United States Patent

Baran

[15] **3,681,881**

[45] **Aug. 8, 1972**

[54] **WALL DECORATED WITH PANELS**

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[21] Appl. No.: **47,482**

[52] **U.S. Cl.** **52/29,** 52/38, 52/64, 52/311, 52/508, 248/288

[51] **Int. Cl.** **E04b 1/40**

[58] **Field of Search** ....52/345, 508, 311; 181/33 GB, 181/33 GE, 30; 248/479, 476, 188, 288, 475

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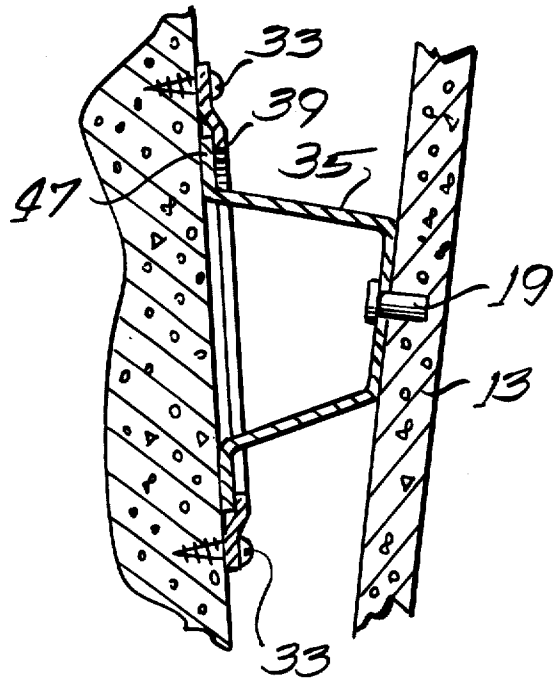
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[57] **ABSTRACT**

Decorated wall having panels mounted at an angle to the plane of the wall, said panels attached to the wall by means of mounting clips which provide angular mounting of the panels, and methods for decorated walls with panels and said panel mounting clip.

9 Claims, 9 Drawing Figures



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SHEET 1 OF 3

Fig. 1.

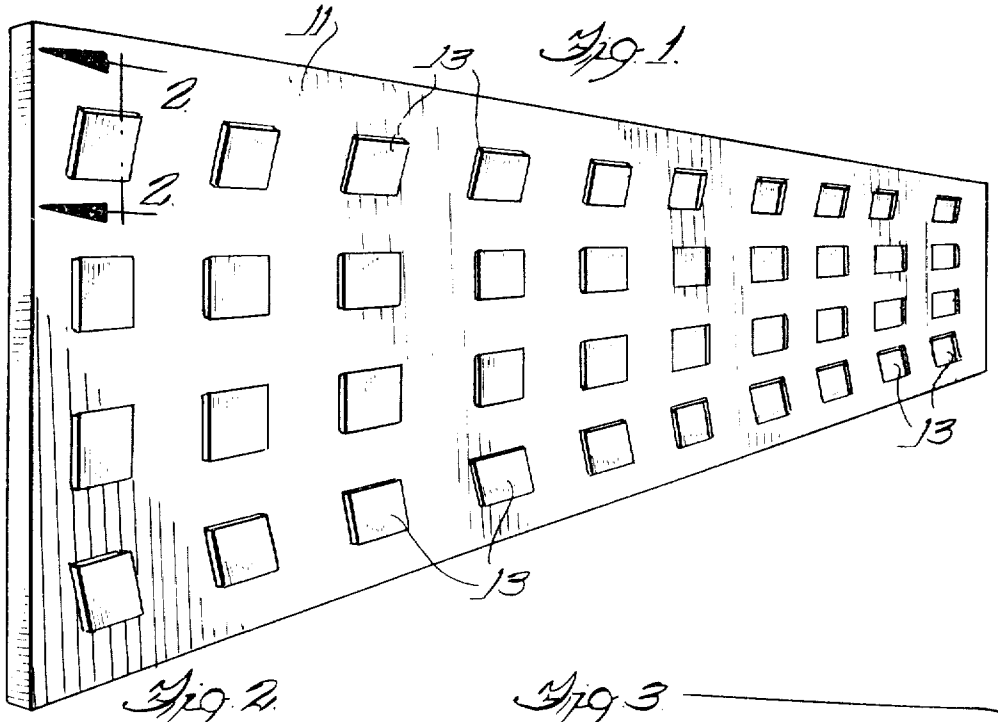


Fig. 2.

