April 27, 1965 E. C. LISKEY, JR 3,180,459

DEMOUNTABLE SECTIONAL PARTITION

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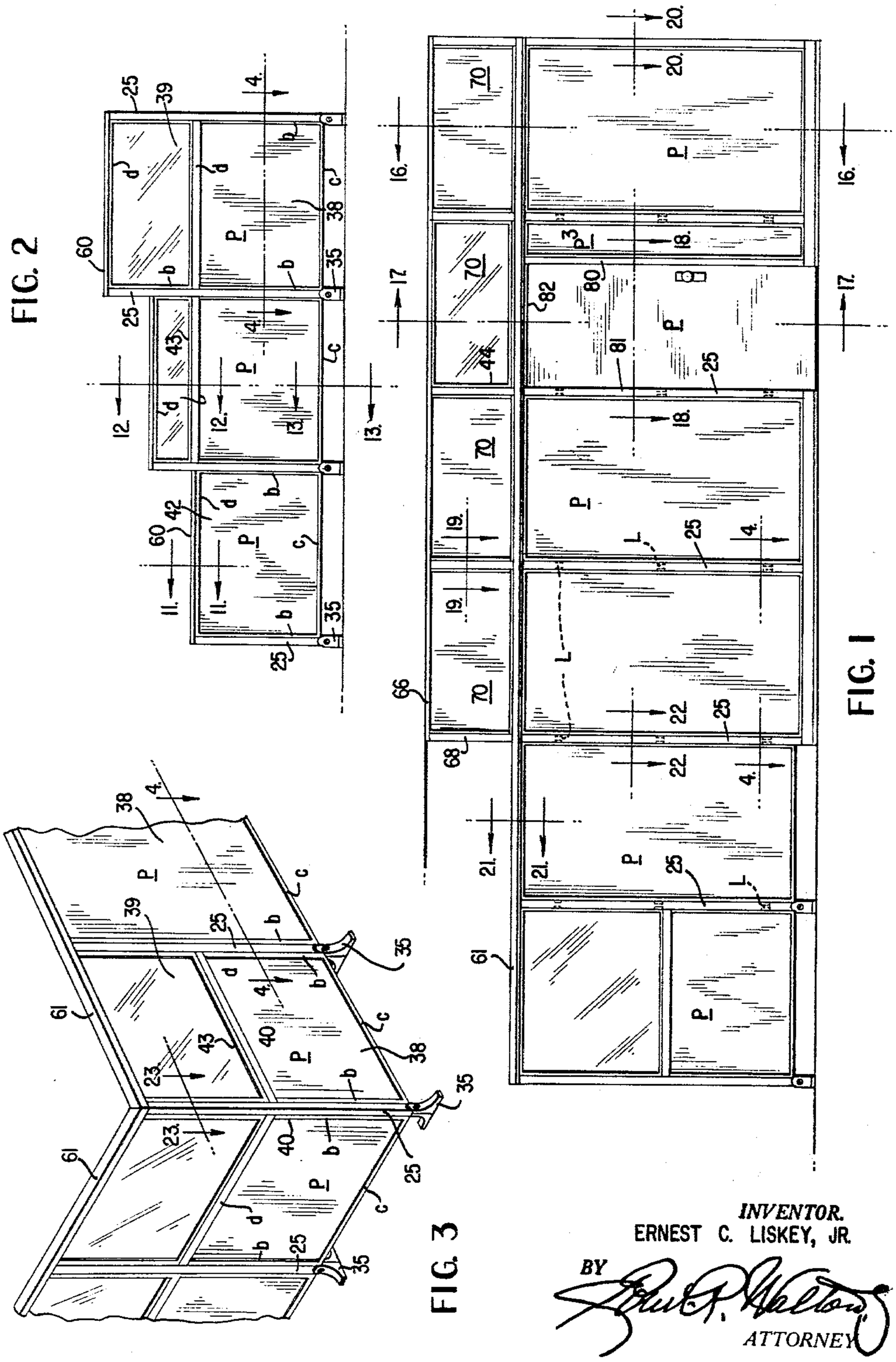

