

No. 661,343.

Patented Nov. 6, 1900.

J. HUSSONG.
APPARATUS FOR DYEING.

(Application filed Aug. 8, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

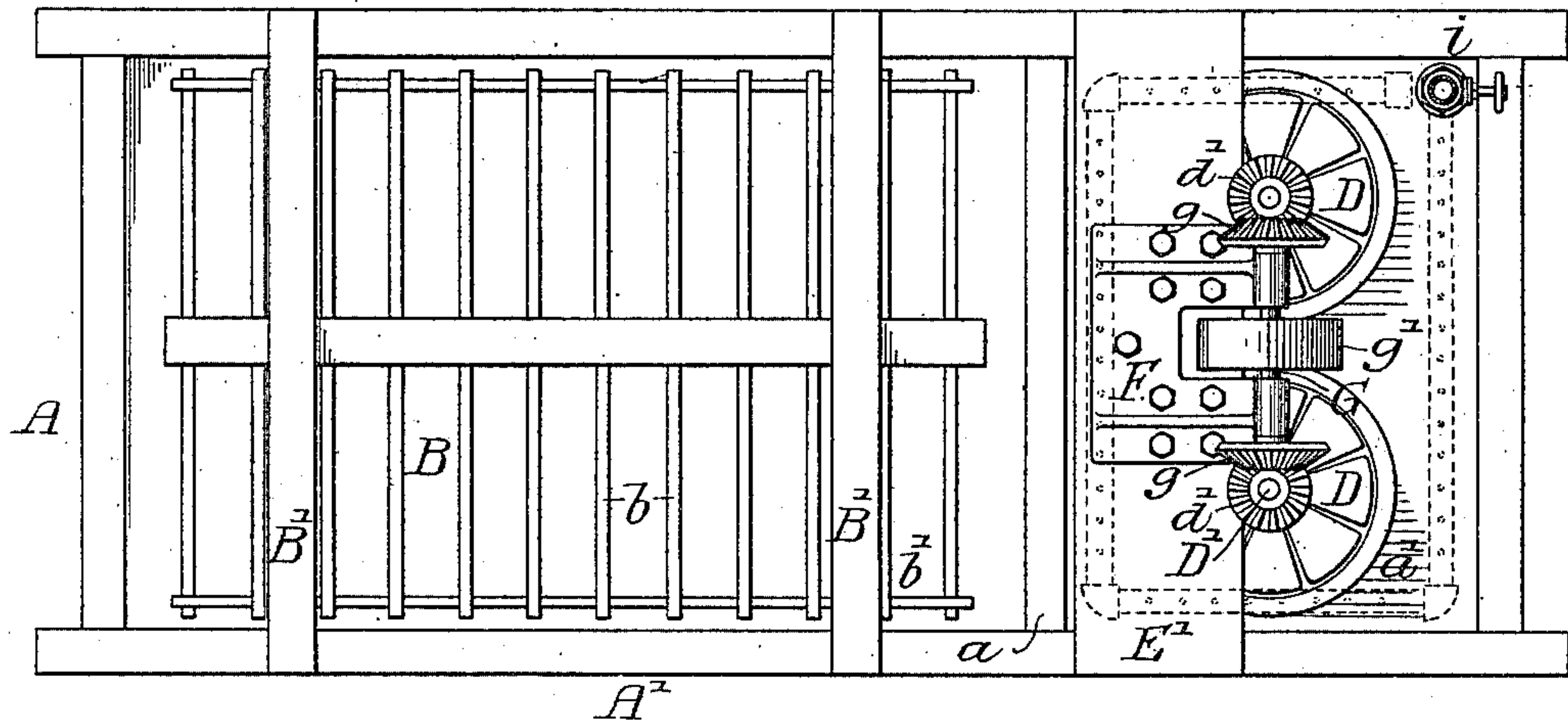
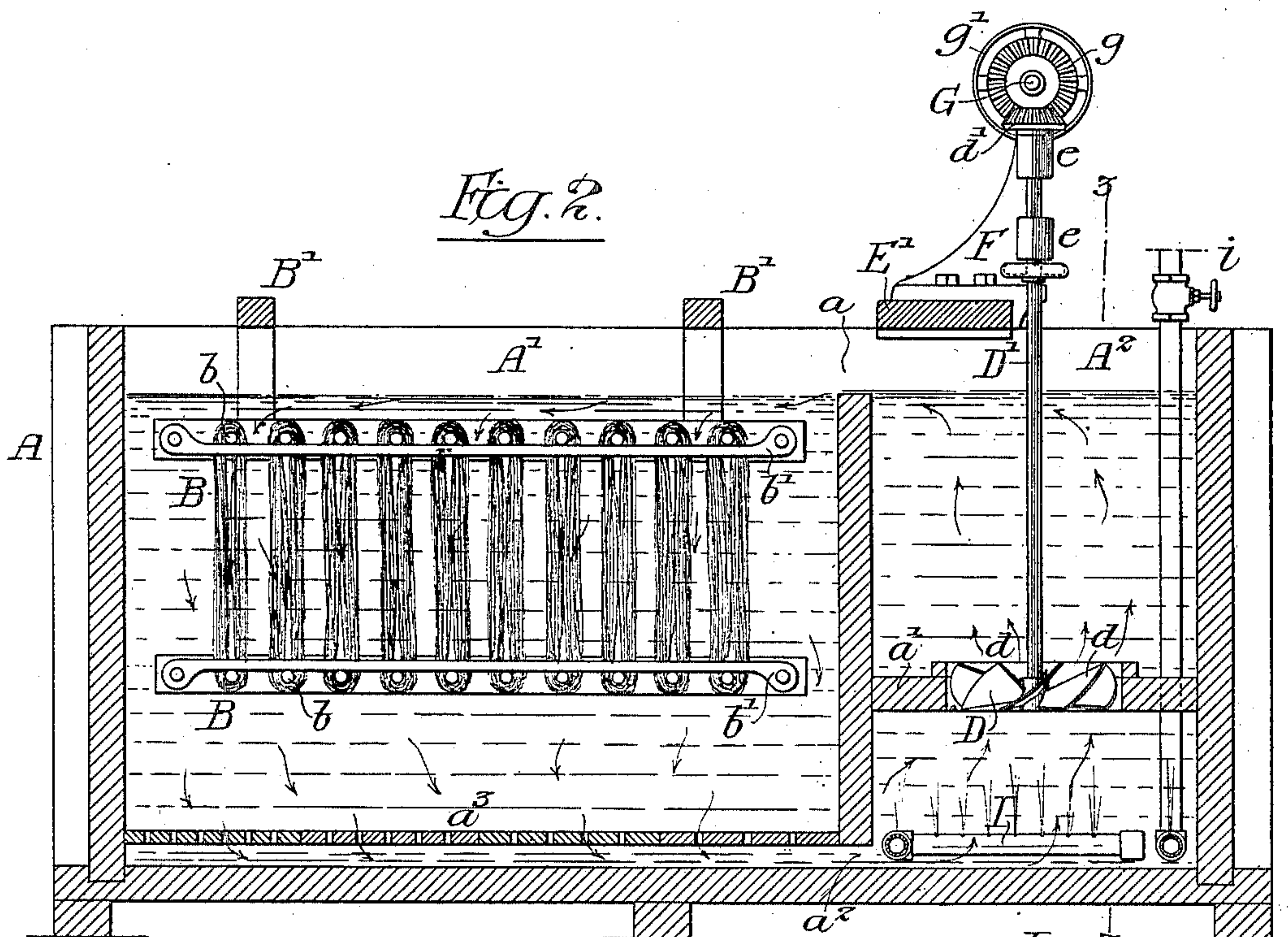


