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Schuierer

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[54] **APPARATUS FOR WET TREATMENT AND SUBSEQUENT DRYING OF A TEXTILE WEB**

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Related U.S. Application Data

[62] Division of Ser. No. 125,177, March 17, 1971, Pat. No. 3,730,679.

[30] **Foreign Application Priority Data**

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[52] **U.S. Cl.** **68/20**
[51] **Int. Cl.** **B05c 9/14**
[58] **Field of Search** ..... 8/130.1, 142, 149.1, 151, 8/152; 68/19, 19.1, 20, 177, 205 R; 26/18.5, 19

[56] **References Cited**

UNITED STATES PATENTS

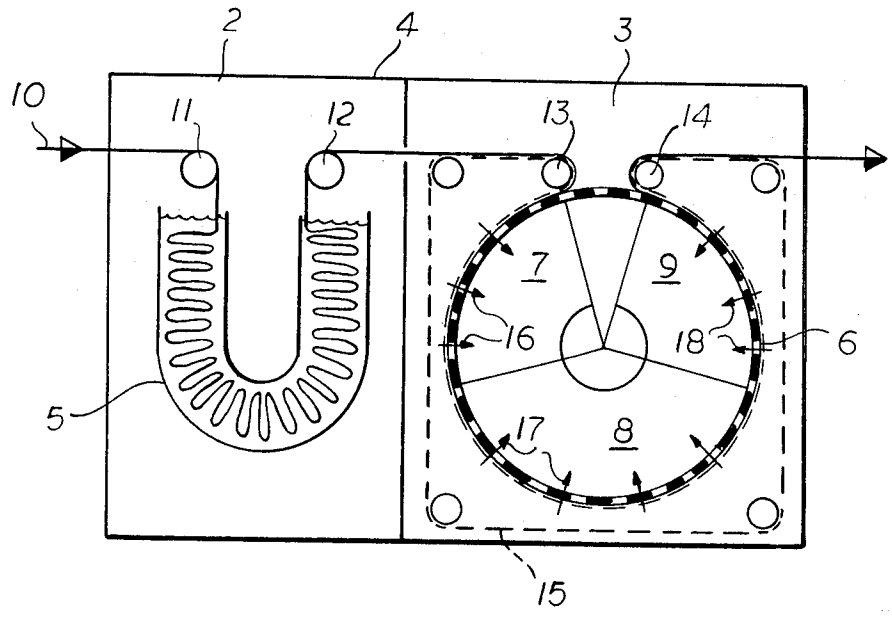
2,080,635	5/1937	Schramek et al.	68/205 R
2,817,227	12/1957	Eriksson	68/20
3,235,932	2/1966	Jones	26/18.5
3,330,015	7/1967	Sieber	26/19
3,528,763	9/1970	Runton	8/149.1 X
3,677,038	7/1972	Hartman et al.	68/20

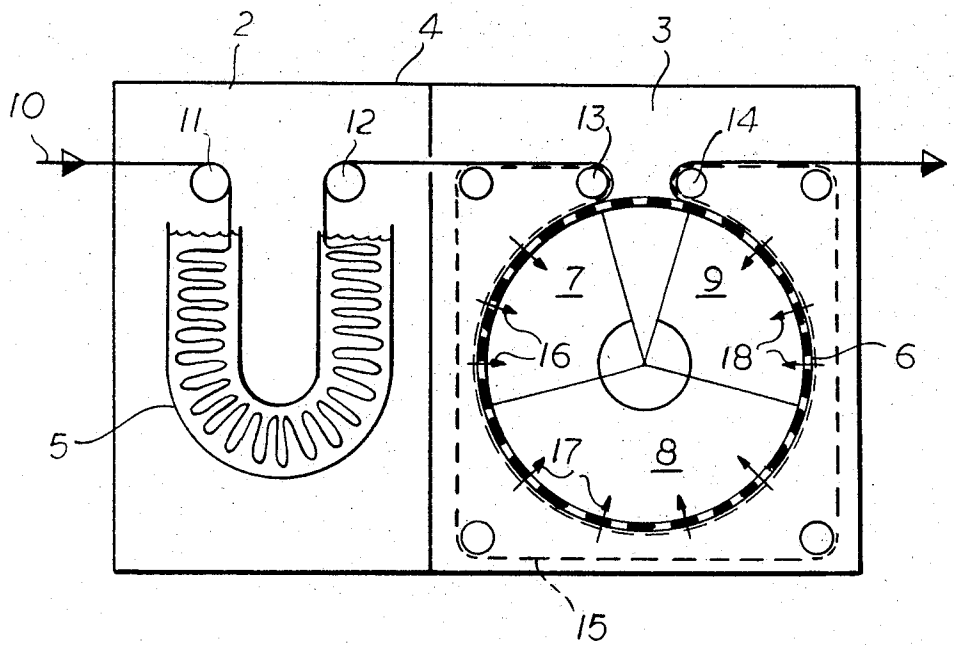
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[57] **ABSTRACT**

A process for wet treatment of fabric web including steps of washing and shrinking, liquid removal, drying, and airing, in which shrinking takes place during the washing before the web is laid evenly on transport means for drying. Apparatus for carrying out the process provides essential treatment stations and drum transport means for conveying the web to be treated through each of the successive stages of treatment.

