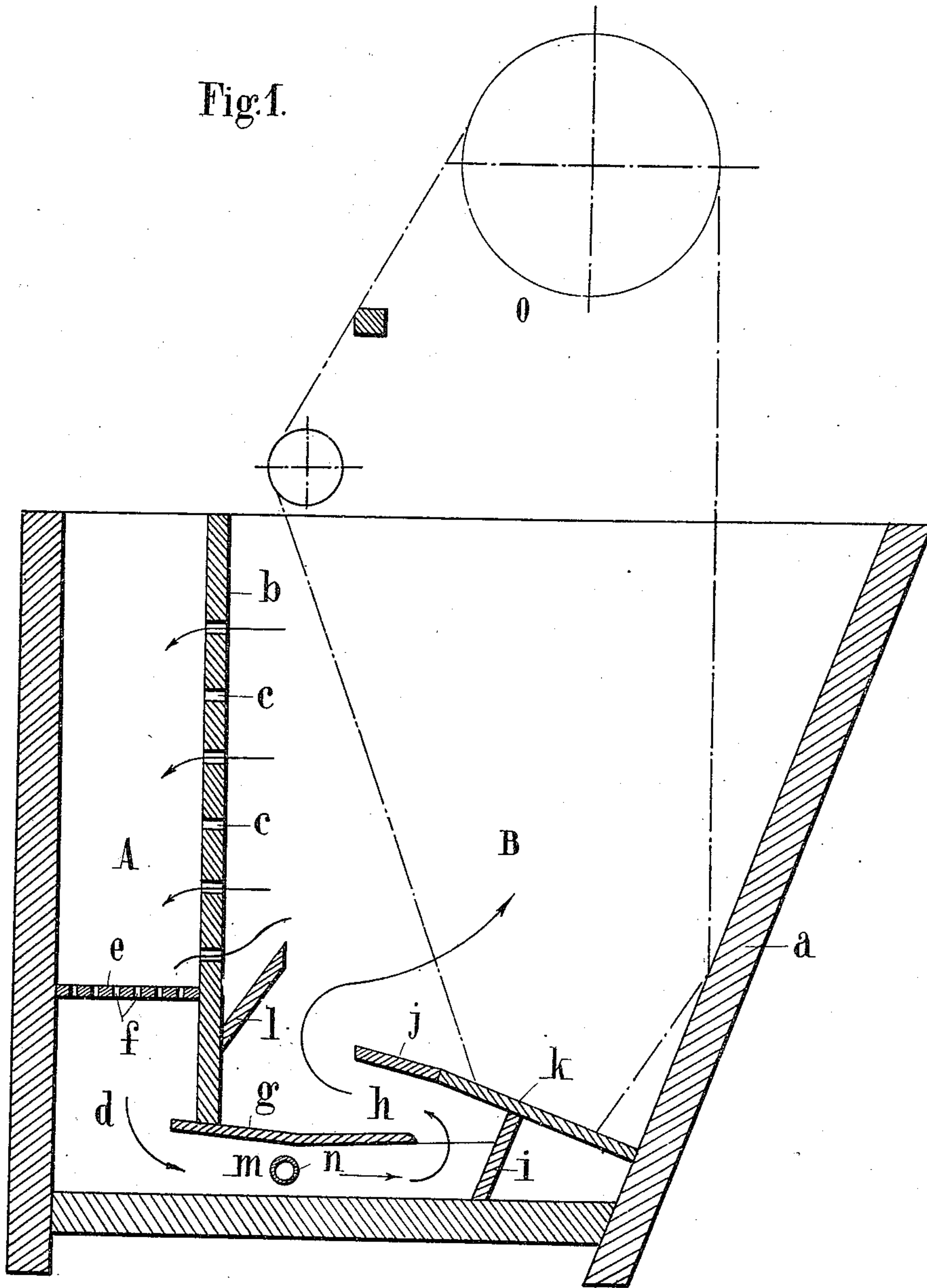


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 APPARATUS FOR DYEING FABRICS.
 APPLICATION FILED JULY 8, 1910.

