# United States Patent [19]

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[54] **FLOOR AREA DIVIDER**


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[52] **U.S. Cl.** ..... **160/135,** 160/229 R, 160/351

[51] **Int. Cl.** ..... **A47g 5/00**

[58] **Field of Search** ..... 160/135, 229, 351; 52/212, 52/238, 239, 481; 211/177, 148



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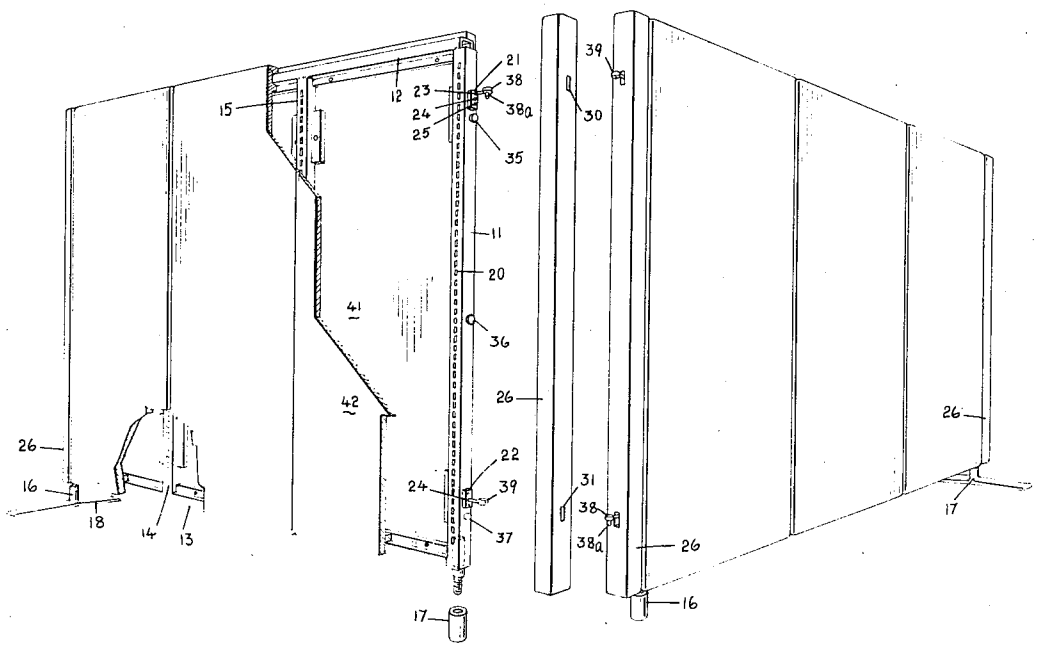
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[57] **ABSTRACT**

A floor area divider for use in planning and dividing the floor area of a room into a number of separate work spaces, each space being organized as to size and shape for the particular use to which the area is to be put. The divider may consist of a single free stand panel or a plurality of panels hingedly connected together to provide an enclosure which defines a particular space in relation to adjoining spaces. Each panel includes a rectilinear metal frame of rigid tubular material generally square in cross section with the frame subdivided into one or more panel sections. Each panel section is enclosed within a panel sleeve made in half-sections so that a pair of mating halves can be mounted on or removed from its respective frame without the use of tools. Hinges allow two or more panels to be joined together and placed at any angle to one another. The panel sleeves are arranged in edge-to-edge relationship to completely conceal the frame. The partition is easily moved from place to place by manpower without the use of any tools. The components can be assembled to form the partition without the use of tools and can, likewise, be dismantled.


