

J. KERSHAW.
APPARATUS FOR DYEING.
APPLICATION FILED FEB. 25, 1903.

NO MODEL.

2 SHEETS—SHEET 1

Fig 1.

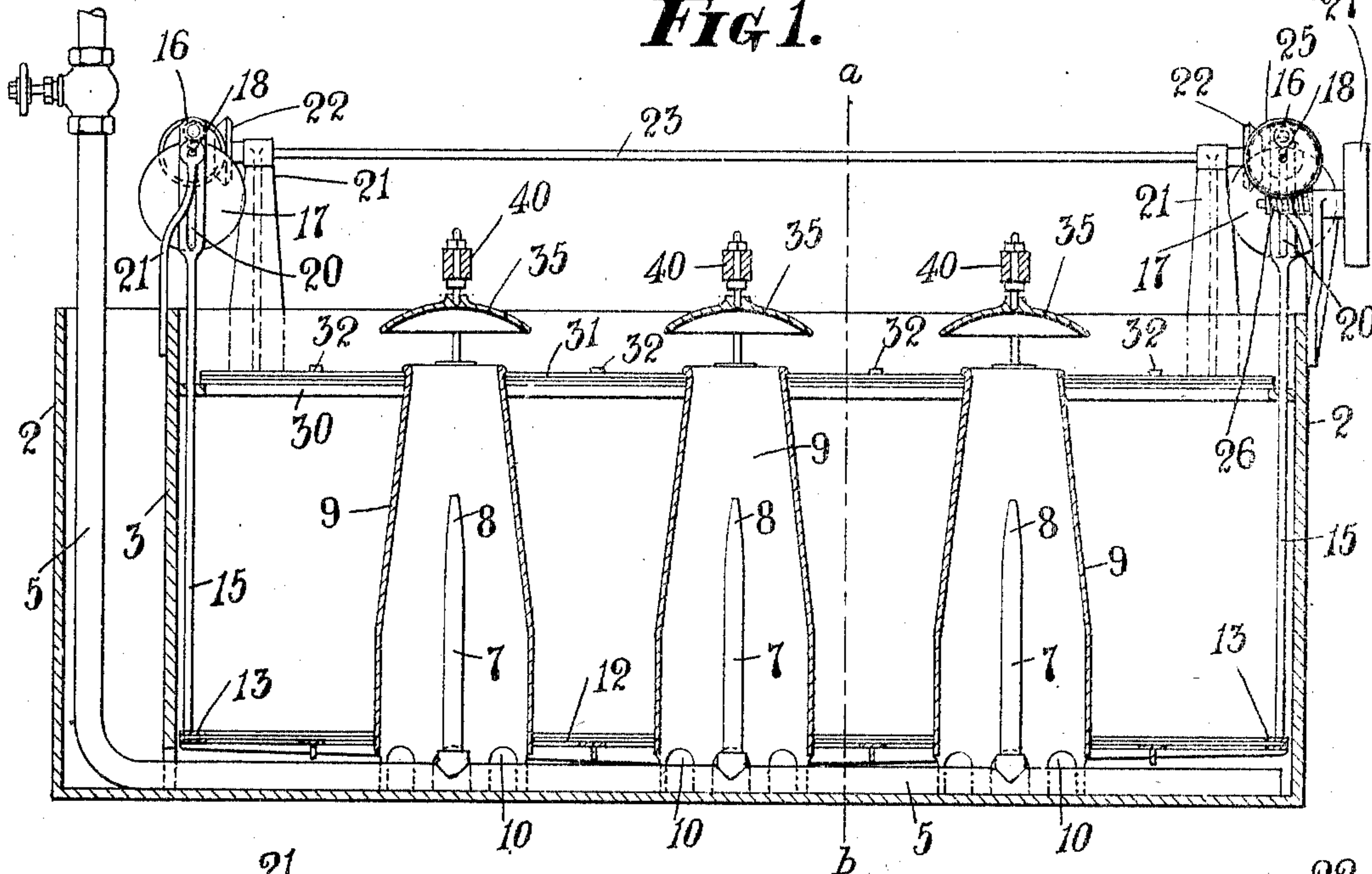
