Nov. 12, 1935. N. C. BUTLER 2,020,455

TILE SETTING ASSEMBLY AND METHOD OF HANDLING AND PACKAGING

Filed Nov. 10, 1934 2 Sheets-Sheet 1

Fig. 1.

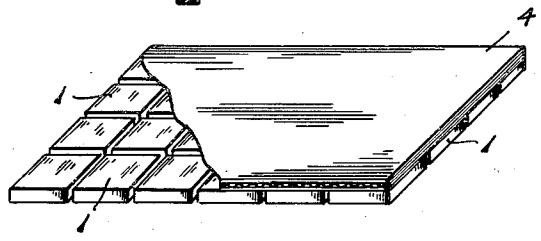


Fig. 2.

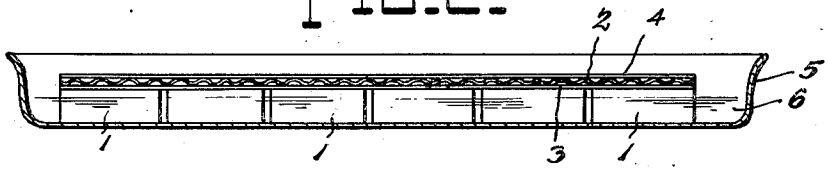
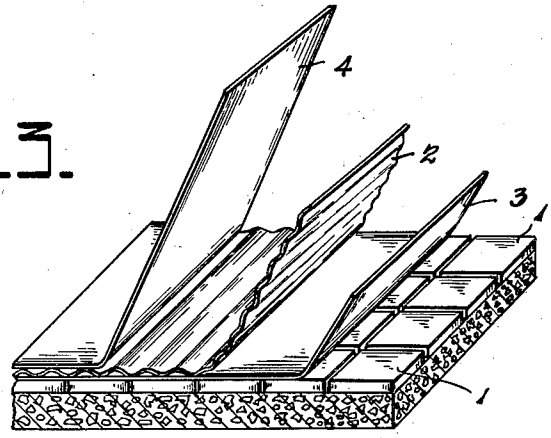


Fig. 3.



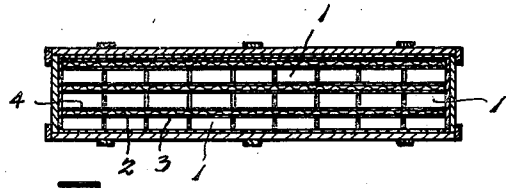


Fig. 7

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FIG. 4.

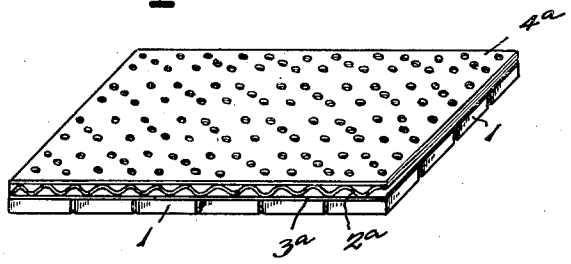
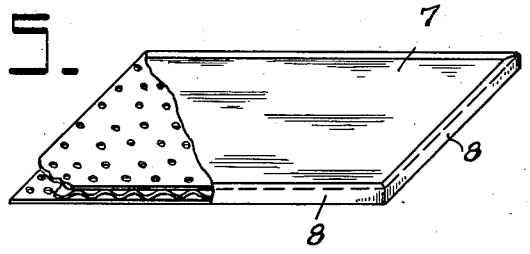


FIG. 5.



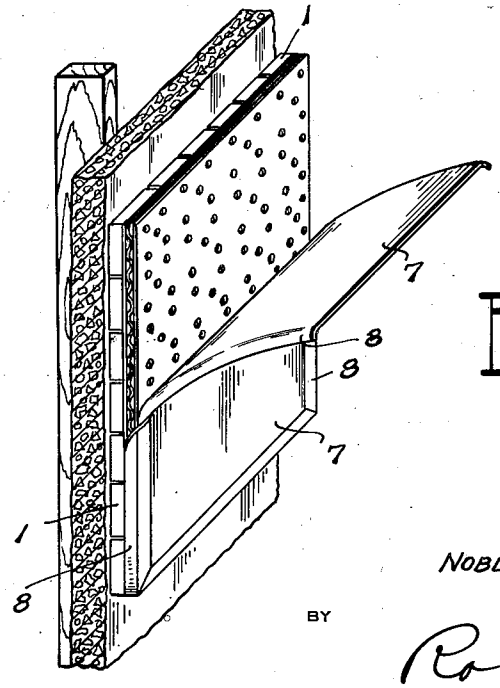


FIG. 6.