Fig. 2.



Witnesses:

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Louis M. Y. Whitehead.

Inventor:

Joseph Hussong.
by his Attorneys:-

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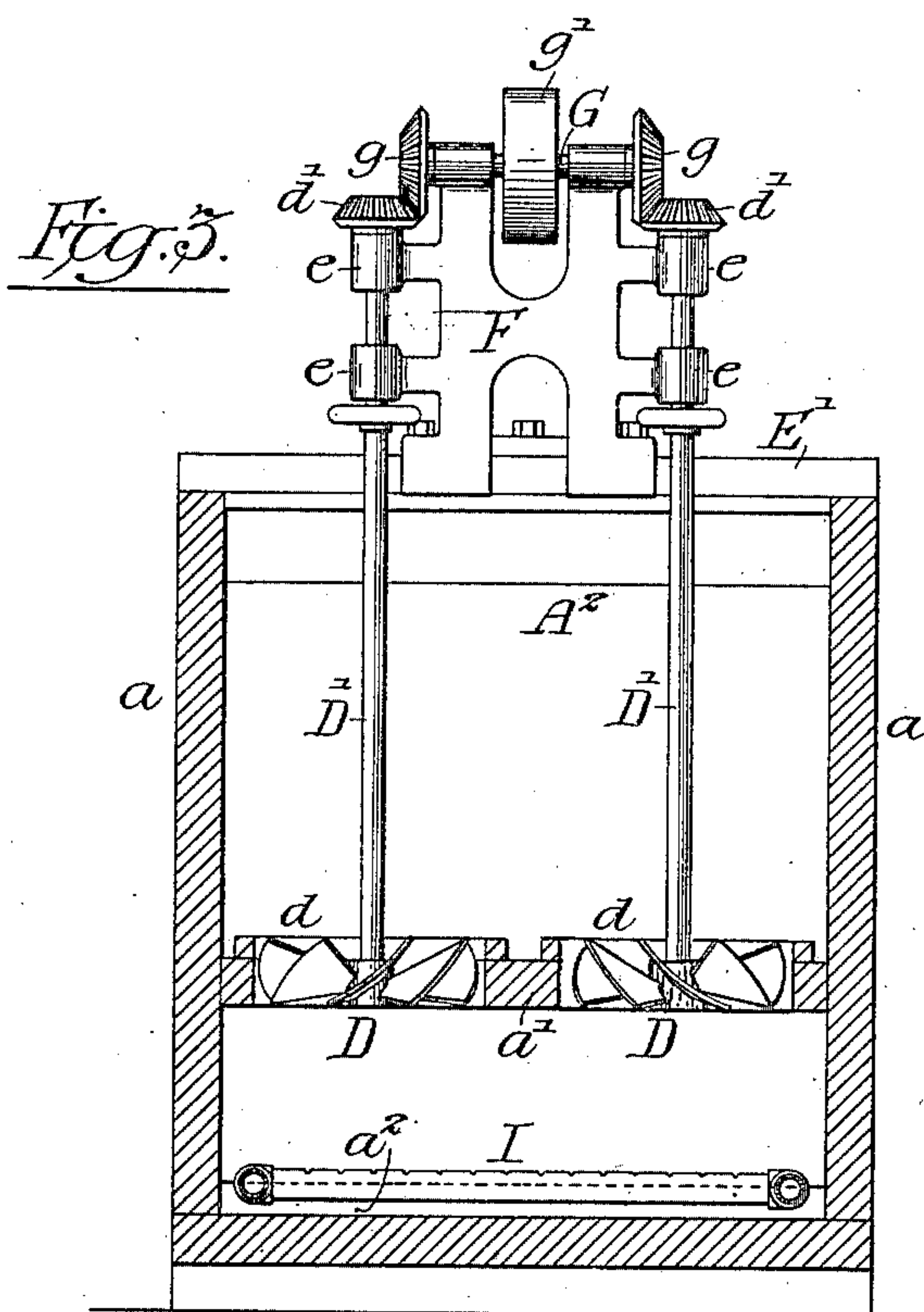
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Joseph Hussong.
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UNITED STATES PATENT OFFICE.

JOSEPH HUSSONG, OF CAMDEN, NEW JERSEY.

APPARATUS FOR DYEING.

SPECIFICATION forming part of Letters Patent No. 661,343, dated November 6, 1900.

Application filed August 8, 1899. Serial No. 726,542. (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 dyeing-machines whereby the dye liquor will be circulated through the yarn.
10 This object I attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of my improved dyeing-machine. Fig. 2 is a longitudinal sectional view. Fig. 3 is a transverse sectional
15 view on the line 3 3, Fig. 2.

Heretofore it has been the general practice to move the yarn in the liquor in the vat so as to thoroughly dye the yarn. This is objectionable in many cases on account of the
20 delicate condition of the yarn, and it is often desirable to either dye the yarn in bulk, in hanks, or in skeins, as shown in the drawings.

By my invention I can circulate the dye
25 liquor through the yarn either when arranged in skeins or hanks, on sticks, or placed in bulk in the vat.

In the accompanying drawings, A is a vat of the ordinary size, divided into two sections by a transverse partition *a*. In the section A' is mounted the yarn to be dyed.
30 In the present instance I have shown a rack B suspended from rails B', resting on the top of the vat, and extending from each side of the rails B' B' are sticks *b*, on which the yarn is placed. Locking-bars *b'* are used to prevent the yarn being displaced by the movement of the liquor in the vat. The frame containing the hanks can be readily removed
40 from the vat when desired, and a frame, with yarn to be dyed, can be placed in its stead without interfering with the free flow of liquor.