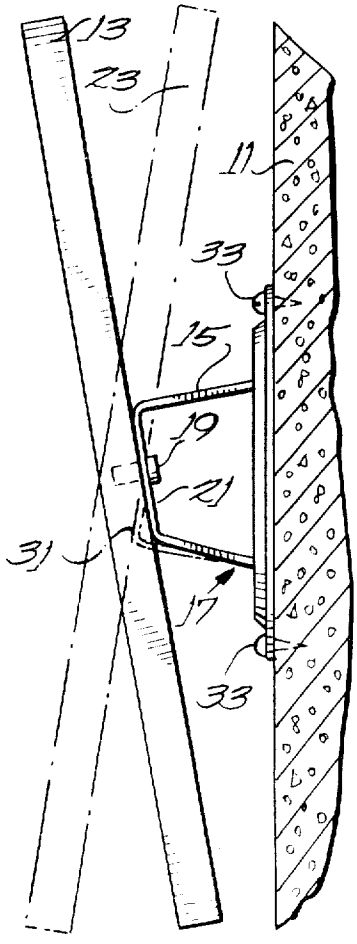
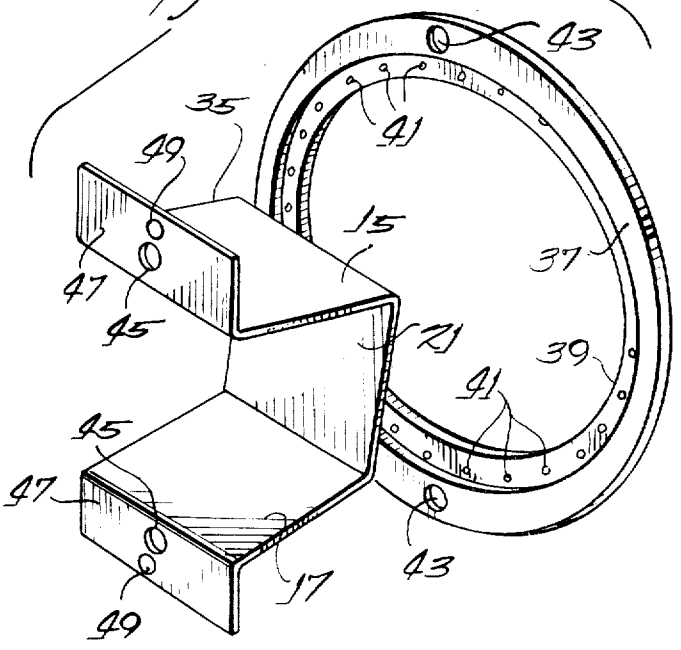


