Sept. 6, 1932. R. G. JACKSON 1,875,735

FLOOR COVERING AND METHOD OF MAKING THE SAME

Filed July 13, 1929

Fig. 1.

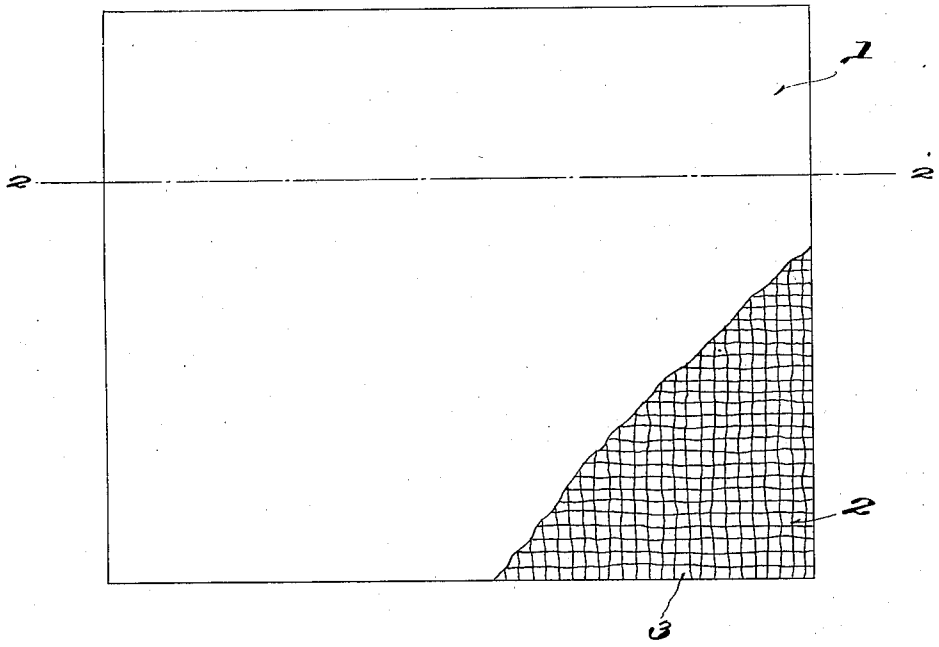
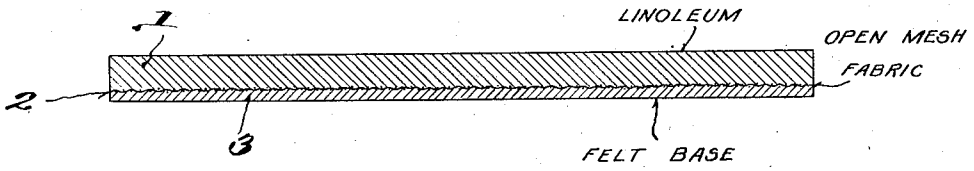


Fig. 2.



Inventor

Ralph G. Jackson.

By Stone, Boyden, Mack & Haley.

Attorneys.

Patented Sept. 6, 1932 1,875,735

UNITED STATES PATENT OFFICE

RALPH G. JACKSON, OF WOODBURY, NEW JERSEY

FLOOR COVERING AND METHOD OF MAKING THE SAME

Application filed July 13, 1929. Serial No. 378,165.

This invention relates to an improvement in floor coverings and to the process of making the article. In general, the invention relates to a manufactured smooth surface flexible floor covering, which may be used in somewhat the same manner as are the known linoleum and felt base floor coverings. In certain particular features, the present invention constitutes an improvement in this field of production.

The floor covering of this invention includes two main layers of material, having between them an interposed layer or sheet of woven or fibrous material. One of the particular features of the invention is that the opposite and outside main layers are secured together through the material of the interposed sheet. Emphasis is directed to the fact that the opposed layers are not merely secured to the intermediate sheet, but actually to each other by reason of an action in which the material of one sheet penetrates from one side to the other of the intermediate sheet. This feature will be explained at greater length hereinafter. This is in contrast to the floor coverings heretofore known and some of which have provided an article of manufacture including an upper wear layer and an under cushion layer and an intermediate sheet of woven fabric, to which latter the top and base layers are secured by adhesive. The present invention is a departure from such prior practice in that the top and base layers are secured to each other through openings in the fabric.

The invention provides in one specific embodiment for a manufactured article of sale having an upper wear layer of a composition which may be spread as a plastic layer when first prepared. This may be thus in the nature of a linoleum composition, including linseed oil, rosin, and filling materials such as woodflour and cork, or any other plastic material usable in the same manner, as for example, mixtures in which pyroxylin is used in lieu of linseed oil in combination with fillers. The extreme opposite layer is preferably a felt base, either a saturated felt such as the usual bitumen saturated floor covering felt or an unsaturated felt such as is now generally used for sound deadening purposes beneath domestic installations of linoleum. The latter is preferable. The intermediate sheet of material is preferably a textile sheet of loosely woven goods having relatively small threads spaced apart a distance considerably greater than the size of the thread, and thus providing a woven goods with relatively large mesh. The interposition of this particular type of textile goods between the felt layer and the layer of plastic material results in an improved product. In manufacturing this product, certain procedure is followed in order to obtain the best approved results.

