

(No Model.)

2 Sheets—Sheet 1.

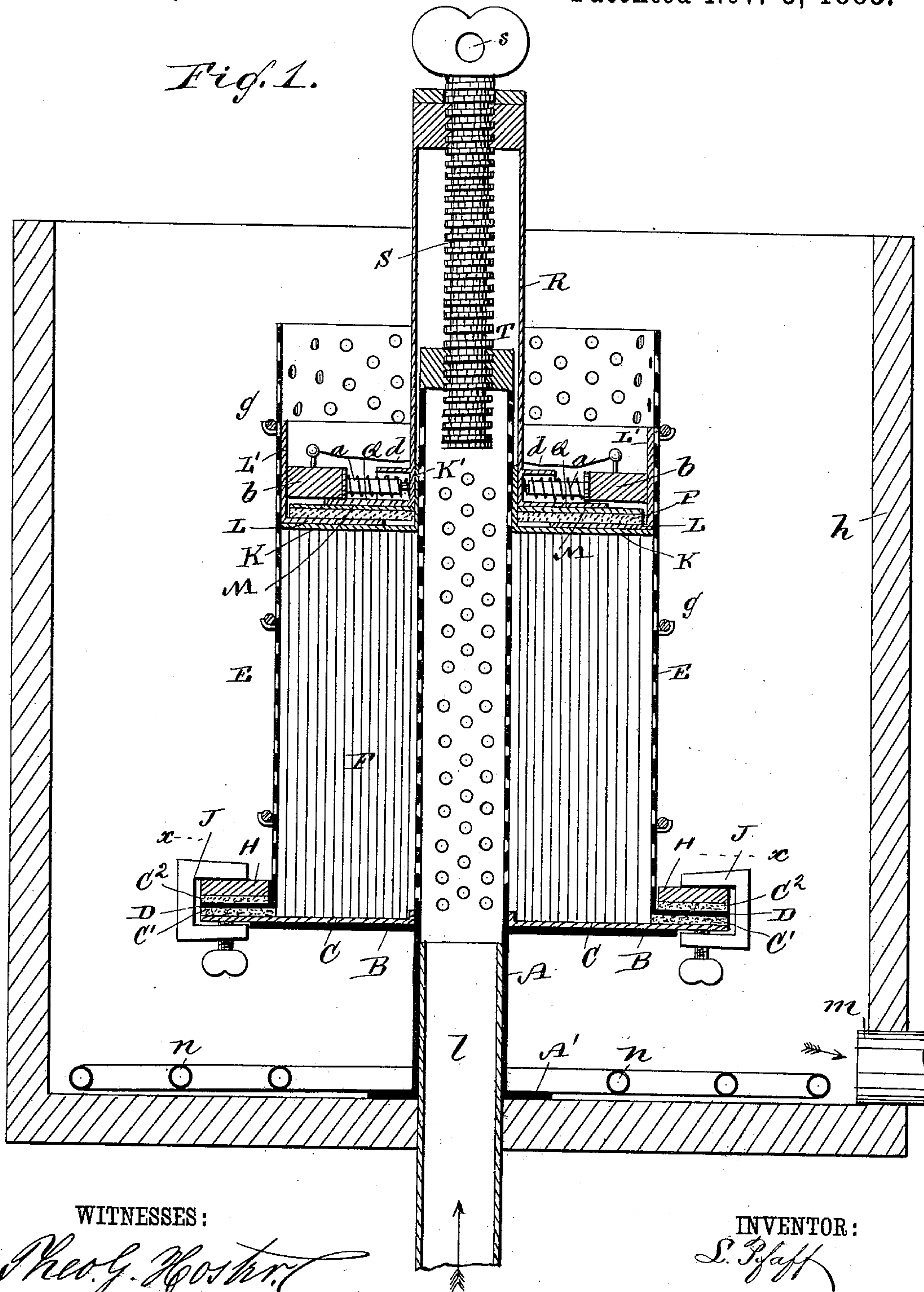
L. PFAFF.

APPARATUS FOR DYEING.

No. 329,483.

Patented Nov. 3, 1885.

Fig. 1.



WITNESSES:

Thos. G. Hoster
C. Sedgwick

INVENTOR:

L. Pfaff

BY

Mumford

ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

L. PFAFF.

APPARATUS FOR DYEING.

No. 329,483.

Patented Nov. 3, 1885.

Fig. 2.