Fig. 3



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Fig. 4

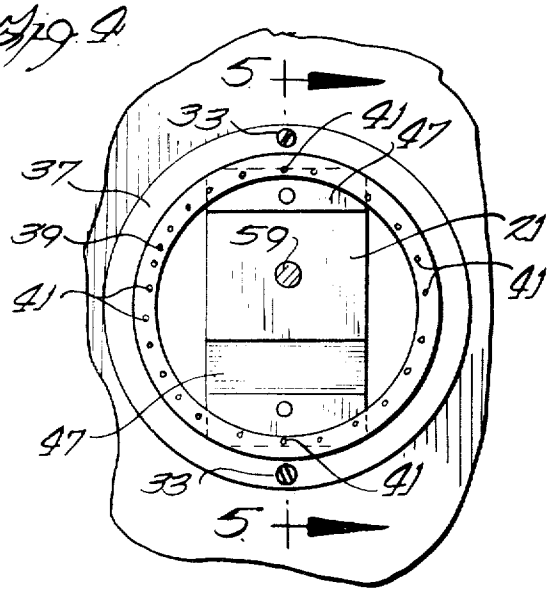


Fig. 5

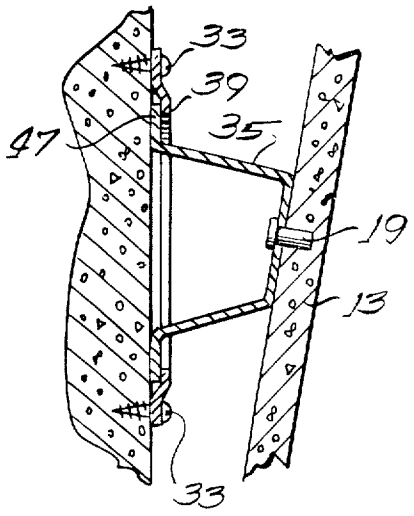


Fig. 6

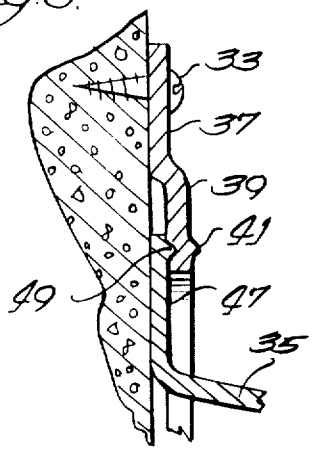


Fig. 7

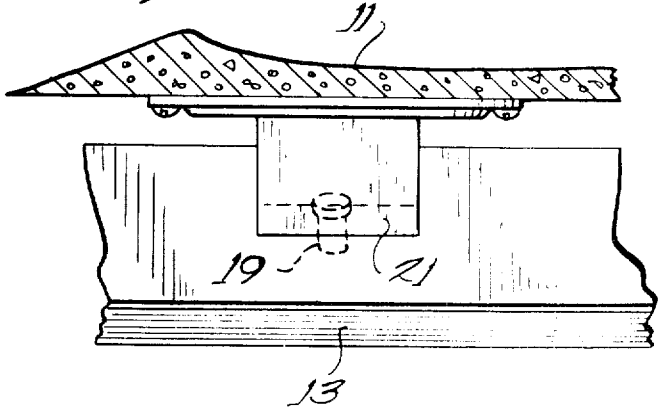
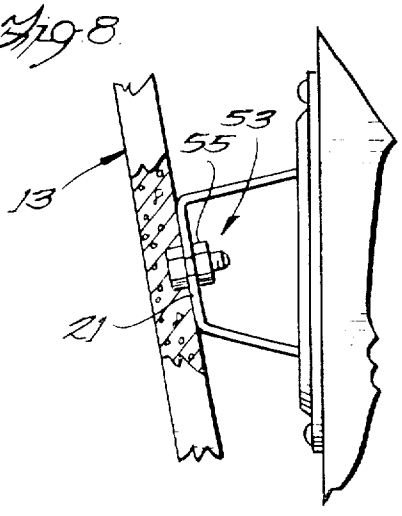