One of the purposes of this present invention is to provide a floor covering which may be compared to linoleum floor covering in that both have a wear surface of a layer of a composition applied as a plastic. And which covering as a product is ready to be laid directly to the original floor of a building. Heretofore, in laying linoleum floor coverings, it has been customary in the highest grade of installation to first cement to the building floor a layer of felt, such as unsaturated soft pliable felt paper of considerable thickness, and thus providing softness and sound deadening characteristics. Next, a layer of cement is spread over the felt sheet, and on this cement layer, while it is still tacky, is fitted a sheet of the usual linoleum, which latter commonly includes a composition layer supported by a strength providing sheet of burlap. Usually also the inner face of the burlap carries a coat of paint which is applied at the linoleum factory and which serves the function of rendering the surface relatively smooth by filling the spaces between the threads, thus making a smooth

surface on which to spread the plastic. This smoothness lessens the tendency for the outline of the burlap threads to show on the face of the finished linoleum. At the same time, the paint serves to prevent the sticky linoleum composition from leaking through the burlap and thus possibly adhering to the opposite face of the linoleum while the goods is rolled. Sometimes, paint is applied to the exposed side of the burlap to provide a better finished appearance, especially for goods handled in retail stores. Thus, when cement is applied, it adheres, as the case may be, either to the burlap directly, or to the painted surface of the exposed side of the burlap. Most of these steps are avoided as result of the present invention.

One advantage provided by the present invention is the avoidance of shrinkage, which normally takes place when a layer of linoleum is applied to a wet layer of cement. It also occurs in the linoleum sheet itself, due to the fact that the plastic composition is laid on a saturated or painted burlap and that side is practically entirely shut off from the atmosphere as contrasted to the wear surface. This uneven shrinking is particularly noticeable in cases where linoleum is cemented to the floor. It also will be found where linoleum is tacked down, even if no cement be used. By the present invention, the tendency to curl, due to the upper portion of the linoleum drying faster than the lower portion, is eliminated by using, as a base, an unsaturated felt and which normally is about 50% air space. It has been found that in domestic installations of linoleum, according to the above general procedure, it is exceedingly difficult to avoid cracks in the fitting of linoleum to a certain floor area, for the acknowledged reason that burlap, when wet, does shrink. In the present invention, shrinkage is avoided because there is nothing to cause it, and the product does not have any textile goods of a shrinkable nature which will contact with such damp material as a moist cement. Similarly, by avoiding the use of burlap next adjacent the floor, there is no chance for the supporting fabric to get wet and rot.

The article of the present invention may advantageously be used in rug sizes, particularly in view of the fact that the tendency to curl is avoided.

Another advantage in the product of the present invention is a definite saving in time required for the permanent laying of floor coverings. It is no longer necessary to first cement a felt layer to the floor and thereafter cement a linoleum layer to the initial felt layer, but the complete product may be manufactured in a factory with continuous production. The cost of installation is reduced to the cost for possibly cementing the felt to the floor and in trimming the edges to properly fit the product.

The manufactured article of the present invention is illustrated in the accompanying drawing, in which:—

Figure 1 represents a rectangular piece of floor covering with a corner portion of the upper layer removed, thus to illustrate the relatively open or loose weave of the textile goods between the upper layer and the lower layer. 1 indicates the upper or wear layer of any kind of wear layer of a plastic material, which has been applied to the cloth as a plastic material, such as linoleum composition. 2 indicates the threads of the intermediate open mesh textile layer, and 3 indicates the base layer of felt, and which base layer is visible from above through the mesh of the intermediate fabric.

Figure 2 represents a vertical section taken on the line 2—2 of Figure 1, showing relative thickness of the layers and the size of the fabric layer 2, as compared to the wear surface layer 1 and the base layer 3.

In manufacturing this product, a felt base has placed upon it or stretched across it a layer or sheet of the open mesh fabric previously described, and the edges of which sheet are secured only sufficiently to prevent dislodgment during the manufacture of the article. To this upper layer of textile goods is applied by any suitable procedure or machine a layer of a plastic material such as a linoleum composition preferably including such an oil as linseed oil, rosin and cork or wood flour. Pressure is applied to the plastic mass either while the material is being applied, or afterward, or at both times. The result of this pressure and the nature of the linoleum composition causes the composition to penetrate through the fabric, uniting with the material of the fabric, and extending beyond the fabric to unite intimately with the fibrous or hairy surface of the felt base. A bitumen saturated base may possess a sufficiently hairy or fibrous surface to unite successfully with the material of the plastic composition, but preferably the felt base is unsaturated and correspondingly more receptive and absorbent to the sticky material of the plastic composition. This results in a bonding together of the material of the plastic composition with the material of the base layer. The adhesive and gummy substance in the plastic composition penetrates to and unites with the felt base and even the solid particles in the plastic mass tend to fill the mesh of the intermediate fabric 2, and some of the solid particles become embedded in the surface of the felt base. After this treatment, the product, if the plastic material is of a linoleum composition, will be dried and cured according to the practice in manufacturing linoleum. However, this curing action need not be as tedious or extended for a

