Oct. 31, 1933. R. C. WORDEN 1,932,433

TILED WALL OR THE LIKE

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Fig. 1.

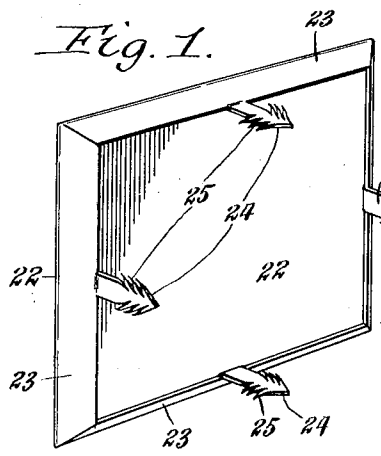


Fig. 2.

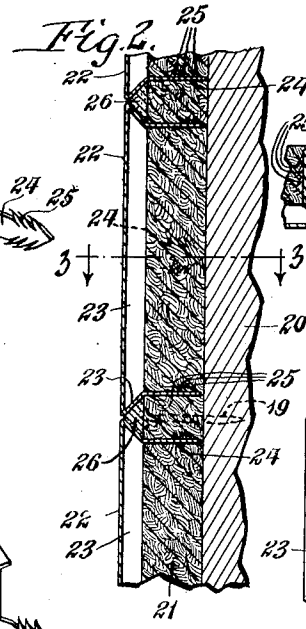


Fig. 3.

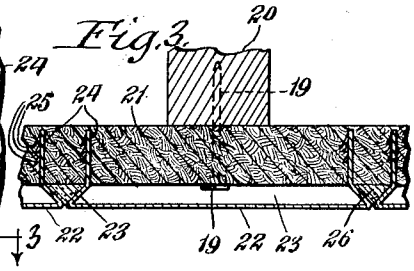


Fig. 6.

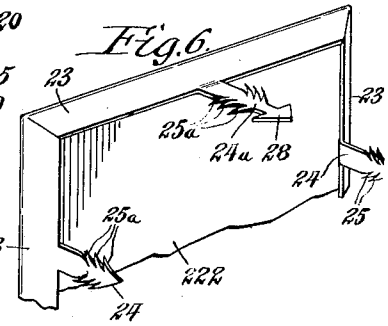


Fig. 4.

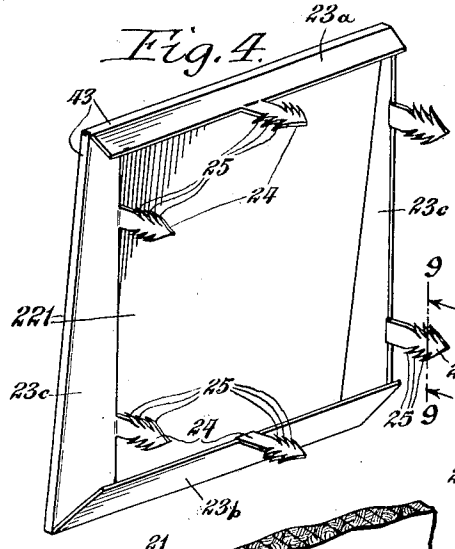


Fig. 5.

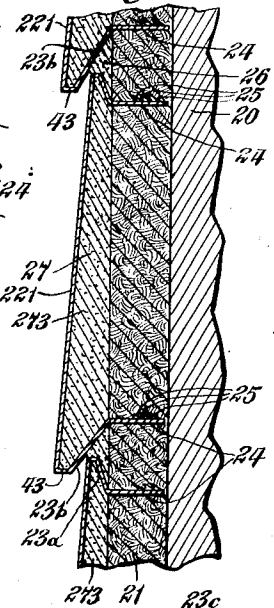


Fig. 7.