Fig. 8



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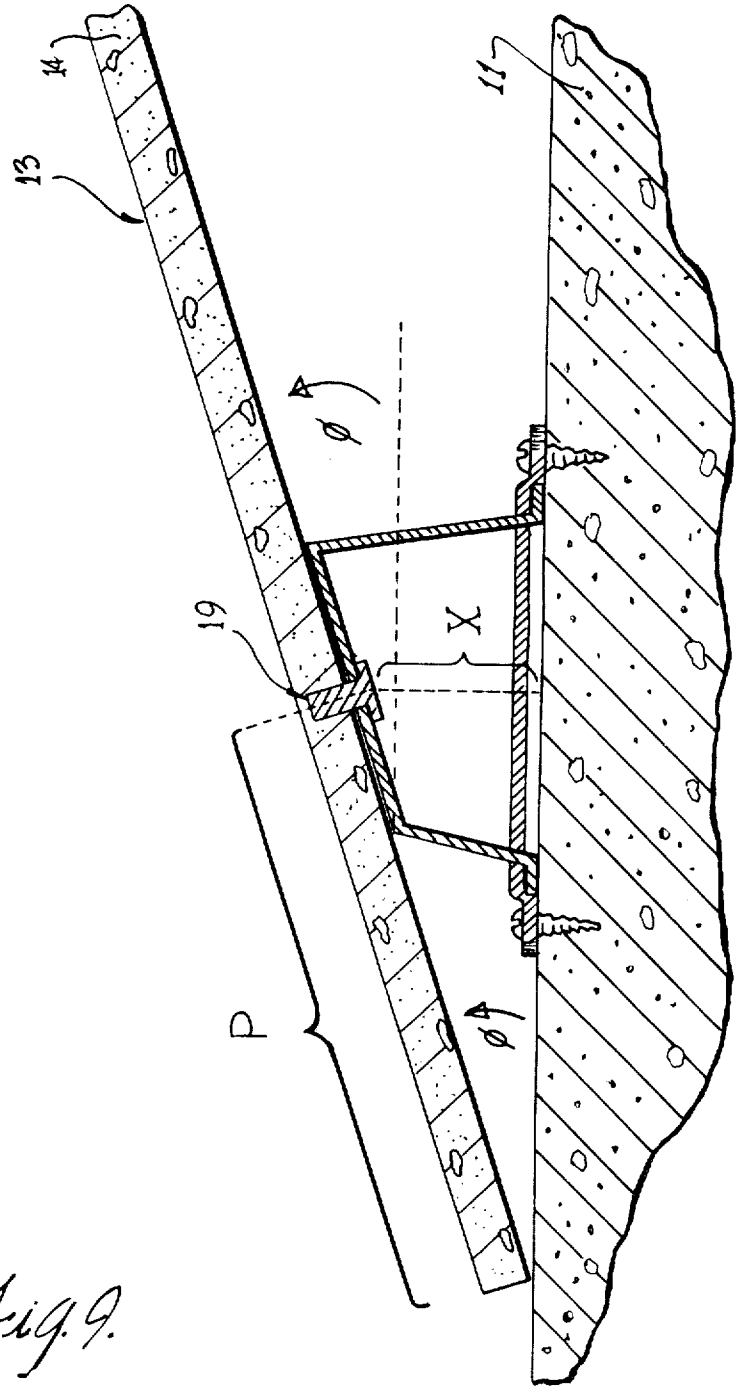


Fig. 9.

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WALL DECORATED WITH PANELS

BACKGROUND OF THE INVENTION

Various types of panel elements have long been used to decorate walls in buildings. Panels, which can be of almost any shape, design, or composition, have been attached to walls in a variety of patterns for aesthetic purposes and, in some cases, depending on the composition of the panel, to minimize sound reverberation within a room. A panel may be attached to a wall or slightly away from the wall, depending on the aesthetic affect desired. See, for example, U.S. PAT. No. 3,264,793 which discloses a fastening device for attaching a cladding panel to the wall or similar substrate. There, a method is disclosed for fastening a panel in such a manner that the panel is held in place at a slight distance from the wall. Also, see U.S. PAT. Nos. 2,317,015 and 2,818,948, for similar panel fastening devices.

Although the above methods for attaching panels to walls have increased the number of ways to decorate walls, they have one common shortcoming. This shortcoming relates to the manner in which a panel is attached to a wall. Typically, the panel will be attached directly to a wall or at a distance from the plane of the wall. In all previously designed panel mounting clips, however, no provision was made for mounting panels at an angle from the plane of a wall to increase the variety of decorative patterns. The only known wall attachment means that allow a somewhat angular placement are the various devices available for hanging picture frames of mirrors. See, for example, U.S. PAT. No. 2,299,443 which discloses a picture frame attachment means. This and similar attachment means, however, generally require that the frame be partially supported by gravity, thus greatly limiting the direction of angular disposition, the angularity, and the distance at which an object can be mounted from the plane of the wall.

SUMMARY OF THE INVENTION

It has now been found that a panel mounting clip can be made in such a way as to provide for mounting panels at an angle in any direction from the plane of a wall rather than merely at a distance from a wall and essentially parallel to a wall's plane.

This unique means of attaching panels is made possible through the use of a panel mounting clip designed in such a manner as to provide an angularly disposed mounting base for the panel. Thus, when a panel is attached to the wall by means of such a clip, an infinite number of decorative patterns are available. The panels may be mounted in such a manner as to have panels mounted in the same angularly disposed direction, alternating directions, or any of an infinite number of combinations of angular dispositions.

