

May 10, 1932.

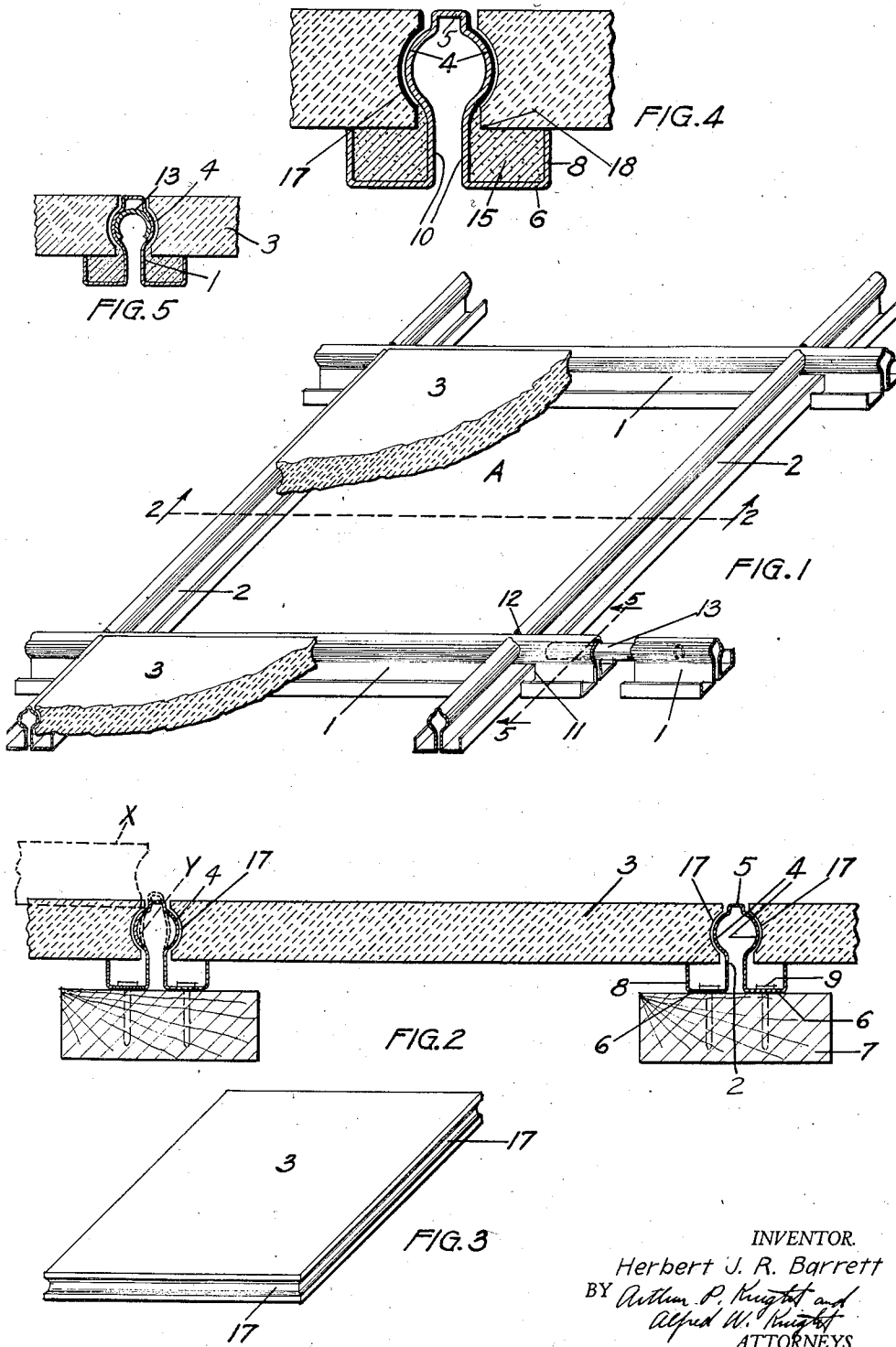
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1,857,490

