United States Patent

Pollock

[15] **3,694,975**

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[54] **PARTITION STRUCTURE**

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[52] **U.S. Cl.** **52/36**

[51] **Int. Cl.** **A47b 5/00**

[58] **Field of Search** 52/36, 6, 29, 716

[56] **References Cited**

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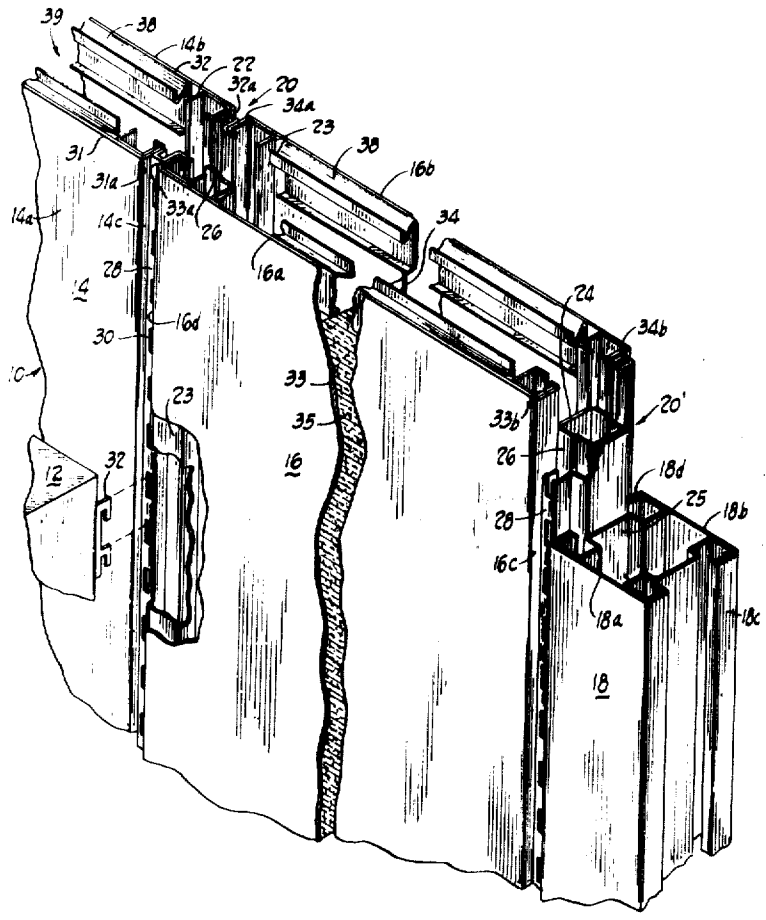
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[57] **ABSTRACT**

Partition structure including two upright members secured together along adjacent vertical edges. A narrow member forms a part of a juncture between said upright members and extends between the vertical edges thereof, recessed from opposite faces that form major surfaces of the partition structure. The narrow member includes two inwardly facing channel portions, each having a flat vertical wall portion parallel with the major surfaces of the partition structure and extending between vertical edges of the upright members. A plurality of vertically aligned apertures extend through one or both of said vertical wall portions of the narrow member to receive support brackets, mounting clips, or the like for securing shelving, cabinets, panels, or the like, to the partition structure.

7 Claims, 8 Drawing Figures



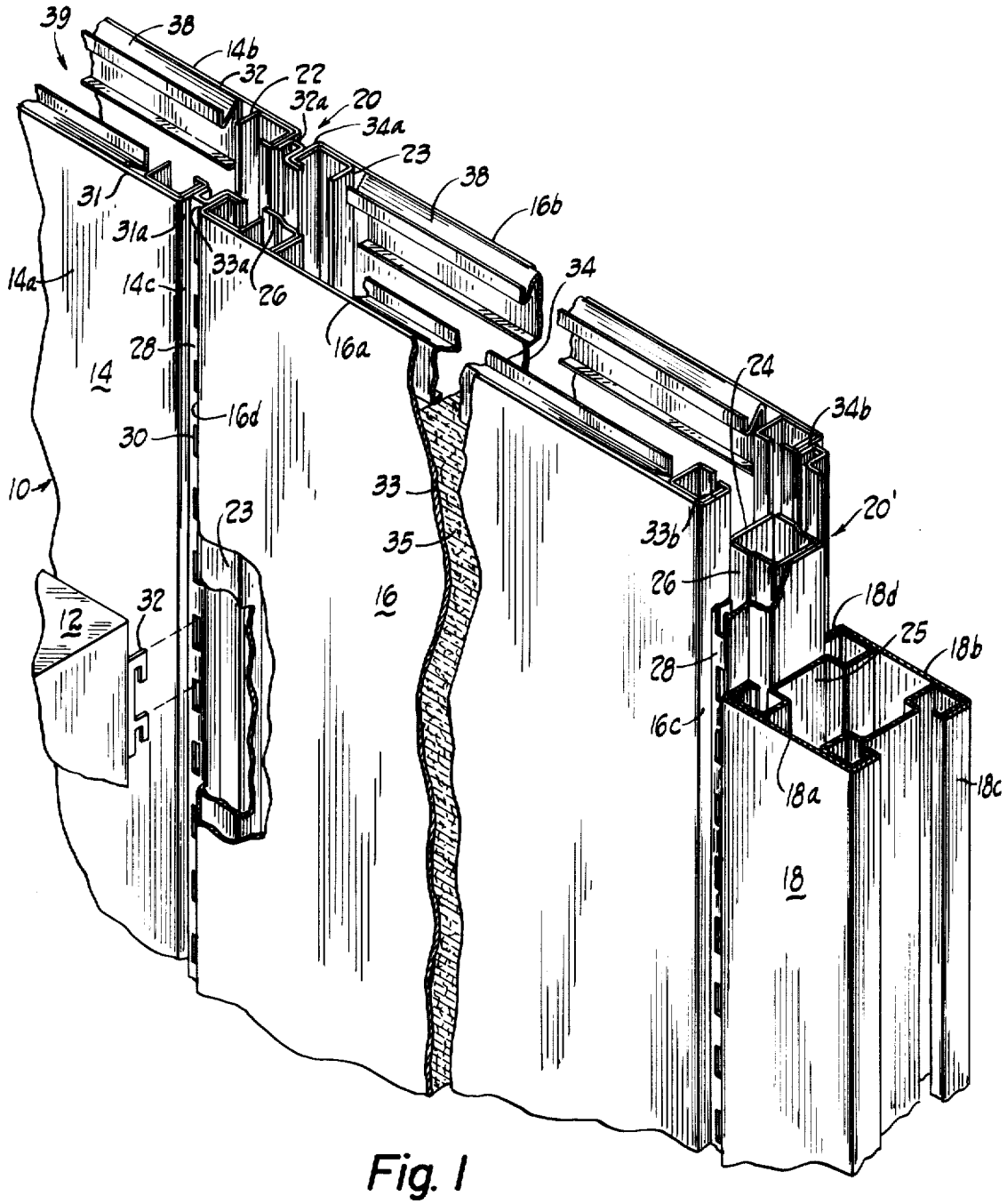


Fig. 1

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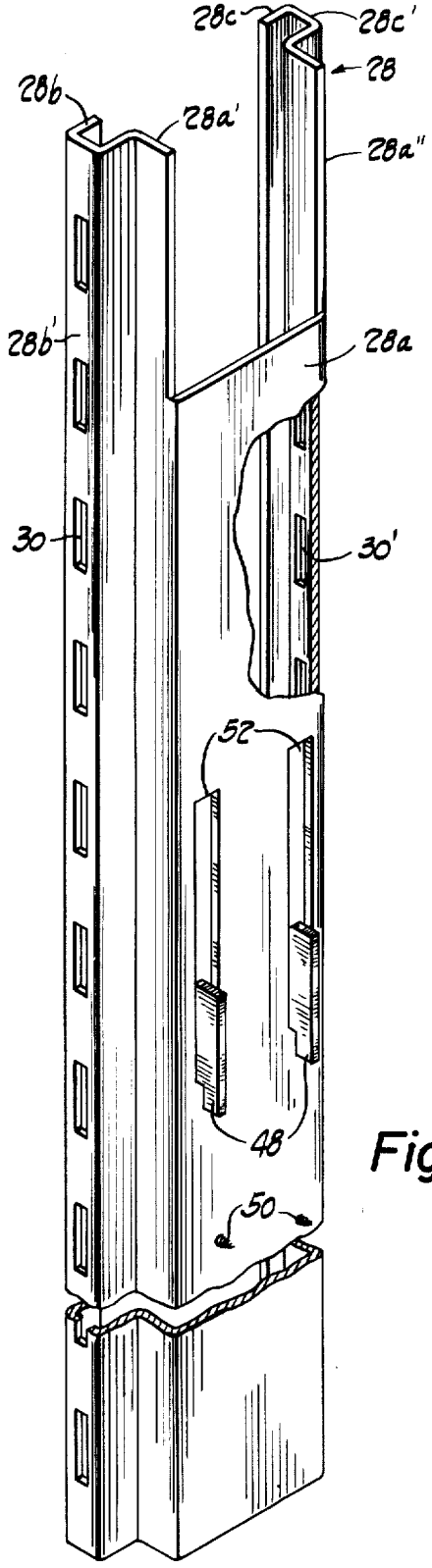


