

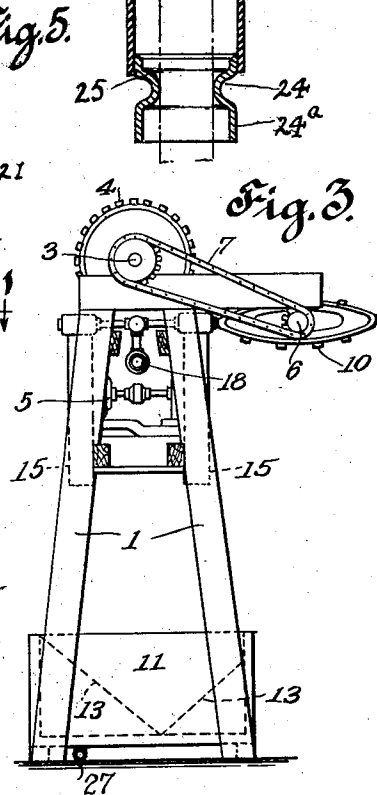
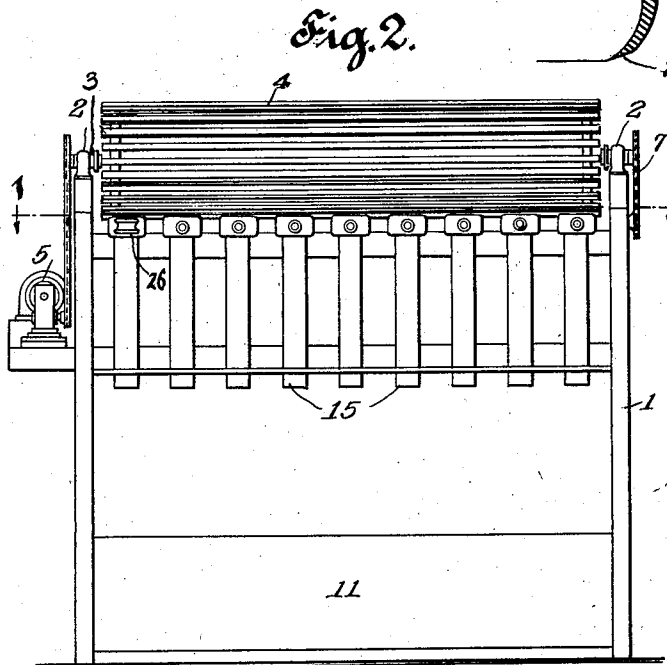
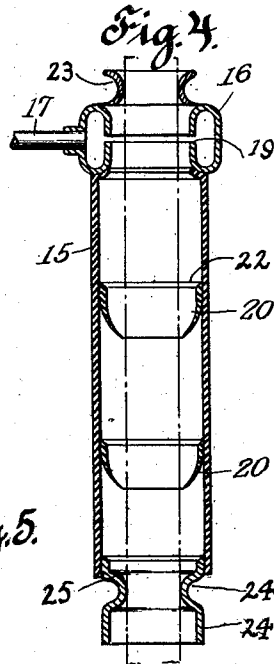
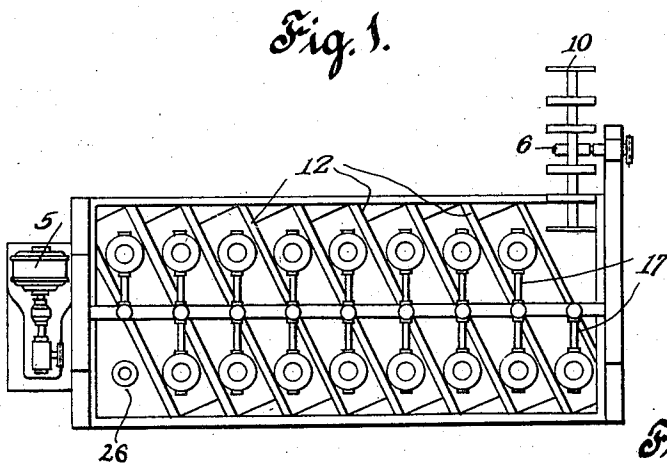
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J. H. ANDRESEN

WASHING MACHINE

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UNITED STATES PATENT OFFICE.