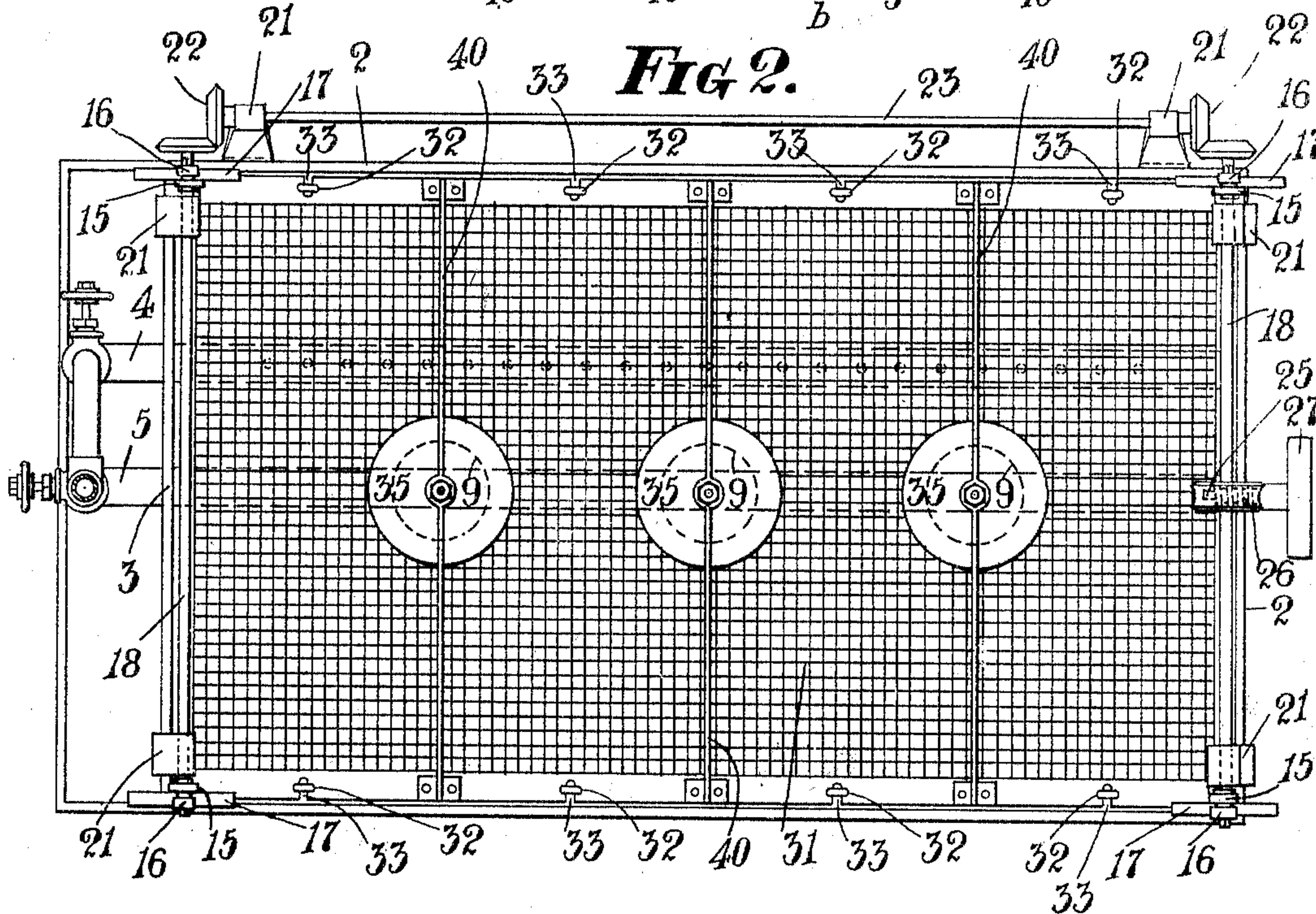


Fig 2.



WITNESSES

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No. 776,069.

