

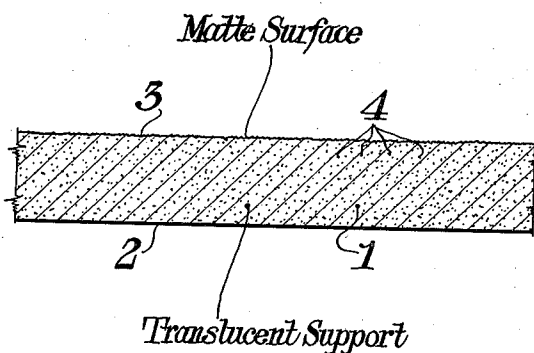
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SHEET MATERIAL WITH A MATTE SURFACE AND METHOD OF PRODUCING THE SAME

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SHEET MATERIAL WITH A MATTE SURFACE
AND METHOD OF PRODUCING THE SAME

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7 Claims. (Cl. 106—40)

The present invention relates to the production of sheet material and more particularly to the making of a sheet material which has a matte surface and which is translucent.

5 Since the end portions of a motion picture film are subject to excessive wear and tear, it has been found convenient and economical to attach a strip of tougher film to the ends of the picture strips and especially to the leading end of said picture strips. Furthermore the smooth surfaces of the picture strip prevent satisfactory marking of said strip directly. In order to facilitate such marking or identification of the film, it is customary to provide a matte surface on such leader or trailer strips. The identification markings on the leader strip are rendered more visible if the material of the strip is translucent rather than transparent.

10 The primary object of the present invention is the provision of a sheet material which has a matte surface.

15 Another object is the provision of a sheet material which has good wearing quality and which is otherwise suitable as a material for leader strips.

20 A further object is the production of a sheet material by coating onto a smooth surface dope including at least two mixed esters of cellulose in a solvent and subsequently evaporating the solvent, the resultant sheet having a matte surface which is suitable for pencil or crayon markings.

25 Still another object of the invention is a sheet material composed of a mixed organic ester of cellulose having an acyl content of lower fatty acid groups and dicarboxylic acid groups and a fully esterified cellulose higher acylate, the higher acylate content comprising acyl groups of three to four carbon atoms.

30 Other and further objects of the invention will be suggested to those skilled in the art by the following particular description of the invention.

35 In the accompanying drawing, the single figure illustrates a cross-section of the sheet material to enlarged scale.

40 The method and product of my invention are to be described with respect to their employment to provide a sheet material which has a matte surface and which is particularly suited for leader strips of motion picture film. However, it is to be understood that said method and product may be used to equal advantage in other arts or under other circumstances in which a sheet material of good wearing quality, having a matte surface
55 and/or of uniform translucency is required.

The sheet material of the invention is formed by coating a dope onto a polished flat surface or onto the polished periphery of a drum, according to any of the established procedures which are well known to manufacturers of sheeting of cellulose derivatives. The volatile ingredients of the dope also are evaporated according to the practices now well established.

5 The outstanding fitness of the sheet material for the purposes aforementioned is deemed to be the result of the composition of the dope and the composition of the completed sheet material.

10 The dope, from which the sheet layer is coated, includes a mixed organic acid ester of cellulose, the acyl content of which comprises lower fatty acid groups and dicarboxylic acid groups, such as cellulose acetate phthalate, cellulose acetate succinate, or cellulose acetate diglycollate. The preparation of these mixed esters is fully described in the copending application of C. J. Malm and C. E. Waring, Ser. No. 380,252 filed July 22, 1929.

15 The dope for coating also includes a fully esterified mixed ester of cellulose, the acyl content of which comprises acetyl groups and acyl groups of three to four carbon atoms, such as cellulose acetate propionate, cellulose acetate butyrate or cellulose acetate propionate butyrate. The procedures for preparing these mixed esters are well known to those skilled in the art and need not be described herein.

20 Preferably, the dope contains one part of the mixed ester of cellulose, the acyl content of which comprises lower fatty acid groups and dicarboxylic acid groups, to ten parts of the fully esterified cellulose ester, the acyl content of which comprises acetyl groups and acyl groups of three to four carbon atoms.

25 Said dope also includes a solvent for said mixed esters. The choice of solvent is restricted only in that the solvent should be capable of dissolving both of the mixed esters selected. A mixture of ethylene dichloride and denatured alcohol in the approximate proportions of 4:1 has proved satisfactory especially with the mixed esters of cellulose acetate propionate and cellulose acetate phthalate.

30 The manner in which the esters are dissolved may vary. The selected proportions of each ester may be dissolved separately or simultaneously, or partial solutions may be made with ethylene dichloride and the denatured alcohol added later.

35 An example of a preferred dope for use in practicing the method and for producing the

matte surfaced sheet according to the invention is set forth hereinafter.

	Grams
Cellulose acetate propionate (fully esterified) -	20
Cellulose acetate phthalate-----	2
5 Ethylene dichloride-----	65
After partial solution has occurred, add:	
Ethyl alcohol-----	15

- 10 A layer of the dope thus compounded may be applied to a polished surface and then subjected to a drying or evaporating period during which the volatile components of the dope escape from said layer and leave a sheet material with a matte surface. The sheet material also has a milky appearance and is only translucent.

- The finished sheet material 1, see the drawing, has a smooth surface 2 which was next to the polished surface of the coating wheel or plate, and has a matte surface 3 on the opposite side. The matte surface 3 may be the result of a "skin effect" upon drying of the layer of dope, may be the result of precipitation of one of the mixed esters because of unequal evaporation of the solvents, and/or may be a toothed surface caused by minute precipitated particles 4 of cellulose acetate phthalate, or corresponding mixed ester, which are distributed throughout the sheet material. Said particles 4 may also cause the translucent appearance of the finished material.

- Whatever the reasons for the matte surface and translucent appearance of the finished sheet material, these results are undoubtedly occasioned by the particular ingredients of the dope and the proportions of each ingredient. Various degrees of either may obviously be obtained by variations in the ingredients and/or proportions thereof to produce a sheet material of desired translucency and with an appropriate matte surface. Such variations are deemed to be within the scope of the invention as defined by the appended claims.

Having now particularly described my invention, what I desire to secure by Letters Patent of the United States and, what I claim is:

1. As an article of manufacture, translucent sheet material with a matte surface and composed of a mixed organic ester of cellulose having an acyl content of lower fatty acid groups and dicarboxylic acid groups and a fully esterified cellulose higher acylate, the higher acylate content comprising acyl groups of three to four carbon atoms. 10

2. As an article of manufacture, translucent sheet material with a matte surface and composed of about ten per cent of a mixed organic ester of cellulose selected from the group of cellulose acetate phthalate and cellulose acetate succinate, and the remainder of a fully esterified cellulose higher acylate selected from the group of cellulose acetate propionate and cellulose acetate butyrate. 15

3. As an article of manufacture, translucent sheet material with a matte surface and composed of cellulose acetate phthalate and fully esterified cellulose acetate propionate. 20

4. As an article of manufacture, translucent sheet material with a matte surface and composed of cellulose acetate phthalate and fully esterified cellulose acetate butyrate. 25

5. As an article of manufacture, translucent sheet material with a matte surface and composed of cellulose acetate succinate and fully esterified cellulose acetate propionate. 30

6. As an article of manufacture, translucent sheet material with a matte surface and composed of cellulose acetate succinate and fully esterified cellulose acetate butyrate. 35

7. As an article of manufacture, translucent sheet material with a matte surface and composed of cellulose acetate phthalate and fully esterified cellulose acetate propionate butyrate. 40

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