June 15, 1965 G. LUSS 3,189,140

PARTITIONING SYSTEM

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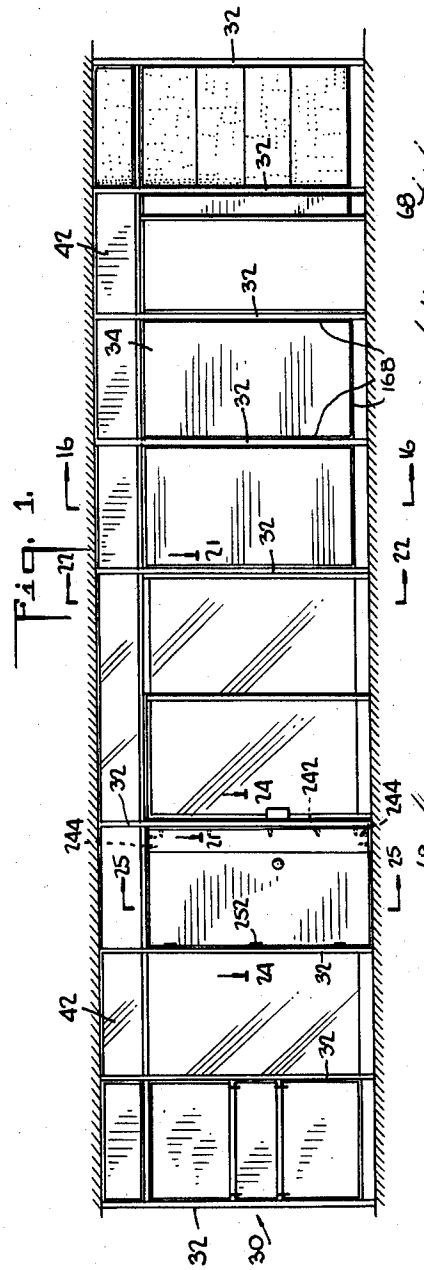


Fig. 1.

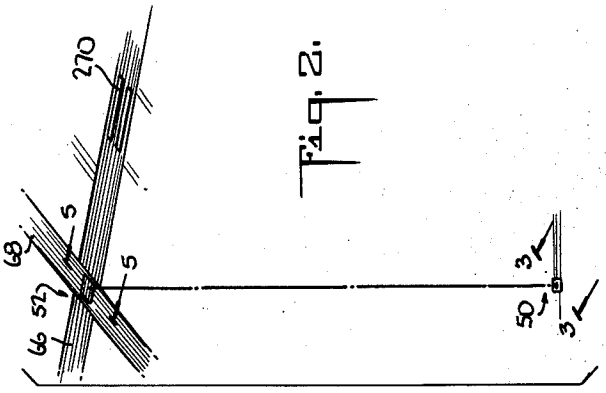


Fig. 2.

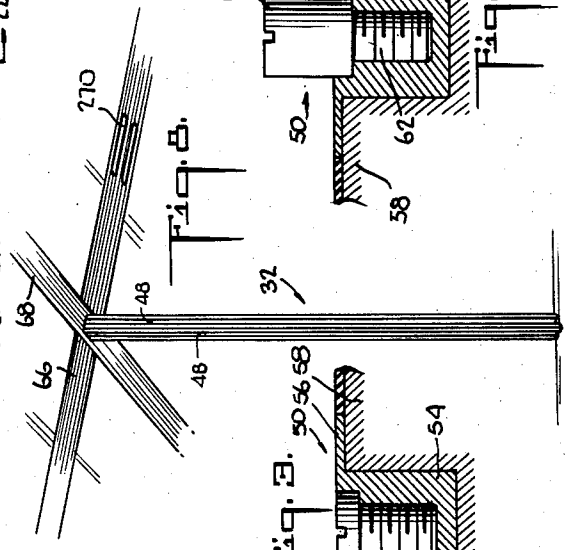


Fig. 3.

Fig. 4.

Fig. 5.

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ATTORNEYS

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PARTITIONING SYSTEM

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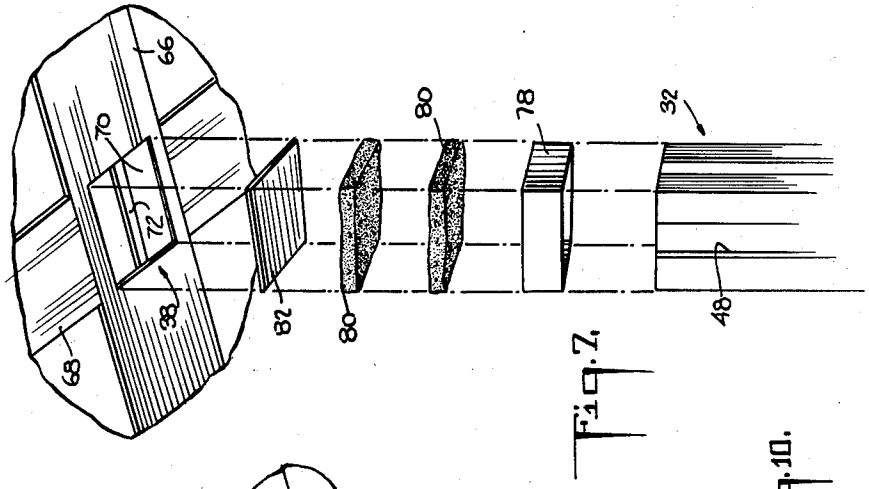


Fig. 7.

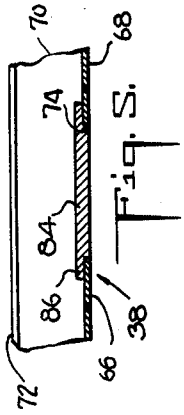


Fig. 8.

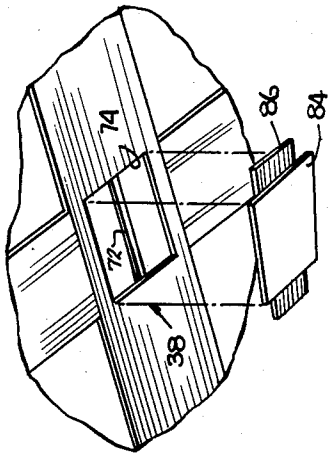


Fig. 10.

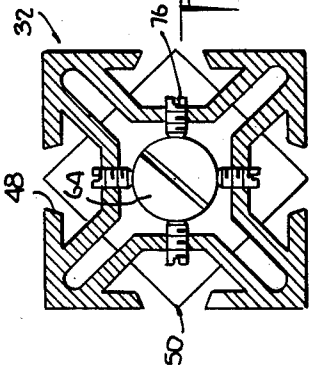
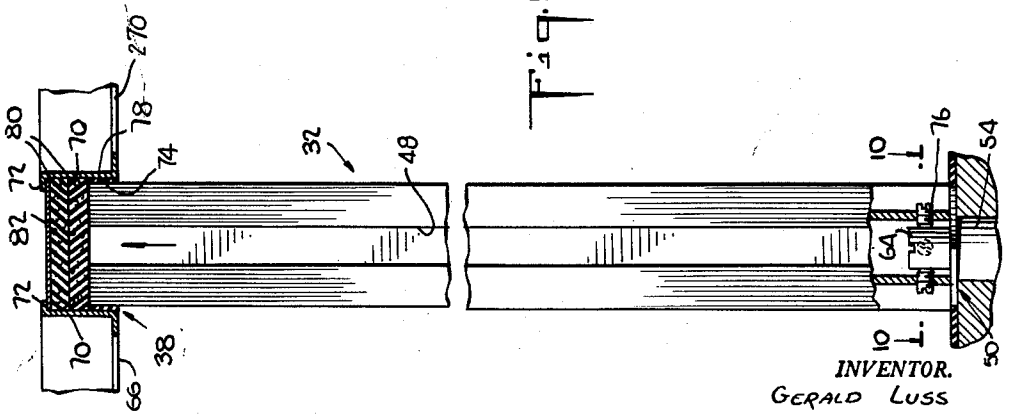


Fig. 9.



