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W. L. CONRAD

APPARATUS FOR TREATING TEXTILE MATERIALS

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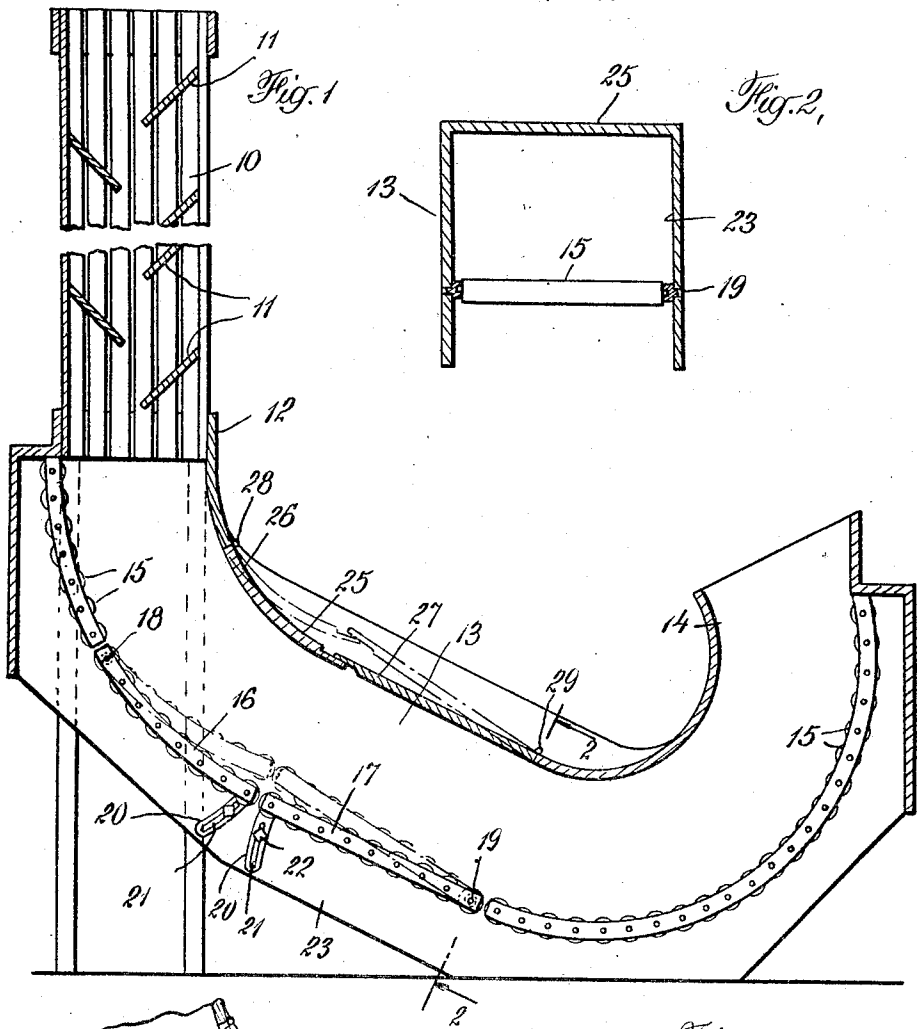


Fig. 1

Fig. 2

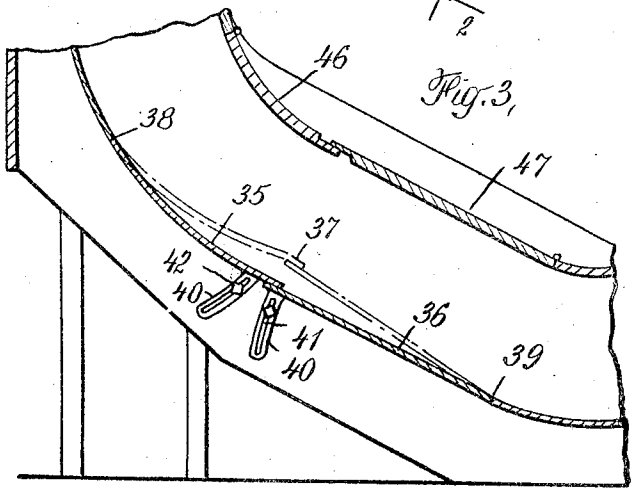


Fig. 3

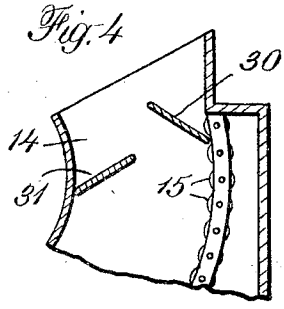


Fig. 4

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APPARATUS FOR TREATING TEXTILE MATERIALS.