FIG. 2

FIG. 3

FIG. 1

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FIG. 4

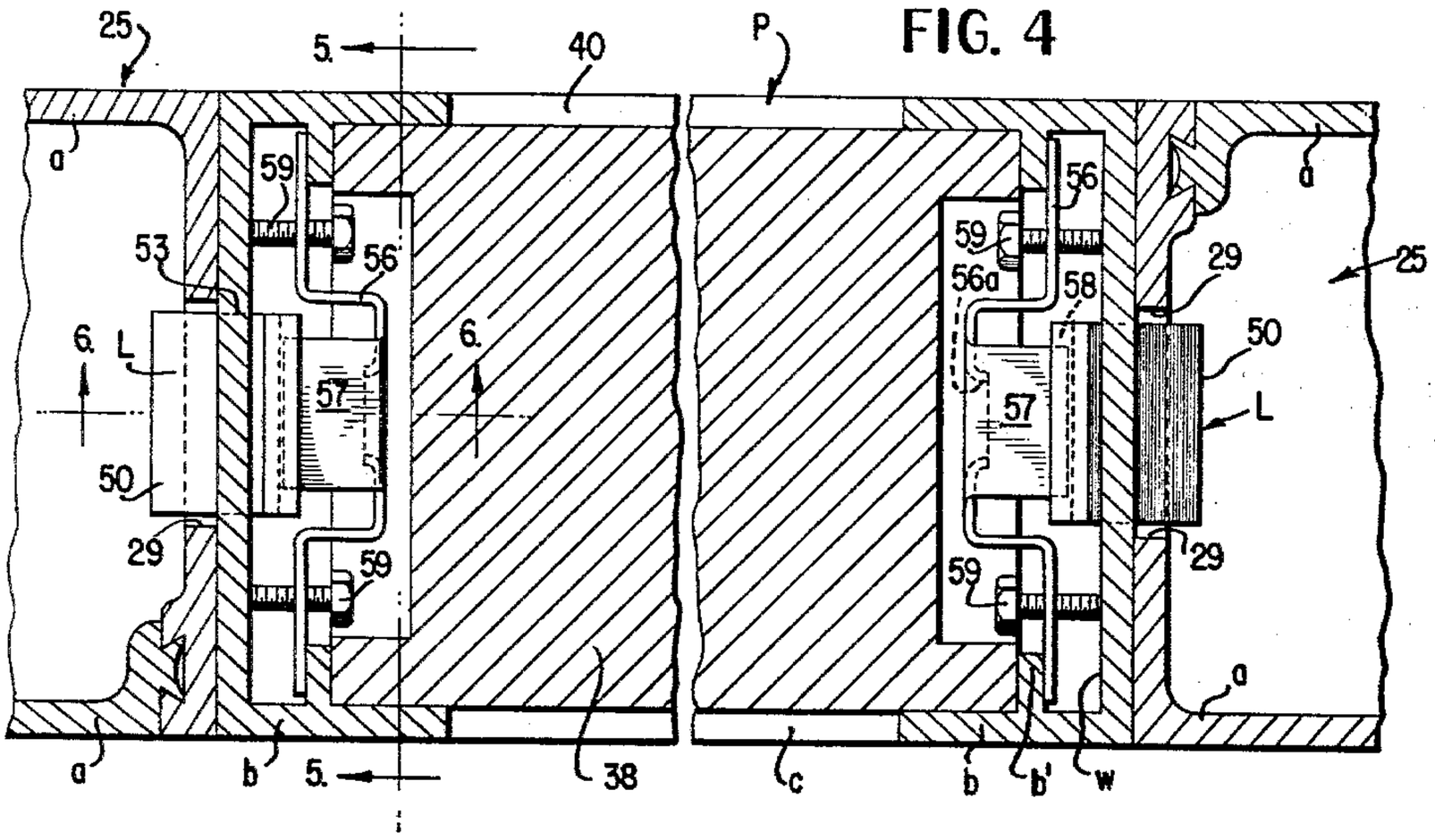


FIG. 5

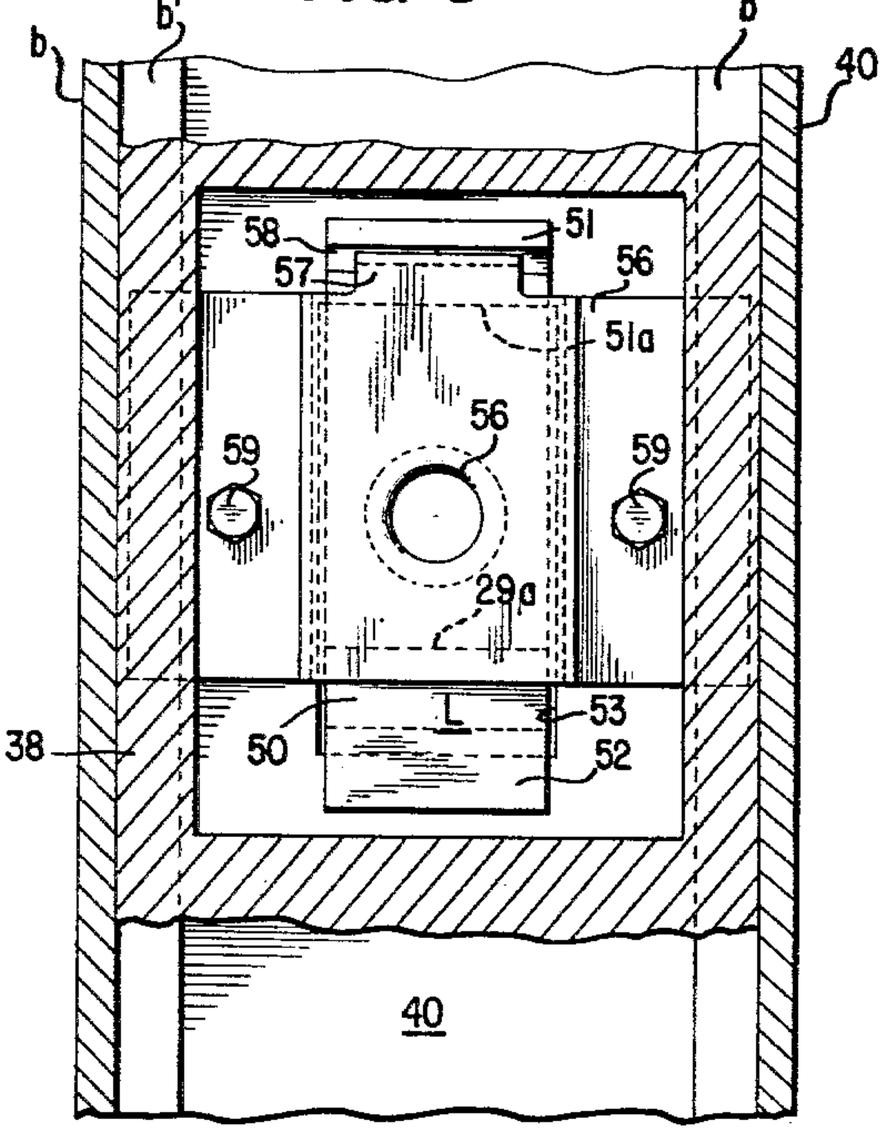
