

July 23, 1940.

G. A. NEVILLE
MECHANICAL FABRIC
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2,209,205

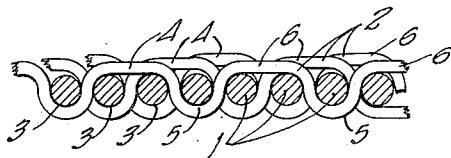


FIG. 2

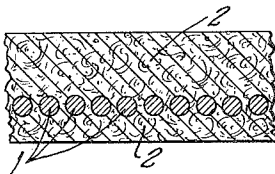


FIG. 1

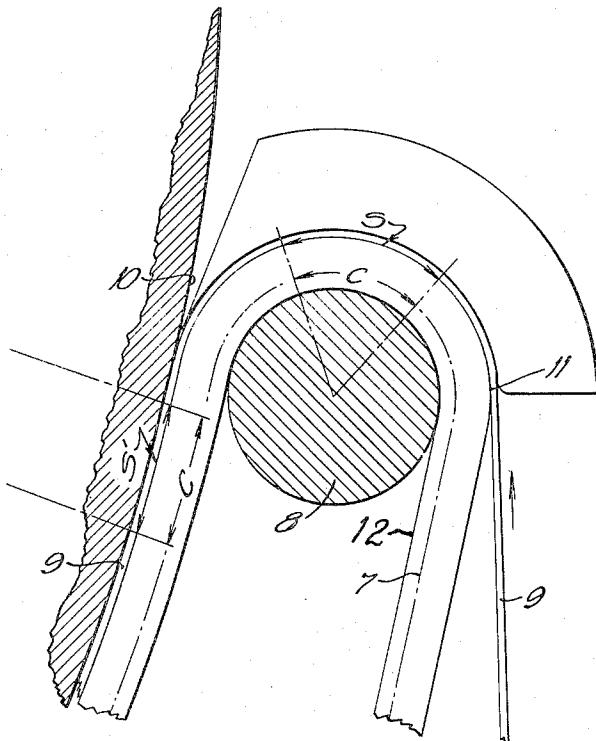
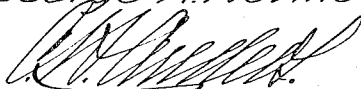


FIG. 3

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2,209,205

MECHANICAL FABRIC

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Application December 28, 1939, Serial No. 311,329

3 Claims. (Cl. 139—383)

My invention relates to mechanical fabrics and particularly to improvements in blankets for use on Sanforizing, pre-shrinking and Palmer machines.

5 The woolen blankets now used on machines of the above mentioned type comprise a plurality of warp cables having a filling of equal thickness on the opposite sides thereof. In other words, the warp cables are positioned in the center of the fabric. When such a blanket is used for shrinking, as for example on a Sanforizing machine, its shrinking capacity is determined by the thickness of the blanket or, perhaps more accurately stated, by the half thickness of the blanket. In other words, a heavy blanket is required for heavy shrinking and a light blanket for light shrinking.

Since the shrinking capacity depends upon the distance of the surface of the blanket from the central plane of the warp cables, I have found that it is possible to increase the effective shrinking capacity of a blanket of given thickness by so constructing it that the warp cables are disposed appreciably nearer one side of the fabric than the other. Thus, for example, a blanket only $\frac{3}{8}$ " thick may be given the same shrinking ability as a blanket $\frac{1}{2}$ " thick by placing the center of the warp cables $\frac{1}{4}$ " from one side of the blanket and $\frac{1}{8}$ " from the other side of the blanket. Furthermore, since the blanket may be reversed and either side used in contact with the fabric to be shrunk, a $\frac{3}{8}$ " thick blanket having the warp cables thus offset from the center will have a shrinking capacity on one side equivalent to that of a $\frac{1}{2}$ " blanket and on the other side a capacity equivalent to a $\frac{1}{4}$ " blanket.

In the drawing,

Fig. 1 is a fragmentary cross section of my improved type of blanket.

40 Fig. 2 is a fragmentary, diagrammatic cross section showing one way in which the filling yarns may be interwoven with the warp cables to produce a blanket having the filler on one side of the warp substantially thicker than on the other side thereof; and

45 Fig. 3 is a fragmentary diagrammatic sectional view of a Sanforizing machine.

Referring to the drawing, and particularly to Figs. 1 and 2, the warp cables are represented by the numeral 1 and the filling yarns are represented generally by the numeral 2. By running each of the filler yarns under one warp cable, as shown at 3, and over the next two warp cables, as shown at 4, and then repeating the procedure, as shown at 5 and 6, respectively, it will be evi-

dent that there is twice as much filler yarn above the warp threads as there is below. Such a blanket, after fulling and felting, will have the cross section shown in Fig. 1 in which $\frac{2}{3}$ of the filling lies above and $\frac{1}{3}$ lies below the central plane of the warp.

It is to be understood that my invention is in no sense limited to the particular weave which I have shown in Fig. 2 and which is merely for illustrative purposes, because it is only essential that the filler be substantially thicker on one side of the warp than on the other. The weave by which this result is accomplished is of no particular importance. For example, by weaving the filler yarns under one warp cable and over the next three cables, $\frac{3}{4}$ of the filler will be on one side of the warp and $\frac{1}{4}$ on the other side.

