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FINISHING OF FABRICS

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Fig-1.

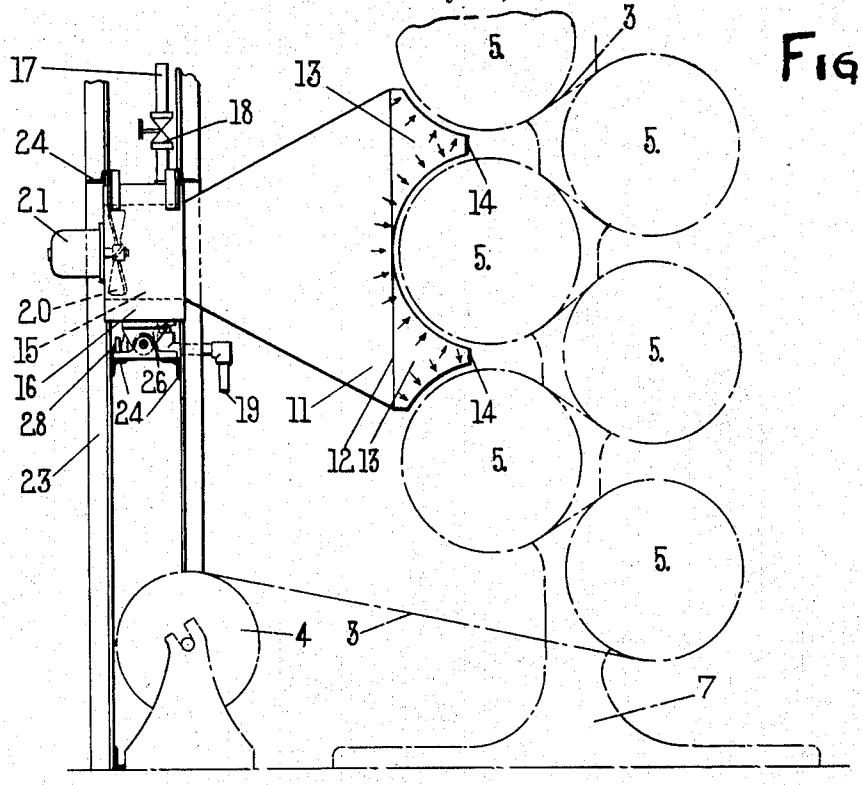
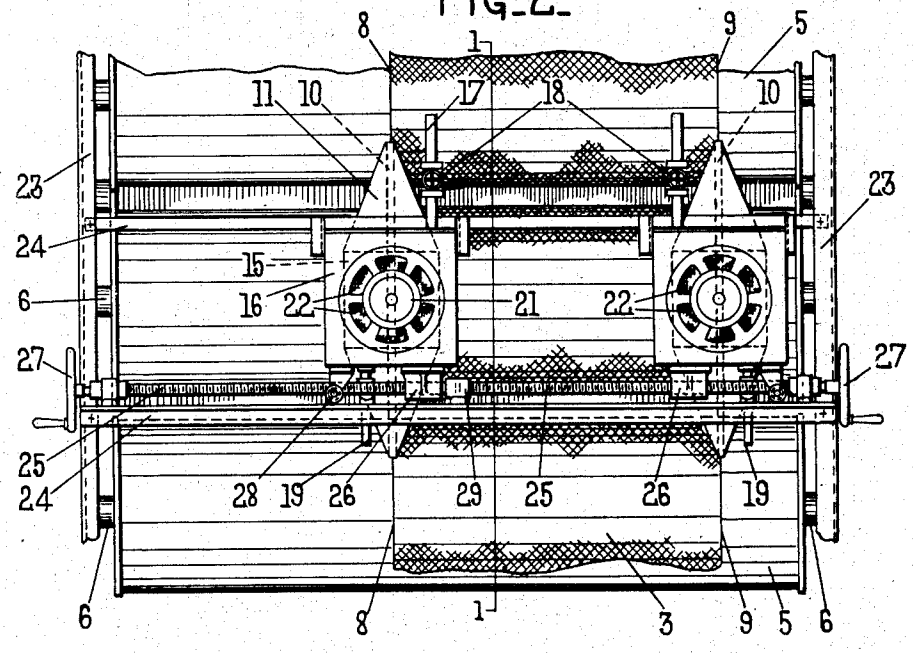


Fig-2.



