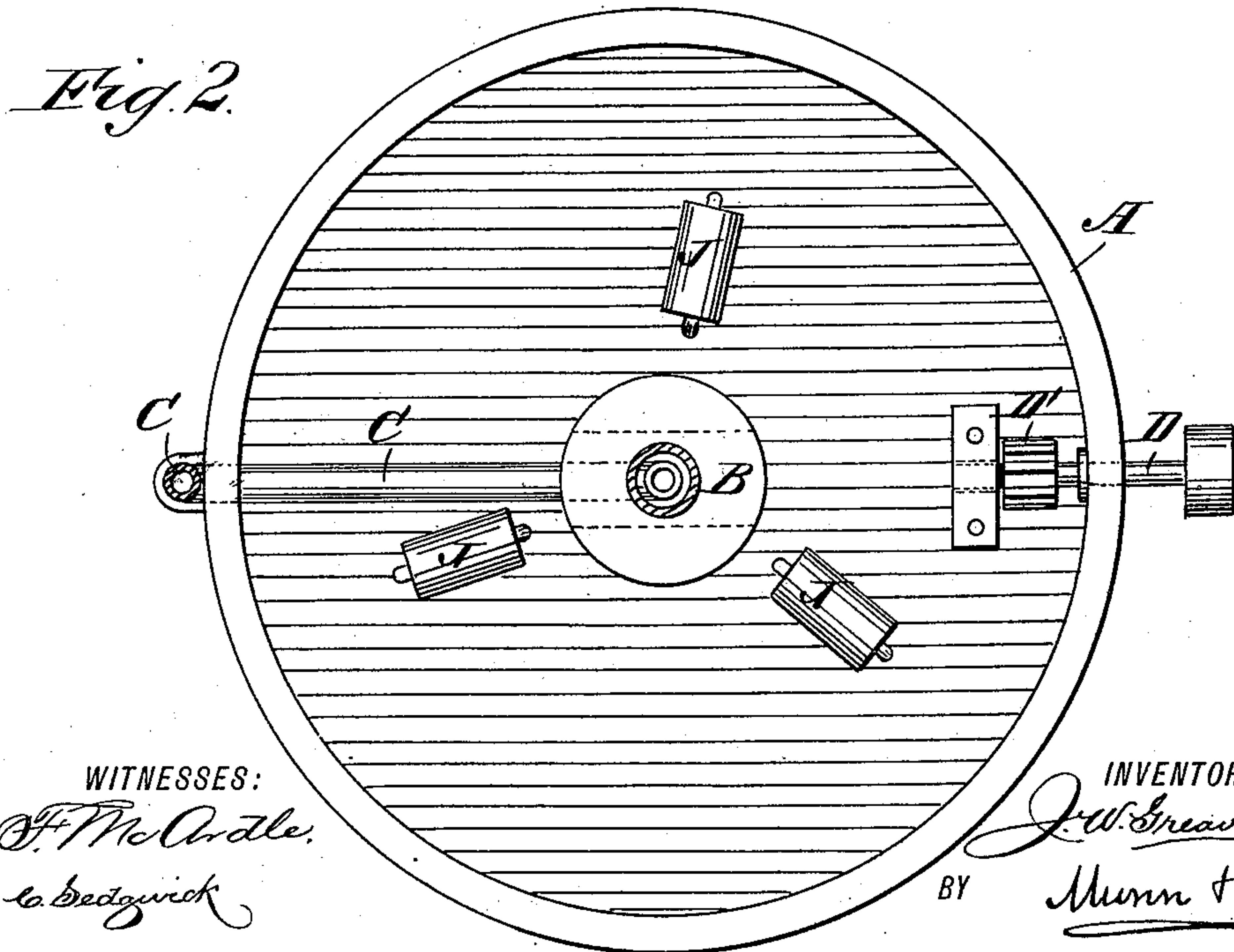
