Oct. 11, 1932. R. V. MATTISON 1,881,803

ORNAMENTAL PRODUCT AND METHOD OF PRODUCING SAME

Filed Feb. 15, 1928

Fig. 1.

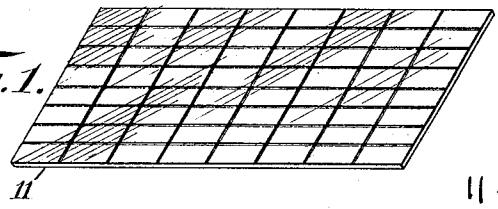


Fig. 1a.

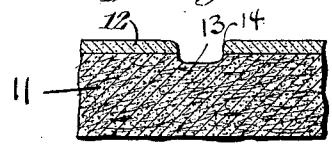


Fig. 2.

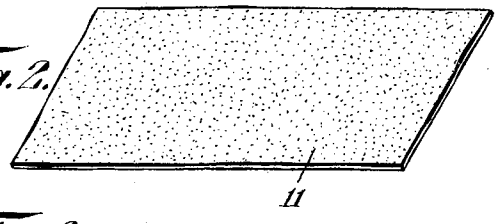


Fig. 3.

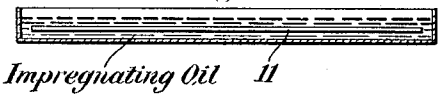


Fig. 4.

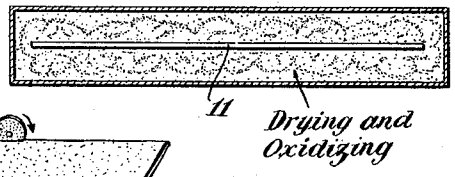


Fig. 5.

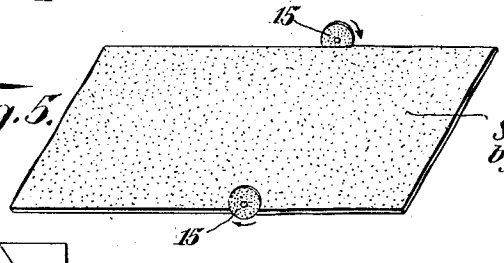


Fig. 6.

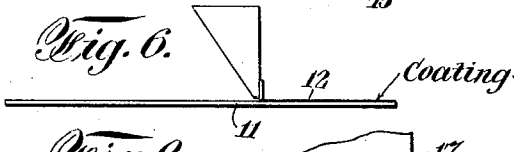


Fig. 7.

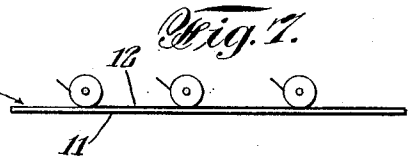


Fig. 8.

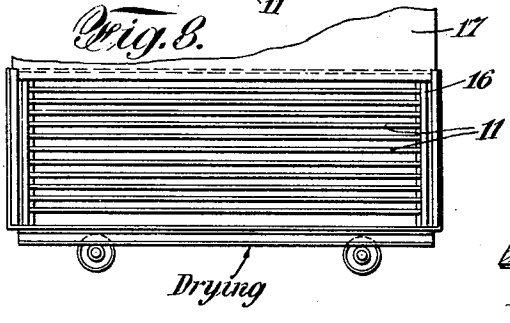


Fig. 9.

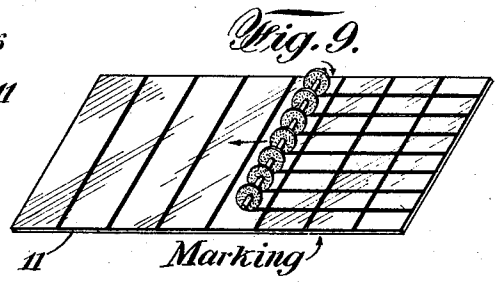
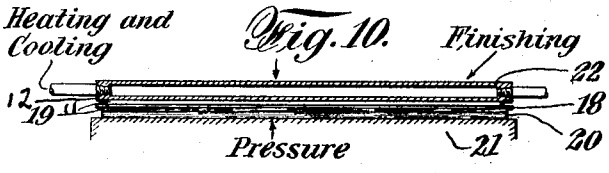


Fig. 10.



INVENTOR.
Richard V. Mattison
BY Edwards, Sager & Bauer
ATTORNEYS.