**4 Claims, 9 Drawing Figures**



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SHEET 1 OF 4

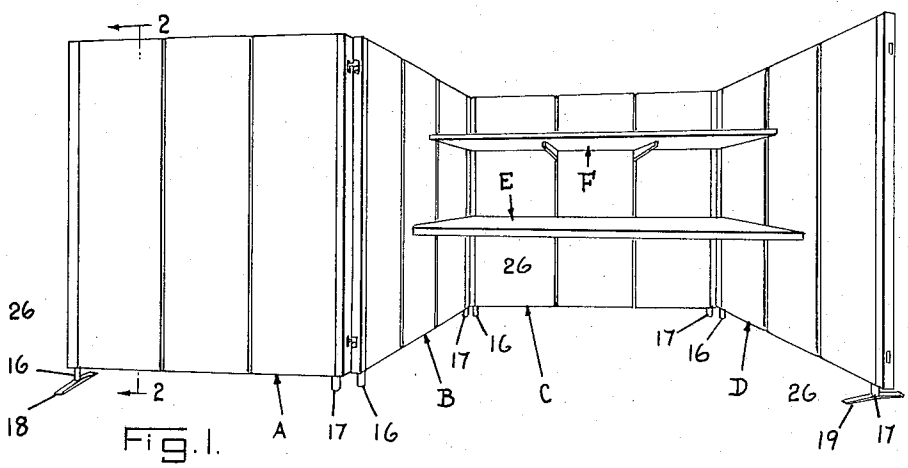



Fig. 1.

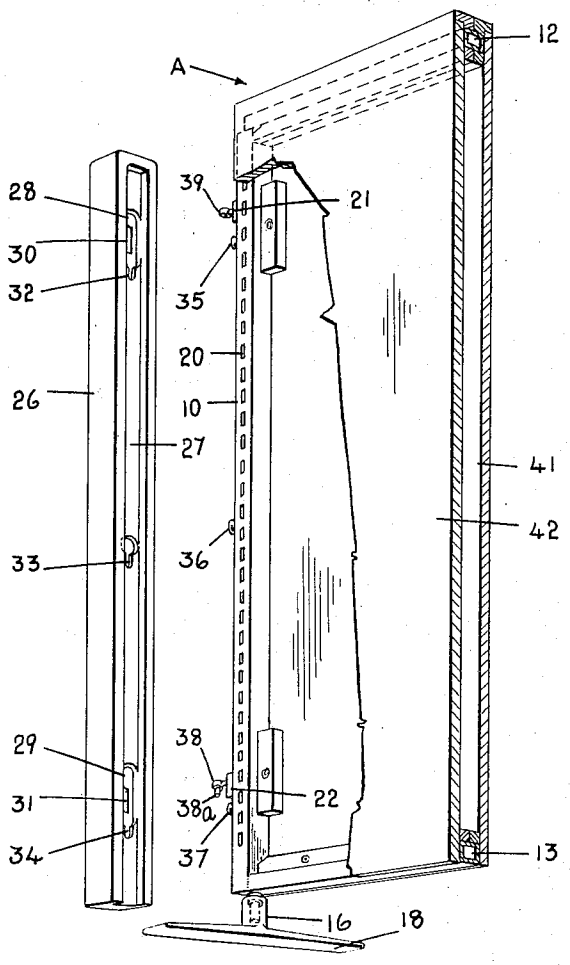



Fig. 2.

