ERECTABLE AND DISASSEMBLABLE PARTITION AND PANEL THEREFOR

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ABSTRACT
A readily assembleable and disassembleable wall or partition, consisting of a plurality of smooth faced rectangular panels, each providing interlocking elements at the rear thereof so that the smooth faces on each set of panels will together form one side of the partition and the interlocking faces of the panels will integrate both sides of the partition. The interlocking panels are so arranged that each panel interlocks four adjacent quadrants of four adjacent panels on the opposite side. The interlocking elements comprise projections and recesses.

10 Claims, 6 Drawing Figures
ERECTABLE AND DISASSEMBLABLE PARTITION AND PANEL THEREFOR

The present invention relates to a partition system suitable for either partial or full, floor to ceiling arrangement, which is assembled from a plurality of interlocking one piece molded cast or otherwise fabricated rectangular panels. The partitions require no studs and can be quickly assembled or disassembled with a minimum of skill. The largest panel is of a size such as 16 inches × 16 inches or 15 inches × 15 inches so that the pieces to make up the wall can be readily handled.

The panels may be made of any suitable material. A cement or a plastic cementious mix of sufficient density to create structurally sound wall units to make up a wall capable of being load bearing. The front of each panel is smooth, but may have any functional device or decorative arrangement or embossment. In the event of change in decor or in the event of damage to a portion of the partition, a single panel can readily be removed and replaced without affecting the structural integrity of the partition and without requiring modifications of either side of the partition.

Essentially the invention contemplates a plurality of panels which have both recessed and raised portions on their rear side in such manner that any one panel will interlock with from one to four panels. In the case of one panel interlocking with four, each quadrant of each panel on one side will interlock with a quadrant of a panel on the other side of the partition. In no case will the joints, vertical and horizontal, on one side of the wall be aligned with the joint on the other side of the partition or wall except of course at the edges top and bottom of the partition.

Since the partition should be finished on both sides whether or not the partition extends from the floor to the ceiling, it will thus be obvious that half panels must be provided that have the full horizontal dimensions but only half the vertical dimension (as viewed when used in a horizontal mode) so that the half panels will each interlock with two horizontally adjacent panels.

It is also obvious that quarter panels must also be provided that will have half the horizontal and half the vertical dimension so that the quarter panel will interlock with one panel located at the top or bottom of the end of a partition equal in height to some multiple of the basic full module.

Thus, in any single partition which is, for instance 90 inches high, assuming the utilization of 15 inch panels, one side of the partition will have six full panels in any vertical run while the other side of the partition will have five full vertical panels and one half panel at the bottom and top of each run. The same will be true horizontally; at the lower and upper corners, a quarter panel will be used as shown.

It is therefore the primary object of this invention to provide a modular wall partition which may readily be assembled and disassembled and which consists of a plurality of panels with the rear of each panel provided with interlocking raised and recessed portions so that any one panel will interlock with a plurality or adjacent panels forming the opposite surface of the wall so that when the wall or partition is completed, all of the panels therein interlock with each other.

The foregoing and many other objects of this invention will become apparent in the following description and drawings in which:

FIG. 1 is a view in perspective, showing on the right side, the inner surface of a completed partition wall and on the left side a wall in process of erection.

FIG. 2 is a view in elevation of the rear or securement side of one of the full size panels which is utilized to make up the partitions of FIG. 1. The half panels at the bottom and top of the inner surface of the partition on the left side of FIG. 1, constitute simply a bottom half or top half of the structure shown in FIG. 2. The quarter panels shown at the rear of the inner surface of the partition on the left side of FIG. 1, constitute simply a corner quadrant of the structure shown in FIG. 2.

FIG. 3 is a cross-sectional view taken on line 3—3 of FIG. 2, looking in the direction of the arrows.

FIG. 4 is a vertical view in cross-section taken on line 4—4 of FIG. 1, looking in the direction of the arrows.

FIG. 5 is a vertical view in cross-section taken on line 5—5 of FIG. 1, and 5—5 of FIG. 6, looking in the direction of the arrows. At this cross-sectional view it will be noted that the panels on one side are seen edge-on while the panels on the other side of the same partition are seen in cross-section.

