Oct. 1, 1929. R. G. JACKSON 1,729,832

DECORATED FLOOR COVERING

Filed July 25, 1925

Fig. 1.

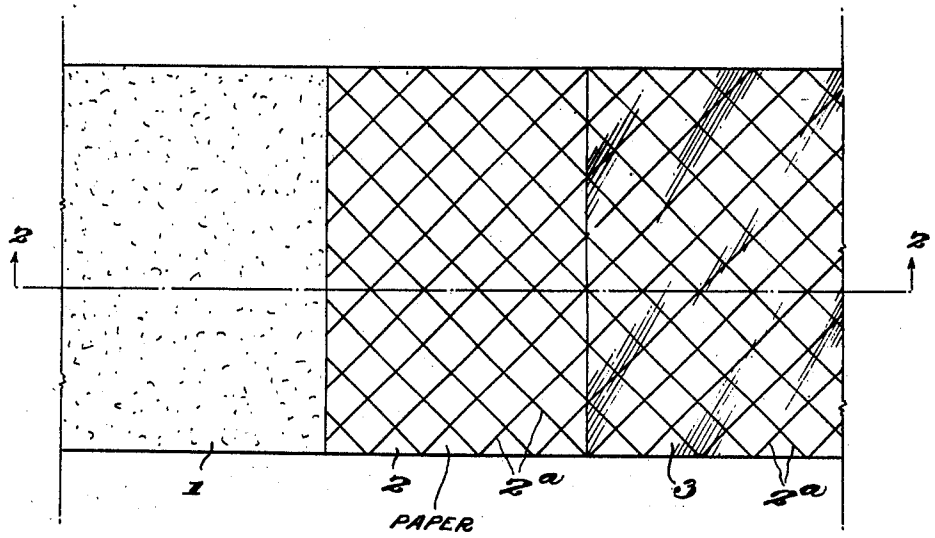
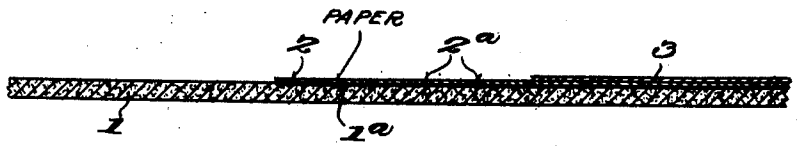


Fig. 2.



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DECORATED FLOOR COVERING

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This invention relates to an improvement in floor coverings of the type known as water proof and flexible, and it pertains particularly to the manner of decorating such coverings and to the steps by which the decorations are incorporated during the manufacture of the article.

The invention includes, as an important feature, the use of a previously decorted sheet applied to and supported by the usual water proof flexible base.

Heretofore, it has been customary to paint felt base floor coverings with decorative effects and to mix pigment with the plastic materials used in the linoleum type of covering. It is impracticable to produce fine decorations by such methods. The painting of felt base goods with the usual linseed oil painted decorations is subject to several limitations. First, the fineness of the effects are subject to the steps of the operation in which the colors are applied by passing a coated base through a large printing machine where linseed oil colors are block printed or otherwise stamped onto the base. The operation is expensive because of the time required for handling and drying. A printed sheet of felt base goods is placed in a drying rack for approximately one week and subjected to a temperature of approximately 130° F. Each paint layer must be properly dried in the order of its application. Only after such treatment may the goods be prepared for shipment.

In the manufacture of linoleum in which pigment is used with a plastic material, it is not possible to obtain delicate effects because of the difficulty in working the plastic matter in exceeding fine lines or layers.

By the present improvement, the base receives a previously formed and decorated sheet of paper, which has been printed after the manner by which wall paper is usually printed. Floor patterns are applied, and preferably with the use of inks or printing materials which penetrate throughout the thickness of the paper.

One of the features of the present invention is the tough and compact product resultant of the use of a saturated paper which has been impregnated throughout with the material which not only toughens the paper and which of itself resists wear, but may also serve as an adhesive material for securing the paper sheet to the base. The adhesive material may be applied to the base and to the previously decorated impregnated and dried paper, or an extra amount may be used on the base side of an unimpregnated sheet to serve both as an adhesive and as a saturant for the paper of the sheet.

Another feature of the invention is the use with a decorated sheet of a transparent wear coat which is applied as a liquid or as a spray and which tends to saturate unimpregnated paper and adhere to previously saturated paper, and the outer surface of which is resistant to the action of soap and water. Cellulose ester wear coat material, applied by spray, has been recently used as a transparent wear coat for previously decorated felt base floor coverings. In the present invention, with the use of an absorbent and decorative paper, the same cellulose ester material serves both as a saturant for the paper and when dried provides a satisfactory wear coat which protects the decorated paper and is transparent so that the decorative effect may be viewed clearly therethrough.

The above and additional details are described and claimed in the following specification and claims, and may be understood in conjunction with the drawing in which:—

Figure 1 represents diagrammatically a top plan view of a strip of completed floor covering bearing a conventional geometric design; and

Figure 2 is an enlarged vertical sectional view taken on the line 2—2 of Figure 1 showing the several layers of the floor covering.