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TILE SETTING ASSEMBLY AND METHOD OF HANDLING AND PACKAGING

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Application November 10, 1934, Serial No. 752,546

20 Claims. (Cl. 72—22)

The present invention has to do with improved methods, articles of manufacture, and assemblies of such articles, appertaining to the art of tiles, the use thereof, and especially tile setting.

In explanation of the different phases of the invention hereof, it is noted that, generally speaking, tile setting operations have to do with two types of tiles. Tiles utilized for flooring purposes are ordinarily unglazed and impervious to water or moisture. Tiles of the glazed class commonly comprise absorbent bodies, the front of the tile or that side exposed in use being glazed so as to provide an impervious face upon the absorbent body structure.

In ordinary practice tiles of the glazed class are soaked just previous to the tile setting operation. The soaking is done in water in which the tiles are submerged while they are supported in a basket, crate, or any suitable holder by which the submergence is facilitated. On this account glazed tiles are customarily required to be individually handled in the setting operation, rendering the emplacement of the tiles upon their cement base a tedious, slow, and uneconomical operation.

It has heretofore been proposed in this art to handle floor tiles in assembly units adhesively connected to paper enabling them to be placed by handling a multiplicity of the tiles at one time, as well known to those versed in the art. So far as I am aware, however, it has not been practical to handle glazed tile after the manner of the setting of unglazed floor tile in assembled relation applied to a paper adhering to the outer sides of the tiles, this being primarily due to the fact that the ordinary method of applying paper to unglazed tiles is not suitable for the purposes of setting of glazed tiles, because of the requirement for soaking or wetting of the glazed tile previous to the setting operation.

It has therefore been an important object of my invention to devise a method of economically setting glazed tile in assembled relation; in other words, a multiplicity of such tiles being settable at one time. The economy of such a method is evident when it is borne in mind that in the ordinary use of tiles in bathrooms and all other places where they are commonly employed, the larger areas which are tiled are those which are covered by the glazed tiles as distinguished from the unglazed tiles that is used upon the floor areas. Therefore, by my invention I am enabled to put into practice the economies incident to the laying of floor tiles previously assembled by utilizing the same principle of assembly in conjunction with the glazed tile area to be covered.

In conjunction with the accomplishment of this object, I avail of the fact that the glazed tile is equipped with a glazed impervious surface to which I cause to be adhesively applied a connecting membrane support and packaging member. This connecting membrane support and package member takes in one form the construction of corrugated cardboard and paper upon which the glazed tiles are assembled so that a number of them may be handled at one time in the setting of same for walls, ceilings, or any other place where they are to be used. Then the said member facilitates the handling of the grouped tiles for the purposes of soaking or wetting them in water, but without the disconnection of the member therefrom, and finally the said member which connects the tiles in their grouped relation enters the packaging function for enabling the tiles to be placed in boxes or other receptacles for shipment, the said connecting membrane and supporting member forming a cushioning means between layers of grouped connected tiles for preventing breakage of said tiles in transit from one place to another.

Another object of my invention has been to design a special form of the assembly connecting member for a plurality or group of tiles which, when applied to the tiles, is impervious to moisture that would tend to disconnect it from the assembly of tiles which it holds together, but which assembly connecting member may be very readily separated from the tiles after they have been set into the cement of the wall, ceiling, or other portion of the building to which they are applied. Such a construction is highly desirable where the assembly connecting and supporting member for the groups of tiles is desired to be submerged entirely in the soaking or wetting bath used for the absorbent bodies of the tiles, the structure by which the said member is rendered impervious being such that submergence in water will not cause the detachment of the member from the assembly group of tiles.

With the foregoing and other objects in view that will appear more fully as this invention is presented in conjunction with the annexed drawings, reference is had to the said drawings, in which—

Figure 1 is a perspective view of an assembly group of tiles connected by a membrane supporting and packaging member functioning in accordance with the invention, the said member being illustrated as partly broken away to expose the disposition of the tiles relative thereto.

Figure 2 is a horizontal sectional view illustrating an apparatus suitable for the submerging

of an assembly group of tiles, as illustrated in Figure 1, in a bath of water of predetermined depth.

