

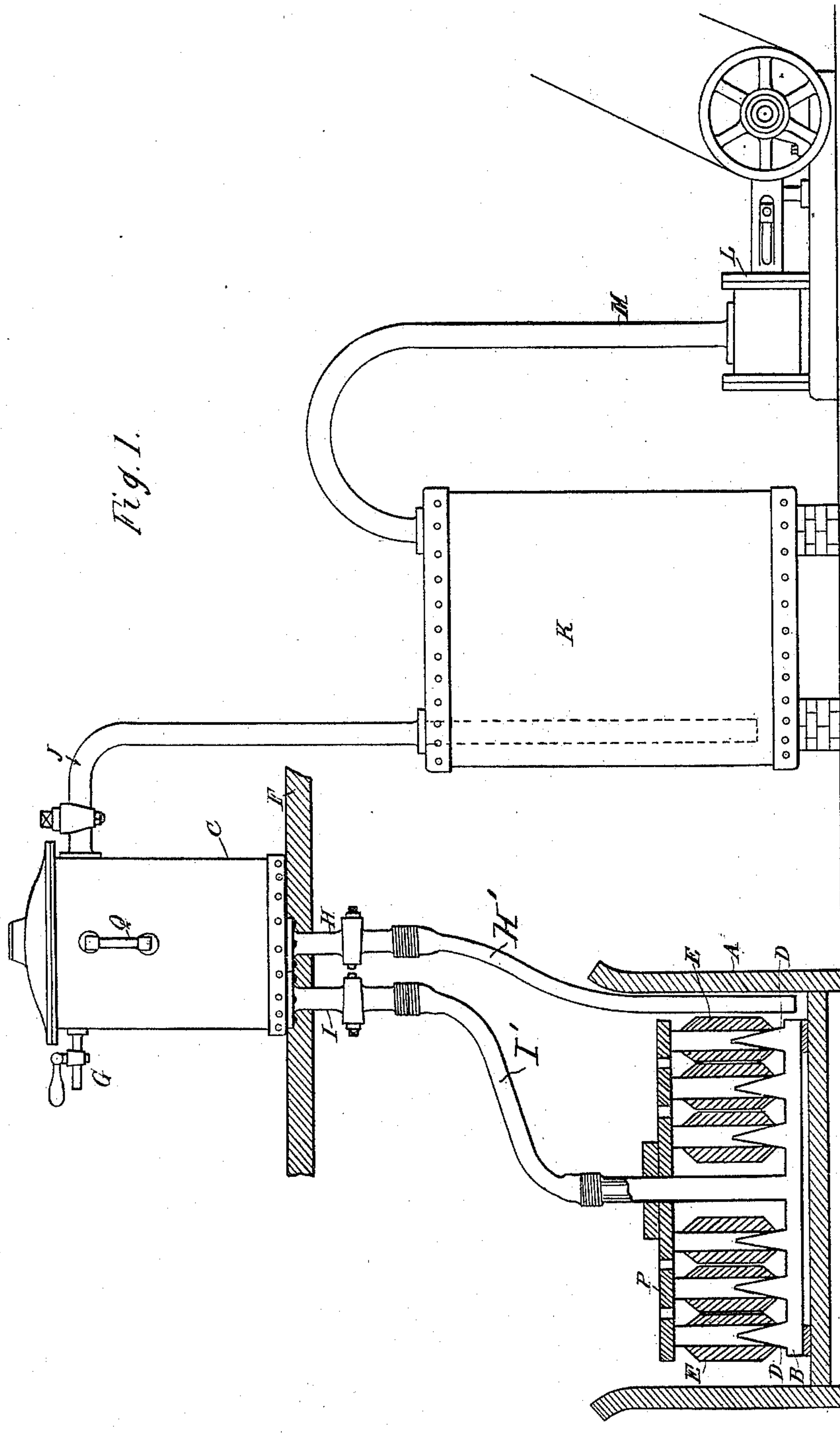
(No Model.)

2 Sheets—Sheet 1.

R. NICKLES.  
APPARATUS FOR DYEING.

No. 488,216.

Patented Dec. 20, 1892.



