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(54) Apparatus for continuously reducing the weight of fabrics of polyester fibers with alkali.

(57) An apparatus, for continuously reducing with alkali the weight of fabrics of polyester fibers, comprises, in series:

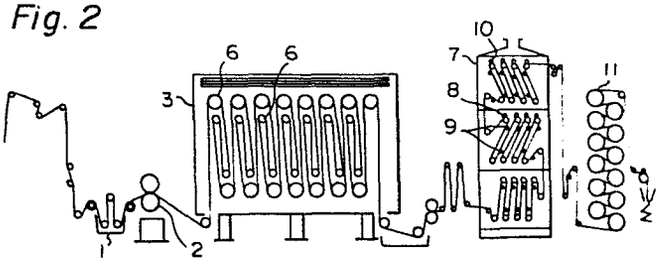
a padder (1, 2) for uniformly applying an alkali solution, that serves as a hydrolyzing agent, to the fabrics;

a steamer chamber (3), having a temperature of 100°C to 125°C, for promoting the hydrolysis of fabrics impregnated with the alkali solution;

a machine (7) for washing the fabrics with water in order to remove hydrolyzed products from the fabrics; and

a device for drying the fabrics (11).

Fig. 2



EP 0 069 436 A1

APPARATUS FOR CONTINUOUSLY REDUCING THE WEIGHT OF FABRICS OF POLYESTER FIBERS WITH ALKALI

BACKGROUND OF THE INVENTION

The present invention relates to an apparatus consisting of a series of devices for continuously reducing the weight of nitted and woven fabrics of polyester fibers in a spread state.

Up to the present time, the weight of fabrics has been reduced with alkali using the hanged scouring method, or by using a winch, a high-pressure dyeing machine or a jet dyeing machine. All such methods, however, are batchwise processes. Therefore, the hand of the products treated with alkali varied greatly, depending upon the batch, or varied greatly even in the same batch; i.e., the quality of the products are extremely varied. Further, the preparation step involves complicated manual operations, presenting serious problems in regard to the produceability and the processing time.

SUMMARY OF THE INVENTION

The inventors of the present invention have conducted serious studies to solve the above-mentioned problems, and have arrived at the present invention. According to the apparatus of the present invention for continuously reducing the weight of fabrics of polyester fibers with alkali, problems inherent in the above-mentioned batchwise processes can be completely eliminated, and products having excellent and uniform qualities are produced highly efficiently.

According to the present invention, there is provided an apparatus for continuously reducing the weight of fabrics of polyester fibers with alkali, which comprises, in series:

a padder for uniformly applying an alkali solution, that serves as a hydrolyzing agent, to the fabrics;

a steamer chamber, having a temperature of 100°C

to 125°C, for promoting the hydrolysis of fabrics impregnated with the alkali solution;

a machine for washing the fabrics with water in order to remove hydrolyzed products from the fabrics; and

a device for drying the fabrics.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a plan view schematically illustrating an apparatus according to an embodiment of the present invention; and

Fig. 2 is a side view schematically illustrating the apparatus of Fig. 1.

DESCRIPTION OF PREFERRED EMBODIMENT

The invention will be further described below in conjunction with the accompanying drawings.

Fig. 1 is a plan view schematically illustrating the apparatus according to an embodiment of the present invention, and Fig. 2 is a side view showing the apparatus of Fig. 1.

In the drawings, reference numeral 1 denotes a vessel, containing an alkali solution, into which fabrics are dipped, and 2 denotes nip rolls made of a rubber. The fabric to be treated is imersed in the alkali solution in the vessel 1, and is nipped through the rolls 2 so that it is impregnated with the alkali solution at a desired pick-up. A steamer chamber 3 accommodates indirect steamer pipes 4 for preventing the formation of dew on the ceiling, direct steamer pipes 5 for adjusting the temperature, and large and small feed rolls 6 for conveying the fabric when it is spread out. In the steamer chamber 3, the temperature can be suitably adjusted over a range of 100°C to 125°C. The fabric, which is hydrolyzed as it goes through the steamer chamber 3 and the weight of which is reduced with alkali, is then introduced into a vessel 7 containing water for washing the fabric, wherein the hydrolyzed products contained in the fabric are removed in a plurality of stages by washing the fabric with water. Feed rolls 8 and squeezing guide bars 9 are provided in the

vessel 7, and holder rolls 10 are disposed on the feed rolls 8 to squeeze the fabric by nipping. The fabric, coming from the vessel 7, is then dried as it goes through an oridnary drying machine 11 made up of cylinders.

CLAIMS

1. An apparatus, for continuously reducing with alkali the weight of fabrics made of polyester fibers, comprising, in series:

a padder for uniformly applying an alkali solution, that serves as a hydrolyzing agent, to the fabrics;

a steamer chamber, having a temperature of 100°C to 125°C, for promoting the hydrolysis of fabrics impregnated with the alkali solution;

a machine for washing the fabric with water in order to remove hydrolyzed products from the fabrics; and

a device for drying the fabrics.

2. An apparatus according to claim 1, wherein the padder is comprised of a vessel, into which fabrics are dipped, and nip rolls.

3. An apparatus according to claim 1, wherein the steamer chamber is provided with indirect steamer pipes and direct steamer pipes.

4. An apparatus according to claim 1, wherein the machine for washing the fabrics with water comprises a plurality of washing stages.