FIG. 6 is a perspective view of the rear of four panels interlocking with one panel, the front face of which shows. The four quadrants of this one panel interlocks with a quadrant of each of the other four panels.

Referring now to FIG. 1, the partition 20 and the partition 21 are shown with partition 20 fully assembled and partition 21 in a stage of partial assembly. It will be noted with respect to partition 20 that the inner or visible surface of the partition consists of a series of panels 22, 23, 24 which are vertically arranged, the said panels being repeated in adjacent vertical runs.

The opposite side of the partition 20 consists in each of its vertical runs of full panels 25, 26, half panels 27, and quarter panels 28. As will be seen by examining the partially completed partition 21, the inner side or surface of the partition 21 corresponds to the outer or non visible side of partition 20. In this case the full partition panels 25 and 26 in each vertical run are clearly seen and the half partition panels 27 and the quarter partition panels 28 are each clearly seen.

It will also be noted that in the partially completed partition 21, partition panel 22 corresponds to the partition panels horizontally adjacent to panel 22 of partition 20 and it will therefore be noted that the partition panels 26 and 22 are so arranged that they interlock. Each of the full size partition panels interlocks with four partition panels on the other side of the wall.

Since the partition panels are of predetermined length it will be obvious in order to achieve this interlock that half panels must be used at the top and bottom of one side of the wall and that quarter panels must be used in the corners of the same side of the portion and that there are represented by the partition elements or half modules and quarter modules 27 and 28 respectively on each partition.

The essential element of this invention therefore resides in the partition panels 25, 26, 27, and 28 and a full description thereof will make it possible to determine just how these partition panels are interlocked so that they support each other and form a wall having a smooth exterior surface.

FIG. 2 shows a rear elevation view of one of the partition panels showing its securement surface. FIG. 6 shows the face of one of the panels at the center thereof and shows the rear of four partition panels of the oppo-
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site side of the wall interlocked by the single partition panel 25. FIG. 3 is a cross-sectional view, as already mentioned showing various elements of the single partition panel 25. FIGS. 4 and 5 show the method of interlock. FIG. 6 shows the set-up for interlocking the panels.

Hence, a preliminary description of a single partition panel element 25 as shown in FIG. 2 and in the cross-sectional view of FIG. 3 will make the interlocking method clear. Thereafter, reference to FIGS. 4, 5 and 6 will show the interlocking panels in operation.

Referring now to FIG. 2, each partition panel 25 is as previously described, separately made of a single homogeneous material such as concrete or plastic cement of sufficient density to create a structurally sound panel or with an integrally molded or attached metal structure of sufficient strength so that when combined with other panels will make up a load bearing partition.

Each panel has a peripheral surface which matches the peripheral surface of the adjacent panel on the same side of the wall contacting the same but with no interlocking element on the partition panel interconnecting the same. Therefore, each partition panel may be individually removed and replaced in the event of damage or a desired change of decor or color scheme from a solid color wall to a wall having panels each of a different color. Each panel provides within itself means for interengagement with the partition panel on the opposite side. When the partition panels are in place, the wall is completely integrated and a single structural unit.

The partition panel 25 comprises preferably a single solid member having in two diagonally opposite quadrants on the securement a raised portion or projection 29, and in the remaining quadrants on the securement surface a sunken or recessed portion 30. The opposite face is smooth or may be texturally patterned. The recessed portion 30 is the reverse or complement of the raised portion 29, so that when in proper juxtaposition they will mate neatly and thus not permit any lateral movement. In the illustrated preferred embodiment, both the projection 29 and recess 30 are rectangularly shaped and the corresponding sides of both projections and of both recesses are all parallel.

The recessed parts 30 will receive the projecting elements 29 so that the arrangement indicated in FIG. 1, and more clearly in FIG. 4 and FIG. 6 can be completed with each panel abutting the rear and being secured with respect to the rear of four panels on the other side of the same partition, except for the bottom, top, and side runs of panels of the left side FIG. 1, in which case the intersection of the half panels is with two adjacent panels on the other side; and in the case of corners of the same partition in which case the quarter panel is with one panel on the other side.

