

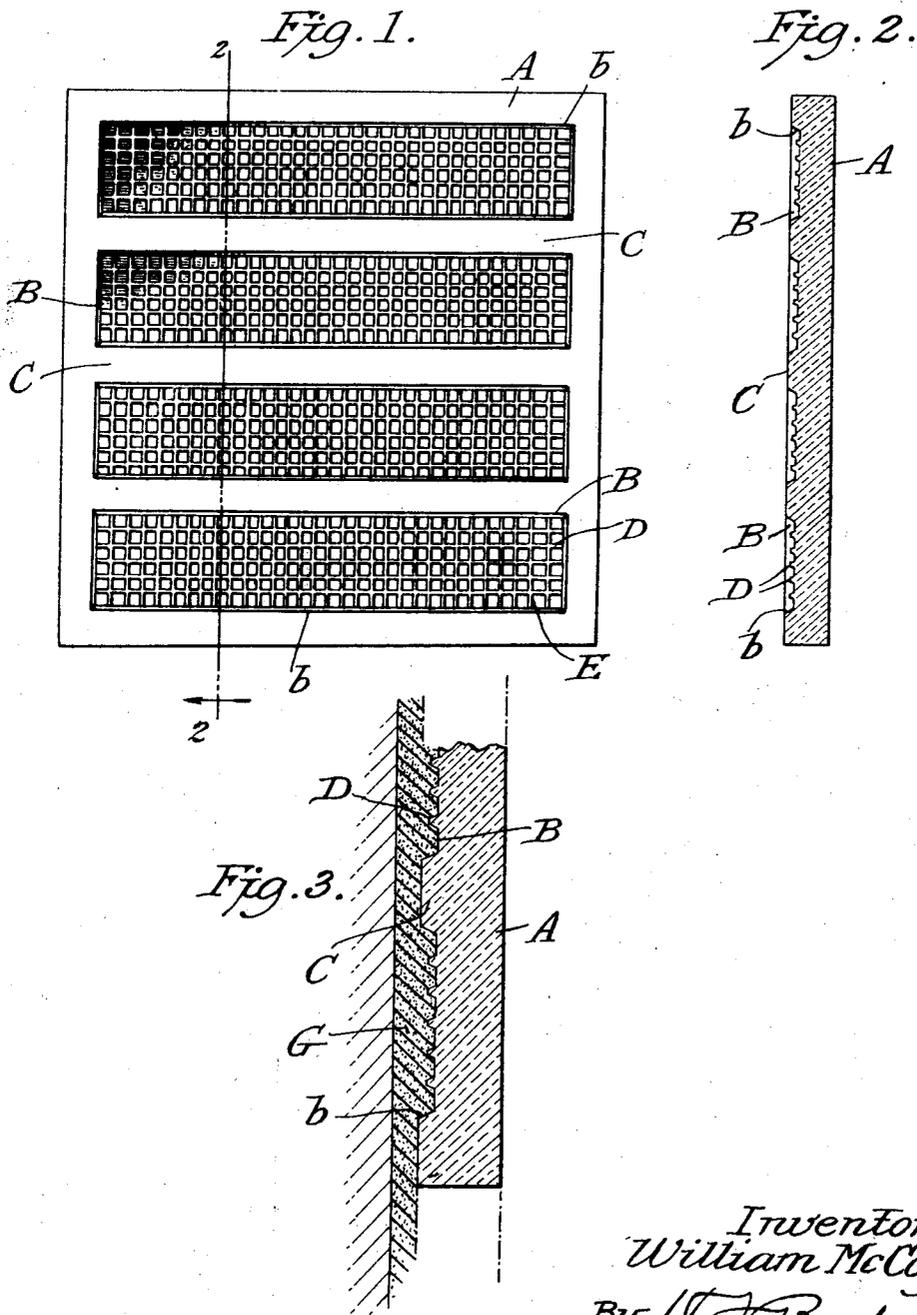
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WALL AND FLOOR TILE

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# UNITED STATES PATENT OFFICE.

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## WALL AND FLOOR TILE.

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My invention is a tile for use as a lining for floors, walls, and construction purposes generally, and the objects are, first, to improve the means whereby the tile is interlocked with a bonding medium, such as cement, for the fixed attachment of the tile; second, to fashion the tile with a view to stacking the same in piles for convenient handling prior to setting the same; and, third, to afford protection against breakage in the operations of handling, packing and shipping said tiles.

My new article is characterized by the provision of intersecting webs of narrow cross section within a sunken part of the tile surface, resulting in the production of a multiplicity of quite small individual pockets for the reception of the bonding material.

Other features and functions of the invention will appear from the following description taken in connection with the drawings, wherein—

Figure 1 is a plan view of a tile embodying my invention.

Figure 2 is a cross section thereof, and

Figure 3 is a view in cross section on an enlarged scale of a part of my tile illustrating the mode of bonding said tile to a wall, floor or other surface.

The tile is composed of material usual in the art and is manufactured in accordance with existing methods, whereby a vitrified product is obtained which may be set in a floor, wall or other surface with the same facility as commercial articles of the same character.