WALL SURFACE CONSTRUCTION

Filed July 14, 1930

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

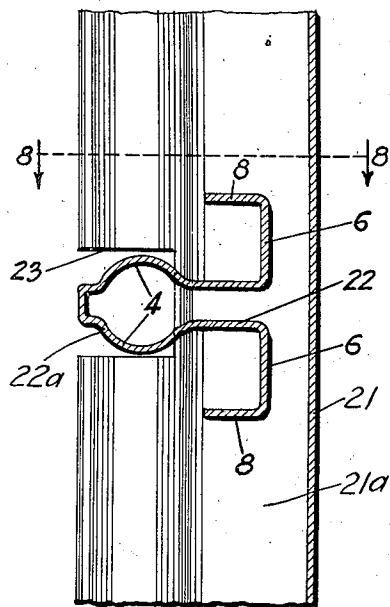
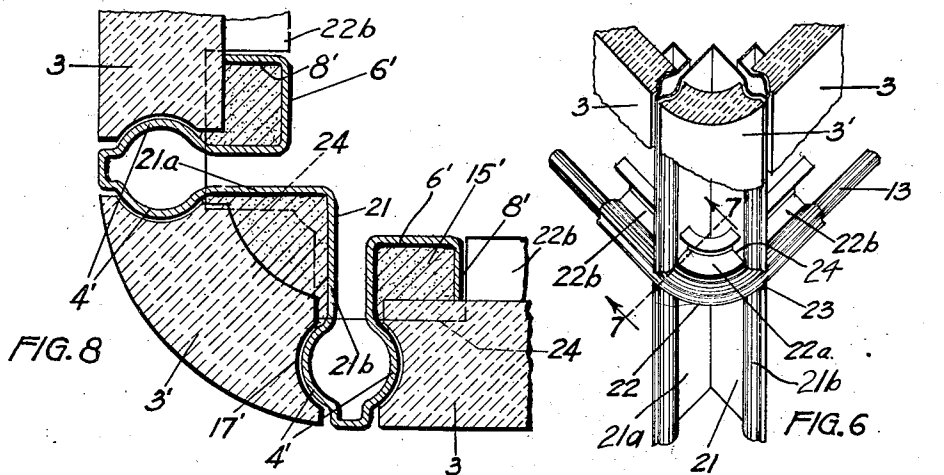


FIG. 7

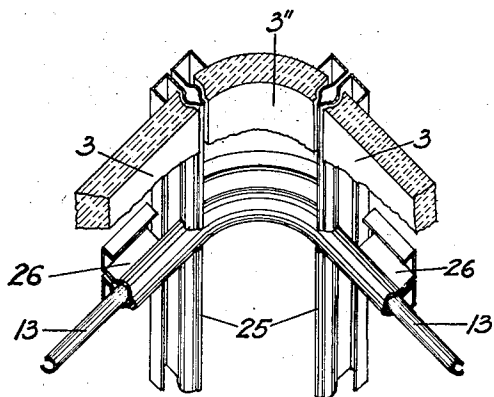


FIG. 9

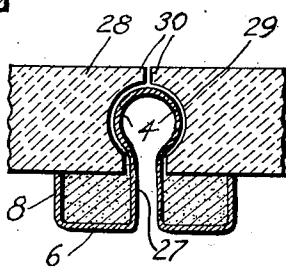


FIG. 10

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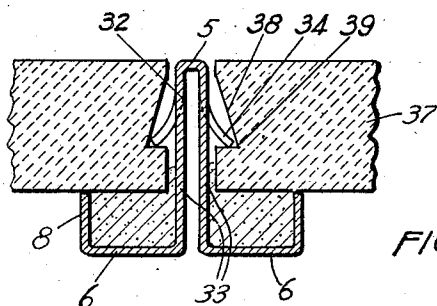


