

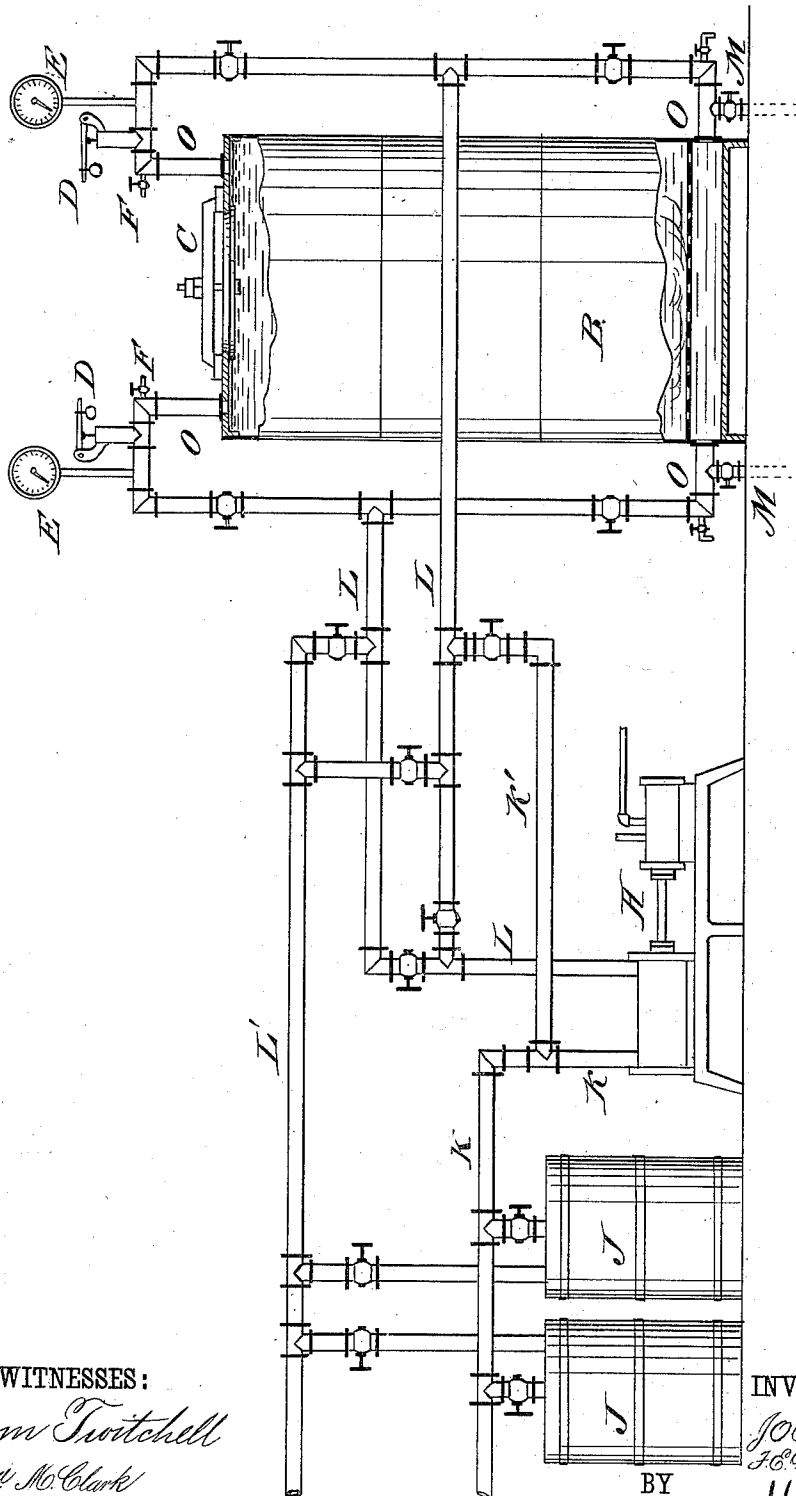
(No Model.)

J. O'CONNELL & F. E. WEEDEN.

APPARATUS FOR DYEING.

No. 334,889.

Patented Jan. 26, 1886.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN O'CONNELL AND FRANK E. WEEDEN, OF PROVIDENCE, R. I.

APPARATUS FOR DYEING.

SPECIFICATION forming part of Letters Patent No. 334,889, dated January 26, 1886.

Application filed December 24, 1884. Renewed December 14, 1885. Serial No. 185,664. (No model.)

To all whom it may concern:

Be it known that we, JOHN O'CONNELL and FRANK E. WEEDEN, of the city and county of Providence, and State of Rhode Island, have
5 invented a new and Improved Dyeing Apparatus, of which the following is a full, clear, and exact description.

The object of our invention is to dye, wash, oil, or dry under pressure and a continual
10 stream of either liquor, air, or gas, wool in the fleece, card-balls, roving, and yarn, either in hank or in spools, cotton, flax, jute, or any other materials of a fibrous nature, including woven fabrics.

To that end our invention consists in the construction and arrangement of parts, as will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawing, forming a part of this specification,
20 wherein the apparatus is shown by a sectional elevation.

B is a tank of suitable size for containing the material to be operated on. C is a man-hole therein, provided with a cover, whereby
25 the tank can be closed tightly after the material is inserted.

D D are safety-valves; E, pressure-gages; F, air-cocks; A, a steam-pump; J, liquor-tanks.

K are the feed-pipes from tanks J to the pump.
30 L L are the discharge-pipes of the pumps, and M are drain-pipes on tank B. The discharge-pipes of the pumps have the four connections O to tank B, so that the liquor or gas can be forced through the tank in four directions,
35 and by conveying it back to the tanks J the circulation is kept up and the liquor or gas in the tank B kept under pressure sufficient to insure the complete and rapid saturation of the material for dyeing, scouring, or drying
40 them.

In operating the apparatus the materials being first put in the tank and the latter then closed, the pump is then set in motion to force the liquor in. The air-cocks F are left
45 open until the tank is filled, and the operation

is then continued as long as necessary. The pressure will be indicated by the gages, and can be regulated according to the nature of the materials being operated on, and any excess will be relieved by the safety-valves.

To draw off the liquor from tank B, the drain-cocks M will be opened, unless it is desired to save the liquor, in which case it may be pumped out and back to tanks J through the connections K' L'.
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This apparatus may be used for indigo dyeing with great advantage.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—
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1. In an apparatus for dyeing, scouring, and drying fibrous materials, the combination, with an operating-tank, of a supply-tank, a force-pump connected therewith, pipes leading from said pump into the upper and lower ends of the operating-tank, and branch return-pipes connected with the pipes leading to the operating-tanks and with the supply-tank, said return-pipes being provided with suitable valves, whereby the liquid or fluid may be forced into the material in the operating-tank from opposite directions, and then be forced back to the supply-tank, substantially as set forth.
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2. An apparatus for dyeing, scouring, and drying fibrous materials, the same consisting, essentially, in the operating-tank B, the supply-tanks J J, force-pump H, pipes K K' L L', connected with the force-pump and supply-tank, as set forth, and the pipes O on opposite sides of the tanks and entering the operating-tank from the top and bottom, and connected with the pipes L, substantially as set forth.
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Witnesses:

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