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UNITED STATES PATENT OFFICE

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LINER AND METHOD OF TREATING THE SAME

No Drawing. Original application filed April 6, 1927, Serial No. 181,605. Divided and this application filed September 16, 1927. Serial No. 220,061.

This invention relates to liners for interposition between layers of rubberized fabric and it is more particularly directed to novel methods of treating such units.

The invention has for its object the provision of a durable liner material and a process of manufacturing it. An additional object of the invention is to provide a method of renewing old liners, which, by reason of age and use, have become hard and stiff and consequently useless, unless subjected to some rejuvenating treatment.

In the manufacture of rubber coated fabrics, such as the fabric employed in the manufacture of automobile tire carcasses, it is customary to apply raw rubber to the fabric by means of calender rolls. The sheets of fabric so treated are quite tacky and adhesive and in order to prevent them from sticking together, sheets of non-adhesive material, known as liners, are placed between the adhesive surfaces.

It has been proposed to use fabric coated with nitro-cellulose for a lining material. However, since the rubberized fabric is heated considerably on the calender rolls, the nitro-cellulose treated fabric deteriorates rapidly and soon becomes so hard and stiff that it cannot be utilized without the cellulose coating cracking and peeling off.

My invention contemplates the preparation of a liner in which certain softening agents are so incorporated in the nitro-cellulose coating as to lessen the tendency of the material to harden and crack.

I have discovered that when liner fabric is coated with nitro-cellulose and then treated with any of certain softening agents, a liner of exceptionally long life is produced.

One form of my invention consists in incorporating one to ten percent of diethyl phthalate in nitro-cellulose and then spreading this mixture upon the fabric in the usual manner. It is found that numerous other compounds, particularly the esters of phthalic acid may be substituted for the diethyl phthalate. Among such compounds may be mentioned dibutyl phthalate, diamyl phthalate and various other phthalates.

It is further found that certain compounds not related to the phthalates may also be employed with beneficial results. For example, tricresol phosphate may be incorporated with nitro-cellulose and spread upon the fabric, thus producing a liner having superior wearing qualities. Excellent results are also obtained by mixing the nitro-cellulose with castor oil, although in this case the softening ingredient has a tendency to be driven out of the nitro-cellulose when the latter comes into contact with the heated fabric from the calender rolls.

It has been found that it is not necessary to incorporate the softening material with the nitro-cellulose before it is spread upon the fabric, but it may be spread upon the surface of the cellulose treated material by spraying or dipping the fabric into a liquid softener, or by some other convenient method. Old liners may be treated in this manner and their period of usefulness greatly prolonged.

It will be apparent that I have provided a highly valuable and novel liner material adapted to be employed for separating rubberized fabrics and have also devised a novel method of forming such material. A number of specific applications of my invention have been described, from which it will be apparent that a large number of compounds, when incorporated with the nitro-cellulose coating material for liners, have the power of greatly prolonging the life of the coating material.

It will be apparent, therefore, that my invention is of broad application, and that many modifications fall within the scope thereof. It is desired that the invention be limited only by the scope of the appended claim.

What I claim is:

A unit consisting of plies of rubberized material alternating with plies of liner material treated with nitro-cellulose containing dibutyl phthalate.

In witness whereof, I have hereunto signed my name.

Signed at Akron, in the county of Summit and State of Ohio, this 12th day of September, 1927.

LORIN B. SEBRELL.