PREFERRED EMBODIMENTS

To better understand the principles set forth in this invention reference should now be made to the attached drawings.

FIG. 1 shows panels mounted at an angle to the surface of a wall. The panels 13 are attached in such a way that their surface plane is not parallel to the plane of the wall 11.

FIG. 2 shows a partial cross-section of one panel and its attachment bracket as taken through lines 2—2 in FIG. 1.

FIG. 3 shows an example of the panel attaching device shown in FIG. 2 and utilized in FIG. 1.

FIG. 4 shows a top view of the panel attaching device (with the panel removed) that is utilized in FIG. 1.

FIG. 5 shows in greater detail a partial cross-section of a panel and its brackets taken through line 5—5 in FIG. 4.

FIG. 6 shows in yet greater detail the method in which the panel shown in panel 5 is attached to the wall.

FIG. 7 shows an underview of a panel attached to a surface.

FIG. 8 shows one way a panel may be attached to the panel mounting base of the bracket which is attached to the wall.

FIG. 9 is an enlarged cross-sectional view, partially cut away, disclosing the basis for certain calculations following herein.

Returning to FIG. 1, it can be seen that the panels 13, are attached to a wall 11 in such a way that the surface plane of the panels forms an acute angle with the surface plane of the wall. In this example the panels are so positioned as to slant towards an imaginary line running horizontally at the mid point of the wall. Of course, the planes of the attached panels can be made to create any desired aesthetic effect. Thus, the planes of the panels may all face in the same angular direction, in alternating directions, converging directions, diverging directions, or in any direction that, in combination, is aesthetically desirable.

FIG. 2 represents a cross-section taken through line 2—2 in FIG. 1. There, a panel 13 is attached by a panel mounting bracket 35 which in turn is attached to a wall 11. The panel attaching means 19 can be of any type suitable for attaching panels to a generally flat surface. It can be noted that the panel mounting base 21 is angularly disposed to the plane of the wall 11. The panel mounting base is held away from the wall by panel mounting bracket legs 15 and 17. It can also be noted that leg 17 is somewhat shorter than leg 15 thus providing angularity to the panel mounting base 21. However, it should be further noted that the angularity can be produced by other means. For example, the legs 15 and 17 can be at greater of lesser angles to the panel mounting base, thus effecting the overall angularity of the panel mounting base.

FIG. 2 also shows a variation in the way the panel 13 may be mounted on the panel mounting base to the wall. This variation is represented by a broken outline of the panel 23 mounted on a mounting base 31 in which the direction of angularity has been varied.

FIG. 3 shows the panel attaching components in exploded view. There, the panel mounting bracket 35 is shown to consist of a panel mounting base 21, and legs 15 and 17. The legs 15 and 17 terminate proximally at the panel mounting base 21. The legs 15 and 17 terminate distally in the form of flat portions or flanges 47 which lay in a plane parallel to the plane of the surface to which they are to be attached. It should be noted the flanges 47 can have wall attaching orifices 45 if the bracket is used alone without the accompanying mounting member of retaining ring 37. However, if the

panel mounting bracket is used with the accompanying retaining ring **37**, its rotational movement may be limited by pips **49** capable of engaging indentations **41** regularly spaced on an inwardly and upwardly flanged generally circular retaining ring extension **39**. The panel bracket retaining ring **37** may be attached to a wall or other surface by any conventional means such as, for example, simple mounting orifices **43** capable of engaging screws **33** as shown in FIG. **2**.

FIG. **4** shows a top view of the panel attaching components shown in FIG. **3** when they are assembled without a panel attached. There, the retaining ring **37** is held in place against the wall by screws **33**. An upwardly and inwardly extending flange of the retaining ring **39** has regularly spaced indentations **41** capable of receiving and holding the pips **49** on the flanges **47** of the panel mounting bracket. The panel mounting base of the bracket **21** may have any conventional panel attaching means associate therewith. For example, a simple orifice **59** can be provided to secure a bolt extending from a panel. Thus, the under surface of the panel will be brought into intimate contact with the panel mounting base **21**. When placed in position as shown in FIG. **4**, the panel mounting bracket can be rotated in either direction with slight rotational pressure. Thus, one can set the angularity of the attached panels into any firm position on the pips **49** of the panel mounting bracket engaged the indentations **41** of the upwardly and inwardly directed retaining ring flange. With a series of panels thus mounted, one can count the clicks associated with rotational movement and create an effect of symmetry or variations thereof.