Referring in detail to the drawing, 1 indicates the usual felt base, such as may have been previously saturated with bitumen, or otherwise rendered water proof, stiff and tough. A sheet of paper is indicated at 2, and is secured to the base 1 by the use of a glue layer 1^a. The decorative effects are indicated at the lines 2^a, and in Figure 2, it will be noted that the decorative lines extend through the thickness of the paper sheet.

This is important because the design of the decoration may thus be evident and fully visible until the floor covering is used or worn completely through the thickness of the paper. When the decoration is applied to the paper, the fibers of the paper are absorbent with the result that the coloring medium may extend through the thickness of the paper. After the decoration has been applied, the paper sheet may be treated with the saturating medium for the purpose of rendering the sheet water proof and toughening it. Thus, if the coloring medium be an ink or dye, it penetrates without leaving an inpervious coating on the paper sheet, and the sheet thus decorated may be thereafter saturated throughout with the waterproofing agent.

An outer wear coat 3 of transparent material may be used for protecting the decorated paper sheet. This wear coat has an important function in the present invention because it not merely serves as a coating, but also, if used on an unsaturated paper, serves as an impregnating saturant for the paper, rendering the coated and impregnated material resistant to wear and tough and stiff, which properties are important in floor coverings.

If desired, a quick drying adhesive may be used at 1^a for attaching the printed paper sheet 2 to the base 1. The sheet may be or may not be saturated with a quick drying material before it is applied to the base. Under some circumstances, the wear coat might be dispensed with if the sheet is properly toughened by suitable saturant.

One satisfactory solution for the material of the cellulose ester saturant and also for the adhesive material 1^a, and the coating 3 may be made by using 20 parts by weight of dry pyroxylin, nitrocotton, in a solvent mixture composed of 30 parts of either or both butyl alcohol or amyl acetate plus 30 parts by weight of anhydrous denatured ethyl alcohol. 20 to 30 parts by weight of raw castor oil may be added as a softener. Tricresyl phosphate or diethyl or dibutyl thalate may be used as softeners in the same proportions as specified for the use of castor oil.

Other proportions and other materials may be used without departing from the scope of the present invention. It is important, however, that the material of the solvent does not act to dissolve the bitumen of the base or the color of the decorative lines before the material dries and loses its liquid properties.

At no time in this process is there required any long period of drying time, and the process of printing the decorations on the paper is comparatively simple and many times faster for treating paper alone than is the process now used in decorating the usual floor covering bases. The decorated paper may be applied either in the full size of the rug or in portions similar to the practice in applying wall paper.

The machinery to produce the floor covering according to this invention is relatively inexpensive and not nearly as massive as the machinery at present used in the production of felt base floor coverings. The present invention does not require more than one-tenth of the drying space formerly required to completely dry the painted goods. Much finer work may be produced in a decorative and artistic way with the machinery and materials such as are used in the printing of paper than can be obtained in the usual printing of floor coverings such as those using oil paints and the block printing.

The paper applied to the base is preferably of such texture that the inks or printing materials can impregnate, penetrate, it

The term "color" is used to describe the material of the decoration whether it be ink or paint and regardless as to whether it be a true color or white or black.

I claim:—

1. In a floor covering of the smooth surface type, a stiff and tough base water-proofed throughout with a saturant filling material, a decorative sheet of fibrous material superposed on said base and bearing designs on the surface thereof and impregnating the body of the sheet, and a water-proof saturant filling material extending throughout the thickness of said decorative sheet and applied to said sheet subsequently to the decoration thereof, the decoration being visible on the upper surface of the covering and the material of said fibrous sheet being visible through the water-proofing material with which it is saturated.

2. In a floor covering of the smooth surface type, a stiff and tough base water-proofed throughout its thickness with a saturant filling material, a decorative sheet of paper-like fibrous material superposed on said base and bearing decorative colors on the surface thereof and impregnating the body of said paper-like sheet, and a water-proof saturant filling material exending throughout the thickness of said paper-like sheet and applied subsequently to the decorative colors, the decorative colors being visible on the upper surface of the covering and the material of said paper-like sheet being visible through the water-proofing material with which it is saturated.

3. In a floor covering of the smooth surface type, a stiff and tough base water-proofed throughout its thickness with a saturant filling material, a decorative and water-proofed fibrous sheet superposed on said base, and a transparent wear coat covering said decorative sheet, said decorative sheet being saturated throughout with a water-proofing saturant transparent filling material, and

the decorations and fibers of said sheet being visible through the water-proofing material and through said transparent wear coat.

4. In a floor covering of the smooth surface type, a stiff and tough base water-proofed throughout its thickness with a saturant filling material, a decorative covering secured to said base and comprising a paper-like sheet of fibrous material bearing previously applied printed decorations directly on the paper-like material and impregnating the body of the sheet, and a transparent wear coat covering said decorative sheet, said printed decorations being visible through said transparent wear coat.