Fig. 2

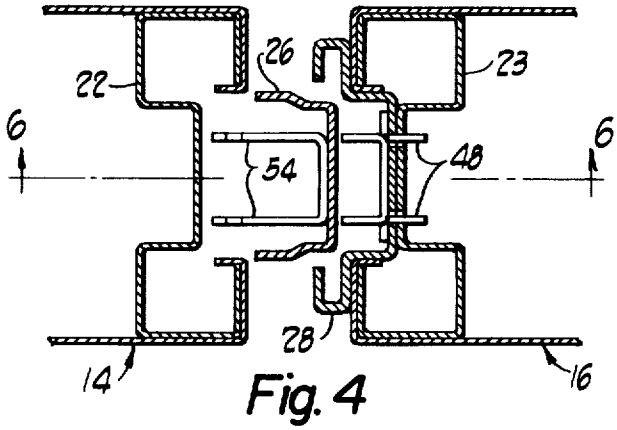


Fig. 4

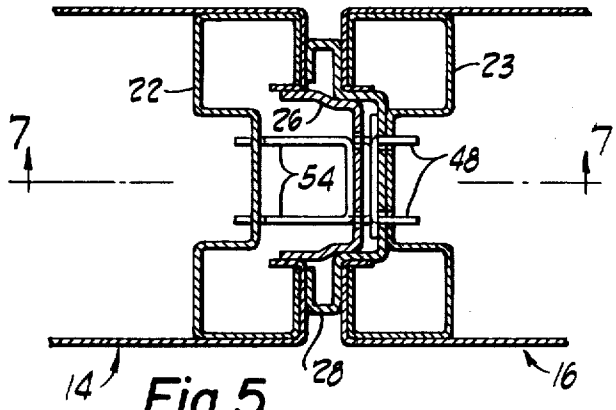


Fig. 5

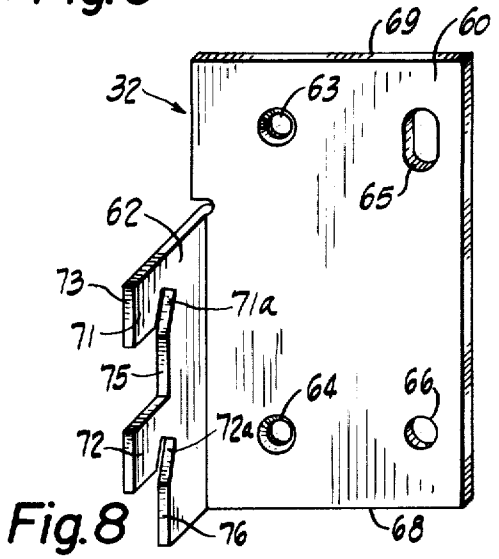
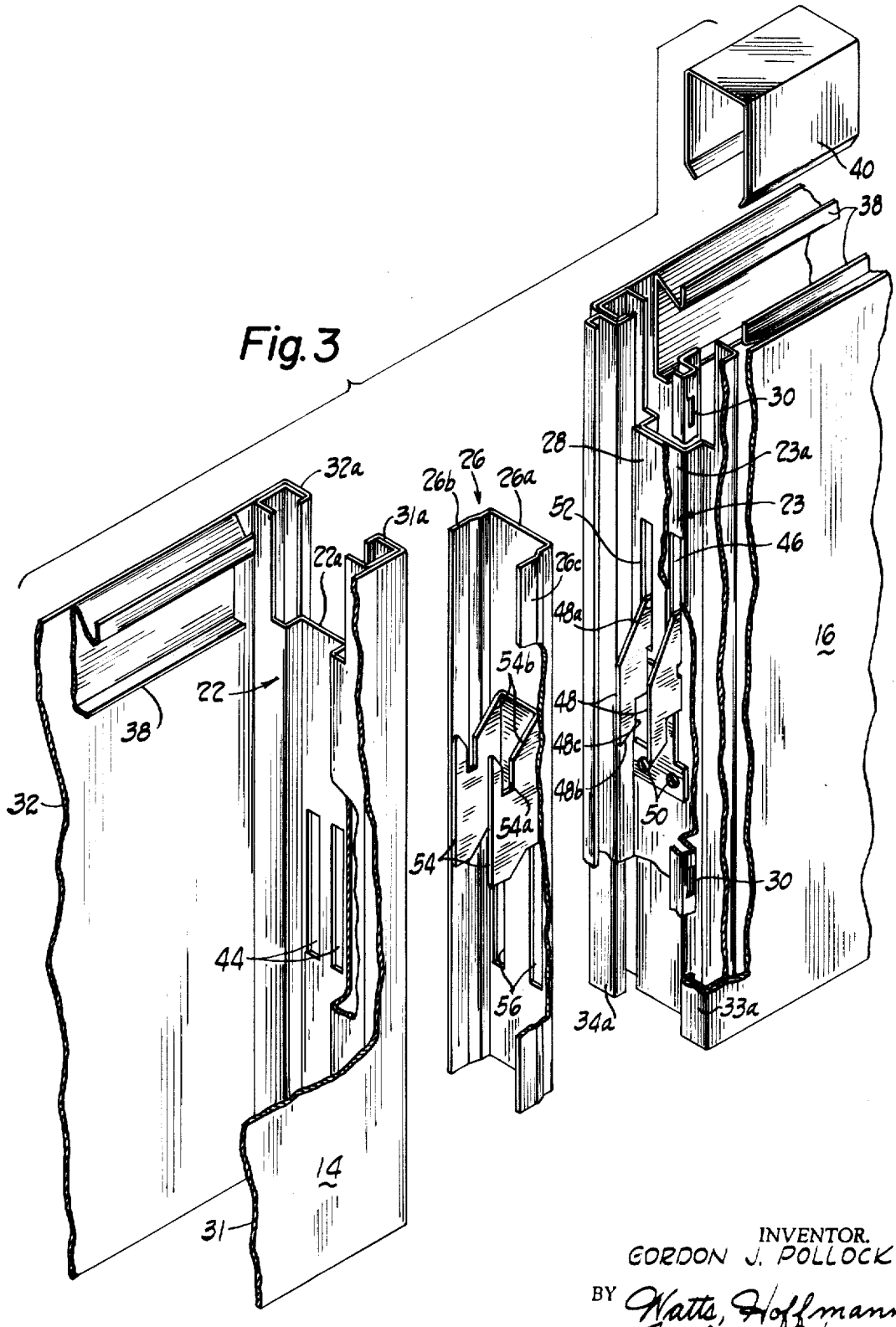