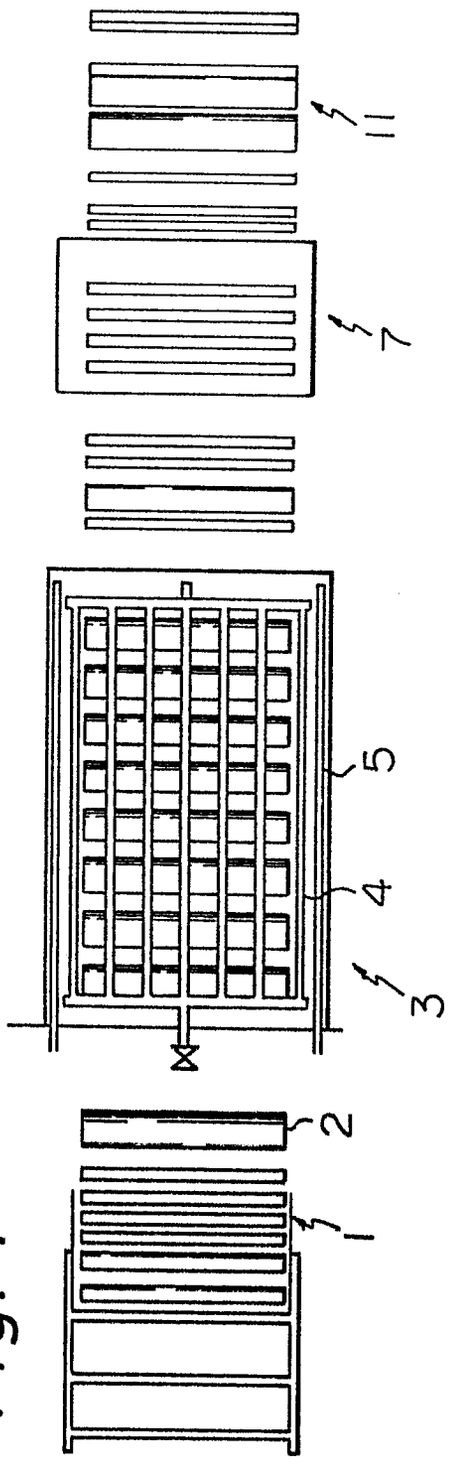


Fig. 1

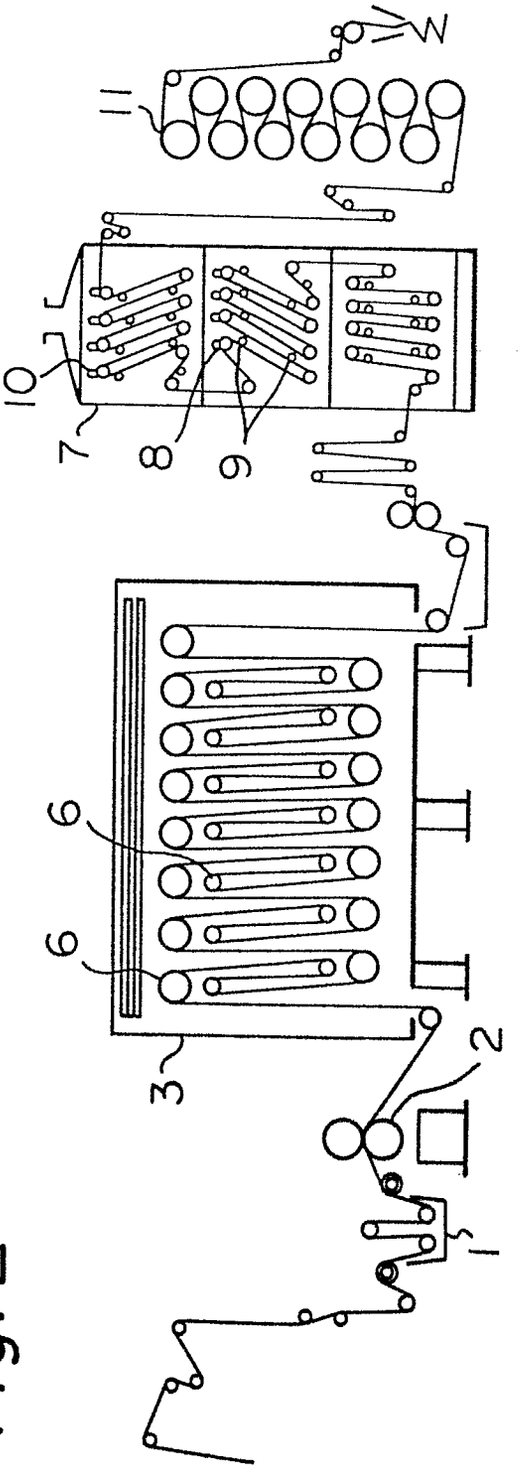


Fig. 2

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EUROPEAN SEARCH REPORT

Application number

EP 82 30 0691

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
X	FR-A-2 313 493 (J.P.STEVENS) *The whole document* & US - A - 4 008 044	1,2,4	D 06 B 19/00
Y		3	

Y	US-A-3 967 473 (ARIOLI) *The whole document*	3	

TECHNICAL FIELDS SEARCHED (Int. Cl. ³)

D 06 B
D 06 M

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	30-09-1982	PETIT J.P.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
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