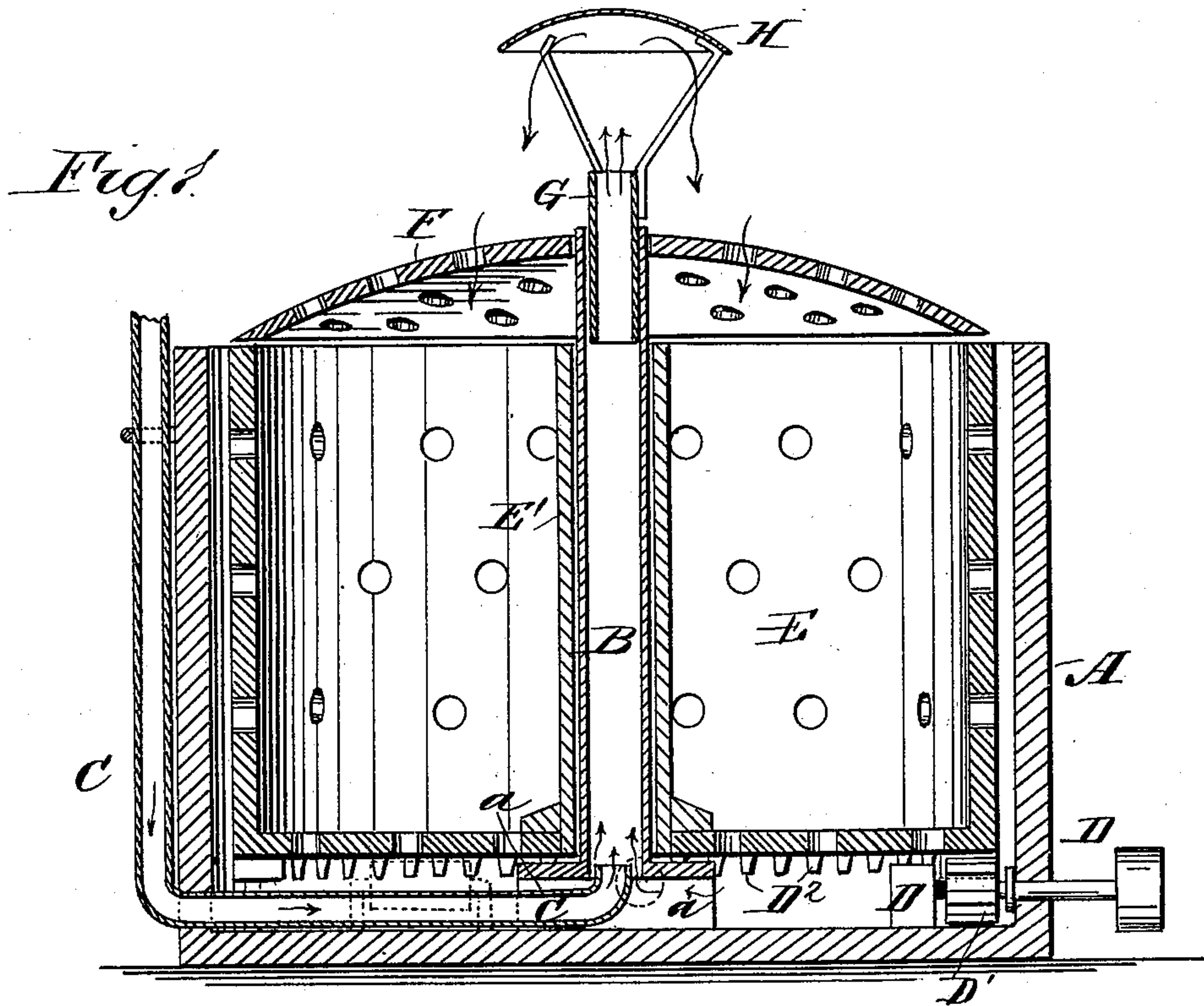