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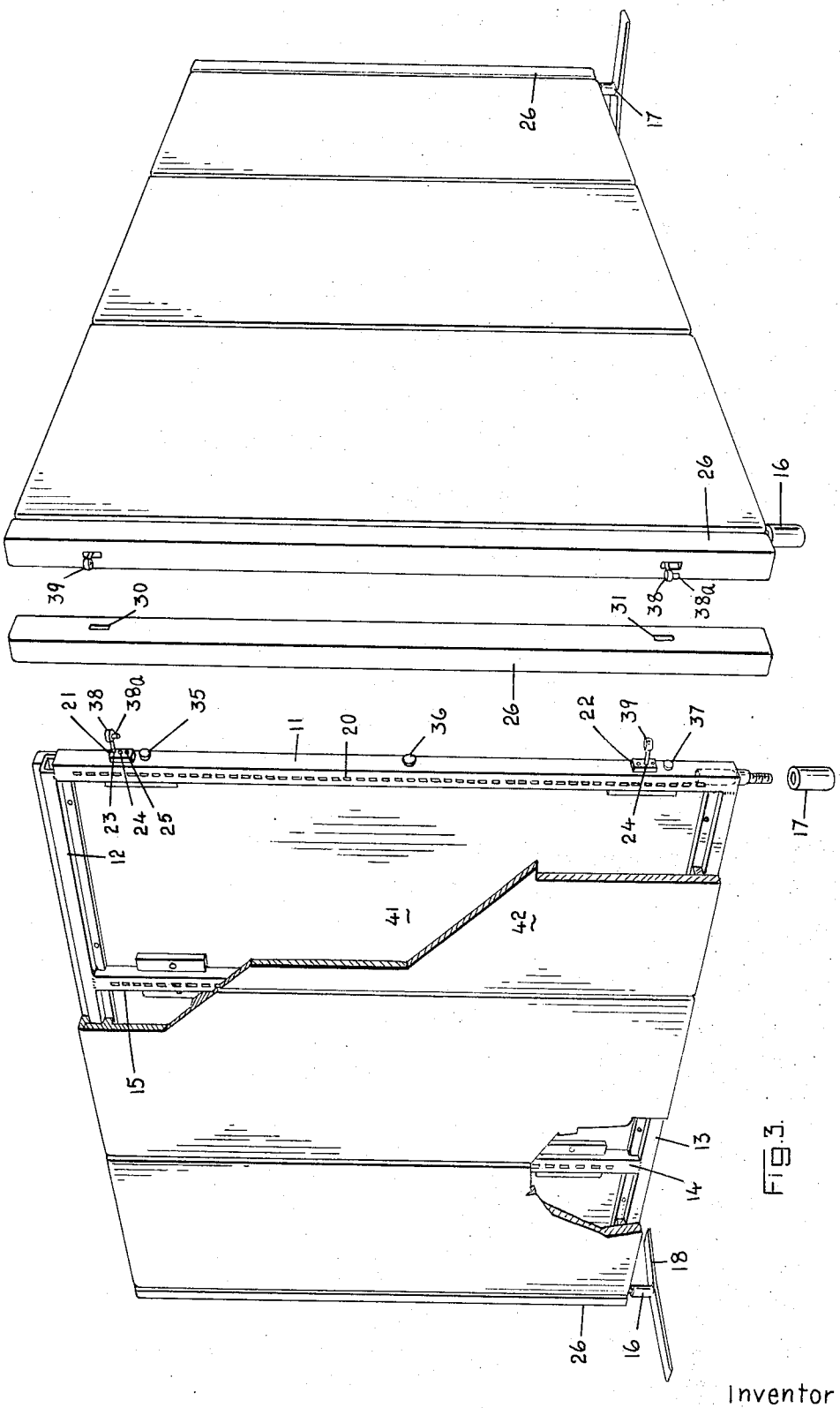



Fig. 3.

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Fig. 4.

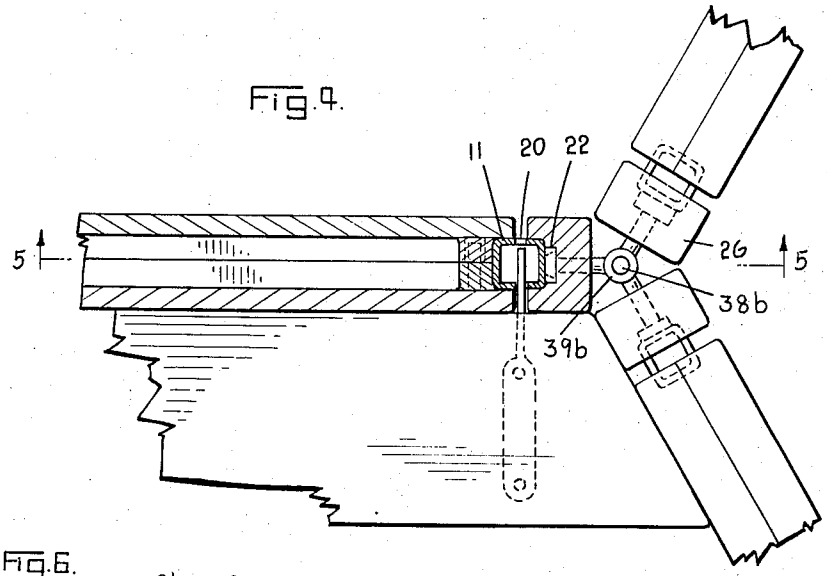
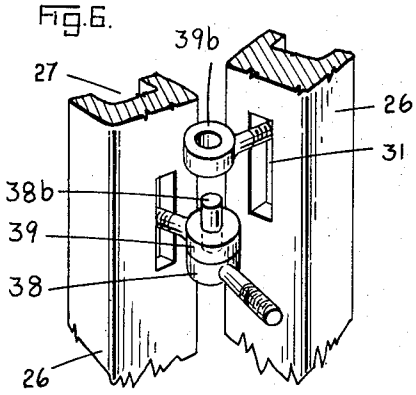



Fig. 6.