FIG. 14

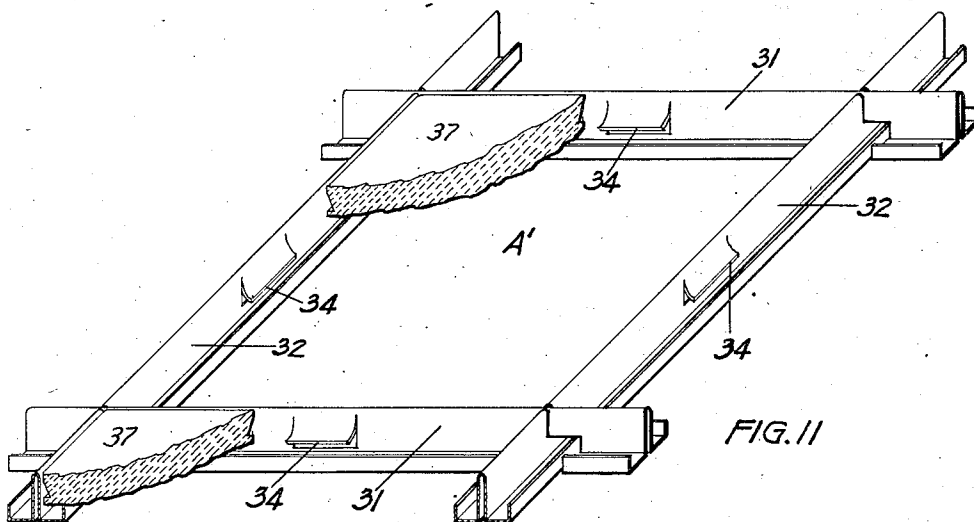


FIG. 11

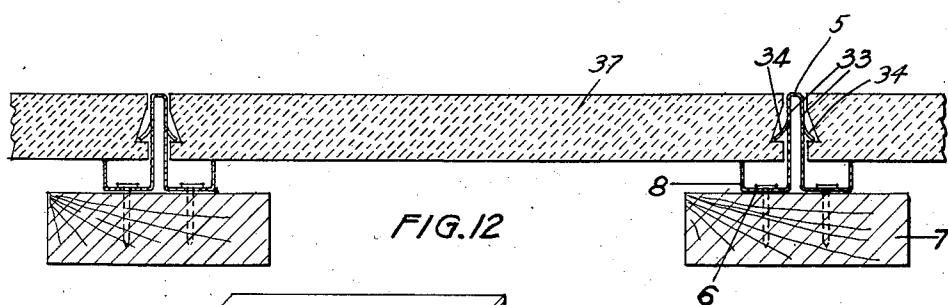


FIG. 12

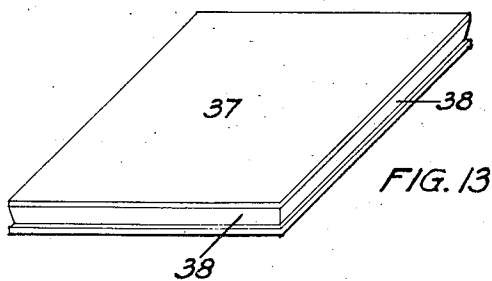


FIG. 13

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UNITED STATES PATENT OFFICE

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WALL SURFACE CONSTRUCTION

Application filed July 14, 1930. Serial No. 467,753.

This invention relates to a novel construction for use in building wall surfaces or the like, the term "wall surface" being understood to include the surface or covering of either a side wall of a room or structure, a bottom wall (floor), or a top wall (ceiling or roof), or in general, any wall disposed in either vertical, horizontal, or inclined position. The invention relates particularly to the construction of wall surfaces with slabs, blocks, plates, or other pre-formed sectional members of suitable wall surface material, such as caustic tile or other ornamental or building tile, concrete or other pre-formed slabs of natural or artificial stone, wood blocks, glass, marble, composition blocks or slabs such as plaster board or the like, or in general any type of pre-formed or pre-prepared members of relatively extended surface adapted for forming wall surfaces.

The principal object of the invention is to provide an improved construction in wall surfaces of the above type, and particularly to provide for building or forming such a wall surface more quickly and economically than has heretofore been possible.

A further object of the invention is to provide a sectional wall surface structure whose members are supported and held in proper position more rigidly and permanently than by the means heretofore employed.

A further object of the invention is to provide a wall surface structure having a novel and pleasing appearance, particularly in so far as regards the appearance at the junctures of the adjacent members or sections.

A particular object of the invention is to provide a wall surface structure in which the use of mortar or other cementitious, bituminous, or plastic materials for holding the sectional members of the wall surface in position is eliminated, this object being accomplished according to my invention by the use of grooved, slotted or recessed sectional wall surface members, together with resilient supporting or frame members extending along the lines of juncture between adjacent sectional wall surface members, and adapted to permit forcible insertion of said wall surface members therebetween and to engage

and firmly hold in position the wall surface members so inserted.

The wall surface structure of my invention comprises essentially a frame structure comprising a plurality of frame members, certain of which extend transversely with respect to others, so as to provide a grid-like or reticulate frame structure separating the wall surface area into sections whose size and shape correspond to the size and shape of the sectional wall surface members, said frame members being provided with yielding or resilient interlocking means projecting into the sectional areas therebetween and adapted to permit forcible insertion of the sectional wall surface members therebetween, and a plurality of sectional wall surface members of the type above described mounted, or adapted to be mounted, between said frame members and provided with interlocking means, such as recesses, grooves or notches, at their edges adapted to engage said interlocking means on the frame members so as to hold said wall surface members firmly in position when inserted therebetween.