The body of the tile A may be of the usual form, the same being either rectangular or square. The wear face of the tile may be of the same character as the rear, or said wear face may be coated with a suitable glaze. The back or rear face of the tile is designed to be bonded to the wall or floor, but in my invention the back face is of the peculiar formation shown in the drawings, whereby the tile is affixed by a superior bond interlock.

As shown in Figures 1 and 2, a plurality of sunken panels, B, are provided in said rear face, four of such panels being shown, but, obviously, the number is not material. Said panels may be said to be in intaglio, and they are bounded by ribs or divisions, C, the same separating the intaglio panels one from the other. The exposed surfaces of the ribs C are in the same plane as the back

surface of the tile at the several margins thereof, and said ribs with the back face in the same plane afford the surface, whereby the tiles may be stacked or piled uniformly, as is required in this art for handling, packing, storage and shipment.

A characteristic feature of my improved bonding surface is a multiplicity of webs, D, E, each of narrow cross section, resulting in a multiplicity of quite small individual pockets, F. The webs D extend longitudinally of the tile, whereas the webs E range crosswise of the tile, said webs D, E, being within the intaglio panels. The webs D, E, are in regular order, spaced uniformly, and intersect to produce a web-like effect, with small individual pockets. An important feature consists in having the webs of less height than the depth of the sunken panel, and thus the outer edges of the webs are below or within the plane of the back tile face and the surfaces of the ribs C, see Figure 2.

It is, or may be, desirable to bevel or incline the margins of the panels B, as indicated at *b*, but it is to be noted that all the cross-sectionally narrow webs D, E, are grouped quite closely, and are within the limits of the intaglio panels, whereby a relatively large number of pockets are produced within the boundaries of said panels.

The setting of tiles in a bonding agent applied to a wall or floor presents for solution some difficult problems among which are to preclude displacement edgewise in a direction lengthwise of the tile or in a direction crosswise of the tile. Moreover, the tile when set, and with the bonding agent in a hardened condition, must resist displacement either in an edgewise direction, and in a lateral direction outwardly from the plane of the wall or floor. It is apparent that a plurality of bonding elements unitary with the bond-contacting face of the tile must be coordinated by such an organization of the constituent elements that the tile may be placed in position with ease and facility, with a minimum tendency to displacement edgewise in any direction arising from the resistance of the plastic or semi-plastic bonding material; and, further, when the tiles are positioned, and the bonding material becomes set and hardened, the tiles must be retained against dislodgment either edgewise in either direction or laterally with respect to the wall or floor.

It is apparent to those skilled in the art

that allowance is made for a certain depth or thickness of the bonding material intermediate the rear surface of the tiles and the wall or floor, but in the present invention provision is made for an increase in the thickness of such bonding material in definite areas constituted by intaglio panels at the rear surfaces of the tile, whereby in setting the tile the plastic or semi-plastic bonding material is free to be dislodged by the webs of the cellular or grille-like formation, and such plastic or semi-plastic material is free to flow into and to accumulate within the enlarged areas constituted by the intaglio panels. In the new form of tile herein disclosed, there is provided a plurality of panels in intaglio, the same constituting enlarged areas for the accumulation of plastic or semi-plastic bonding material when such bonding material is displaced by the webs of the cellular or grille-like formation, and thus the tile may be set or positioned without exhibiting a tendency to slide edgewise in directions either lengthwise or crosswise of said tile.

The webs constituting the cellular or grille-like formation are within the intaglio panels, intermediate the exposed surface and the bond-contacting surface of the tile, and said webs are of relatively thin cross section, with parallel side faces on each web, and, moreover, said webs are of a depth less than the depth of the intaglio panels, which organization is attended with manifold advantages for practical purposes. The multiplicity of intersecting webs produce in each intaglio panel a relatively large number of individual cells or pockets, each bounded by walls of thin cross section, whereby the plastic or semi-plastic bonding material is adapted to enter and to fill the pockets and to bond with the walls of said pockets. The pockets are relatively shallow, and the thin walls, co-operate with said pockets to the end that in setting the tile into the plastic or semi-plastic bonding material there is a displacement of a relatively small quantity of the bonding material, and there is no tendency for the tile to slide edgewise in any direction in the tile setting operation. Owing to the presence of the intaglio panels on the bond contacting faces of the tiles, the displacement of the bonding material by the entry of the thin webs into such material results, as stated, in a minimum quantity of the bonding material being forced out, and this displaced material flows freely and unobstructedly into the spaces constituted by the intaglio panels, with the result that there is an increased quantity of bonding material within the panels, which increased bonding material in said panels provides for the secure attachment of the tiles to the wall or floor by reason of the increased thickness of the layer or strata between the wall or floor line and the rear surface of the tiles. Again, the multiplicity of cells or pockets within each in-

taglio panel, and the use of a plurality of intaglio panels, attains a bonding connection which locks the tiles against dislodgment edgewise either in the direction of the length or in the direction of the width of the tiles, and, moreover, such locking connection prevents in a positive manner any tendency of the tiles to become dislodged in a lateral direction, i. e., from dislodgment outwardly from the line of a wall or upwardly from the floor level.

