

[54] **METHOD OF AND APPARATUS FOR WET TREATING TEXTILE FABRICS**

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[51] **Int. Cl.**..... **B08b 3/08**

[58] **Field of Search**..... 8/137, 154, 157; 68/8, 68/43, 100

[56] **References Cited**

UNITED STATES PATENTS

3,391,552	7/1968	Lopata.....	68/8 X
3,643,474	2/1972	Schiffer.....	68/8

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[57] **ABSTRACT**

A method of and apparatus for wet treating textile fabrics according to which the fabrics are treated in an impregnating device and are subsequently wound upon a drum. While the fabrics are being wound upon the drum, weak lye solution is pumped upon or through the fabric upon the drum.

2 Claims, 2 Drawing Figures

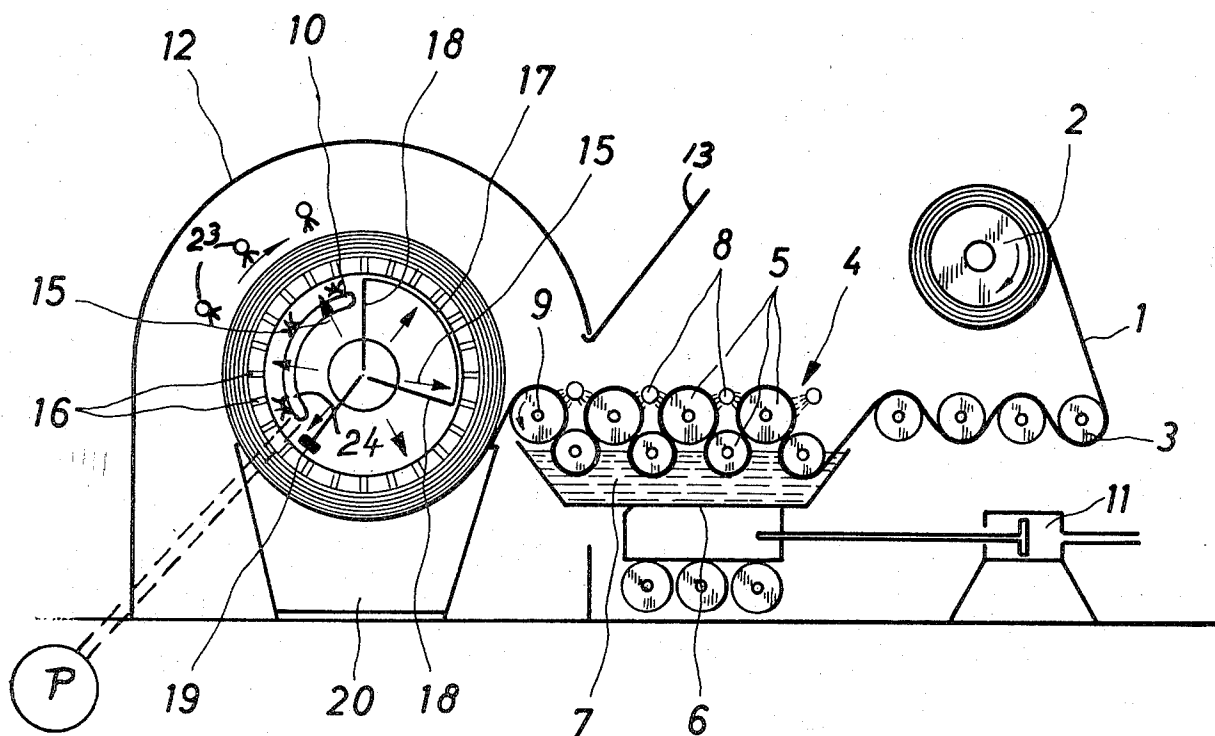


Fig.1

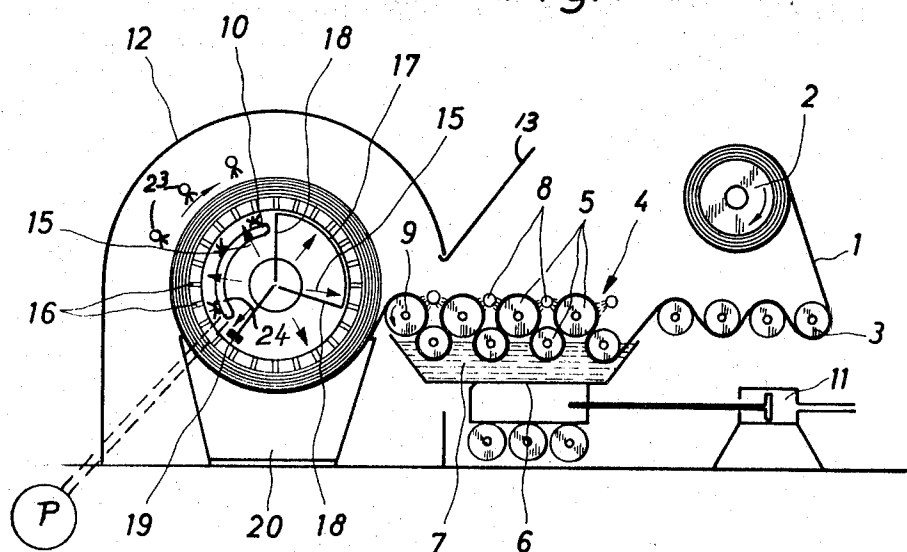
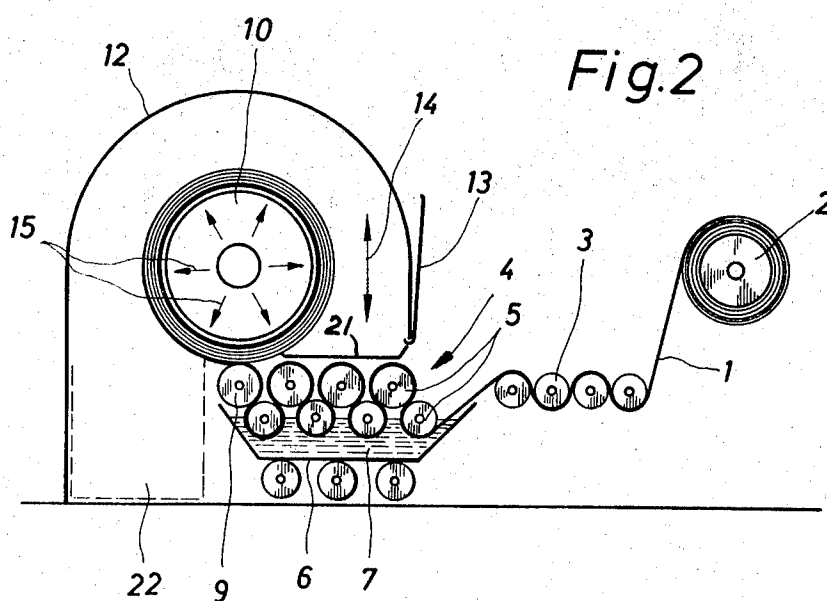


Fig.2



METHOD OF AND APPARATUS FOR WET TREATING TEXTILE FABRICS

The present invention relates to a method of and apparatus for wet treating textile fabrics, especially for mercerizing or boiling, according to which the textile fabrics are passed through an impregnating device having a plurality of rollers which are pressed against each other. When viewing in the direction of movement of the fabrics, the last one of said rollers is at uniform pressure pressed against the fabrics wound upon a perforated winding drum.

