or in two complementary half-channels of a pair of such elements; web member **21** is formed with two longitudinal bores receiving respective rods **80** which rise vertically beyond the upper edge of wall element or elements **1** and carry a rectangular plate **82** forming an extension of the connector member. Plate **82** fits snugly inside groove **54** of top molding **50**. Retaining pins **81**, passing through aligned holes in the upper end of member **21** and of rods **80**, are representative of a variety of means for indexing or immobilizing the rods and the plate **82** at a selected elevation according to the distance between the floor F and the ceiling C. FIG. 45 shows the assembled position; FIG. 46 illustrates how the rods **80** may be retracted to enable a removal or relocation of the wall structure, with end plate **82** left in place upon withdrawal of the rods **80** therefrom.

I claim:

1. A wall assembly for partitioning a room having a floor and a ceiling, said assembly comprising:

(a) at least two juxtaposed wall elements having adjoining sides provided with aligned vertical grooves complementing each other to form a channel of generally rectangular cross-section, the major sides of the rectangle being perpendicular to said adjoining sides, the minor sides of the rectangle being substantially semi-cylindrically curved with concavities facing each other;

(b) a base molding on said floor having a longitudinal groove of a width substantially equal to that of said rectangle and aligned with the lower termination of said channel, said wall elements resting on said base molding above said groove;

(c) a top molding between said elements and said ceiling, said top molding having a longitudinal groove of a width substantially equal to that of said rectangle and aligned with the upper termination of said channel; and

(d) a web of generally rectangular cross-section matingly received in said channel and projecting therefrom beyond said lower and upper terminations into engagements with the grooves of said base molding and said top molding, thereby securing said wall elements to each other and to said moldings, said web having hollowed narrow longitudinal faces confronting the concavities of said minor sides to form vertical voids for accommodating utility lines alongside said web.

2. A wall assembly as defined in claim **1** wherein said major sides have vertical shoulders abutting projecting edges of said hollow faces.

3. A wall assembly as defined in claim **1** wherein said wall elements have a longitudinally grooved underside, said base molding having a profile complementary to that of said underside.

4. A wall assembly as defined in claim **1** wherein said base molding includes an upwardly concave lower part and a downwardly concave upper part separably engaging each other, said parts forming between them a horizontal duct for utility lines.

5. A wall assembly as defined in claim **1** wherein at least one wall element has a vertical side and a further vertical channel laterally open onto said side, said further channel having a depth equal to substantially half the length of said rectangle.

6. A wall assembly as defined in claim **5**, further comprising another wall element and a further web in said laterally open channel connecting said one wall element with said other wall element.

7. A wall assembly as defined in claim **6** wherein at least said other wall element is provided with a vertical groove on a surface confronting said laterally open channel, said further web engaging in the last-mentioned groove.

8. A wall assembly as defined in claim **7** wherein said last-mentioned groove has a re-entrant cross-section, said further web having a projecting tenon formation positively held in said vertical groove.

9. A wall assembly as defined in claim **5**, further comprising a post adjoining said side of said one wall element and a further web partly received in said laterally open channel, said further web engaging said post and connecting same with said one wall element.

10. A wall assembly as defined in claim **9** wherein said post has a vertical groove accommodating part of said further web and seating surfaces flanking the last-mentioned groove, said seating surfaces being bounded by flanges embracing said one wall element.

11. A wall assembly as defined in claim **10** wherein said seating surfaces and said side of said one wall element contact each other and are provided with complementary vertical flutes and ribs.

12. A wall assembly as defined in claim **9** wherein said post is provided with an external longitudinal flute and with a sealing strip projectingly received in said flute.

13. A wall assembly as defined in claim **9** wherein said post is provided with hinge means for supporting a swingable frame and with elongate vertical strip means of elastic material forming a sealing bumper for said frame.

14. A wall assembly as defined in claim **5**, further comprising an upright adjoining said side of said one

wall element, said upright having one rib received in said laterally open channel and at least one other rib receivable in a laterally open channel of a similar wall element.

15. A wall assembly as defined in claim **5**, further comprising two additional wall elements adjoining each other in a plane perpendicular to said one wall element, said additional wall elements having confronting end surfaces formed with complementary vertical flutes, and an additional web in said further channel having a projecting tenon positively received by said flutes, said additional wall elements being formed beyond said flutes with confronting half-channels accommodating a further web interconnecting said additional elements.

16. A wall assembly for partitioning a room having a floor and a ceiling, said assembly comprising:

(a) at least one wall element rising from said floor and terminating below said ceiling in an upper edge;

(b) a top molding on said ceiling spacedly overlying said upper edge, said top molding having a longitudinal groove paralleling said upper edge;

(c) bracing means extending upwardly from said upper edge while being received in said groove;

(d) a plate resting on said upper edge, said plate being apertured to clear said bracing means; and

(e) a pair of vertically disposed masking strips suspended from said top molding and straddling said wall element in the region of said upper edge, said masking strips being provided with internal abutments bearing elastically upon said plate.

17. A wall assembly for partitioning a room having a floor and a ceiling, said assembly comprising:

(a) a plurality of juxtaposed upstanding wall elements rising from said floor and having adjoining sides provided with aligned vertical grooves complementing each other to form a channel of generally rectangular cross-section, the major sides of the rectangle being perpendicular to said adjoining sides, the minor sides of the rectangle being substantially semicylindrically curved with concavities facing each other, said elements terminating below said ceiling in an upper edge;

(b) a web of generally rectangular cross-section receiving in said channel and projecting upwardly therefrom beyond said upper edge, said web having hollowed narrow longitudinal faces confronting the concavities of said minor sides to form vertical voids for accommodating utility lines alongside said web;

(c) a top molding on said ceiling spacedly overlying said upper edge, said top molding having a longitudinal groove paralleling said upper edge and receiving an upper termination of said web with mating fit, said web thereby securing said elements to each other and to said top molding; and

(d) a pair of vertically disposed masking strips suspended from said top molding and straddling said wall elements in the region of said upper edge, thereby defining a laterally enclosed space between said upper edge and said ceiling, said wall elements being provided with additional vertical channels communicating with said space to accommodate utility lines.

18. A wall assembly as defined in claim **17** wherein said web has a body in said channel and an adjustable upward extension in the groove of said top molding.

19. A wall assembly as defined in claim **18** wherein said upward extension includes at least one rod vertically slidable in said body and an end plate rigid with said rod, said end plate having an outline substantially corresponding to the profile of said web, further comprising means for fixedly securing said rod in different positions with reference to said body.

20. A wall assembly as defined in claim **17** wherein said wall elements are provided with sheet-material linings for said channels.

21. A wall assembly as defined in claim **17** wherein said additional channels have the same generally rectangular cross-section as the channel formed by said vertical grooves, the depth of the latter being equal to substantially half the length of the rectangle.

22. A wall assembly as defined in claim **21** wherein said channels are equispaced within said wall elements.

23. A wall assembly as defined in claim **17** wherein said wall elements are clad in outer layers of sheet material and are provided with outer flutes to accommodate external connectors, said sheet material lining said flutes.

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