A² is a small section of the vat, in which is situated the mechanism for creating a current
45 to the liquor.

a' is a partition dividing the section A² into two parts, and in the partition is an opening, and in the opening is mounted a wheel D, having a series of blades *d d*. This wheel is mounted on the lower end of a vertical shaft D', adapted to bearings *e e* in a bracket F, secured to a cross-beam F' on the vat. I preferably pro-

vide two wheels for each vat, as shown in Fig. 1, and there are two openings in the partitions *a'*, in which the wheels D travel. 55

On the upper end of each shaft D' is a bevel-wheel *d'*, meshing with bevel-wheels *g* on a driven shaft G, having a belted pulley *g'*, adapted to receive a driving-belt, so that when the shafts are set in motion both propelling-wheels will be turned. 60

The partition *a*, forming the two compartments A' and A², does not extend to the bottom of the vat, but is raised sufficiently from the bottom to form a channel *a*² for the passage of liquor from the compartment A' to the compartment A², so that when the wheels D are turned the liquor is circulated, being drawn from the compartment A' through the passage *a*² into the lower section of the compartment A², and then drawn up into the upper portion of said section, flowing over the partition *a'* into the section A', containing the yarn. 65

In order to more evenly distribute the liquor in the section A' of the vat, I provide a perforated bottom *a*². This bottom is preferably made in sections, and the perforations are so spaced apart that the liquor will not have a tendency to circulate merely around the partition *a*, but will circulate through the entire section, thus distributing the dye liquor evenly. 70

It will be noticed on referring to Fig. 2 that there is a less number of holes in the perforated floor at the partition *a* than at the opposite end of the vat; but instead of increasing the number of holes the diameter of the holes may be increased, gaining the same result. 85

I preferably heat the dye liquor by arranging a coil of pipe I in the bottom of the lower portion of the section A², and this pipe extends up through the section A² and is provided with a valve *i* to regulate the flow of steam. I perforate the upper portion of the coil of pipe, so that the steam will escape into liquor as it is drawn up by the propelling-wheels. 90

I claim as my invention— 100

1. The combination in a dye-vat, of a partition dividing the vat into two sections, one section containing the material to be dyed and having a perforated floor arranged near

the bottom of the vat for the passage of the dye liquor, and means in the other section for maintaining a circulation of the dye liquor through the vat, said dye liquor being drawn
5 under the partition from the dyeing-section and forced over said partition into the dyeing-section, substantially as described.

2. The combination of the vat, a partition therein dividing the vat into two sections,
10 said partitions stopping short of the bottom so as to form a communicating passage between the two sections, a horizontal partition in one section, one or more openings in said partition, and one or more bladed wheels
15 adapted to the openings, means for driving said wheels so that a current of liquor will flow from one compartment under the partition to the other, and will be discharged over the partition in the first-mentioned section,
20 substantially as described.

3. The combination of a dye-vat having a partition therein stopping short of the bottom thereof, dividing the said vat into two sections, a perforated bottom in that section in
25 which the yarn to be dyed is placed, a horizontal partition in the other section, driven bladed wheels mounted in openings in the said partition so as to create a current and cause the liquor to flow from the dyeing-section under the partition, up through the other
30 section, and over the partition in the dyeing-section, substantially as described.

4. The combination in a dye-vat, a transverse partition therein stopping short of the

bottom thereof, a perforated floor in the dye- 35 ing section, a horizontal partition having one or more openings therein, one or more bladed wheels mounted in said openings, means for driving said wheels, a coil of steam-pipe mounted in the bottom portion directly un- 40 der the horizontal partition, said steam-pipes having openings so that the steam will mingle in the dyeing liquor as it is drawn upward by the bladed wheels, substantially as described. 45

5. The combination in a dye-vat, of a transverse partition dividing the vat into two sections, a horizontal partition having one or more openings therein arranged in one of said sections, bladed circulating-wheels mounted 50 in said horizontal partition, means for driving said wheels so that a circulation of the dye liquor will be maintained, being drawn under the partition from the dyeing-section and forced over the partition into the dyeing- 55 section, and a perforated floor in the dyeing-section, the openings in said floor being spaced apart at different distances, so that an even circulation of the dye liquor may be maintained throughout the dyeing-section, sub- 60 stantially as described.

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

JOSEPH HUSSONG.

Witnesses:

F. E. BECHTOLD,
JOS. H. KLEIN.