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R. G. JACKSON

1,765,589

SMOOTH SURFACE TEXTILE FLOOR COVERING

Filed June 6, 1927

Fig. 1.

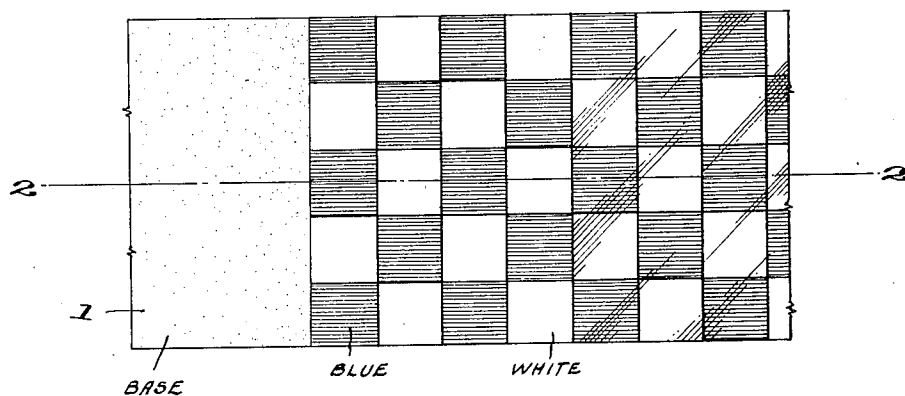


Fig. 2.

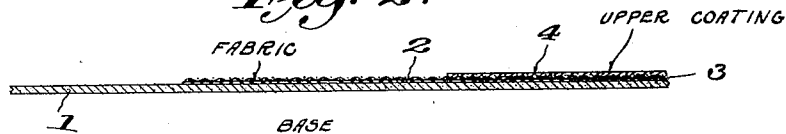
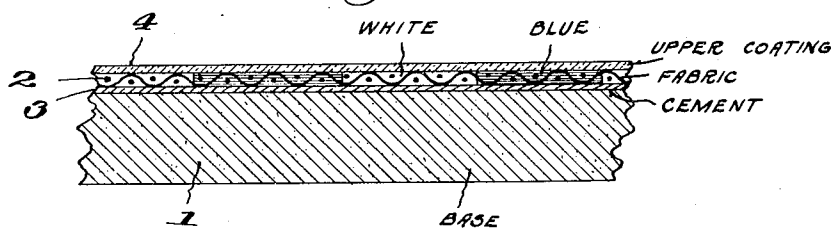


Fig. 3.



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SMOOTH-SURFACE TEXTILE FLOOR COVERING

Application filed June 6, 1927. Serial No. 196,815.

This invention relates to floor coverings and to a process of making the same.

The product is a floor covering having the appearance of woven goods but in contrast to most woven goods, it has a smooth upper surface, similar to smooth surface coverings of the type described in the patent to Taylor No. 1,562,386.

10 The product is further peculiar in that its decorated effects, instead of being merely stamped or printed, and thus on the surface but perhaps penetrating somewhat as is customary in printed fabrics, actually are im-
15 pregnated substantially and most often completely through the textile fabric. Subse-
quent to the decoration, the goods are satu-
rated with a transparent saturant to pro-
vide wearing qualities for floor usage and
to seal the decoration in the goods.

20 The floor covering provided by the present invention is of that general type known as "smooth surface" coverings, such as li-
noleum and felt base floor coverings having
decorative paint coats, and the invention is
25 an improvement over such materials known as bitumen impregnated felt base coverings, linoleums, oil cloth and the like.

One feature of the invention is a decorative floor covering of the smooth surface
30 type in which the decorative effects, patterns, and designs are applied directly to the material of the base and penetrate the base for part or all the way through the thickness thereof from top to bottom. An-
35 other feature of the invention is that the covering possesses tensile strength to a pronounced degree, and may be handled similarly to the usual smooth surface floor covering.

40 One advantageous feature of the product of this invention is the provision in a single continuous ply or layer of floor covering of decorative effects similar in appearance to those used in linoleums and felt base goods,
45 but having superior wearing quality due to the fact that the design extends into the base. This latter quality is in contrast to decorative effects which are merely painted on the surface or printed with paint on the
50 surface, or consisting of ordinary paper or

cloth merely printed as usual, as wall paper or shade cloth or cretonne is printed and subsequently varnished or lacquered. The product of this invention is to be distin-
guished from the usual paper or cloth dec- 55
orated by printing.

