Aug. 23, 1932. J C. McCARTHY 1,872,998

LINOLEUM AND METHOD OF MAKING THE SAME

Filed Aug. 8, 1928

Fig. 1.

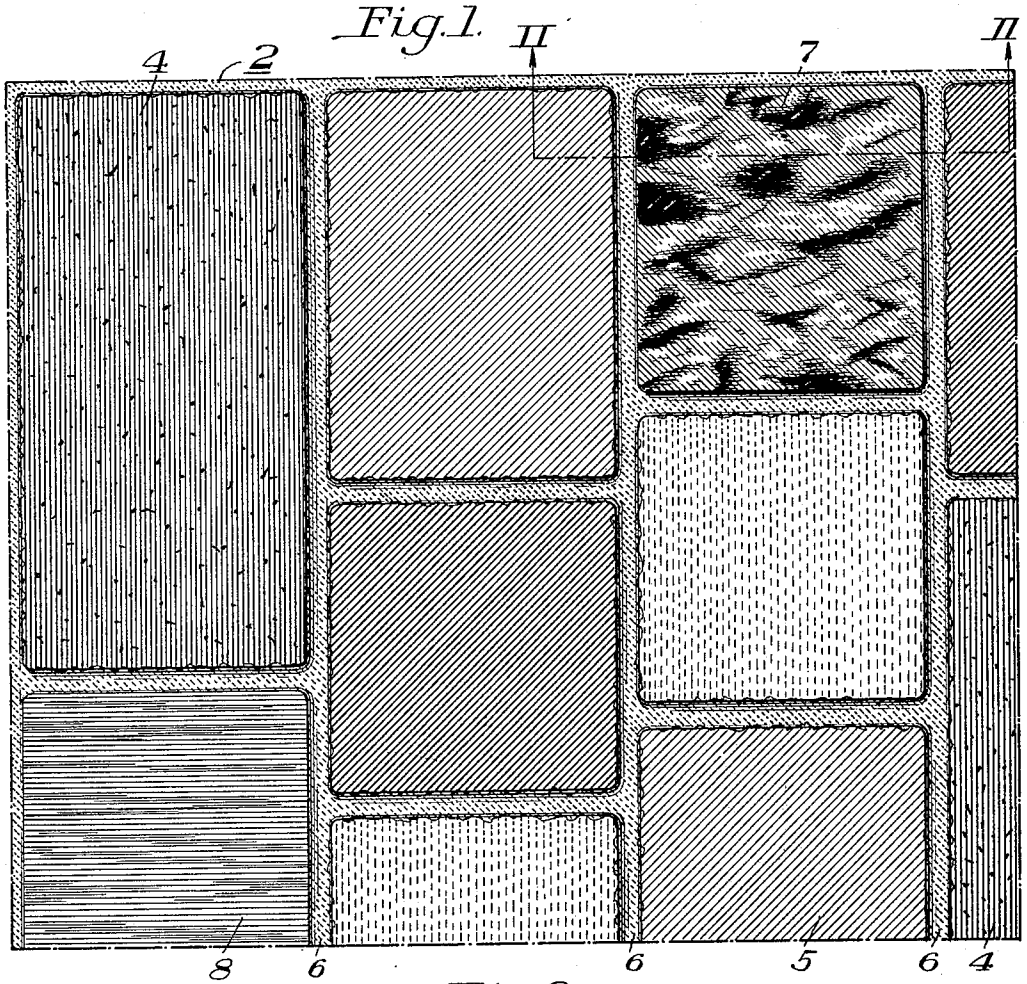

Fig. 2.

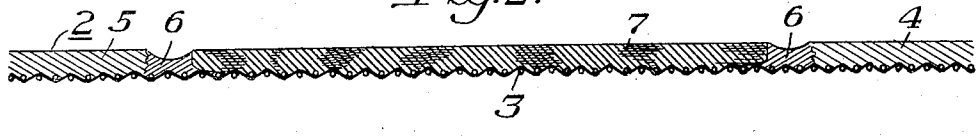

Fig. 3.

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Patented Aug. 23, 1932 1,872,998

UNITED STATES PATENT OFFICE

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LINOLEUM AND METHOD OF MAKING THE SAME

Application filed August 8, 1928. Serial No. 298,192.