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WASHING MACHINE.

Application filed September 15, 1925. Serial No. 56,430.

To all whom it may concern:

Be it known that I, JOHN H. ANDRESEN, a citizen of the United States, residing at Glen Rock, Bergen County, New Jersey, have invented new and useful Improvements in Washing Machines, of which the following is a specification.

This invention relates to improvements in washing machines, and more particularly to a machine for washing and dyeing silk and other fabrics, the principal object of the invention being to provide, in combination with a machine of this character a novel form of washing tube through which the fabric may be passed in the rope form and in which washing tube means is provided for evenly and effectively treating the goods and preventing injury thereto.

A further object of the invention is to improve the machine generally so as to impart thereto greater efficiency than heretofore.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention consists in the novel features of construction and combination of parts which will be more fully described hereinafter and particularly pointed out in the claims.

In the drawing accompanying and forming part of this specification,

Fig. 1 is a sectional plan view of a machine embodying the features of the present invention, taken approximately on the line 1-1 of Fig. 2;

Fig. 2 is a side elevation of the machine;

Fig. 3 is an end view thereof;

Fig. 4 is a central vertical section, on an enlarged scale, of the improved tube; and

Fig. 5 is a detail of one of the baffles forming a part of the invention.

The same characters of reference designate the same parts in the different figures of the drawing.

Referring to the drawing, 1 designates the frame of the machine, said frame carrying at its upper end a pair of bearings 2 in which is mounted for rotation a shaft 3 carrying a reel 4 over which the goods are passed during treatment, motion being imparted to the reel by an electric motor 5

through sprocket and chain connections as shown in Fig. 2, or in any other suitable manner. At the end opposite from the motor, a counter shaft 6 is mounted for rotation in the frame in parallelism with the shaft 3, said counter shaft receiving motion from the shaft 3 by means of a chain 7 and sprockets secured on the ends of the shafts 3 and 6 respectively, said counter shaft carrying a short reel 10 of approximately oval form in cross section over which the fabric is led after treatment and which operates to lay the fabric in layers as will be readily understood.

Secured in the frame 1, below the mechanism hereinbefore described, is a tub or trough 11 for catching the surplus fluid after its passage through the tubes hereinafter described. This tub is provided with a plurality of partitions 12, which extend diagonally of the tub as clearly shown in Fig. 1. The lower corners of the partitions are preferably cut away as indicated in dotted lines at 13 in Fig. 3 so as to afford free intercommunication for the flow of liquid from one end of the tub to the other. In practice the tub is provided in its bottom with an outlet as indicated at 27, Fig. 3, for drawing the liquid therefrom, which outlet may be closed by means of a cork or may be provided with a valve controlled spigot.

At each side of the frame, is supported a plurality of wash tubes 15, the construction of which tubes forms the principal object of the present invention. Each tube communicates at its upper end with an inlet nozzle 16, which in turn communicates, by means of a short pipe 17, with a header or supply pipe 18 for the liquid to be used in treating the goods. The nozzle 16 is provided in its inner wall with a continuous slot 19 through which the treating liquid escapes, the wall of the nozzle being of such thickness as to direct the liquid toward the axial center of the tube. Each of the tubes is further provided with a plurality of annular baffles or deflectors 20, spaced apart in the tube 15, two of such deflectors being shown in Fig. 4. The walls of the deflectors are cup-shaped or curved in longitudinal

section and present an acute-angled edge 21 around the lower opening thereof, thereby to prevent any back flow of liquid toward the wall of the tube. The top edge of the deflector is preferably bevelled inwardly, as shown at 22, thereby to readily catch any liquid that may run down the wall of the tube 15 and prevent such liquid from passing on the outside of the deflector. For guiding the goods through the tubes, each tube is provided at each end thereof with an annular member 23 and 24, preferably formed of porcelain or other smooth hard material. The inner surface of the wall of each of these guide rings is rounded or curved longitudinally as shown at 25, which curvature has the twofold purpose of providing a perfectly smooth surface for contact with the goods as they pass through the tube and restricting the opening in the guide ring to a diameter less than that of the opening 21 of the baffles, whereby the goods will be maintained out of contact with said baffles during their passage through the tube. The lowermost guide ring is preferably provided with a skirt portion 24^a for directing the flowing liquid downward into the tub.