In my Patents 1,729,832, October 1, 1929 and 1,729,833, October 1, 1929, formerly re-
spectively co-pending applications 46,189 60
and 111,769, there are described and claimed broadly improvements in floor coverings in which paper or a fibrous sheet such as paper is first decorated and thereafter saturated with a filling material which toughens the
goods and renders it serviceable for floor 65
coverings and seals the decoration in the goods. The ultimate result is that when the sheet is accorded the severe usage normally given to floor coverings, the decorations still
last until the sheet is worn almost all the 70
way through from top to bottom, and the saturant being tough and permeating the sheet throughout, so likewise the sheet has uniform density from top to bottom and
resists wear as well after it is partially worn 75
as when it is new. The same essential features which render the fibrous paper like sheet serviceable as just described likewise
characterize the textile fabric floor covering 80
article of this present invention.

Aside from the wearing qualities and the lasting qualities due to the impregnation of the color area through the thickness of the fabric, the goods of the present invention is of peculiar interest as a floor covering be-
cause of its appearance. It offers a simula- 85
tion of a woven article and like all woven goods, is light absorbent, and in contrast to painted goods does not reflect light to the same extent that a shiney painted surface
reflects it. The upper wear coat which cov- 90
ers the textile goods helps to render the covering easy to clean, also protects the textile fibers from wear. One peculiarity of the
use of the upper coating on the textile goods 95
is a tendency for the coating surface to be slightly pitted, thus in conformation to the surface of the woven goods and this is true even though a substantial depth of coating
layer is used. The pits are naturally not 100

deep but are sufficient to in part prevent the shiney appearance which some coated surfaces possess.

Although the paper-like sheet which is first decorated and then subsequently saturated possesses marked strength and wearing qualities and although the tensile strength of such a sheet is improved by the saturating treatment, it is nevertheless noticeable that the present invention with the use of textile goods which is saturated has very considerable tensile strength. After being saturated, it does not stretch, and if mounted on a supporting base, as for example a bitumen impregnated felt base, it will maintain its shape and resist curling. A relatively thin textile fabric, when treated in accordance with the foregoing steps, and when mounted on a supporting base, will provide even longer service as a floor covering than the usual painted felt base coverings.

Decorative designs may be applied to the goods and the color of the designs can be restricted to certain zones and caused to penetrate substantially through the thickness of the fabric, as desired, in any predetermined zones, all as described in my Patent 1,729,832, in which the procedure is applied to a paper-like sheet. A solid color may be used by dyeing the textile fabric of the present invention before it is applied. If pigment colors are used instead of dyes, it is important that the pigment should not clog up the pores of the fibers of the goods or unduly fill the spaces between the fibers or between the threads and thus perhaps prevent adequate saturation by the subsequently applied toughening transparent saturant. The solid color effects may also be obtained by printing the surface contact application by means of a penetrating dye or stain which will saturate the fabric throughout.

Referring to the accompanying drawing, 1 indicates a supporting base such as the usual floor covering bitumen impregnated felt. 2 is the textile fabric. 3 is an attaching cement for securing the fabric 2 to the base 1, and 4 is the upper outer coating or wear surface of transparent material.

Figure 1 is a top plan view shown illustrating a checker board or tile-like decoration in the textile goods and the latter being mounted on a bitumen felt base.

Figure 2 shows an edge view of the floor covering shown in Figure 1 and illustrating the approximate relative thickness of the base and textile fabric thereon.

Figure 3 is a modified edge view showing the relative size and location of the materials specified in the present invention, and greatly magnified.

It will be observed that the decorative coloring extends completely through the

textile goods from top to bottom, indicating alternate squares of white and blue, simulating the appearance of tiles and thus the product has the appearance of inlay work. The cementitious material 3 may be an excess of the saturating material used on the fabric provided it is of such a nature as a pyroxylin ester composition, or the cement may be some other standard water-proof cement. The fabric may be saturated by dipping or by any other method apart from the supporting base and before being applied to the base, or it can be glued to the base and thereafter impregnated with the decorative medium and finally with the saturant filling material. The outer coating 4 may be an excess of the saturant or it may be a subsequently applied coating.

One satisfactory coating material for the saturant filler involving the use of a cellulose ester may be made up from the following:

20 parts by weight of dry pyroxylin in a solvent mixture composed of 30 parts by weight of either or both butyl alcohol or amyl acetate plus 30 parts by weight of anhydrous denatured ethyl alcohol. Preferably a drying oil is added, and resins and softeners may be incorporated as desired, as for example as softeners tri-cresyl phosphate or diethyl or dibutyl phthalate.

