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W. HOSKINS

FORMING CELLULOSE ESTER MATERIALS

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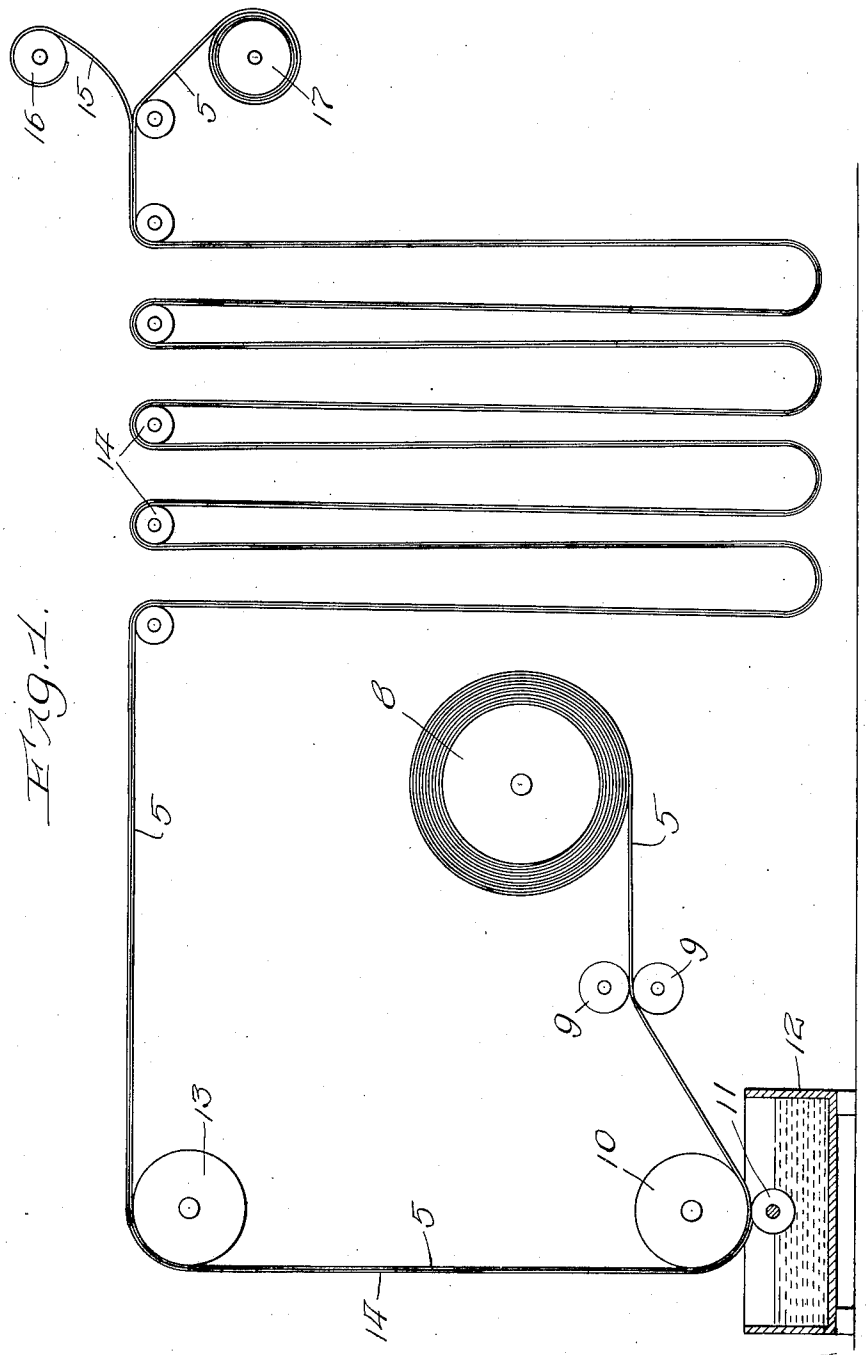


Fig. 1.

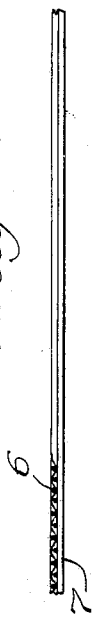


Fig. 2.

Inventor:
William Hoskins,
By Lyon, Lyon, Christy & Wiles,
Attys.

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UNITED STATES PATENT OFFICE.

WILLIAM HOSKINS, OF CHICAGO, ILLINOIS.

FORMING CELLULOSE-ESTER MATERIALS.

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To all whom it may concern:

Be it known that I, WILLIAM HOSKINS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Forming Cellulose-Ester Materials, of which the following is a specification.