Fig. 8

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Fig. 3



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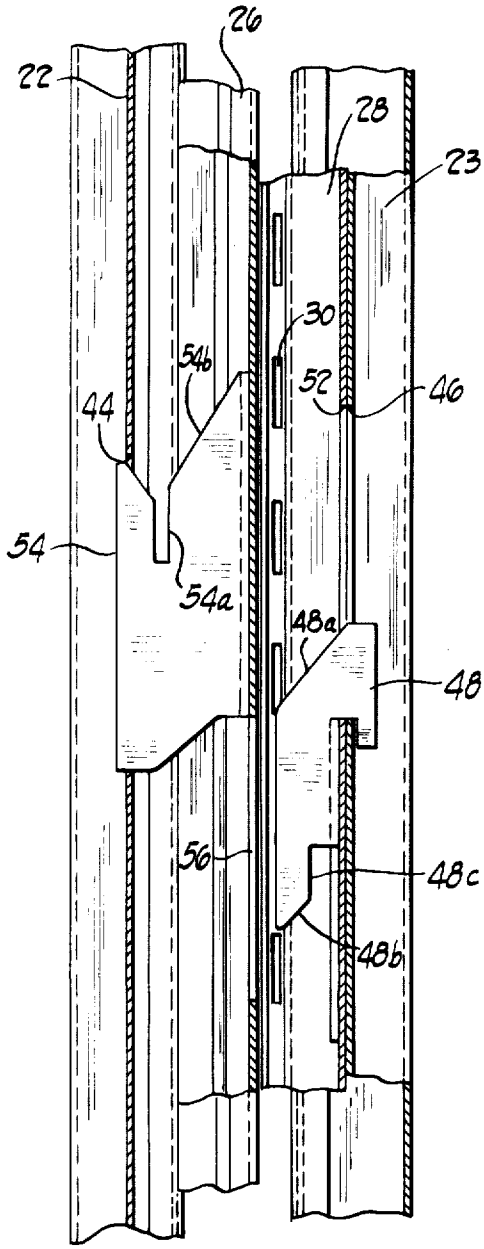


Fig. 6

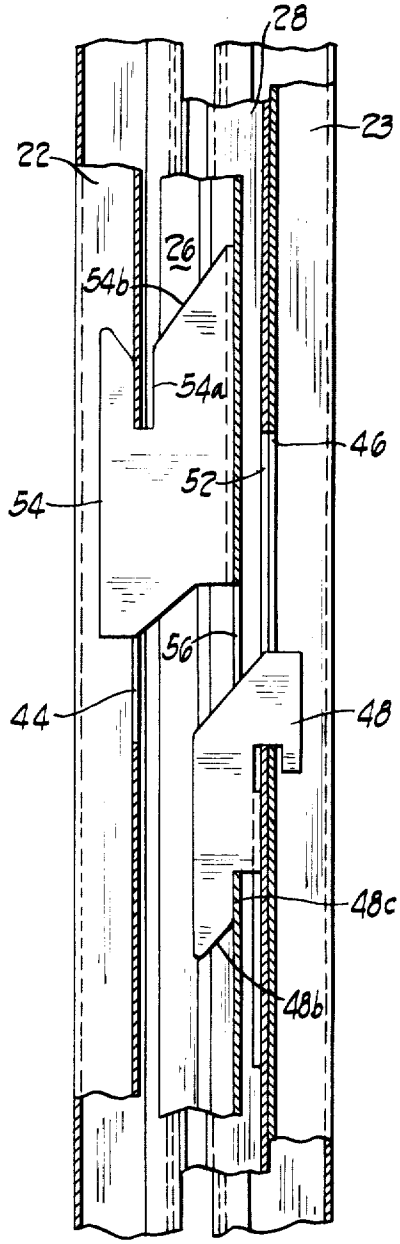


Fig. 7

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PARTITION STRUCTURE

BACKGROUND OF THE INVENTION

1. Field of the Invention.

This invention relates to partition structures, especially partition structures that can be readily disassembled and relocated, often referred to in the trade as "-movable" walls or partitions.

2. Description of the Prior Art.

Partition structures such as panel assemblies and the like are used to divide areas, especially within buildings, to form, for example, offices, classrooms, and the like. Partitions of the so-called movable type that can be disassembled and relocated are comprised of panels, posts, etc., and are typically connected together in particular combinations and arrangements to divide a given space in the manner desired. Many modern partition-forming members are metal, filled with insulation and prefinished in a desired color, pattern, or texture. It is at best difficult to attach articles, such as shelves and cabinets, to metal panels and in many cases attempts to do so result in substantial damage to the panel finish or structure or to other members forming the partition. Separate mounting plates, strips or the like have been proposed for attachment to surfaces of such panels to facilitate the securing of articles, but the need to attach such separate members is itself a disadvantage and represents an additional expense. Furthermore, the result is often unattractive. A definite need exists for an attractive partition structure that readily and inherently facilitates the support and attachment of items to the partition without the above-mentioned disadvantages.

BRIEF SUMMARY OF THE INVENTION

The present invention relates to partition structure that incorporates integral mounting means that will accommodate the attachment and support of a wide variety of articles such as cabinets, shelves, chalk boards, trays, tackboards, and the like. A principal feature of this invention is the incorporation of the mounting means into joint-forming structure between principal members that form a partition, for example, into structure that joins and/or is between adjacent panels or a panel and a support member.