FIG. **5** shows a cross section of a mounted by any conventional attachment means **19** to the bracket **35** having legs ending in flanges **47** one of which is shown tucked under the inwardly and upwardly directed flange **39** of the retaining ring. The retaining ring is secured to the wall by any conventional means such as screws **33**.

FIG. **6** shows an even more detailed view of the wall attachment means depicted in the upper portion of FIG. **5**. There, it can be seen that the leg **35** terminates in a flange **47** snugly tucked under the upwardly and inwardly directed retainer ring flange **39** in such a manner that the protruding pip **49** engages an indentation **41**. The retaining ring body **37** is attached to the wall by screws **33**.

FIG. **7** shows an underview of the panel when attached to a surface. It should be noted that at this point that panels may be attached by the device disclosed in this invention not only on walls but ceilings and other surfaces. A panel **13** is attached to a wall **11** or similar surface in such a way that a portion of the panels undersurface is brought into intimate contact with the panel mounting base **21**. Any panel attachment means can be used to secure the panel to the panel mounting surface. Here, a plug **19** is shown.

FIG. **8** shows an example of another means for attaching the panel to a panel mounting base surface. A nut **55**, which can be permanently imbedded in the panel mounting base **21** has received a bolt **53**. The bolt **53** can project from the under surface of a panel **13**. This allows easy mounting of the panels. With a bolt protruding from the underside of the panel, the panels can be attached to the already mounted panel mounting brackets by simply spinning the protruding bolt into the nut retained by the base of the panel mounting bracket. Thus, panels can be easily spun on or spun off.

From the above described figures, and from FIG. **9**, it can benseen that there is a relationship between the length of the panels to be used and the angularity at which they may be mounted to the wall.

FIG. **9** shows derivation of the equation to determine the maximum permissible length of a panel that can be attached to a clip of a given mounting base angularity with respect to the wall. The maximum distance from the center of the attachment means on the panel mounting base **19** to the point **32** where the panel mounting base **19** to the point **32** where the panel just touches the wall **11** is satisfied by the equation

$$P = X/\text{Sin}\,\phi \text{ where}$$

P = The distance from the center of the panel element's mounting base attachment means to the farthest permissible point on the panel element, when mounted, in inches,

X = The distance from the center of the mounting base attachment means to the wall, in inches, and

ϕ = The angle generated by the plane of the mounting base (when extended) from the plane of the wall when said clip is attached to said wall, in degrees.

As a practical matter, it has been found desirable to use panel's whose P value in the above equation is less than the maximum value permissible in the equation. This allows attachment of the panel to the angularly disposed mounting base in such a manner as to avoid any marring or scratching of the wall when the panel is attached. For example, a more practical determination of the allowable distance for the value P would be satisfied by the equation

$$P = \frac{X}{\text{Sin}\theta} - 1 \text{ inch}$$

where P, X, *and* 0 have the same definitions as above.

It should be noted that the panels that may be attached to the above described mounting clip need not be rectangular. For example, any shaped panel may be used as long as the distance P in FIG. **3** satisfied the equation

$$P = \frac{X}{\text{Sin}\theta} - 1 \text{ inch (or more)}$$

Also, the clips may be made of any material capable of supporting a given panel size and of being attached to a wall. Thus, metal, wood, or even plastic materials may be used to make the clip. For economy and ease of making, however, metal especially galvanized steel, has been found ideal because of its workability and low cost.

For example, an attachment clip was made with dimensions of 3-11/16 inches long, 1-25/32 inches deep and 2 inches high. It was manufactured from 20 ga. galvanized steel to a tolerance of 0.01 inch. The resulting panel mounting clip allowed convenient mounting of a 12 inch x 12 inch panel at a 10°angle from the plane of the wall. When centrally attached to the wall by means of the above described mounting clip, the panel had a ⅝ inch clearance from the wall at the closest point to the wall and 2⅝ inch clearance at the farthest point from the wall.