Figure 3 is a perspective view showing how a unit embodying an assembly group of tiles connected by a membrane supporting and packaging member may be disposed upon the cement base for wetting and the different parts of the said member removed one at a time after being moistened or wet.

Figure 4 illustrates a modification of the invention somewhat after the manner of Figure 1, the unit shown, however, not being completely illustrated because of the omission of the enclosing impervious layer of paper, cloth, or other cheap material, as well as the edge strips of such material.

Figure 5 is a view of a complete unit similar to Figure 1, with the impervious strip of covering material for the connecting and supporting membrane or member partly broken away, also the edge strip similarly broken away.

Figure 6 is an illustration of the application of the unit of Figure 5 to a wall, as when set in the cement thereon, and depicting the manner in which the impervious covering sheet and edge strip are removed to facilitate the application of moisture or water to the membrane or connecting member for wetting the same preliminary to its removal from the glazed surface of the tile.

Figure 7 is a longitudinal sectional view of a package of tile disclosing the packaging method of the invention, involving the crating of a number of layers of tiles, each layer including an assembly group with its connecting membrane supporting and packaging member, and showing particularly how the said membrane or connecting member constitutes a package cushion between the layers of tiles.

The adaptation of the invention and method of use of the articles of manufacture embodying the same as illustrated in Figures 1 to 3 inclusive and Figure 7 are first to be treated.

Figure 1 illustrates what is termed an assembly group of glazed tiles 1, which tiles are an assembly unit by reason of the fact that they are connected together by the novel connecting membrane member and packaging cushion which brane member and packaging cushion which hereinafter will be referred to as a connecting member. The said assembly or group of tiles may be handled as a unit similar to the method of handling the ordinary assembly of unglazed tiles connected by paper and commonly used for laying tile flooring. The connecting member of the assembly group of tiles 1 consists of a relatively rigid surface member glued or otherwise adhesively connected with the tiles 1 and comprising a central corrugated cardboard part 2, the paper sheet 3 intermediate the part 2 and the tiles and directly adhering to the tiles 1, and the paper sheet 4 on the outer surface of the corrugated cardboard 2. The sheets 3 and 4 are intended to give rigidity to the corrugations of the cardboard 2 in a well known manner. By reason of the employment of a relatively rigid connecting member such as has been described for the tiles 1 of the assembly, the said tiles will be joined together in a relatively stiff manner with the resultant advantages that they may be handled readily as a unit assembly in emplacing them for setting. Again, the said connecting member 2—3—4 is a cushion establishing a packaging function when the assembly group of tiles 1 is placed in a crate or box for shipment in the manner illustrated in Figure 7. It is contemplated that the innermost paper sheet 3 shall be applied to the glazed surfaces of the tiles 1 and this is important for a reason now to be presented.

When the assembly group of tiles is to be set into a wall, ceiling, or floor or other place, the preliminary operation of wetting or soaking the tiles in respect to their absorbent bodies must be performed. This is done in one method of this invention by the apparatus of Figure 2, which simply involves a tray 5 filled with water 6 to a predetermined depth, very slightly less than the thickness of the tiles 1. Then the tiles with their connecting membrane or member previously described are almost wholly submerged in the water 6 in the tray 5 as illustrated in Figure 2. The absorbent bodies of the tiles 1 will take up the necessary water and when fully soaked, as determined by the usual method known to those versed in the art, the tiles remain firmly connected by the connecting member 2—3—4 and may be removed from the water and emplaced or set in the cement in the setting operation without difficulty. The fact that the connecting member 2—3—4 is applied to the glazed surface of the tiles 1 is conducive to preventing the water or moisture from passing through the tiles to the adhesively connected portions of the said member 2—3—4, the glazed surfaces of the tiles directly annexed to the sheet 3 being impervious to moisture.

It is not desired to be limited to the exact form of connecting member or membrane which has been previously set forth. It is quite within the purview of the invention that the combination member 2—3—4 shall be made of cloth or fabric or other material that may be suitable in practical manufacture and commercial use.