This invention relates to the manufacture of composition floor coverings and the like, and more particularly to linoleum or similar material. The invention relates specifically to what is known as molded inlaid linoleum.

In the manufacture of molded inlaid linoleum, a strip of burlap or other flexible backing supported on a conveyor is intermittently advanced beneath a series of stencils. Each stencil has a portion of the pattern to be formed cut in the bottom thereof and the linoleum mix is sifted through the stencils on to the burlap backing. After the burlap emerges from under the last stencil, its surface is substantially covered with different patches of different colored linoleum mixes, the mix being in a loose granular condition. The material is then pressed to compact it and form the loose composition into a continuous sheet. The pattern is formed by sifting the different colored mixes from the different stencils, one color ordinarily being applied to the backing by each stencil.

With this method, which is well known to those skilled in the art, it is only possible to get plain, solid colors and mottled colors in the pattern. It is not possible to get striated, marbleized or jaspé effects in the finished pattern from the loose granular material sifted through the stencils.

In the manufacture of inlaid linoleum, known to the trade as straight line inlaid, the linoleum mix is passed between calender rolls to form sheets which are then cut up into pieces and laid and cemented on to the burlap backing. To produce marbleized effects, sheets of plain color are first formed and then two of these plain colored sheets are simultaneously passed through the calender rolls forcing the two sheets together and producing the blended or marbleized effect. These resulting sheets having a marbleized pattern are then cut out and applied to the backing. Likewise, to produce jaspé effects, the mix is formed into wads or balls. Balls of two colors are simultaneously passed between the calender rolls, resulting in the formation of a sheet having the streaked or jaspe effect.

The present invention provides a linoleum of the molded inlaid type wherein marbleized or jaspe effects are obtained. The invention may be understood by reference to the accompanying drawing, in which

Figure 1 represents a plan view of a piece of linoleum formed in accordance with my invention;

Figure 2 represents a section on a larger scale through a portion of the piece of linoleum shown in Figure 1; this view being in the plane of line II—II of Figure 1; and

Figure 3 is a somewhat exaggerated view showing the manner in which sheeted molded inlaid composition is applied to produce the material shown in Figures 1 and 2.

Referring to the drawing which shows one style of floor covering embodying my invention, 2 designates generally a piece of molded inlaid linoleum which is carried on a burlap or other base 3. The piece of linoleum shown has a plurality of ordinary tiles 4 and 5 of the style ordinarily formed of molded inlaid material. These tiles may be of different colors, as indicated by the cross-hatching on the drawing, and are connected by a molded inlaid interliner 6, which is preferably depressed below the level of the tiles 4 and 5 in accordance with the invention disclosed in the patent of Humphreys and McCarthy, No. 1,630,085, dated May 24, 1927. At 7 is a tile having the marbleized effect therein and at 8 is another tile having a jaspé effect. By scattering either or both of the tiles 7 and 8 in an apparently haphazard manner over the surface of the goods, highly novel and ornamental effects are secured. These tiles are in striking contrast to the solid colors of the tiles 4 and 5 and relieve the plainness and regularity of the ordinary molded inlaid floor covering.

To produce the floor covering shown in Figure 1, I form sheets of marbleized and jaspé linoleum from the composition ordinarily employed in the manufacture of molded inlaid linoleum. In the manufacture of molded inlaid linoleum, the composition which is sifted through the stencils is of a different nature from the composition used in the manufacture of the so-called straight

line goods, and it has never been considered practical to use the molded inlaid mix to form sheets. The molded inlaid mix is not so plastic as the usual straight line mix. It is purposely made less heat-sensitive so that it can be brushed through the stencils without sticking. Straight line mix is much more sensitive to heat in order that it may become plastic during the relatively short period that it contacts with the calender rolls. If the usual straight line mix were brought into contact with the high temperature press used to compact the molded inlaid material, it would adhere to the press or to the paper used to protect the press, a lower temperature being used in the formation of straight line goods.

It is therefore important that the formed sheets which I employ in my process be made of a linoleum mix having a relatively low heat sensitivity instead of a straight line mix, such as has heretofore been employed for sheeting. This low heat sensitive mix, instead of being compressed to the full extent possible, as is ordinarily done in the usual straight line process, is compacted only partially and to the extent necessary to cause adherence of the particles and permit handling of the product. This sheeting may be effected by calendar rolls which, however, will be so set and the rate of speed so regulated that, as above stated, the mixture will be only partially compressed.

