

No. 671,799.

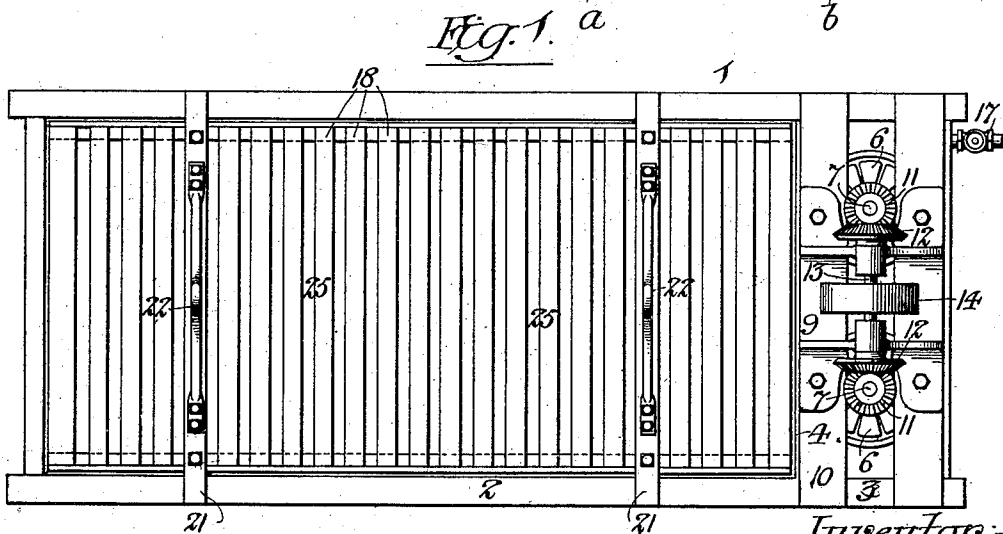
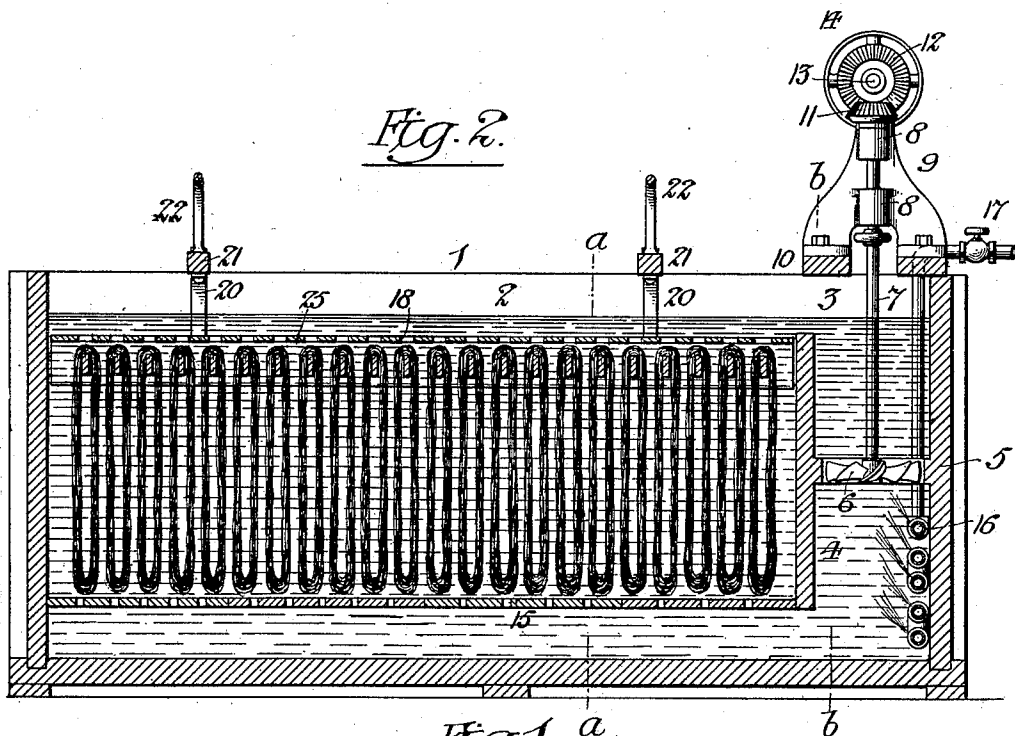
Patented Apr. 9, 1901.

J. HUSSONG.
DYEING MACHINE.

(Application filed Oct. 1, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:-

Herman C. Metcalf.

John W. Schuchert.

