W. F. WALLING.

METHOD OF MAKING IMITATION TILE FLOORING.

APPLICATION FILED OCT. 25, 1911.

**1,132,502.** **Patented Mar. 16, 1915.**

3 SHEETS—SHEET 1.

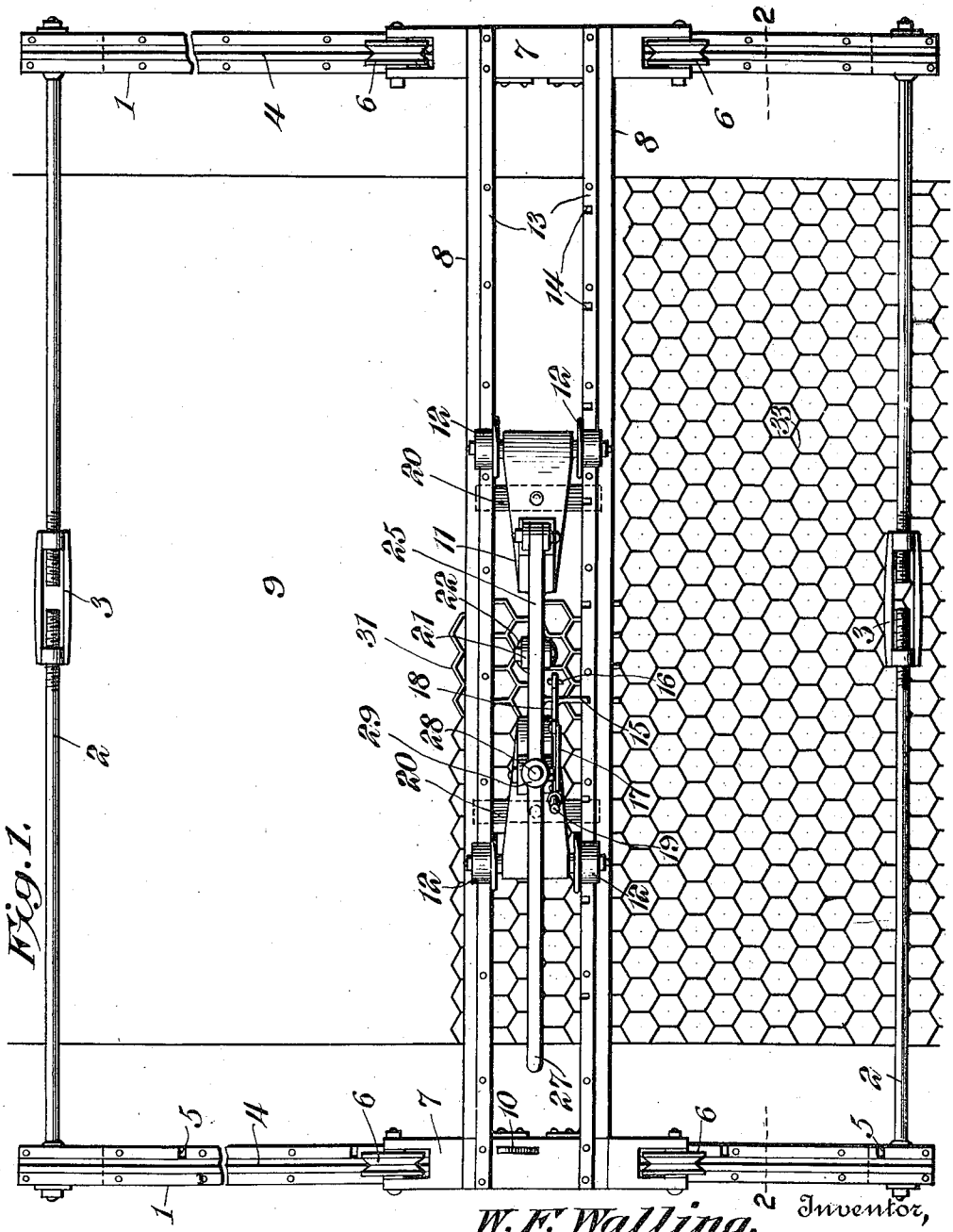


Fig. 1.