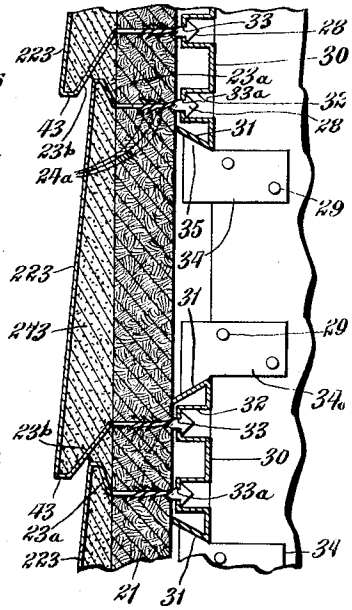


Fig. 8.

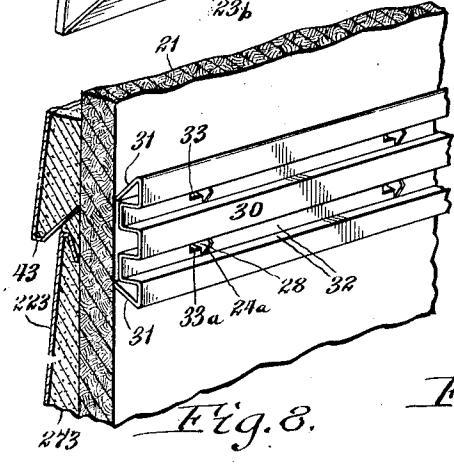
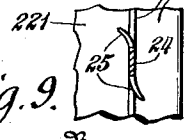


Fig. 9.



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Fig. 10.

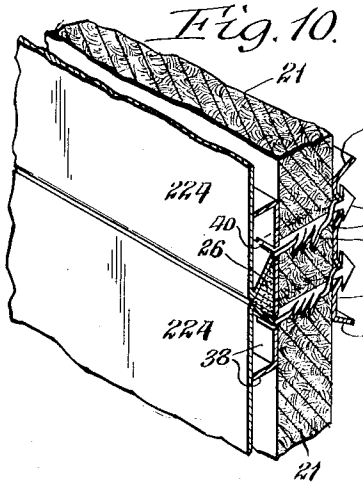


Fig. 11.

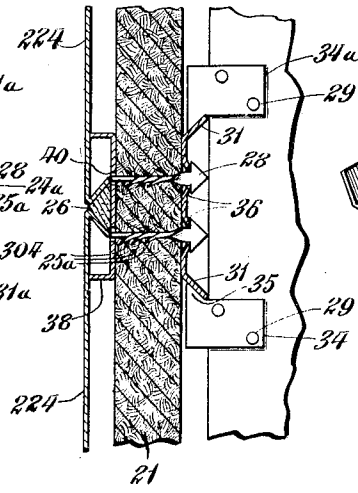
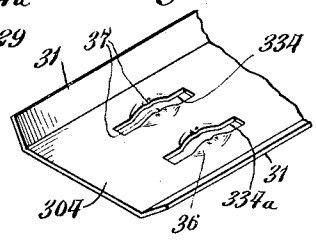


Fig. 12.



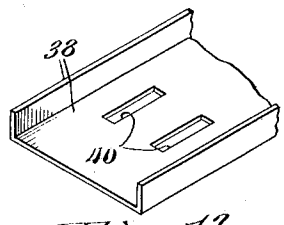


Fig. 13.

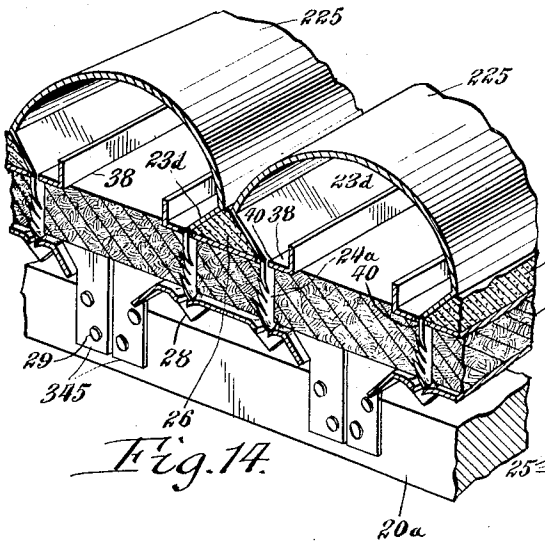


Fig. 14.