Attest:  
Sidney J. Everett  
J. H. Murdall

Inventor:  
Rodolphe Nickles.  
By *A. S. Burr*  
Attorney

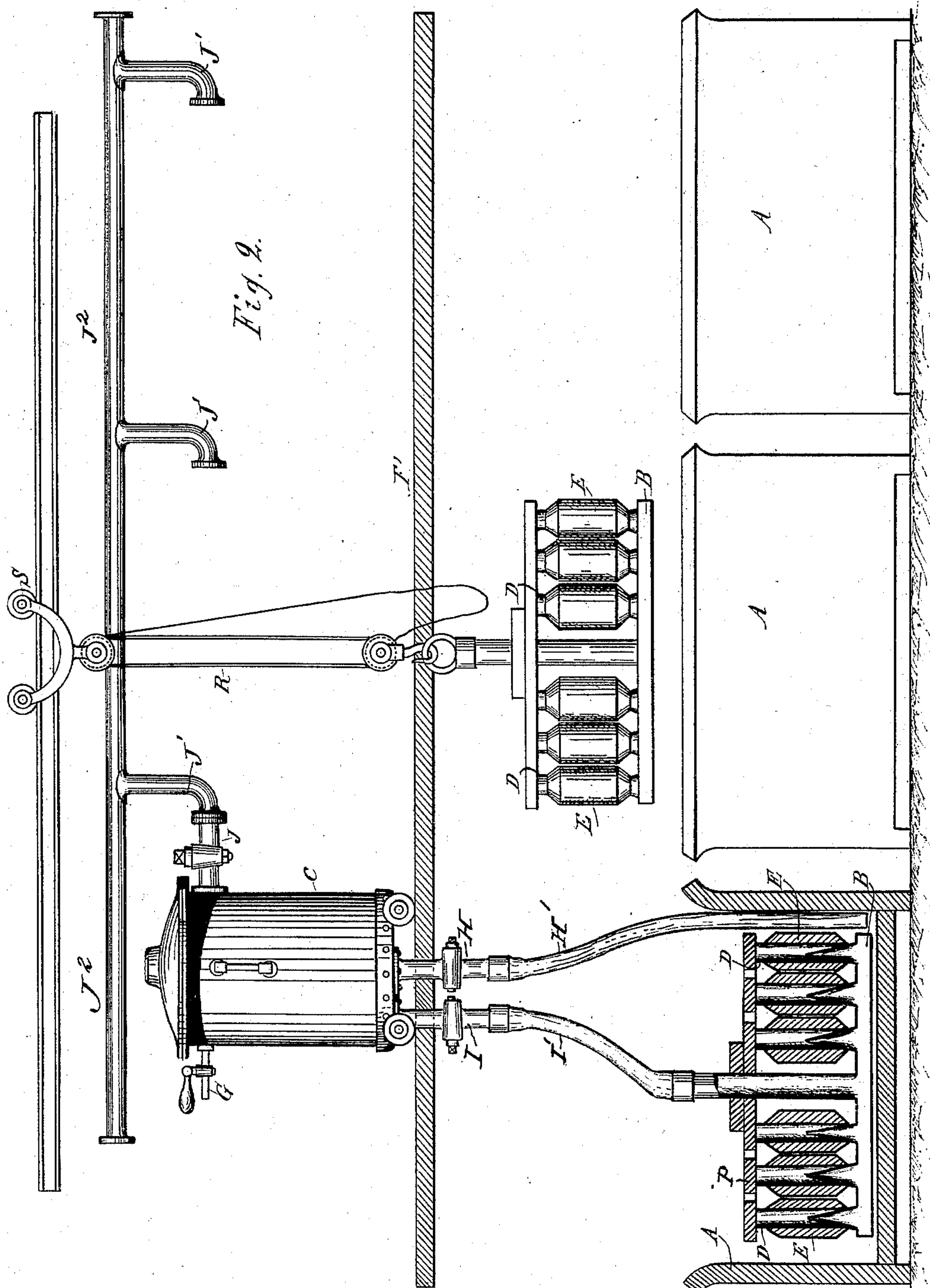
(No Model.)

2 Sheets—Sheet 2.

R. NICKLES.  
APPARATUS FOR DYEING.

No. 488,216.

Patented Dec. 20, 1892.



Attest  
Sidney J. Court  
J. Murale

Inventor:  
Rodolphe Nickles  
By *[Signature]*  
Attorney



# UNITED STATES PATENT OFFICE.

RODOLPHE NICKLÈS, OF PETIT QUEVILLY, FRANCE.

## APPARATUS FOR DYEING.

SPECIFICATION forming part of Letters Patent No. 488,216, dated December 20, 1892.

Application filed January 8, 1890. Serial No. 336,238. (No model.) Patented in England September 17, 1889, No. 14,610.