993,435.

Patented May 30, 1911.

2 SHEETS—SHEET 1.



WITNESSES

P. F. Nagle.
L. Douville.

INVENTOR

Lion Derreumaux-Bulteau.
 BY
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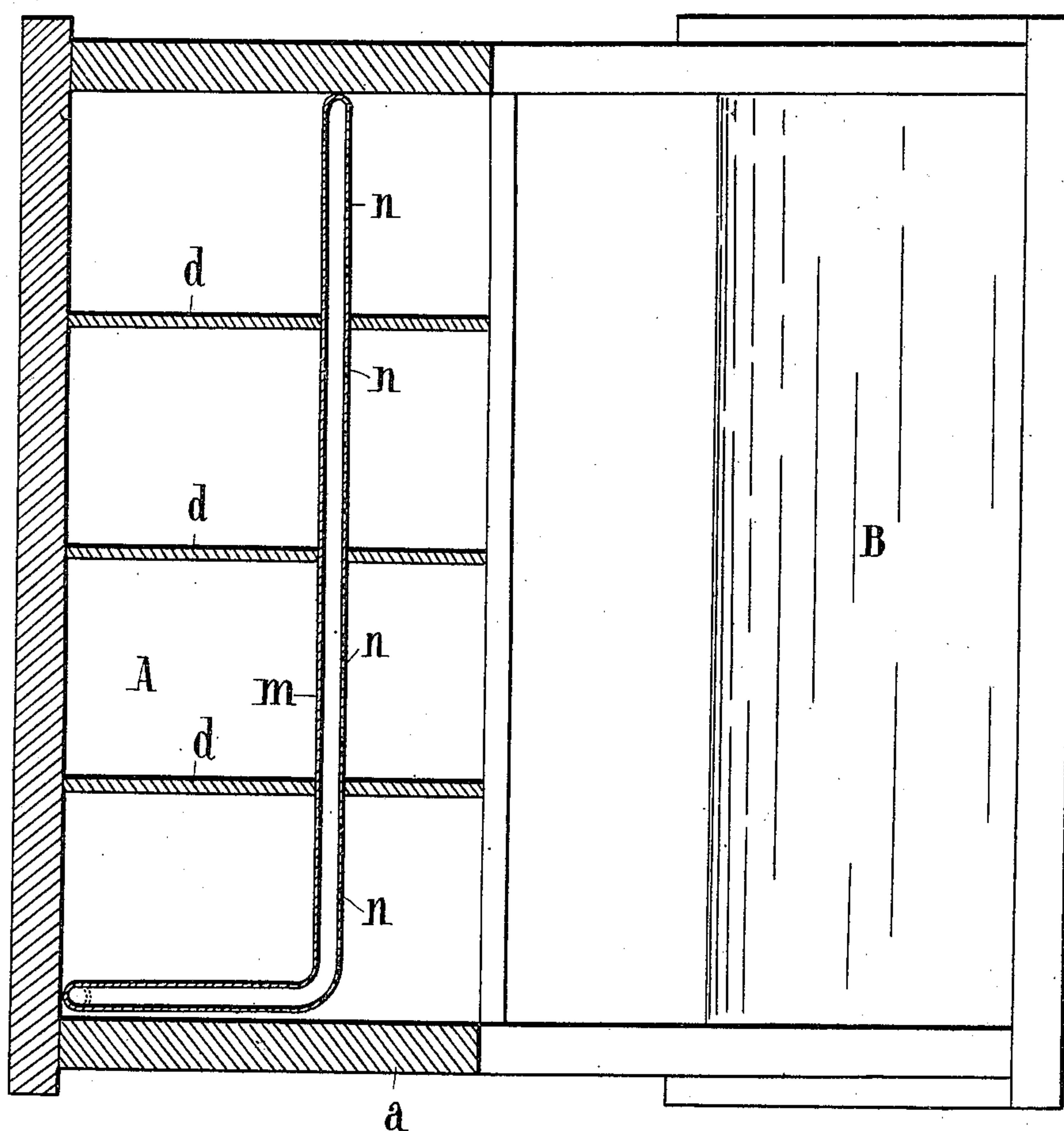
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Fig. 2



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UNITED STATES PATENT OFFICE.