The employment of intaglio panels each open on one side and closed on the other side, together with a cellular grille composed of intersecting webs of narrow cross section positioned next to the closed surface of each intaglio panel, produces a tile having pronounced advantages and distinctive structural features over tiles with bond-contacting means which have preceded my invention. One function is the capacity of the panels to receive and retain the plastic bonding material displaced in the act of setting the tile by the entry of the thin narrow webs comprising the cellular grille provided at the closed surface (or the bottom) of the intaglio panels. Another function is the capacity of the panels and the cellular grille with the thin walls is to effect the anchorage of the tile against the tendency to become displaced in an edgewise direction or in a lateral direction outwardly with respect to the line of a wall or a floor.

By providing the thin, narrow webs within the panels, with the edges of said webs in a plane within the surfaces of the tile and the ribs C thereof, said webs are not exposed to fracture when the tiles are stacked or piled, and notwithstanding the thin character of the multiplicity of webs, they are protected, for all practical purposes, against breakage in handling, storing or transportation from a factory to the place at which the tiles are installed for use.

To set the tile, a layer or course of bonding material, usually cement or a composition containing cement, is spread over the face of a wall or floor, as indicated at G in Figure 3, and the tile is pressed against this bonding material and set in the required relation to other tiles. The bonding material enters and fills the individual pockets which extend in series lengthwise and crosswise of the tile, and said material fills the sunken panels B, said material bonding to and uniting with the tile. The bonding material hardens in due time, and produces narrow ribs which are locked to the body of the same material which fills the sunken panels throughout the area thereof, and thus the material and the webbed surface of the tile are interlocked and bonded together in a superior manner owing to the multiplicity of the webs and to the relation of said bonding material both lengthwise and crosswise of the tile and at a multiplicity of lines of union within the separate

intaglio panels of the series provided on the rear surface of the tile.

Having thus fully described the invention, what I claim as new and desire to secure by Letters Patent is:

1. A tile provided on the rear bond-contacting face thereof with a plurality of panels in intaglio, ribs intervening said intaglio panels, the exposed surfaces of said ribs being in the plane of said rear surface of the tile, and a web-like formation positioned within the boundaries of the panels and producing therein a multiplicity of pockets, whereby the pockets and the intaglio panels are adapted to receive bonding material for affixing the tile in position.

2. A tile provided on the rear bond-contacting face thereof with a plurality of panels in intaglio, and a multiplicity of intersecting webs within said intaglio panels, said webs extending lengthwise and crosswise of the tile and producing within said intaglio panels a multiplicity of individual pockets, whereby said intaglio panels and the individual pockets are adapted to receive bonding material for affixing the tile in position.

3. A tile provided on the rear bond-contacting surface thereof with a plurality of panels in intaglio, and a multiplicity of intersecting webs the depth of which is less than the depth of the intaglio panels and the outer edges of which webs are within the plane of the rear surface of the tile, said intersecting webs extending in such relation to each other as to produce a multiplicity of individual pockets each bounded by said webs.

4. A tile provided on the rear bond-receiving surface thereof with a plurality of panels in intaglio, ribs separating said intaglio panels, and a multiplicity of intersecting webs constituting a grille work within the respective panels and producing a multiplicity of individual pockets bounded by said intersecting webs, the depth of said intersecting

webs being less than the depth of the intaglio panels and the outer edges of said intersecting webs being in a plane within the exposed rear face of the tile and of the first named webs thereof.

5. A tile provided on the rear bond-receiving surface thereof with a plurality of panels in intaglio the boundary edges of which panels are beveled, and a multiplicity of intersecting webs extending crosswise and lengthwise of the tile and joining with the beveled edges of said intaglio panels, said intersecting webs being of a depth less than the depth of the intaglio panels and said webs constituting a multiplicity of individual pockets within the boundaries of said intaglio panels.

6. A tile provided in the rear thereof with a plurality of intaglio panels separated by intervening ribs lying in the plane of the rear side of said tile, each panel being open at the rear of the tile and closed by the tile at the side opposite the open rear, and a cellular grille within each panel, said grille comprising intersecting webs of relatively narrow cross section and positioned next to the closed side of said panel and being unitary with the tile, said webs producing shallow cells or pockets which open into the space bounded by the intaglio panel.

7. A tile provided on the rear with a plurality of panels sunken into the material composing said tile, each sunken panel being open at one side and closed at the opposite side by a continuous wall constituted by the tile material, and a cellular grille within each panel comprising webs integral with the tile material at the closed wall side of the sunken panel, the depth of said webs being less than the depth of the sunken panel, said webs being arranged in intersecting order and producing shallow cells or pockets which open into the space bounded by the sunken panel.

In testimony whereof I have hereunto signed my name this 10th day of July, 1926.

WILLIAM McCOY.