It is understood of course that there are many possible variations for the above described invention. The decorating methods described above are not restricted to walls. For example, ceilings and the outer surfaces of buildings may be similarly decorated. Also, the size of the panels used may be of any length compatible with any of the equations given above. Thus, the panels may be circular, square, or of any geometric shape consistent with the given equations. It should be noted that the panels may be made of any composition capable of being attached to the above-described mounting clip and the angle of the clip's angularily disposed mounting base may be of any angle consistent with the above equations. Further, the attachment means used for attaching the panel mounting bracket to the wall or the attachment means used for mounting the panel on the panel mounting base may be any of a number of conventional attachment means.

It will be understood further that panels of different sizes may be used to decorate a single wall, and it is further contemplated the clips may be mounted to the wall in differing spatial configurations, to provide a wide variety of decorative effects.

Having thus described my invention, I claim:

1. A decorated wall having a plurality of individual panels affixed in spaced relation to said wall, the major plane of the surface of at least some of the panels forming an acute angle with the plane of said wall, said panels being fixed to said wall by means of brackets whose attachment plane forms said angle with the plane of said wall, said brackets each comprising an integral U-shaped element having a panel mounting base and two generally parallel legs depending therefrom, one leg being shorter than the other, and further including mounting members for mounting said brackets on said wall, each of said members having a portion extending flat across the surface of the wall for attachment to the same, and a second portion raised from the first away from the wall, said second portion being movably mounted over each of said legs of one of the brackets and extending completely around said bracket, whereby the panels provide the desired decorative pattern.

2. The wall as defined in claim 1, wherein said mounting members comprise generally circular rings, and said legs include portions extending flat over the wall outwardly away from each other and under said raised second portion, whereby each said bracket may be rotated within one of said mounting members to the desired angular orientation.

3. The wall as defined in claim 2, and further including means spaced along said raised portion and said flat leg portions for limiting the rotation of said brackets within said members to discrete, regularly spaced positions.

4. The wall as defined in claim 3, wherein said limiting means includes indentations along said raised portion and a raised pip on each of said flat leg portions positioned to engage each of said indentations as said bracket is rotated within said member.

5. A decorated wall having a plurality of individual panels affixed in spaced relation to said wall, the major plane of the surface of at least some of the panels forming an acute angle with the plane of said wall, said panels being fixed to said wall by means of brackets whose attachment plane forms the said angle with the plane of said wall, said brackets each comprising a panel mounting base and means for holding said base nonparallel to said wall, and further including mounting members for mounting said brackets on said wall, each of said members having a portion extending flat across the surface of the wall for attachment to the same, and adjusting means for permitting relative motion of said bracket with respect to said mounting member within a plane parallel to the surface of the wall, but not in a direction away from said plane.

6. The wall as defined in claim 5, and further including means spaced along said member and said holding means for limiting the movement of said bracket within said member to discrete, regularly spaced positions.

7. The wall as defined in claim 6, wherein said holding means include two legs depending from said panel mounting base, said legs having portions extending flat against the wall and outwardly away from each other, and wherein said adjusting means includes a flange raised from said flat member portion away from said wall, said flange extending across said flat leg portions so as to movably retain the latter between the flange and the wall.

8. The wall as defined in claim 7, wherein said flange is generally circular and extends completely around said bracket, whereby said motion of the bracket within said plane is generally circular.

9. The wall as defined in claim 8, wherein said limiting means include indentations along said flange and a raised pip on each of said flat leg portions positioned to engage each of said indentations as said bracket is rotated within said member.

* * * * *

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,681,881 Dated August 8, 1972

Inventor(s) Donald H. Baran

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the title page, the assignee should be listed as -- [73] Assignee: United States Gypsum Company --

Col. 1, line 34, "of" should read -- or --;

Col. 2, line 49, "of" should read -- or --;

Col. 4, line 38, "X/Sin θ" should read -- X/Sin Ø --.

Col. 4, line 41, "0" should read Ø.

Signed and sealed this 9th day of January 1973.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents