B. O. A. DE PAOLI.

TERRAZZO FLOORING.

APPLICATION FILED NOV. 22, 1919.

1,397,678. **Patented Nov. 22, 1921.**

2 SHEETS—SHEET 1.

Fig. 1.

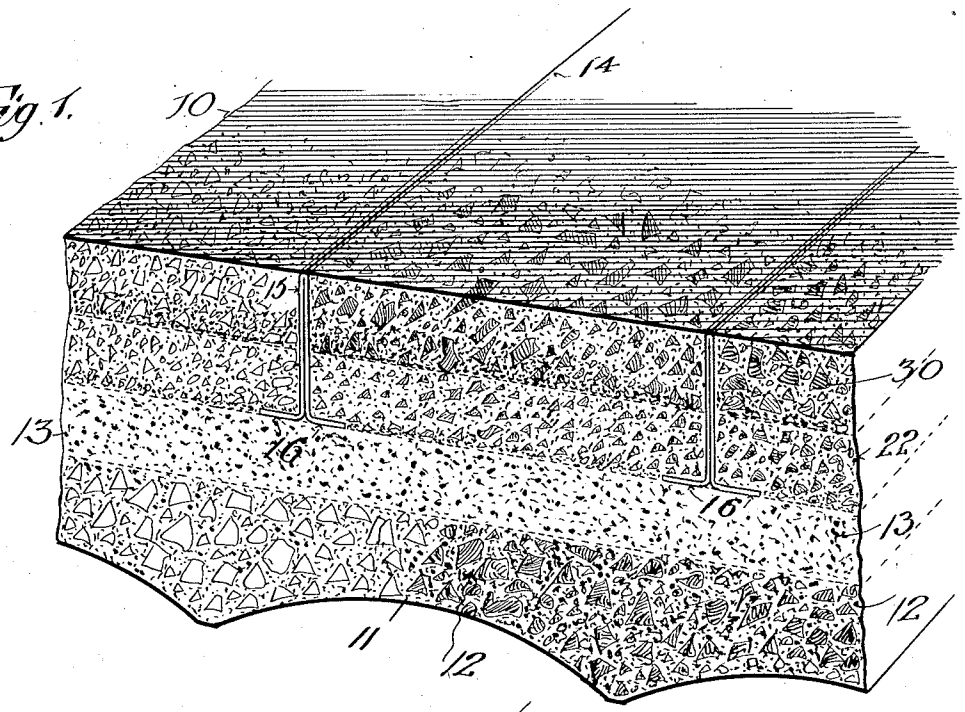
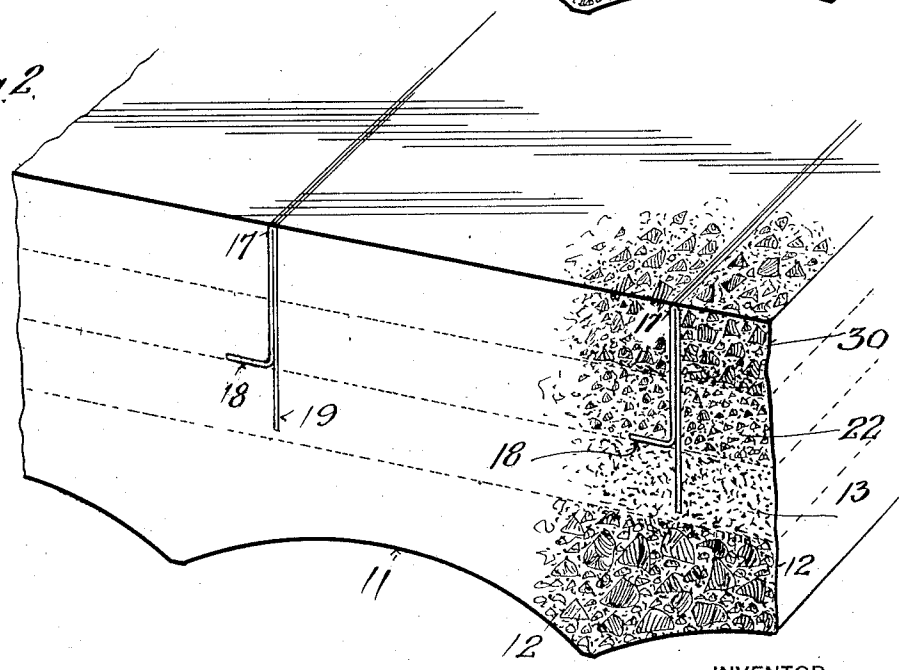


Fig. 2.



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2 SHEETS—SHEET 2.

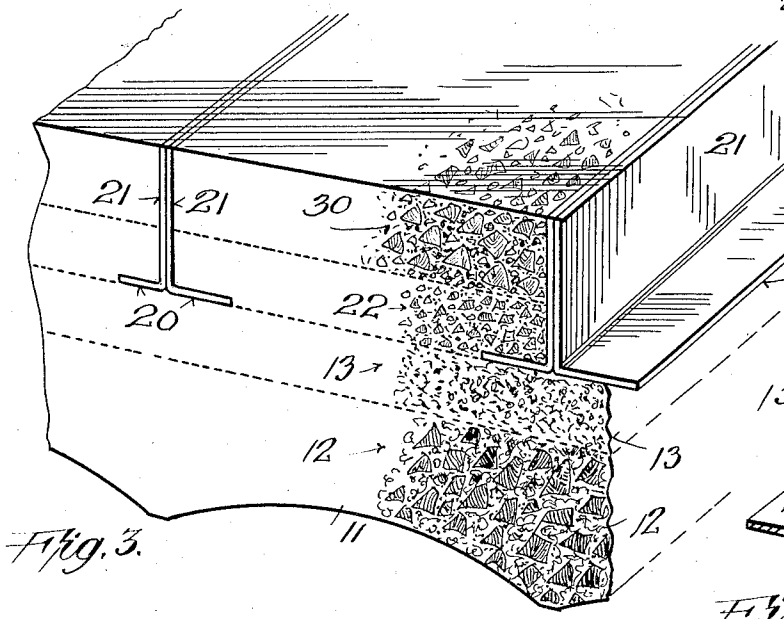


Fig. 3.

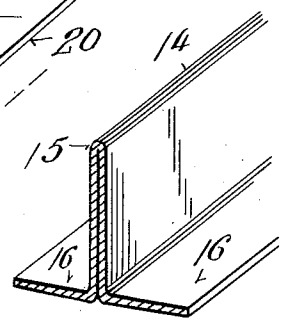


Fig. 4.

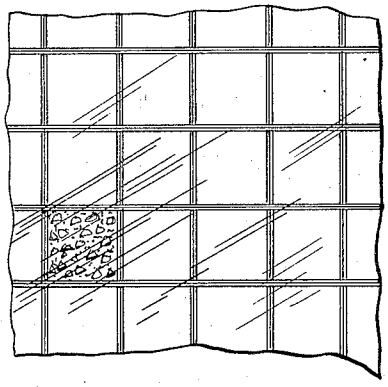


Fig. 7.

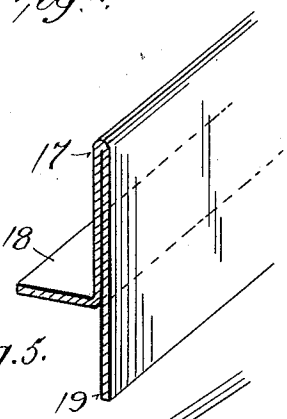


Fig. 5.

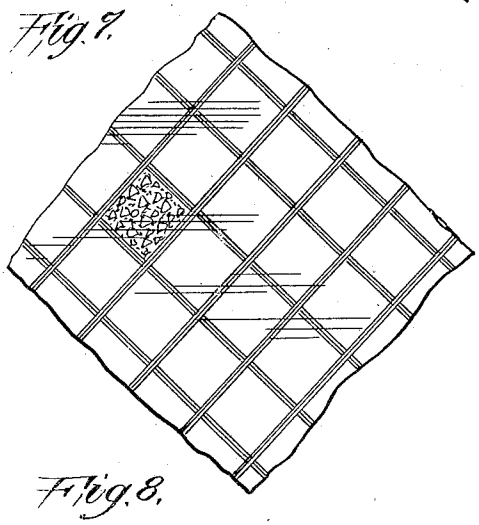


Fig. 8.

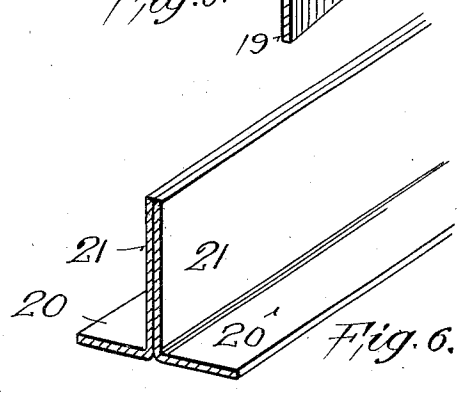


Fig. 6.

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TERRAZZO FLOORING.

1,397,678. Specification of Letters Patent. Patented Nov. 22, 1921.

Application filed November 22, 1919. Serial No. 339,920.

To all whom it may concern:

Be it known that I, BRUNO O. A. DE PAOLI, a citizen of the United States, residing at Palisade, county of Bergen, State of New Jersey, have made a certain new and useful Invention in Terrazzo Flooring, of which the following is a specification.

This invention relates to terrazzo flooring.

The object of the invention is to provide a construction of terrazzo or crushed marble flooring which is simple, efficient and economical.

A further object of the invention is to provide a flooring of the character referred to wherein provision is made for avoiding the occurrence of cracks due to expansion and contraction of the frame work, flooring, or floor supports of the building in which the flooring is employed.

A further object of the invention is to provide a flooring of the character referred to wherein in case of contraction or expansion of the frame work, floor support, or the like, of the building, any resulting seam formed in the terrazzo flooring will be formed along regular lines without leaving rough or irregular lines of cleavage.

Other objects of the invention will appear more fully hereinafter.

The invention consists substantially in the construction, combination, location, and relative arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawing, and finally pointed out in the appended claims.

Referring to the accompanying drawing:—

Figure 1 is a view partly in perspective, partly broken out and in section, showing a terrazzo flooring constructed in accordance with the principles of my invention.

Fig. 2 is a broken detail view in section of a portion of a flooring showing a modified form of paneling strip employed in connection with my invention.

Fig. 3 is a similar view showing another modified form of paneling strip embodying my invention.

Fig. 4 is a detached broken detail view of a portion of the form of paneling strip shown in connection with the flooring of Fig. 1.

Fig. 5 is a similar view showing the form of strip employed with the flooring of Fig. 2.

Fig. 6 is a similar view showing the form of panel strips employed in connection with the flooring shown in Fig. 3.

Figs. 7 and 8 are views in diagram showing various arrangements of the paneling strips embodied within the spirit and scope of my invention.

According to the present practice employed in laying terrazzo floors it is customary to employ a foundation layer of suitable material which is placed upon the floor support of the building. This layer is commonly composed of a mixture of cement and cinders in suitable proportions. In practice a composition of one part of cement to six of cinders has been found suitable. This foundation layer is applied to the floor supports to any desired thickness according to the requirements. This thickness may run from five or less inches to ten or more, as may be desired. Upon the foundation layer is imposed a layer of material called the leveling or scratch coat, which ordinarily is composed of sand and cement in suitable proportions. A sand and cement composition consisting of one part of cement to three or four of sand has been found satisfactory. This layer may vary in thickness and ordinarily it does not exceed three-quarters of an inch. The purpose of this layer is to attain and fix the desired standard of level of the surface of the finished floor. Upon the leveling or scratch coat the terrazzo or crushed marble and cement composition is placed and leveled off to form the floor surface. To economize on the marble constituent of this terrazzo composition which is expensive, it is customary to first place upon the leveling or scratch coat a layer of grit and cement in the proportion of one part of cement to two to three of grit more or less, and upon the surface of this filling layer the crushed marble or terrazzo and cement composition, ordinarily in the proportion of one part cement to two of the crushed marble is placed, and

to a desired depth or thickness according to requirements.

Floors constructed in this manner are subjected to the strains and stresses due to expansion and contraction of the steel framework of the building, floor supports, and the like, and such expansion and contraction frequently causes the composition flooring to crack and ordinarily when such cracks develop they are irregular in shape and in line of cleavage of the floor. To repair such a crack when it develops is difficult and expensive, and by reason of the irregularity of outline and of direction thereof a repair of such cracks leaves an unsightly patchwork appearance no matter how carefully the repair may be effected.

It has been attempted to overcome this objection by laying the floor in panels, according to which method the floor area is laid out in a regular panel scheme by the use of wooden strips. The panel areas thus formed are then filled in with the terrazzo cement composition. According to this method, however, the panel areas are filled separately, alternate panels in adjacent rows being filled successively and left to become set or hardened, usually for a day's time, and then the wooden strips are removed and the alternate intermediate panel areas are filled. This method is expensive and slow, and moreover in case of expansion and contraction above referred to seams sometimes open up between adjacent rows of panels or between adjacent panels, and the proximate edges of adjacent panels tend to separate apart from each other. This causes the particles of terrazzo or crushed marble to break off along the edges of the seam separating adjacent panels leaving a rough irregular line of opening between the proximate edges of adjacent panels. This is unsightly and unsatisfactory, and when such seams open up sufficiently to require repair by grouting it leaves an unsightly, irregular patchwork appearance which is exceedingly objectionable.

To overcome these defects I propose to employ strips of metal which become embedded into the floor composition when it is laid and which form permanent metallic retaining walls for the edges of the floor material bordering seams along which any cracks tend to develop in case of contraction and expansion of the building framework or floor supports. The permanent metallic retaining strips may be employed in various shapes and forms and applied in various relations within the spirit and scope of my invention, and in the accompanying drawing I have shown various shapes and forms as well as arrangements thereof as illustrative of the principles of my invention.

Referring specifically to the drawing, Fig. 1 shows at 10 a portion of a composition flooring which may be formed or constructed of any suitable or desirable composition and disposition thereof. For illustrating purposes I have shown a suitable floor beam or supporting structure 11 upon which is placed a base or foundation filling or layer 12, which for illustrative purposes may be composed of cement and cinders. Upon this base or foundation layer I place a leveling or scratch coat or layer 13 of sand or grit and cement composition. Upon this leveling coat or scratch coat I place the metallic strips which constitute an important feature of my invention. In the form shown in Figs. 1 and 4 the metallic strip is in the form of a sheet 14 which is bent or folded upon itself at the longitudinal medial line thereof to form the fold 15, which extends at right angles, or substantially so, to the laterally extending edge flanges 16. In place of folding the strip in the manner above described I may employ the form of strip shown in Figs. 2 and 5 wherein the strip is folded along its medial line to form the fold 17 which extends at right angles to one edge flange 18, but the other edge 19 extends down into the coating or leveling layer of the floor structure while the laterally extending edge 18 is positioned upon the surface of such coating.

In Figs. 3 and 6 I have shown another form of strip suitable for use in carrying out my invention wherein I employ two angle-shaped strips having the edge portions 20, 21, of each respectively disposed at right angles to each other with the vertical edges 21 of the pair of strips placed flatwise against each other with the lateral edge portions 20 thereof extending in opposite directions from each other and resting upon the surface of the leveling or scratch coat 12. It is obvious that other forms of metallic strips may be employed and still attain the objects and purposes of my invention. These strips may be disposed or arranged in any desired relation. In the arrangement shown in Fig. 1 the strips are placed in parallel relation to each other and extend throughout the entire dimension in one direction of the floor area. As indicated in Fig. 7 the strips may be arranged at right angles to each other to form rectangular shaped panel areas. In the arrangement shown in Fig. 8 the strips may be arranged in diagonal relation with respect to each other to form a panel effect of diamond shapes. Other arrangements may be employed to produce any desired rectilinear geometric figures of panel effects.

After placing the panel strips in the desired position and relation upon the leveling or scratch coat of the flooring the terrazzo cement composition is then applied in the usual manner. If desired, and to economize in the use of the crushed marble constitu-

ent, a preliminary layer 22 of suitable composition, such for example, as grit and cement, may be laid over the leveling or scratch coat so as to bury the laterally extending portions or edges 16, 18, 20, of the paneling strips thereby forming an anchorage therefor. Upon this layer of filler material the terrazzo or crushed marble and cement composition 30 is then applied so as to bring the wearing surface thereof to approximately the level of the upper edge or fold of the metallic strips. The wearing surface of the floor is then smoothed or finished off with finishing or polishing machines, the action of which upon the upper edge of the strip in case a folded strip is employed is, if desired, to grind through the fold so as to separate the two portions of the strip into severed or separated strips.