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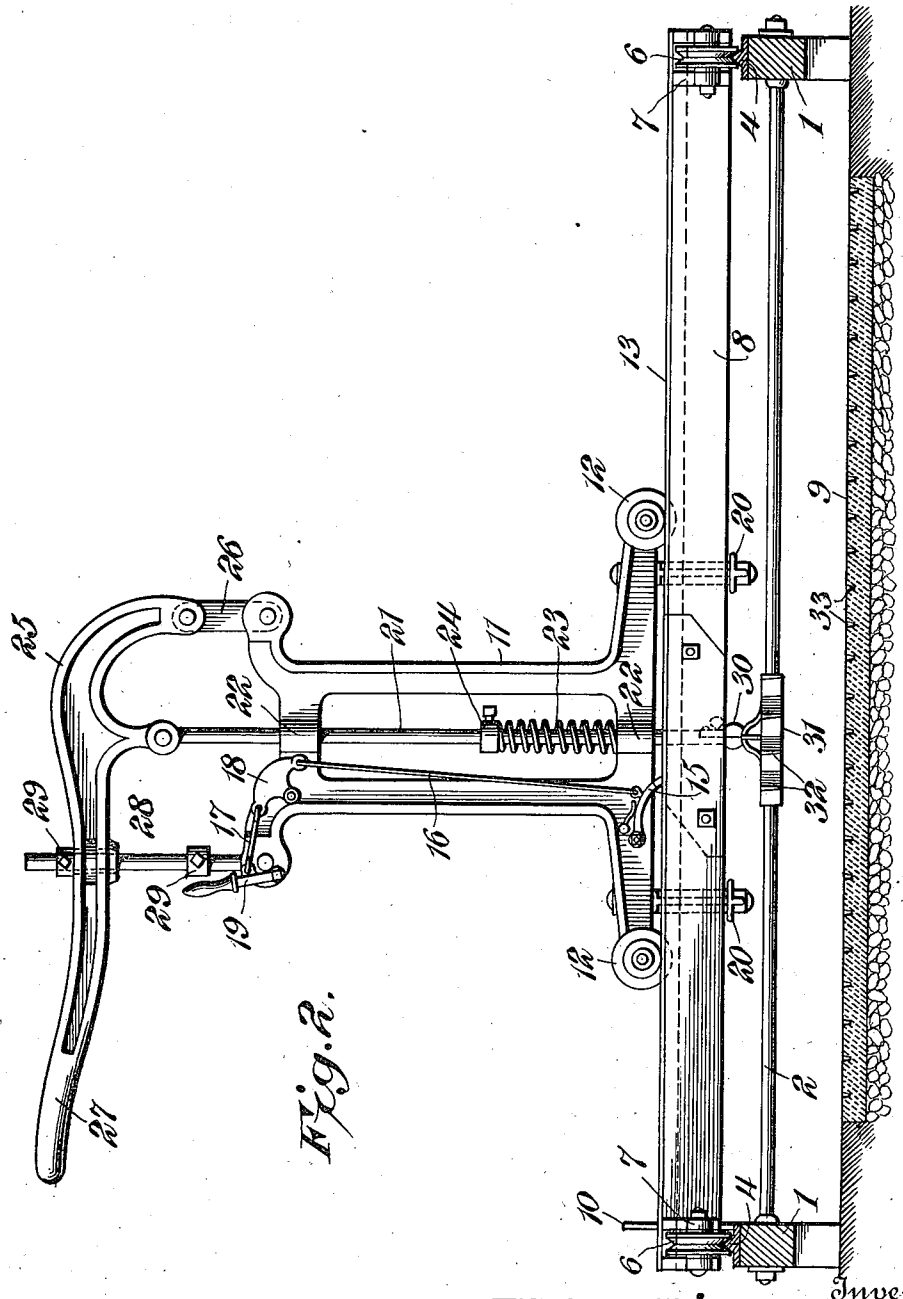



Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 3.