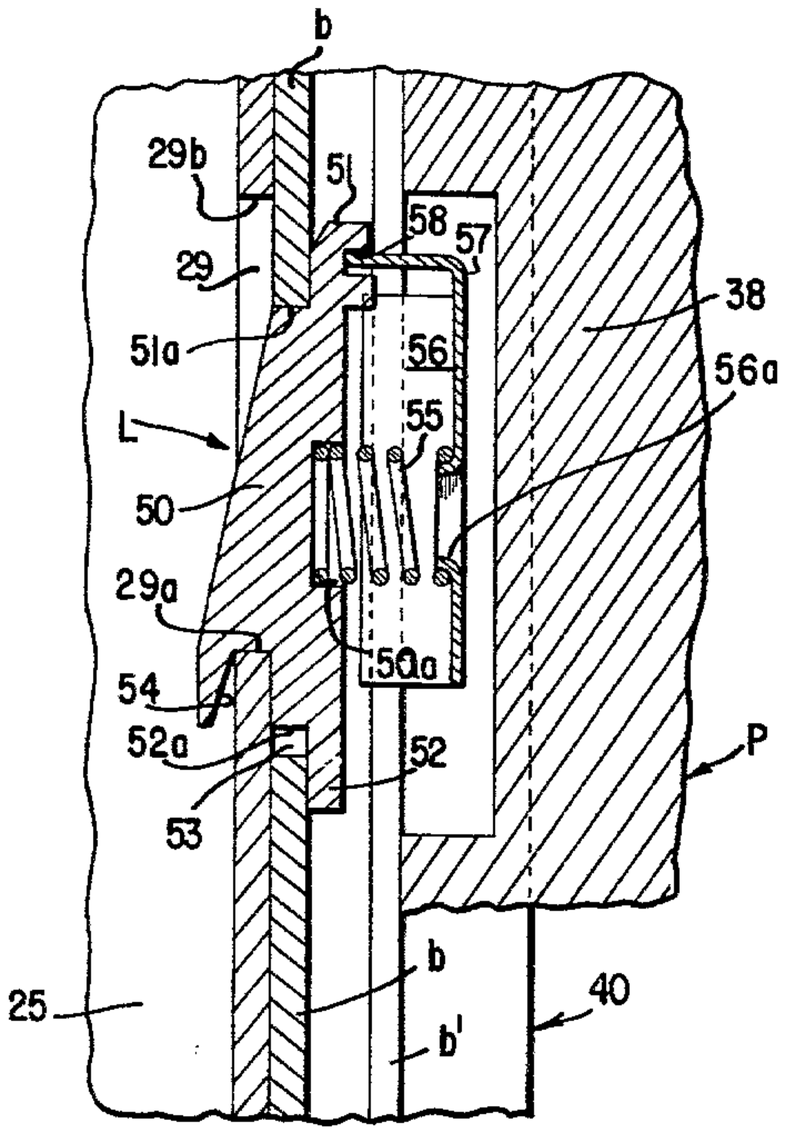


FIG. 6



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DEMOUNTABLE SECTIONAL PARTITION

