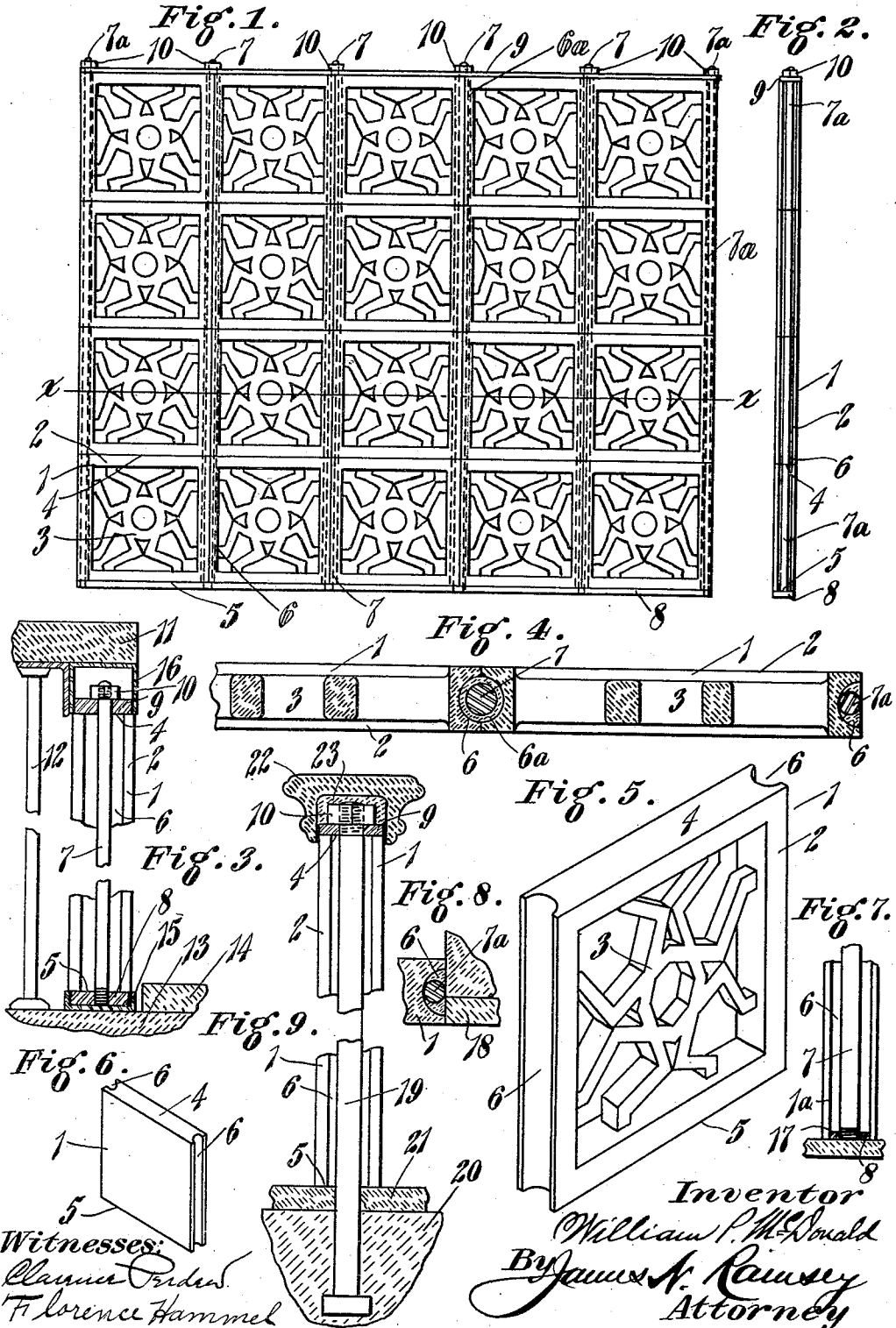


W. P. McDONALD.
TILE CONSTRUCTION.
APPLICATION FILED JULY 16, 1908.

1,056,810.

Patented Mar. 25, 1913.



UNITED STATES PATENT OFFICE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM P. McDONALD, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Tile Construction, of which the following is a specification.

My invention relates to composite building construction and has for its object the provision of a simple tile construction, where it is desired that the structure be self sustaining, and especially where it is desired to provide an interior construction of uniform composition and appearance, with the use of tile for the solid parts of the structure, substituting a ceramic grill where a metal grill is usually employed.