Inventor:-

Joseph Hussong.

by his Attorneys:-

Harmon & Haroon

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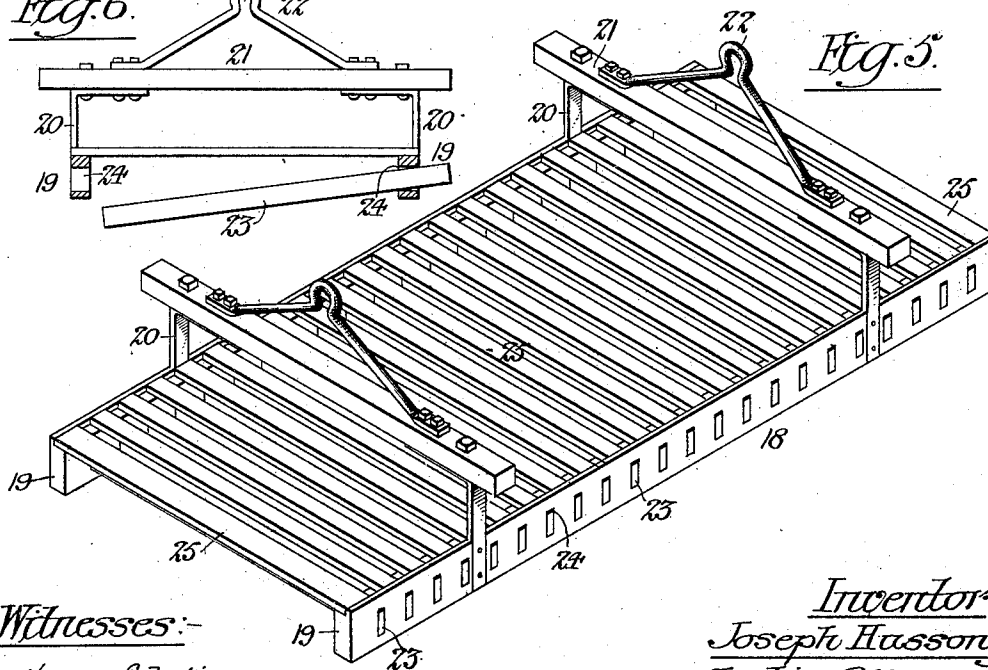
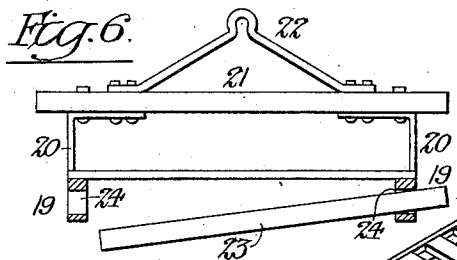
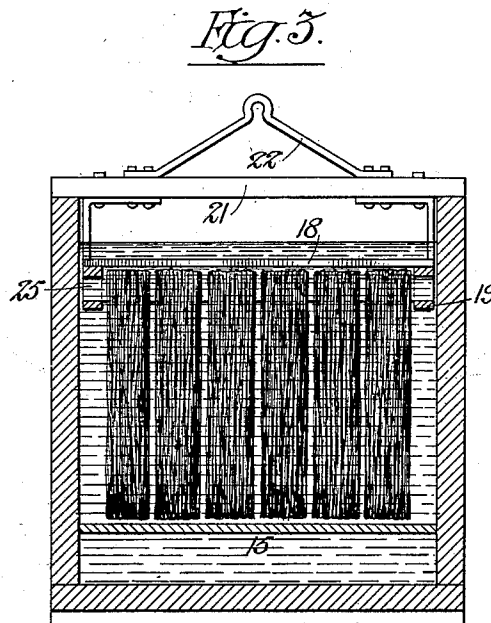
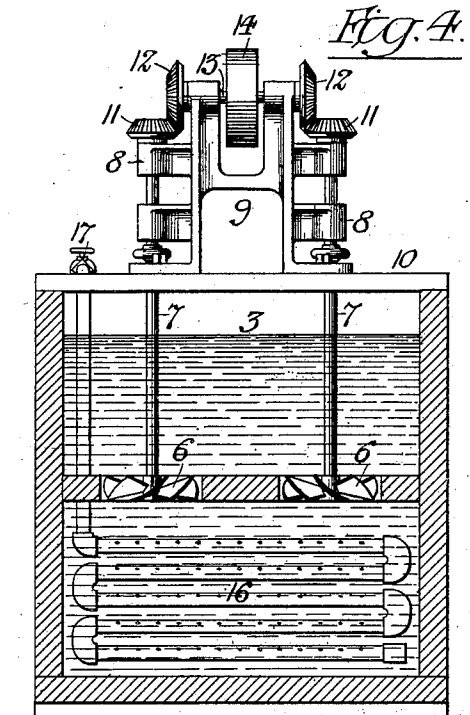
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**J. HUSSONG.
DYEING MACHINE.**

(Application filed Oct. 1, 1900.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOSEPH HUSSONG, OF CAMDEN, NEW JERSEY.

DYEING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 671,799, dated April 9, 1901.

Application filed October 1, 1900. Serial No. 31,681. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HUSSONG, a citizen of the United States, and a resident of Camden, New Jersey, have invented certain
5 Improvements in Dyeing-Machines, of which the following is a specification.

My invention relates to certain improvements in the frame upon which the yarn is suspended in a dyeing-machine.