In Figures 4 to 6 inclusive there is illustrated another form of the invention as respects the article of manufacture of a unit assembly group of tiles. In this form of the invention the connecting membrane or member is somewhat similar to that previously described, and comprises the similar respective parts 2*a*, 3*a*, and 4*a*. The parts 3*a* and 4*a* will preferably be provided with apertures or perforations at intervals over their areas and likewise these apertures or perforations will be formed in the part 2*a*. These apertures or perforations are so positioned that they are covered on the bottom side by the faces of the tiles. This seals the bottom side of the membrane during the wetting operation, yet facilitates removal of the part 3*a* after the tile has been set. As shown in Figures 5 and 6, the connecting member or membrane will be covered by a cover sheet 7 of suitable material impervious to water. Likewise, edge strips of impervious material, designated 8, will enclose the edges of the connecting member 2*a*, 3*a*, 4*a*. The side of the connecting member having the part 3*a* will be adhesively attached to the tiles 1, being directly applied to the glazed surfaces thereof. Since the connecting member is covered by water impervious material, it is possible by the use of this form of the invention to submerge the entire unit including the tiles 1 and the parts 2*a*—3*a*—4*a*, 7 and 8. The so-called unit, when thus submerged, will enable the absorbent bodies of the tiles 1 to absorb the water necessary preliminary to their being set in their cement base. Preferably the upper and lower sheet-like members 3*a* and 4*a* of the connecting member or membrane will be waterproofed and therefore somewhat impervious in order to protect the part 2*a* therebetween.

In use, when the assembly group of tiles connected by the connecting member and parts 7 and 8 has been set in the cement after the manner shown in Figure 6, the outer impervious covering sheet 7 will be sufficient, as somewhat depicted in Figure 6, and, when removed with the strips 8, water may be applied to the connecting member 2a—3a—4a, enabling the part 4a first to be pulled off the part 2a of corrugated form, next to be pulled off, and finally the directly adhesively applied sheet 3a to be removed from the glazed surfaces of the tiles 1, thus exposing these glazed surfaces readily to be cleaned to present their final appearance when the tiles are thoroughly dried after the known manner.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is—

1. The method of preparing glazed tiles for setting in a cement base, consisting of arranging a plurality of such tiles in an assembled group, applying to the glazed surfaces of the tiles a connecting membrane of relatively rigid structure, and thereafter moistening the absorbent bodies of the tiles while connected by said membrane.

2. The method of preparing glazed tiles for setting in a cement base, consisting of arranging a plurality of such tiles in an assembly group, applying to the glazed surfaces of the tiles a connecting membrane of relatively rigid structure capable of supporting the tiles to enable them to be handled while moistening, and thereafter moistening the absorbent bodies of the tiles while connected by said membrane.

3. The method of preparing glazed tiles for application to a cement base, which consists of arranging a plurality of such tiles in an assembly group, connecting the tiles by application to the glazed sides thereof of a membrane embodying a cushioning structure, and soaking the absorbent bodies of the tiles before setting in the cement.

4. The method of preparing glazed tiles for application to a cement base, which consists of arranging a plurality of such tiles in an assembly group, connecting the tiles by application to the glazed sides thereof of a membrane embodying a cushioning structure, and soaking the absorbent bodies of the tiles by submerging them in water of a depth to contact with the said connecting membrane.

5. The method of preparing tiles for application to a cement base for use, which consists in first arranging a plurality of the tiles in an assembly group, connecting the said assembly group of tiles by a connecting membrane, and soaking the tiles by submerging same in water without contact of the water with the said membrane.

6. The method of preparing tiles for setting in a cement base for use, which consists of arranging a plurality of tiles in an assembly group, applying to said group of tiles a connecting membrane, covering said membrane with an impervious covering to prevent water from penetrating the same, and submerging the said assembly group of tiles and said membrane in water to soak the absorbent body of the tiles while maintaining the membrane substantially unwet.

7. As a new article of manufacture, a unit assembly group of tiles comprising a plurality of absorbent tiles arranged in juxtaposed positions in which they will be disposed when emplaced in cement, and a connecting membrane for said tiles to maintain them in said positions while being moistened, comprising a relatively rigid member, said unit including means preventing moisture from the tile from passing to the connecting membrane.

8. As a new article of manufacture, a unit assembly group of tiles comprising a plurality of tiles arranged in juxtaposed positions in which they will be disposed when emplaced in cement, and a connecting membrane for said tiles to maintain them in said positions, comprising a cushioning member capable of acting as a cushion to prevent breakage of the tiles when such unit assembly is packed in boxes, crates, or the like for shipment.

9. As a new artcle of manufacture, a unit assembly group of tiles comprising a plurality of tiles arranged in juxtaposed positions in which they will be disposed when emplaced in cement, and a cushion member applied to the tiles at one side thereof to hold them in their relative positions in which they will be disposed when in use and forming a packaging member to prevent breakage of the tiles when packed for shipment.