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FIG. 7

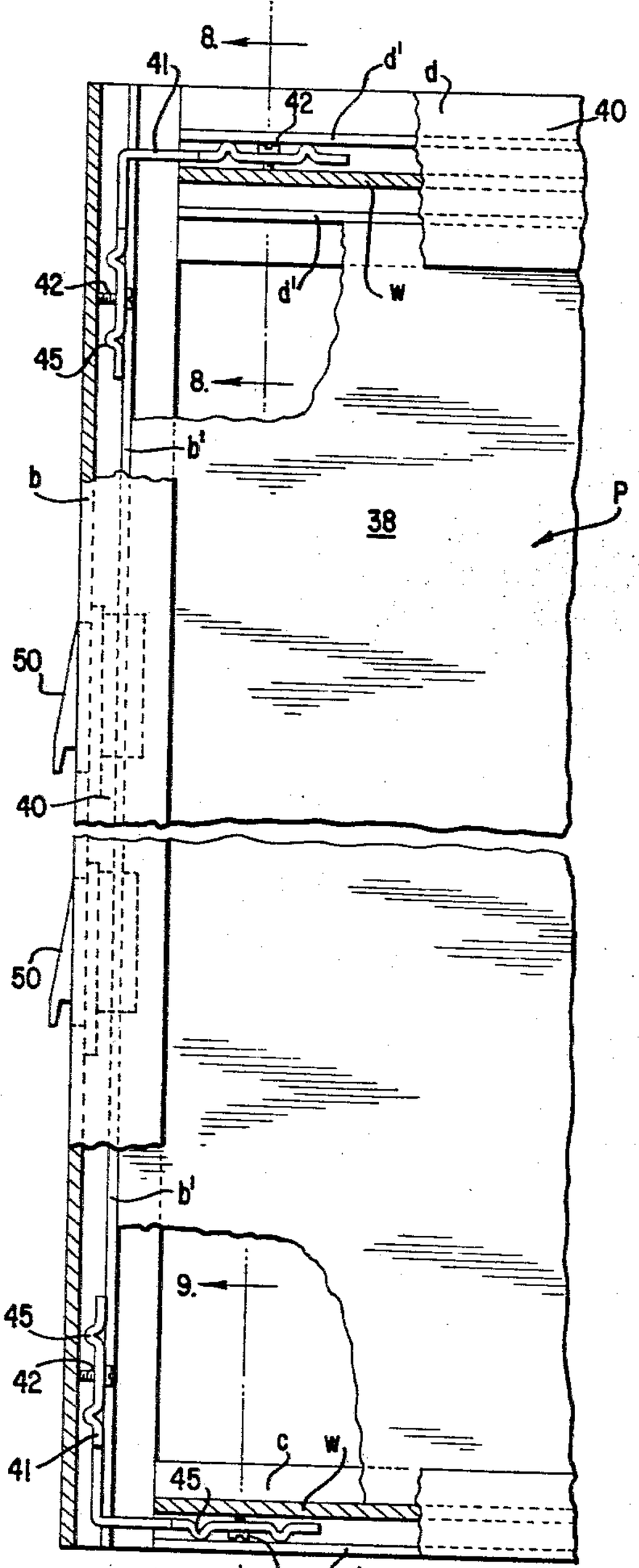


FIG. 8

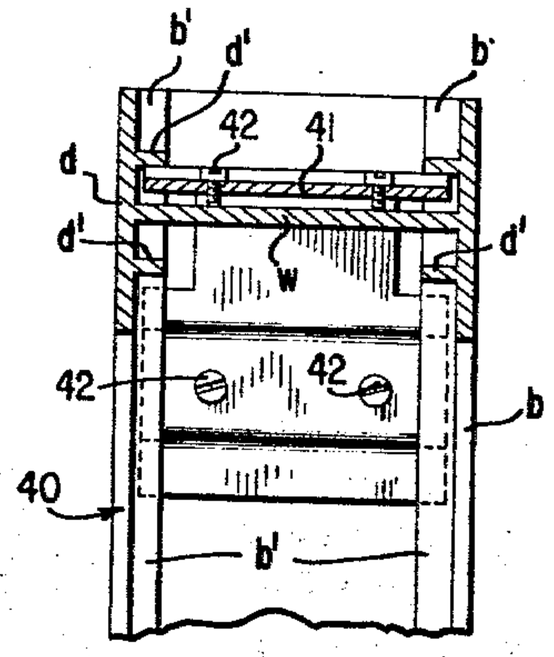


FIG. 9

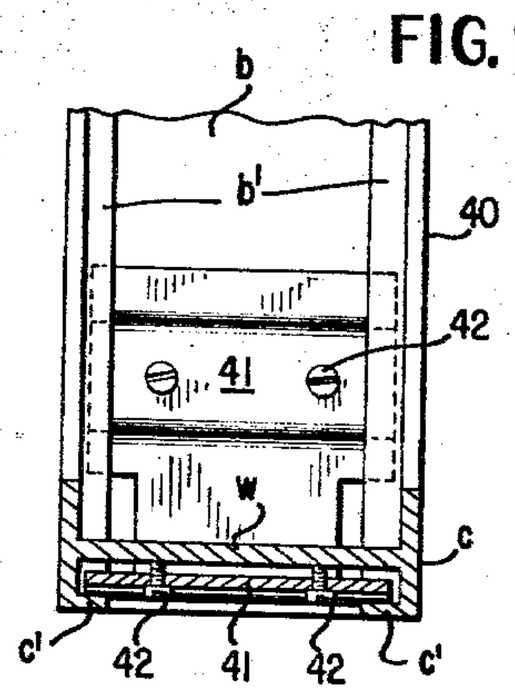
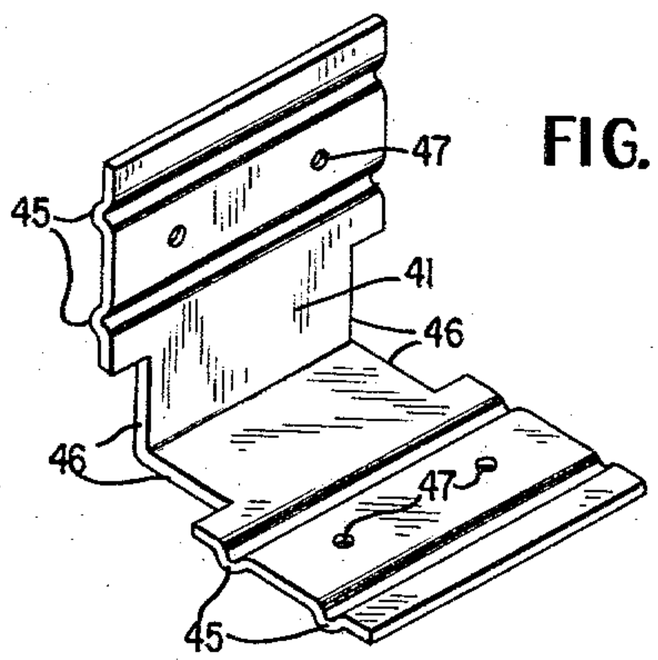


FIG. 10



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United States Patent Office

3,180,459

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3,180,459

DEMOUNTABLE SECTIONAL PARTITION

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Filed June 12, 1962, Ser. No. 201,954
5 Claims. (Cl. 189—34)

The present invention relates to an improved partition construction, for dividing a floor area into separate rooms and/or separate cubical spaces or the like, which construction is characterized by its simplicity and the ease with which it permits the partition to be erected, dismantled and/or modified at any desired portion thereof.