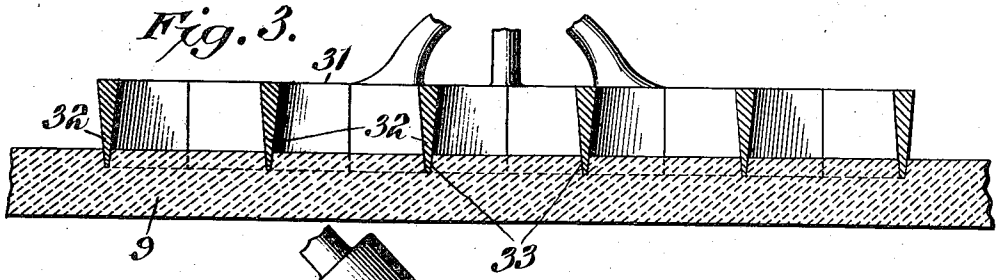



Fig. 4.

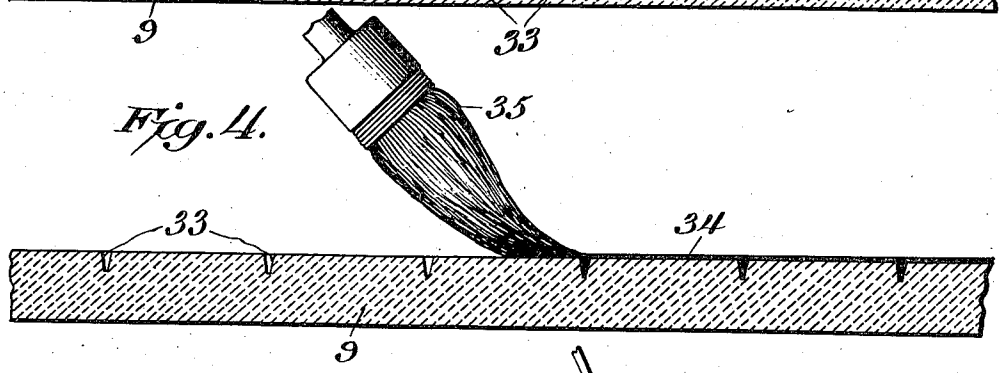



Fig. 5.

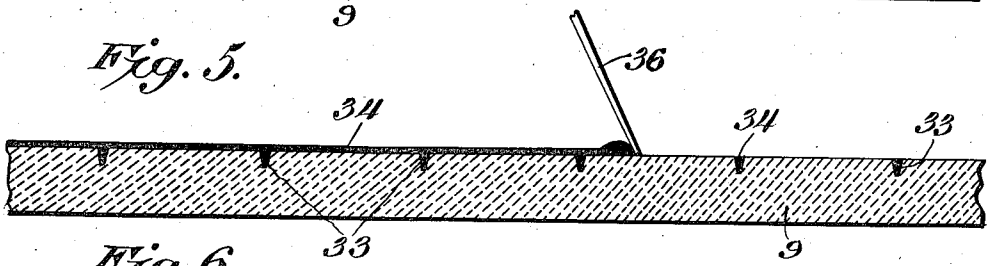



Fig. 6.

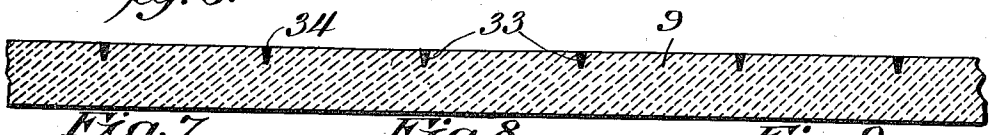



Fig. 7.

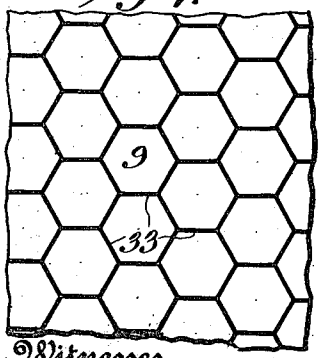



Fig. 8.