long period, because the exudation of sticky substance from the plastic mass can do no damage to the felt, whereas in the manufacture of linoleum, some trouble might be caused if the burlap backing did not prevent leakage of the uncured linseed oil material. The use of a felt under layer also renders possible the use of a relatively liquid type of coating material as contrasted to a stiff plastic.

Preferably, there is no extraneous or additional cement used between the felt base and the fabric or between the fabric and the plastic composition layer.

From the foregoing, it will be obvious that this present invention renders it possible to avoid the use of the coarse cords or threads such as are normally found in ordinary burlap. When linoleum composition is thin, there is a marked tendency for the burlap threads to show through the upper face of linoleum, according as the face is slightly raised over the strands of the burlap. When linoleum is placed on burlap, and then allowed to dry, there are noticeable low and high spots, which are caused by the burlap. Nevertheless, no satisfactory textile substitute has been found for burlap in linoleum manufacture. The open mesh fabric described in connection with this invention would not prove satisfactory as a substitute for burlap, but when combined with a felt base, it serves the purpose of providing strength and at the same time makes it possible to avoid the use of extraneous cements.

As result of the present invention, it is possible to buy the open mesh fabric and felt for the same or less money than is now paid for the cost of burlap. There is an additional saving in that the resultant product may be applied direct to a floor with but one cementing operation.

Plastic material forming the wear layer may be of any suitable composition such as a cellulose ester product and which is suitable in lieu of the linseed oil mixture of ordinary linoleum compositions. A saving in time is effected if the cellulose ester plastic is used instead of the linoleum mixture because the time for curing the linseed oil of the latter is avoided and the only time required is that in which the solvents of the cellulose ester material require for evaporation.

What I claim is:—

1. A floor covering comprising a base layer of felt, a layer of linoleum composition, and between said base layer and said layer of linoleum composition an intermediate fabric of loosely woven material with open weave, the openings of which are larger than the size of the threads of the fabric, the material of said linoleum composition layer being bonded with the material of said base layer through the mesh openings of said fabric.

2. A floor covering comprising a base layer of felt, a layer of linoleum composition, and between said base layer and said linoleum composition layer an intermediate fabric of loosely woven material with open weave, the material of said linoleum composition layer being bonded with the material of said base layer through the mesh openings of said fabric.

3. In a floor covering, a first layer, a second layer, and between said first and second layers an intermediate fabric layer of woven material with open mesh, said first and said second layer being united together through the mesh openings of said fabric.

4. In a floor covering, a first sheet of pliable felt, a second sheet of a layer of a linoleum composition and an intermediate fabric layer of woven material with open mesh, the material of said linoleum composition extending through the mesh opening of said fabric and being impressed into the surface of said first layer.

5. In a floor covering, a first layer, a second layer, and between said first and second layers an intermediate fabric layer of woven material, said first and said second layer being united together through the mesh openings of said fabric.

6. In a floor covering , a first sheet of pliable felt, a second sheet of a layer of a linoleum composition and an intermediate fabric layer of woven material, the material of said linoleum composition extending through said fabric and being united with said first layer.

7. In a floor covering, a first layer, a second layer, and between said first and second layers, an intermediate fabric layer of woven material with open mesh, said first and said second layer being united together through said fabric solely by the bonding action of the material of said layers coacting with the opposite layer.

8. In a floor covering, a first layer, a second layer, and between said first and second layers an intermediate fabric layer, said first and second layer being united together through said fabric layer solely by the bonding action of the material in said layers coacting with the opposite layer.

9. The process of making floor coverings, which process consists in assembling a layer of paper like material and a layer of linoleum composition with a sheet of fabric therebetween, and causing some of the material of said linoleum composition to penetrate through the fabric and to unite with the layer of paper like material.

10. The process of making floor coverings, which process consists in securing together a first layer of material and a layer of a composition containing a substance capable of uniting with said first layer, there being an intermediate fibrous sheet between said layers, and causing the substance of said composition to unit with said first layer.

11. The process of making floor coverings, which process consists in arranging a first layer of material with a second layer of fibrous material thereon, and face to face thereto, applying to said layer of fibrous material a composition of a linoleum mixture, and causing some of the material of the linoleum mixture to penetrate beyond said layer of fibrous material and unite with said first layer.

In testimony whereof I affix my signature.

RALPH G. JACKSON.