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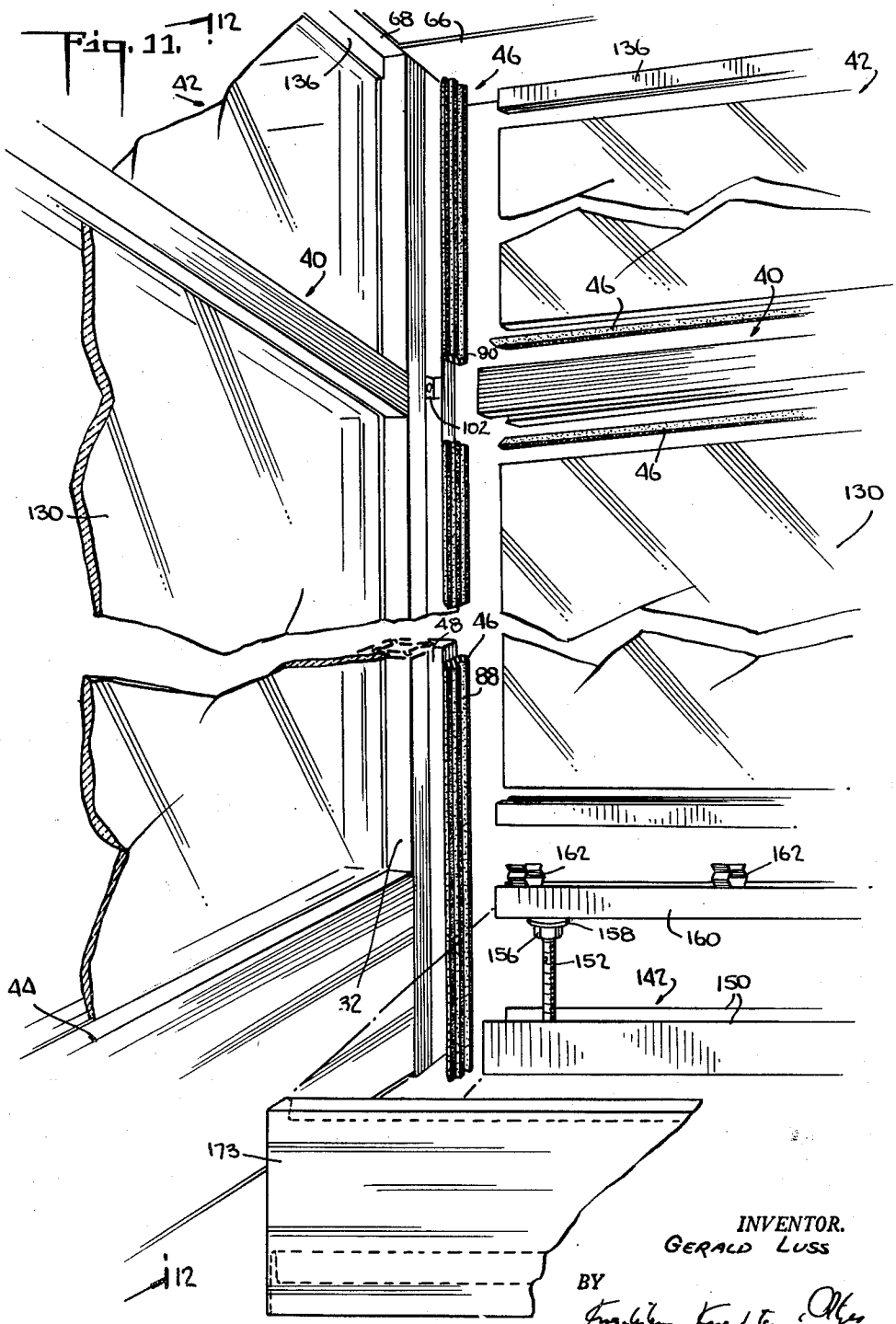
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Fig. 11.



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Fig. 12.

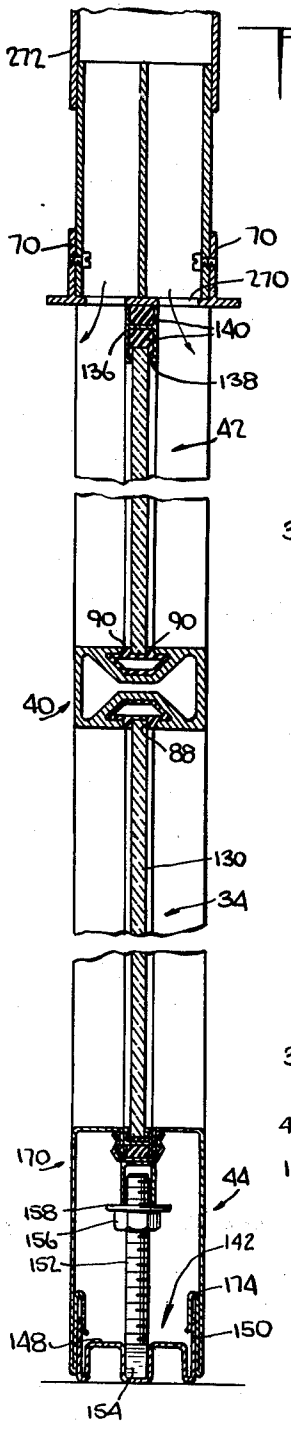


Fig. 13.

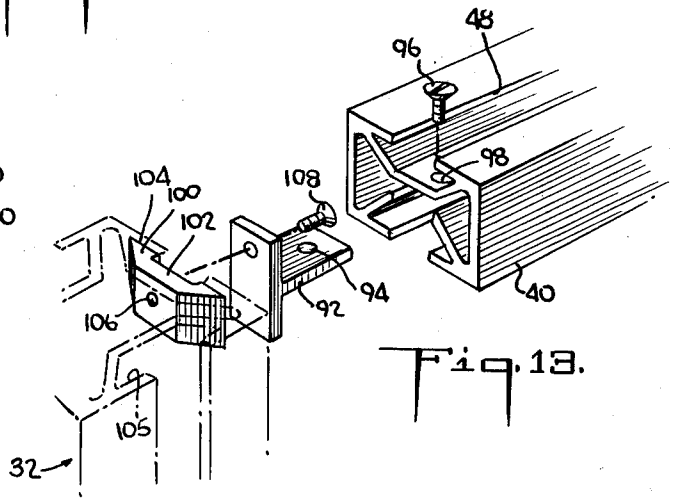


Fig. 14.

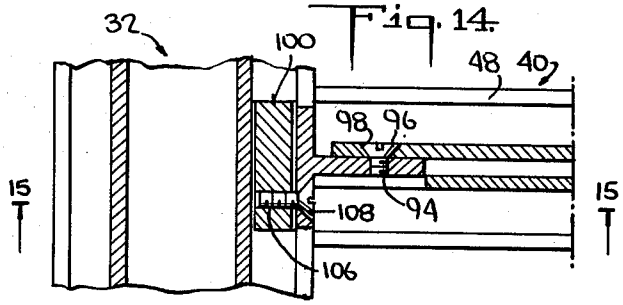
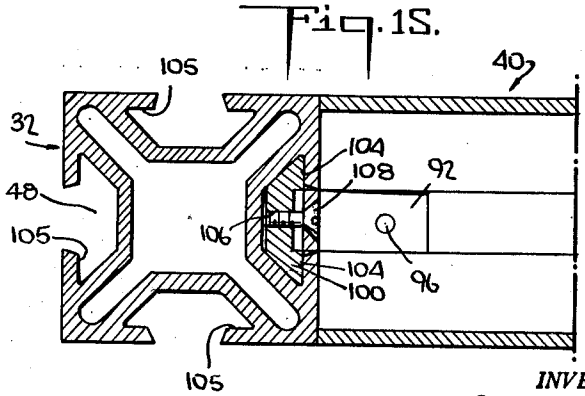


Fig. 15.



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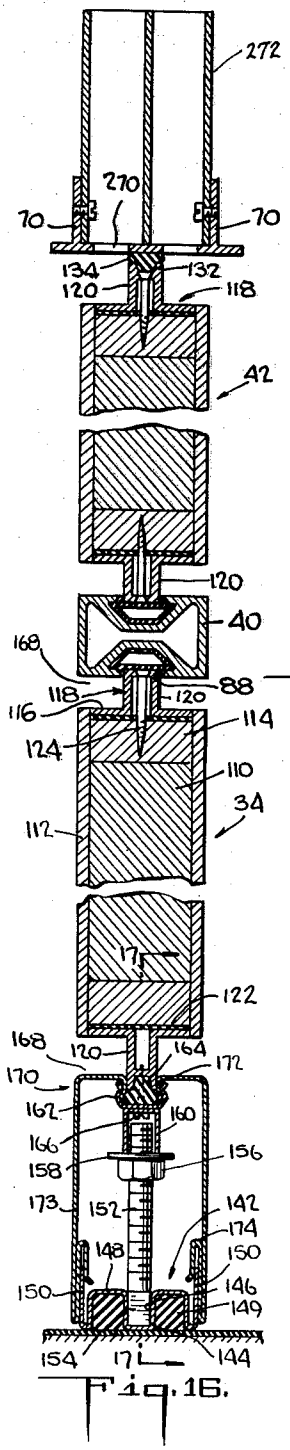


Fig. 16.