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To all whom it may concern:

Be it known that I, WILLIAM L. CONRAD, a citizen of the United States, and a resident of Boston, county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Treating Textile Materials, of which the following is a specification.

This invention relates to apparatus for treating textile material and more particularly to a stack or piling device in which the material either in open width or rope form may be treated by a dyeing, bleaching or other solution, in continuous lengths. An apparatus of this character is disclosed in Patent #911,560 Gantt granted February 2, 1909. In this type of apparatus the material enters the device through a stack or a substantially vertically disposed shaft which communicates at the bottom with an inclined chamber or chute having its delivery end turned or curved upwardly. The material introduced into the shaft or stack is delivered to the receiving end of the chute and as the pile in the stack increases the accumulated material will by its own weight be carried forward and upward through the chute and at the place of delivery the end of the material introduced into the stack will first leave the chute and may be withdrawn freely without tangling. The chute may be water-tight and, if desired, a solution may be caused to circulate therein.

It has been found that when the material is saturated with the treating liquor when entering the stack the weight of the accumulated material is sometimes so great that the material will pass through the chute before the liquor has had sufficient time to act upon it. For this reason it is desirable under some circumstances to retard the progress of the textile material through the chute.

This invention has for its salient object, therefore, to provide an apparatus of the character described in which the rate of passage of the material through the apparatus can be varied to suit conditions and can be retarded if it is found that the liquor does not sufficiently act upon the material being treated.

Another object of the invention is to provide an apparatus of the character described in which the support for the material is so constructed that the material can be caused to pass through the apparatus in an undulating path thereby retarding its progress.

Further objects of the invention will appear from the following specification taken in connection with the drawings, which form a part of this application, and in which

Fig. 1 is a sectional elevation illustrating one form of apparatus constructed in accordance with the invention.

Fig. 2 is a transverse sectional elevation taken substantially on line 2—2 of Fig. 1.

Fig. 3 is a sectional elevation showing a portion of a chute having another form of adjustable bottom from that shown in Fig. 1, and

Fig. 4 is a sectional elevation showing a portion of the delivery end of a chute having baffle members therein.

The invention briefly described consists of a piling apparatus having a receiving stack of suitable form communicating with a curved chute, the chute having its receiving end and its delivery end curved upwardly and having an inclined bottom. The bottom may be formed with a smooth supporting surface or may, if desired, have rollers mounted thereon. In order to control the rate of passage of the material through the chute, the bottom is so constructed that the material can be caused to travel in an undulating path thereby retarding the passage thereof through the chute. Also, if desired, baffle members may be mounted in the stack or in the chute to retard the passage of the material through the chute and to cause the material to pass through the chute at such a rate that the liquor with which the material is being treated will act upon the material for the desired length of time. Further details of the invention will appear from the following description.

Referring, first, to the embodiment of the invention shown in Figs. 1 and 2, the apparatus comprises a stack 10 which may be of any desired construction and of any desired dimensions. In order to retard the progress of the material downwardly through the stack, baffle plates or members 11 can, if desired, be provided therein and it is desirable that these baffle plates be so mounted in the stack that they can be placed therein or removed therefrom easily and quickly.

The stack 10 communicates at its lower end with the receiving end 12 of a chute 13,

the receiving end 12 and the delivery end 14 of the chute extending upwardly as clearly shown in Fig. 1. The chute 13 is curved as shown in the drawing and the bottom of the chute may, if desired, have rollers 15 mounted for free rotation therein.

In order to control the rate of passage of the material through the chute, the bottom of the chute has formed therein adjustable sections 16 and 17. The section 16 is pivoted at 18 and the section 17 is pivoted at 19. At each side edge thereof, the section 16 has connected to the free end thereof a bracket 20 having a curved slot 21 formed therein and the section 17 has corresponding brackets 20 having slots 21 formed therein. Bolts 22 are mounted in the sides 23 of the chute and extend through the slots 21 in the brackets 20 and retain the sections 16 and 17 in any desired position of adjustment.

It is desirable also that the top 25 of the chute be made adjustable in a manner similar to the bottom and for this reason sections 26 and 27 are formed in the top and are pivoted at 28 and 29.