LÉON DERREUMAUX-BULTEAU, OF BRUSSELS, BELGIUM.

APPARATUS FOR DYEING FABRICS.

993,435.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed July 8, 1910. Serial No. 570,966.

To all whom it may concern:

Be it known that I, LÉON DERREUMAUX-BULTEAU, resident of Brussels, Belgium, post-office address 19 Rue de Mot, have invented new and useful Improvements in Apparatus for Dyeing Fabrics, providing by circulation for the rational reheating of the dyeing-bath and reducing to a minimum the expenditure on steam used for heating, which improvements are fully set forth in the following specification.

The present invention has for its object an apparatus for dyeing fabrics providing for the rational re-heating of the whole of the dye bath throughout the entire duration of the operation. This reheating reduces to a minimum the expenditure on heating by the rapid circulation of the dye bath in the various parts of the apparatus facilitated by the provision of inclined false bottoms forming baffles and distributing in the apparatus the steam liberated by a bubbling device provided at the bottom of the tank and formed with horizontal holes.

In order to render the following explanations as clear as possible the accompanying drawings represent by way of example the apparatus for dyeing fabrics forming the object of the invention.

Figure 1 is a cross section of the dyeing tank. Fig. 2 shows the apparatus half in plan and half in section.

The apparatus consists broadly of a tank *a*, generally of wood trapezoidal in cross section, the small base forming the bottom.

A vertical partition *b* formed with holes *c* divides the tank into two unequal compartments A and B and rests upon the transverse partitions *d* arranged at the bottom of the tank. Upon the partitions *d* there are fixed in the tank A a horizontal screen *e* formed with holes *f* and in the tank B a false bottom formed of two planes *g* and *h* inclined one toward the other. The partitions *d* are connected at their extremity by a transverse partition *i* upon which there rests a second false bottom extending throughout the entire length of the tank and formed of two inclined planes *j* and *k*. A baffle plate *l* is fixed along the partition *b* with which it forms an acute angle.

A bubbling device constituted by a tube *m* arranged horizontally at the bottom of the tank and provided with horizontal holes *n* distributes the steam in the tank *a* supplied by suitable means. The tube *m* may be of

any suitable material but preferably of earthenware in order to avoid the deformation of the holes *n* by the acids.

The coloring matters are incorporated in the bath in the compartment A. The fabric is immersed in the compartment B and is carried along in the form of an endless band by the mill *o* in such a manner that it passes alternately into the atmosphere and into the bath and rests in the tank upon the false bottom *j k*.

The liberation of steam through the holes *n* of the bubbling device *m* serves to heat the dye bath and create in the tank a circulatory movement in the direction indicated by the arrows in the accompanying drawing. The false bottoms *g h* and *j k* and the partitions *i* and *l* form baffles and thereby facilitate the circulation of the steam throughout every part of the tank insuring an equal temperature to the whole of the bath.

The vertical partitions *d* likewise serve to insure circulation in the mass of the bath and prevent this circulation from becoming localized. The dividing of the bath by the perforated partition *e* protects the fabric from want of uniformity in the shade such as might result from the incorporation of fresh coloring materials in the tank A during the treatment.

What I claim and desire to secure by Letters Patent of the United States is:—

1. An apparatus for dyeing fabrics broadly characterized by a tank divided into two compartments communicating one with the other, an arrangement of false bottoms and partitions forming baffles for distributing throughout the tank the steam liberated by a bubbling device arranged at the bottom of the tank and which is constituted by a horizontal tube formed with horizontal holes; the liberation of steam resulting in creating in the two compartments of the tank and in every part thereof a rapid circulation of the coloring bath.

