

UNITED STATES PATENT OFFICE

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FLOOR COVERING

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It is known to incorporate soluble nitro-cotton and castor oil or linseed oil with an absorbent and a gum, with the addition of a pigment and filler, to produce a linoleum floor covering that is sufficiently hard to resist denting by weight or impact of solid bodies, such as furniture, but which is also sufficiently flexible and resilient. In the course of time, however, floor coverings of such composition develop objectionable odors due to the presence therein of castor oil or linseed oil, which, like other vegetable and animal oils, become rancid with age. I have discovered that if these known compositions are modified by the substitution of an alkyl abietate (ethyl abietate being distinctly preferred) for the vegetable oil heretofore used, it acts as a true plasticizer of the nitrocellulose, does not "sweat out" and develop objectionable odors, and can be used in larger proportions than other plasticizers without producing excessive softness of the finished linoleum. Ethyl abietate ($C_{19}H_{29}COOC_2H_5$) is a liquid, viscosity 6.5 poises, boiling point $350^{\circ} C.$, is a nitrocellulose solvent and is miscible with all common nitrocellulose solvents. Examples of alkyl abietates which may be used are: methyl abietate, ethyl abietate, normal butyl abietate, normal propyl abietate, normal amyl abietate, iso propyl abietate and iso amyl abietate. The alkyl abietates may be used as the sole plasticizer or in conjunction with other plasticizers. When used as a sole plasticizer, the proportion may be the same as the proportion heretofore used of castor oil or linseed oil, say not less than fifteen per cent.; but it is distinctly preferred to use not less than about thirty per cent., which gives a hard floor covering, and it may be used in as high a proportion as about seventy per cent. without producing an objectionably soft floor covering. When the alkyl abietate is used in conjunction with another plasticizer, the proportion used may be below the minimum specified. Other plasticizers that may be used in conjunction with the alkyl abietate comprise castor, rape-seed or other oils, or tricresyl phosphate, dibutyl phthalate, butyl

tartrate, or other so-called chemical plasticizers.

Examples of compositions (giving the proportions by weight) embodying my invention are:

1		
	Per cent	
Soluble nitrocellulose	28	
Ethyl abietate	31	
Tricresyl phosphate	7	
Wood flour or other absorbent	34	60
2		
	Per cent	
Soluble nitrocellulose	18.2	
Ethyl abietate	67.3	65
Ground cork or other absorbent	14.5	

To each of the foregoing compositions may be added pigment, inert fillers, etc., as desired.

The proportion of nitrocellulose may vary from about fifteen to about thirty per cent. The proportion of absorbent may vary from about ten to about forty per cent. These proportions do not represent absolute limits, but only ordinarily practicable ranges.

The method of incorporating the ingredients does not differ from that known in the art and need not be described. However, while nitrocellulose will disperse in ethyl abietate as such, it is advantageous to add a volatile nitrocellulose solvent, such as acetone, during mixing. The acetone is removed from the finished product by seasoning.

While, in the claims, I do not specify other materials, such as pigments, inert fillers and possibly resins, it is understood that they are intended to comprehend compositions in which, in addition to the ingredients specified, other commonly employed ingredients may be added as well as compositions in which some other plasticizer may be associated with the alkyl abietate.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

1. A floor covering including soluble nitrocellulose, monohydric alcohol abietate and an absorbent.

2. A floor covering including soluble nitrocellulose, ethyl abietate and an absorbent.

3. A floor covering including soluble nitrocellulose, between about thirty and about seventy per cent. of a monohydric alcohol abietate, and an absorbent.

5 4. A floor covering including soluble nitrocellulose, between about thirty and about seventy per cent. ethyl abietate and an absorbent.

5. A floor covering including soluble nitrocellulose, methyl abietate and an absorbent.

10 6. A floor covering including soluble nitrocellulose, butyl abietate and an absorbent.

In testimony of which invention, I have hereunto set my hand, at Wilmington, Delaware, on this 29th day of March, 1928.

JAMES H. RILE.

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