The operation of the machine is as follows. The motor being set in motion, the end of a pile or roll of fabric to be treated is pulled upwardly, through a guide ring 26 similar to the rings 23 already described, forming a "rope", and thence in this form over the reel 4 and down through the first tube, namely the tube at the extreme upper left of Fig. 1. When the leading end of the fabric leaves the tube it passes into the space between the first two partitions 12, whereby it is directed diagonally across the tub to a point directly below the first tube at the opposite side of the reel 4, through which tube it is led, and thence over the reel and down through the second tube on the opposite side, and so on until the entire roll has passed through all of the tubes and finally reached the reel 10, by which it is taken off and laid in layers running alternately in opposite directions. In practice, the leading end of the fabric is usually attached to a leader which has itself been threaded through the tubes and over the reel 4, so that as the reel rotates the leader is caused to move forward carrying with it the attached end of the fabric. As the fabric passes through each successive tube the liquid flowing out of the nozzle strikes said fabric around its circumference and thoroughly treats the same, while such liquid as may rebound or be sprayed on the wall of the tube runs down the wall until it arrives at the first baffle, whereupon it is directed by said baffle back on to the goods. In this way the liquid is utilized to the best possible advantage and the fabric is treated

in a more effective manner than was possible heretofore, while at the same time, because of the provision of the guide rings shown, the fabric is maintained entirely out of contact with the baffles or any other part of the tube which might be likely to damage the goods.

Having thus described my invention, what I claim is:

1. A machine of the class described, comprising, in combination, a plurality of vertically disposed tubes, means for guiding a fabric in tubular form successively through said tubes, means for supplying a treating liquid to each of said tubes, and means carried by each of said tubes for evenly delivering the treating liquid upon the circumference of said tubular fabric as it passes through the tube.

2. A machine of the class described, comprising, in combination, a frame, a plurality of vertically disposed tubes at each side of said frame, means carried by said tubes for guiding a fabric in tubular form through and out of contact with the tubes, means below the tubes for receiving the fabric after it has emerged from the lower end of a tube at one side of the frame and directing it toward a tube disposed in staggered relation to said first tube at the opposite side of the frame, rotatable means carried by said frame for carrying said fabric from the upper end of a tube at one side to a tube at the opposite side, and means for supplying a treating liquid to said fabric as it passes through said tubes.

3. In a machine of the class described, a fabric treating tube provided at opposite ends thereof with means for guiding a tubular fabric through the tube and out of contact therewith, means in said tube for delivering a liquid upon the periphery of said tubular fabric as it passes through the tube, and annular deflecting members disposed in said tube in spaced relation to each other below said liquid delivering means and adapted to deflect liquid from the wall of said tube on to the periphery of said fabric.

4. In a machine of the class described, a fabric treating tube provided at opposite ends thereof with means for guiding a tubular fabric through the tube and out of contact therewith, means in said tube for delivering a liquid upon the periphery of said tubular fabric as it passes through the tube, and cup-shaped annular deflecting members disposed in said tube in spaced relation to each other below said liquid delivering means, the lower edges of said deflecting members being of acute-angled formation thereby to deflect liquid from the wall of said tube on to the periphery of said fabric and prevent return of the liquid to the wall of the tube.

5. In a machine of the class described, a

5 fabric treating tube, an annular liquid delivering nozzle disposed in said tube, annular deflecting members disposed in said tube below said nozzle, and annular members disposed at opposite ends of the tube for guiding a fabric in tubular form through said tube, the openings in said guiding members being of smaller diameter than those of the nozzle and deflecting members whereby the fabric is maintained against contact with said nozzle and deflecting members during its passage through the tube. 10

In testimony whereof I have signed my name to this specification.

JOHN H. ANDRESEN.