ALBERT MELLOR
RALPH J. MANN
INVENTORS

ATTORNEYS

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FINISHING OF FABRICS

Albert Mellor and Ralph James Mann, Spondon, near Derby, England, assignors to Celanese Corporation of America, a corporation of Delaware

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11 Claims. (Cl. 26—60)

This invention relates to the finishing of fabrics, and in particular to the drying and stretching of fabrics.

Woven fabrics contract in width in scouring, washing, and like processes and in order to restore them to their woven width, it is usual to subject them, after they have been more or less dried, to the stretching operation generally known as stentering. Thus the fabrics may be partially dried by passing them over a series of steam heated hollow drums, and then passed to the stentering machine, where they are stretched to their original width.

The devices on the stentering machine for stretching the fabric usually consist of two travelling rows of clips which grip the fabric at its selvedges and pass along guides which cause the distance between the two rows of clips to increase, thereby pulling the fabric in the direction of its width.

In some cases it so happens that if the fabric is not wholly dried when it passes off the heated rollers, pressure marks are made on the selvedges of the fabric by the clips of the travelling chains of the stentering machine. This is seen more particularly in fabrics containing cellulose acetate, on which the clips leave glazed marks should the selvedge of the fabrics not be thoroughly dry.

The object of the present invention is to enable fabrics, and particularly fabrics made of or containing cellulose acetate or other cellulose derivatives, to pass through the above mentioned operations without there being any possibility of glazed clip marks being made on the fabric.

According to the invention special provision is made for the drying of the fabric selvedges during the drying of the fabric on heated drums or like devices, the selvedges being dried by the application of a drying atmosphere to the selvedges so that the stenter clips engage dry parts of the fabric when it proceeds from the drying drums or the like to the stentering machine.

The drying atmosphere to be directed on to the selvedges may be drawn through a fan and passed through a heating device, being led thence through ducts to impinge on the selvedge. The two ducts may be supplied from a single blower, or separate blowers may be provided to supply the drying atmosphere to the two ducts. The ducts may be shaped to follow the periphery of one or more drums, so that the selvedge drying is effectively carried out with a low quantity of drying atmosphere. This atmosphere (usually air) is preferably heated.

Means may be provided whereby one or both ducts supplying heated atmosphere to the selvedges can be moved across the width of the drying drums so as to accommodate various widths of fabric.

The invention will now be described in detail with reference to the accompanying drawing, but it is to be understood that this description is given by way of example only and is in no respect limitative.

Fig. 1 is a side elevation in part section on the line 1—1 of Fig. 2 of the fabric-drying apparatus according to the invention.

Fig. 2 is a front elevation of the drying machine shown in Fig. 1.

A fabric 3 is batched on a roller 4 and led from the roller 4 to a series of steam heated drums 5 mounted on shafts 6 carried by a frame 7. The rate at which the drums rotate and the temperature to which they are raised is regulated so that the fabric is not quite dried on leaving the drums.

The selvedges 8, 9 of the fabric, however, are completely dried by directing a current of heated air on to each selvedge through a slot-like orifice 10 in a duct 11, the duct 11 being arranged to converge to the width of the slot 10 along line 12 while the portions 13 of the duct are shaped to follow the contour of the drying drums. The portions 14 of the slot lying between the drums are closed to prevent the heated air from passing directly between the drums.

Each of the slotted ducts 11 is connected to an air heating chamber 15 surrounded by a steam jacket 16 which is supplied with steam through a pipe 17 and valve 18. The steam, in heating the air passing through the chamber 15, condenses in the jacket 16 and is drained away by a drain 19. The air is supplied to the chamber 15 by means of a fan 20 driven by an electric motor 21, the air entering the chamber by openings 22 screened with wire gauze as shown in Fig. 2.