Published by AsbestosClaims.Law
asbestosclaims.law/library/23256/1

Patented Oct. 11, 1932 1,881,803

UNITED STATES PATENT OFFICE

RICHARD V. MATTISON, OF AMBLER, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO AMBLER ASBESTOS SHINGLE & SHEATHING COMPANY, A CORPORATION OF PENNSYLVANIA

ORNAMENTAL PRODUCT AND METHOD OF PRODUCING SAME

Application filed February 15, 1928. Serial No. 254,474.

My invention relates to sheets and slabs provided with decorative surface effects such as imitation tiling and the like.

The object of my invention is to provide such material in simple durable form with a smooth tile-like surface finish.

A further object of my invention particularly in the method used to produce the permanent tile-like effect will appear from the following description taken in connection with the accompanying drawing, in which

Fig. 1 is a perspective view of a sheet decorated by ruling and forming a surface which is like tile in appearance.

Fig. 1*a* is a section of a groove of the sheet shown in Fig. 1,

Fig. 2 is a perspective view of a sheet or slab as it may be first formed before it is pressed.

Fig. 3 is a diagrammatic view of the sheet as it is being impregnated with a toughening water-proof compound.

Fig. 4 is a diagrammatic view showing the sheet being treated to dry the sheet and oxidize the impregnated compound within it.

Fig. 5 is a diagrammatic view illustrating the trimming of the sheet to desired size.

Figs. 6 and 7 illustrate ways of applying a surface coating to the sheet.

Fig. 8 indicates a method of drying the surface coating on the sheets in a closed atmosphere.

Fig. 9 illustrates diagrammatically one form of decoration by cross grooving the surface of the sheet, and

Fig. 10 illustrates the pressing operation finishing off the surface of the coating.

In the particular embodiment of the invention shown in Fig. 1 the slab or sheet 11 which may be of asbestos cement composition has its surface provided with a thermo-plastic coating 12 and with grooves 13 or other decoration scored or pressed into the surface of the sheet. The thermo-plastic material 12 is given a smooth surface finish and high polish, and at the same time is rounded over at the edges of the grooving 13, for instance at 14 (Fig. 1*a*), so as to form a close permanent seal between the thermo-plastic material and the edges of the grooving and minimize the danger of ripping off the plastic material.

In one process of producing this product an asbestos and cement base in the form of a sheet or slab (Fig. 2) is first manufactured according to any suitable known process and hardened, and after hardening is then very thoroughly dried at about 250° F. so that the residual moisture does not amount to more than a fraction of 1%. This sheet in hot condition is then soaked in a toughening water-proofing oil such as linseed or china-wood oil (Fig. 3), the oil being diluted or cut with a diluent such as gasoline to give thorough penetration, equal amounts of oil and gasoline being generally satisfactory for this purpose. Usually this impregnation of the sheet with the diluted oil may be accomplished within an hour or two for sheets of about ¼″ (one quarter of an inch) in thickness, after which the sheets are removed and drained for about 15 minutes and dried in an oxidizing atmosphere at a temperature of about 250° F., this drying and oxidizing process being carried on for sufficient time to fix and oxidize the oil within the body of the cement asbestos composition (Fig. 4). This oxidizing will usually require from two or three hours or longer. When the water-proofing compound is thus oxidized or otherwise fixed in the composition the dried water-proof sheets are then sanded in a three-roll sanding machine or otherwise surface-finished to smooth them as far as practicable to remove any high spots and take off any projecting defects. This sanding operation usually removes 0.001 to 0.002 of an inch and the sheets are then ready for the coating operation, it being understood that at this point or some other desired point in the process the sheet is trimmed and squared at the edges to proper size and shape by means such as indicated at 15 in Fig. 5.

The thermo-plastic material which may for instance be a pyroxylin or acetylcellulose lacquer or other similar material, is applied to the surface of the sheet as a smooth layer of substantially uniform thickness either by flowing (Fig. 6) or by rolls (Fig. 7) or in any other desired manner. By flowing suf-

ficient thickness or by building up successive layers by rolls the coating will preferably be brought to a thickness of approximately 0.004 of an inch to give the desired final surface effect.