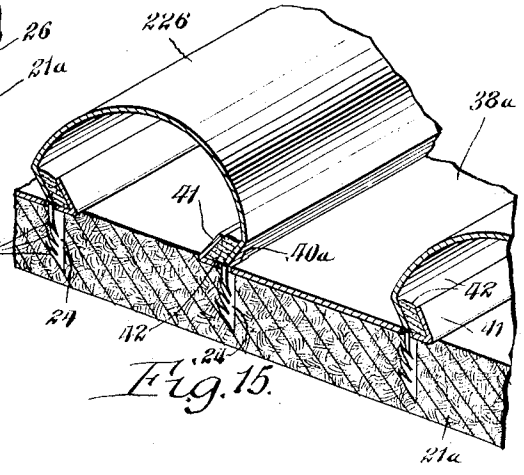


Fig. 15.

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UNITED STATES PATENT OFFICE

1,932,433

TILED WALL OR THE LIKE

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Application May 21, 1931. Serial No. 538,945

16 Claims. (Cl. 72—19)

This invention relates to a construction of tiled wall, tiled roof and the like having sheets of insulating wallboard overlaid with enamelled metal tile which are positively and not adhesively held in place against the outer face of said wallboard.

The principal object of the invention is to provide a strong, waterproof, insulated tile wall, tiled roof or the like which may be readily and inexpensively constructed and repaired. Numerous detailed objects of the invention are illustrated and described in the herein patent specification, wherein:

In the accompanying drawings:

Figure 1 is a rear perspective of one form of wall tile.

Figure 2 is a fragmentary, vertical section through a wall provided with this form of wall tile.

Figure 3 is a fragmentary, horizontal section through said wall taken on line 3—3, Fig. 2.

Figure 4 is a rear perspective of another form of the invention consisting of an overlapping type of wall tile.

Figure 5 is a fragmentary, vertical section through a wall equipped with this form of wall tile.

Figure 6 is a fragmentary rear perspective of still another form of the invention consisting of a flat tile provided with positive locking feet.

Figure 7 is a fragmentary vertical section through a wall having overlapping tile provided with positive locking feet.

Figure 8 is a fragmentary, rear perspective of the wall of Fig. 7.

Figure 9 is an enlarged, fragmentary, vertical section through a barbed leg of one of the tiles and taken on line 9—9, Fig. 4.

Figure 10 is a fragmentary, front perspective of a wall provided with a modified form of flat tile having positive locking feet.

Figure 11 is a fragmentary, vertical section through said last named wall.

Figure 12 is an enlarged, fragmentary, rear perspective of the securing plate of Fig. 11.

Figure 13 is a similar perspective of a similar form of securing plate.

Figure 14 is a fragmentary, transverse section through a tiled roof constructed in accordance with the present invention.

Figure 15 is a fragmentary, transverse section through a modified form of tiled roof.

In the following description similar characters of reference indicate like parts in the several figures of the drawings.

My invention may be constructed in various and sundry ways and the herein illustrated and described embodiments thereof only constitute some of the possible forms of construction which come within the scope of the invention and of the appended claims thereof. As here shown, and referring for the present to only Figs. 1–3, the same is constructed as follows:

The usual, vertical studding 20 is employed as the main skeleton of the wall, to the exposed face of which is nailed by nails 19 or is otherwise secured the plain, flat, fibrous wallboard 21. Arranged to cover the exposed face of said wallboard 21 are a plurality of enamelled, sheet metal tile 22. Each tile is independently held in spaced relation to the outer face of the wallboard 21 by means of spacing, back-slope flanges 23 which are formed integrally at all four edges of each sheet metal tile and extend rearwardly and inwardly from each of said edges. At the central part of each back-slope flange 23 and extending integrally and rearwardly therefrom is a pointed prong 24 provided with pointed barbs 25 which project laterally, rearwardly and diagonally from the main body of said prong (see also Fig. 9). By reason of these prongs 24 and their pointed barbs 25, each successive tile 22 may be manually pressed back against the wallboard 21 until the rear edges of the spacing, back-slope flanges 23 have come into contact with the outer face of said wallboard 21.

In the process of enamelling such a type of enamelled sheet metal tile it very frequently happens that very considerable warping occurs and the tile is not caused to lie back flat against the wallboard if only a moderate manual pressure is applied. In such case the workman pushes back the offending, protruding portion of such a warped tile until it lies back flush with the rest of the tile faces. The offending tile will be forced to retain this flat, and somewhat strained position by reason of the barbs 25 of the prongs 24 which dig into the body of the wallboard 21 and thereby restrain outward movement of said prongs and of the tile of which they form a part. The tiles are preferably so placed upon the wallboard that a small space is formed between each edge of each tile and the adjacent edge of the neighboring tile.

After having pushed all of the tiles 22 into position and adjusted their positions so that their outer faces are all satisfactorily flush with each other, the spaces between the tile are then filled with suitable plaster or cement to form tight cemented joints 26. This cement is securely held in place by reason of the back slope of the tile

flanges 23 and the consequent triangular cross section shape of said cement joints, thus causing the same to be solidly "keyed" in place.

Such a tile as illustrated in Figs. 1–3 is so formed that all of its spacing, back-slope flanges 23 are identical in form and shape. Consequently the outer faces of such a form of tile are parallel to the outer face of the wallboard 21. By such a construction a flat tiled wall is obtained.

In Figs. 4 and 5 is shown a form of tile 221 which is very similar to that just described except that the upper flange 23*a* is much narrower than the lower flange 23*b*, while the side flanges 23*c* are of truncated triangular shape. The consequence of this construction is a tiled wall having a clapboard or overlapping effect which is particularly suitable to outside walls subjected to considerable moisture. Any water flowing down the face of any one tile is prevented from soaking into the horizontal cement joint 26 below by reason of the fact that the lower edge of each tile overhangs and projects downwardly and outwardly over the upper edge of the tile which is positioned immediately below. If desired the central part of the tile may be strengthened to enable it to withstand a heavy, unit crushing pressure by filling the hollow interior of said tile 221 with a cement filling 27 prior to placing the tile against the outer face of the wallboard. If this is done, the resulting structure is constituted in the manner shown in Fig. 5. It is obvious that the tile construction of Figs. 1–3 may be likewise additionally strengthened in this manner. The outer corners of each edge of the tile are also given additional strength by the provision of corner stiffening flanges 43. These flanges prevent either the sheet metal or the cement from coming out to a fine and thereby weak edge and thereby prevent cracking of the cement filling or disfigurement of the metal of the tile.

In Fig. 6 is shown a flat tile 222 (similar as to its flat shape, to the construction of Figs. 1–3) in which the horizontal pair of barbed prongs 24 is formed in the same manner as all of the prongs shown in all of the previous described tiles (Figs. 1–5) but in which the vertical pair of prongs is however of modified construction each prong consisting of a barbed leg 24*a* provided with the barbs 25*a* and also provided at its outer end with a triangular-shaped, locking foot 28.

