

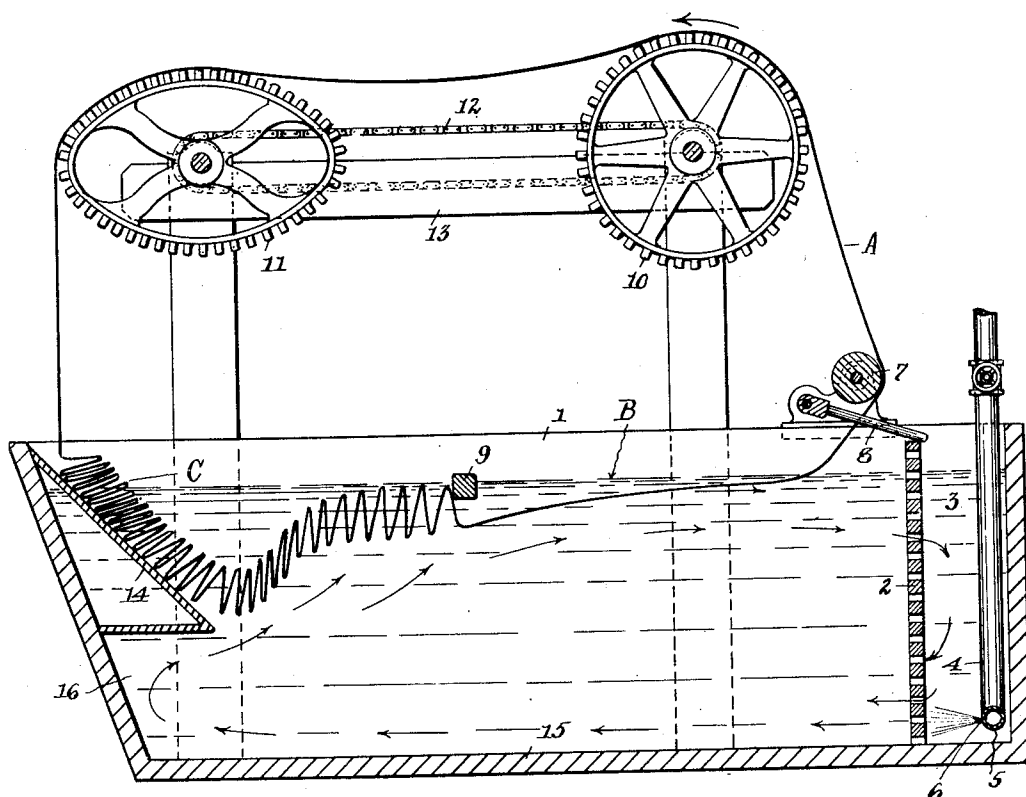
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APPARATUS AND METHOD FOR TREATING FABRICS WITH LIQUID

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WITNESS

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APPARATUS AND METHOD FOR TREATING FABRICS WITH LIQUID.

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In the use of a very common type of dye-beck for dyeing silk and other fine fabrics a number of pieces of the goods are stitched together to form an endless "rope" and this is continuously passed through the liquor in the dye-beck vat or "box" by means including an overhead reel which is elliptical in form and therefore deposits the goods in the liquor in pleats or reverse folds and in a stack which rests on the bottom of the vat and against one end wall thereof, which is inclined outwardly enough to insure against the stack toppling over inwardly. The consequence is that the goods are pulled out from under the stack, pleat after pleat, and the incidental friction causes streaks to appear in the goods, especially of the plain or unfigured kinds, for which as spoilage the dyer has to account—in a sizable dyeing plant, running into many thousands of dollars per year of loss. By considerable practice of the invention herein set forth I have found that I can entirely eliminate this fault.