After the surface coating in semi-liquid form is applied it is dried sufficiently gradually to permit it to find its own level and smooth out in a general way any local inequalities in the sheet due to the particular method of manufacture or surfacing and in practice I find it advantageous to place the coated sheets on racks in a compartment 16 preferably wheel-mounted, providing a car, the compartment being closed for instance by a door 17 so that in this closed chamber the solvent laden atmosphere reduces the rate of drying so as to permit the lacquer to form a generally smooth surface at low or room temperature over the entire sheet, thus substantially leveling any marking or striping developed during the applying of the lacquer. The lacquered sheets are allowed to remain in the enclosed car for a period of about two hours after which the car chambers are partially opened up and the sheets are allowed to remain in this condition until the lacquer is set. This ordinarily requires approximately one hour. The sheets are then removed and passed to a low temperature drier where they remain for about two hours after which they are removed from the drier and allowed to cool.

When the lacquer on the surface has dried, the sheets are ready for scoring or other decorative marking, the scoring of sheet shown in Fig. 1 being accomplished preferably by grinding wheels grinding away the surface to form the grooves 13 and in this connection I have found that the impregnation of the asbestos cement material with the oxidized oil is very helpful in preventing the fibrous material from tearing out, producing a smooth surface grooving free from projecting fibres of asbestos. After scoring the sheets are thoroughly cleaned to remove all traces of dust.

The lacquered and grooved sheets are now similar in appearance to tiling, but lack the highly polished glazed appearance of tiling, which I have found impossible to impart to the sheets by merely lacquering methods.

I have discovered that a highly polished glazed appearance may be given to the thermo-plastic material and at the same time a very firm and durable bond effected between the thermo-plastic and the base material by finally subjecting the lacquered sheet to heat and pressure, the pressure being applied in such a way to permit the thermo-plastic to yield and follow any irregularities in the surface of the sheet, and also giving to the lacquer a highly polished but slightly irregular surface characteristic of glazed tiling. In order to accomplish this, heat is applied at or about the boiling point of water and the surface of the thermo-plastic is pressed by a thin yieldable sheet under a uniformly distributed pressure of approximately 1000 lbs. per square inch, for instance (Fig. 10). Preferably a very thin (0.008 of an inch) sheet 18 of soft metal such as zinc is backed by a number of layers (3 to 6) of blotting paper 19, which in turn are backed by a number of layers (about 12) of flannel sheets 20 resting against a rigid support 21. Pressure on this support compresses the thin zinc sheet against the surface of the lacquer and this together with the heat applied by steam in press plate 22 gives the characteristic glazed effect to the thermo-plastic surface. In practice I apply the heat and pressure for about one minute and then while still holding the pressure I apply a cooling to the material for several minutes by running water through the plate 22 so as to fix the thermo-plastic lacquer surface in its glazed form, the cooling carrying the temperature of the surface down to something above the ordinary room temperature. After this I find that the flexible sheet strips very readily from the surface of the thermo-plastic material, which is thus left in its finally polished finished form ready for shipment to the consumer. It will be understood that the sheet 11 is applied with its lacquered coating 12, face down, to the sheet 18.

In this method of ornamenting I find that the final surface effect will depend not only on the thinness of the sheet and its yieldable qualities but, with such a thin yieldable sheet against the thermo-plastic material, the character of the backing material will also be a factor. A cloth backing tends to show through by imparting a fabric appearance to the final thermo-plastic surface and similarly very delicate and beautiful effects may be attained by backing of lace-like or other finely textured or highly ornamental material.

In the specific example above given blotting paper is used as it is neutral in character and leaves the surface to form freely into a very pleasing high polish due to the surface polish of the thin metal and irregular rippling so characteristic of glazed tiling, this rippling being due to the cooperation of the thin metal and the yielding backing. At the same time the flexible sheet follows the irregularities of the base material and the thermo-plastic coating so as to reach down into and properly finish the low spots and hollows and apply the same high pressure uniformly throughout the entire sheet to produce a characteristic effect due to the action of the soft materials under the applied pressure.

I have found it important to render the base material waterproof without at the same time interfering with the thorough bond which must be formed between the base and

Published by AsbestosClaims.Law
asbestosclaims.law/library/23256/3

the thermo-plastic coating. With the sheet 11 of Portland cement and asbestos fibres the impregnation with a diluted oxidizing oil does not weaken but rather strengthens the bond between the thermo-plastic and the base. Without this impregnation the coating and finishing operations tend to develop air bubbles from the base material marring the finish of the coating and weakening the bond between the coating and the base.

