Feb. 18, 1936. J. C. STANDISH 2,031,013

BLANKET

Filed June 8, 1934

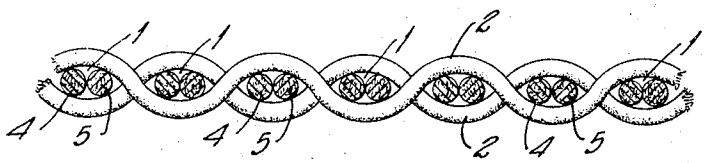


FIG. 1

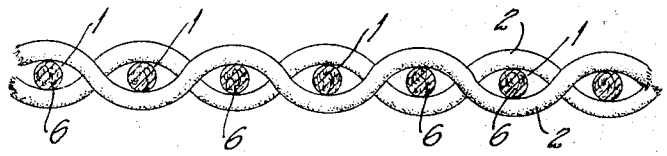


FIG. 2

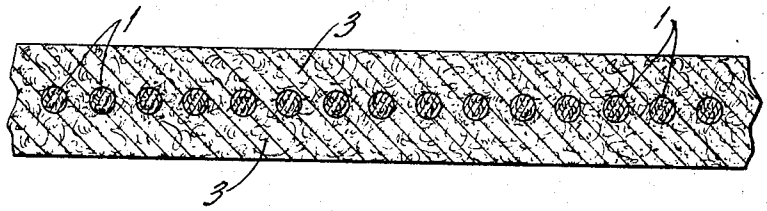


FIG. 3

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BLANKET

John C. Standish, Rensselaer, N. Y.

Application June 8, 1934, Serial No. 729,701

8 Claims. (Cl. 139—420)

My invention relates to blankets, and particularly to aprons or blankets for use in printing which heretofore have been made entirely of cotton because it was recognized that wool would be rapidly disintegrated by the alkalies in the colors employed in the printing operation.

Such blankets must be of rather substantial thickness, and to obtain this thickness in cotton, it has been necessary to employ a multi-ply fabric. The blankets, of course, are made in the form of an endless belt and this necessitates splicing the ends of the fabric together. Four plies of cotton have ordinarily been employed but due to the difficulty in satisfactorily splicing the inner plies it has been usual to cut off and butt end the warp threads of these plies and merely splice the two outer plies by carrying the warp threads across the joint and interweaving them on each side thereof. Obviously such a splice, because only two of the four plies are actually carried across and interwoven, can never be more than about 50% as strong as the rest of the blanket and such blankets most commonly fail at the splice because they are subjected to substantial tension and pressure in the printing operation. Moreover, it is impossible so to splice a cotton blanket that the joint is not clearly apparent, and such a blanket does not present a uniformly smooth surface to the fabric being printed. This causes imperfections in the printing and there are many rejects in the finished product.

I find that one of the difficulties which arises in splicing the warp threads of the cotton fabric together is due to the fact that cotton does not felt, and therefore, when the blanket is subjected to tension in actual use, the interwoven cotton warp threads slip and the blanket tends to separate at the splice. However, as compared to wool, cotton has a relatively high tensile strength and hence for this reason might advantageously be used in the warp provided the difficulties mentioned above can be overcome.

I find that aprons or blankets which are very much more satisfactory than all cotton blankets can be made by using in the warp a moderate to small amount of animal fiber, such as wool, combined with a strong vegetable fiber, such as cotton or linen or both to provide the desired tensile strength. The wool fibers in the warp yarns felt together to prevent slippage at the splice and this result cannot be obtained by the use of cotton or linen alone, nor, on the other hand, can the necessary or desirable tensile strength in the warp be attained by the use of wool alone. While I prefer to have the warp yarns consist of two or more strands laid parallel to each other, some 4 of wool and the others 5 of cotton or linen or both, if desired, a composite or plied yarn or yarns 6 composed partially of wool and partially of cotton or linen may be employed in the warp.