In Fig. 3 I have shown one of my blankets 12, having the center plane 7 of the warp cables offset from the center of the blanket so that $\frac{2}{3}$ of the filler is on one side, and $\frac{1}{3}$ of the filler is on the other side, of the warp. 8 is a small roll over which the blanket runs as a belt, 9 is the fabric to be shrunk and 10 is the surface of a larger roll or drum around which the blanket runs with the fabric 9 between it and the surface of the roll.

The fabric to be shrunk is fed to the blanket at 11 and is carried around the roll on the outside of the blanket. In passing around the roll 8 there is substantially no stretching of the warp cables 1, so that any length of warp C measured when the blanket is on the roll is the same as the length C after the blanket leaves the roll. However, when the blanket is on the roll, the filling on the radially outward side of the warp is stretched or extended while the filling on the radially inward side of the warp is compressed or shortened. The extent of the stretch increases with the distance from the warp. Thus, the length of the arc S measured on the surface of the blanket is greater than the length of the arc C measured in the center line of the warp, although when the blanket is planiform the distance between the ends of the arc C is equal to the distance between the ends of the arc S. It will therefore be apparent that when the fabric 9 is laid about the curved portion of the blanket on the roll 8 it is lying on a surface of the blanket which is stretched or extended. As the blanket with the fabric 9 thereon leaves the roll 8 and passes around the drum 10 that portion of the blanket which has been stretched on roll 8 returns to its original length and is, in fact, compressed to slightly less than its original

length due to the curvature of the surface of the drum 10. Thus, while the length of the arc C measured around the small roll 8 is the same as the arc C measured around the drum 10, the arc S measured on the roll 8 shrinks together with the fabric thereon, to the length of S' on the drum 10; the length of the arc S' being slightly less than the length of the arc C due to the fact that it has a shorter radius.

10 From the foregoing it will be apparent that by offsetting the warp cables and placing them nearer the side of the blanket which is away from the fabric being shrunk, the shrinking capacity of a blanket of any given thickness is substantially increased. In actual practice a 13¼ oz. blanket having my special offset warp construction has been found to shrink as much as a 16 oz. blanket of the regular type in which the warp cables are located in the center of the blanket.

20 Since blankets are sold by the pound, it follows that my lighter blanket with the same shrinking capacity as a heavier blanket of standard construction has a very definite advantage in initial and ultimate cost.

25 When the normal type of blanket becomes worn on one side its shrinkage capacity is so reduced that it must be turned. This procedure involves considerable expense and it is generally accepted that unless the turning is done with extreme care the blanket is usually damaged because, after the blanket has been used for some time the fibres become weak and brittle through the action of heat and moisture.

35 From the standpoint of imparting finish to the fabric being treated, my blanket has been found equal to the standard type and some users claim it produces a better finish. In any event, a standard blanket, when turned, is apt to give a poor finish until it has been used for some time since the second side normally has cracked to some extent through the action of the machine. Since it is not necessary in most instances to turn my blanket the problem of an unsatisfactory finish from the second side of the blanket is ordinarily eliminated.

45 The normal reason for removing a blanket from service is because the constant flexing over small rolls combined with the action of heat and

moisture weakens the warp cables until breakage occurs. In my blanket the warp cables are subjected to less strain than is the case in a standard type because they are nearer to the roll and are therefore stressed less in passing over the roll due to the smaller quantity of filler to be compressed between the warp and the rolls. Then, too, being further away from the center of the blanket the warp cables are not apt to retain as much moisture as those in the standard type and therefore retain their strength for a longer period of time.

What I claim is:

1. An endless shrinking blanket for use in Sanforizing, pre-shrinking and Palmer machines comprising a fabric of substantially uniform density throughout including warp cables and filling yarns, said fabric being felted and characterized by having the thickness of the felt on one side of said warp cables substantially greater than the thickness of the felt on the opposite side of said warp cables; whereby the shrinking capacity of a blanket of given weight is increased.

2. An endless shrinking blanket for use on Sanforizing, pre-shrinking and Palmer machines comprising a felted fabric of substantially uniform density throughout including a plurality of warp cables and filling yarns, and characterized by having said warp cables disposed substantially nearer one side of said blanket than the other; whereby the shrinking capacity of a blanket of given weight is increased.

3. An endless shrinking blanket for use on Sanforizing, pre-shrinking and Palmer machines comprising a felted fabric of substantially uniform density throughout having a plurality of interwoven warp cables and filling yarns; the weight of said filling yarns lying on one side of said warp cables being appreciably in excess of the weight of said filling yarns lying on the opposite side of said warp cables; whereby to provide a blanket having the thickness of the felt on one side of the warp cables appreciably greater than on the other side of said cables; whereby said blanket may be used for heavy shrinking and reversed for lighter shrinking.

GEORGE A. NEVILLE.

CERTIFICATE OF CORRECTION.

Patent No. 2,209,205.

July 23, 1940.

GEORGE A. NEVILLE.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, first column, line 29, for "1/6" "read --1/8"--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 24th day of September, A. D. 1940.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.