In lieu of the cellulose ester a vegetable resin or gum may be made the base of the saturant when incorporated with dibutyl phthalate or the like.

Another form of saturant may be made up with the use of so called gum-plasticizers, of which dibutyl phthalate may be considered one example. In this connection, the parts used may be as follows for a suitable saturant formula:

Gum or resin, 100 parts by weight; plasticizer, 40 parts by weight; modifier (such as waxes and oils), 10 parts by weight; colloidal particles (such as zinc oxide, mica, carbon black), 20 parts by weight; solvent, 75 to 150 parts by weight.

The upper wear coat of the finished article may have a transparent coating of a durable wear material having a pyroxylin or cellulose ester base, or any transparent varnish will serve as the outer coating within the definition of this invention, although the cellulose type of coating is preferable.

The cement layer may be tinted or pigmented since by the use of a pigmented binder the color of the base may be hidden, and this treatment may be particularly desirable in coverings having paper upper coatings which, to some extent, are somewhat transparent. A pigmented binder would prevent the unartistic nature of the base material from being too much apparent.

With the use of the cementing material, and particularly a pigmented or tinted ce-

ment, uneven surfaces on the base may be smoothed over or hidden. When a cement is used it is thus possible to have a coarser type of base than would be desirable if the decorative layer was placed directly on a rough base. As a supplemental smoothing material a coat of paint may be applied to a sheet of black felt or to the surface of burlap, and thereafter the cementing medium may be used between the coated base and the decorative fibrous layer. Such a paint coat would seal the base so far as its color is concerned and provide the base with a smoother surface to which to apply the upper decorative sheet.

Wherever reference is made to printing of artistic effects, it is presumed that the printing is done with dyes and penetrating inks, as contrasted to the usual printing with paint, as performed in paint coated and decorated felt base floor coverings in which paint is relied upon to provide a surface wear layer.

I claim:—

1. A floor covering of the smooth surface flexible variety comprising a tough flexible supporting base, a decorative woven fabric mounted on said base and having decorative coloring in the fibers but not filling the spaces between the fibers and extending substantially throughout the thickness of said fabric, said fabric being saturated substantially throughout its thickness with a transparent penetrating saturant filling material which is dense, tough and flexible, and which seals the decoration in said fabric and fills the pores between the fibers of the thread of the fabric and the spaces between the thread.

2. A floor covering of the smooth surface flexible variety comprising a tough flexible supporting base, a decorative woven fabric mounted on said base and having decorative coloring in the fibers but not sealing the spaces between the fibers and extending substantially throughout the thickness of said fabric, and an attaching medium uniting said fabric to said base, said fabric being saturated substantially throughout its thickness with a transparent penetrating saturant filling material which is dense, tough and flexible, and which seals the decoration in said fabric and fills the pores between the fibers of the thread of the fabric and the spaces between the thread.

3. A floor covering of the smooth surface flexible variety comprising a tough flexible supporting base, a decorative woven fabric mounted on said base and having decorative coloring in the fibers but not closing the spaces between the fibers and extending substantially throughout the thickness of said fabric, said fabric being saturated substantially throughout its thickness with a transparent penetrating saturant filling material

which is dense, tough and flexible, and which seals the decoration in said fabric and fills the pores between the fibers of the thread of the fabric and the spaces between the thread, and an outer wear coat consisting of a film of a transparent tough coating.

4. A floor covering comprising an asphalt saturated base of relatively small tensile strength, a colored fabric of relatively high tensile strength associated therewith and a binder between the two that seals the asphalt saturant against association with the fabric.

5. A floor covering comprising an asphalt saturated felt base, a colored fabric associated therewith and a binder between the two that seals the asphalt saturant against association with the fabric.

6. A floor covering comprising an asphalt saturated felt base, a woven fabric associated therewith and a binder between the two that seals the asphalt saturant against association with the fabric.

7. A floor covering comprising an asphalt saturated felt base, adhesive sealing means deposited upon its upper surface, of a character which will seal the asphalt and a fabric associated with said base by means of said deposit, said fabric having the surface so ornamented by coloring material that the coloring material is not effected by the sealing means.

In testimony whereof I affix my signature.
RALPH G. JACKSON.

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