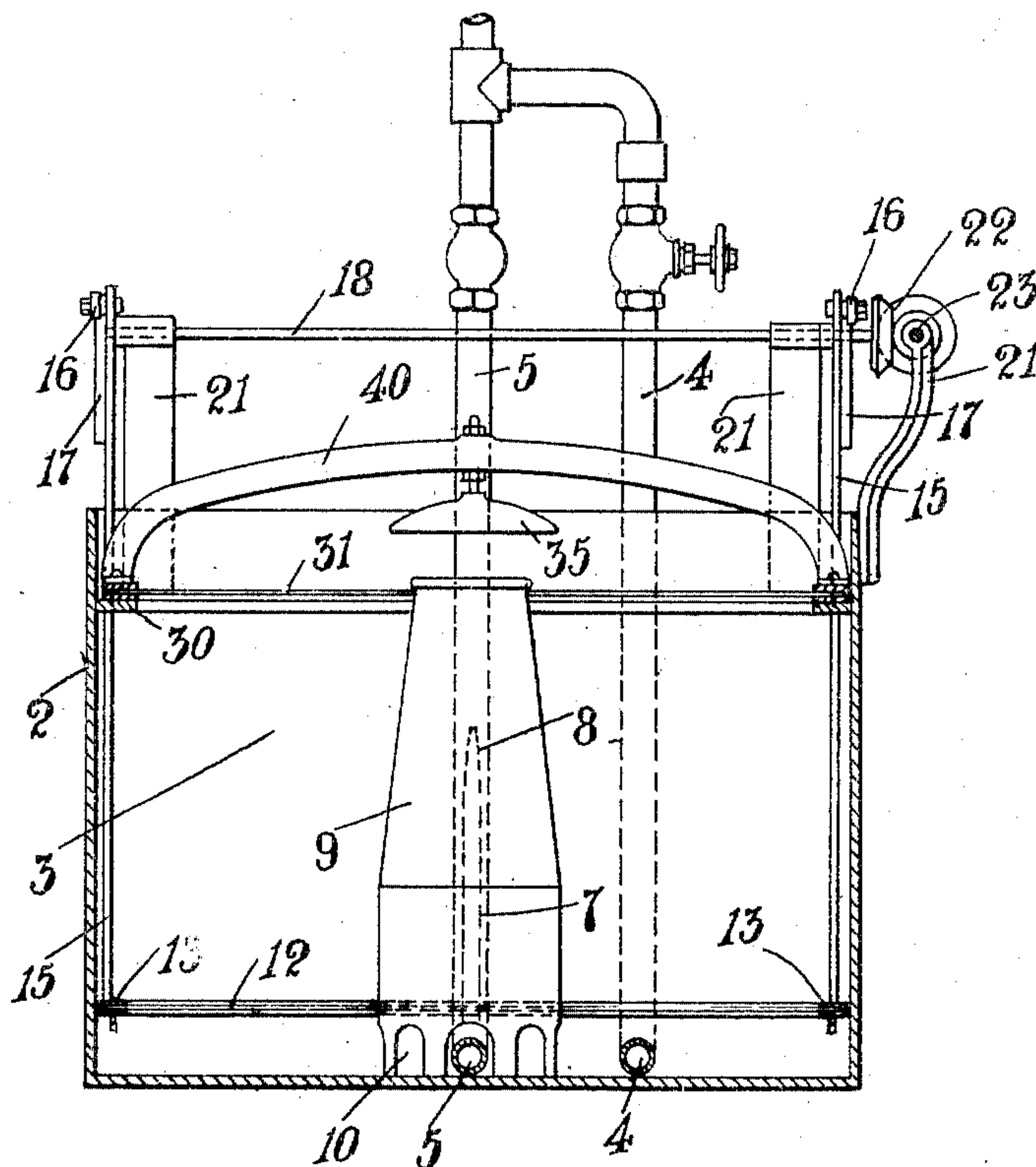
PATENTED NOV. 29, 1904.

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APPARATUS FOR DYEING.
APPLICATION FILED FEB. 25, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOE KERSHAW, OF BRADFORD, ENGLAND.

APPARATUS FOR DYEING.