The whole assembly of duct 11, heater 15, 16, fan 20 and motor 21 is slidably mounted on carrier frame-work 23 having cross bars 24 extending across the width of the drums 5. In order that the selvedge-drying devices may be positioned in accordance with the width of the fabric 3 being dried, a spindle 25 is provided in connection with each device, the screw threads of the spindle engaging a nut 26 on the fan and heater assembly. A suitable wheel 27 is provided at each end of the machine for the operation of the spindle 25 whereby the fan and heater assembly is moved along the carrier, running on

wheels 28 provided for the purpose. The traverse of each nut 26 is limited by a stop 29 which forms an end bearing for each of the spindles 25.

The dried fabric is passed from the drums 5 to a stenter where the now completely dried selvedges 8, 9 are gripped by the clips of a pair of travelling chains which are guided away from each other to stretch the fabric to the required width.

The travelling chains are traversed along the races at a speed corresponding to the speed at which the fabric 3 is passing over the drums 5 of the drier. The fabric on being released by the clips is batched on to another piece roller.

During stentering the fabric may be subjected to the action of a drying or conditioning atmosphere.

What we claim and desire to secure by Letters Patent is:—

1. Drying apparatus for preparing damp fabric for engagement by the selvedge-gripping devices of a stentering machine comprising, in combination, drying drums over which the fabric is caused to pass and means for directing a drying atmosphere against the selvedges only of the fabric so as to complete the drying of said selvedges whilst the remainder of the fabric remains damp.

2. In fabric drying apparatus, the combination with drying drums around which the fabric is passed, of means for directing a narrow stream of drying atmosphere onto each of the selvedges of the fabric whereby when the fabric is discharged from the drying apparatus only the selvedges of the fabric are completely dried.

3. In fabric drying apparatus, the combination with drying drums around which the fabric is passed, of means shaped to follow the periphery of at least one of said drying drums for directing a narrow stream of drying atmosphere onto each of the selvedges of the fabric.

4. In fabric drying apparatus, the combination with drying drums around which the fabric is passed, of means shaped to follow the peripheries of a plurality of said drying drums for directing a narrow stream of drying atmosphere onto each of the selvedges of the fabric.

5. In fabric drying apparatus, the combination with drying drums around which the fabric is passed, of ducts shaped to follow the periphery of at least one of said drying drums for directing a narrow stream of drying atmosphere onto each of the selvedges of the fabric and means for moving at least one of said ducts whereby said apparatus is enabled to accommodate fabrics of different widths.

6. Method of treating damp fabric, which comprises completely drying the selvedges only of the fabric and then passing the fabric to a stentering machine, the drying of the selvedges preventing damage to the fabric by the selvedge-gripping devices of the stentering machine.

7. Method of treating damp fabric, which comprises completely drying the selvedges only of the fabric by directing a drying atmosphere against them, and then passing the fabric to a stentering machine, the drying of the selvedges preventing damage to the fabric by the selvedge-gripping devices of the stentering machine.

8. Method of treating damp fabric, which comprises partially drying said fabric by the uniform application of heat thereto and completely drying the selvedges only thereof and then passing the fabric to a stentering machine, the drying of the selvedges preventing damage to the fabric by the selvedge-gripping devices of the stentering machine.

9. Method of treating damp fabric, which comprises partially drying said fabric by the uniform application of heat thereto and completely drying the selvedges only thereof by the local application to them of a drying atmosphere and then passing the fabric to a stentering machine, the drying of the selvedges preventing damage to the fabric by the selvedge-gripping devices of the stentering machine.

10. Method of treating wet fabric containing cellulose acetate, which comprises subjecting the fabric to a drying operation in which only the selvedges of the fabric are completely dried and then passing the fabric to a stentering machine, the drying of the selvedges preventing damage to the fabric by the selvedge-gripping devices of the stentering machine.

11. Method of treating wet fabric, which comprises subjecting the fabric to a drying operation, directing a narrow stream of drying atmosphere on to the selvedges of said fabric so that the said selvedges only are completely dried and then passing the fabric to a stentering machine, the drying of the selvedges preventing damage to the fabric by the selvedge-gripping devices of the stentering machine.

ALBERT MELLOR.
RALPH JAMES MANN.