As will be seen from Figure 3 of the drawing, the sheeted material is of less thickness than the granular material which is placed over the backing but after the entire body of goods has been subjected to its final compression, as shown in Figure 2, the granular material and the preliminarily sheeted material are both reduced to the same thickness.

It will therefore be seen that the sheeted material formed from the molded inlaid mix in accordance with the present invention is not very strong structurally, merely having sufficient body to enable its being handled as required, the purpose of sheeting being merely to obtain the desired design effect.

The marble or jaspé or other irregular effect is produced with molded mix in the same way that similar effects are produced in the sheets used for straight line inlays. After the partially compressed sheets of marble or jaspé have been formed, they are cut into pieces of the desired size and shape. At one or more stations along the molded inlay machine in which the linoleum shown in Figure 1 is produced, these pieces may be dropped through the stencils in place of sifting the usual granular mix therethrough, or they are dropped into spaces left to receive them after the backing with the molded granular mix has passed under all the stencils.

When the molding operation has been finished, and before the goods are pressed, some of its area will be covered with patches of the granular molded inlay material for forming the tiles 4 and 5, while other portions of the area will have the pieces 7 and 8 partially compacted sheet composition thereon in marbleized or jaspé or other effects. In a pattern in which an interliner 6 is used, the space between the tiles 4 and 5, and between any of the tiles 7 and 8 and the tiles adjacent thereto, is covered with granular composition for forming the inlaid joint. The pieces 7 and 8, instead of lying absolutely flat, will have the edges thereof turned up to a slight extent, as indicated in Figure 3.

The material passes in the usual manner under a press. The press compacts the loose granular material forming the tile sections 4 and 5 and the material 6 forming the interliner. It also further compresses the partially compacted sheets 7 and 8 to reduce them to the final thickness. In being pressed, some of the loose granular material adjacent to the sheeted inlays 7 and 8 will flow under the upturned edges of the sheets 7 and 8 to a slight extent. This bonds the sheets 7 and 8 more firmly to the adjacent molded material and also unites it more firmly to the backing 3.

By reason of the fact that the sheeted inlays 7 and 8 are of the same composition as the titles 4 and 5 and the interliner 6, the sheeted materials 7 and 8 will unite with the adjacent material and become an integral part thereof. Also by reason of the fact that the material of the inlays 7 and 8 is only partially compacted before it is subjected to the final pressing, it will become more firmly bonded to the adjacent material. Furthermore, since the sheeted inlays 7 and 8 are only partially compacted, the difference in the thickness of the inlays 7 and 8 and the loose material is less than if the portions 7 and 8 were initially compressed to the final thickness. Because of there being less difference in thickness there will be less tendency for the loose material to flow over the top of the sheeted inlays in the initial movement of the finishing press so that a more even joint between the sheeted inlays and the molded inlay results.

Through the practice of my invention, jaspé or marbleized effects or both can be secured in molded inlaid linoleum, and this has not previously been possible. The jaspé and marbleized tiles can be spotted in with apparent irregularity to relieve the monotony of the solid color tiles and give a novel and pleasing appearance to the finished product. At the same time the sheeted material becomes an integral part of the molded inlaid material. There is no joint which can be detected, the sheeted inlay becoming an integral part of the goods. The composition and density of the sheeted inlays in the finished pattern can be the same or substantially the same as the density of the molded portions of the

material so that no difference is noticed in walking on the linoleum.

While the invention is particularly adapted for the production of jaspé and marbleized effects in a molded inlaid material, it is not limited to the production of such effects. It can also be advantageously used in making inlays of solid color and in a variety of colors where ordinary processes alone would not permit of the variety of color or the haphazard arrangement which can be secured by using sheeted inlays in combination with molded inlays.

By depressing or embossing the interliner around the edges of the tile portions 7 and 8, the molded inlaid linoleum is subjected to greater pressure at the points of juncture of the two materials than is the major portion of the sheet whereby it is assured that the molded material will more securely unite with the sheeted material. As a matter of fact, the edges of the pieces of sheeted material may also be depressed to more firmly bond such pieces in place.

In the following claims I have used the expression "striated" and "variegated" as designated either a marbleized or a jaspé effect, or any similar irregular effect formed by working materials of different colors together and which can not be secured merely by mixing different colored materials.

