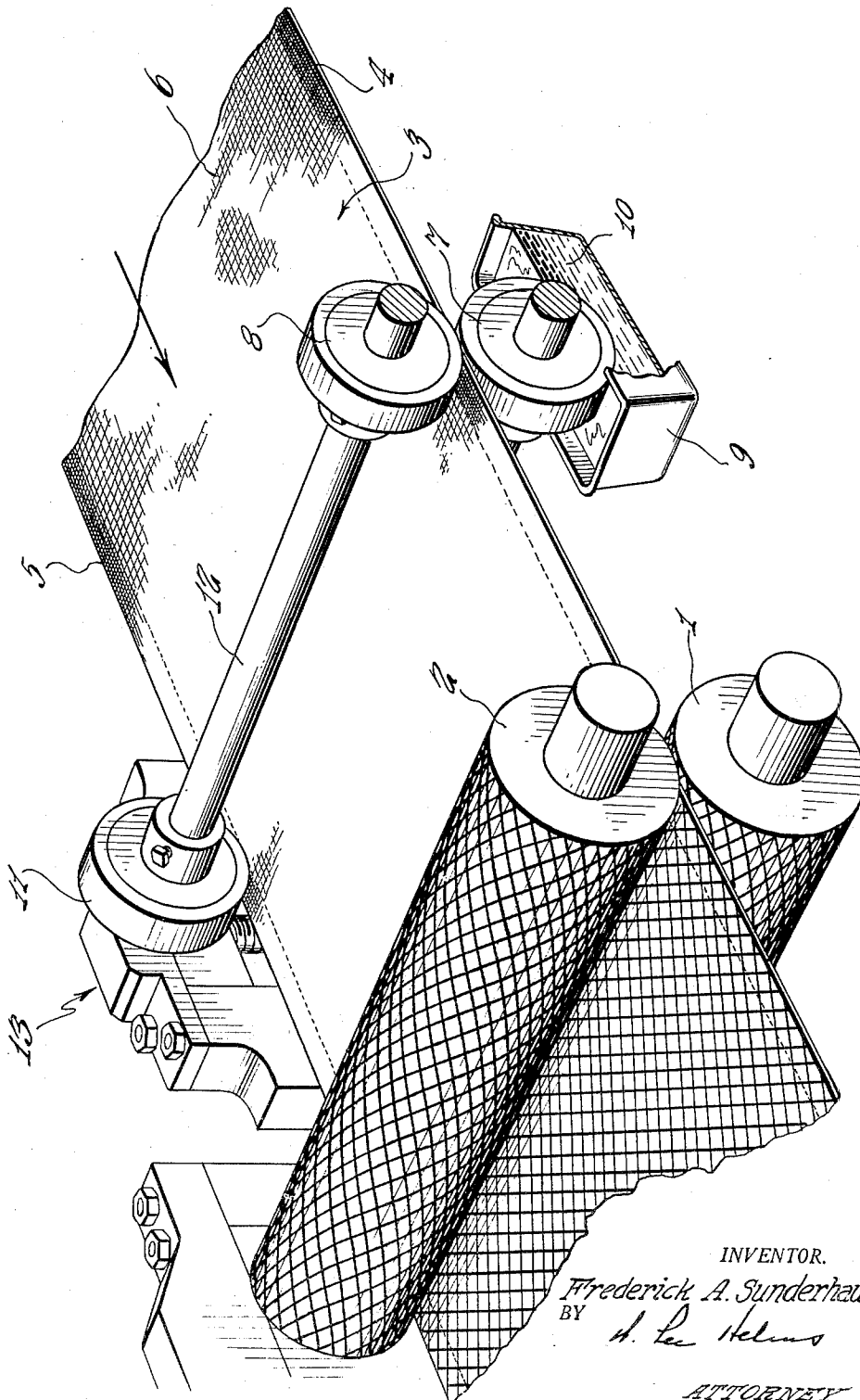


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METHOD OF TREATING SELVAGE EDGES
OF TEXTILE SHEET MATERIAL
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METHOD OF TREATING SELVAGE EDGES
OF TEXTILE SHEET MATERIAL

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This invention relates to a method of treating the selvage edges of textile sheet material so as to prevent the selvage edges from being fractured as the textile material is subjected to the pressure of embossing rolls or other pressure operations which would tend to damage the selvage edges.