A method and apparatus of this type is disclosed in U.S. Pat. No. 3,643,474 Schiffer issued Feb. 22, 1972 belonging to the assignee of the present invention, according to which wet treatment of textile fabrics over a great width, especially for mercerizing or boiling and bleaching of small and medium quantities of textile fabrics, is to be made possible while, above all, the disadvantageous contraction or shrinkage of the fabrics during and after the impregnation is avoided. Contraction or shrinkage is prevented by immediately winding up the fabrics onto the winding drum after the fabrics have left the impregnation bath while simultaneously the last roller of the impregnating device is pressed against the fabrics wound upon the winding drum.

The winding drum is preferably arranged in a closeable chamber; means for feeding or supplying steam or fluid in the interior of the winding drum may be provided so that the steam or the fluid may be pumped through the fabric on the drum.

It is an object of the present invention to improve the above mentioned known method and apparatus.

This object and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawing in which:

FIG. 1 is a diagrammatic illustration of the arrangement according to the invention with a cover or guard in the interior of the drum.

FIG. 2 shows a side view of a further embodiment according to the invention.

The invention is characterized primarily in that, while winding up the impregnated fabrics upon the winding drum, weak lye solution is pumped onto or through the fabrics. In this connection the weak lye solution may have a maximum of 10° to 20° Be (Baume). Furthermore it is advantageous if the temperature of the weak lye solution is between 5° and 85°C.

It may be further provided, that the weak lye solution is only pumped onto or through a portion of the circumference of the drum.

The advantage of the proposed procedure according to the invention consists primarily in that a pumping through of the fluid, preferably weak lye solution, may be carried on already during a working cycle or operation, namely the winding up operation, thereby saving time in the treatment of the fabrics. Of greater significance on the other hand, however, is the fact that, by treating the fabrics during the winding up operation, in other words, immediately after leaving the impregnation bath, fabrics are intensively treated so that already the fabrics which have just been wound upon the drum are freed from the tendency to contract and thereby the wound up fabrics will not contract in width.

Experience has shown that the washing out of the strong lye solution, as impregnating agent, is advanta-

geous just at that time when the fabric length has left the impregnation bath of strong lye solution.

Referring now to the drawing in detail, the fabrics, web of goods, or the fabric length 1 to be treated are passed into the impregnating device 4 from a skein 2 by means of a width stretching device 3. The impregnating device 4 has a set of rollers 5, which are pressed against one another and, as shown in FIG. 1, may be vertically offset in relation to one another. The fabrics 1 are guided along a fixed path by means of the rollers 5, whereby shrinkage or contraction in width during impregnation with strong lye solution may already be effectively prevented. The lower rollers 5 in the impregnating device 4 may rotate entirely or partially in a container or trough 6 containing strong lye solution as impregnating agent, or may immerse partially or entirely in the fluid 7 of the trough 6. The fabrics 1 passed over the rollers 5 immersed in the fluid 7 take up for example strong lye solution and may additionally or in place thereof be impregnated on their other side by means of spraying devices 8.

The roller 9 of the impregnating device 4 is pressed against a drum 10 along a mantle line thereof. The textile fabrics 1 are wound directly upon the drum 10 after impregnation.

The roller 9 may be pressed against the drum 10 by means of a pneumatic, hydraulic or mechanical pressing apparatus 11 which engages the displaceable or slidable container or trough 6. If the rollers 5, 9 of the impregnating device 4 do not rotate in a trough 6 filled with fluid, but rather the textile fabrics 1 are impregnated with fluid by means of spraying devices 8, the rollers 5, 9 may be supported in a stand which is displaceable or slidable and which is engaged by the pressing apparatus 11. The apparatus 11 is so constructed, that it maintains a constant contact pressure between the roller 9 and the fabrics 1 rolled or wound upon the drum 10. In other words, the increase in the spacing between the roller 9 and the drum 10 corresponds to an increase in the diameter of the roll or winding.

The drum 10 is perforated and is provided with means for pressing steam or fluid from within the drum 10 outwardly through the wound or rolled up fabrics 1. The impregnated fabrics 1 wound upon the drum 10 may then be further treated by pumping, for example, weak lye solution into the interior of the drum.