Ordinarily in a case of fracture through expansion or contraction of the building framework the line of fracture follows the line of least resistance, which, in the use of my invention, is afforded by the metallic paneling strips. In such case should a seam open up through expansion or contraction such seam will be disposed between proximate edges of adjacent panels, that is, along the lines defined by the edges of the metal strips which run to the wearing surface of the floor. In such case the metal strips which have become permanently incorporated into the floor structure form retaining walls for such proximate edges of the panels and prevent the terrazzo or crushed marble particles from breaking off, hence leaving straight lines of fracture, whether such lines present diamond shaped panel effects as in Fig. 8, rectangular shaped panel effects as in Fig. 7, or straight strip appearance as in Fig. 1, or other form or outline as determined by the arrangement of the metal strips. In such case should grouting be necessary to fill the seams such grouting will be applied along straight regular lines which do not give the appearance of rough irregular outline and unsightly patchwork.

From the foregoing description it will be seen that I provide a floor structure which gives the appearance of a paneled effect and wherein each panel area or the edge of such area is retained and the terrazzo edges thereof are prevented from breaking off and becoming unsightly by means of the metallic retaining strips which become incorporated as permanent parts of the floor structure, thereby directing any tendency for seams to form along straight lines of fracture which may be easily repaired without leaving an unsightly patchwork effect.

While I have referred to a particular method of building up the composition flooring it is to be understood that in the use of the panel strips of my invention I do not desire to be limited or restricted in this respect as said strips may be likewise employed where other compositions and method of laying the same to form composition floorings may be employed in connection with such strips.

Having now set forth the object and nature of my invention, and various arrangements for carrying the same into practical effect and operation, what I claim as new and useful and of my own invention and desire to secure by Letters Patent of the United States is,—

1. In a terrazzo floor structure, the combination with a terrazzo flooring composition and a base composition upon which the terrazzo flooring composition is spread, of a metal plate or strip vertically disposed and embedded in and anchored at its lower portion by said base composition, having its upper edge extending to and flush with the wearing surface of the terrazzo flooring composition, said strip or plate forming a retaining and protecting wall for the terrazzo flooring composition.

2. In a terrazzo floor structure, the combination with a terrazzo flooring composition and a base composition upon which said terrazzo flooring composition is spread, of a metal plate or strip vertically disposed and having its upper edge extending to and flush with the wearing surface of the terrazzo flooring composition, said strip having a laterally extending lower edge portion embedded in and anchored by the supporting base composition.

3. In a terrazzo floor structure, the combination with a terrazzo flooring composition and a base composition upon which the terrazzo flooring composition is spread, of metal strips or plates having vertical portions disposed flatwise against each other, the upper edges of said vertical portions extending to and flush with the wearing surface of the terrazzo flooring composition, said strips or plates having their lower portions permanently embedded in and anchored by the supporting base composition.

4. In a terrazzo floor structure, the combination with a terrazzo flooring composition and a supporting base composition upon which the terrazzo flooring composition is spread, of metal strips or plates having vertical portions disposed flatwise against each other, the lower portions of said strips or plates having laterally extending flanges permanently embedded in and anchored by the supporting base composition, the upper edges of the vertical portions of said strips extending upwardly through the terrazzo composition, and lying flush with the wearing surface thereof.

5. In a composition flooring, and in combination with a surface composition and a supporting base composition upon which the surface composition is spread, of angle

strips or plates arranged in pairs, the members of each pair having vertically extending portions disposed flatwise against each other, and having their upper edges extending upwardly through the surface composition and lying flush with the wearing surface of the latter, the lower laterally extending portions of said angle strips or plates projecting in opposite directions from each other, and embedded in and anchored by the supporting composition.

In testimony whereof I have hereunto set my hand on this 17th day of November A. D., 1919.

BRUNO O. A. DE PAOLI.