The drawing shows in longitudinal section an apparatus constructed in accordance with the invention, and this, as shown serving merely as an example, I shall now describe:

The box or vat 1 has at one end a perforated vertical partition 2 to form a space 3 in which the dyer deposits the dye-stuff and in which is contained a steam pipe 4 whose horizontal portion 5 has jet outlets 6 preferably opening horizontally toward the opposite end of the vat. It also has a roller 7 around which each rope A to be treated (usually a number of them) extends and a rake 8 whose tines separate the ropes as they leave the vat. It also has, more or less near the center of the vat and preferably at such level that the ropes in passing under it, as shown, must pass through the liquor in the vat (whose level is indicated at B), a transverse horizontal bar 9. So much is all according to the usual construction, as is also the means shown for continuously passing the endless ropes A through the liquid, consisting of the reels 10 and 11 here intergeared by sprocket-and-chain means 12 and journaled in the superstructure 13 and suitably driven, reel 11 being elliptical as usual so as to form pleats C in the ropes as it delivers them down into the vat. The following is a novel feature in a vat or box for an apparatus of this class:

The vat or box has a pleat guide 14 which is beneath that part of each rope A that is pendant from and is being delivered by reel 11 and

which is sloped downwardly (mostly if not altogether submerged) toward the end of the vat having the space 3 and at an angle approximating 45 degrees from the vertical, and which preferably is spaced from the floor 15 of the box, so that it forms an overhang and affords beneath it a recess 16 occupied by the liquor in the vat. In previous dye-becks the pleat guide (formed by the end wall, as 16, of the vat) was inclined at only about the angle shown—20 degrees from the vertical.

In considerable practice of the apparatus as I have shown it in the accompanying drawing there is no sinking of the succession of pleats as a unitary mass or stack to the bottom of the vat in a manner to press the lowermost pleat against the vat bottom, but the succession of pleats (now permitted to be influenced more as individuals by the flotative action) become positioned and follow a course more or less like the drawing shows, and in consequence the goods come from the treatment without any vestige whatever of streaking. In the construction actually shown, this is in part due to the inclination of the guide 14 at not less than 45 degrees from the vertical and in part due to causing the flow of the liquid (see the arrows) against the succession of pleats and in the direction in which the fabric is drawn through the liquid,—the result in the present instance of forming the pleat guide as an overhang. (The direction of the flow may be an incident of the direction—illustrated—of jets, as 6, or of the mere advance of the fabrics through the liquid, or both).

Of course my invention applies in other treatments, as washing, etc., where textile materials are entered lengthwise in a succession of pleats into the liquid in a liquid vat and then drawn through the liquid.

Having thus fully described my invention, what I claim is:

1. Apparatus for treating textile material comprising a vat containing a liquid, a guide disposed in said vat, means for feeding the material in a succession of pleats down into the liquid and causing such succession to travel upon said guide downwardly through the liquid, said guide being of said construction as to form a constricted circulating passage, means for causing the liquid to flow through said passage and against the lower portion of the descending column of pleats so as to support the same and to urge it upwardly in the liquid, and means for drawing

the material from the pleats while thus suspended through and upwardly from the liquid.

2. The method of treating textile material which consists in introducing the material in a succession of pleats into a liquid, guiding such succession downwardly into the liquid, causing the liquid to support the lower portion of the descending column of pleats and to urge same upwardly, and drawing the material from the pleats while thus suspended through and upwardly from the liquid.

3. The method of treating textile material which consists in introducing the material in the form of a succession of pleats into a liquid, guiding such succession of pleats upon a support downwardly through the liquid, causing the liquid to support the lower por-

tion of the descending column of pleats and to urge same upwardly, and drawing the material from the pleats while thus suspended through and upwardly from the liquid.

4. The method of treating textile material which consists in introducing the material in a succession of pleats into a liquid, guiding such succession of pleats upon a support downwardly through the liquid, causing the liquid to flow against the lower portion of the descending column of pleats in such manner as to support the same and to urge it upwardly in the liquid, and drawing the material from the pleats while thus suspended through and upwardly from the liquid.

In testimony whereof I affix my signature.

CHARLES P. COLE, Sr.