FIG. 2 shows a further embodiment according to the invention. In this connection, the drum 10 is supported so as to be downwardly and upwardly adjustable in the direction of the double arrow 14. The impregnating device 4 has its last roller 9 arranged below the vertically adjustable drum 10, so that, by adjusting the height of the drum 10, the contact pressure of the roller 9 against the fabrics 1 wound or rolled upon the drum 10 may be kept constant by vertically adjusting the drum 10 in conformity with the increase of the diameter of the roll upon the drum 10. If desired, the contact pressure of the drum 10 against the roller 9 may be further increased by means of a pressing apparatus which acts upon the drum 10.

With the method according to the invention, weak lye solution is introduced into the interior of the drum 10 with both embodiments shown in the drawing. This weak lye solution is pressed or forced in the direction of the arrows 15 against the inner wall and through passages 16 of the drum 10. This pumping of the weak lye solution through the openings 16 and thereby through

the fabrics 1 wound upon the drum 10 takes place during the winding of fabrics 1 upon the drum 10. In order to prevent weak lye solution, which is pumped through the cloth or textile fabrics in the direction of the arrows 15, from reaching the container 6 which contains strong lye solution, various devices may be used, for example, such devices that permit a pumping of the weak lye solution through the rolled up fabrics 1 only upon a portion of the circumference of the drum. To this end, as shown in FIG. 1, an arched or curved plate means 17 may be provided in the interior of the drum 10, which plate means 17 is supported on a freely turning axle of the drum 10 by its struts or stays 18 which are engaged by a counterweight 19. Consequently, in view of being acted upon by the counterweight 19, the plate means 17 will, independent of the rotation of the drum 10, always remain in the position illustrated, in which the cross sectional quadrant above the roller 9 is so covered, that no weak lye solution can penetrate the fabrics 1 above the impregnation vessel 6. Accumulated weak lye solution may be collected in a container 20.

A shield having a chamber or compartment 12 with a door 13 may be provided around the drum 10. Thus, if necessary, the trough 6 may be removed from the chamber 12 by means of the device 11 shown in FIG. 1; and after the complete rolling up of the fabrics 1 upon the drum 10, the rinsing with weak lye solution may continue.

According to the embodiment shown in FIG. 2, it is provided by a vat or pan 21 that the weak lye solution, which is pumped through the walls of the drum 10 and through the fabrics 1 upon the drum 10, not reach the impregnating trough 6.

If necessary, a direction of rotation of the drum 10 which differs from that of the drawing may be provided. Thus, for example, with the embodiment of FIG. 2, the direction of rotation of the drum 10 may be counterclockwise, in which connection a vat 22 is arranged to the left next to the roller 9 of the impregnating device 4. If necessary, those rims of the pans, vats, or containers 20, 21, 22 which are adjacent to the fabrics 1 of the drum 10 may be equipped or provided with wiper-like devices.

While it is possible to press the steam or fluid through the fabrics 1 upon or through the drum 10 in any convenient manner, such pressing or pumping through action may satisfactorily be carried out by means of spraying or pumping means 23, 24 as shown in FIG. 1.

It is, of course, to be understood that the present invention is by no means limited to the specific showing in the drawing but also comprises any modifications within the scope of the appended claims.

What I claim is:

1. A method of wet treating textile fabrics, especially for mercerizing and boiling, which includes the steps of impregnating said fabrics; winding up the impregnated fabrics into a roll in which pressure is exerted upon the fabric; and applying a lye solution having a maximum of 10 to 20 Be (Baume) so that the lye solution passes onto or through the roll of fabric; and the lye solution having a temperature of 5° to 85°C.

2. A method of wet treating textile fabrics according to claim 1, in which said weak lye solution is applied to only a section at a time of fabrics being wound up into a roll.

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