In a preferred embodiment, a narrow member that appears externally as a vertical strip extends between partition-forming members, recessed from opposite faces. Opposite vertical edges of the narrow member, which are located adjacent opposite faces of the partition members, are channel shaped, open inwardly and provide a flat narrow wall or strip between the partition members, parallel and recessed with respect to the outer faces of the partition members. A plurality of vertically aligned apertures extend through at least one and preferably both of the flat narrow walls of the two channel shaped portions of the narrow member to receive support brackets, mounting clips, or the like used to secure cabinets, shelving, etc., to the partition structure. Where apertures are provided in both channel portions of the narrow member, support brackets can be secured on both sides of the partition. In the preferred construction, the narrow member is a single piece secured to an edge of one panel member at each joint and may be affixed either during fabrication or at the place of installation. If affixed at the place of installation it can be secured to either vertical edge of a panel member, which is reversible until the narrow member is affixed. In either case, the portions of the narrow member adjacent opposite faces of the joined partition members can be separate pieces individually secured in place, rather than part of a single narrow member, as in the preferred construction.

With the present construction, a convenient and attractive means is provided for securing structures or articles of various types to a partition structure without the need to affix separate mounting means or brackets thereto and without defacing or damaging the partition structure. By incorporating the supporting means into joints between partition-forming members, a selection of spaced locations is available for securing structures or articles to the partition structure without modifying existing panels or support members.

The above and other features and advantages of this invention will become better understood by reference to the detailed description that follows, when considered in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a partial perspective view of a partition structure embodying the present invention and illustrating by way of example a structure having a mounting clip adapted to be attached to the partition structure;

FIG. 2 is a perspective view with parts broken away of a combined juncture strip and support channel that forms a part of the joint structure of the partition structure of FIG. 1;

FIG. 3 is an exploded perspective view with parts broken away showing the structure forming the joint between two panels of the partition structure of FIG. 1;

FIG. 4 is a plan view of the joint structure shown in FIG. 3 illustrating the arrangement of the parts when two vertical edges of panels are adjacent, and prior to interconnecting the parts with a vertically movable spline;

FIG. 5 is a plan view similar to FIG. 4, illustrating the arrangements of the joint structure when a vertically and laterally movable spline is moved to lock the two panel portions together;

FIG. 6 is a sectional view taken along the line 6—6 of FIG. 4, illustrating the structure for latching the two panels together;

FIG. 7 is a sectional view taken along the line 7—7 of FIG. 5 and illustrating the parts as shown in FIG. 6, in a locking position; and

FIG. 8 is a more detailed perspective view of the bracket or mounting clip illustrated in FIG. 1 for securing a cabinet or board to the partition structure.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

Partition structure 10 embodying the present invention is shown in FIG. 1 and i specifically constructed with integral mounting means for accommodating the attachment and support of a wide variety of articles, such as cabinets, shelves, chalk boards, trays, tackboards and the like. A portion of a cabinet 12 is shown, by way of example, spaced from the partition structure for purposes of illustration, to indicate the manner in which articles can be attached to the struc-

ture. The partition structure **10** is preferably constructed of sheet metal, is prefinished, and portable, and is typically used to form internal walls of offices, schools or other buildings, to divide the interior into separate areas. Two wall-forming panels **14**, **16** and a support post **18** are shown to exemplify partition structure embodying the present invention, but it will be understood that other members, such as door frames, window panels and the like can also form a portion of the partition structure.

The partition-forming members, i.e., the panels **14**, **16** and the post **18**, are shown vertically or upright in the position in which they are installed, and typically rest on a supporting floor. The members shown are constructed to extend between a supporting floor and a ceiling, but alternatively the invention can be embodied in so-called "cornice high" partitions, which terminate short of the ceiling. Each of the members **14**, **16**, **18** has opposite parallel upright surfaces that form opposite walls of the partition. Thus, the panel **14** has a front surface **14***a* and a back surface **14***b*; the panel **16** has a front surface **16***a* and a back surface **16***b* and the post **18** has a front surface **18***a* and a back surface **18***b*. The front surfaces of each member lie in a common plane, as do the back surfaces. Each of the members **14**, **16**, **18** is constructed to be joined with another along at least one vertical edge and typically along two, as illustrated. Thus, a vertical edge **14***c* of panel **14** is positioned adjacent to but spaced from a vertical edge **16***d* of panel member **16**. Similarly, a vertical edge **16***c* of panel **16** is positioned adjacent to but laterally spaced from a vertical edge **18***d* of the post **18**. The opposite vertical edge **18***c* of the post **18** is, by way of example, adapted to be joined with another panel, not shown. Other post constructions may be used, for example, to form a corner and would facilitate joining a panel at right angles to the panel **16**.

