Feb. 11, 1941. G. E. SWENSON 2,231,780

FLOORING AND METHOD OF LAYING

Filed July 7, 1938

Fig. 1.

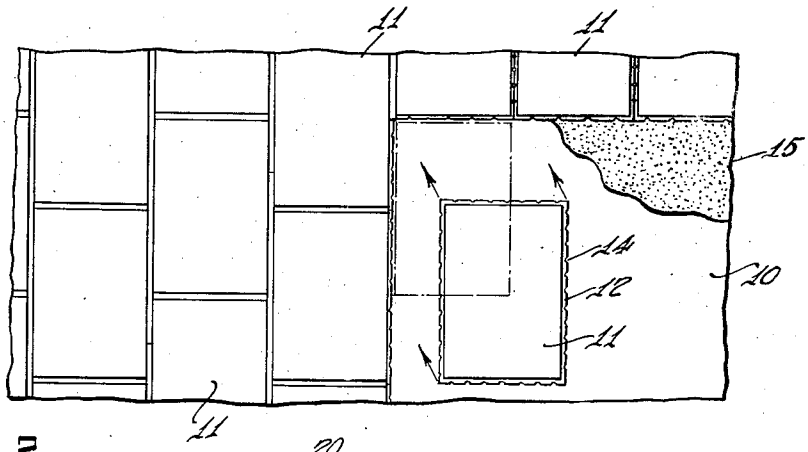


Fig. 2.

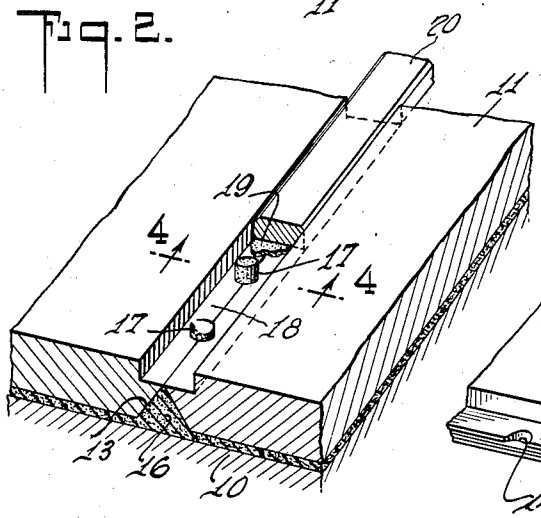


Fig. 3.

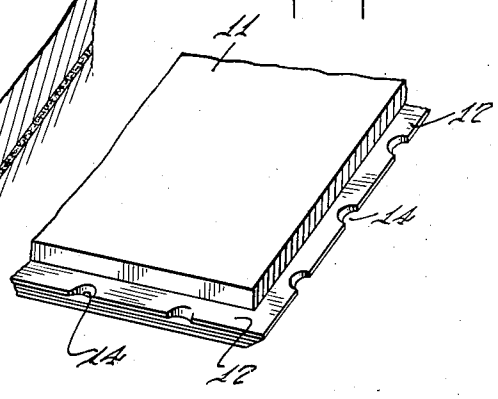
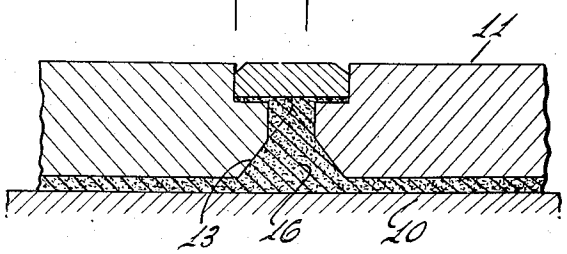


Fig. 4.



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Patented Feb. 11, 1941 2,231,780

UNITED STATES PATENT OFFICE

2,231,780

FLOORING AND METHOD OF LAYING

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Application July 7, 1938, Serial No. 217,876

3 Claims. (Cl. 20—7)

In connection with the laying of floor surfacing materials, laid as a plurality of individual units in a mastic adhesive or the like considerable difficulty has been encountered in applying such units in a manner so that after they are laid the joints between the individual units are closed to prevent the entry of water, dirt or the like into the spaces between the individual units.

Furthermore, due to the fact that substantially all flooring materials expand or contract more or less under the influence of moisture or temperature changes, it is common that as the individual units expand and contract under such influences that the joints between the individual units open up and close so that under extreme variations due to such causes it at times occurs that the joints open excessively or the individual units are caused to buckle or heave unless excessive joint space is left between units when they are laid. When ample joint spacing of units is provided to prevent buckling or heaving under excessive conditions of expansion which may arise, the joints are of such width that when the units contract due to dry atmospheric conditions or the like, the joint openings are liable to be excessive and unsightly when the materials are laid in accordance with present practices.