While my invention has been described in connection with a particular embodiment utilizing material of asbestos and Portland cement as a base, it is not confined thereto but may be applied to thermo-plastic coatings on any other base materials, for instance card, or fibre board or any hydraulic cement material or on blocks or sheeting of thermo-plastic material without base material backing. The invention is not confined to the specific examples given above but is intended to cover such modifications thereof as fall within the scope of the appended claims.

I claim:

1. An ornamental product comprising an article having a thermo-plastic coating grooved and with its surface between the grooves characterized by highly polished irregularities, the edges of the thermo-plastic material terminating at the grooves and being slightly rounded.

2. An ornamental product comprising a base material having a thermo-plastic coating whose exposed surface has highly polished irregularities characteristic of fused tiling, the irregularities of the coating substantially conforming with irregularities in the surface of the base to which the coating is applied.

3. An ornamental product comprising a base material of asbestos and cement and a surface layer of thermo-plastic material with an outer face of highly polished irregularities characteristic of fused tiling, the irregularities of the surface layer conforming substantially with irregularities in the surface of the base material to which the surface layer is applied.

4. An ornamental product comprising a base material of asbestos and cement and a surface layer of thermo-plastic material grooved and with its surface between the grooves having highly polished irregularities characteristic of fused tiling, the edges of the thermo-plastic material terminating at the grooves and being slightly rounded.

5. An ornamental product comprising a base material of cement and fibres impregnated with a water-proofing compound and having a surface coating of thermo-plastic material forming a close bond with the base material and having an irregular highly polished surface.

6. An ornamental product comprising a base material of cement and asbestos fibres impregnated with an oxidized water-proofing oil and having a surface coating of thermo-plastic material not over .005 of an inch thick forming a close bond with the base material, and having an irregular highly polished surface.

7. An ornamental product comprising a base material of cement and asbestos fibres impregnated with an oxidized water-proofing oil and having a surface grooving and a surface coating of thermo-plastic material forming a close bond with the base material and having an irregular highly polished surface similar to fused tiling.

8. The process of producing an ornamental product comprising providing a sheet or slab of base material, applying a coating of thermo-plastic material thereon, and pressing the surface of said thermo-plastic material by a thin yieldable sheet having a yieldable backing, and simultaneously heating said thermo-plastic material during said pressing operation.

9. The process of producing an ornamental product comprising providing a sheet or slab of base material, applying a coating of thermo-plastic material thereon, and pressing the surface of said thermo-plastic material by a thin yieldable sheet having a yieldable backing, and simultaneously heating said thermo-plastic material during said pressing operation, and then cooling said thermo-plastic material while holding said pressure.

10. The process of producing an ornamented article comprising providing a relatively rigid sheet or slab of asbestos and cement material, impregnating said material with a water-proofing compound, coating said material with a layer of thermo-plastic material, grooving through said coating, and then pressing said thermo-plastic material to form a uniform highly polished surface thereon.

11. The process of producing an ornamental product comprising driving a sheet of asbestos and cement composition, impregnating said sheet with a waterproofing material, heating and drying said sheet to harden said waterproofing material, applying to the surface of the sheet one or more coatings of a thermoplastic material in liquid form to give a thorough bond between the coating and the sheet, and polishing the surface of said thermoplastic material to give a brilliantly reflective decorative finish.

12. The process of producing an ornamental product comprising drying a sheet of asbestos and cement composition, impregnating said sheet with a waterproofing material composed of oxidizable vegetable oil and thinner to harden said material by evaporation and oxidation, heating and drying said sheet to harden said waterproofing material,

applying to the surface of the sheet one or more coatings of a thermoplastic cellulose ester material in liquid form to give a thorough bond between the coating and the sheet, and polishing the surface of said thermoplastic material to give a brilliantly reflective decorative finish.

13. A decorative slab or sheet comprising an asbestos and cement composition impregnated with a waterproofing material, and a plurality of layers of a thermoplastic coating on a smoothed surface of said slab or sheet, the thermoplastic layer against the sheet or slab having a close bond with the said waterproofing material, and the surface layer of the thermoplastic material having a high polish.

14. A decorative slab or sheet comprising an asbestos and cement composition impregnated with a waterproofing material composed of oxidized vegetable oil, and a plurality of layers of a thermoplastic cellulose ester coating on a smoothed surface of said slab or sheet, the thermoplastic layer against the sheet or slab having a close bond with the said waterproofing material, and the surface layer of the thermoplastic material having a high polish.

RICHARD V. MATTISON.

Published by AsbestosClaims.Law
asbestosclaims.law/library/23256/5