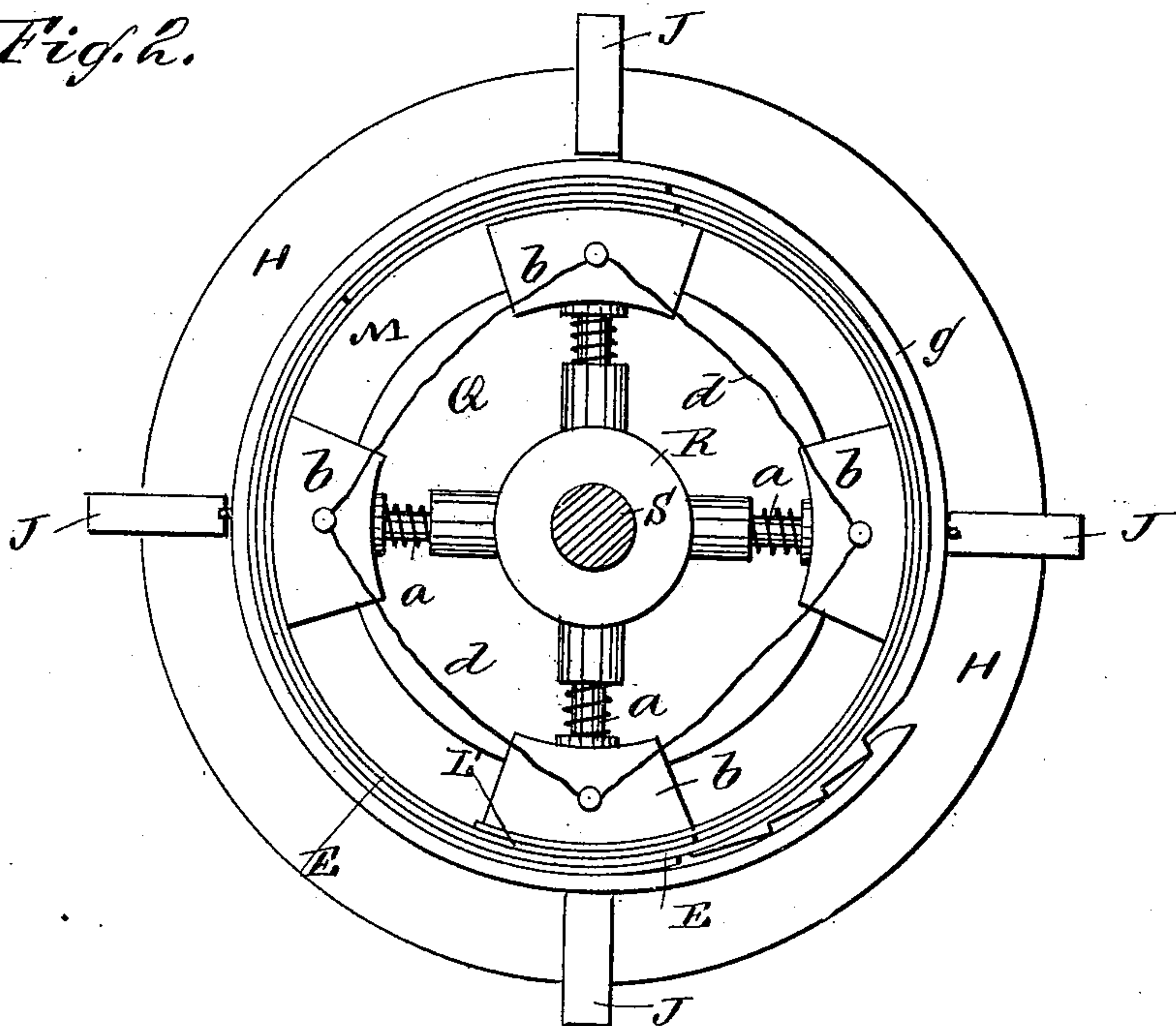
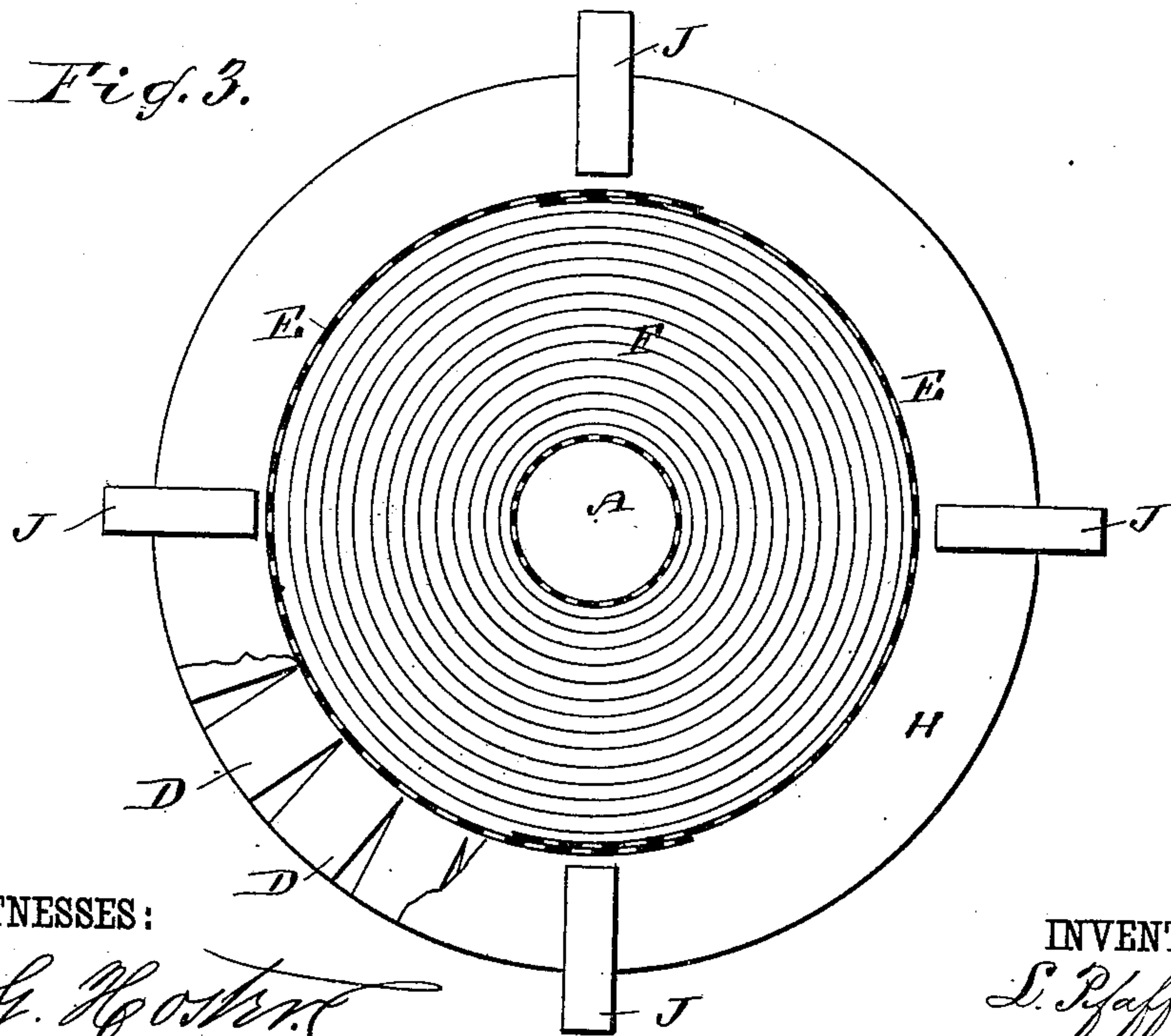


