

R. H. COMEY.
DYEING MACHINE.
APPLICATION FILED OCT. 27, 1909.

972,822.

Patented Oct. 18, 1910.

Fig. 1.

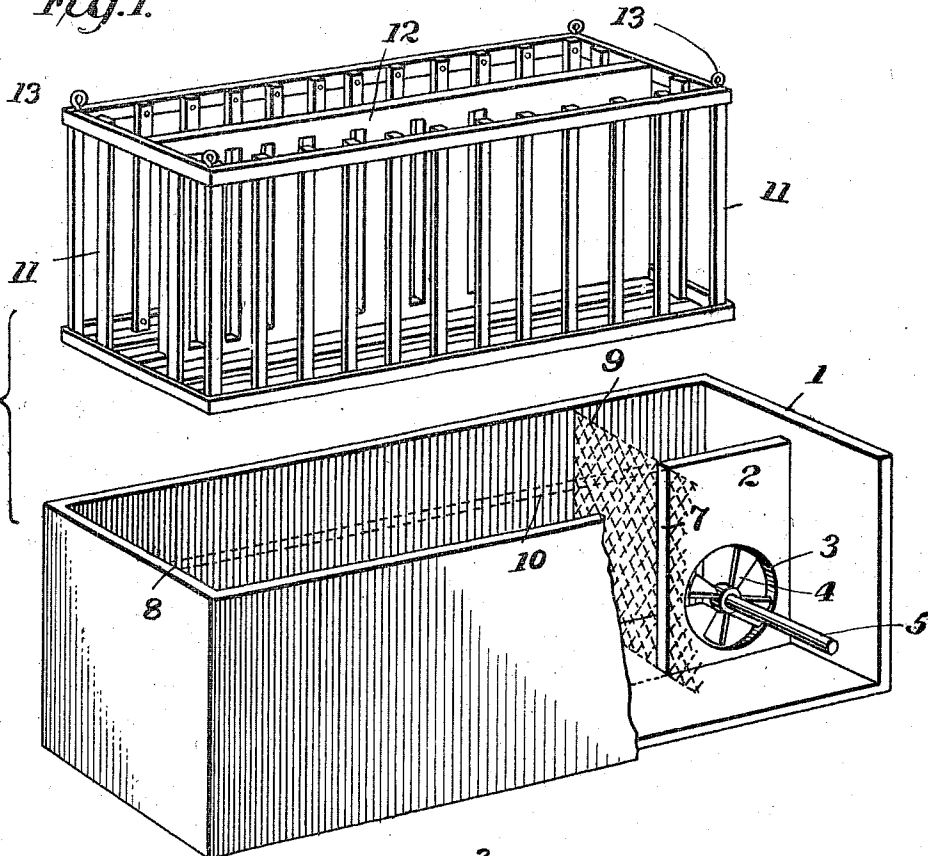


Fig. 2.

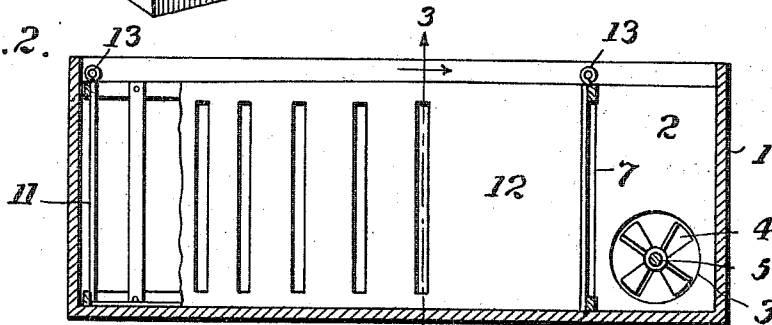
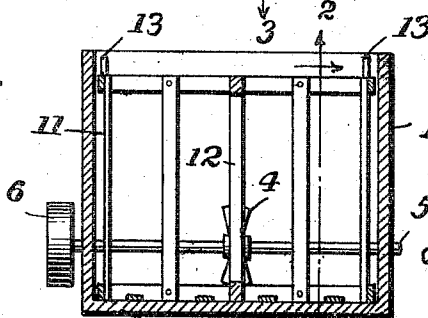


Fig. 3.



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DYEING-MACHINE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT H. COMEY, a citizen of the United States, and resident of Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Dyeing-Machines, of which the following is a specification.

This invention relates to dyeing machines, and its objects are to simplify and cheapen the construction of such machines and to provide for efficient circulation of the dye liquor to all parts of the material being treated.

It has particular reference to the treatment of straw and similar material, but is adapted to other uses. Its novel features will be apparent from the following description taken in connection with the accompanying drawing.