It will be understood that the drawing is merely illustrative of the idea of my invention and the invention is not restricted to procuring the particular pattern effect therein shown. While the term linoleum applies primarily to a mix of linseed oil and ground cork or wood powder, it is used as a general term herein without reference to any specific binder or any specific filler. Furthermore, the invention is not to be understood as being confined to a floor covering material.

I claim:

1. In the process of making linoleum, the step which consists in applying loose granular material to a backing, together with pieces of preliminarily sheeted linoleum, and thereafter compressing the whole to form an integral sheet.

2. The process of making linoleum which consists in applying loose linoleum mix to a backing, also applying pieces of preliminarily partially compacted linoleum sheets to the backing and thereafter pressing the whole to form an integral completely compacted piece of linoleum.

3. The method of making molded inlaid linoleum which consists in applying preliminarily sheeted linoleum composition to some areas of a linoleum backing and applying loose linoleum composition to adjacent portions of the backing, and thereafter pressing the whole into an integral sheet of linoleum.

4. The process of making an inlaid linoleum which comprises applying pieces of sheeted linoleum composition to a backing with the edges thereof turned up to a slight extent and applying loose linoleum composition around the pieces of sheeted linoleum composition and thereafter subjecting the whole to pressure to produce an integral sheet of linoleum, some of the loose linoleum being forced under the upturned edges of the sheeted linoleum to more completely unite the sheeted linoleum with the molded linoleum.

5. The method of making an inlaid linoleum which comprises forming loose linoleum mix into pieces of partially compacted sheeted linoleum, applying such pieces to a supporting backing, applying loose linoleum mix to the backing adjacent the pieces of sheeted linoleum and thereafter compressing the whole to compact the loose material and further compact the sheeted material and form a substantially integral piece of linoleum.

6. The method of making an inlaid linoleum which comprises forming loose linoleum mix into pieces of partially compacted sheeted linoleum, applying such pieces to a supporting backing, applying loose linoleum mix to the backing adjacent the pieces of sheeted linoleum and thereafter compressing the whole to compact the loose material and further compact the sheeted material and form a substantially integral piece of linoleum, the loose material adjacent the edges of the sheeted material being compacted to a greater extent than the remaining area of the piece to more firmly unite the whole.

7. The method of making a molded inlaid linoleum having certain portions of the pattern thereof of a mottled appearance, which comprises forming pieces of mottled sheets of linoleum composition, applying such sheets to a backing, also applying loose linoleum composition to the backing adjacent said pieces and then compressing the whole to form an integral sheet of linoleum.

8. The method of forming a molded inlaid linoleum which comprises applying loose granular mix to certain portions of a backing and applying sheeted linoleum mix to other surfaces on the backing, pressing the material to unite the sheeted linoleum and granular linoleum mix into an integral sheet, and depressing the marginal portions of the sheeted inlays to form grooves whereby the sheeted inlays are firmly united with the surrounding material.

9. In the method of forming linoleum, the steps consisting in applying granular mix to a portion only of a backing, filling in the pattern with preformed pieces of linoleum of less thickness than the applied granular material, and compressing the material to consolidate the mixes.

10. The method of forming a molded inlaid linoleum which comprises applying loose

granular mix of low heat sensitivity to a portion of a backing, applying preliminarily sheeted pattern elements also made of a mix of low heat sensitivity, and compressing the linoleum.

11. As a new article of manufacture, inlaid linoleum comprising areas of molded inlaid linoleum and having the characteristic appearance thereof, and other areas of marbled composition.

12. As a new article of manufacture, inlaid linoleum comprising areas of molded inlaid linoleum and having the characteristic appearance thereof, and other areas of striated composition.

13. As a new article of manufacture, inlaid linoleum comprising areas of molded inlaid linoleum and having the characteristic appearance thereof, and other areas of jaspé composition.

14. The method of making molded inlaid linoleum which comprises the steps of applying to a piece of backing material loose linoleum composition in predetermined outline so as to form pattern elements, placing over the backing pieces of preliminarily sheeted linoleum composition alongside at least some of the areas of said loose linoleum composition, and thereafter pressing the whole to form a substantially integral sheet of linoleum.

In testimony whereof I have hereunto set my hand.

J CLARENCE McCARTHY.