10 My invention is shown in connection with the dyeing-machine for which application for patent was made by me on August 8, 1899, Serial No. 726,542.

In the accompanying drawings, Figure 1 is
15 a plan view of a dyeing-machine, showing my improvements. Fig. 2 is a longitudinal sectional view. Fig. 3 is a section on the line *a a*, Fig. 2. Fig. 4 is a section on the line *b b*, Fig. 2. Fig. 5 is a perspective view of the
20 yarn-supporting frame, and Fig. 6 is a view showing the application of the sticks to the frame.

Referring to the drawings, 1 is the vat, of the ordinary size, divided into two sections 2
25 and 3 by a transverse partition 4. In the section 2 is mounted the yarn to be dyed. The section 3 is much smaller than the section 2, and in this section is situated the mechanism for causing the liquid to circulate in the vat.

30 5 is a horizontal partition dividing the section 3 into two parts, and in the partition are two openings in the present instance, and in each opening is mounted a wheel 6, having suitable blades. This wheel is secured to the
35 lower end of a vertical shaft 7, mounted in bearings 8 8 on a frame 9, secured to the cross-beam 10 on the vat. I preferably provide two circulating-wheels for each vat; but one wheel may be used or more than two, if
40 desired, depending upon the size of the vat. The shafts are driven in the present instance by means of beveled gear-wheels 11, which mesh with bevel-wheels 12 on a driven shaft 13, having a belt-pulley 14. The partition 4,
45 forming the two sections 2 and 3, does not extend to the top or to the bottom of the vat, but is raised sufficiently from the bottom to form a channel for the passage of liquor from the section 2 to the section 3, so that when
50 the wheels 6 are turned the liquor is circulated, being drawn from the section 2 through

the passage under the partition 4 into the lower portion of the section 3 and then drawn into the upper portion of the said section, flowing over the partition 4 into the section 2,
55 containing the yarn. I prefer to use a perforated floor or bottom 15; but this floor may be omitted in some instances without departing from my present invention.

18 is the frame carrying the yarn. This
60 frame has two side members 19 19, to which are secured the uprights 20, attached to the supporting cross-bars 21, which rest on the edge of the vat, as shown clearly in Figs. 1 and 4. Secured to the cross-bars are extensions 22, to which the hoisting-tackle is
65 attached when it is wished to raise or lower the supporting-frame or remove the yarn from the vat.

23 represents a series of yarn-sticks. These
70 sticks are preferably shaped as shown in Figs. 2 and 6, being quadrangular in cross-section. The sticks are shaped to fit openings 24 in the side bars 19 of the frame 18, the openings being slightly larger than the sticks,
75 so that the sticks can be readily adjusted or removed from the frame, as shown in Fig. 6. In some instances round sticks may be used; but I prefer the construction shown.

I mount on the side bars 19 of the frame 18
80 a series of slats 25. These slats are spaced a sufficient distance apart to provide an opening directly above each yarn-supporting stick, as clearly shown in Fig. 2. The object of this arrangement is to allow for the proper
85 distribution of the liquor as it is circulated and to insure the passage of the liquor over the yarn at the stick, as this is the most difficult part of the yarn to dye, and by my arrangement the liquor comes in contact first
90 with the yarn directly above the stick and then circulates between the hanks of yarn as they are suspended, passing down to the lower portion of the vat, and is then drawn into the
95 lower portion of the section 3 by the action of the circulating-wheels and drawn up and forced over the partition 4 into the vat above the yarn.

I have found that by circulating the liquor in the vat I can dispense entirely with any
100 support or weight for the lower portion of the hanks of yarn. As the circulation of the liq-

uor through the vat is downward, the tendency is to straighten the hanks of yarn and keep them from being tangled.

In some instances means may be used to hold the lower ends of the hanks of yarn, and the liquor may be circulated in a direction opposite to that described.

I claim as my invention—

1. The combination in a dyeing-machine, of a vat, a frame for the yarn, sticks supported in said frame, and slats on the frame above said sticks spaced a sufficient distance apart to allow the liquor to circulate, substantially as described.

2. The combination of a vat, a frame supporting the yarn, yarn-sticks carried by said frame, a series of slats above the yarn-sticks, and spaces between the slats, said spaces being directly above the yarn-sticks, substantially as described.

3. The combination of a vat, a frame supported by the vat, said frame having slotted

side members, loose sticks mounted in the slots, and slats secured to the side members and spaced a given distance apart, the spaces being directly above the yarn-sticks, substantially as described.

4. The combination of a vat, a frame for the yarn, said frame consisting of longitudinal side members and cross-bars, from which the side members are suspended, said bars resting upon the vat, a series of slats spaced a given distance apart, said slats extending from one side of the frame to the other, a series of detachable yarn-sticks mounted in slots in the side members under the spaces formed by the slats, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH HUSSONG.

Witnesses:

WILL. A. BARR,

JOS. H. KLEIN.