Hitherto, various similar partition constructions have been proposed, but these, for the most part, have been of the progressive type where each panel is interlocked with the adjacent panel or to a supporting post or column in a manner which does not permit removal or replacement of the individual panels independently of another without disassembling the whole or a substantial portion of the partition.

The main object of this invention is the provision of an improved relatively inexpensive partition of simplified, yet sturdy, construction, comprising an assembly of preformed interfitted units, including alternate supporting posts and panels releasibly interlocked, which permits any tier of panels to be removed or replaced, or the partition arrangement to be modified, without dismantling or removing any adjacent tier of panels; and, which, further, permits the partition assembly to be erected on the site, where it is to be used, or to be modified by maintenance personnel instead of skilled carpenters or metal-workers.

A particular object of the invention is the provision of a partition having the features just defined, that may be of different types—i.e. including rail-high, bank-high, cornice-high or floor-to-ceiling-high—by the use of basic structural aluminum extruded components, solid and/or glazed panels, or a combination of both, and various fasteners, these various items being converted to form the various types of sturdy partition assemblies.

Another object of the invention is the provision of an improved latch means carried mounted in the side channels of each partition panel-frame and normally biased outwardly therefrom to project into and engage in spaced openings on the opposing faces of adjacent supporting posts to firmly hold its panel in place, ensuring a tight joint between the adjacent posts and the panel and, at the same time, providing the optimum of vertical support for the panel. The latch means is so designed that removal of the panel is achieved by raising it slightly and withdrawing it laterally from between the adjacent components of the partition system; and the panel may be replaced by a reverse order of movements.

Various other objects, advantages and meritorious features of this invention will become apparent from the following description.

The invention resides in the sundry details of construction and the novel arrangement or organization more fully described herein as this specification proceeds and by which these objects and advantages are attained.

In the accompanying drawings, which illustrate the invention in its several embodiments as now devised:

FIGURE 1 is a front elevation of a six-panel cornice-high partition constructed in accordance with the present invention, the four panels to the right being closed to the ceiling by filler-panels and being closed at the base of the partition, while the two panels at the left of the partition are only cornice-high and open at the base of the partition;

FIGURE 2 is a front elevation of another type of partition construction with the components of and in accordance with the present invention and is composed of

(from left to right) a rail-high section, a low bank-high section and a taller bank-high section, all being open at their bases;

FIGURE 3 is a fragmentary perspective view of the taller bank-high partition constructed in accordance with the present invention;

FIGURE 4 is an enlarged transverse sectional view through the partition of this invention taken substantially on line 4—4 of either FIGURES 1, 2 or 3 and illustrates certain details of the construction of a partition panel, of its supporting posts and of the latch means removably binding and supporting the panels to said posts;

FIGURES 5 and 6 are sectional views taken substantially on line 5—5 and line 6—6, respectively, of FIGURE 4 to illustrate the detail of construction and the manner of mounting the latch means in the panel frame, as well as the manner the latch means cooperates with the supporting posts;

FIGURE 7 is a fragmentary elevation of a so-called "solid core" partition panel, in which portions have been broken away to illustrate the manner the core is framed, the manner the frame members are secured together and the position of the latch-means for securing the same to supporting posts;

FIGURES 8 and 9 are sectional views taken substantially on line 8—8 and line 9—9 of FIGURE 7, respectively, to show in detail the corner clips which secure the extruded panel framing members together;

FIGURE 10 is a perspective view of the corner clips for holding framing members together.

The several arrangements of partitions, illustrated in FIGURES 1, 2 and 3, have been selected to indicate the versatility of the structural components which constitute the present invention and which comprises essentially spaced posts 25 supporting panels P releasibly latched, as at L, to and between them. As shown, these panels P may be of various heights, may be of the opaque-solid type or of the glazed type or a combination of both, may have open bases (as shown in FIGURES 2 and 3) or closed bases or a combination of open and closed bases (as shown in FIGURE 1) may be rail-topped 60 or cornice-topped 61, may have filler-panels 70 with glazed or opaque sections extending from the cornice 61 to the ceiling and, further, may be provided with a door-frame 80 and door 81.

Since an important feature of this invention is the provision of a sturdy partition that is relatively inexpensive to manufacture, as well as to erect, remove or modify by unskilled personnel and requiring few, if any, exposed screws or fasteners for fastening or holding the component parts together, all of said component parts, except the panel cores, doors and their hardware, supporting-post pedestals, coil springs and screws, are provided from appropriate lengths of framing members of different cross-sectional shapes of extruded aluminum (normally called "shapes" in the industry) of proper thickness, so as to be rigid, and of dimensions to interfit one with the other in a telescopic overlapping manner as will give rigidity to the structure when assembled. These extruded members may be satin-anodized or have their outer exposed surface coated with a suitable pigmented coating and all are designed to accommodate electrical or telephone wiring within them. Such a construction requires few screws that may be readily tapped through the material, and those that are required are merely for retaining parts in position and are usually located at inconspicuous places which will not be observed.

The posts 25, which are rectangular (preferably square) in cross-section, are formed from two lengths of a single extruded L-shape *a* (see FIGURES 1, 2, 3 and 4), the inner side-face of one flange of said L-shape being formed with a dove-tail groove 26 along its free

marginal edge portion, and the inner side-face of the other flange of said L-shape being formed with a right angularly projecting rib **27** having a dove-tail projection **28** extending along the outer face of said rib and complemental with the groove **26**. Thus, two lengths of the shape *a* may be positioned so that their dove-tail projections **28** will slide longitudinally into the dove-tail grooves **26** with a tight fit to provide each rectangular post **25**. This is a very inexpensive and facile way of forming the hollow posts **25**, which must be punched on its several faces at intervals of from 12" to 18" apart to provide "keeper-opening" **29** to receive and retain the latch-means of the panel P.