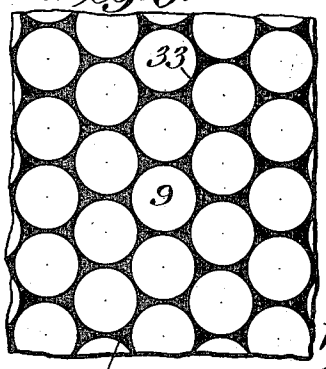
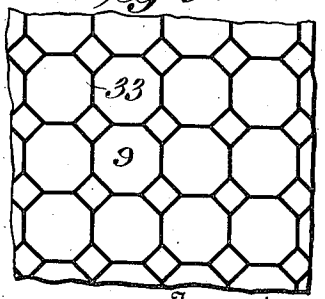



Fig. 9.




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# UNITED STATES PATENT OFFICE.

WILLIAM FRED WALLING, OF LOS ANGELES, CALIFORNIA.

## METHOD OF MAKING IMITATION-TILE FLOORING.

1,132,502. Specification of Letters Patent. Patented Mar. 16, 1915.

Application filed October 25, 1911. Serial No. 656,788.

*To all whom it may concern:*

Be it known that I, WILLIAM F. WALLING, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Method of Making Imitation-Tile Flooring, of which the following is a specification.

This invention relates to a method of making imitation tile flooring and the like, and its object is to produce a floor, pavement or other covering of like nature in so close an imitation to actual tiling as to be indistinguishable therefrom by observation only.

So far as known imitation tile flooring has not been produced prior to the present invention, for it is the universal practice to produce tile flooring by laying upon a suitably prepared surface an assemblage of small blocks of natural or artificial composition known as tiles, each block being individual, distinct and separate from every other block, and usually of very limited superficial area, say from a few square inches down to less than a square inch, and such tiles are commonly of conventional form, either round, triangular, square or hexagonal, although sometimes of other shapes.

The laying of what may be termed a real tile floor requires a pronounced degree of skill, the process is slow and the cost is high and there is no assurance, even when the floor is laid by highly skilled labor, but that some of the tiles will loosen, since the cement used as a bed and binder is not strongly adherent to the tiles. Such loosening of the individual tiles is not only productive of annoyance and sometimes of danger, but repairs cannot be made without showing the fact to such an extent as to be more or less unsightly.

By the present invention a flooring is produced which even to a close observer is indistinguishable from a flooring made of individual tiles carefully laid and finished, but the flooring of the present invention is substantially monolithic or homogeneous throughout the entire area or throughout very large areas where the floor may be too extensive to admit of its being finished at one time, a condition which might occur in large buildings of public or semi-public character, or in the case of extensive roadways or plazas.

In carrying out the present invention the surface to be finished is prepared with a cement coating of proper character depending upon the desired final appearance, and then this surface is impressed or stamped by a suitable tool or form made in the shape of the outlines of an associated small number of tile patterns and the stamping is continued progressively throughout the entire area to be treated until there is produced a web of connected grooves covering the whole surface, or a material portion thereof if too large to be treated at one time, the stamping or impressing being done while the surface is still in a sufficiently soft or green condition. By employing a tool having the stamping or impressing edges tapering the portions of the tool entering the surface to be impressed will leave such surface without disturbing the walls of the grooves which therefore remain in a condition sensibly true and unbroken, this being due to the fact that the tapering edges at once leave the walls of the groove before the entering portions of the edges have moved more than a small fraction of the distance out of the groove, wherefore air enters the groove and prevents any suction due to the contact of the impressing walls of the tool with the cement. After the grooves are formed the cement is permitted to set until hard enough to withstand the subsequent treatment to be given and then the grooves are filled with a material of contrasting color to the color of the surfaces simulating individual tiles. The filling of the grooves may be performed by brushing over the impressed surface a sufficiently thin cement or other like composition of about the consistency of paint, and then the surplus upon the surfaces inclosed by the grooves is scraped off without removing material from the grooves, and such material in the grooves is then permitted to set. Finally the whole surface is rubbed down in any suitable manner known in the art of finishing tile flooring, whereby there is left a smooth surface exhibiting conventional tile shapes throughout with sharp, clear cut outlines defined by narrow bands of contrasting material simulating the filling in cement employed between the edges of individually laid tiles. Even close observation cannot detect the fact that the floor so produced is practically homogeneous throughout, and in such a floor there is no possibility of the loosening of individual tiles because they do not exist. The inconvenience, danger and unsightliness so often found in

