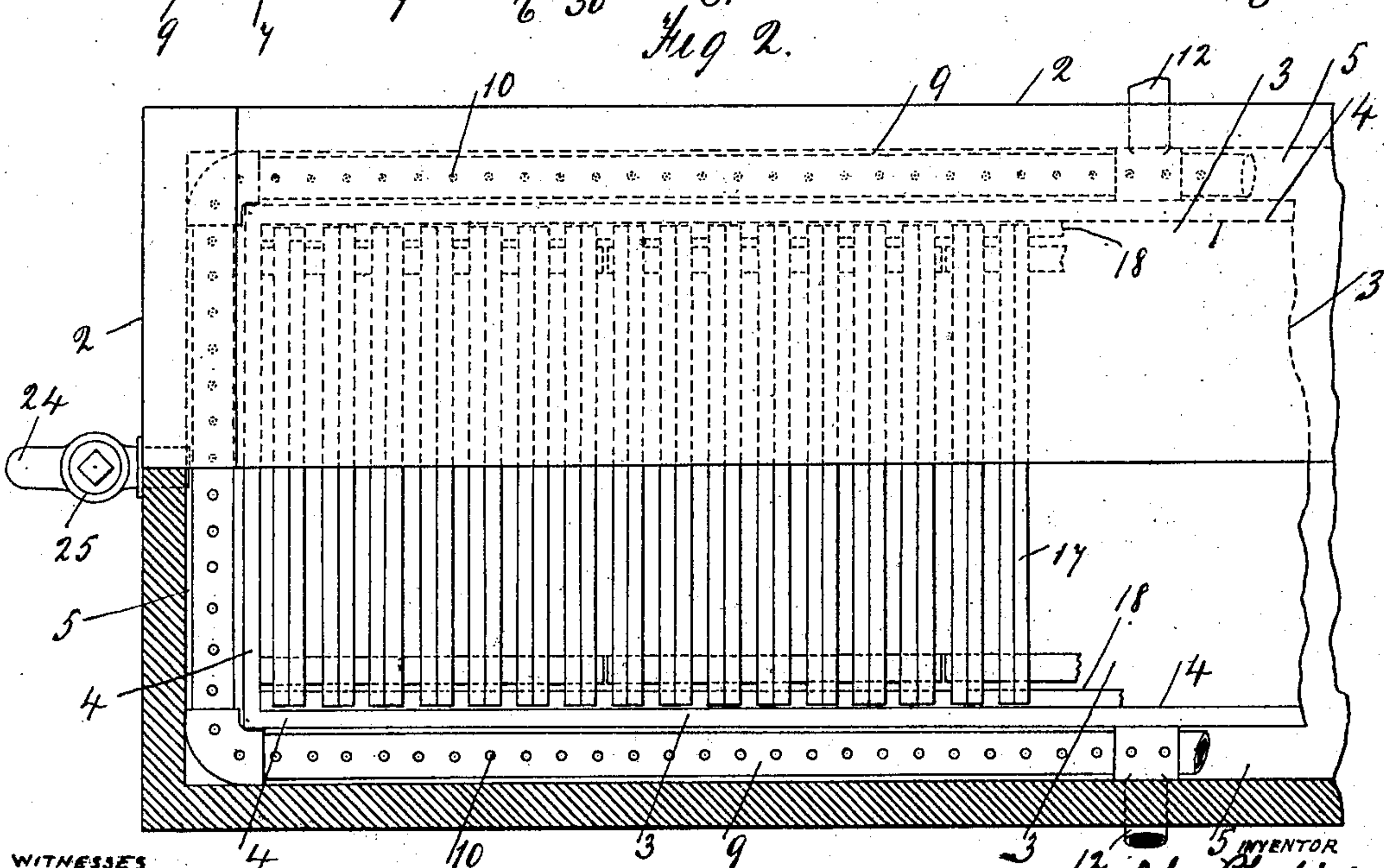
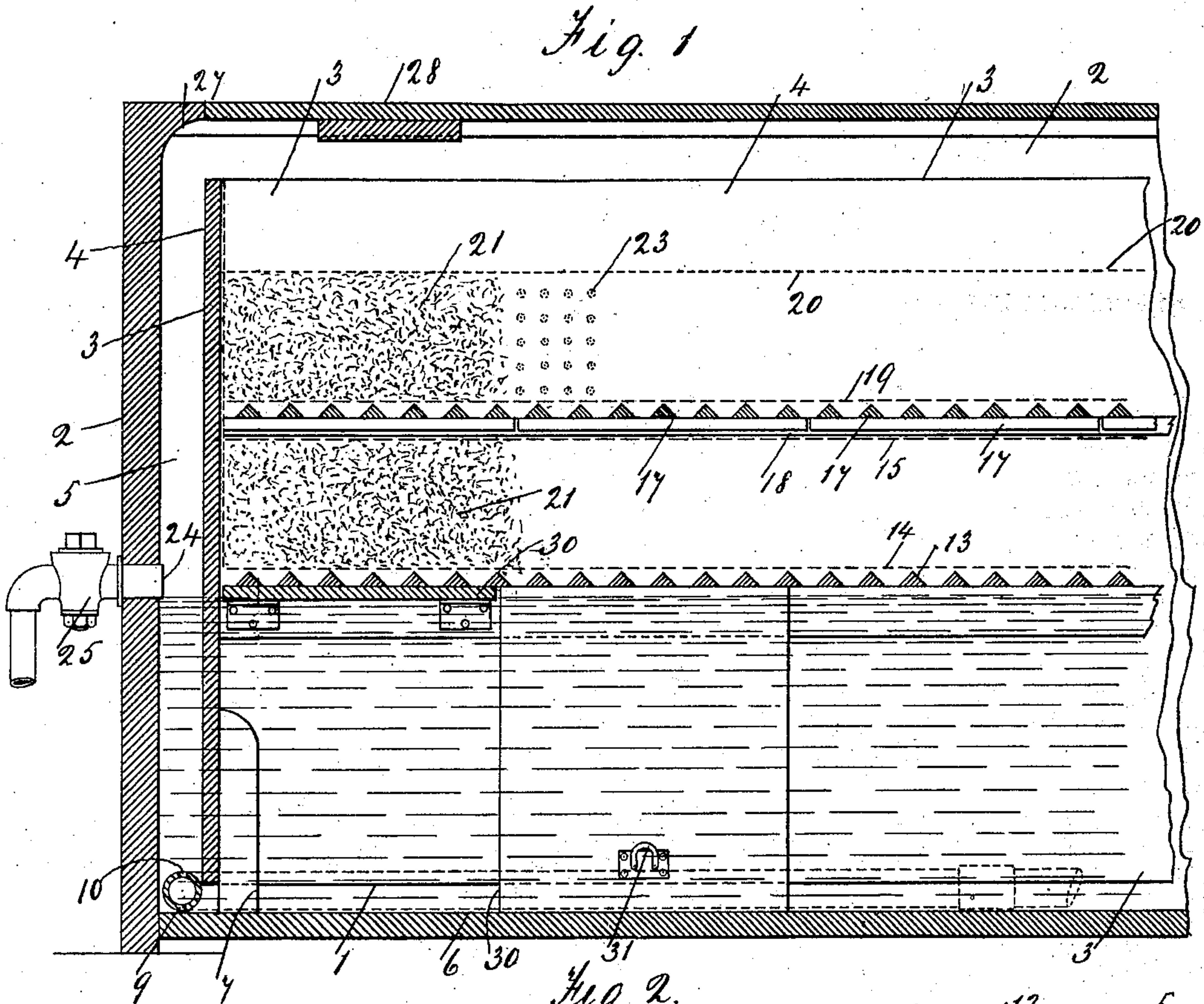