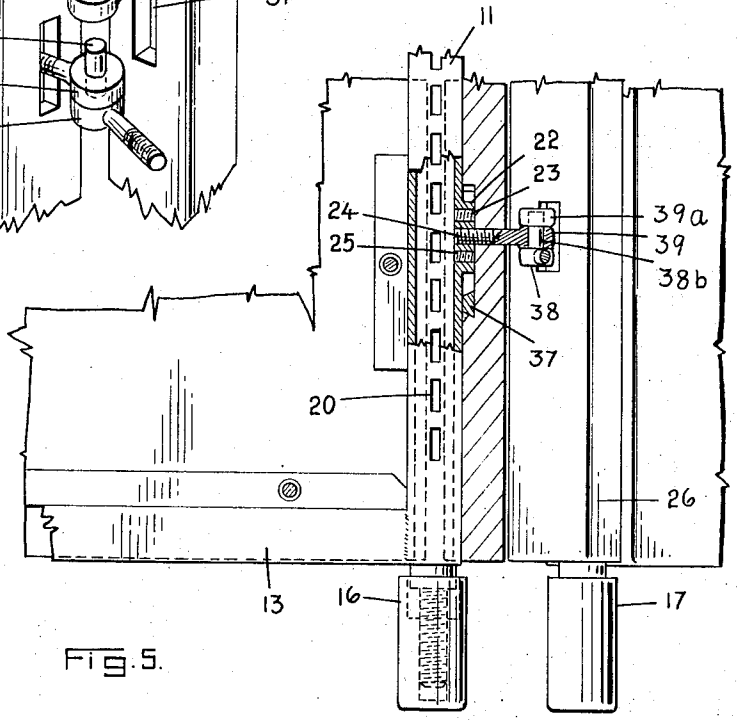




Fig. 5.

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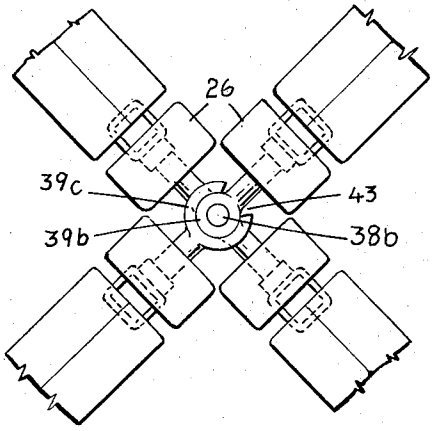



Fig. 9A.

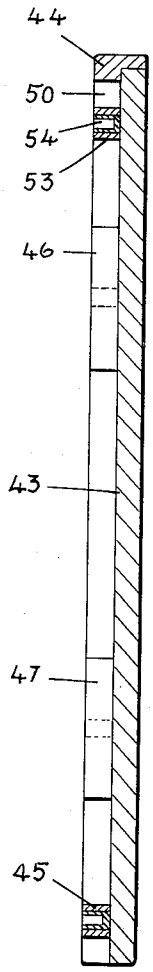



Fig. 8.