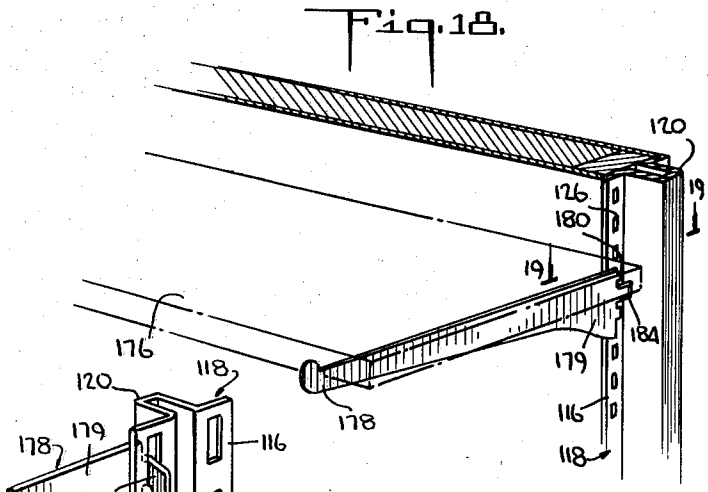


Fig. 18.

Fig. 20.

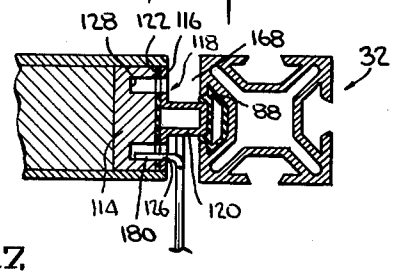


Fig. 19.

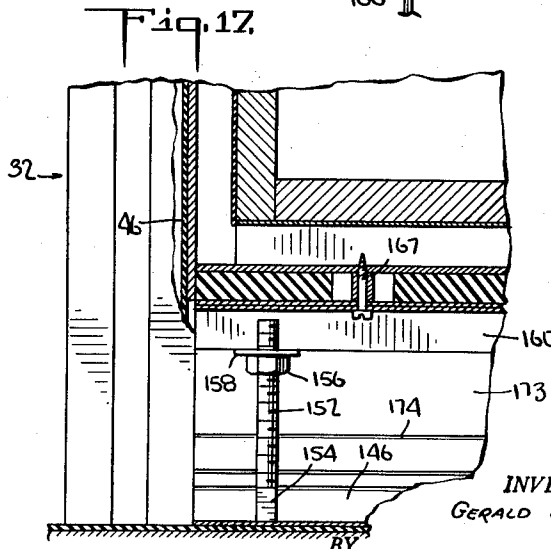


Fig. 17.

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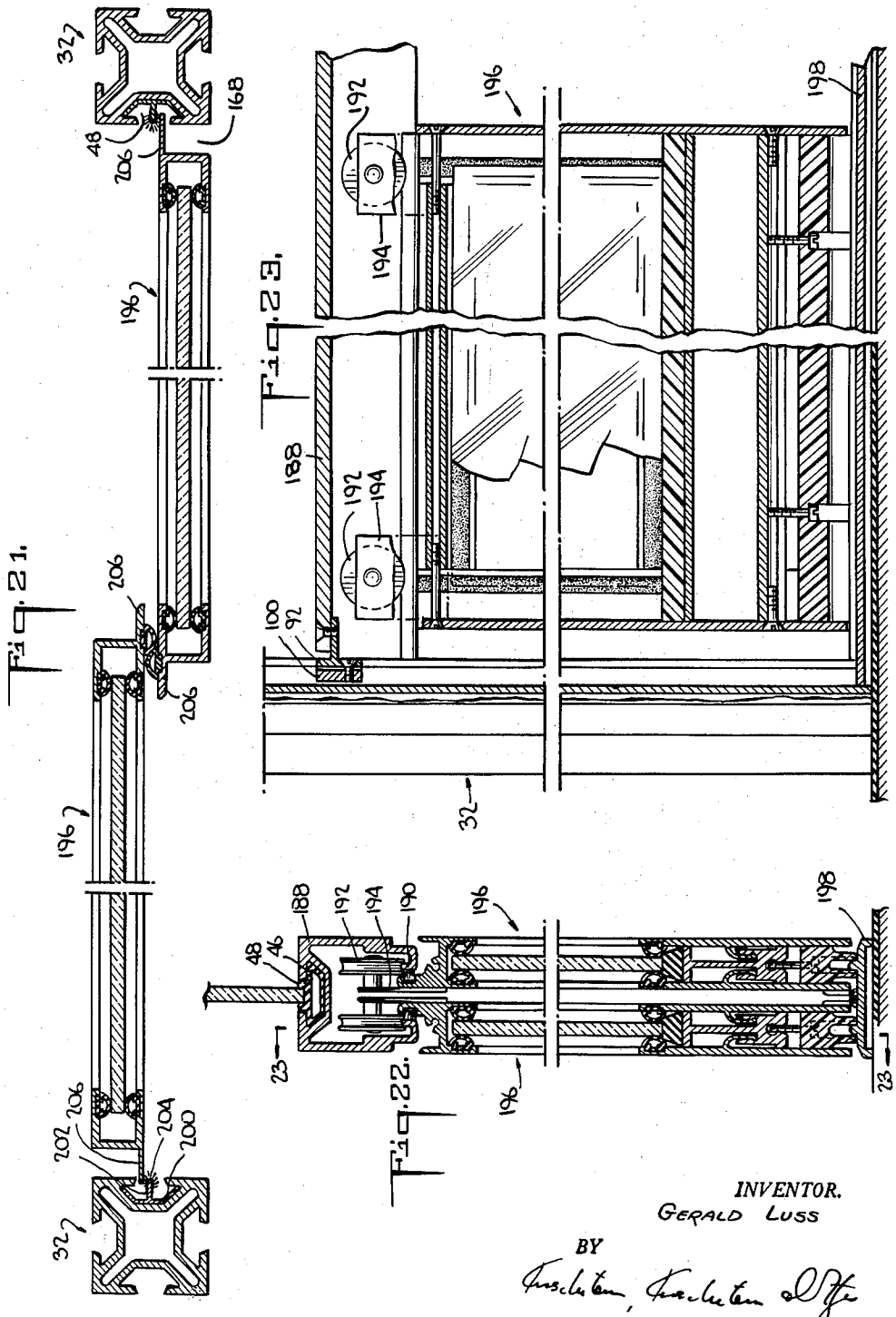
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PARTITIONING SYSTEM

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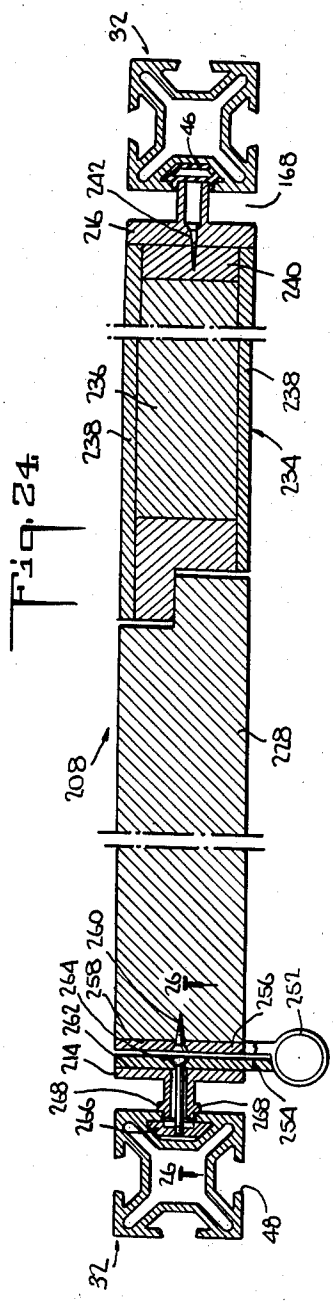


Fig. 24.

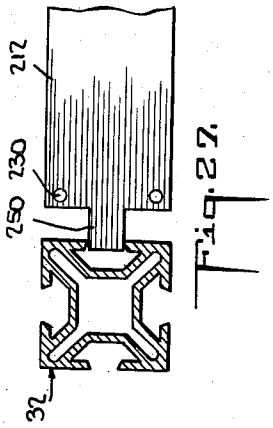


Fig. 27.

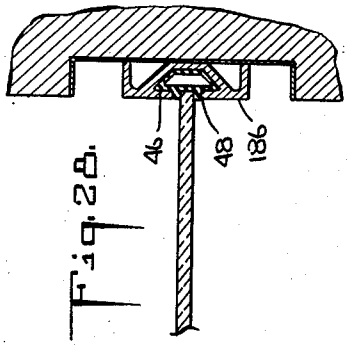


Fig. 28.

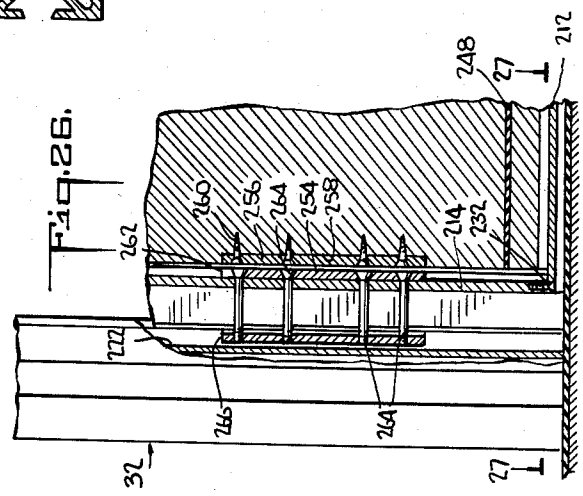


Fig. 26.