It will thus be seen that a complete wall partition may be assembled by arranging the series of panels so that the rear of any one panel on one side intersects with the rear of four panels on the other side, each of the panels being placed in position sequentially.

As the wall is being erected in the arrangement shown in FIG. 1 and FIG. 6, the panels are secured and the structure integrated by the placement of a bolt 31 and washer 32 and threading the bolt into the screw sleeve 33 mounted or imbedded in the center of each panel, and open to the rear or by an appropriate fastening device securing each of the four corners of each panel to the rear center of the panel on the other side of the partition. The fastening device is then covered with a piece 34 made to enclose the device for appearance and practical reasons.

It will be obvious that the various panels may be inserted sequentially as indicated on the left side of FIG. 1, in order to form a partition. In the case where the panels are cut to size to fit an existing room, which is not dimensionally proportioned to the panel spacing, a two-piece capping rail equal in width to the entire double thickness may be used. Each piece is essentially L shaped, and a pair may be placed together to form a U shaped cap for the raw edge of the wall.

By this means therefore a simplified partition is provided which presents an erectable and disassemblable partition in which the visible walls are smooth, being composed of 15 inches, more or less, squares which are self-supporting, in which each of the panels forming one of the squares of a partition cooperate and support adjacent quadrants of four similar panels on the opposite wall.

Although the partition is thus integrated, solid and strong, it may readily be disassembled merely by removing the screws or fasteners 31 or 32 as the case may be, any individual panels being removable simply by removing the particular screws or fasteners which hold it in place without affecting the structure of the wall. Thus a partition which is damaged or which is intended to have a different color scheme may be modified by inserting a new panel or panels in place of an existing panel or panels without affecting the structure of the partition.

Also, if it is necessary to move the partition for any reason, the partition as a whole may readily be disassembled and reassembled at the new or moved location. This makes it possible very readily to enlarge cubicles or rooms and to change the arrangement of cubicles or rooms. A corner office for instance, which was regarded as of the proper size by one occupant, may readily be enlarged by moving the wall at the expense, of course, of decreasing the size of an adjacent room.

In the foregoing, this invention has been described in connection with preferred illustrative embodiments thereof. Since many variations and modifications of this invention will now be obvious to those skilled in the art, it is preferred that the scope of this invention be defined not by the specific disclosures herein contained but only by the appended claims.

The embodiments of the invention in which an exclusive privilege or property is claimed are defined as follows:

1. A partition panel having an exterior surface on one side and a securement surface on the other side; said securement surface having at least one projection extending out of said securement surface and having at least one recess into said securement surface; said projection and said recess being shaped complementary to each other in a manner such that said projection could be securely mated with and inter-fitted into said depression; said securement surface having two identical separate projections and both said projections having corresponding sides; said projection corresponding sides being oriented parallel to each other; said securement surface having two identical said recesses, and said recesses having corresponding...
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5. The partition panel of claim 1, wherein said panel is rectangular and said quadrants divide said panel into four equal size rectangles.

6. The partition of claim 5, wherein the said securement surface of one said panel interlocks with four adjacent quadrants on the said securement surfaces of four said panels in the other said plurality of panels.

7. The partition of claim 6, wherein the said interlocking occurs due to each said projection on said panel being entered into a said recess and due to each said recess on said panel receiving a said projection.

8. The partition of claim 7, wherein a recessed and covered fastening device is provided and secures the adjacent corners of four adjacent said panels in one said plurality of panels to the center of a said panel in the other plurality of panels.

9. The partition of claim 7, in which an additional half-sized panel is provided along one side of said partition adjacent an edge of said partition; said half-size panel including only two of said quadrants next to each other, with one said quadrant having a said projection and the other said quadrant having a said recess.

10. The partition of claim 9, in which an additional quarter-size panel is provided on one side of said partition in a corner of said partition; said quarter-size panel including only one said quadrant and said quarter-size panel having only one of a said recess and a said projection for cooperating respectively with one said projection and said recess on the other said plurality of panels with which said quarter-panel is interlocked.

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