In accordance with the invention hereof in connection with the laying of floor surfaces laid as a plurality of individual units of flooring material, there is provided a construction of the individual units and method of applying such units which takes care of the joints between the individual units so that under the influence of expansion and contraction of the units, the joints will remain closed and the visible effects of such expansion and contraction are minimized.

It is a particular object of this invention to provide a form for floor surfacing units wherein individual units of the floor surfacing material are so formed that the joints between individual units may be substantially closed in applying the such floor surfacing units and wherein due to the manner in which the edges of the floor surfacing units are formed the units may be so laid that to all intents and purposes the joints remain closed irrespective of the expansion and contraction of the individual units.

Further, it is an object of the invention hereof to provide a construction for individual floor surfacing units wherein provision is made for, when desired, providing around the edges of the individual units, that is, at the joint lines between individual units a contrasting inlay effect whereby patterned surface appearance may be had.

In addition, it is an object of this invention to provide a construction of the individual units which will facilitate the proper laying thereof and simplify the correct application so that as the net result a floor surface composed of such units may be more expeditiously and economically applied.

Still other and further objects and advantages of the inventions hereof will be apparent on reading the following specification particularly when considered in connection with the illustrations of the accompanying drawing.

In the drawing illustrative of the invention hereof—

Figure 1 is a plan view of a portion of a floor illustrating the application of flooring units in accordance with the invention hereof;

Figure 2 is a perspective view of edge portions of adjacent units of the floor material on an enlarged scale;

Figure 3 is a detail perspective of a corner of an individual unit of the floor surfacing material; and

Figure 4 is an enlarged cross-section taken on line 4—4 of Figure 2.

In the various figures of the accompanying drawing like parts thereof in the various views will be referred to by like reference numerals.

In laying floor surfacing materials comprising individual units, laid side by side, on a flooring base to comprise a finished floor surface the usual units employed are ordinarily of regular form, either square or rectangular, laid side by side and secured to the base floor by some form of adhesive material and in some instances additionally secured by nailing where such can be done in a manner whereby the nailing is not detrimental to the appearance of the finished floor.

According to the method of laying floor materials in accordance with the invention hereof the individual units comprising the finished flooring are laid in an adhesive mastic on a base or sub-floor and provision is made whereby the joints between the individual units are of such construction that provision is made for expansion and contraction of the individual units and the effect of the joints is utilized to either provide a contrasting pattern in the floor surface or if desired may provide a construction wherein the effect of the joints in the finished floor surface are minimized.

In the drawing, a reasonable plane surfaced base floor is indicated at 10 which base floor may be a leveled concrete sub-floor or appropriate wood sub-floor or the like. The individual units of the finished floor as illustrated are rectangular

in form and may conveniently be say of a size 18 inches by 4 feet but it is to be understood that the dimensions of the individual units are not at all critical and they may be varied so that the units may be substantially, in size, as desired either for convenience or economy of manufacture or to provide a finished floor surface having a desired visual appearance as will be hereinafter more particularly referred to.

In the drawing, the individual units of the finished floor surfacing material are indicated by the numeral 11 and while these individual units may be composed of any suitable materials the particular units herein described and illustrated in the accompanying drawing are composed of fibre board of the nature of fibre insulating board which fibre board is suitably saturated or impregnated with a suitable bituminous substance or equivalent pitch or the like. It is contemplated that the fibre insulating board material of which the units are composed will be saturated to the extent of approximately 150 to 200% with an asphalt of a melting point of around 120 degrees F., but it must be understood that the particular saturant used may be an asphalt of higher or lower melting point as may be advisable in connection with the particular conditions to which a particular floor is to be subjected and that in lieu of the asphalt saturant mentioned there may be used for saturation an equivalent pitch or other saturant having characteristics generally the same as those of the asphaltic saturant particularly referred to. It is also to be understood that the shape of the units as particularly illustrated and as described are indicative only and that if desired the units may be of other shape or shapes which may be applied to the base floor 10 in such a manner as to provide on such base floor a continuous finished flooring thereon.

The edge construction of the individual units is particularly illustrated in Figure 3 wherefrom it is clearly apparent that around the top edge of an individual unit 11 there is provided a rabbet, the effect of which is to provide around the edges of a unit a flange 12. In the drawing the peripheral edges of the flanges through the thickness of the material are shown as cut back or beveled from the upper surfaces of the flange as indicated at 13 in the various figures of the drawing. It is to be understood that the beveling of the peripheral edges of the flange as mentioned is not a necessary essential of the construction but that for various particular materials and for many installations it is advisable that such bevel be provided.

In the flanges 12, there are provided at the periphery thereof a plurality of spaced recesses 14 which function in the laying of the units as will be hereinafter more particularly described.