My invention consists in the combination with a series of units, each having an abutting end provided with a longitudinal recess, of rods located in the recesses in the abutting ends of the units, and plates extending along opposite edges formed by the series of units, into which the rods are secured to hold the structure together, as well as in the parts and in the details of construction and arrangement of parts as will hereinafter be more fully described and claimed.

In the drawing: Figure 1 is a front elevation of a structure embodying my invention. Fig. 2 is an edge view of same. Fig. 3 is an enlarged view illustrating the application of the structure illustrated in Figs. 1 and 2, the middle being broken away for lack of space. Fig. 4 is a partial section, enlarged, on a line corresponding to $x-x$ of Fig. 1. Fig. 5 is a perspective view of one of the grill units. Fig. 6 is a perspective view of one of the solid units. Fig. 7 is a detail end view of part of a structure embodying my invention in modified form, where the bottom plate is let into the lower edge of the unit. Fig. 8 is a detail plan view illustrating the manner in which the unit abuts against the solid structure of a tiled interior. Fig. 9 is a cross sectional view of an isolated structure in which my invention is embodied.

As illustrated, a grill unit 1 comprises the rectangular frame 2, of sufficient area of cross section to give the necessary stiffness to the unit to prevent warping during the

firing and to prevent breakage in use, together with an openly constructed interior part 3 of lighter construction, and adapted to variations of form to produce desired ornamental effects. Preferably, the upper edge 4 and the lower edge 5 of the unit are straight and regular but the vertical edges are provided with recesses 6 extending longitudinally of the edges. These recesses are, preferably, semi-circular in cross section so that when two of the units abut with their vertical edges, the recesses 6 will constitute a substantially circular opening extending continuously between the units. Thus, when the units are assembled, as illustrated in Fig. 1 of the drawing, side by side and one upon the other, the completed structure will have continuous openings comprised by the combination of the recesses 6 extending from the top to the bottom of the structure, these continuous openings being coincident with the lines of contact of the vertical sides of the units.

For securing the units together, rods 7 are passed through the continuous openings constituted by the recesses 6 and, as illustrated in Fig. 1 of the drawing, each rod 7 is secured in a plate 8 at the bottom by being threaded and screwed into a tapped hole in the plate 8, while the upper end of the rod above the structure extends through another plate 9 and receives the nut 10, which is screwed down against the plate 9, drawing the units firmly together vertically of the structure. At the termination of the structure, at each side, a rod 7^a of less diameter than the rod 7 is used, so that it will lie wholly within the recess of semi-circular cross section along the edges of the units at the termination. These rods 7^a are preferably so positioned that they will engage with the adjacent units and prevent lateral movement thereof, thus holding the structure together laterally; also, preferably, the rods 7 are of less diameter than the openings constituted by the recesses 6, and the spaces 6^a between the rods 7 and the walls of the openings are, preferably, filled with cement; also, cement may be inserted in the joints between the units comprising the structure, so that the whole may be firmly bound together and constitute practically an integral structure. However, it will be

found that the sustaining members constituted by the rods 7, together with the plates 8 and 9 and the rods 7^a, will be sufficient to hold the units firmly together and render the structure sufficiently rigid without the cement, due to the fact that the rods 7^a, at the terminations, hold the units against lateral movement, as above mentioned, while the plates above and below hold the units against vertical movement and the larger rods 7 extending through the circular openings, as above described, may be made of a cross section of area approximating the area of cross section of the circular openings sufficiently near to prevent appreciable displacement of the units in such direction that it would destroy the evenness of the surface of the structure. By thus using the rods 7 in the interior of the structure sufficiently large to maintain the uniformity of surface thereof, as above stated, and the rods 7^a at the terminations of the structure of sufficiently small cross section to lie wholly within the semi-circular openings constituted by the series of recesses at said terminations, it is possible to confine the supporting structure within the limits of the grill units, thus allowing them to be concealed. At the same time, the units at the terminations may be uniform with the units in the interior of the structure, allowing them all to be formed with the same molds, which results in economy, while such variations as are necessary to allow the supporting structure to be concealed, as above set forth, are confined to the supporting members, which, being metal rods, are more adapted to such variations in size than are the ceramic units. At the same time, when the structure is completed, the rods holding it together will be entirely concealed.