Joint structure, indicated generally by reference numerals **20**, **20'**, is provided between the adjacent edges of the partition-forming members shown and incorporates interengageable parts for securing the members together. A part of the structure at the joint is constructed to accommodate attachment and support of articles, such as the cabinet **12**, shown. The joint structure **20** includes two vertical edge channels **22**, **23**, a vertically and laterally movable latching spline member **26** and a combination juncture or so-called "feature" strip and support channel **28**. The edge channels **22**, **23** are secured to and each forms an edge portion of the respective panel **14**, **16**. The joint structure **20'** between the panel **16** and the post **18** includes edge channels **24**, **25**, is identical in construction to the joint structure **20**, and need not be described in detail. The combined juncture strip and support channel **28**, shown in detail in FIG. **2**, spans the distance between the adjacent partition-forming members and is recessed from the planes of the opposite parallel surfaces, i.e., the planes of the surfaces **14***a*, **14***b*. A plurality of vertically aligned apertures **30** are formed in the support channel **28** for receiving mounting clips, such as the mounting clip **32** secured to the back of the cabinet **12**. The construction of the spline member **26** and the manner in which it cooperates with the other members of the joint structure to latch or lock the partition-forming members together, will be described in more detail subsequently.

The panel members **14**, **16** are prefabricated and made of sheet metal, such as steel. As best shown in FIG. **1** with respect to the panel members **14** and **16**, the opposite parallel surfaces **14***a*, **14***b* and **16***a*, **16***b* are formed by to metal sheets **31**, **32** and **33**, **34**, respectively. Each of the sheets terminates in a vertical edge channel portion. Two channel portions **31***a*, **32***a* at one edge of the panel member **14** are shown in FIG. **1**, as are channel portions **33***a*, **33***b* and **34***a*, **34***b* at opposite side edges of the panel member **16**. These channel portions engage the respective edge channels **22**, **23**, **24**, and suitably secure them to the sheet metal face members. Horizontal stiffeners (not shown) may be provided within each panel. Space between the opposite sheets **32**, **33** is occupied by an inorganic filler **35**. Top channels **38** are recessed into each panel along the upper edges thereof and provide an elongated opening **39**, that receives a ceiling channel **40** shown in FIG. **3**, adjustable in height. The lower end of each panel **14**, **16** is typically carried on a floor shoe (not shown) welded to the bottom of the panel.

Each of the vertical edge channels **22–25** is identical in construction, except for facing in opposite directions on opposite vertical edges of the panel members or post member, and only the opposed edge channels **22**, **23** shown in FIG. **3** and in part forming the joint structure **20** will be described in detail. Only a portion of the vertical length of the channels and associates panels is shown in FIG. **3**, and it will be understood that latching or locking mechanisms shown therein are provided at a plurality of locations along the vertical height of the members.

As shown, the edge channel **22** has a pair of laterally spaced, vertically extending, slots **44** in a transverse web portion **22***a* that spans the distance between the opposite wall-forming metal sheets **31**, **32**. The web portion **22***a* of the edge channel **22** is recessed from the vertically extending edge surface **14c** of the panel formed by the channel portions **31***a*, **32***a*. Edge channel **23** includes a pair of slots **46** in a web portion **23***a*, as shown in FIG. **3**, corresponding to the slots **44** in the edge channel **22**. Both pairs of slots **44**, **46** receive hook members associated with the joint structure **20**.

The combination juncture strip and support channel **28** is secured to one edge channel of a partition-forming member at a joint, such as to the edge channel **23** of the panel **16**. The channel **28** is formed by a main channel-shaped securing portion that includes a web **28***a* and two perpendicular flanges **28***a'* and **28***a''*, and two narrow, facing, channel portions **28***b*, **28***c* along each flange **28***a'* and **28***a''*, offset from the web **28***a*. The web **28***a* is adapted to fit against the web portion **23***a* of the vertical edge channel **23**, with one side of each of the facing channel portions **28***b* and **28***c* abutting the channel portions **32***a*, **33***a* of the panel **16**.

The support channel **28** is secured to the web portion **23***a* by the rear portion of a pair of hook members **48** (FIG. **2**) and by screws **50** (FIG. **3**) which also serve to secure the hook members in place. The rear portions of the hook members **48** extend through a pair of slots **52** in the web portion **28***a* of the support channel and through the pair of slots **46** in the edge channel **23**, which are aligned therewith. This is illustrated in FIGS. **6** and **7**, as well as in FIG. **3**. The hook members **48** each have an upper inclined surface **48***a* for clearance purposes, and a lower surface **48***b* inclined upwardly

and toward the web portion **28***a* that serves as a camming surface for the movable spline **26**. The latching portion of each hook member extends downward and is formed by a vertical surface **48***c* spaced outwardly from the web portion **28***a* of the juncture strip **28**.

The two facing channel portions **28***b*, **28***c* that extend along opposite sides of the web portion flanges **28***a'*, **28***a''* of the juncture strip **28** open inwardly toward each other, and have flat, parallel, transverse surfaces **28***b'*, and **28***c'*. The apertures **30** are formed in the surface **28***b'* and similar apertures **30'** are formed in the surface **28***c'*. As shown, these apertures are rectangular in shape, elongated vertically and spaced at equal intervals along the full height of the juncture strip **28**. The apertures may be provided in only one of the surfaces **28***b'*, **28***c'*, if desired, and are of a suitable shape to facilitate a desired construction of a mounting clip or the like. The rectangular shape utilized in the preferred embodiment shown is esthetically pleasing as well as functional. In a preferred embodiment, the transverse distance between the surfaces **28***b'* and **28***c'* is less than the transverse distance between the opposite surfaces **14***a*, **14***b* or **16***a*, **16***b* of the two partition-forming panels between which the juncture strip is located. As a result, the surfaces **28***b'* and **28***c'* are recessed with respect to the surfaces **14**, **14***b* and **16***a*, **16***b* of the associated panels. When the juncture strip **28** is secured to the edge channel **23**, the offset web portion **28***a* is received between the channel portions **33***a*, **34***a* of the panel **16** and is flush against the edge channel **23**.