The lower ends of the posts **25** are preferably supported on pedestals **35**, which are suitably adjustable for the purpose of levelling the partition, due to irregularities in the floor or other supporting surfaces and, further, to afford a broad foot means for anchoring the posts against lateral movement.

The partition panels, particularly the main panels generally designated P, carry in each of their side edges the spring-loaded latches L by which the panels are releasibly supported and held in firm abutting connection with the adjacent posts **25** and are insertable and removable from the posts by a simple relative longitudinal sliding movement.

These panels may be of solid opaque material, as panels **38** in FIGURES 1, 3 and 4, or of a combination of solid opaque and translucent material, as panels **39** in FIGURES 2 and 3, or entirely of translucent material, but, in any case, the panel-material is rimmed by a rectangular frame **40** which releasably supports the panel-material and which detachably connects the panel-material to posts **25**. The solid panelling material may be constructed of sheet material about 1⅜ inches thick, and consists of wood veneer or standard wood-fiber hardboard bonded to each side face of a sound insulating core. The face of the hardboard may also be finished with selected photographic wood-grain finishes or with alkyd enamel or lacquer or other suitable coatings. The panelling material may also be of glass, fiberglass or other polyesters which may be either transparent or translucent.

The panel-frames **40** for each panel P, having a single panel section (either "solid" or "glazed"), comprises two lengths of a channel or U-shape metallic extrusion *b*, one length of an H-shape metallic extrusion *c* of about the same width as the frame-member *b* and one length of a wider H-shape metallic extrusion *d*, the frame members or extrusions *b*, *c* and *d* being of a length as will form a rectangular frame, when assembled as shown in FIGURES 1, 2, 3, 4 and 7. Should the panel comprise both a "solid" section and a "glazed" section (as shown in portions of FIGURES 1, 2 and 3), then the panel-frame **40** will require another length of the H-shape extrusion *d*, as shown in FIGURE 12, in addition to those just mentioned.

The U-shape extrusion *b* is formed with a rib *b'* projecting laterally inwardly from an immediate portion of each of its legs for a distance and in substantially the same plane as to be spaced from each other and from the bottom or close-side of the U-shape channel-like member. The ribs *b'* provide abutment surfaces against which corner clips **41** react. The wide H-shape extrusion *d* is similarly provided with ribs *d'* on both sides of medial connecting web *w* and the narrower H-shape member *c* is formed with similarly spaced and inwardly extending ribs *c'* along one pair only of correspondingly spaced edges, as shown in FIGURES 4 and 7.

In framing "solid" panel-material **38**, as particularly shown in FIGURES 7 to 10, the open channel side of a length frame-member *c* and *d* are applied to the bottom and top edges, respectively, of the panel-material to fittedly embrace said material which extends for a considerable distance into said channels and abuts the web *w* of frame-member *c* and the ribs *d'* of the frame-member *d*. Then, one leg of a right-angular corner clip **41** is inserted for a measured distance into each end of two lengths of frame-members *b* with said leg lying within the passage between the ribs *b'* and the bottom of the channel-shaped frame-members *b*, and fastened in position by screws **42**. One or more screws **42** are threaded through the legs of the clip **41** to bear against the bottom of the channel or web *w* of said frame-members *b*, *c* and *d* and, thus, bind the legs of the clips **41** against the adjacent rib *b'*, *c'* or *d'*. The open channel side of these two frame-members *b* are then fitted to each side edge, respectively, of the panel-material until the latter abuts the ribs *b'*, while the other leg of the clip **41** projects into a passage between ribs *c'* and *d'* and the webs *w* of the bottom and top frame members *c* and *d*. When the four frame-members are firmly in position with all joints square and in contact, the screws **42** on the leg of the clip extending in the frame-members *c* and *d* are tightened to bind the clips thereto and form a firm panel.

The right-angular corner clips **41** are stamped from an extruded L-shaped bar of aluminum, each leg being formed with a pair of spaced reinforcing ribs **45**. The width of each clip **41** is at least greater than the distance between the abutment rib *b'*, *c'* and *d'* for the purpose above indicated. In stamping out the clips **41**, their side-edges are notched or reduced for a distance on both sides of the angle, as at **46**, to permit this portion of the clip to extend through the spaces between the spaced abutment ribs *b'*, *c'* and *d'* and, thus, allow the position of the clips to be adjusted as may be required with respect to the frame-members *b*, *c*, and *d*; and, at the same time, openings **47** are provided in the areas between the reinforcing ribs **45** to receive the self-tapping screws **42**.

It will be noted, particularly from FIGURES 4, 6 and 7, that the flat bottom wall of the channel-shaped side frame-members *b* are outmost at the side edges of the panels P, so as to present a flat smooth extended bearing-surface against the similar flat surface of the adjacent panel-supporting posts **25** to provide a firm connection with the posts when the latches L are engaged therewith.

The latches L are positioned in and along the side frame members *b* of the panels P about 12 to 20 inches apart and are of a very simple and improved construction which may be adjusted as required and permits the panels to be firmly connected to the supporting posts **25** and disconnected therefrom by a movement longitudinal of the posts and while in contact with the posts. Hence, a panel can be inserted into supported latched position and removed from that position without moving or disturbing the two adjacent posts which support a panel.