Various forms of frame members and interlocking means thereon may be employed, and modifications may also be made in the disposition and shape of the recesses or interlocking means in the edges of the sectional wall surface members. Such modifications, as well as the general essential features of the invention, may be better understood by reference to the accompanying drawings illustrating embodiments of my invention.

Referring to said drawings:

Fig. 1 is an isometric projection of a portion of a wall surface structure, with the sectional wall surface members thereof largely broken away.

Fig. 2 is a transverse section on line 2—2 in Fig. 1, with the sectional wall surface members shown in position.

Fig. 3 is a perspective view of a tile or other sectional wall surface member forming a part of my invention.

Fig. 4 is an enlarged transverse section through a frame member and portions of the adjacent sectional wall surface members,

showing means for providing a waterproof construction.

Fig. 5 is a section on line 5—5 in Fig. 1, showing a means which may advantageously be employed for securing together adjacent lengths of frame members.

Fig. 6 is an isometric projection showing the arrangement of the frame members and wall surface members for forming a salient angle or corner of a wall surface.

Fig. 7 is a section on line 7—7 in Fig. 6.

Fig. 8 is a section on line 8—8 in Fig. 7.

Fig. 9 is a view similar to Fig. 6, showing a reentrant angle or corner of a wall surface.

Fig. 10 is a sectional view, showing a modification of the invention.

Figs. 11, 12, 13 and 14 are views similar to Figs. 1 to 4 inclusive, showing another embodiment of the invention.

Referring to Fig. 1, the frame members are shown as comprising a series of substantially parallel members 1, and a second series of substantially parallel members 2 extending transversely with respect to the first mentioned members, for example, perpendicular thereto. Said frame members are so spaced that each of the spaces A enclosed therebetween corresponds in size and shape to the sectional wall surface members with which the wall surface is to be built up. In this case this space is shown as rectangular, and the tile or other sectional wall surface members 3 are also rectangular, as shown particularly in Fig. 3. The frame members are shown as composed of thin strips of resilient metal such as steel, Monel metal, stainless steel, bronze, brass, tin or copper and the interlocking means thereon comprise outwardly bowed or curved beads or ridges 4 projecting outwardly at each side from a narrow or restricted outer edge portion 5 whose front face preferably lies substantially in the plane of the front face of the adjacent wall surface members, as shown in Fig. 4, said interlocking beads or ridges extending longitudinally of said frame members. The portions 10 of said frame members rearwardly of said interlocking projections are displaced inwardly toward one another. The frame members are also provided with flat portions 6 adapted to abut against suitable fixed supporting means, such as wooden beams or studs 7, and are also preferably provided with flanges or other suitably shaped portions 8 adapted to engage and support the rear face of the tile or other sectional wall surface members. These frame members, having a cross-sectional shape such as shown particularly in Fig. 4, may easily be formed by simple bending or forming operations from flat sheets or strips of metal.

The frame members 1 and 2 may be secured to fixed supporting means constituting the main wall structure in any suitable manner. For example, in Fig. 2 the flat portions 6 are

shown as secured to the wooden beams 7 by means of nails 9. Where the frame members cross one another they may be notched so as to form a joint similar to that known as a "halving" joint in the case of wooden beams or timbers. For example, as shown in Fig. 1, the frame members 1 may be notched upwardly from their lower face as shown at 11 for a sufficient width to receive the lower portion of the frame members 2, while the frame members 2 may be notched downwardly from their upper face as shown at 12 for a sufficient width to receive the upper portion of the frame members 1. In case it is necessary or desired to connect together two frame members end to end, this may be effected by a dowel member 13 consisting, for example, of a split resilient metal sleeve of suitable length adapted to be inserted as shown in Figs. 1 and 5 between the opposing beads 4 of each frame member and to be frictionally held therebetween, due to the resilience of the dowel member and the frame member. Such resilience permits the dowel member to be compressed and inserted to the desired position in the frame member, and to expand upon release and grip the frame member internally.

In case it is desired to provide a waterproof construction preventing penetration of water behind the tile or other wall surface members, the channels or spaces above the flat portions 6 and inside the flanges 8 may be filled with mortar, bituminous or asphaltic bedding material, or other filling material indicated at 15 in Fig. 4.