Textile sheet material is conventionally formed with so-called selvage edges along the longitudinal margins of the sheet. These selvage edges contain more threads than the main intermediate portion of the textile material and consequently are somewhat thicker and stiffer than said intermediate portion. These selvage edges are necessary in the weaving of the textile material, but their presence produces considerable difficulties when the textile material is passed between embossing rolls or is subject to other pressure operations.

In view of the greater thickness and less flexibility of the selvage edges, it will be obvious that if the clearance distance between the embossing or other pressure rolls is equal throughout the length of the latter, the selvage edges will be subjected to a much greater pressure than the intermediate portion of the textile material. This greater pressure causes the selvage edges to be fractured, warped and otherwise damaged, thereby reducing the marketability of the material.

In the prior art several unsuccessful attempts have been made to reduce or eliminate the tendency of the selvage edges to be ruptured when the sheet material is passed between embossing or other pressure rolls. One of those attempts involved the use of a relatively soft paper-filled backup roll which was intended to be yieldable along those portions contacting the selvage edges so as to reduce the pressure on the latter. However, it has been found that the selvage edges damage the paper-filled backup roll to the extent that the latter permits the selvage edges to pass between the rolls without being fractured. Furthermore, when a wider strip of textile material is to be run through the same paper-filled rolls, the surface of the latter must be refinished to accommodate the wider width of the sheet; that is, the greater distance between the selvage edges. In addition to the necessity for continuous maintenance, paper-filled backup rolls have a relatively short useful life. The same disadvantages were present when it was attempted to employ a felt-filled backup roll.

Another unsuccessful attempt to solve this problem involved the use of hardened steel rolls

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having engraved in the exterior surfaces thereof a clearance groove to permit the selvage to flow therethrough without damage. However, this has proved impractical since there is no standard width or distance between the selvage edges and the rolls would be useless except for textile material of a single width.

In the present invention the problem of preventing fracture of the selvage edges has been solved in the following manner. The selvage edges, preliminary to being passed through the embossing rolls or other pressure operation, are "plasticized." That is, a textile-fiber softening liquid is applied to the selvage edges. This renders the edges soft and yieldable and enables them to be passed through the steel embossing rolls without fracturing notwithstanding the fact that they are subjected to greater pressure than the intermediate portion of the textile sheet. The plasticizing or fiber-softening liquid is preferably a glycerine-water solution. However, it will be obvious to those skilled in the art that other fiber-softening liquids may be employed with advantageous effect. For instance, even plain water reduces the tendency of the selvage edges to be fractured, although not producing as good results as the glycerine-water solution.

In the drawing there is disclosed one form of apparatus which may be employed for carrying out my method. However, it is to be understood that this is merely illustrative of one of the many forms which the invention may take in practice, the scope of the invention being delineated in the appended claims.

Referring now to the drawing, the reference numerals 1, 2, indicate a pair of hardened steel embossing rolls which may be of any conventional type or may be identical with the embossing rolls disclosed in my prior copending application Serial No. 210,885, filed February 14, 1951, entitled Roll Embossing Apparatus And Method For Making Same. The strip of textile sheet material 3 is to be continuously passed through the embossing rolls 1, 2, and moves in the direction indicated by the arrow.

As shown by the partial cross-hatching in the drawing, the longitudinal margins 4, 5, of the textile sheet 3 are provided with selvage edges having more threads than the intermediate portion 6 in the sheet 3. The selvage edges 4, 5 are usually from $\frac{1}{4}$ " to $\frac{3}{4}$ " wide and are much thicker than the intermediate portion 6 due to the fact that they contain more threads.

The plasticizing or fiber-softening solution is applied to the selvage edges 4, 5 immediately

before the sheet 3 passes between the rolls 1, 2. In the illustrative embodiment shown in the drawing, the means for applying the plasticizing liquid comprises an engraved metal applicator roll 7 and a rubber impression roll 8 through which the selvage edge 4 passes on its way to the embossing rolls 1, 2. A tank 9 contains a supply of plasticizing liquid 10 into which the lower portion of the applicator roll 7 dips as it rotates. The peripheral surface of the roll 7 is thus coated with the plasticizing liquid 10 and applies the latter to the undersurface of the selvage edge 4 which becomes impregnated and plasticized. The upper impression roll 8 serves to maintain the selvage edge 4 in contact with the lower applicator roll 7, but may under certain circumstances be dispensed with if desired.