Each latch L comprises a detent **50**, which, in elevation, is a severed section of an extruded aluminum bar having the cross-sectional shape or configuration shown in FIGURE 6. When so severed, the detent **50** comprises a rectangular body of less thickness than width. The front face of this detent body **50** is rabbetted across two opposite marginal edge portions to form upper and lower stop-flanges **51** and **52**, respectively, projecting beyond adjacent shoulders **51***a* and **52***a* extending at right angles to said flanges and of a thickness or height corresponding to the thickness of the edge of the opening **53** in the frame-member *b*.

The area of the outer front surface of the detent **50**, between the shoulders **51***a* and **52***b* and projecting beyond the plane of these shoulders, is canted or beveled upwardly to the upper shoulder **51***a*, thus giving a nose-like profile to the detent **50** as can be clearly seen in FIGURE 6. The underside of this nose-like projection is formed with an inverted groove **54** between its tip and the shoulder **52***a* and extending parallel with the latter and offset upwardly from it. As seen in FIGURE 6, the width of the bottom of the groove **54** corresponds to the thickness of the edge of the keeper-openings **29** in the post **25**, which co-act with the detent **50**, and the anterior wall of the groove **54** converges to the bottom wall of said groove while its posterior wall is at right angles to the shoulder

52*a* to lie flush with the outer surface of the side frame-member *b*, when in its normally projected position.

Also, as can be clearly seen from FIGURES 4, 5 and 6, each detent **50** is mounted in an opening **53** in the closed or bottom wall of the channel-shaped panel-frame member *b*. The area of the nose-like portion of the detent between the shoulders **51***a* and **52***a*, which extends into and through the opening **53**, is dimensioned to substantially fill said opening **53** with just enough clearance to allow the detent to fulcrum at its upper end and with the stop-flanges **51** and **52** engageable with the marginal edge portions of the opening **53** to limit the outward movement of the detent through said opening. It is preferred that the openings **53** and the detents **50** be as wide as possible to provide large bearing surfaces at **41***a* and **29***a* to afford stability against flexibility of the interconnection between the panels P and the posts **25**.

The detent **50** is yieldably held in position by a helical compression spring **55** interposed between the detent and retainer plate **56** positioned in back of the detent and spanning the abutment rib *b'* of the panel side-frame member *b*. The intermediate portion of the plate **56** is offset outwardly and projects between the abutment ribs *b'* to provide a seat **56***a* for one end of said spring opposite the groove seat **50***a* in the detent **50** and between which the spring **55** reacts. The retainer plate **56** has a finger **57** extending from an edge of its offset portion and projecting loosely into a narrow slot **58**, extending across the upper end of the back face of the detent **50** to positively retain it in operative position when fulcruming. The retainer plate **56** is held firmly in position by screws **59** which are threaded in the plate **56** and bearing on the frame member *b* to move the ends of the plate **56** in binding engagement with the abutment ribs *b'*.

In order to firmly set a panel P in place between two properly positioned supporting posts **25**, it is only necessary that the panel be inserted between the posts with their detents **50** depressed against the bias of their springs **55** to lie entirely within the opening **53** in the panel side-frame member *b* and positioning the panel so that the detents will be an inch or so above the keeper-openings **29** of the posts which the respective detents **50** are to engage. Hence, the detents will remain depressed within their openings **53** by engaging against the side surfaces of the posts; and, then, by sliding the panel downwardly and longitudinal of the posts—after having aligned the panel with the posts—the detents will be brought opposite the keeper-openings **29** in the posts and will then be projected into the said keeper-openings by the spring **55** with the shoulders **51***a* and **52***a* lying in alignment with the edges of the openings **53**; and, as the panel moves further downwardly, the edge **29***a* of the keeper-openings **29** will enter the slot **54** and become seated at the bottom of the slot **54**, thus firmly and securely supporting and fastening the panels in position.

Should it become desirable to disconnect or remove a panel from position, it is only necessary to exert an upward force on the panels, which will cause them to slide upwardly and move the groove **54** of the detent out of engagement with the keeper-edge **29***a*; and further upward movement will cause the edge **29***b* of the keeper-openings **29** to engage and ride upon the beveled or canted surface of the detent **50** depressing the detent into its retainer-opening **53** and fully within the confines of the panel; whereupon, the panel can be moved from between the posts and may be reinserted in the reverse manner.

Rail-high and bank-high partitions, as shown in FIGURE 2, are usually finished or topped by an extruded shape forming a relatively thin cap-rail **60**, which is fitted over the top frame-member *d* of the panels P like a frictional flanged-lid. The cap-rail **60** is preferably of a length to extend over and cover the upper edges of all panels P and posts **25** on the same level.

Cornice-high partitions, shown on the left side of FIGURE 1 and in FIGURE 3, are capped by a cornice **61** of larger and bolder proportions than the cap-rail **60** and this is a length of extruded aluminum, forming a deep rigid channel in cross-section and thicker than the panels P and the posts **25**, to fit over and protrude laterally for a considerable distance beyond them. The outer face of the bottom wall of the channel has a pair of spaced and depending flanges extending lengthwise thereof to embrace and telescope over and against the outer side walls of the top frame-member *d* of the panel framing **40** and of the posts **25** with a frictional binding fit, thus producing an intermediate offset-molding effect between the panel frame **40** and the outer face of the cornice **61**.

To convert a cornice-high partition into a ceiling-high partition, filler or transom panels **70** (FIG. 1) are inserted between the cap-rail **60** or the cornice member **61** and ceiling-seal strip **66**, which is secured against the ceiling, and between the stiles **68**, which in effect form vertical extensions of each post **25**.