In Figure 1 of the drawing there is illustrated a portion of a floor giving an idea of the appearance of the finished floor surface composed of the individual floor surfacing units embodying the inventions hereof and in this figure the units are indicated as applied to a base or sub-floor 10. The individual units 11 are laid on the sub-floor or base 10 in a mastic or plastic adhesive which is indicated at 15 and which mastic it is understood extends over the entire surface of the sub-base 10 under the units of the floor surfacing material to secure the various units 11 to the base 10. In Figure 1, there are shown a plurality or fragments of units 11 which have been laid in edge to edge position and there is illustrated a single unit which is about to be put into place in continuing the application of the finished floor surface on the base 10.

So far as the illustration of Figure 1 is concerned, it is to be understood that on such surface of the base 10 as is enclosed in the dotted lines there has been applied a suitable bed or covering of the mastic adhesive 15 which application of mastic it will be understood is not exactly limited to the rectangular area enclosed in the dotted lines referred to but which of course will more or less irregularly, in its application, extend past the area confined by such dotted lines as will readily be understood.

A unit 11 which is to be applied to, in its final position, occupy the space indicated by the dotted lines in Figure 1 is indicated as laid on the base 10 on the surface of the mastic bed 15, displaced angularly from its final position in the assemblage, but with its edges substantially parallel to edges of units which have already been laid in their final position. The unit 11 which is to be added to the assemblage should be well bedded on the surface of the mastic 15 and then slid into its position in the direction indicated by the arrows appearing in connection with the individual unit 11 shown in position to be applied in Figure 1.

As the individual unit 11 in Figure 1 is pushed diagonally into place as indicated by the arrows some of the mastic layer 15 which has been applied to the base 10 will be forced ahead of the edges of the unit as it is slid into place with the result that the inverted V which is formed by the relieved adjacent edges of adjacent units will be filled with mastic as particularly indicated at 16 in Figures 2 and 4 and a limited amount of the mastic as the unit is slid into its final position against the edges of previously applied unit will be squeezed or forced up through the recesses 14 provided along the edges of the units so that some of the mastic 15 will be forced up into the recess or groove which is formed at the juncture between two units due to the rabbeting of the face surface of the units around the edges thereof as has been hereinbefore described. The mastic 15 which is forced up between adjacent units and through the recesses 14 is indicated at 17 in Figure 2.

The recesses 14 along the edges of the unit serve several functions in that they serve to allow the escape, from inverted V 16, of excess mastic which may be pushed ahead of the edges of a unit as it is being forced into place and in connection therewith they provide a means whereby a rather limited amount of the mastic which has been previously applied to the base surface 10 may be forced up into the channeled recess which is provided at the juncture of adjacent units by the rabbeting of the faces of individual units 11. A channel which is formed on the face of the finished flooring by the rabbeting of the individual units 11 is illustrated at 18 in Figure 2 particularly.

In connection with the immediately foregoing description in connection with this invention, it will of course be understood that it is not absolutely essential that the edges of flanges 12 be beveled back or relieved and it is to be understood that for some purposes of application it may be completely satisfactory or at least sufficiently satisfactory that the peripheral edges of the flange 12 not be relieved or beveled. It is also to be understood that it may not in all cases be possible to apply individual units by laying them on a previously applied mastic bed 15 with subsequent

sliding or forcing of the unit into place by diagonal movement as indicated by the arrows in Figure 1 and that in such cases the desired filling of the inverted V formed at 16 as has been referred to may be achieved by the application of mastic around the edges of the individual unit 11 before it is laid, in which case it will of course be understood that by judicious variation of the amount of mastic applied around the edges of the unit a certain amount thereof will be forced up through the recesses 14 as a unit 11 may be suitably rolled with a roller or "walked" into firm and complete adherence with the mastic bed 15 thereunder.

In certain applications of the floor units 11 in accordance with the inventions hereof, it may be undesirable that the recesses 14 be supplied along the edges of the individual units and in such cases as will be readily understood that any excess of mastic 15 between the edges of adjacent units will be forced up between the meeting edges of adjacent units as a subsequent unit is forced into position adjacent a previously applied unit 11. It is also to be understood that in cases where recesses 14 are not provided around the edges of unit 11 or where no or very little of the mastic 15 is forced through such recesses 14 in which channels 18 that appropriate mastic or adhesive may be applied directly in such channels 18 with a narrow putty knife or pointing trowel as will readily be understood.