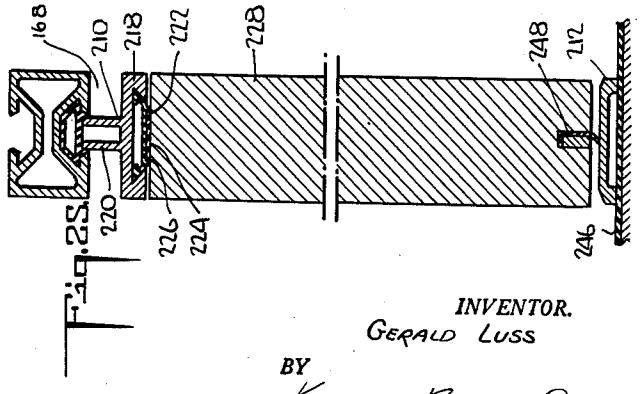


Fig. 25.

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United States Patent Office 3,189,140 Patented June 15, 1965

3,189,140

PARTITIONING SYSTEM

Gerald Luss, Great Neck, N.Y., assignor to Designs for Business, Inc., New York, N.Y., a corporation of New York

Filed Aug. 5, 1959, Ser. No. 831,838
3 Claims. (Cl. 189—41)

This invention relates to a partitioning system.

It is conventional at the present time to subdivide office space in a building by a partitioning system which is installed to suit a tenant's convenience after erection of the building has been completed. Various partitioning systems for this purpose are currently sold. However they are characterized by many serious defects which have been accepted and borne by the trade only because of the absolute necessity of employing a partitioning system of some sort.

One of the drawbacks is the high unit cost of the partitioning system. Present day conventional partitioning systems utilize a very large number of parts for each unit. Each of these parts must be individually formed, must be provided in various sizes, must be individually trimmed and individually painted, handled and assembled at the site of use, thereby entailing substantial expense. The cost is further enhanced by the large number of parts which must be stocked by the local dealer, by the individual packaging of many of the parts, by the sheer bulk of the large number of parts and by the consequent large storage and shipping space that is required. The cost also is heightened by the complexity of installation of such systems.

Another drawback of current partitioning systems is their need for highly skilled labor which is not always available locally and which, as is common with highly skilled labor, involves temperamental demands.

A further drawback of the present day partitioning systems is the considerable time required for initial installation, making rush jobs difficult of accomplishment.

Another and very serious disadvantage of existing partitioning systems is what may be denoted their "sequential" installation and take-down. These partitioning systems are so constructed that first a post must be installed, then a partition panel, then another post, then another partition panel, etc., in that alternating order. When they are taken down, the process is reversed but sequence is maintained. They cannot be either installed or taken apart in anything but the sequence indicated. This obviously slows down and increases the cost of erection and dismantling which already are highly complicated by the very large number of parts involved.

Still another disadvantage of present day partitioning systems is the condition in which they leave a space after having been dismantled. It normally is necessary to rehabilitate the floor and ceiling after a partitioning system has been removed and before another or the same system, differently located, is installed.

It is an object of the present invention to provide a partitioning system which avoids all of the aforementioned and other drawbacks of the various commercial present day partitioning systems.

It is another object of the invention to provide partitioning system of the character described which constitutes relatively few and simple parts, is rugged and durable, is foolproof in installation and use, is highly flexible as to surfaces in which it may be installed, can be installed by comparatively unskilled labor, can be erected or dismantled by non-sequential operations and leaves the floor and ceiling in a clean, uncluttered condition when removed.

It is another object of the invention to provide a partitioning system of the character described which is strong and yet can be changed with extreme rapidity, to alter, for example, the dimensions and surfacing of rooms, and wall passageways of rooms formed thereby.

Other objects of the invention in part will be obvious and in part will be pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangements of parts which will be exemplified in the partitioning system hereinafter described and of which the scope of application will be indicated in the appended claims.

In the accompanying drawings, in which are shown various possible embodiments of the invention,

FIG. 1 is an elevational view of the room side of one wall of a corridor made with a partitioning system in accordance with the instant invention;

FIG. 2 is a perspective view of the interior of one of the rooms off said corridor, the same illustrating only the floor and ceiling and showing the elements thereof which are adapted to receive but are not there holding a post;

FIG. 3 is an enlarged sectional view taken substantially along the line 3—3 of FIG. 2;

FIG. 4 is a view similar to FIG. 3 but illustrating the floor preparatory to the reception of a post;

FIG. 5 is an enlarged sectional view taken substantially along the line 5—5 of FIG. 2;

FIG. 6 is an exploded perspective view of the ceiling at a post site;

FIG. 7 is an exploded view of an installed post at the ceiling zone;

FIG. 8 is a view similar to FIG. 2 but illustrating a post in installed position;

FIG. 9 is a vertical, partly sectional, view through an installed post and through the associated floor and ceiling sites;

FIG. 10 is an enlarged sectional view taken substantially along the line 10—10 of FIG. 9;

FIG. 11 is a perspective view of a corner of a room erected with a partitioning system of the instant invention, the right-hand wall of said room being exploded in order to illustrate the various parts of the system;

FIG. 12 is a vertical sectional view through a wall of the room, the same being taken substantially along the line 12—12 of FIG. 11.

FIG. 13 is an exploded perspective view of a post and transom bar forming part of the instant partitioning system;

FIG. 14 is a vertical sectional view through a typical joint connecting a transom bar and post of the present partitioning system;

FIG. 15 is a sectional view taken substantially along the line 15—15 of FIG. 14;

FIG. 16 is a view similar to FIG. 12 but taken substantially along the line 16—16 of FIG. 1 and illustrating a modified form of panel;

FIG. 17 is a fragmentary sectional view taken substantially along the line 17—17 of FIG. 16;

FIG. 18 is a perspective view of a panel, the same illustrating a feature of the invention, to wit, an arrangement for enabling a shelf to be mounted at any selected height on a wall;

FIG. 19 is a sectional view taken substantially along the line 19—19 of FIG. 18;

FIG. 20 is a perspective view of a detail of the arrangement for mounting a shelf;

FIG. 21 is an enlarged sectional view taken substantially along the line 21—21 of FIG. 1 and illustrating a horizontal section through a panel of the partitioning system wherein a sliding door is provided;

FIG. 22 is an enlarged sectional view taken substantially along the line 22—22 of FIG. 1 and illustrating a vertical transverse section through said sliding door;

FIG. 23 is an enlarged sectional view taken substantially along the line 23—23 of FIG. 22 and illustrating a vertical longitudinal section through said door;

FIG. 24 is an enlarged sectional view taken substantially along the line 24—24 of FIG. 1 and illustrating a horizontal section through a panel of the partitioning system wherein a swinging door is provided;

FIG. 25 is an enlarged sectional view taken substantially along the line 25—25 of FIG. 1 and illustrating a vertical transverse section through said swinging door;

FIG. 26 is a sectional view taken substantially along the line 26—26 of FIG. 24 and illustrating a vertical longitudinal section through said door;

FIG. 27 is a sectional view taken substantially along the line 27—27 of FIG. 26 and illustrating the connection between the door sill and the hinge jamb for the swinging door;

FIG. 28 is a horizontal sectional view through a half post used to connect the partitioning section to a building outer wall.

Referring now in detail to the drawings, the reference numeral 30 denotes a wall of a corridor, said wall being deliberately chosen to illustrate various examples of different kinds of sections of a partitioning system in accordance with the present invention. It will be understood that the different specific varied walls shown are only examples and have been selected principally in order to make clear the construction and operation of the present invention. It is particularly to be observed that due to the small scale utilized in FIG. 1, certain characteristic aspects of the invention which later will be hereinafter described in detail are not shown, these being, for example, the typical shadow line which separates a post from a thick wall panel and the typical gasket stripe which appears all vertical surfaces of a post to which no wall panels are connected. These have been omitted from FIG. 1 in order to avoid the many tiny lines that would be present if they were shown to scale. It also is to be observed that the corridor wall shown in FIG. 1 is illustrated from the room side, that is to say, the side opposite from the side of the wall exposed to the corridor inasmuch as such a view provides a better representation of the various types of walls which are used on the insides of different rooms. However, in making this view, all of the partitions which normally would separate one room from another have been omitted for the purpose of clarity.

The principal elements of a partitioning system constructed in accordance with the present invention are: posts 32, wall panels 34 (both thick and thin), post bases 36, ceiling receptacles 38, transom bars 40, clerestory panels 42 (both thick and thin), bases 44 and strip gasketing 46. In addition there are provided a few simple coupling members and sound seals for certain of the elements.