tile floorings where the tiles are separate and are separately laid, is wholly avoided.

In the present invention the grooves may be formed, and preferably are formed, by a machine such as is shown and described in Letters Patent No. 1,063,752, granted June 3, 1913, on an application filed by me on even date herewith for a machine for making imitation tile flooring, for by such a machine the impressions may be produced with such accuracy that each succeeding impression will continue the preceding impression without break or distortion, and the appearance produced is equal or superior to the appearance of a floor made of individual tiles even when most carefully laid by skilled workmen.

The method of the present invention may be practised without requiring any particular skill, and, therefore, unskilled and consequently cheap labor may be employed, which together with the cheapness of the materials used and the expedition with which the imitation tile flooring may be produced brings the cost far below the cost of real tile flooring and, furthermore, the time consumed in laying a floor is materially less than that necessary when flooring is made of individual tiles.

The particular form of the tile figures is not material except that they should be capable of repetition through the area to be ornamented. The entire area may be produced in one pattern, or in more than one pattern, and the flooring may be produced in different colors where such ornamentation is desired, and while complexity of ornamentation will add some additional work, and, therefore, some additional cost and consume some additional time, the whole cost of production of the flooring even under such circumstances is far less than that required for the production of the simplest and most expeditiously laid type of tile flooring.

In order that the invention may be fully understood reference is had to the accompanying drawings forming a part of this specification, but while the drawings illustrate a practical means for carrying out the invention it is to be understood that other means may be employed, and while the drawings illustrate progressive steps employed in the practice of the invention, the latter may be practised in other ways so that it is not confined to any strict conformity to the showing of the drawings.

In the drawings:—Figure 1 is a plan view of a machine capable of carrying out the present invention and also showing a section of flooring or pavement or the like with a conventional tile pattern already impressed therein. Fig 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a sectional view showing a stamping form in position in the impressionable surface. Fig. 4 is a sectional view showing the application of the groove filling material to the already impressed surface. Fig. 5 is a sectional view showing the removal of surplus filling material. Fig. 6 is a sectional view showing the surface after the surplus material has been removed and the surface has been rubbed down smooth. Figs. 7, 8 and 9 are face views of small sections of finished imitation tile flooring showing different tile patterns.

Before entering into a detailed description of the method forming the subject matter of the present application, a brief description will be given of the machine shown in Figs. 1 and 2 for carrying out the method. The machine comprises a main frame composed of sills 1 of suitable length joined at the ends by rods 2 each of which may be provided with a turn buckle 3, so that the sills can be placed in substantial parallelism. Each sill carries a track 4 and one of these tracks is shown as provided with notches 5 for a purpose which will presently appear. Adapted to the tracks 4 are wheels 6 on opposite ends of trucks 7, there being two trucks firmly connected together by bars 8 in spaced parallel relation one to the other and at the ends connected to the trucks in such manner that the bars override a surface extending between the sills 1, which surface may be a cement surface 9, at the borders of which the sills 1 are supported with the carrier made up of the bars 8 and trucks 7 at a suitable distance above such surface and movable over the surface in the direction of the length of the sills because of the trucks 7. One truck 7 is shown as provided with a latch lever 10 adapted to the notches 5, so that the truck may be moved definite distances along the tracks, the latch lever 10 engaging successive notches 5. Mounted on the carrier is a carriage having a frame 11 with wheels 12 at the ends adapted to tracks 13 on the facing edges of the bars 8, so that the carriage is movable along the carrier in a direction transverse to the direction of movement of the carrier along the sills or main frame. One of the tracks 13 is shown as formed with spaced notches 14 and the carriage is provided with a latch 15 connected by links 16 and 17 and an intermediate direction changing lever 18 to a manipulating lever 19 in convenient position to be reached by the operator. The carriage 11 is provided with swivel members 20 extending between the bars 8 and adapted to be turned into underriding relation to the bars or lengthwise of the latter, so that the carriage may be held to the carrier against accidental displacement therefrom, or may be readily removed from the carrier, as desired. Mounted in the frame 11 is a rod 21 which when the parts are in operative