5. In a floor covering of the smooth surface type, a stiff and tough base water-proofed throughout its thickness with a saturant filling material, a fibrous decorative sheet superposed on said base and containing colors impregnating the fibers in the body thereof which are visible on the upper surface of the covering, and a transparent water-proof saturant covering said decorative sheet and permeating throughout the thickness thereof and applied subsequently to the colors.

6. In a floor covering of the smooth surface type, a stiff and tough base water-proofed throughout its thickness with a saturant filling material, a fibrous decorative sheet superposed on said base and bearing designs in colors impregnating the fibers in the body thereof, and a transparent water-proof saturant covering said decorative sheet and permeating throughout the thickness of said sheet and binding said base, the decorations of the colors in said sheet being visible on the upper surface of the completed covering and through said saturant.

7. In a floor covering of the smooth surface type, an impregnated felt base containing a bitumen saturant throughout its surface, a decorated covering glued to said base and comprising a paper-like sheet bearing previously applied printed decorations directly on and impregnating the body of the paper-like material of said sheet, and an adhesive between said base and said decorated paper-like covering, said adhesive containing a solvent and characterized by its adherence to both said saturated base and said decorated sheet without the solvent thereof dissolving the saturant of the base or the decorative colors of the sheet.

8. In a floor covering of the smooth surface type, an impregnated felt base containing a bitumen saturant throughout its surface, a decorated covering glued to said base and comprising a paper-like sheet bearing previously applied printed decorations which impregnate the body of the sheet and penetrate into the fibers thereof, said sheet being impregnated throughout with a quick drying water-proof saturant which penetrates the decorated portion and is applied subsequently to the decoration, and an adhesive between said base and said decorative covering, said adhesive containing a solvent and characterized by its adherence to both said saturated base and said decorative covering without the solvent thereof dissolving the saturant of the base or the decorative colors of the covering.

9. In a floor covering, a stiff and tough base water-proofed throughout its thickness with a saturant filling material, and superposed thereon a decorated sheet having printed decorations, the colors of which extend though the thickness of the sheet and are also visible on the upper surface of the sheet.

10. In a floor covering, a stiff and tough base water-proofed throughout its thickness with a saturant filling material, and superposed thereon a decorated sheet bearing printed decorations, the colors of which extend through the thickness of the sheet and are also visible on the upper surface of the sheet, said sheet being impregnated throughout with a transparent water-proof saturant.

11. In a floor covering, a stiff and tough base water-proofed throughout its thickness with a saturant filling material, a decorated sheet superposed on said base and bearing decorations, the colors of which impregnate the body of the sheet, and a transparent water-proof saturant filling material extending throughout said sheet and with which the sheet is impregnated and applied after said decorations are applied.

12. In a floor covering, a stiff and tough base water-proofed throughout its thickness with a saturant filling material, and superposed thereon a tough, waterproof and dense decorated sheet bearing decorations, the colors of which impregnate the body of the sheet and are also visible on the upper surface of the sheet.

13. In a floor covering of the smooth surface type, a tough flexible supporting base containing a water proof saturant, and mounted on said base a layer comprising a sheet of fibrous material impregnated throughout with a transparent saturant filling material which fills the voids between the fibers whereby the fibrous particles are visible through the filling material.

14. In a floor covering of the smooth surface type, a tough flexible supporting base containing a water proof saturant, and mounted on said base a layer comprising a sheet of absorbent fibrous material impregnated throughout with a transparent saturant filling material which fills the voids between the fibers whereby the fibrous particles are visible through the filling material.

15. In a floor covering of the smooth surface type, a tough flexible supporting base containing a water proof saturant, and

mounted on said base a layer comprising a sheet of absorbent fibrous material impregnated throughout with a transparent saturant filling material including a cellulose ester in solution which fills the voids between the fibers whereby the fibrous particles are visible through the filling material.

16. In a floor covering of the smooth surface type, a tough flexible supporting base containing a water proof saturant, and mounted thereon a layer of fibrous material containing a coloring medium extending throughout the thickness of said layer, and a transparent saturant sealing material impregnating throughout the layer and toughening the same and sealing the coloring medium within the layer.

17. In a floor covering of the smooth surface type, a decorative wear sheet comprising a sheet of fibrous material bearing printed decorations impregnating the body of said sheet, and a transparent saturant filling material impregnating said sheet and applied after said decorations and toughening the sheet and sealing the decorations within the sheet.

18. In a floor covering of the smooth surface type, a tough flexible supporting base containing a water proof saturant, a layer mounted on said base and comprising a sheet of fibrous material impregnated throughout with a transparent saturant filling material, and a cementing material between said supporting base and said sheet and adherent to both.

19. In a floor covering of a smooth surface type, a tough flexible supporting base containing a water proof saturant, a decorative sheet mounted on said base and comprising a layer of fibrous material having a coloring medium impregnating the body thereof, a transparent saturant sealing material impregnating the layer of fibrous material and toughening the same and sealing the coloring medium within the sheet, and a cementing material between said base and said decorative sheet and adherent to both and to the saturant of the sheet.

In testimony whereof I affix my signature.

RALPH G. JACKSON.