To understand the function of this locking foot 28, reference is to be had to the overhanging type of tile shown in Figs. 7 and 8. There illustrated is a horizontally disposed securing plate 30 constructed of a symmetrically rolled and crimped strip of sheet metal, which is made in such form as to provide along its edges a pair of angularly disposed or flared spacing flanges 31 and a central pair of countersunk, locking grooves 32, in which are formed longitudinal rows of slots 33 and 33*a* extending longitudinally of said securing plate 30. The latter is supported by a supporting bracket 34 whose bevelled nose 35 is adapted to bear flatly against the outer inclined or flared face of the lower spacing flange 31. Said bracket 34 is, in form, suitably supported on its companion stud 20 by means of the nails 29 or otherwise. To secure said securing plate 30 rigidly to the studs 20 and to prevent any possibility of tilting relatively thereto, the upper spacing flange 31 is also held solidly in place by a supplemental bracket 34*a* which is, in form, identical with the supporting bracket 34 and is similarly secured in position by nails 29 or otherwise.

After the securing plates 30 have been thus secured in position to the studs 20, the usual sheet of wallboard 21 is applied against the outer faces of said securing plates. The tiles 223 (or 222 and with or without the cement fillings 273 as may be desired) are then pressed rearwardly against said wallboard 20 so that their locking feet 28 are pushed through the slots 33 and 33*a*. Said locking feet 28 are then given a ninety degree twist so as to turn the same out of register with their companion slots 33 and 33*a*. This causes the tiles to be solidly and definitely locked to the securing plates 30 and hence to the studs 20.

In Figs. 10–12 a substantially similar construction is shown except that the tiles are of the flush or flat faced type and the slots 334 and 334*a* (instead of being perfectly flat, as in Figs. 13, 7 and 8) are given a slight belly or swell 36 provided with a retaining swell 37 to more securely hold the locking foot in position after being twisted.

In Fig. 14 is illustrated a modified form of the invention in which the tile is laid obliquely instead of vertically, so as to form a tiled roof covering. This construction is substantially like that of Figs. 6–13 as regards the securing of the tiles 225 and the wallboard 21*a* (used as a roof board) to the rafters 20*a*. However an additional pressure plate 38 is employed to take the thrust due to heavy loads of snow on the roof, etc. This pressure plate 38 is of channel-bar shape, with the outer flat face of its web resting (with low unit pressure) upon the wallboard 21*a* and being provided with suitable apertures 40 through which the pronged legs 24*a* and locking feet 28 are pushed. The lower edges of the back-slope, spacing flanges 23*d* rest solidly on the upper face of the web of said pressure plate 38 and thereby prevent said spacing flanges 23*d* from cutting into the surface of the wallboard. The triangular space between adjacent tiles is sealed by a cement joint 26 in the same manner as in the previously described constructions.

In Fig. 15 is shown a simpler type of roof tile 226. In this case a pressure plate 38*a* is used, the flanges 41 of which are sloped inwardly. In placing this form of roof tile 226, a strip of cement 42 is first applied to the opposite inner corners of said pressure plate 38*a* and the barbed prongs 24 of said tiles pushed through the apertures 40*a* and into the wallboard 21*a* beneath. If desired, this pressure plate 38*a* may also be filled with cement in the space between adjacent tile in the manner shown at 26 in Fig. 14.

I claim as my invention:

1. A tiled wall comprising a wallboard; a tile having a rearwardly extending back-slope spacing flange arranged symmetrically on opposite sides of said tile, and a rearwardly extending prong projecting rearwardly from said flange and caused to enter said wallboard and to hold said tile in place when said tile is pressed rearwardly against said wallboard.

2. A tiled wall comprising a wallboard; a tile having a rearwardly extending back-slope spacing flange arranged symmetrically in opposite sides of said tile, and a rearwardly extending barbed prong projecting rearwardly from said flange and caused to enter said wallboard and to hold said tile in place when said tile is pressed rearwardly against said wallboard.

3. A tiled wall comprising a wallboard; a tile having a rearwardly extending back-slope spacing flange arranged symmetrically on opposite sides of said tile, a rearwardly extending prong projecting rearwardly from said flange and caused to enter said wallboard and to hold said tile in place when said tile is pressed rearwardly against said wallboard; and a barb formed on said prong and extending outwardly and obliquely therefrom.