No. 693,443.

Patented Feb. 18, 1902.

J. RHODES.
APPARATUS FOR DYEING.
(Application filed July 5, 1899.)

(No Model.)



WITNESSES
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UNITED STATES PATENT OFFICE.

JOHN RHODES, OF BRADFORD, ENGLAND.

APPARATUS FOR DYEING.

SPECIFICATION forming part of Letters Patent No. 693,443, dated February 18, 1902.

Application filed July 5, 1899. Serial No. 722,859. (No model.)

To all whom it may concern:

Be it known that I, JOHN RHODES, a subject of the Queen of England, residing at 36 Elizabeth street, Bradford, England, have invented certain new and useful Improvements in Apparatus for Scouring, Dyeing, and Similarly Treating Hanks of Yarn, Slubbing, and other Fibrous Material, of which the following is a specification.

10 The object of this invention is to provide simple apparatus for scouring, dyeing, and similarly treating wool and other fibrous material, hanks of yarn, slubbing, and the like.

To fully describe my invention, reference 15 is made to the accompanying sheet of drawings, in which—

Figure 1 represents a longitudinal section of a vat or cistern to which my improvements are applied. Fig. 2 is a plan view of the same 20 with one side of the vat in section to show the interior in full.

The vat 2 contains an inner vessel 3, the sides 4 of which are fixed a certain distance from the walls of the vat, so as to leave a 25 space 5 all around. The bottoms 1 of the sides of the vessel do not reach to the bottom 6 of the vat, but are supported a little way from the bottom upon a suitable number of feet 7. Consequently a space is left all around. A 30 steam-pipe 9 is fixed all around the bottom of the vat outside the vessel 3. This pipe is made with perforations 10 in the top and is supplied with steam under pressure, preferably, by two inlets 12 12. The inner vessel 3 35 has a false bottom consisting of cross-bars 13, covered with canvas 14 or like material, and the material to be treated is placed upon this false bottom and a canvas cover 15 placed over it. Instead of completely filling the vessel 3 a removable horizontal partition 17, supported on the side bars 18, may be placed 40 over the material on the false bottom. In this case the partition 17 is also covered with canvas 19, and a covering 20 of canvas is

placed over the material. The stippling 21 45 in Fig. 1 represents the material to be treated in position. The sides of the vessel 3 may be made of open-work or with perforations 23, in which case they are covered with canvas.

In operation the vat 2 is filled with dye or 50 other liquor approximately to the level of the false bottom 13, and to prevent this being exceeded an overflow-pipe 24, fitted with a stop-valve 25, is preferably fitted. When steam of sufficient pressure is turned onto the pipe 55 9, it, besides heating the liquor, drives it up the space 5, and the inwardly-curved rim 27 of the sides of the vat and the cover 28 cause it to flow over into the top of the vessel 3. Forcing the liquor from beneath the bottom 60 13 up in this way produces a suction or partial vacuum under the material, which tends to draw the liquor flowing into the top of the vessel back through the material, and the canvas insures uniform distribution of the 65 liquor.

To prevent the liquor passing directly through the material, hinged doors 30 may be fitted on the under side of the false bottom. One of these doors is shown in section in Fig. 70 1, and another is shown open and in full by the side of it. The doors are closed by chains or ropes attached to the staples 31, extending up to the top of the vat. Closing one or more of the doors causes a portion of the liquor to 75 flow in an inclined or lateral course through the material.

I claim—

The combination with the vat 2 and inner vessel 3 having a perforated false bottom, of 80 the doors 30 substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JOHN RHODES.

Witnesses:

DAVID NOWELL,
SAMUEL A. DRACUP.