Fig. 3.



WITNESSES:

Geo. G. Hoster
C. Sedgwick

INVENTOR:

L. Pfaff

BY

Mumford
ATTORNEYS.

UNITED STATES PATENT OFFICE.

LUDWIG PFAFF, OF SAN FRANCISCO, CALIFORNIA.

APPARATUS FOR DYEING.

SPECIFICATION forming part of Letters Patent No. 329,483, dated November 3, 1885.

Application filed December 22, 1884. Serial No. 150,973. (No model.)

To all whom it may concern:

Be it known that I, LUDWIG PFAFF, of San Francisco, in the county of San Francisco and State of California, have invented a new and Improved Dyeing Apparatus, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved apparatus for dyeing piece-goods without folding or creasing them.

10 The invention consists in the combination, with a perforated tube around which the fabric to be dyed is wound, of a perforated cylinder surrounding the fabric and top and bottom pieces covering the ends of the cylinder
15 of fabric. This apparatus is placed into a vat, and the dyeing-liquid is forced up through the bottom of the tube, passes through the fabric, and drops from the apertures of the outer cylinder into the vat, and is then drawn off, to be
20 used again.

The invention also consists in various parts and details and combinations of the same, as will be fully described and set forth hereinafter.

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

30 Figure 1 is a longitudinal sectional elevation of my improved dyeing apparatus. Fig. 2 is a plan view of the same. Fig. 3 is a sectional plan view of the same on the line *x x*, Fig. 1.