4. A tiled wall comprising a wallboard; a tile having a rearwardly extending back-slope spacing flange arranged symmetrically on opposite sides of said tile; a rearwardly extending prong projecting rearwardly from said flange and caused to enter said wall board and to hold said tile in place when said tile is pressed rearwardly against said wallboard; and symmetrical barbs formed on opposite edges of said prong.

5. A tiled wall comprising a wallboard; a tile having its edges provided with rearwardly extending back-slope spacing flanges arranged on opposite sides of said tile; and a rearwardly extending prong projecting rearwardly from each of said flanges and caused to enter said wallboard and to hold said tile in place when said tile is pressed rearwardly against said wallboard.

6. A tiled wall comprising a wallboard; a tile provided with a back-slope flange arranged symmetrically on opposite sides of said tile; and means for holding said tile to said wallboard.

7. A tiled wall comprising a wallboard; a tile provided on one edge with a corner-stiffening flange; a back-slope flange arranged at the rear edge of said corner-stiffening flange; and means for holding said tile to said wallboard.

8. A tiled wall comprising a wallboard; a tile having a narrow back-slope flange on one of its edges and having a wide back-slope flange on its opposite edge; and means for holding said tile to said wallboard.

9. A tiled wall comprising a wallboard; a tile having a narrow back-slope flange on its upper edge; a wide back-slope flange arranged on the lower edge of said tile; a truncated triangular back-slope flange arranged on each side edge of said tile; and means for holding said tile to said wallboard.

10. A tiled wall comprising a wallboard; a tile having a narrow back-slope flange on its upper edge; a wide back-slope flange arranged on the lower edge of said tile; a truncated triangular back-slope flange arranged on each side edge of said tile; and a prong extending rearwardly from each of said flanges, said prongs being caused to enter said wallboard and to hold said tile in place when said tile is pressed rearwardly into said wallboard.

11. A tiled wall comprising a wallboard; a tile having a narrow back-slope flange on its upper edge; a wide back-slope flange arranged on the lower edge of said tile; a truncated triangular back-slope flange arranged on each side of said tile; and means for holding said tile to said wallboard; and a barbed prong extending rearwardly from each of said flanges, said prongs being caused to enter said wallboard and to hold said tile in place when said tile is pressed rearwardly into said wallboard.

12. A tiled wall comprising a wallboard; a tile having a leg projecting rearwardly therefrom and penetrating into said wallboard; and a locking foot arranged at the rear end of said leg rearwardly of the rear face of the tile and extending beyond the rear face of said wallboard and twisted after the tile is in place so as to prevent the leg of said tile from being withdrawn.

13. A tiled wall comprising a securing plate having a slot; a tile having a rearwardly extending leg; and a locking foot arranged at the extremity of said leg and passed through the slot of said securing plate and thereafter twisted so as to bear against the rear face of said securing plate and be out of register with said slot.

14. A tiled wall comprising a securing plate having a flared edge and having a slot; a bracket engaging with said flared edge and supporting said securing plate; a tile having a rearwardly extending leg; and a locking foot arranged at the extremity of said leg and passed through the slot of said securing plate and thereafter twisted so as to be out of register with said slot.

15. A tiled wall comprising a securing plate having a slot and having upper and lower flared edges; brackets engaging with said flared edges so as to prevent movement of said securing plates; a tile having a rearwardly extending leg; and a locking foot arranged at the extremity of said leg and passed through the slot of said securing plate and thereafter twisted so as to be out of register with said slot.

16. A tiled wall comprising a securing plate having a slot; a wallboard bearing against the outer face of said securing plate; a tile having a rearwardly-extending, barbed leg passed into the body of said wallboard; and a locking foot arranged at the extremity of said barbed leg and passed through the slot of said securing plate and thereafter twisted so as to bear against the rear face of said securing plate and be out of register with said slot.

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