The quantity of wool which can be used in the warp may vary considerably but in no case should it exceed more than about 90% by weight of the warp, and very excellent results are obtained by using from say 30% to 50%, by weight, of wool. Insofar as the splicing advantages are attained, they arise from the fact that there are many outstanding fibers on the wool yarns whereas there are practically none on the cotton yarns, and where as little as 20% by weight of the warp yarns is of wool these outstanding fibers felt the whole structure together so that the splice is substantially as strong as the rest of the blanket.

The principal object of my invention is to provide a blanket for use in the printing of textiles which is superior to the cotton blankets now used in that art in that it is of substantially uniform strength and smoothness throughout. Another object is to provide a printing blanket of this character which can be readily spliced in the "as woven" condition to form an endless belt, and thereafter subjected to a fulling and felting treatment whereby all evidence of the splice, insofar as it affects the uniform thickness and smoothness of the blanket, may be eliminated. A further object is to provide a textile printing blanket containing both wool and vegetable fiber so combined that the natural tensile strength and resistance to alkalies of the vegetable fiber is utilized together with the fulling and felting properties of the wool to form a composite fabric structure of greater strength and greater durability than the present cotton blankets, and which will eliminate many of the defects in the printed product now traceable directly to defects in the blanket itself.

I accomplish these objects by means of the blanket described below and illustrated in the accompanying drawing which, for purposes of clearness and simplicity, shows merely a plain woven fabric having a single warp, although it is to be understood that the weave is of no particular moment.

Fig. 1 is a fragmentary transverse section of my blanket in the "as woven" condition;

Fig. 2 is a view similar to Fig. 1 showing a modified type of blanket;

Fig. 3 is a fragmentary transverse section of the finished product.

In the drawing, 1 represents the warp yarns generally, 2 the filler yarns, and 3 the filler after the blanket has been fulled and felted.

A cotton fabric cannot be fulled, and for this reason the desired thickness in a cotton blanket must be built up in the weaving process by forming a comparatively large number of plies. This, in turn, as pointed out above, makes it practically impossible to form a smooth joint or splice in the blanket which will have substantially the same strength as the original fabric. By incorporating a small or moderate amount of wool in the filling (sufficient to provide fulling) it is possible to use a fabric of not more than two plies thereby making it comparatively simple to secure a strong splice. It is also possible by fulling a single or two ply blanket after it is spliced to eliminate all evidence of the splice and to produce a blanket which may be substantially thicker and denser than a four ply cotton blanket. Moreover, it will be more resilient than a cotton blanket and have a smooth, firm surface absolutely uniform in character throughout which it is otherwise impossible to attain.

The minimum quantity of wool which can be used in the filling is, of course, the minimum which will provide fulling, and the maximum amount which can be employed will depend on the use to which the blanket is to be put. That is, on the alkali content of the colors employed in printing. The minimum amount of wool which can be employed in the filling and yet attain the desired fulling is not less than about 20% by weight, but where acid inks such as used in silk printing are to be employed the filling may be entirely of wool.

Separate strands of wool and cotton cannot be employed in the filling, and it is impracticable to use plied yarns. The filling should be made of composite yarns; that is yarns in which the cotton and wool are carded and spun together in the desired proportions.

Printing blankets of the character described herein are far superior to the all cotton blankets now used in printing. Although initially somewhat more expensive, due to the substitution of wool for part of the cotton, and to increased cost of fabrication, the net savings to be realized from their use is comparatively great. They are not only perfectly smooth and of uniform character throughout, but there is no tendency to separate at the splice, and the large number of rejects in the printed product which now result from the impossibility of making a smooth splice in an all cotton blanket are entirely eliminated.