It will be obvious that when the sections 16 and 17 of the bottom are swung to the dotted line position in Fig. 1, the material will take an undulating path through the chute thereby retarding its progress.

It will be understood that, if desired, the bottom may be provided with further pivoted sections.

As a further means for retarding the progress of the material through the chute, the delivery end 14 of the chute may as illustrated in Fig. 4 have removably mounted therein baffles 30 and 31 disposed in staggered relation with respect to each other.

When the chute has a smooth bottom as illustrated in Fig. 3 the sections 35 and 36 of the bottom may overlap as shown at 37. These sections may swing about points 38 and 39 as shown by dotted lines in Fig. 3 and if the bottom is made of flexible material no pivotal joints are necessary. However, pivotal joints may be provided, if desired.

The sections 35 and 36 have secured thereto at the free ends thereof, brackets 40 similar to the brackets 20 and have slots 41 therein. Bolts 42 carried by the sides of the chute coact with the slotted brackets in retaining the adjustable sections 35 and 36 in adjusted position.

The top of the chute shown in Fig. 3 may have hinged sections 46 and 47 similar to the hinged sections 26 and 27 of the chute shown in Fig. 1.

From the foregoing description it will be seen that simple and practical means has been provided for controlling the passage of textile material through the piling apparatus and that by reason of the adjustments described the material can be caused to travel through the chute at any desired rate. Furthermore, the rate of passage of the material can be controlled by the baffle plates.

Although certain specific embodiments of the invention have been particularly shown and described, it will be understood that the invention is capable of modification and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit or scope of the invention, as expressed in the following claims.

What I claim is:

1. Apparatus for treating textile material comprising a stack, a stationary chute communicating with said stack and having upwardly extending curved ends and an adjustable intermediate portion which bears material passing through the apparatus and means for changing the angularity of said bottom portion to control the rate of passage of the material through the apparatus.

2. Apparatus for treating textile material comprising a stack, a chute communicating with said stack and having an upwardly extending receiving end and an upwardly extending delivery end, the bottom of the chute being stationary relative to the remaining end portion of the chute, and means for changing the path of movement of the material and retarding the rate of passage of the textile material through the chute.

3. Apparatus for treating textile material comprising a stack, a chute communicating with said stack and having an upwardly extending receiving end and an upwardly extending delivery end, the bottom of the chute being stationary relative to the remaining end portion of the chute, and means for causing the textile material to pass through the chute in an undulating path.

4. Apparatus for treating textile material comprising a stack, a chute communicating with said stack and having upwardly extending curved ends and an intermediate bottom portion which bears material passing through the apparatus and adjustable means associated with said intermediate bottom portion for setting the same in predetermined positions to thereby control the rate of passage of the material through the apparatus.

5. Apparatus for treating textile material comprising a stack, a chute communicating with the stack and having an upwardly turned receiving end and an upwardly turned delivery end, the bottom of the chute being adjustable to a plurality of positions and means for fixedly retaining the bottom in its adjusted positions.

6. Apparatus for treating textile material comprising a stack, a chute communicating with said stack and having an upwardly turned receiving end and an upwardly

turned delivery end, said chute having a bottom for supporting the material and provided with adjustable sections so constructed and arranged as to cause the material to pass through the chute in an undulating path.

7. Apparatus for treating textile material comprising a stack, a chute communicating with said stack and having an upwardly turned delivery end and means disposed in the stack for controlling the rate of passage of material through the apparatus.

8. Apparatus for treating textile material comprising a stack, a longitudinally curved chute communicating with said stack, the bottom of the chute being stationary relative to the remaining portion of the chute, means for retarding the rate of passage of textile material through said chute and a freely movable cover for said chute.

9. Apparatus for treating textile material comprising a stack, a longitudinally curved chute communicating with said stack, the bottom of the chute being stationary relative to the remaining portion of the chute, means carried by the chute for retarding the rate of passage of textile material through said chute and a cover for said chute having sections freely movable upwardly.

10. Apparatus for treating textile material comprising a stack and a longitudinally curved chute communicating with said stack, the bottom of the chute being stationary relative to the remaining portion of the chute, the bottom of said chute comprising a plurality of laterally adjustable sections on the bottom thereof so constructed and arranged as to cause the material to pass through the chute in an undulating path.

In witness whereof, I have hereunto set my hand this 19th day of March, 1924.

WILLIAM L. CONRAD.