In forming a wall surface, the frame members are first secured in position so as to form a grid-like structure over the wall area to be covered, and the tile or other sectional wall surface members 3 are then forcibly inserted into the spaces therebetween. Said sectional wall surface members are provided at their edges with grooves or recesses 17 adapted to fit over and engage the beads or projections 4 on the frame members. When the tile or sectional wall surface members are brought to a position such as indicated in dotted lines at X in Fig. 2, and are forcibly inserted between adjacent frame members, the pressure of the lower edges or corners 18 thereof forces the beads or projections 4 inwardly, the resilience of the frame members permitting the same to be deformed to some such position as indicated in dotted lines at Y in Fig. 2. The wall surface members may, therefore, be forced inwardly against the supporting means 8, whereupon the projections or beads 4 are again moved outwardly by the resilience of the frame members so as to engage in the grooves or recesses 17. In Fig. 4 the parts are shown on a somewhat enlarged scale and a slight clearance is shown between the face of the grooves 17 and the beads or projections 4, but it will be under-

stood that in actual construction these parts fit one another snugly when in assembled position so as to hold the wall surface members rigidly in place and in contact with the rear face supporting flanges 8. The placing of the tile or other sectional wall surface members in position may thus be accomplished quickly and easily without requiring the careful forming of finished joints of mortar, cement, bituminous material, or the like therebetween.

In case the plaster, putty, mastic, bituminous material, or other bedding material 15 is to be used for forming a waterproof construction, as illustrated in Fig. 4, such bedding material may be placed in position, and the sectional wall surface members may be inserted as above described, while the plaster or filling material is still in wet or plastic condition so that it is caused to completely fill the space between the rear face of the wall surface member and the frame member and provide a seal against entrance of water, without in any way interfering with the placing of the wall surface members in position. This mortar or bedding material does not show from the front of the wall surface structure so that no finishing thereof is required.

In Figs. 6 to 8 inclusive, I have shown a preferred form of construction for use at a salient angle or corner where two wall surfaces intersect one another. In this case a special frame member 21 is mounted to extend parallel to the line of intersection of the wall surfaces and is provided with two integrally formed or rigidly connected portions 21a and 21b, which are perpendicular to one another or flared to correspond to the angle between the wall surfaces, each provided with interlocking means such as longitudinally extending beads or ribs 4' at each side thereof. Each of said portions is also provided with a flat portion 6' adapted to be secured to a supporting member and with an upstanding flange 8' forming a support for engagement with the inner face of the tile or other sectional wall members. The transversely extending frame members, such as indicated at 22, are of substantially the same cross-sectional shape as the standard frame members first described, being provided with interlocking means 4, flat portions 6 and flanges 8, but are bent or bowed longitudinally through an angle of 90°, or equal to the angle between the wall surfaces, as shown in Fig. 6, so as to provide a rounded portion 22a adapted to extend between the portions 21a and 21b of the corner frame member, and two straight portions 22b projecting beyond said corner frame member and adapted for connection to standard frame members as by means of dowels indicated at 13, similar to those above described. The portions 21a and 21b of the corner frame member may be re-

cessed inwardly from their outer edges as shown at 23, for a sufficient width to receive the outer portion of the rounded frame member 22, while said rounded frame member may be recessed outwardly from its inner edge, as indicated at 24, for a sufficient width to receive the inner portions of the two portions 21a and 21b of the corner frame member, so that said frame members may be assembled as shown, with the interlocking means thereof crossing or overlapping one another.

Special curved or rounded sectional wall surface members 3' are also provided, whose shape corresponds substantially to a segment of a cylinder curved through an angle of approximately 90° or equal to the angle between the wall surfaces, said special wall sections being provided as before at their four sides with recesses or grooves 17' adapted for interlocking engagement with the ribs or projections on the adjacent frame members. The projections 4' at the outer sides of the two portions 21a and 21b of the corner frame member are adapted to engage and hold in position standard flat wall surface members 3, as shown. I have also shown the provision of waterproof sea's of mortar or other bedding material, as indicated at 15', but it will be understood that such bedding material may or may not be provided, according to whether or not a waterproof construction is desired.

The adaptation of the wall surface structure of my invention to a reentrant angle or corner at the intersection of two wall surfaces is illustrated in Fig. 9. In this case the frame members 25 extending parallel to the line of intersection of the two walls are of the standard frame member construction first described, and the transversely extending frame members such as 26 are also of standard cross-sectional shape and general construction, but are bent or bowed so as to form a reentrant angle of 90° or equal to the angle between the planes of the two intersecting wall surfaces. The frame members are as before recessed at their inner and outer portions respectively so as to provide for overlapping or halving thereof in substantially the same manner as above described, and as is clearly shown in Fig. 9. Special rounded or curved tile or other sectional wall surface members 3'' are also provided in this case, which are so shaped that their outer face is curved through a reentrant angle of approximately 90° or equal to the angle between the intersecting wall surfaces. In this case also the rounded frame members 26 may be adapted for connection at their ends to standard frame members as by means of dowel sleeves 13.