What I claim is:

1. A printing blanket for use in the textile printing art comprising a fulled and felted woven fabric having a splice in the warp thereof to form an endless belt; the warp of said fabric containing vegetable fiber, whereby to provide the necessary tensile strength, and also wool, whereby to effect a felting of the warp at the splice and to prevent relative slippage of the spliced warps; and the filling of said fabric being composed of composite yarns formed of wool and vegetable fiber carded and spun together in which the wool content is at least sufficient to provide a substantial fulling and felting of the fabric.

2. A printing blanket for use in the textile printing art comprising a fulled and felted woven fabric having a splice in the warp thereof to form an endless belt; the warp of said fabric comprising yarns of vegetable fiber to provide the necessary tensile strength, and yarns of wool to effect a felting of the warp at the splice and to prevent relative slippage of the spliced warps; and the filling of said fabric being composed of composite yarns formed of wool and vegetable fibers carded and spun together in which the wool content is at least sufficient to provide a substantial fulling and felting of the fabric.

3. A printing blanket for use in the textile printing art comprising a fulled and felted woven fabric having a splice in the warp thereof to form an endless belt; the warp of said fabric containing more than ten percentum by weight of vegetable fiber, whereby to provide the necessary tensile strength, and also wool, whereby to effect a felting of the warp at the splice and to prevent relative slippage of the spliced warps; and the filling of said fabric being composed of composite yarns formed of wool and vegetable fiber carded and spun together in which the wool content is at least sufficient to provide a substantial fulling and felting of the fabric.

4. A printing blanket for use in the textile printing art comprising a fulled and felted woven fabric having a splice in the warp thereof to form an endless belt; the warp of said fabric comprising more than ten percentum by weight of yarns of vegetable fiber to provide the necessary tensile strength, and the balance yarns of wool to effect a felting of the warp at the splice and to prevent relative slippage of the spliced warps; and the filling of said fabric being composed of composite yarns formed of wool and vegetable fibers carded and spun together in which the wool content is at least sufficient to provide a substantial fulling and felting of the fabric.

5. A printing blanket for use in the textile printing art comprising a fulled and felted woven fabric having a splice in the warp thereof to form an endless belt; the warp of said fabric containing vegetable fiber, whereby to provide the necessary tensile strength, and also from twenty percentum to sixty percentum by weight of wool, whereby to effect a felting of the warp at the splice and to prevent relative slippage of the spliced warps; and the filling of said fabric being composed of composite yarns formed of wool and vegetable fiber carded and spun together in which the wool content is at least sufficient to provide a substantial fulling and felting of the fabric.

6. A printing blanket for use in the textile printing art comprising a fulled and felted woven fabric having a splice in the warp thereof to form an endless belt; the warp of said fabric comprising yarns of vegetable fiber to provide the necessary tensile strength, and from twenty percentum to sixty per centum by weight of yarns of wool to effect a felting of the warp at the splice and to prevent relative slippage of the spliced warps; and the filling of said fabric being composed of composite yarns formed of wool and vegetable fibers carded and spun together in which the wool content is at least sufficient to provide a substantial fulling and felting of the fabric.

7. A printing blanket for use in the textile printing art comprising a fulled and felted woven fabric having a splice in the warp thereof to form an endless belt; the warp of said fabric containing vegetable fiber, whereby to provide the necessary tensile strength, and also wool, whereby to effect a felting of the warp at the splice and to prevent relative slippage of the spliced warps; and the filling of said fabric being composed of

composite yarns formed of wool and vegetable fiber carded and spun together in which the wool content is from twenty percentum to sixty percentum by weight.

8. A printing blanket for use in the textile printing art comprising a fulled and felted woven fabric having a splice in the warp thereof to form an endless belt; the warp of said fabric comprising yarns of vegetable fiber to provide the necessary tensile strength, and yarns of wool to effect a felting of the warp at the splice and to prevent relative slippage of the spliced warps; and the filling of said fabric being composed of composite yarns formed of wool and vegetable fibers carded and spun together in which the wool content is from twenty percentum to sixty percentum by weight.

JOHN C. STANDISH.