From the above description of the several forms of partitioning that can be effected in accordance with applicant's present invention, it will be noted that the panels can be readily assembled in position between said posts and any of said panels can be removed readily and individually from assembled position without disturbing the remainder of the partition construction and that the paneling material is always protected by the metal frame which carries the weight of the panels all of which may be assembled very quickly with the assistance of unskilled help to form a rigid, sturdy partition structure.

Having thus described the invention, in the manner in which the same is to be performed, it is understood that the invention is not limited to the exact construction herein defined and illustrated, but may be modified and/or varied within the scope of the appended claims.

That which is claimed, as new and to be secured by Letters Patent, is:

1. A demountable partition structure comprising alternating partition panels and supporting posts detachably connected thereto, the adjacent posts and panels having substantially flat side surfaces of predetermined width in abutting face-to-face engagement; latch means at spaced intervals along said opposing surfaces, each of said latch means including a detent movably mounted in and normally biased to project for a limited distance through a retaining opening in one of said opposing surfaces and being depressible into said retaining opening to permit said opposing surfaces to be brought into engagement; a keeper-opening in the other of said surfaces receiving said detent therein, said detent having a latching part fitting over an edge of the keeper-opening and supporting and firmly holding the panels to the posts and having a camming surface to engage an opposite edge of the keeper-opening and depress the detent within its retaining opening, upon the reverse relative movement of said posts and panels, for disconnecting the panels from its supporting post or posts.

2. A demountable partition structure comprising a plurality of spaced supporting posts, panels disposed between the posts, the adjacent posts and panels having substantially flat side-by-side abutting surfaces of predetermined width to provide substantial bearing area; a plurality of latch means disposed at spaced intervals along said opposing surfaces releasibly connecting said posts and panels together, each of said latch means including a yieldably mounted detent within a side edge portion of its panel and normally projected through an opening in said abutting surface thereof, and being depressible wholly within the confines of said panel, means limiting the projection of said detent through said opening, a keeper-opening in said surface of the post for each detent receiving said detent therein, said detent being projected in said keeper-opening by its bias and having a grooved surface straddling an edge of the keeper-opening that supports the panel on the post and binds their abutting surfaces together, said grooved surface

being brought into engagement with the lower edge of said keeper-opening, when said surfaces of the post and panel are moved relatively and longitudinally with respect to each other, and having a camming surface to engage an opposite edge of the keeper-opening for depressing said detent within the confines of the panel upon a reverse movement of said members, whereby the panel may be disconnected from the posts.

3. A demountable partition structure comprising alternating partition panels and polygonal supporting posts, the said panels being disposed between said posts and detachably connected thereto, each panel including a selected panelling-material and enclosed in a rimming metal frame, the side members of said rimming frame having substantially flat edge surfaces of substantial width and outwardly spaced from the panelling-material and engaging face-to-face with a face of said posts, said flat edge surfaces having openings therein at spaced intervals along their lengths; a rigid detent member disposed in each of the spaces between said rimming frame and said panelling-material and having a portion projecting through one of said openings in the rimming frame and having stop members engaging the edge of the opening to limit the outward movement of the detent through said opening; a retainer plate adjustably mounted in each of said spaces and a compression spring seated between the retainer plate and the detent normally urging the detent through said opening; a keeper-opening in said surface of the post for each detent receiving said detent therein, said detents being projected into said keeper-openings by their bias, said detents, each having a grooved surface straddling an edge of the keeper-opening that supports the panel on the post and binds their abutting surfaces together, said grooved surface being brought into engagement with the lower edge of said keeper-opening, when said surfaces of the post and panel are moved relatively and longitudinally with respect to each other, and having a camming surface to engage an opposite edge of the keeper-opening for depressing said detent within the confines of the panel upon a reverse movement of said members, whereby the panel may be disconnected from the posts.

4. A partition structure set forth in claim 3, further characterized by the retainer plate having a finger projecting toward one end of the detent and loosely engaging in a slot therein providing a fulcrum for the detent when the same is depressed and holding the detent in position with respect to its retaining opening.

5. A demountable partition structure comprising alternating partition panels and supporting posts detachably connected together, each panel including a portion of a panelling-material enclosed in a rimming metal frame, said rimming frame including lengths of rigid channel-shaped metal having their channeled faces receiving and embracing the edge portions, respectively, of the panelling-material and concealably and detachably connected together, latch means located at spaced intervals along the vertical side members of said rimming frame engaging in keeper-openings in said posts holding the panels firmly to the posts, each latch means including a outwardly spring-pressed detent mounted in a retaining-opening in said side frame members and depressible within said opening against its bias, and a camming surface on said detent to engage with an edge of said keeper-opening, when the panel is moved relative to the post in one direction, for depressing said detent and releasing said panel therefrom.

References Cited by the Examiner

UNITED STATES PATENTS

443,322	12/90	Kinnear	189—87
559,335	4/96	Kindl	189—41
842,330	1/07	McCormick	50—80
983,673	2/11	Boyer	189—41
1,506,442	8/24	O'Hara	189—36
1,565,309	12/25	Daykin et al.	189—36
2,048,153	7/36	Wollaeger	189—85
2,057,204	10/36	Peck et al.	189—85
2,380,692	7/45	Gunnison	50—80
2,714,432	8/55	Blanchard	189—78
3,031,049	4/62	Somville	189—78
3,047,112	7/62	Tvorik et al.	189—87

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