In accordance with the present invention, shaped cellulose ester products, such as sheets, molded articles, and the like, are produced by forming the cellulose ester material in contact with a gelatinous surface, preferably hardened by means of a suitable agent, such as formaldehyde, hexamethylenetetramine, and the like. In the accompanying drawing, the formation of continuous sheets of cellulose ester material in accordance with the invention is illustrated.

In the drawings:—

Figure 1 illustrates diagrammatically means for carrying the present invention into effect in the formation of sheets of cellulose ester material; and

Fig. 2 is a sectional view of the carrier band on exaggerated scale.

Referring more particularly to the drawings, the numeral 5 indicates a base, which may suitably be a flexible textile material 6 provided with a coating 7 of gelatinous substance, preferably hardened. This coating may suitably be formed by applying to the textile material 6 a coating of a gelatine solution, for example, an aqueous solution containing from 10 to 15% of gelatine and from ½ to 2% of commercial (40%) formaldehyde, and setting and drying the gelatine material on the textile base. It is usually advisable to add a suitable softening agent, say from 0.5 to 2% of gylcerine and a suitable preservative, say, for example, 0.1 to 2% of phenol to the gelatine solution before applying it to the textile base. Other softening agents, such as sulfonated castor oil, magnesium chloride, calcium chloride, etc., may be used, and any desired preservative may be employed. Other hardening agents than formaldehyde may likewise be employed, for example, hexamethylenetetramine, chrom alum, etc. It is readily apparent that any other flexible material may be employed for the base 6 instead of the textile material illustrated in the practice of the invention in the form illustrated in the drawing.

The gelatine-coated base material 5 is withdrawn from a roll 8 by feeding rolls 9 and a suitable cellulose ester solution, for example, a solution containing 8 parts cellulose nitrate, 30 parts acetone, 20 parts amyl acetate, 4 parts methanol and a small percentage of a suitable softening or plasticising agent, such as castor oil, triphenyl phosphate, camphor, or the like, is then applied to the gelatine surface 7 of the base. This may suitably be effected by passing the base material 5 around a supporting roll 10 with its gelatine surface 7 in contact with a coating roll 11 partially immersed in a container 12 containing the cellulose ester solution. After leaving the coating device, the base material 5 with its applied coating of cellulose ester material is passed around a roller 13 to a suitable festooning device 14 or any other device adapted to facilitate the evaporation of the solvent from the cellulose ester material. As the solvent evaporates, a sheet of the cellulose ester material is formed in contact with the gelatine surface of the base 5, and is readily removable therefrom. The sheet of cellulose ester material thus formed is indicated by the numeral 15 and is suitably wound upon a roll 16, the base material 5 being wound upon a roll 17.

The cellulose ester material takes its form from the form of the gelatine surface of the base 7 of the base material 5. For example, if the base 5 is formed with the gelatine surface 7 perfectly smooth, a smooth-surfaced sheet of cellulose ester material is formed. If, however, impressions such as impressions of leather grain, written characters, watermarks, prismatic effects, or the like, are desired upon the surface of the cellulose ester material, the gelatine surface 7 of the base material 5 is preformed with the reverse impressions before the cellulose ester solution is applied thereto.

Although the invention has been illustrated in connection with the formation of continuous sheets of celluloid material, it is readily apparent that the invention may be used in connection with the forming or molding of cellulose ester material upon any other form of base. For example, a mold in which it is desired to form a cellulose acetate material may suitably be coated with a gelatine solution of the character above described, this gelatine solution dried, forming a gelatine surface within the mold, and the cellulose ester material then applied to

the mold upon this gelatine surface. The cellulose ester material is then readily removable from the gelatine surface of the mold.

The particular cellulose ester material described is given by way of example only. The invention may be used in connection with other solutions or plastic compositions having other cellulose esters as their bases, such as cellulose acetate, cellulose formate, cellulose xanthate, and the like.

I claim:

1. The method of forming cellulose ester material which consists in applying a cellulose ester solution to a preformed gelatine surface, removing the solvent, and subsequently stripping the cellulose ester material from the gelatine surface.

2. The method of forming cellulose ester sheets which consists in applying a cellulose ester solution to the surface of a sheet of gelatine material, removing the solvent from the cellulose ester solution and subsequently stripping the deposited cellulose ester material from the gelatine surface.

3. The method of continuously applying to a gelatine surface base a cellulose ester solution, removing the solvent from the cellulose ester coating on the gelatine surface base and subsequently stripping the deposited cellulose ester material therefrom.

WILLIAM HOSKINS.