4 Claims, 1 Drawing Figure




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APPARATUS FOR WET TREATMENT AND SUBSEQUENT DRYING OF A TEXTILE WEB

BACKGROUND OF THE INVENTION

This is a division of application Ser. No. 125,177, filed Mar. 17, 1971, now U.S. Pat. No. 3,730,679.

This invention relates to an apparatus for wet treatment of a textile web with an organic solvent and also to subsequent drying of the textile web with a hot air stream.

It is known to wash textile webs in aqueous baths and subsequently, after squeezing out part of the adhering washing liquid if necessary, to dry the web by means of a hot air stream. Since the web shrinks to a greater or lesser extent during the drying process, separate transport means were usually provided for the textile web in the washing and drying zones respectively. Such equipment involved considerable expense and required a large amount of floor space.

In the manufacture of fabrics of high elasticity, it is furthermore known first to pass the web through a shrinking bath and subsequently to lay it in folds on a mesh belt, on which the actual shrinking of the web takes place. A disadvantage of the procedure is that the web must be laid on the mesh belt in folds, which under certain circumstances can lead to undesired blemishes on the web.

The object of this invention is to provide an improved apparatus wherein the textile web can shrink unhindered in the wet treatment zone and wherein a relatively simple transport means through the drying zone is used.

According to the present invention an apparatus for wet treatment of a textile web with an organic solvent and subsequent drying of the textile web with a hot air stream is characterized in that the textile web is first completely washed and shrunk in hot solvent, and is then laid evenly on a web transport means through which air can pass, said transport means conveying the textile web through a further processing zone.

Whereas formerly shrinking of the web took place during the hot air drying stage, in the apparatus of this invention, the shrinking takes place earlier during the washing process. It has been ascertained by experiment that with a hot organic solvent (for example with chlorinated hydrocarbons, such as perchlorethylene and dichlorethylene) having a boiling point greater than 100° C, complete shrinking of the web can be obtained without any further shrinking with later wet or dry treatment.

Because the shrinking process now takes place at an earlier stage in the treatment of the web than previously, the fully shrunk textile web is laid evenly on the web transport means. Consequently, the textile web can now be layed evenly on the transport means such that undesirable blemishes occuring during the drying process are avoided.

The web transport means preferably comprises a suction drum with the shrinking process preferably taking place in a trough of hot solvent.

BRIEF DESCRIPTION OF THE DRAWING

These and other aspects of the invention will be more apparent from the following description, in which:

The FIGURE illustrates a longitudinal section of an apparatus for carrying out the process according to the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the FIGURE there is shown an apparatus comprising two chambers **2** and **3** in a common housing **4**, of which chamber **2** defines a washing and shrinking zone and chamber **3** defines a solvent removing and drying zone. The chamber **2** includes a bath **5**, for example of a U-shaped trough, which is filled with a hot organic solvent.

A perforated drum **6** is provided in the chamber **3** and is divided into three sectors **7, 8,** and **9,** each sector having a peripheral zone in contact with the textile web **10.** Rollers **11, 12, 13,** and **14** serve to guide the textile web **10.** In the region of the perforated drum **6,** two tenter chains **15** (indicated as a dotted line) engaging respective edges of the textile web **10** may be provided.

In operation, the textile web **10** first freely passes through the trough **5** for a sufficient time that it can shrink freely and completely. The web then passes to the perforated drum **6** and the solvent is first mechanically removed by a suction air stream (indicated at **16**) in the sector **7.** In the following sector **8** the textile web is then dried by a hot air stream (indicated at **17**). Said hot air stream is supplied by heating means adjacent sector **8** of the drum **6** (not shown). In the third sector **9** the textile web is aired by a clean air stream (indicated at **18**) which removes any solvent remaining in the web.

What is claimed is:

1. Apparatus for wet processing of a textile web with an organic solvent, comprising:

means for washing and shrinking the textile web with a liquid;

liquid removal means for removing the liquid from the textile web after washing and shrinking;

drying means for drying the textile web after removal of the liquid therefrom;

airing means for airing the textile web after drying;

transport means for progressively conveying the textile web to be treated from the washing and shrinking means through the airing means, and

the transport means comprises a perforated air suction drum.

2. Apparatus as claimed in claim **1** wherein the liquid removal means, the drying means, and the airing means are disposed about the periphery of the perforated drum.

3. Apparatus as claimed in claim **1** wherein a pair of tenter chains is provided in the vicinity of the perforated drum to hold respective edges of the textile web.

4. Apparatus as claimed in claim **1** wherein the liquid removal means comprises a suction source disposed within a sector of the drum for drawing a stream of air downwardly through the drum surface and the textile web carried about that sector of the drum so as to remove the liquid from the textile web.

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