The spline member **26**, which can be moved vertically and laterally with respect to the partition members being connected, is generally channel shaped, with a web portion **26***a* and two flange portions **26***b*, **26***c*. The flange portions **26***b*, **26***c* are received between the channel portions **31***a*, **32***a*. A friction fit is provided, which allows vertical and lateral movement of the spline member with respect to the edge channel **22** and channel portions **31***a*, **32***a*. The spline member **26** has a pair of hooks **54** secured to the web portion **26***a* and extending laterally in the same direction as the flange portions **26***b*, **26***c*. The hooks are positioned to cooperate with the slots **44** in the edge channel **22**. Vertically elongated slots **56** are formed in the web portion **26***a*, directly beneath the hooks **54** and cooperate with the hooks **48** of the juncture strip **28**. The hooks **54** project upward, being formed by upwardly open vertical slots **54***a* and have upper cam surfaces **54***b* that slope upwardly in a direction toward the web portion **26***a* of the spline member. The cam surfaces **54***b* cooperate with the upper edges of the slots **44** to move the spline member **26** laterally in response to upward movement relative to the edge channel **22**.

The manner in which the spline member **26** connects the panel members **14**, **16** can be best understood from FIGS. **4** to **7**. FIGS. **4** and **6** illustrate the two panel members **14**, **16** with the vertical edges **14***c*, **16***d*, abutting the channel portions of the juncture strip **28** and with the spline member **26** in a lower vertical position and laterally adjacent the edge channel **22**. The hooks **54** extend through the slots **44** of the edge channel **22** and the slots **56** of the spline **26** are opposite the hooks **48** of the juncture strip **28**. The spline **26** is movable vertically, as by the application of force to an end thereof. Upward vertical movement of the spline member **26** causes the inclined surfaces **54***b* of the hooks **54** on the spline member to move the spline member laterally away from the edge channel **22**, toward the juncture strip **28** and edge channel **23**. As the spline member moves in the direction indicated, to the right in the orientation of FIGS. **4** to **7**, the hook members **48** are received in the apertures **56** of the spline member. At the locations where the vertical surfaces **48***c* of the hook members **48** clear web **26***a* beneath the slots **56**, the vertical surfaces **54***a* of the slots **54** are aligned with the web portions **22***a* of the edge channel **22**. Further vertical movement of the spline member **26** is accomplished without further lateral movement. As a result, the hooks **54** move to a latching relationship with the web portion **22***a* and the web portion **26***a* of the spline member moves to a latching position with respect to the hooks **48**. This is shown in FIG. **7**. The spline member is retained in its upper position by the frictional engagement of the flange portions, **26***b*, **26***c*, with the channel portions **31***a*, **32***a* of the panel **14**.

The mounting clip or bracket **32** on the cabinet **12** is shown in detail in FIG. **8** and is comprised of a first plate portion **60** and a smaller connected plate portion **62** at right angles thereto. The larger plate portion **60** is adapted to be secured to the back surface of a cabinet or board and for that purpose is provided with a plurality of apertures **63**, **64**, **65**, **66**. Typically, only two apertures **63** and **64** or **65** and **66** are used, the former on boards such as chalk boards which have a limited border area for receiving screws and the latter for cabinets having a larger area for attachment. The elongated shape of the aperture **65** allows for a variation in screw spacing desirable for use on cabinets.

The smaller plate portion **62** is flush with a lower edge **68** of the plate portion **60** and terminates short of an upper edge **69**. In the preferred construction, the two plate portions **60**, **62** are part of a single plate and are bent to the right angle relationship shown. The small portion is die cut to form two hooks **71**, **72** at the distal edge **73**. The length of each hook along the distal edge is slightly less than the height of the apertures **30** or **30'** and the thickness is somewhat less than the width of the apertures to facilitate attachment and removal of the mounting clip or bracket and the associated cabinet or other article to a partition. Each hook **71**, **72** is in part formed by a recess **71***a*, **72***a*, respectively, that receives a part of the surface **28***b'* or **28***c'* of the juncture strip **28**. Substantially vertical edge surfaces **75**, **76** beneath the hooks **71**, **72**, respectively, rest against the surface **2***b'* or **28***c'* and hold the plate portion **60** spaced from the surface **28***b'* or **28***c'* a distance approximately equal to or slightly greater than the depth to which the juncture strip is recessed from the parallel face surfaces of the panels **14** and **16**. It will be understood that left and right hand brackets are provided at opposite side edges of cabinets, boards, or like articles so that the smaller plate portions are substantially flush with the side edge of the article and the larger plate portions extend laterally inwardly behind the article.

From the above description, it will be apparent that the combination juncture strip and support channel **28** provides an attractive mounting means that is integral

with the partition structure, forming a part of the juncture between adjacent panels or other members, is attractive in appearance, and will accommodate the attachment and support of a wide variety of articles. The structure will readily accommodate mounting apertures on one or both sides of partition structure, completely eliminate the need for attaching separate mounting strips, plates or brackets to the panel members or other partition structure and inherently provides such support structure at frequent and convenient intervals across the span and along the height of the partition.