Pursuant to a basic precept of the invention, each pair of posts and their associated wall panel (associated in the sense that such wall panel has its side edges adjacent to said posts) are uniquely related in a fashion such that the elements, i.e., the posts and associated wall panel, have members which are relatively movable into and out of cooperative locking engagement while the posts remain stationary, having been previously installed. For example, each post may be provided with a laterally shiftable tongue and each side edge of the associated wall panel with a matching groove so that with the tongues retracted a wall panel can be inserted between the pair of posts and thereafter the tongues can be shifted into the panel grooves so as to cooperatively lock the wall panel to the two posts. Alternatively, the wall panel can be provided with such retractable tongues and the pair of posts with the grooves. A simpler, less expensive and more practical arrangement embodying the foregoing basic precept is illustrated in the accompanying drawings. Pursuant thereto the wall panels are so constructed as to provide outwardly extending tongues which protrude permanently

from the side edges of the panels and the posts are provided with cooperating grooves. This tongue and groove relationship can be reversed (tongue on post, groove in wall panel) but is less desirable due to the protrusion of the tongues in the absence of wall panels. The relative dimensions of the tongues, posts and grooves are such that the space between a pair of posts is less than the space between the tips of the tongues, but the space between the bases of the opposed grooves on the posts is greater than the space between the tips of the tongues whereby, after a pair of posts has been set into place between floor and ceiling, the tongue at one side edge of the panel may be inserted in the groove of one post to depth sufficient to allow the opposite tongue to be swung into registry with the other groove and thereafter introduced into said other groove so that the wall panel will be captively held in place. Moreover, each groove is at least in part occupied by a resilient means such as a spring loaded member, e.g. an elastomeric pad, which fills up the excess spaces in the two grooves that permitted the tongues momentarily to be inserted in said grooves to a greater depth than they occupy in their final positions.

The actual detailed construction of a specific post 32 and the securement thereof to floor and ceiling sites arranged to receive them can best be seen from inspection of FIGS. 2 through 10. Said post conveniently constitutes a metal extrusion which desirably comprises a light metal, such, for instance, as aluminum, which has an attractive natural surface that can be easily proofed against atmospheric deterioration. The interior of the post preferably is hollow to save weight, to hold down cost, and to facilitate mounting of the posts and various elements thereon.

The post is an elongated member, the length thereof being in excess of the floor to ceiling height. In the prefered form of the invention, the post is of a generally square cross-section. This particular shape, however, is adapted merely as a matter of appearance and is not critical to the proper operation of the invention.

In order to obtain the familiar pattern of rectangular enclosures the post is formed to include four full length grooves 48 arranged in quadrature. Although it is not necessary to the described functional cooperation between wall panels and posts, the grooves 48 have constricted mouths thus in essence providing a T-shaped cross-section with the head of the T within the post and the shank of the T comprising the constricted mouth of the groove. Moreover, to assist in retaining strip gasketing within a groove, as will be described hereinafter, the unconstricted portion of the groove is dovetailed, that is to say, narrower nearer the mouth than at the bottom of the groove.

The ceiling and floor of a room incorporating the present invention are, in a limited sense, specially constructed to detachably receive and thereby mount the posts in vertical position, i.e., the floor and ceiling are specially constructed at the post mounting sites. Referring, for example, to FIG. 2, the reference numeral 50 denotes a typical floor mounting site and the reference numeral 52 a typical ceiling mounting site. These mounting sites are arranged in substantially vertical registry and are dispersed about the floor and ceiling in a predetermined manner which will depend upon the proposed partitioning plans. Preferably, these sites are arranged in a rectangular grid on the floor and ceiling, that is to say, are located at the intersections of two sets of plural parallel lines running at right angles to one another. The spacing between the lines desirably is modular and regular. An exemplificative spacing, which of course need not be followed, is four feet between the intersections in a north to south direction and four feet eight inches between the inter-sections in an east to west direction.

A typical floor site is best shown in FIGS. 3 and 4. FIG. 3 shows the site when out of use, that is to say, when no post is intended to cooperate therewith. At

that time, the site constitutes a socket 54 preferably made of metal and having a flanged head 56. The socket is permanently secured, e.g., by imbedding it, in the floor matrix 58 which usually will be concrete. In a preferred form of the invention, the head 56 is of square outline and desirably is arranged with its diagonals in registry with the seams of the floor tiles. This facilitates cutting of the tiles to accommodate the heads 56. It will be apparent that if the head were so oriented that the sides thereof were parallel to the seams of the floor tiles, it would be necessary to cut square notches in the corners of the tiles adjoining the head. However, by turning the head 45° it only is necessary to clip an isosceles triangle from each corner of the adjoining tiles.

The head 56 of the socket lies flat against the upper surface of the floor matrix and has the same thickness as the floor tiles so that after placement, the top of the head is flush with the top of the tiles and thereby forms a smooth continuation of the finished floor surface.

The bore of the socket 54 is threaded to receive a flat-headed screw 60, the head of which is received in a depression at the upper end of the bore so that the head will be flush with the top of the socket when the post base 36 is not used.

To ready the floor site for operation, the screw 60 is removed and in place thereof the post base 36 is threaded into the socket. The post base includes a threaded shank 62 having a plug end 64 which when the shank is fast in the socket protrudes above the surface of the floor. The plug end is of circular transverse cross-section and is slightly smaller (FIG. 10) than the hollow interior of the post 32.

The general construction of the ceiling for the support thereof has no bearing on the construction of the ceiling site 52. A typical ceiling structure includes perpendicularly criss-crossed sets of wide metal strips 66, 68 arranged in the modular pattern. One of these strips, e.g., the strip 66, is formed to include upwardly extended parallel walls 70, the upper ends of which are horizontally registered and have inturned flanges 72, the facing edges of the flanges being spaced apart, as can be seen best, for example, in FIG. 9. Each intersection of the strips 66, 68, defines the location of a ceiling site and at each site the strip 66 is formed with an opening 74 which matches the square configuration of the post but is slightly larger.

To install a post 32 at any desired site, the upper end of the post is inserted in the opening 74 and the post raised high enough to clear the plug end 64. Then the post is lowered to embrace and telescopically receive said end 64.

It is useful to include means of a simple nature for steadying the upper and lower ends of the post. For example, at the lower end of the post, four set screws 76 threaded through the bases of the four grooves 48 are arranged in quadrature so that the tips of the screws can bear 90° apart on the plug end. By suitable adjustment of the set screws, the post can be tightened on the plug end in plumb position. The upper end of the post has tightly constricted on it an endless band 78 of an elastomeric material, e.g., natural or synthetic rubber, which forms a squat, broad, protruding rib. The height of the rib is such that when added to the cross-section of the post, the rib will snugly engage the edges of the opening 74 so as to prevent any rattling of the post.

It is desirable to deaden sound transmission through the opening 74 even after the post is installed and also to prevent seepage of dust and extraneous material from the space above the ceiling. To this end the partitioning system of the instant invention may further include one or a few pads 80 of the same cross-section as the opening 74 which are inserted into said opening so as to fill the space between the flanges 72 and the top of the post. Such pads are of a yieldable resilient nature, for example, being comprised of sponge rubber or a foamed flexible plastic such as polyurethane. In addition to the above, there may be provided a square imperforate membrane 82 for example, a rubber or limp plastic sheet, which is sandwiched under pressure between the flanges 72 and the pads.

To inconspicuously close the opening 74 when the same is not in use, a cover 84 is provided which constitutes a square plate that completely fills the opening and has at least one pair of outwardly extending horizontal arms 86 above the level of the upper surface of the strip 66 and resting thereon with the bottom of the cover plate flush with the bottom of said strip.

As noted earlier, in the particular form of the invention herein described, the bottom of a post groove preferably, in effect, is biased toward the constricted mouth thereof for proper cooperation with the tongue on the side edge of a wall panel. Although this could be accompanied by spring loading, such structure is unduly complex and expensive. A simpler arrangement for accomplishing the same result and utilized in the partitioning system now being described is the strip gasketing 46 of resilient material adapted to be contained within each groove.

When no wall panel or equivalent member is arranged to engage a groove of a post, the strip gasketing can be removed, however, it frequently will be left in place under such circumstances since it creates an attractive appearance and leaves the groove ready for engagement with a wall panel or the like. It also should be noted that the strip gasketing which preferably is made from an elastomeric such as, for instance, sponge rubber or a flexible plastic, also acts as a sound seal between a tongue of a wall panel and the post.

The strip gasketing may be of any convenient form and is so shaped as to cooperate with the shape of the groove; therefore, it will include an external contour which matches but is slightly larger than the contour of the groove, both the constricted mouth and the broad back. The strip gasketing can be solid, in which case it preferably will be made from sponge rubber or foamed plastic, or it may be hollow, in which case the elastic quality may be better obtained by utilizing a flexible synthetic resin, e.g. a polyvinyl compound. A typical hollow strip gasketing 46, is shown in perspective in FIG. 11 and in transverse cross-section in FIGS. 12, 16, 19 and 28. Said strip gasketing is used at various points of a partitioning system embodying the present invention, the same shape desirably being employed wherever a tongue is to engage a groove. Attention is called to the portion of the strip gasketing which is contained within the constricted mouth of a groove 48. This portion of the gasketing is itself shaped to form a narrower groove 88 defined by a pair of short parallel outwardly extending ribs 90 the outer edges of which lie substantially flush with the outer surface of the post.