In case it is desired to provide a wall surface in which the tile or other sectional members abut closely against one another at their

edges and in which the supporting frame members are concealed from view, I may use a construction such as shown in Fig. 10. In this case the frame member indicated at 5 27 is provided as before with two resilient side portions having beads or projections 4, but the tile or sectional wall members 28 are provided with recesses or grooves 29 of somewhat greater depth than in the previously 10 described form of the invention, so as to permit the edge portions 30 forwardly of said recesses to be brought into close proximity with one another in front of the frame member, and said frame member is so shaped that 15 it does not project forwardly beyond the forward edges of the grooves or recesses 29 and into the space between said edge portions 30. With such a construction, the tile or other sectional wall members may be inserted into 20 position in the same manner as above described, so as to bring the projections 4 of the frame member into engagement with the recesses 29, and when so mounted, are adapted to substantially contact one another at 25 their edge portions 30, forwardly of the frame member, and thus substantially conceal said frame member from view.

In Figs. 11 to 14 inclusive, I have shown a 30 modification of the invention, using a different shape of frame member and interlocking means, with sectional wall surface members having suitably modified grooves or recesses 35 therein for engagement with said interlocking means. In this embodiment of the invention, the frame members, indicated at 31 and 32, are provided with two parallel closely spaced side portions 33 provided at their 40 inner ends with flat portions 6 for mounting on supporting members 7 and with upstanding flanges 8 for engaging and supporting the inner face of the tile or sectional wall surface members. Each side portion 33 is provided with an outwardly projecting interlocking tongue 34 which extends rearwardly 45 ly and outwardly into the space A' to be occupied by the sectional wall surface members. Said tongue may advantageously be formed by cutting out and bending up a portion of the metal of the frame member. Said frame 50 members are as before recessed at their inner and outer portions respectively so as to permit overlapping or halving thereof at their intersections.

In this form of the invention, each tile or 55 other sectional wall surface member 37 is provided at its edges with a groove or recess 38 adapted to engage the interlocking tongues 34 of the frame members in such manner as to hold the sectional wall surface members 60 firmly in position. In connection with rearwardly and outwardly inclined interlocking tongues as above described, I prefer to also use rearwardly and outwardly inclined grooves or recesses 38 in the wall surface 65 members, so that the rear portion of the re-

cess, as indicated at 39 in Fig. 14 is of sufficient depth to receive the tip of the interlocking tongue 34, while the forward portion of the recess is inclined inwardly toward the frame member. The recesses 38 may extend the full length of the edges of the wall surface member, as shown, or they may be provided only at portions thereof corresponding to the positions of the interlocking tongues 34.

I claim:

1. A wall surface construction comprising frame members forming a grid defining a plurality of spaces, sectional wall surface members adapted to fit within said spaces, said frame members being provided with resilient interlocking means having portions projecting into said spaces, and said wall surface members being recessed inwardly from their outer edges so as to receive said projecting portions of said interlocking means to hold said wall surface members in position between said frame members, the resilience of said interlocking means on the frame members enabling said means to yield sufficiently to permit forcible insertion of said wall surface members between opposing frame members and into said position.

2. A wall surface construction comprising a plurality of frame members, certain of which extend transversely with respect to the others so as to provide a reticulate frame structure, sectional wall surface members shaped to fit in the spaces between said frame members and provided with inwardly extending recesses at their edges, said frame members extending between edges of adjacent wall surface members and having resilient portions so disposed as to project into said recesses in the wall surface members when said wall surface members are inserted therebetween, the resilience of said projecting portions enabling said portions to yield sufficiently to permit forcible insertion of said wall surface members between opposing members and into said position.

3. A wall surface construction as set forth in claim 2, said frame members being so formed as to define channels behind the edge portions of the wall surface members when said wall surface members are in position therebetween, and substantially waterproof bedding material filling said channels and preventing leakage of water between said wall surface members.

In testimony whereof I have hereunto subscribed my name this 1st day of July 1930.

HERBERT J. R. BARRETT.