2. A dyeing apparatus comprising a bath compartment and a supply compartment having lateral communication at intervals with each other and having a tortuous passage forming a communication between the lower portion of said supply compartment and a suitable portion of said bath compartment and means for discharging steam at a suitable point in said tortuous passage for causing a circulation of the liquid through said compartments and said passage.

3. A dyeing apparatus comprising a bath compartment and a supply compartment having lateral communication at intervals with each other, a perforated bottom for
5 said supply compartment, a tortuous passage forming communication with the lower portion of said supply compartment and with a suitable portion of said bath compartment, and means for discharging steam at a suitable point in said tortuous passage for causing
10 a circulation of the die solution there-through.

4. A dyeing apparatus comprising a bath compartment and a supply compartment
15 having lateral communication at intervals with each other, partitions dividing said supply compartment into a plurality of separate divisions, a perforated bottom in each division of said supply compartment, a
20 tortuous passage for each supply compartment forming communication with the lower portion thereof and with a suitable portion of said bath compartment, and means for discharging steam at a suitable point in each
25 of said tortuous passages for causing a circulation of the die solution therethrough.

5. A dyeing apparatus comprising a bath compartment and a supply compartment having lateral communications at varying
30 heights therebetween, partitions dividing said supply compartment into separate divisions, a perforated bottom for each of said divisions, a tortuous passage for each division forming a communication from the bottom of each with the lower portion of said
35 bath compartment, means for discharging steam at a suitable point into each of said tortuous passages, and means for passing the material to be dyed through said bath com-
40 partment.

6. A dyeing apparatus comprising a bath compartment, a supply compartment having lateral communications with the bath compartment at varying heights, inclined
45 baffles forming a tortuous passage from the lower portion of said supply compartment to said bath compartment, and means for discharging steam at a suitable point in said passage for causing the circulation of the
50 die solution through the compartments and said passage.

7. A dyeing apparatus comprising a tank having an upright partition forming a bath compartment and a supply compartment
55 therein, said partition having openings at intervals forming a communication between

the said compartments, vertical partitions in said supply compartment forming divisions thereof, screens in each of said divisions forming a perforated bottom therefor, a
60 false bottom in said bath compartment, inclined baffles arranged, together with said bottom, to provide a tortuous passage and form a communication between each of the divisions in said supply compartment with
65 the bath compartment, means for discharging steam at a suitable point in each of said passages, and means for passing the material to be dyed through said bath compartment and causing the same to contact in its
70 passage with one of said inclined baffles.

8. A dyeing apparatus comprising a bath compartment and a supply compartment having lateral communication at intervals
75 with each other, partitions dividing said supply compartment into a plurality of separate divisions and said partitions having extensions located in said bath compartment, a perforated bottom in each division of said
80 supply compartment, a tortuous passage for each supply compartment forming communication with the lower portion thereof and with a suitable portion of said bath compartment, and means for discharging steam
85 at a suitable point in each of said tortuous passages for causing a circulation of the die solution therethrough.

9. A dyeing apparatus comprising a bath compartment and a supply compartment separated by a suitable partition having
90 openings therein at suitable intervals forming lateral communications between said compartments, partitions dividing said supply compartment into a plurality of separate divisions and having extensions passing
95 below the first mentioned partition, into said bath compartment, a false bottom in said bath compartment above said extensions, a transverse partition at the extremity of said extension, a second false bottom in said bath
100 compartment, overlapping the first false bottom, with a passage therebetween, and a baffle plate adjacent the mouth of said passage and situated at an angle with respect to said
105 first partition.

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

LÉON DERREUMAUX-BULTEAU.

Witnesses:

M. GERBEAULT,
GREGORY PHELAN.