In the drawing,—Figure 1 is a perspective view of the apparatus showing the parts separated; Fig. 2 is a longitudinal section of the vat taken on the line 2—2 of Fig. 3; and Fig. 3 is a cross section taken on the line 3—3 of Fig. 2.

Straw and similar material, when being dyed, is ordinarily treated in mass through which the dye liquor is circulated. According to the present invention, instead of supporting the mass of material on a perforated false bottom and circulating the dye liquor through the mass and that bottom vertically, the circulation is effected by a movement of the dye liquor in a horizontal direction. The arrangement however is such as to make the liquor reach all parts of the material from top to bottom and from one end of the apparatus to the other. As shown, I use an ordinary vat 1, which is rectangular in shape and which is adapted to receive the dye liquor. The material to be treated is placed in this vat and the dye liquor is caused to circulate around and through it. A short vertical partition 2 is placed in the vat at one end and extends longitudinally thereof, and in this partition there is an opening 3 in which there is placed a propeller 4 carried by the shaft 5 having upon its outer end the pulley 6. The material to be treated is placed in the vat between the end 7 of the partition 2 and the end 8 of the vat, leaving a free space upon the sides of the partition 2. In order to prevent the material being treated from

entering this free space I employ a screen 9 extending across the vat, and it will be understood that this screen is such that the dye liquor may easily pass through it at all points, but that it will retain the material being treated so as to prevent it passing with the liquor to the propeller 4. I also use a partition 10 which is arranged as a continuation of the partition 2, and which may extend all the way to the end 8 of the vat. The partitions 2 and 10 therefore constitute practically one partition from one end of the vat to the other. The partition 10 may be provided with openings through it at various points from one end to the other, and these openings are preferably made more numerous at the end farthest removed from the propeller, so as to equalize the circulation from one side of the partition to the other at various points throughout its length. It will be understood that these openings through the partition may be made of any suitable shape, and that an opening may be left at the end so that the liquor will pass the full length of the material.

It will be observed that the propeller 4 is near the bottom of the vat, since in this position it creates a better circulation through the material, and since the shaft 5 is horizontal the pulley for operating the propeller is in convenient position to be run by a belt leading from any ordinary drive shaft. By this arrangement the dye liquor is circulated continuously in a horizontal direction, moving in one direction on one side of the partition and in the opposite direction on the other side of the partition, and passing across the partition either at the ends or partially at points where there are openings in the partition between the ends.

The screen 9 and partition 10 are shown in dotted lines in Fig. 1, and instead of making use of this part as fixed portions of the vat itself, I may make use of a removable cage which embodies these features.

The material to be treated may be placed in a cage 11 which is removable from the vat and which is of such size as to closely fit in the vat when in position and to bear against the end of the partition 2. This cage is made of open-work, such for instance as separated slats, as shown in the drawings, so that dye liquor may freely circulate through it at any point. A central vertical

partition 12 is placed in this cage and is removable with it, and this partition is substantially like the partition 10 described above. When the cage is in position, the partition 12 constitutes a continuation of the partition 2, and the end of the cage takes the place of the screen 9, since it retains the material being treated so that it will not be carried out through the propeller. It will be understood that the material to be treated is simply placed in the cage on either one or both sides of the central partition, and the cage is let down into the dye vat. The cage may be raised and lowered by any suitable means engaging the rings 13 at the corners.

Having thus described the invention, what is claimed is:

1. The combination in a dye vat, of an upright partition dividing the vat into two sections, each of which is adapted to contain material to be treated, the said partition having openings therethrough at various points to permit the passage of the dye liquor from one side to the other but to prevent the passage of the material treated; and means at one end of the partition for creating a circulation from one side to the other and means for preventing the material from entering said means.

2. The combination in a dye vat, of an upright partition dividing the vat into two sections, each of which is adapted to contain material to be treated throughout most of its length, means for maintaining a space at one end of said vat free from said material,

and means for creating a circulation from one side of said partition to the other in said free space, the said partition being so constructed as to permit circulating dye liquor to travel through said material and to pass from one side to the other.

3. The combination in a dye vat, of an upright partition dividing the vat into two sections, and provided with openings throughout at various points from top to bottom, and means for continuously circulating dye liquor in said sections and through said openings.

4. The combination in a dye vat, of an upright partition at one end extending longitudinally into said vat, an open-work removable cage adapted to contain the material to be treated fitting in said vat close against the end of said partition, and means in said partition for creating a circulation of the dye liquor from one side to the other.

5. The combination in a dye vat, of an upright partition at one end extending into said vat, an open-work removable cage adapted to contain the material to be treated fitting in said vat close against the end of said partition, means in said partition for creating a circulation of the dye liquor from one side to the other, and an upright partition in said cage constituting a continuation of said first mentioned partition when the cage is in place.

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