The transom bars 40 are essentially similar to the post 32, distinguishing therefrom only by the omission of one registered set of grooves. Thus, basically, a typical transom bar constitutes an aluminum extrusion having grooves 48 on the upper and lower surfaces thereof but omitting grooves on the front and back surfaces. The transom bars like the posts are hollow and, due to the absence of the front and back grooves, conveniently are formed with an oblong cross-section being longer in the front to back direction than in the vertical direction. The transom bar extends horizontally when installed.

Pursuant to the present invention suitable means is included detachably to secure the ends of each transom bar to an associated pair of posts 32. A typical joint for carrying out this function is illustrated in FIGS. 13, 14 and 15. Said joint includes a compression bracket 92 of T-shaped configuration the horizontal leg of which is seated against the undersurface of the web forming the base of the upper groove 48 of a transom bar. Said leg includes a through aperture 94 which is tapped for engagement by the shank of a screw 96. A matching countersunk aperture 98 in the web fully receives the flat head of the screw whereby the compression bracket is securely

attached to the end of the transom bar. One such bracket protrudes from each end of the transom bar.

The transom bars are furnished in modular lengths so that they will nicely fit between a pair of previously installed posts 32 with their ends adjacent to the facing sides of the posts. The vertical heads of the compression brackets at this time will be received within the opposed grooves 48 of the posts which face the transom bar (FIG. 15). To hold the transom bar in such position and also to rigidify the partitioning system, a shoe 100, i.e. a post filler, of dovetailed contour is placed within the dovetailed-shaped broad portion of each of the grooves 48 facing the transom bar. The shoe is vertically slotted as at 102 to form gibs 104 which bear against the surfaces 105 of the groove facing away from the transom bar. A tapped bore 106 in the shoe receives the shank of a screw 108, the head of which engages a countersunk opening in the head of the compression bracket. It will be seen, particularly by reference to FIG. 15, that when the screw 108 is tightened, it will draw the gibs 104 against the surfaces 105 so as to clamp the post between the end of the transom bar and the shoe and thereby firmly secure said bar to the post. The height of the transom bar off the floor will depend upon the height of the wall panels 34.

The wall panels 34 may be of various constructions but are characterized by the presence of a common feature, to wit, the provision on the two side edges thereof of vertically extending portions, that is to say, tongues, which are receivable within the grooves 48 of the posts. Preferably, the wall panels 34 also include similar tongues (horizontally elongated) along their top and bottom edges. Inasmuch as these tongues may vary considerably in structure (they may be solid or hollow, or have their tips grooved), it is believed that they will best be understood by reference to a detailed description of a complete typical thick wall panel 34. Such a panel is illustrated in vertical section in FIG. 16 and in horizontal section in FIG. 19. This panel includes a thick core 110 which is formed from any inexpensive, bulk material, preferably a material which has a comparatively low density, a fair degree of rigidity, i.e., stiffness, in the thicknesses and sizes used, is fire retardant and tends to act as a sound deadener. The width of a typical panel (exclusive of the tongues) will be somewhat, e.g. one inch, short of the spacing between the posts and will be slightly, e.g. one-quarter of an inch, wider than the interpost spacing if the tongues are included. Thus, an exemplicative tongue will protrude five-eights of an inch from an edge of the panel. The thickness of a thick panel may be about equal to the thickness of a post. These dimensions have been given by way of example.

A suitable material for the core 110 is bonded asbestos fibers, bonded paper fibers, bonded straw fibers, bonded wood chips and bonded cloth fibers, all of these being materials commonly utilized in the building trade. The core is rectangular to match the space defined by a pair of facing posts, the floor and a transom bar. The broad surfaces of the core are covered with a layer 112 of any suitable sheet material. Customarily, this will be decorative in finish. Examples of these covering layers are metal (painted or bare), cloth and wood veneer. It is also within the scope of the invention to use a decorative sheet such as perforated board although in such instance it is necessary to space the perforated board somewhat from the core as is customary.

The covering layers project beyond the edges of the core to form a continuous peripheral groove at the top, side and bottom edges of the wall panel, this groove being filled by reinforcing strips 114 of a stronger material than the core, as, for instance, wood. It is prefered to use wood at this point inasmuch as it provides a foundation to which other elements may be attached in a rapid, simple and conventional manner as, for instance, by wood screws.

At each side edge of the panel 34 the outer face of the strip 114 is recessed slightly below the associated outer side edge of the cover layer 112 to form a broad shallow setback in which there is placed the base 116 of a length of banding 118. The banding is fabricated from a sturdy rigid stock, e.g., metal and preferably aluminum, the same being of uniform cross-section and desirably extruded. The outer surface of the banding is centrally raised to provide narrow protuberances 120, i.e. tongues, which run the length of the side edges of the wall panel and are hollow, as best seen in FIG. 19, for economy and weight. These are the elongated tongues which are adapted to be received within the constricted mouths of the grooves 48 on the posts 32. To minimize sound transmission, it is advisable to place a membrane 122 of an elastomeric material between the wood strip 114 and the base of the banding. Similar banding 118 is applied to the top and bottom edges of the wall panel 34.

The banding is held in place in any suitable manner, e.g., by adhesive. In such case, the adhesive is used to secure the base of the banding to the membrane and to secure the membrane to the strip 114. Said strip 114, in turn, is adhered to the edges of the core 110. Alternatively, screws 124 are employed to fasten the banding to the strip, the heads of the screws, as shown in FIG. 16, being countersunk into the tip of the tongues and the shanks engaging the strip 114.

For a reason which later will be mentioned, the base 116 of the banding on both sides of the tongue may be formed with a vertically registered series of vertically elongated slots 126 (see FIG. 20). The membrane 116 beneath such base is similarly slotted and, where these slots are provided, the strip 114 beneath the membrane is formed to include vertical channels 128 in registry with the vertical series of slots. Such slots 126 are omitted from the banding along the top and bottom edges of the wall panel although their presence can do no harm.

The widths of the tongues 120 are such that they are a nice fit in the constricted mouths of the grooves 48. In the preferred form of the invention, the tongues are too wide to enter the grooves 88 in the strip gasketing 46 but are barely narrower than the constricted mouths of the grooves 48 so that there is a minimum of play permitted when they are inserted in said mouths. In practice, even this play is rendered negligible by the entrance of portions of the elastomeric ribs 90 in the space between the sides of the tongues 120 and the edges defining the constricted mouths of the grooves 48.

A typical thin wall panel is a pane of glass 130 shown, for example, in FIG. 12. With this arrangement, no additional elements are necessary for providing the tongues at the side edges and at the top and bottom of the panel since the edges of the glass serve as the tongues. The grooves 88 in the strip gasketing are dimensioned to snugly receive these edges.

The clerestory panels 42 are constructed in a manner similar to the wall panels 34, a thick clerestory panel being illustrated in FIG. 16 and a glass clerestory panel shown in FIG. 12. It will be observed that the clerestory panels, like the wall panels, have peripheral tongues along all four edges thereof. However, the upper tongue in the case of a thick clerestory panel and the upper edge in the case of the glass panel are specially constructed for engagement with a flat ceiling surface. In particular, the tongue of the banding 118 provided at the top edge of a thick clerestory panel is formed with a narrow downwardly extending slot 132 in which there is received and adhesively held the downwardly extending rib of an elongated strip 134 of an elastomeric material. Similarly, along the upper edge of a glass clerestory panel, there is provided an H-shaped extruded molding 136 having inturned flanges 138 along the edges of its lower legs. Both sections of this molding are filled with elongated elastomeric strips 140, which when uncompressed are higher than the space they are to fill.

Like the other elements of a partitioning system em-

bodying the present invention, the base 44 is far less complex than the base present-day systems. Said base 44 includes a track 142 of uniform cross-section which is best shown in FIGURE 16. The track includes a depressed center section 144 providing an upwardly facing groove 146 which extends parallel to the bottom edge of a wall panel 34. Running along both sides of and defining the groove 146 are raised sections 148 which form downwardly extending grooves. Each of the latter grooves is filled with a strip 149 of elastomeric material for sound deadening. The raised sections are integrally connected at their outer sides with vertically upwardly extending flanges 150 which project above said sections.

In addition, the base includes levelling bolts in the form of two or more threaded rods 152 having square bottoms 154 adapted to be snugly received in the track groove 146. A levelling nut 156 is threaded on each rod 152 and has resting on its upper surface a washer 158. Adapted to be seated on the washers 158 of a pair or more of the levelling bolts is an inverted channel bar 160 into which the upper ends of the rods 152 freely extend. Clips 162 of resilient material, e.g., spring steel, are welded at intervals to the top of the inverted channel 160, the jaws of the clips facing upwardly and the clips being spaced from one another. The jaws of the clips embrace a strip 164 of elastomeric material having an upwardly extending rib adapted to be received within the slotted free edge of the tongue 120 projecting from the lower edge of the panel 34. Desirably, the inverted channel 160 is secured to the lower tongue 120 of a wall panel, as by a screw 166 the head of which is contained within the channel and the shank of which engages the base of the slot in the tongue 120. To maintain a predetermined space between the channel 160 and the tongue 120 at the lower edge of a wall panel whereby to insure a definite shadow space below the bottom of a thick wall panel, it is desirable to interpose a rigid spacing block 167 between the base of the clip and said tongue, thereby to fix the distance between the two when the screw 166 is tightened.