35 A tube, A, provided at its lower end with a foot or base, A', and a short distance above the foot with an outwardly-projecting circular plate or flange, B, is provided with perforations above the plate B. Two semi-annular plates, C, or an annular plate, are placed on
40 the plate B. Packing-strips C' are placed on the plates C, and the base-flanges D of two perforated semi-cylinders, E, are placed upon the packing-strips C' after the fabric F to be dyed has been wound closely upon the perforated tube A. The side edges of the perforated semi-cylinders E overlap more or less,
45 according to the diameter of the roll of fabric on the tube A. Packing-strips C' are placed on the flanges D, and wooden or metal half-rings H are placed on the packing-strips, and
50 all these parts are clamped together by means

of screw-clamps J, as shown, thus forming an absolutely tight joint at the bottoms of the perforated semi-cylinders. On the top of the fabric F a flat ring or cover, K, is placed, 55 provided with a neck, K', fitting loosely on the tube A, and on the ring or cover K two expanding half-rings, L, are placed, provided on the outer edges with upwardly-projecting flanges L', resting against the inner sides of 60 the semi-cylinders E. On the expansible rings L a packing-ring, P, is placed, on which in turn a flat ring, M, is placed, on which a ring, Q, rests, which is provided with an upwardly-projecting tube, R, in the top piece of 65 which a screw-spindle, S, is held. A nut, T, adapted to receive the screw S, is secured in the top of the tube A. On the upper surface of the ring Q four radially-sliding bolts, *a*, are arranged, which are pressed outward by spiral 70 springs surrounding them, and between the outer ends of the bolts and the flanges L' of the expanding-ring L blocks *b* are placed, which are united by a cord or wire, *d*. The perforated semi-cylinders are surrounded by 75 spring-hoops *g*, having teeth formed on one end part and a hook on the opposite end part, the said hoops being supported by suitable hooks on the outer surfaces of the half-cylinders E. The foot A' of the tube A is placed 80 on the bottom of a vat or tank, *h*, a tube, *l*, projecting through the bottom of the vat into the lower end of the tube A. The vat or tank is provided with an outlet-pipe, *m*, and with a coil, *n*, for heating the contents of the vat. 85 The screw S is provided with an aperture, *s*, in its upper end.

The operation is as follows: The two semi-cylinders containing the fabric are raised by means of a suitable lifting device, and are 90 lowered into the vat or tank *h*. By means of a suitable pump or other forcing apparatus the liquid dye is forced up through the pipe *l* and the perforated tube A, the top of which is closed by the screw S, thus compelling the 95 liquid to pass through the fabric F and the perforated half-cylinders E, and to flow into the vat, from which it is withdrawn through the pipe *m*. By means of steam or hot water in the coil *n* the dye-liquid in the vat *h* is 100 heated and can be used again. Then clean hot water is forced through the apparatus, in

the manner just described, to wash the fabric, and then hot air is forced through the fabric to dry it. The apparatus is then removed from the tank or vat by means of a suitable
 5 lifting device, and the fabric is unwound from the tube A. By screwing the screw S down through the nut T the covers are pressed firmly on the top of the roll of fabric, and thus prevent leakage, and the spring-bolts *a* press the
 10 neck K' and flanges L' firmly against the tube A and the cylinder E, thus forming close joints.

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

1. In a dyeing apparatus, the combination, with a perforated tube, of a fixed projecting plate, a perforated cylinder resting on the said plate, and a removable top fitted in between
 20 the perforated cylinder and the perforated tube, substantially as herein shown and described.

2. In a dyeing apparatus, the combination, with a perforated tube provided with a projecting plate, of a perforated cylinder resting on the plate, a cover fitting in between the
 25 perforated tube and the perforated cylinder and provided with an upwardly-projecting tube, and a screw held in the said upwardly-projecting tube and adapted to be screwed into
 30 the upper end of the perforated tube, substantially as herein shown and described.

3. In a dyeing apparatus, the combination, with the perforated tube A, having the base
 35 A' and the plate B, of the perforated cylinder

E, formed of two semi cylinders, the cover K, the plate Q, provided with the tube R, and the screw S, held in the upper end of the tube R, and adapted to be screwed into the upper end
 40 of the tube A, substantially as herein shown and described.

4. In a dyeing apparatus, the combination, with the perforated tube A, having the base A' and the plate B, of the perforated cylinder E, the cover K, the plate Q, the bolts *a*, the
 45 blocks *b*, the tube R, and the screw S, substantially as herein shown and described.

5. In a dyeing apparatus, the combination, with the tube A, having the base A' and the plate B, of the packing-strips C' C², the half-rings H, the clamps J, the cover K, the plate
 50 Q, the tube R, and the screw S, substantially as herein shown and described.

6. In a dyeing apparatus, the combination, with the perforated tube A, of the cylinder E, having hooks, and of the spring-hoops *g*,
 55 substantially as herein shown and described.

7. In a dyeing apparatus, the combination, with the vat *h*, of the tube *l*, projecting up from the bottom of the same, the perforated
 60 tube A, the perforated cylinder E, surrounding the said tube A, and of the top and bottom plates for closing the spaces between the cylinder E and the tube A, substantially as herein shown and described.

LUDWIG PFAFF.

Witnesses:

OTHO F. BECKER,
 ALBERT H. MENNE.