position is substantially upright, said rod extending through bearings 22 at appropriate points of the frame 11, and the rod between the bearings is surrounded by a spring 23 confined between one of the bearings and an adjustable collar 24 on the rod. The tendency of the spring 23 is to maintain the rod and parts carried thereby in an elevated position, but permitting the rod to be moved downwardly, as desired. To actuate the rod there is provided a hand lever 25 connected at one end to the frame 11 by a link 26, and at the other end provided with a manipulating handle 27. At an appropriate point the handle lever 25 is traversed by another rod 28 pivoted at one end to the frame 11 and at the other end extending through a suitable passage in the handle lever 25. The rod 28 carries spaced stop collars 29, so that the extent of movement of the lever 25 especially in a direction causing the downward movement of the rod 21 is readily controllable. The lower end of the rod 21 has a ball and socket connection 30 with a frame 31 constituting a form designed to be impressed in the surface 9. The form is a skeleton form having webs 32 tapering to an edge remote from the part of the frame connected to the rod 21, and the thin edges of the tapered webs are comparatively sharp, while the taper is such that on pressing these edges into the cement layer 9 grooves 33 of requisite width and depth are produced and when the impressing or stamping mold or form is raised there is no suction caused, since the walls of the form at once leave the cement surfaces, against which they rest, before the mold is lifted to any material extent. The form or mold 31 has its impressing or stamping edges simulating the outlines of a small group of associated tiles, while the stamping edges of the mold or form are such as to produce a groove of a width substantially the same as the width of the cement filling commonly employed to unit the adjacent edges of associated tiles.

By the use of the machine shown in Figs. 1 and 2 such machine may be positioned with reference to the surface to be treated, so as to begin, say, in one corner thereof and then produce an impression by forcing the form or stamp down upon the cement surface while the same is still soft or green enough to receive the impression, then the stamp or form is raised, the carriage is moved along the carrier for a distance determined by the space between the notches 14, this distance conforming to the length of the stamp or form, so that on a second downward movement of the form it will produce a second impression joining the corresponding end of the impression already made, and this operation is successively repeated until the entire width of the surface 9 has produced therein a series of connected grooves simulating tile forms. The carrier is then moved along the sills for a distance equal to the space between adjacent notches 5, which space is agreeable to the width of the form, and then another row of impressions is made by the successive depressing of the form with intermediate movings of the carriage in the reverse direction to that first stated, until the beginning side of the surface 9 has been reached when there will be found produced upon the cement surface a connected web of grooves double the width of the form and extending entirely across the surface treated. The stamping is continued in the manner stated until the entire surface to be treated has had produced therein a connected web of grooves forming the outlines of a series of tile forms agreeable to the shapes outlined in the form, and practice has demonstrated that a large surface may be very expeditiously gone over and an unbroken web of grooves formed throughout a large area in a comparatively short time by comparatively unskilled labor, the grooves being of even width throughout. Should it transpire that the surface to be impressed and the plane of movement of the carriage are not strictly parallel, the form 31 may be readily adjusted by the ball and socket joint 30 into a suitable relation to the longitudinal axis of the rod 21, so that the impressing edge of the form will enter the impressionable surface perpendicular thereto, thus causing the web of grooves to be of even width throughout instead of varying in width as would be the case where the plane of travel of the carriage and the surface impressed are not in parallelism.

