

(No Model.)

W. MAYBURY.

APPARATUS FOR DYEING, BLEACHING, WASHING, AND DRYING YARN, &c.

No. 266,494.

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Fig. 1.

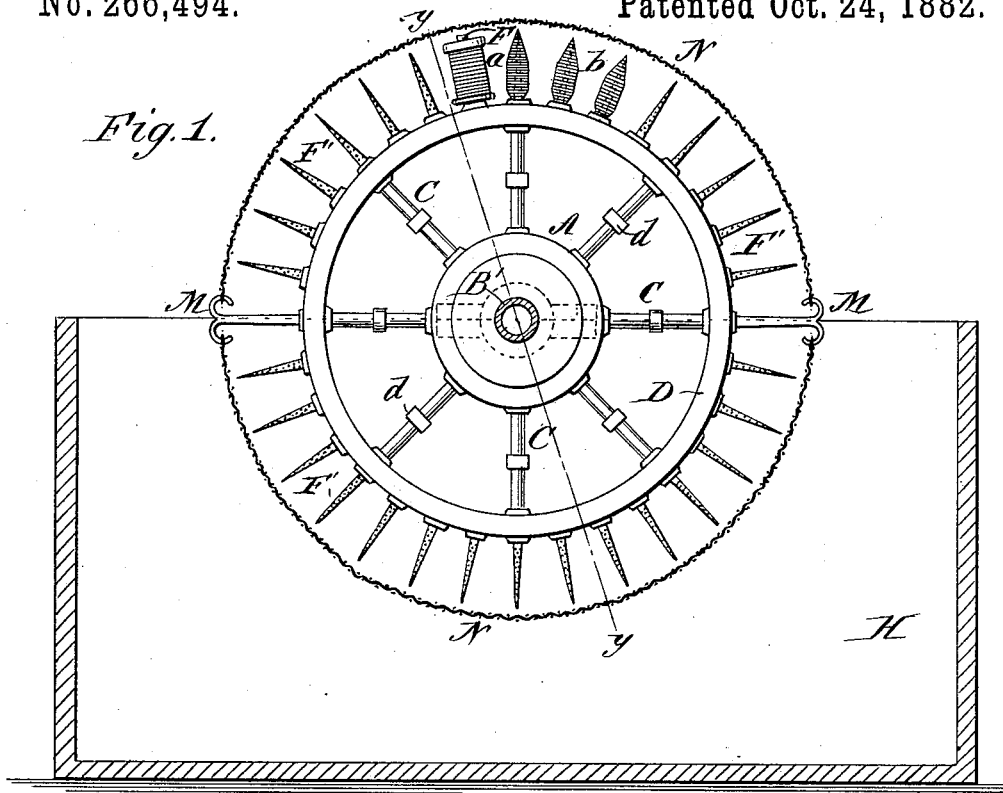
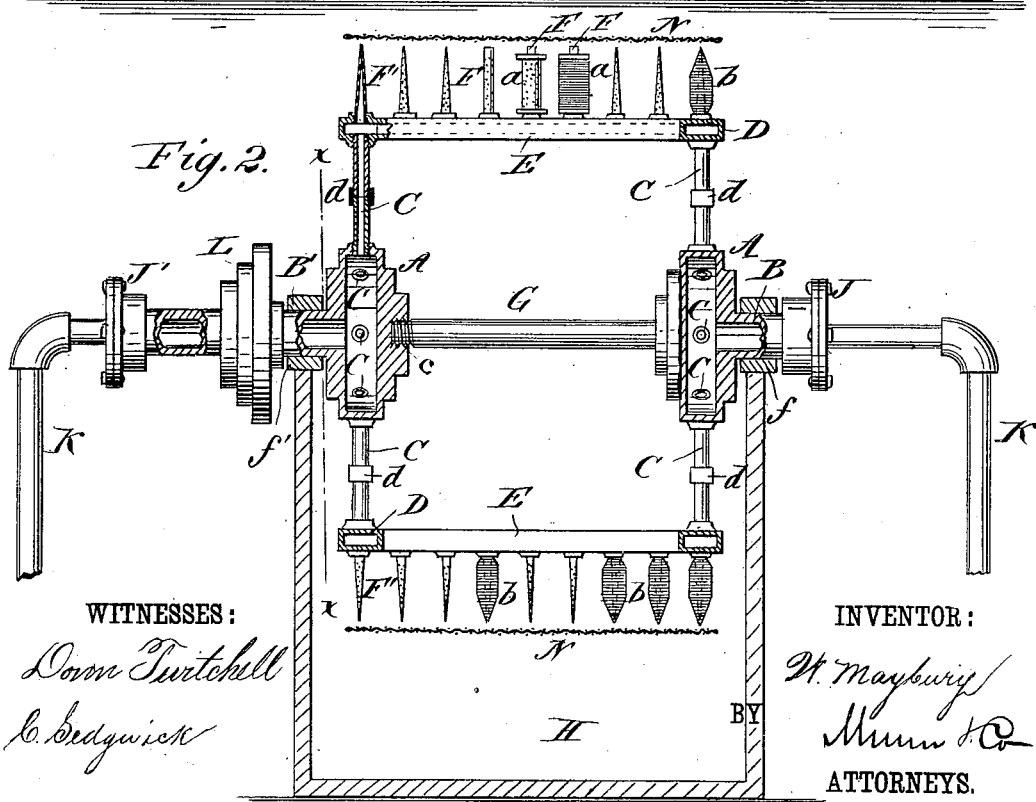


Fig. 2.



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APPARATUS FOR DYEING, BLEACHING, WASHING, AND DRYING YARN, &c.