This invention now has been sufficiently described to understand how a typical section of the partitioning system is assembled after a pair of posts 32 have been installed and a transom bar fixed between the posts, in other words, how a clerestory panel, a wall panel and a base are mounted on an installed pair of posts and a transom bar. Although either the clerestory panel or the wall panel may be mounted first, for ease of explanation, the mounting of the clerestory panel first will be described. This panel is introduced into the space between the ceiling and the transom bar. As noted heretofore, the distance from the tip of a tongue 120 at one side of the panel to the tip of the tongue 120 at the opposite side of the panel is greater than the distance between the outer opposed faces of the posts. However, by canting the panel slightly one tongue can be and is inserted into a groove 48 of one of the posts, this tongue being thrust to a depth sufficient to enable the opposite tongue to enter into the space between the posts, registered with and inserted into the opposed groove 48 in the other post. Thus, the two opposite side tongues 120 will now be located in the grooves 48 of their associated posts 32 so that the clerestory panel is held against shifting in a direction normal to the planes of its broad faces. The strip gasketings in the grooves 48 are compressed by insertion of the tongues so that they tend to equalize the depth of insertion of the two tongues.

One of the features which is characteristic of a thick panel installed in accordance with the instant invention is the shadow spaces 168 at the side edges of the panel where these side edges, the posts and the tongues form narrow grooves. Similar shadow spaces desirably are provided at the top and bottom edges of thick clerestory and wall panels by the tongues at these areas.

During the insertion of the two side tongues in the manner above described, the elastomeric strip 134 above the top tongue 120 is held under compression inasmuch as the distance from the tip of the tongue 120 running along the lower edge of the clerestory panel to the upper surface of the strip 134 is greater than the distance between the ceiling and the upper face of the transom bar. It is for this purpose, among others, that the strip 134 is made elastic. After the side tongues have been inserted, the bottom tongue 120 will be in registry with the upwardly facing groove 48 of the transom bar and said tongue now is inserted in this groove to engage the strip gasketing therein, thus somewhat lessening the degree of compression of the strip 134. However, the compression preferably is not fully released so as to maintain engagement between the strip 134 and the ceiling surface whereby to form at this point a sound barrier between the areas on opposite sides of the clerestory panel.

The installation of a wall panel resembles the installation of a clerestory panel. That is to say the installation of such panels are identical with respect to insertion of the side tongues in the vertical grooves of the associated previously installed pair of posts. However, there is a difference with respect to the placement and insertion of the top and bottom tongues of the edge banding 118. Assuming that the two side tongues have been entered into the facing grooves of the associated pair of posts, the next step in the mounting of a wall panel is to raise the panel so that its upper tongue 120 will enter into the downwardly facing groove of the transom bar. It will be observed that at this time the clips 162 which are welded to the downwardly facing channel 160 have been engaged with the downwardly extending tongue 120 and held there by the screws 166 so that the channel 160 operationally forms a part of the wall panel. The track 142 is laid on the floor covering between the two posts, the bottoms of the threaded rods 152 are introduced into the track groove 146 and tops of said rods are introduced into the downwardly facing groove of the channel 160. Preferably, these rods are located near the sides of the wall panel (see FIG. 17). Optionally, additional rods may be disposed between the end rods.

While the wall panel is being held with the tongue 120 at the upper edge of the panel forced into the lower groove of the transom bar, the levelling nuts 156 are turned to bring the washers 158 into engagement with the channel 160.

As soon as this operation is completed, the wall panel 34 can be released, it having been manually held temporarily in its uppermost position. The nuts 156 now may be backed off sufficiently to form a shadow space of desired width between the base of the upper banding and the under surface of the transom bar, the width of space desirably matching the width of the shadow spaces at the side edges of the wall panel.

Finally, trim strips 170 are snapped in place to conceal the track, the rods and the elements attached to the bottom tongue of the wall panel. The trim consists of two J-shaped strips, one at each side of the base. Dependent from the inner edge of the horizontal reach of each strip is a short leg 172 which is adapted to be snapped between a jaw of each of the clips 162 and the tongue 120 at the lower edge of the wall panel, the tip of each jaw being angled outwardly to facilitate entry of this leg. In addition, the long outer leg 173 of each trim strip 170 is provided with a downwardly facing U-shaped clip 174 which is adapted to resiliently grasp the upwardly extending flange 150 of the track. Thus, it will be seen that the trim strips 170 are installed by placing the same in their correct lateral position and forcing them downwardly.

The shadow space 168 at the lower side of the wall panel is contained between said lower side edge and the horizontal reach of the trim strip.

It now will be appreciated that the installation of the

celerestory and wall panels is easily effected despite the previous installation of its associated pair of posts. It also will be seen that said panels may be removed without first taking down either of said posts. This is particularly advantageous when it is desired to change panels without disturbing the posts, as for instance, if it is desired to change the decor of a room.

When glass (thin) panels are used for either the clerestory panels or the wall panels, the same mode of installation as for the thick panels is followed. Only two additional features need to be pointed out. Firstly the elastomeric strips 140 protrude upwardly from the molding 138 to engage the ceiling surface and thereby function in essentially the same fashion as the strips 134. A similar strip and molding is provided at the lower edge of the glass pane forming a wall panel 34 (see FIG. 12). Secondly the remaining edges of the pane directly engage the grooves 88 in the gasketing strips.

The slots 126 provided at the side edges of the wall panels can be utilized to support various objects as, for instance, lamps and book shelves, this latter use being illustrated in FIGS. 18–20. To support a shelf 176, there is utilized a bracket 178, the shank 179 of which is shaped in accordance with an ancillary feature of the present invention. Said shank includes a pair of inturned arms 180 having fingers 182 dependent from the ends thereof. The distance between the fingers and the shank is slightly in excess of the thickness of the base 116 of the banding. Thus, to engage a bracket with an already installed wall panel, it simply is necessary to insert the shank of the bracket in the shadow space adjacent a side edge of the wall panel and align the inturned arms with a pair of slots, said arms being spaced the same as the slots. The arms then are thrust into the slots, the ends (including the fingers) thereof being approximately the same height as the slots. Thereafter the bracket is shifted downwardly to locate the tips of the fingers below the lower edges of the associated slots so that the bracket is locked in place against accidental removal. To aid in locating the bracket, there also may be provided on each shank a rearwardly extending leg 184 which is designed to engage the front face of the tongue 120 at the side edge of a wall panel. The bracket extends forwardly from the shank a distance sufficient to accommodate the shelf 176.

It will be appreciated that although the posts 32 hereinabove described are provided with four grooves since they are intended for use in positions spaced from the walls of a building, it also is needful to locate some posts against a building wall. A typical such post which is herein denoted by the reference numeral 186 is referred to as a "half-post." Like the posts 32, a half-post conveniently is made of extruded aluminum. It includes only a single groove 48 in which there is located the usual strip gasketing 46. Said half-post is secured to a wall in any suitable fashion, and it usually is preferable to make this a permanent installation utilizing for this purpose sturdy attaching means like lag screws.

All of the principal elements of a partitioning system embodying the present invention now have been described. However, it is readily apparent that although these elements will serve to form the walls of a room, suitable entrance means are necessary. The particular construction of such means is not a fundamental part of the present invention. However, the manner in which such entrance means are incorporated in a partitioning system is an auxiliary feature of the invention, particularly insofar as such entrance means cooperate with the grooves in the posts. By way of example, there is set forth below a description of two typical types of entrance means, to wit, a sliding door and a swinging door.

A typical sliding door construction is illustrated in FIGS. 21–23. Said construction includes a track 188 which may be formed from extruded aluminum or, alternatively, when heavy doors are employed, steel. Essentially, the track 188 may be a modified transom bar which has been altered to act as a hanging track support for a conventional sliding door. The track, accordingly, may include the usual groove 48 and strip gasketing 46 on its upper surface. The ends of the track are connected to previously installed posts by compression brackets 92 and shoes 190. In most instances, although not necessarily, the track will span two modular spaces, one post thereby being omitted, and, accordingly, it is desirable to make the track of relatively heavy section whereby to enable it to maintain its linearity when subjected to the stresses of hanging doors.

The lower portion of the track 188 includes the usual upturned elongated lips 190 on which ball-bearing wheels 192 with nylon tires are adapted to ride. Said wheels are journalled on hangers 194 on which the hanging doors 196 are secured. Since the construction of the doors per se and their cooperation with the floor track 198 is conventional and is no part of this invention, the same, although shown in detail, will not be described. It may be mentioned, however, that the type of panel used for the sliding door will vary in accordance with architectural requirements. For instance, glass-panelled doors have been illustrated but it is within the scope of the invention to use solid doors.