SPECIFICATION forming part of Letters Patent No. 776,069, dated November 29, 1904.

Application filed February 25, 1903. Serial No. 145,060. (No model.)

To all whom it may concern:

Be it known that I, JOE KERSHAW, a subject of the King of England, residing at 4 New Hey road, Bradford, England, have invented
 5 certain new and useful Improvements in Machines or Apparatus for Dyeing, Mordanting, or Similarly Treating Slubbing, Yarn, and other Fibrous Material, of which the following is a specification.

10 This invention relates to improvements in machines or apparatus for dyeing, mordanting, or similarly treating with liquids wool, slubbing, yarn, and other fibrous material.

To fully describe my invention, reference
 15 is made to the accompanying sheets of drawings, forming a part of this specification, in which similar reference-numerals indicate corresponding parts in each of the views.

Figure 1 represents a longitudinal section
 20 of an ordinary slubbing-dyeing vat fitted with my improvements. Fig. 2 is a plan view of the same. Fig. 3 is a cross-section of Fig. 1 on the broken line *a b*.

The vat 2 has an end partition 3 fitted at
 25 the end where the steam-pipes 4 and 5 enter to keep the material from actual contact with the pipes. The pipe 4 runs along the bottom of the vat. It is perforated along the horizontal part and is employed in the
 30 usual way to heat the liquid in the bath by the emission of steam. The second pipe 5 runs along the center of the bottom of the vat and has three vertical branches 7 terminating in nozzles 8. These branches are sur-
 35 rounded by hollow cones 9, secured to the bottom of the vat, but having a number of openings 10 all round the bottom. A false bottom 12, of wirework or other reticulated material, is supported on the frame 13, fitting
 40 the bath above the pipes 4 and 5, and this frame, is supported at each corner by vertical rods 15, extending above the bath and having antifriction-rollers 16 at the top, resting on four eccentrics 17, carried by the end shafts
 45 18. The rods have slots 20 at the top, fitting

the shafts 18. The shafts are supported by bearing-standards 21 and are coupled together by the bevel-wheels 22 at each end of the back shaft 23. When the shafts are put in motion, the eccentrics are rotated, thereby
 50 raising and lowering the rods 15, and with them the perforated false bottom 12.

The shafts may be driven by a worm-wheel 25 on the most convenient shaft. This is shown on the end shaft 18 on the right-hand
 55 side, Figs. 1 and 2, together with a worm 26 and driving-pulley 27. Holes are made in the false bottom to admit the bases of the cones 9, which latter are preferably made cylindrical to the height the bottom 12 rises.
 60

The material to be treated is placed evenly in the vat on the false bottom and is packed more or less up to the internal flange 30, surrounding the vat, and the wirework cover 31, preferably made in two or more sections, is
 65 secured to the flange 30 by the turn-button 32, secured to the flange and turned across the slots 33 in the sides of the cover 31. Holes are formed in the cover for the tops of the
 70 cones 9.

When steam at a suitable pressure is turned onto the pipe 5, it is discharged at the nozzles 8 with sufficient force to carry a constant stream of liquid out of the tops of the cones, and such streams, meeting the concave deflec-
 75 tors or spreaders 35, is broken up into small jets or spray and evenly distributed over the cover and percolating through the material again enters the cones and is again distributed, thus maintaining a constant circulation. At
 80 the same time the bottom 12 can be raised and lowered to alternately increase and relax the pressure on the material. The increase of the pressure and the relaxation thereof taking place from below enables the material to
 85 readily open out or expand as the pressure is relaxed. The deflectors 35 are carried by bridge or span pieces 40, secured to the sides of the covers 31.

I claim—

An apparatus for dyeing and the like comprising a containing vessel, a reticulated cover, a reticulated false bottom to hold the material, means for giving said bottom a continuous rising-and-falling movement so as to alternately increase and relax the pressure on the material, a passage extending from below the false bottom to above the cover, a deflec-

tor above said passage and a steam-jet in the passage, substantially as described. 10

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

JOE KERSHAW.

Witnesses:

SAMUEL A. DRACUP,
CECIL A. S. BAXTER.