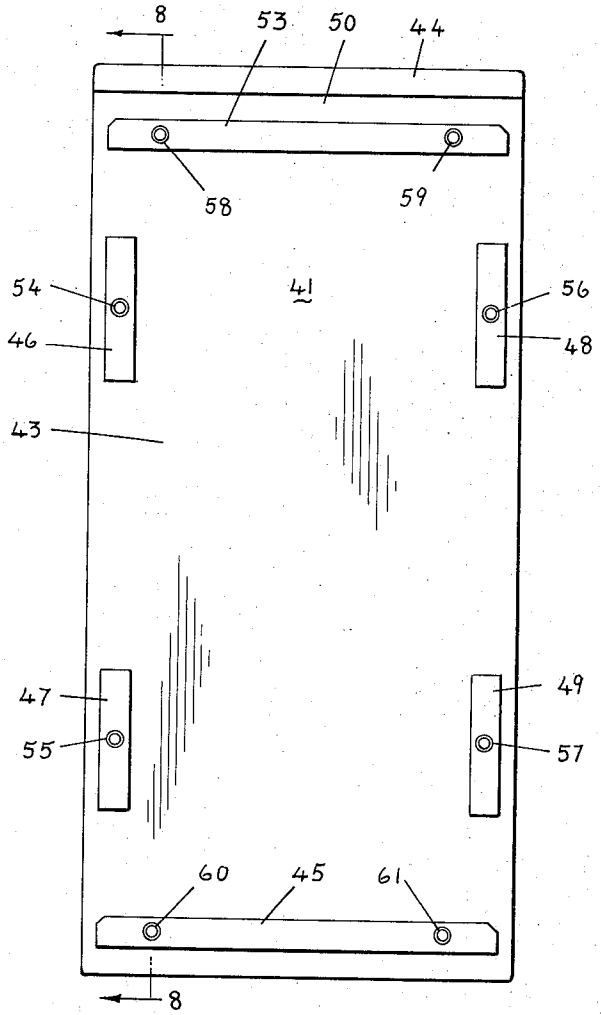



Fig. 7.

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# FLOOR AREA DIVIDER

## BACKGROUND OF THE INVENTION

The invention relates to a modular divider system for dividing a large room area into individual use areas to provide an element of individual privacy which is essential in any work environment. This permits the space planner to divide the space into any assymmetrical configuration to enclose related functions, define traffic avenues and integrate the total room space into the available floor area in the most efficient manner. The divider is useful for dividing a room such as a large office, into smaller work areas or the basement of a home into, for example, study areas, recreation areas, workshop areas, etc. Such dividers allow for easy rearrangement of the areas to keep in tune with changing requirements.

The area dividers provide a measure of privacy creating an atmosphere of almost total closure with acoustical and visual privacy and at the same time, facilitating intercommunication between other occupants of the divided areas of the room when desired.

The prior art, such as that illustrated in Canadian Pat. No. 847,657 issued July 28, 1970 to Harry Cohn, Jr. et al. and granted Papsco Building Products, Inc., San Carlos, California, United States of America, discloses a foldable movable partition for use as a space divider for dividing a room area. A problem involved in this structure is that it doss not provide for a basic unit which a space planner can use to provide a 120° honeycomb network, a 90° rectilinear arrangement or any other assymmetrical configuration to enclose other use functions, define traffic avenues and integrate the total space into the more available floor area in the most efficient manner. Another problem with the patent disclosure is that it provides for no versatility in decor to suit the particular environment or the wishes of the person who will be making use of the particular space.

## SUMMARY OF INVENTION

The invention in its simplest form, consists of a panel consisting of an inner tubular frame, an outer sleeve and two end posts. The frame consists of vertical end frame members and horizontal upper and bottom frame members and is constructed with 14-gauge 1 inch by 1 inch tubular stock, welded into a rigid structure for strength and longevity. The vertical frame members are slotted on each side to receive conventional brackets which support a series of interchangeable components. The brackets and slots do not form part of this invention. Any conventional slotted arrangement for receiving and supporting shelf brackets may be used.

The panel sleeves are constructed in two half sections so that they can be mounted on and enclose the frame. Preferably, the sleeve is made of melamine, fabric, acoustical or fire retardent material depending on the particular use of the divider.

The end posts are removably mounted on the vertical end frame members, the purpose for which will be made clear later in the disclosure.

Preferably, the rectilinear frame is made to provide for a plurality of frame sections formed by intermediate vertical posts which are modularly spaced. These posts are also slotted on each side. Frames having two or three panel sections, each section having its separate panel sleeve will be the ones most commonly used.



In its simplest form, the floor area divider consists of a rectilinear frame consisting of a pair of vertical frame members joined together by top and bottom horizontal frames, said members being formed of rigid tubular material having a rectilinear cross-section; an end post removably mounted on the end face of each vertical member by a complementary pin-and-slot device on the said face of the vertical member and the opposing face of the post; upper and lower slots in the end post which slots register with the upper and lower screw-threaded holes in the end face; and a rectilinear sleeve divided into front and back sections enclosing said frame sections having interengaging complementary devices whereby each pair of sleeves are releasably held in position on said frame.