While a preferred embodiment of the present invention has been described in detail, it will be appreciated that various modifications or alterations may be made therein without departing from the spirit and scope of the invention set forth in the appended claims.

What is claimed is:

1. Structure defining a juncture between adjacent edges of panel members, comprising edge-defining means along two adjacent panel members, interlocking means between and engageable with said edge-defining means for connecting said two panel members together with the edge defining means adjacent to each other but spaced, and a one-piece juncture strip positioned entirely between said edge defining means and having a channel shaped portion recessed relative to face portions of said panel members, said channel portion having a substantially flat portion defining an external surface, and a plurality of apertures through said flat portion at regularly spaced intervals along at least a substantial portion of the length thereof, constructed to receive a support bracket, mounting clip, or the like, said panel interlocking means in part being carried by said juncture strip and securing together said edge defining means and said juncture strip.

2. Connecting structure for panel members comprising two edge members adapted to face each other and be secured to and extend along opposed edges of two adjacent panel members, interlocking means between said panel edges for connecting said two edge members together, including a one-piece juncture strip fastened to one of said edge members and having two channel shaped portions positioned between and recessed relative to said two edge members and spaced from each other across the width of the edge members with an open part of each channel shaped portion facing the other, said channel portions each having a substantially flat portion defining an external surface, and a plurality of apertures through said flat portion of at least one of said channel portions at regularly spaced intervals along at least a substantial portion of the length thereof, constructed to receive a support bracket, mounting clip, or the like.

3. Connecting structure for panel members, comprising two edge members adapted to face each other and be secured to and extend along opposed edges of two adjacent panel members, interlocking means for connecting said two edge members together, including a one-piece juncture strip fastened to one of said edge members and a locking strip, said juncture strip having two channel shaped portions positioned between said two edge members and spaced from each other across the width of the edge members with an open channel portion of each facing the other, said channel portions each having a substantially flat portion defining an external surface, and a plurality of apertures through said flat portion of at least one of said channel portions at regularly spaced intervals along at least a substantial portion of the length thereof, constructed to receive a support bracket, mounting clip, or the like, and said locking strip being movable longitudinally and laterally relative to said two edge members and juncture strip and including means for connecting said two edge members and juncture strip together in response to relative lateral and longitudinal movement of the locking strip.

4. A partition structure including, in combination, two upright members forming at least part of a partition, means securing said upright members together with a surface of each adjacent to and spaced in a horizontal direction from the other, and a vertical member between said upright members with a surface extending across the distance between the upright members, a plurality of vertically aligned apertures in said last-mentioned surface along a substantial portion of said vertical member, a support bracket secured to said vertical member and a cabinet secured to said support bracket, said support bracket comprising first and second connected plate portions at right angles to each other, said first portion being substantially larger in area than said second portion, extending beyond one edge of said second portion, and having apertures through which fasteners secure the support bracket to a surface of said cabinet that faces said upright members, and said second portion having a distal edge notched to form a plurality of aligned hooks, said hooks being received in a plurality of said vertically aligned apertures.

5. Structure defining a juncture between panel members comprising edge-defining means along two adjacent panel members, interlocking means and engageable with said edge-defining means for connecting said two panel members together with the edge-defining means adjacent to each other but spaced, and a one-piece juncture strip positioned entirely between said edge-defining means and having two channel shaped portions each adjacent to an opposite face portion of said panel members, said channel portions each having a substantially flat portion defining an external surface and a plurality of apertures at regularly spaced intervals along at least a substantial portion of the length thereof, constructed to receive support brackets, mounting clips, or the like, said panel interlocking means in part being carried by said juncture strip and securing together said edge-defining means and said juncture strip.

6. A partition structure including in combination, two panel members each with an edge adjacent to and spaced from the other, a narrow member between said panel members having a central portion connected to one of said adjacent edges of said panel members and two channel shaped portions forming two opposite edges of said central portion and serving to space said panel members apart, each channel shaped portion having a flat surface facing outwardly of the partition structure, and an open channel portion facing inwardly, apertures in at least one of said flat surfaces constructed to receive hooks of a support bracket, mounting clip, or the like, and connecting means, in part car-

ried by said narrow member, releasably interlocking the other of said panel members to said one panel member to which said narrow member is secured.

7. A partition structure including in combination, two panel members each with an edge adjacent to and spaced from the other, a narrow member between said panel members having a central portion connected to one of said adjacent edges of said panel members and two channel shaped portions along two opposite edges of said central portion spacing said panel members apart, each channel shaped portion having a flat surface facing outwardly of the partition structure, and an open channel portion facing inwardly, apertures in at least one of said flat surfaces constructed to receive hooks of a support bracket, connecting means in part carried by said narrow member releasably interlocking the other of said panel members to said one panel member to which said narrow member is secured, and a support bracket secured to said apertured flat surface, said bracket comprising first and second plate portions at right angles to each other the first portion being securable to an article to be supported and the second portion having an edge notched to form hooks receivable in said apertures, the hooks each being smaller than the corresponding dimension of the apertures so that the hooks are receivable directly into the apertures without tilting the bracket.

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