Attention also is called to the use of the grooves 48 on the posts defining the sliding door opening. Where sliding doors are employed, the strip gasketings below the track 188 may be removed and in their place there preferably are substituted extruded strips 200 of dove-tail section adapted to snugly fit within the broad portions of the grooves. Each said strip is provided with a center partition 202 that is covered with a narrow pile tape 204, thus forming a brush seal lying within the constricted mouth of the groove. Said seal is adapted to be engaged on either side of the partition by the protuberant flanges 205 formed on the vertical edges of the sliding door panels.

A typical swinging door construction 208 is illustrated in FIGS. 24–27. Essentially, such construction comprises a modular frame having tongues on its side edges so that like any typical wall panel it can be interlocked with previously installed posts. In particular, the frame for the swinging door panel includes a head member 210, a threshold member 212, a hinge jamb member 214 and a banding member 216. All of these members conveniently may constitute aluminum extrusions.

The head member (see FIG. 25) is an elongated plate-like body 218 from the outer surface of which a tongue 220 protrudes. The tongue is deeply slotted at its free edge in order to reduce the weight of the head member. The surface of the body opposite to the tongue is formed with a dove-tail slot 222 for a reception of a matchingly shaped gasketing strip 224 from the outer surface of which flexible fins 226 protrude. The fins run in a direction parallel to the plane of the door frame and lightly engage the top of the swinging door 228 to thereby act as a seal.

The banding member 216 is essentially similar to the head member 212 except that, if desired, the slot 222 may be omitted. The threshold member 212 is of conventional shape. The hinge jamb member 214 has a shape identical to that of the head member 210.

The four members 210, 212, 214 and 216 are arranged to define a periphery (exclusive of the tongues) of the door frame 208 which is the same size as that of the wall panels. They may be secured to one another in any convenient fashion. For example, the threshold member and head member may be formed with openings 230 to receive the heads of screws 232 (see FIG. 26) the shanks of which engage tapped bores in the ends of the hinge jamb member 214 and banding member 216. Preferably, the interengagement between these members is made more secure by the inclusion of a panel insert 234 comprising a thick core 236, cover layers 238 and top, bottom and

side edge reinforcing strips **240**. The banding **216** is attached to the outer side edge of the panel insert as by wood screws **242**; and the head member **210** and threshold member **212** are secured to the top and bottom edges of the insert as by wood screws **244**. This arrangement has the further advantage of reinforcing the desired perpendicularity between the banding member **216** and the head and threshold members.

It will be obvious that the door frame **208** can be installed in an interpost space in the same manner as a thick wall panel; that is to say, the tongues at the side edges of the door frame are interlockingly engaged with the grooves of the pair of associated posts in a manner that already has been described in detail. The tongue **220** at the upper edge of the door frame then is inserted into the groove **48** on the lower face of the transom bar so that the said three edges of the door panel are firmly positioned.

The door frame is maintained in a slightly raised position so as to retain the tongue of the head member in the transom bar groove. This can be accomplished, for example, by shimming up the threshold member. In the commercial embodiment of the invention, the shimming is performed by the floor tiles **246**.

A sweep seal **248** has its base embedded in the lower edge of the door **228** so that the bottom portion thereof can lightly engage the threshold member **212**.

To assist in fixing the head and threshold members, these components of the door unit may include outwardly extending lugs **250** matching and registered with the tongues of the jamb and banding members and received with said tongues in the grooves of the posts.

The door **228** is pivotally connected to the hinge jamb member **214** by conventional hinges **252** each having a stationary butt **254** and a swinging butt **256**. The swinging butt is inset in a rabbet **258** in the door and held in place by screws **260**. The stationary butt **254** is received in a rabbet **262** in the hinge jamb member **214**, said rabbet extending transversely across and having a common base with the dove-tail groove **222**. Screws **264** are employed to hold the stationary butt in place.

For aesthetic purposes it is desirable that the metal trim (the thickness of the members **210, 212, 214, 216**) which extends around the periphery of the door frame be of uniform thickness, and for economy it is best to maintain this trim as thin as possible. However, when such a comparatively thin hinge jamb member is rabbeted for reception of the stationary butt, the metal remaining may be too weak to take sudden stress without deformation. Therefore, in order to increase the strength of the portion of the hinge jamb member to which the stationary butt is secured shoes **266** are provided which are of dove-tail shape and are located within the groove of the door post nearest the hinges. The shanks of the screws **264** engage tapped bores in these shoes (see FIGS. 24 and 26) and thus in effect become anchored in the shoes which are strong enough to take the stress placed thereon.

Moreover, since the hinge side of the door unit in the form of the invention being described is not reinforced by a panel insert **234**, it is desirable to provide means to absorb torsional stress imposed thereon. The shoes **256** can be used as such a means. To this end there is additionally added to the tongue extending from the hinge side of the door frame a pair of flanges **268** (see FIG. 24). Each shoe **266** is vertically slotted to prevent engagement between the tip of the tongue and said shoe. Thereby, when the screws **264** are tightened, they will cause the post adjacent the constricted mouth of the groove to be clamped between the shoe and the flanges **268** so as to firmly secure the hinge jamb member to the post. When this arrangement is utilized it is necessary first to insert the tongue on the banding member in the corresponding groove in the associated post and lastly to insert the tongue on the hinge jamb member in its corresponding groove since the depth of insertion of the latter tongue is limited by the flanges **268**.

Any suitable device can be employed to function as a door stop. For example, the associated edges of the door **228** and of the insert panel **234** may be matchingly rabbeted (see FIG. 24).

A partitioning system such as described above is singularly adapted for use in conjunction with a modular air conditioning arrangement which forms an auxiliary feature of the instant invention. Pursuant thereto, one set of ceiling strips, e.g., the strips **66**, is provided with two series of linearly registered slots **270**. Each of said series of slots is disposed on a different side of the center line of the strip and, therefore, is located on opposite sides of the line running from center to center of the post openings **74**. Thus, when a panel, either a thick clerestory panel or a thin clerestory panel, is positioned between a pair of posts spaced along a strip **66**, the upper edge, i.e., tongue, of such panel will engage the strip between the two sets of slots.

In the space above the ceiling, every other pair of parallel walls **70** on the strips **66** is connected to an air conditioning supply duct **272**. The remaining pairs of walls **70** are connected to exhaust, i.e., return ducts or simply to the space above the ceiling. Thus alternate strips are connected by means of the slots **270** to an air conditioning inlet and an air conditioning outlet. When no partitions are erected in a space, such alternate arrangement of the air conditioning slots provides excellent uniformity of temperature and humidity throughout the space. When partitions are installed, the same desirable uniformity of temperature and of air conditioning inlets and outlets will be maintained because wherever a partition is erected it will separate the two sets of slots of either an air conditioning inlet or outlet so that the two sides of the partition will be similarly treated. For example, if partitions are spaced one modular unit apart, such a space would have one set of slots of an air conditioning inlet and one set of slots of an air conditioning outlet; if the partitions are spaced two modular units apart, there will be two sets of each kind of slots etc.

It thus will be seen that there has been provided a partitioning system which achieves the various objects of the invention and is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein described or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described the invention, there is claimed as new and desired to be secured by Letters Patent:

1. For use in a partitioning system of the character described, a post having at least one groove parallel to the length thereof, said groove having a broad back and a narrow mouth, and resilient strip gasketing in said groove, said gasketing being shaped to fill the broad back of the groove and to extend into the narrow mouth thereof, the portion of the gasketing in the mouth of the groove being shaped to provide a pair of spaced parallel narrow ribs lying against the sides of the mouth of the groove and between them defining an outwardly facing groove in the gasketing which is parallel to the groove in the post.

2. For use in a partitioning system of the character described, a post having at least one pair of oppositely outwardly facing registered grooves parallel to the length thereof, each of said grooves having a broad back and a narrow mouth, and strip gasketing in each said groove, the gasketing in each groove being shaped to fill the broad back of the affiliated groove and to extend into the narrow mouth thereof, the portion of the gasketing in the mouth of the gorove being shaped to provide a pair of spaced parallel narrow ribs lying against the sides of

the mouth of the groove and between them defining an outwardly facing groove in the gasketing which is parallel to the affiliated groove in the post.

3. For use in a partitioning system of the character described, a post having two pairs of oppositely outwardly facing registered grooves parallel to the length thereof and oriented in quadrature, each of said grooves having a broad back and a narrow mouth, each of said grooves having resilient strip gasketing therein, the gasketing in each groove being shaped to fill the broad back of the affiliated groove and to extend into the narrow mouth thereof, the portion of the gasketing in the mouth of the groove being shaped to provide a pair of spaced parallel narrow ribs lying against the sides of the mouth of the groove and between them defining an outwardly facing groove in the gasketing which is parallel to the affiliated groove in the post.

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