A second applicator and impression roll applies the plasticizing liquid to the opposite selvage edge 5, only the impression roll 11 being shown since it will be understood the arrangement of the second applicator and impression rolls are the same as that of the rolls 7, 8 already described. The upper rolls 8, 11 may be mounted upon a common shaft 12 rotatably supported in a suitable mounting means indicated generally at 13 and the same mounting arrangement may be employed for the roll 7 and the other lower applicator roll which is not shown.

It will be understood that any other device for applying a liquid to a moving strip of textile material may be substituted for the arrangement of applicator rolls shown. Furthermore, the plasticizing liquid 10 may be applied to the selvage edges 4, 5 manually with a brush or by spraying if desired.

The preferred form of plasticizing or fiber-softening liquid is that of a solution of glycerine in water. For fast embossing operation I have discovered that a solution of approximately 50% to 60% glycerine gives the best results, whereas for slower embossing operations the good results are obtained with a solution of approximately 25% to 35% of glycerine. Of course other fiber-softening liquids may be employed as the plasticizing or fiber-softening solution. For example, plain water has been found to produce some effect but does not produce results comparable with the glycerine-water solution.

By impregnating the selvage edges 4, 5 with the plasticizing or fiber-softening liquid, the selvage edges are rendered soft and yieldable so that they pass through the embossing rolls and are subjected to the high pressures resulting therefrom without being fractured, warped or otherwise damaged.

The present invention is not limited in its application to embossing with hardened steel embossing rolls, but may also be utilized when paper-filled or felt-filled backup rolls are employed since the increased pliability and softness of the selvage edges resulting from the application of the fiber-softening liquid considerably reduces the tendency of the selvage edges to damage the surfaces of these backup rolls and thereby reduces maintenance costs and increases the useful life of the latter. The invention is also applicable to types of pressure operations other than embossing.

I claim:

1. A method of embossing a strip of textile material having selvage edges along the longitudinal margins thereof, said method comprising the steps of applying to the selvage edges a plasticizing solution and then passing the strip between a pair of steel embossing rolls, whereby the plasticizing solution renders the selvage edges yieldable so as to prevent their fracture during passage between the rolls.

2. A method of embossing a strip of textile material having selvage edges along the longitudinal margins thereof, said method comprising the steps of applying to the selvage edges a glycerine solution and then passing the strip between a pair of steel embossing rolls, whereby the glycerine solution renders the selvage edges yieldable so as to prevent their fracture during passage between the rolls.

3. A method of embossing a strip of textile material having selvage edges along the longitudinal margins thereof, said method comprising the steps of applying to the selvage edges a glycerine-water solution of approximately 25% to 60% glycerine and then passing the strip between a pair of steel embossing rolls, whereby the glycerine solution renders the selvage edges yieldable so as to prevent their fracture during passage between the rolls.

4. A method of embossing a strip of textile material having selvage edges along the longitudinal margins thereof, said method comprising the steps of applying a textile fiber-softening liquid to the selvage edges and then passing the strip between a pair of embossing rolls, whereby the fiber-softening liquid renders the selvage edges yieldable so as to prevent their fracture during passage between the rolls.

5. A method of embossing as recited in claim 4 wherein said textile fiber-softening liquid comprises a solution of glycerine and water.

6. A method of embossing as recited in claim 4 wherein said textile fiber-softening liquid comprises a solution of approximately 25% to 60% glycerine.

7. A method of embossing as recited in claim 4 wherein said textile fiber-softening liquid comprises glycerine.

8. In a method of subjecting a strip of textile material having selvage edges to pressure operations which normally tend to damage said selvage edges, the improvement comprising the step of preliminarily treating said selvage edges with a textile fiber-softening liquid.

9. A method as recited in claim 8 wherein said fiber-softening liquid comprises glycerine.

10. A method as recited in claim 8 wherein said fiber-softening liquid comprises a solution of glycerine and water.

11. A method as recited in claim 8 wherein said fiber-softening liquid comprises a solution of approximately 25% to 60% glycerine.

12. A method as recited in claim 8 wherein said fiber-softening liquid comprises a glycerine-water solution of approximately 25% to 60% glycerine.

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No references cited.