The invention will now be described in conjunction with the accompanying drawings in which:

FIG. **1** illustrates a plurality of partitions of this invention hingedly connected to form a free standing divider;

FIG. **2** is a cross-section on the line **2—2** with the end post detached;

FIG. **3** is a perspective view of a pair of partitions in detached relation to illustrate details of construction relative to the hinge structure and mounting of the end posts;

FIG. **4** is a plan view to illustrate three partitions hingedly connected together by a common hinging device;

FIG. **4A** is a plan view to illustrate four partitions hingedly connected together;

FIG. **5** is a cross-section on the line **5—5** of FIG. **4**;

FIG. **6** is an exploded perspective view of a three-way hinge;

FIG. **7** illustrates, in elevation, one of the half sections of a panel sleeve; and

FIG. **8** is a section on the line **8—8** of FIG. **7**.

FIG. **1** shows a plurality of the dividers hingedly connected together to form a work area. It consists of four panels A,B,C, and D hingedly connected together to form a work center which is completed by adding a 120° desk surface E and a shelf F. In this particular illustration, the panel is designed to have a height of 78 inches which creates an atmosphere of almost total closure suitable for conference areas and other specialized situations where the greatest degree of acoustical and visual privacy is desired. However, the panels may be of lesser height such as 54 inches or 66 inches depending on the degree of privacy desired. It will be seen from the foregoing, that the height of the panels will depend on the particular use.

Each of the panels is of identical construction and therefore only the panel A need be described in detail. This panel consists of an inner tubular frame which comprises vertical end frame members **10,11**, horizontal upper and bottom frame members **12,13** welded together and constructed with 14-gauge 1 inch by 1 inch tubular stock into a rigid structure for strength and longevity. The frame is divided into three identical oblong panel sections by intermediate vertical frame members **14,15**. The bottom horizontal frame member **13** incorporates, at each end thereof, threaded levellers **16,17**, the leveller at the free ends of the divider incorporate a support plate **18,19** with the levellers **16,17** to maintain the free ends in a vertical position. The threaded levellers **16,17** and the support plates **18,19** respectively are identical and are interchangeable. Each of

the vertical frame members are slotted on each side to receive brackets which support a series of interchangeable components such as desks, shelves, drawers, etc. The slots which have been identified by the numeral **20,** will be coordinated with the particular type of bracket to be used in conjunction with the components. Each of the vertical end frame members, **10,11** are each provided with upper and lower hinge mounting plates **21,22,** each plate being provided with three threaded holes **23,24,25** to provide a triple hinge connection for forming a divider having three panels radially arranged as shown in FIG. **4** with the hinge construction illustrated in FIG. **6** which construction will be described later.

Each of the vertical end frame members **10,11** have mounted thereon, a removable end cap **26.** The inside face of the end cap is grooved as indicated at **27** with enlarged recesses **28,29** which register with hinge mounting plates **21,22** respectively, the recesses being large enough so that the post **26** can be moved up and down without interference from the hinge mounting plates **21,22.** The cap **26** is pierced by slots **30,31** which open into the recesses **28,29** respectively and will register with the plates **21,22** when the post is mounted to its respective vertical end frame member. The cap **26** is mounted to the respective vertical end frame member by a pin-and-slot arrangement consisting of keyhole slots **32,33** and **34** and pins **35,36** and **37.** The cap is mounted to the vertical end frame member by bringing the end cap into position and then with an upward push, the pins are engaged in the slots with sufficient interference to retain the cap in position. The post is mounted in this manner so that the panel can be lifted without dislodgement of the cap **26.** After mounting the cap **26** on their respective vertical end frame members, the complementary hinge members **38,39** are threaded into the appropriate threaded holes in this hinge mounting plate. With the completion of the assembly as above outlined, the panels A,B,C, and D can be hingedly interconnected and become free standing.