The structure illustrated in Figs. 1 and 2 of the drawing, and above described, is suitable to serve as a grating in front of a radiator casing, the construction of which is illustrated in Fig. 3 of the drawing. This casing consists in a top 11 supported by standards, such as the standard 12, on the floor 13. This floor 13, in carrying out the construction of a tiled interior, is covered with tiles 14 of the ordinary plain formation. For applying the grating, constituted by the units 1, according to my invention, a channel 15 is laid on the floor, within the limits of the radiator casing, near the point at which the floor covering comprised by the tiling 14 terminates, and another channel 16, preferably somewhat deeper, is secured to the lower side of the front of the top 11. The grating, constituted by the units according to my invention, is relatively of less height than the space between the bottoms of the channels 15 and 16 so that it may be removably placed therein, as is illustrated in Fig. 3 of the drawing.

The manner of assembling the units 1, as well as the manner of securing them together by means of the rods 7 and 7^a and supplying the cement in the spaces around the rods, is best illustrated in Fig. 4 of the drawing.

Where the design of the tiled interior is such that it is desired that the grating shall rest on the finished surface of the floor, the units may be provided with channels of rectangular cross section in their transversely extending edges so that the bottom plate 8 may be let into the lower edges of the lower tier of units. This formation is illustrated in Fig. 7 of the drawing, where the unit 1^a is provided with the channel 17 in its lower edge. With a grill or grating constructed as hereinbefore described, it may be made to form a continuation of the tiled wall surface, as illustrated in Fig. 8 of the drawing, where the unit 1 is flush with the tile 18, forming the surface of the wall. While thus being particularly convenient for such purposes, my improved construction may be applied to an isolated grill construction, such as office railings or altar rails in churches, this construction being illustrated in Fig. 9 of the drawing, where the units 1 are assembled and secured together by rods 19, which may be rigidly secured in the floor 20, which is generally of concrete. In this case, the tiles 21, forming the surface of the floor, may be laid around the rods 19, and the units 1, constituting the structure according to my improvement, may be inserted between the rods 19 and rest directly on the tiles 21. At the top, the plate 9 may be applied, as hereinbefore described, and held down by the nut 10 on the upper end of the rod 19. Then a suitable cap 22 may be applied to the structure by inserting cement in the space 23, under the cap and over the structure. This cap 22 may also be of earthenware the same as that of the units 1 forming the body of the structure.

While as above described my improved construction will be found particularly adapted for grills, it will also be noted that it may be adapted to solid walls and ceilings, where a thin structure is required of ceramic material, using solid units such as illustrated in Fig. 5 of the drawing. With the use of such units, applied as above described, all the well known ornamental effects may be attained with the same facility as with the use of the ordinary tile, which are usually applied against a suitable supporting structure, in which case the completed structure is of greater thickness than that of the tile itself.

From the above description of the different modes of application of my invention, it will be understood that it constitutes a particularly convenient system of interior decorative construction, allowing the entire

scheme of interior decoration to be carried out in ceramics, and allowing the decorative effect to be attained in its completeness, since the earthenware units may be glazed
5 and given the same finish as that given to the tiles used in the interior decoration, thus enabling the complete decorative effect to be attained. The structure being comprised by several units, will be found convenient in the
10 case of breakage, since, if one of the units is broken, the entire structure need not be discarded, but the broken unit may be removed and a new one inserted with a minimum of inconvenience. This is true, since
15 it is only necessary to remove the upper plate 9 and withdraw the units above the broken one and insert a new one in its place, insert units above the new one, and again complete the structure. In addition to being
20 far less expensive than the ornamental iron or brass structure required to produce a similar effect in a grill construction, my improved grill construction is far lighter than metal and, being fire-proof, is superior
25 to wood work for such purposes. The finishes which can be given to the ceramic grills are more varied in their appearance than those which may be given to metal grills, and are far more durable since, in
30 fact, as is well known of the glazed finish of tile work, no renewal of the finish is necessary.

Having fully described my invention,

what I claim as new and desire to secure by Letters Patent is:

In tile construction, the combination with a series of uniform units each having an abutting end provided with a longitudinal recess of semi-circular cross section, adapted, when the units are assembled with their
40 edges abutting, to form continuous openings substantially circular in cross section, and the recesses in the exposed edges of those units terminating the structure at the
45 sides being adapted to form continuous openings of semi-circular cross section, of rods located in the openings, of less diameter than that of the openings, and rods located
50 in the continuous openings of semi-circular cross section in the exposed edges, of less diameter than that of the rods located in the openings of circular cross section, whereby they lie wholly within said recesses in
55 the exposed edges, and plates extending along opposite edges of the structure formed by the series of units, in which plates said rods are secured to hold the structure together, the spaces around the rods within
60 said openings and recesses being adapted to contain cement, substantially as and for the purposes herein set forth.

WILLIAM P. McDONALD.

Witnesses:

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CLARENCE PERDEE.