(No Model.)

J. W. GREAVES.
DYEING VAT.

No. 401,027.

Patented Apr. 9, 1889.



WITNESSES:
H. McArdle,
Co. Bedgwick

INVENTOR,
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UNITED STATES PATENT OFFICE.

JAMES W. GREAVES, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR OF ONE-HALF TO WILLIAM R. ARNOLD, OF SAME PLACE.

DYEING-VAT.

SPECIFICATION forming part of Letters Patent No. 401,027, dated April 9, 1889.

Application filed May 25, 1888. Serial No. 275,102. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. GREAVES, of Providence, in the county of Providence and State of Rhode Island, have invented a new
5 and Improved Dyeing-Vat, of which the following is a full, clear, and exact description.

My invention relates to an apparatus for dyeing wool, yarn, and slubbing, or other fibrous material, and the principal object is
10 to avoid poling, as is now generally the practice; and to this end my invention consists of a permanent or stationary vat combined with a perforated basket and a pressure-pipe extending from the bottom to the top of the
15 basket, and through which the dyeing-liquid is forced by a pressure of steam or by pump-pressure.

The invention also consists of the construction, arrangement, and combination of parts,
20 all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

25 Figure 1 is a central sectional elevation of the complete apparatus, and Fig. 2 is a plan view of the vat with the basket removed.

A represents the permanent or stationary vat, preferably circular in form, and in the
30 center of which is mounted the vertical pipe B, to which the openings *a a* lead.

C represents a steam or pressure pipe entering the vat A, and extending along the bottom thereof and entering the lower part of the vertical pipe B.
35

Opposite to the pipe C, or at some convenient part of the vat A, is journaled the short shaft D, on the outer end of which is a pulley for revolving the same, and on the inner end
40 a pinion, D', with which meshes the circular rack D² at the bottom of the basket E, so that when the said shaft D is revolved the said basket E will be slowly revolved in the vat, as will be understood from Fig. 1.

45 The basket E is perforated at the bottom and sides, and is of less diameter than the vat A, so that a free circulation is permitted to all parts of the basket, and in the center of the basket is mounted the hollow sleeve E',
50 which surrounds the tube B, as shown in Fig. 1.

The pipe B projects above the sleeve E', and on its upper end is placed the perforated cover or spreader F, that covers the entire basket, and in the top of the pipe B is placed the short tube G, provided with the spreader
55 H, against which the stream or jet of liquid forced up the pipe B strikes, and is deflected in all directions over the perforated cover F, so that a perfectly even distribution of the liquid to the basket E and its contents is ef-
60 fected.

J J are anti-friction rollers placed in the bottom of the vat A to support the basket E and cause it to turn easily.

In operation the yarn, wool, slubbing, or
65 other material to be dyed is placed in the basket E and the dyeing-liquid is supplied in suitable quantity. By means of a jet of steam entering pipe C the liquid is forced from the bottom of the vat through the pipe B and
70 thrown in a continual spray on the top of the basket, which latter is at the same time caused to revolve. In this manner the coloring-liquid gradually saturates the material and sinks to the bottom of the vat through the wool, &c.,
75 and is again carried up the center pipe. The operation is continued for a length of time sufficient to complete the dyeing process, thus leaving the material very evenly colored and in a state undisturbed by poling, &c., as in
80 the common process.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The vat A, central pipe, B, held in the vat,
85 and the perforated basket E, placed upon the said pipe B and of less depth than the length of the pipe, in combination with the steam-pressure pipe C, entering the vat, and the pipe B, substantially as described.
90

2. The vat A and perforated revolving basket E, placed therein, in combination with a steam-pressure pipe, C, and vertical pipe B, perforated spreader F, placed over the basket, and the spreader H, held above the top of the
95 pipe B, substantially as described.

JAMES W. GREAVES.

Witnesses:

OSCAR LAPHAM,
JOHN W. HOGAN.