To finish the application of the floor surfacing units 11 after they have been applied as has been described, mastic 15 which has been squeezed up through the recesses 14 as at 17 will be smoothed out or spread in channel 18 or in case the recesses 14 are not provided in the edges in the individual units 11 or insufficient or no mastic 15 has been squeezed up between the adjacent edges of contiguous units mastic 15 or suitable adhesive may be directly troweled in channel 18. After mastic 15 or suitable adhesive which is indicated at 19 has been spread in channel 18 a surface finishing strip of suitable material 20 is applied in channel 18 which strip serves as a filler to fill the channel 18 and to cover the joint formed by the meeting edges of adjacent units 11.

The strips 20 which are applied in the channels 18 may be, if desired, composed of the same materials as those of units 11 or if desired, the such strips 20 may be of different materials or of contrasting color as for example: if desired, strips 20 may be narrow strips of linoleum or of cork composition or other suitable more or less resilient substances having physical properties compatible with the physical properties of the units 11.

It will be readily understood that the strips 20 applied in the channels 18 not only serve to cover the meeting edges of adjacent units 11 but they break the single joint formed between meeting edges of adjacent units into two joints which of course will each average a width of ½ the width of the single joint formed at the meeting edges of adjacent units 11. Due to the fact that the width of the joints at the edges of the filling strips 20 are narrow and due to the fact that the number of actual joints provided are doubled, it results that as units 11 expand and contract that the effect of the expansion and contraction are, at the surface of the applied finished flooring, distributed over a large number of joints so that the average expansion and contraction at any one joint is halved and individual joints opens and closes only one-half as much as would be the case were the actual meeting edges of adjacent units 11 visible.

Due to the fact that the joint covering strips 20 are firmly adhered by suitable adhesive or mastic in channels 18, it further results that adjacent units 11 are firmly adhered together at their meeting edges and that such treatment tends to prevent curling which sometimes occurs around the edges of unit 11 if through some mischance the unit is not completely and firmly adhered in place in the mastic bed 15. The filler strip 20 when properly adhered in the mastic or adhesive layer 19 covers the joint formed by the meeting edges of adjacent units 11 and prevents the entry of water or dirt or other deleterious substances at the joint between adjacent units 11.

It will be seen that in accordance with the foregoing description of the construction and application of a finished flooring in accordance with the inventions hereof, that there is provided a continuous finished floor in which the joint effect is minimized, in which the deleterious substances are prevented from entering the joints of adjacent units and in connection with which by suitable selection of filler strip 20 as regards color and material there may be achieved a pleasing patterned effect which may contrast with the color or texture of the surface of the units 11 as may be desired.

In connection with the inventions hereof, it is to be understood that in accordance with the description of the specification, various modifications and variations of the specific structures and method of application as described will occur to one utilizing the inventions hereof and that it is contemplated that in the exercise of the inventions hereof variations and modifications which will be apparent upon consideration of the specification will be availed of and it is intended that such modifications and variations of the invention shall be covered in the claims appended hereto.

The invention hereof having been fully disclosed in accordance with the foregoing description, I claim:

1. A floor surfacing construction comprising, in combination, a supporting base and a plurality of floor forming surfacing units secured thereto in side by side relation; each such floor forming surfacing unit composed of fiber insulation board having distributed throughout the body thereof a bitumin of melting point of about 120 degrees Fahrenheit present to the extent of 150 to 200 percent of the weight of the fiber insulation board, each unit rabbeted around its edges on a face thereof providing an outwardly extending edge flange, the edge flange relieved along its outer edge across the thickness thereof whereby between adjacent units there are formed open V-shaped channels and having therein spaced notch-like cut-outs, the said plurality of floor surfacing units adhered to the supporting base by a bituminous layer portions of which extend into the V-shaped channels provided between adjacent units and through the spaced notch-like flange cut-outs into the trough formed by the edge rabbets of adjacent units and securing therein joint covering strips.

2. In a floor surfacing process, the method of applying units comprising the floor surfacing and of sealing the joints between adjacent sheets thereof at the surface, and comprising as steps: laying on a floor base having an adhesive mastic applied thereon a floor forming unit which is slid toward a previously applied unit in such

manner as to squeeze mastic through a joint formed by the meeting of the edges of said units and into a recessed channel formed in the face of the units across a joint thereof, spreading mastic in the recessed channels and applying a joint sealing strip in said recessed channel whereby the joint sealing strip is caused to be secured and retained in the recessed channel.

3. A floor surfacing material adapted to be secured in position with an asphaltic mastic comprising a fiber insulation board type of sheet saturated with a compound having in general the physical characteristics of asphalt of about 120 degrees F. melting point and containing in excess of 100% of saturant, based on the board weight, the saturated sheet flanged at its edges, the flanges chamfered toward the rear face thereof, whereby a groove is formed by contiguous units adapted for the reception of mastic, the flange along its edges having spaced cut-outs therein.

GEORGE E. SWENSON.