When it is required to hingedly connect two panels in end to end relationship such as the panels A,B, the complementary hinge parts **39,39** are as shown in FIGS. **2** and **3.** In this instance, the hinge part **38** is in the form of a threaded bolt which is entered in the threaded hole **23** of the hinge mounting plate **21** and has a pintle **38***a* and the other complementary part **39** is in the form of a threaded eye-bolt which will be threaded into the threaded hole **24** of the hinge mounting plate **22.** To connect the two panels together it is only necessary to insert the pintles **38**a in the respective eyes of the bolt **39.** The hinge for interconnecting the three radially oriented panels shown in FIG. **4,** is illustrated in FIG. **6.** Eye-bolts **39,39***b* are mounted in the threaded holes **23,24** of the hinge plate on two of the abutting panels. The other complementary hinge part **38** is provided with a pintle **38**b which is long enough to extend up through the eyes of each of the eye-bolt just mentioned and this complementary hinge part **38** is threaded into the bottom threaded hole **25** of the hinge mounting plates **21,22** of the third panel. It is to be understood that more than three such panels may be radially oriented by appropriately modifying the hinge plates **22,23** by the addition of threaded holes. FIG. **6A** shows a hinge arrangement for connecting four panels together. In this case, there is added to the arrangement shown in FIG. **6,** an eye-bolt **39***c*, the eye of which is large enough to receive the eye-bolt **39***b*. The eye-bolt **39***c* is slotted as shown at **43** so that the shank of the eye-bolt **39***b* will permit the eye-bolts **39***b* and **39***c* to nest together without interference.

A snap-on base which snaps onto the bottom horizontal frame member **13** may be provided for electric light wiring, telephone lines, etc. and the panels can be equipped with convenient outlets for the same in arrangements to suit individual needs.

The panel is completed by enclosing the frames within sleeves. In the present illustration, the frame is divided into three panel sections of identical size by the intermediate vertical frame members **14,15,** each section being enclosed within a panel sleeve.

Referring now to FIGS. **7** and **8,** it will be seen that each panel sleeve is made, in the illustrated modification, in two sleeve half sections generally indicated by the numbers **41,42.** Each half section consists of a laminate sheet **43** of a total width when mounted in position, to overlap the slots **20** in the vertical frame members outlining a frame section sufficient to conceal the same without interfering with the insertion of the brackets. The laminate sheet has an external covering of melamine or alternatively a fabric.

When it is desired that the sleeve will be used as a bulletin board and also for areas of moderate noise level, each half section incorporates a layer of polyfoam and also a layer of homosote board, the whole exterior being covered with a choice of fabrics. When it is desired to provide a sleeve having acoustical properties for areas where noise level is relatively high, the panel board may be replaced by a fiberglass panel with a layer of polyfoam finished off with a fabric covering.

The internal surface of each half section has mounted thereon, the necessary means for mounting the panel half section on the frame members and also complemental fastening means for securing the two half sections together. The means comprises a top rail **44,** a bottom rail **45,** and four side plates **46,47,48,49.** A lower rail **53** is positioned below the top rail **44,** and the slot **50** formed therebetween receives the upper horizontal memer **12.** The bottom rail **45** rests on the bottom frame member **13** having a ledge **62** which fits into channel **63** formed in bottom rail **45.** The side plates **46,47** are uniformly spaced along one edge and set inwardly therefrom so that the vertical frame members and the plates will be in edge-to-edge relationship. The other side plates **48,49** are similarly located along the other edge of the laminate sheet. The rails and side plates are secured to the laminate sheet by staples. The plates **46,47,48,49,** the top rail **44** and the bottom rail **45** are each provided with nylon brushes **54,55,56,57,58,59,60** and **61** respectively, which forms one half the complemental fastening means which mate with the other half of the complemental fastening means carried by the oppositely disposed sleeve section to thereby secure the two sleeve sections together. When two half sections are brought together in back-to-back relationship, the upper and bottom frame members are located in face-to-face relationship, the two half sections being secured together by the complementary fasteners.

I claim:

**1.** A floor area divider for use in planning and dividing a floor area, said divider consisting of a manually movable partition which comprises:

a. a unitary substantially rigid rectilinear frame consisting of a pair of vertical end frame members and top and bottom horizontal frame members, said members being formed of rigid material having a rectilinear cross-section;

b. upper and lower mounting plates fixed to an end face of each vertical end frame; each plate having a threaded orifice to threadedly receive one part of a two part hinge;

c. a pin having an enlarged head projecting from the end face below each mounting plate;

d. an end cap having upper and lower plate receiving recesses formed in one of its faces, including a key-hole slot formed in the face below each recess receiving the heads of said pins whereby the cap is mounted on the end face of each vertical member; and

e. a rectilinear sleeve divided into front and back sleeve sections enclosing said frame section, said front and back sections having support means engaging with the top and bottom frame members to releasably hold the sleeve sections against vertical displacement and having interengaging complementary fastener means releasably securing the sleeve sections against separation and lateral displacement.