In carrying out the process constituting the present invention the suitably prepared cement surface is first impressed over as large an area as possible, this being usually either the entire flooring or pavement or a material portion thereof with a continuous or unbroken web of grooves defining the outlines of associated tiles covering a like surface, the web of grooves being formed by a succession of impressions by a pattern representing the outlines of a small group of associated tiles and repeating the impression many times with each impression uniting with preceding ones until the entire area has been gone over. The impressed surface is then allowed to harden or set sufficiently for the next step in the process which consists in filling the web of grooves with a suitable material such as a cement composition of a consistency about that of ordinary paint, and this paint like cement composition may be applied over the entire impressed surface with a brush.

In Figs. 1, 2 and 3 the impressing step of the process is shown, while in Fig. 4 there is shown a layer 34 of the filling composition

being applied by a brush 35, the filling operation continuing until all the grooves 33 have become filled with the composition, and since the composition is applied after the manner of the application of paint by a painter, the cement surface 9 is covered by the composition 34, as well as the grooves 33 being filled thereby. Now the layer 34, which of course is comparatively thin, is removed, so far as possible from the surface 9 by a scraper 36 or in any other suitable manner, leaving the grooves 33 filled with the cement composition 34, this step of the process being illustrated in Fig. 5. After the surplus cement composition used to fill the grooves has been removed so far as may be done without removing any of the filling from the grooves 33, the filling material 34 is permitted to harden and any of such material still remaining upon the exposed surface of the cement layer 9 will also harden. The cement composition 34 is made contrasting in color to the surface or layer 9 since it is customary in laying tiles to use a cement contrasting in color with the exposed surfaces of the tiles to prominently outline the tiles, thereby producing an ornamental effect. After the filling has hardened the surface 9 is rubbed down by any suitable means commonly employed for the purpose, but the most expeditious manner of rubbing down is to employ an electrically driven apparatus such as may be found upon the market. The rubbing down also eliminates any unevenness of surface which may remain after the final troweling of the cement surface 9 before the grooves are made therein and there then remains a smooth surface such as indicated in section in Fig. 6 and in plan view in any one of Figs. 7, 8 and 9, so closely simulating real tiling that any inspection short of destroying the surface will not detect the fact that the tiling is not real but imitation. The entire flooring so laid is an imitation tile flooring of monolithic or homogeneous character with no joints and without the multitude of separate pieces found in what may be termed real tile flooring. Since the imitation tiled surface is homogeneous or monolithic there are, of course, no separate tiles to become loosened from the cement matrices embedding them and consequently repairs are not necessary and all danger to users of the flooring or pavement due to loosened tiles is obviated.

Practice has demonstrated that the tile flooring may be laid far more expeditiously and cheaply than real tile flooring and that the surface ornamented by the imitation tiling has unlimited wearing qualities, while the fact that the tiling is imitation and not real can not be detected by even close observation on the part of persons not aware of the manner of production of the flooring.

While the invention has been described as used in connection with a cement layer, or surface, it will be understood that other materials of similar characteristics to cement may be used.

This application is a continuation of my application No. 502,502, filed June 16, 1909, for process of making cement tile for floors and the like, in so far as said earlier application contains subject-matter in common with the present application, which latter adds to the disclosure of said earlier application the filling of the impressed grooves by brushing over the impressed surface a sufficiently thin cement or other like composition and the subsequent scraping off of such brushed-on groove-filling material.

What is claimed is:—

1. The method of producing homogeneous or monolithic tile surfaces of extended area corresponding in appearance to surfaces of like extended area formed of many individually laid tiles, which consists in first producing a permanently located layer of suitable cement of the desired extended area, then impressing a form corresponding to a circumscribed group of associated tile outlines into the surface of the cement while the latter is green, and immediately removing the form therefrom and then rapidly repeating the impressions successively and progressively until the entire area has been treated before the cement has hardened sufficiently to prevent impressing the form into it, whereby there is produced a continuous web of connected grooves defining a multitude of associated tile outlines, then permitting the impressed layer of cement to harden, then filling the grooves so produced with contrasting material of like character to the cement layer, then permitting the filling material to harden, and finally smoothing the surface.