10. As a new article of manufacture, a unit assembly group of tiles comprising a plurality of tiles arranged in juxtaposed positions in which they will be disposed when emplaced in cement, and a cushion member applied to the tiles at one side thereof to hold them in their relative positions in which they will be disposed when in use and forming a packaging member to prevent breakage of the tiles when packed for shipment, said cushioning member consisting of a membrane composed of a corrugated part, sheet material connected with said corrugated part and intermediate same and the tiles, and sheet material annexed to said corrugated part at the side thereof remote from the tiles.

11. A unit assembly of tiles comprising a plurality of ceramic absorbent tiles disposed in the positions in which they will be arranged when put into use, and a water impervious membrane attached to the face of said tile and connecting said tiles together for holding the tile in the set arrangement while soaking the tile.

12. A unit assembly of tiles comprising a plurality of tiles disposed in the positions in which they will be arranged when put into use, and a water impervious membrane connecting said tiles together, the said tiles having glazed sides, and the said membrane being applied to the glazed sides of the tiles.

13. A unit assembly of tiles comprising a plurality of tiles disposed in the positions in which they will be arranged when put into use, and a water impervious membrane connecting said tiles together, the said impervious membrane comprising laminated parts and being provided with a plurality of apertures through said parts.

14. A unit assembly of tiles comprising a plurality of tiles disposed in the positions in which they will be arranged when put into use, and a water impervious membrane connecting said tiles together, the said impervious membrane comprising laminated parts and being provided with a plurality of apertures through said parts, said laminated parts including sheet material directly adhesively applied to a side of the tiles, a corrugated rigidifying part connected to said sheet material, and an outer cover member on said corrugated part of sheet material, the said sheet material and corrugated parts being perforated at intervals throughout their area, and an impervious covering for said sheet material and corrugated parts.

15. As a new article of manufacture, an assembly group of glazed tiles and a connecting

membrane for the same comprising corrugated cardboard of ordinary commercial manufacture, said membrane being so connected to the glazed face of the tile as to be readily strippable therefrom when the tile has been placed in its set position.

16. The method of setting glazed tiles in a cement base or the like, comprising arranging a plurality of such tiles in an assembly group, adhesively applying to the glazed surface of the tiles a connecting membrane enabling the assembly group of tiles to be handled as a unit, applying to the connecting membrane a moisture impervious covering, soaking the tile assembly group while connected to the membrane whereby the absorbent bodies of the tiles are permitted to absorb moisture while the connecting membrane is maintained in a substantially dry condition, applying the tiles to the cement base, removing the moisture impervious covering of the connecting membrane, moistening the membrane to reduce the adhesion between the same and the tiles, and removing the membrane from the tiles.

17. The method of setting glazed tiles in a cement base or the like, comprising arranging a plurality of such tiles in an assembly group, adhesively applying to the glazed surface of the tiles a connecting membrane having means for admitting moisture therethru, applying to the connecting membrane a moisture impervious covering whereby the connecting membrane is normally protected against the penetration of moisture, soaking the tile assembly group while connected with the membrane, applying the tiles to the cement base, and thereafter exposing the membrane to moisture and removing the membrane from the tiles.

18. The method of preparing tiles for setting in a cement base, comprising the steps of arranging a plurality of tiles in an assembly group, adhesively applying to one face of the tiles a connecting membrane capable of admitting moisture therethru to reduce the adhesion between the same and the tiles, but normally rendered impervious to moisture while initially applied to the tiles, soaking the tile assembly group while connected with the membrane, and thereafter conditioning the membrane for the admission of moisture therethru and removing the membrane from the tiles.

19. A unit assembly of tiles, comprising a plurality of tiles disposed in the positions in which they will be arranged when put into use, and a removable connecting membrane adhesively applied to one face of the tiles of the unit assembly, an impervious member covering the membrane to normally prevent moisture from affecting the same, said connecting membrane being initially impervious to moisture while applied to the tiles but having means for admitting moisture therethru for facilitating removal of the same from the tiles.

20. A unit assembly of tiles, comprising a plurality of tiles disposed in the positions in which they will be arranged when put into use, a removable connecting membrane adhesively applied to one face of the tiles of the unit assembly, and means for normally protecting the adhesion bond between the tiles and the connecting membrane against exposure to water when soaking the unit assembly in preparing the same for use, said protecting means being further capable of being rendered ineffective whereby the adhesion bond may be subsequently exposed to the penetration of water for facilitating removal of the connecting membrane from the tiles.

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