**2.** A floor area divider for use in planning and dividing a floor area consisting of a manually movable partition which room comprises:

a. a unitary substantially rigid rectilinear frame consisting of a pair of vertical end frame members, a plurality of intermediate vertical frame members modularly spaced between said end vertical frame members, and top and bottom horizontal frame members joining the top and bottom ends of all the vertical frame members into a unitary structure, said intermediate vertical frame members dividing the rectilinear frame into a plurality of modular oblong panel sections;

b. upper and lower mounting plates fixed to the end face of each vertical end frame; each plate having a threaded orifice to threadedly receive one part of a two part hinge;

c. a pin having an enlarged head projecting from the end faces and below each mounting plate;

d. an end cap having upper and lower plate receiving recesses formed in one of its recesses, including a key-hole slot formed in the end face below each recess receiving the heads of said pins whereby a cap is mounted on the end face of each vertical members;

e. a rectilinear sleeve covering each oblong panel section, each sleeve being divided into front and back sleeve sections enclosing said frame, said front and back sleeve sections having support means engaging with the top and botom frame members to releasably hold the sleeve sections against vertical displacement and having interengaging complementary fastener means releasably securing the sleeve sections against separation and lateral displacement.

**3.** A floor area divider consisting of a plurality of manually movable partitions hingedly connected together, each partition comprising:

a. a rectilinear frame of rigid tubular material having a rectilinear cross-section and consisting of a pair of end vertical frame members, a plurality of intermediate vertical frame members modularly spaced between said end vertical frame members, and top and bottom horizontal frame members joining the top and bottom ends of the vertical frame members into a unitary structure, said intermediate vertical frames dividing the rectilinear frames into a plurality of identical oblong panel sections; each of the vertical frame members having modular spaced slots on each front and back faces, which slots receive brackets for the support of interchangeable components;

b. an end cap removably mounted on the end face of each end vertical frame member by a pin and key-hole slot device on the said end face and the opposing face of the post;

c. upper and lower slots in the end post which slots register with upper and lower screw-threaded holes in the said end face;

d. a rectilinear sleeve covering each oblong panel section, each sleeve being divided into front and back sleeve sections enclosing said frame, said sleeve sections having interengaging complementary fasteners whereby each pair of sleeve section is releasably held in position on said frame; and

e. complementary hinge components carried by the contiguous end vertical frame members of a pair of dividers arranged in end-to-end relationship, said hinge components connecting said contiguous end vertical frame members together to thereby join said plurality of partitions into a unitary structure.

**4.** A floor area divider for use in planning and dividing a floor area consisting of a plurality of manually movable partitions, each partition comprises:

a. a unitary substantially rigid rectilinear frame consisting of a pair of vertical end frame members, a plurality of intermediate vertical frame members modularly spaced between said end vertical frame members, and top and bottom horizontal frame members joining the top and bottom ends of all the vertical frame members into a unitary structure, said intermediate vertical frame members dividing the rectilinear frame into a plurality of modular oblong panel sections;

b. upper and lower hinge mounting plates fixed to the end face of each vertical end frame; each plate having a threaded orifice to threadedly receive one part of a two part hinge;

c. a pin having an enlarged head projecting from the end faces and below each mounting plate;

d. an end cap having upper and lower plate receiving recesses formed in one of its recesses, including a key-hole slot formed in the end face below each recess for receiving the heads of said pins whereby a cap is mounted on the end face of each vertical member;

e. a rectilinear sleeve covering each oblong panel section, each sleeve being divided into front and back sleeve sections enclosing said frame, said front and back sleeve sections having support means engaging with the top and bottom frame members to releasably hold the sleeve sections against vertical displacement and having interengaging complementary fastener means releasably securing the sleeve sections against separation and lateral displacement, and complementary hinge components carried by contiguous end vertical frame members of a pair of dividers arranged in end-to-end relationship, said hinge components detachably connecting said contiguous end vertical frame members together to thereby join said plurality of partitions into a unitary structure.

* * * * *