2. The method of producing homogeneous or monolithic tile surfaces of extended area corresponding in appearance to surfaces of like extended area formed of many individually laid tiles, which consists in producing a permanently located layer of cement of the desired extended area, thickness and character to provide the ultimate tile surface, then while the cement layer is in a condition to receive and retain impressions, forming in said layer a continuous web of grooves substantially coextensive with the extended area and delineating a tile surface of like extended area by successive and progressive impressings of a suitable form into the green cement surface, the form being immediately removed from the surface after each individual impression and the grooves formed by each impression joining those of the preceding impression or impressions, then after the impressed cement has sufficiently hardened filling the web of grooves so produced with a wet mix of contrasting

cement, permitting the last-named cement to harden, and finally smoothing the surface.

3. The method of producing homogeneous or monolithic tile surfaces which consists in first forming a permament cement layer where the tile surface is to be produced with the layer of extended area and suitable thickness, then while the extended cement area is in a condition to receive and retain impressions, producing therein a web of grooves substantially coextensive with the extended area by impressing a pattern simulating the division lines between a circumscribed group of small, set, individual tiles, to form a corresponding set of grooves in the cement layer, said pattern being immediately withdrawn from the cement layer after the impression, successively and progressively repeating the impressings into and immediate withdrawals of the pattern from the cement layer until the web of grooves so produced is continuous and coextensive with the permanent cement layer, the entire web of grooves being formed while the cement layer is still in the impressionable condition, then allowing the impressed surface to set or harden, and then filling the grooves with cement of suitable appearances to simulate that employed to connect the adjacent edges of individually laid tiles.

4. The method of producing homogeneous or monolithic tile surfaces, which consists in forming a permanent cement layer where the tile surface is to be produced, said layer being of an extended area and suitable thickness, then while the cement layer is in a condition to receive and retain the impressions, producing therein a web of V-shaped grooves extending into the cement layer for but a small fractional portion of its thickness, by impressing a suitably shaped pattern simulating the division lines between a circumscribed group of small, set, individual tiles with the impressing portions of the pattern V-shaped to form a corresponding set of grooves in the cement layer, said pattern being rapidly, successively and progressively impressed into and immediately withdrawn from the cement layer until the web of grooves so produced is coextensive with the permanent cement layer and the entire web of grooves is formed while the cement layer is still in the impressionable condition, then filling the grooves with a cement of suitable appearance to simulate that employed to connect the adjacent edges of individually laid tiles.

5. The method of producing homogeneous or monolithic tile surfaces, which consists in forming a permanent cement layer where the tile surface is to be produced, said layer being of an extended area and suitable thickness, then while the cement layer is in a condition to receive and retain the impressions, producing therein a web of V-shaped grooves extending into the cement layer for but a small fractional portion of its thickness, by impressing a suitably shaped pattern simulating the division lines between a circumscribed group of small, set, individual tiles with the impressing portions of the pattern V-shaped to form a corresponding set of grooves in the cement layer, said pattern being rapidly, successively and progressively impressed into and immediately withdrawn from the cement layer until the web of grooves so produced is coextensive with the permanent cement layer and the entire web of grooves is formed while the cement layer is still in the impressionable condition, then filling the grooves with a cement of suitable appearance to simulate that employed to connect the adjacent edges of individually laid tiles, the filling of the grooves with cement being accomplished by applying a layer of such cement in flowable condition over the entire impressed and hardened surface of the first-named cement layer, then scraping off the surplus of the second-named cement layer while still in the flowable condition, and finally after the permanent portion of the second-named cement layer has hardened treating the entire surface to smooth it and remove all of the second-named layer of cement except that remaining in and filling the grooves.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM FRED WALLING.

Witnesses:

STANTON A. BRUNER,

HARRY H. CHASE.