SPECIFICATION forming part of Letters Patent No. 266,494, dated October 24, 1882.

Application filed July 20, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MAYBURY, of Garnerville, in the county of Rockland and State of New York, have invented a new and Improved Apparatus for Dyeing, Bleaching, Washing, and Drying Yarn in the Cop or Bobbin, of which the following is a full, clear, and exact description.

My invention consists of a machine or apparatus by which cotton or woolen yarn, silk, worsted, or other vegetable or animal fiber may be bleached, scoured, steamed, dyed, or dried in the cop or on the bobbin, thus obviating the necessity of reeling the yarn for these operations, as is now the practice, and saving the labor and waste incident to dyeing, bleaching, &c., the yarn in the skein.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional elevation of my new and improved machine for dyeing, bleaching, &c., yarn in the bobbin or cop, taken on the line *xx* of Fig. 2; and Fig. 2 is a sectional elevation of the machine, taken on the line *yy* of Fig. 1.

The machine or apparatus consists principally of a hollow skeleton frame journaled in a tank and adapted to hold the cops or bobbins of yarn on perforated spindles, and of suitable pipes for conveying the coloring, bleaching, or washing material or the air for drying the yarn to the interior of the hollow skeleton frame.

The hollow skeleton frame is by preference made up of the hollow hubs *A A*, that are formed with the hollow journals *B B'*, the radial hollow arms *C C*, that connect the said hollow hubs with the pipes *D D*, that are concentric with the hubs, and the series of hollow cross pipes or conduits *E E*, that connect the pipes *D D* together, as shown. These cross pipes or conduits *E E* are screw-tapped at several places along their outer sides or faces, and in case the apparatus is intended to be used for bobbins, as at *a*, the perforated hollow blunt spindles *F F* will be screwed into these screw-taps; but in case the apparatus is to be used for cops, as at *b*, the perforated hollow pointed spindles *F' F'* will be screwed into them. The

hollow hubs *A A* are centrally screw-tapped, as shown at *c'*, Fig. 2, to receive the screw-threaded ends of the central tie rod or axle, *G*, which firmly joins the main parts of the skeleton frame together. The hollow journals *B B'* are fitted in suitable journal-boxes, *f f'*, fixed upon the upper edges of the box or tank *H*, as shown clearly in Fig. 2, and to the outer ends of these journals are attached the stuffing-boxes *J J'*, which form steam-tight connections between the pipes *K K* and the said journals, and yet permit the skeleton frame to turn.

Upon the journal *B'*, between its stuffing-box *J'* and its journal-box *f'*, is fixed the cone-pulley *L*, over which a belt, coming from some suitable power, passes for revolving the skeleton frame.

M M are hooks to which the strips of wire-cloth *N N*, which surround the skeleton frame for keeping the cops or bobbins in place upon the spindles, are removably attached, as shown in Fig. 2.

The pipes *K K* are adapted to be attached to suitable force-pumps or to suitable fan-blowers. In case they are attached to pumps, the induction-pipes of the pumps will take their supply from the tank *H*, so that in case the yarn placed upon the spindles is to be colored, bleached, or washed the coloring or bleaching material or the water for washing will be placed in the tank *H* and forced by the pumps through the pipes *K K* into the hollow hubs *A A*; thence through the radial pipes *C C*, concentric pipes *D D*, and cross pipes or conduits *E E*, and through perforated spindle and cops or bobbins of yarn back into the tank. While this circulation of the coloring or bleaching material, or water for washing is going on, the skeleton frame will at the same time be slowly revolved, submerging the cops or bobbins of yarn in the coloring, bleaching, or washing material in the tank. In this manner the coloring, bleaching, or washing material acts upon the cops or bobbins of yarn both from the inside and outside of the cop or bobbin, and the material issuing from the perforations of the spindles, being under pressure, causes the material to rapidly and thoroughly permeate the yarn. The coloring, bleaching, or washing of the yarn having been accomplished, the yarn

may be dried by forcing air through the pipes K K, or by rapidly revolving the skeleton frame, or both, as desired, the liquid being drawn from tank H.

5 The bobbins *a* are perforated with numerous holes, as shown in Fig. 2, so as to permit the passage of the fluid from the perforations of the spindle through the bobbins into contact with the yarn upon the bobbins, and the spin-
10 dles will be enameled to protect the yarn from any corrosion which the bleaching, coloring, or washing material might produce from contact with the metal of the spindles.

The pipes C C are by preference made in
15 sections, and are coupled together in their centers by the couplings *d d*, as will be clearly understood from the drawings.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

20 1. The apparatus herein shown and described for coloring, bleaching, washing, or drying yarn in the cop or on the bobbin, consisting of a tank and a hollow skeleton frame provided with perforated spindles and suitable pipes for
25 supplying the coloring or other material to the frame, substantially as described.

2. The skeleton frame provided with the perforated spindles F or F' and with the supply-pipes K, in combination with the tank H, substantially as and for the purposes set forth. 30

3. The combination, with the perforated bobbins and supply-pipes D E, of the hollow laterally-perforated spindles, receiving from the one and transmitting to the other, as described.

4. The skeleton frame composed of the hollow hubs A A, formed or provided with the hollow journals B B', the hollow arms C C, and hollow pipes and cross-pieces D and E, provided with the hollow perforated spindles, substantially as and for the purposes set forth. 35 40

5. The hollow hubs A, formed with the hollow journals B B', in combination with the stuffing-boxes J J' and pipes K K, substantially as and for the purposes described.

6. The combination, with the skeleton frame
45 having the spindles F or F', of the strips of cloth N N, surrounding the frame, substantially as and for the purposes set forth.

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