*To all whom it may concern:*

Be it known that I, RODOLPHE NICKLÈS, of Petit Quevilly, France, a citizen of the French Republic, have invented certain new and useful Improvements in Apparatus for Dyeing, &c., Rovings, Yarn, &c., (for which I have obtained Letters Patent in Great Britain, No. 14,610, dated September 17, 1889,) of which the following is a specification.

15 This invention relates to the method of and apparatus for mordanting, dyeing, scouring, rinsing and similarly treating cotton and other vegetable fibers in slivers, rovings, yarn or other state of preparation.

25 My invention consists of the construction and arrangement of an apparatus for dyeing or treating wools, silks, cottons, &c., all of which will be fully described hereinafter.

30 In the accompanying drawings, which illustrate in what manner this invention may be carried into practical effect;—Figure 1, is an elevation partly in section of an arrangement in which the materials are operated upon in a single vessel or vat; and, Fig. 2, is an elevation partly in section of an arrangement in which several vessels or vats are employed.

In each of the figures similar letters are employed to denote similar parts.

35 The air pump and reservoir which are indicated in Fig. 1, are omitted in Fig. 3, but it will be understood, as hereinbefore described, that these or equivalent devices are also employed in conjunction with the multiple arrangement.

40 Within the vat or vessel A, in which the slivers, rovings or yarn, hereinafter called the material, is to be treated, there is placed a removable hollow plate B, the interior of which is capable of being placed in communication with a closed receiver C. The hollow plate B, carries a number of vertical perforated tubes D, opening into the interior of the plate B, and so arranged and constructed that the material E, which is to be treated may be placed around the perforations of the tubes. The closed receiver C, may be mounted on a permanent support F, Fig. 1, when only one vat or vessel is used, or upon rails F', Fig. 2, when a number of vats are employed in series.

50 In the latter case the closed receiver C, may be easily moved into a position above or other-

wise convenient to any vat in the series. The receiver C, is provided with an air valve or cock G, and three suitable nozzles H, I, J; H, entering the lower part of the receiver and communicating with the open vat A by a flexible pipe H'; I, also entering the lower part of the receiver and communicating with the hollow plate B; and J, entering the upper part of the receiver and communicating with a closed reservoir K, which communicates through the pipe M, with an air pump L.

In the arrangement shown in Fig. 2, the horizontal pipe J<sup>2</sup>, has branch connections J', occupying positions above the vats so that the closed receiver may thereby be connected to the reservoir K, in any of the positions which it may occupy. It will be understood that the pipe J, Fig. 2, communicates with a reservoir similar to the reservoir K, Fig. 1, and that this reservoir also communicates with an air pump or its equivalent as hereinbefore described.

The operation is conducted in the following manner:—The material to be dyed or otherwise treated having been placed around the perforated tubes D, the desired liquid having been placed in the vat A, and the connections having been made; valve J, connecting the receiver with the reservoir and valve H, which controls the passage between the receiver C, and the interior of the vat A, are opened, and the air cock G, and a valve controlling the passage I, between the receiver C, and hollow plate B, being closed, the air pump L, is put in motion, and the liquid in the vat A is forced into chamber C through pipe H. As a consequence the liquid that remains in the perforated tubes D and hollow plate B is drawn thence to chamber C. In the second part of the operation the communication H, between vat A, and the receiver, and the communication J, between the receiver C, and the reservoir K, is closed; the air cock G, and valve I, now being open, the liquid will redescend in the pipe I, into the hollow plate B, and thence pass outward through the perforated tubes D, and the material around them.

The two operations may be successively performed as often as may be desired.

During the descent of the liquid, its press-



ure tends to move the material, and to prevent this, a perforated plate P may be placed above it.

5 A gage glass Q, may be attached to the closed receiver C, so as to indicate when the liquid has attained a desired height therein at the end of the first part of the operation and when therefore the air valve may be opened.

10 It is easy to regulate the pressure to suit the material to be treated, by placing the receiver at a greater or less elevation, or simply by regulating the flow of the liquid by means of the valve.

15 The hollow plates with the material thereon may be lifted from and lowered into the vats by means of the lifting tackle R, which, when a series of vats are used, may be suspended from the small traveling crane S.

20 The reservoir K, is placed between the pump and the receiver C, and the liquid placed within said reservoir is removed therefrom to the receiver in the following manner. The air pump K, is started and the valve forming the outlet between the said reservoir and receiver being opened allows the liquid to pass into the latter under pressure produced by the air pump. The reservoir may be filled by a siphon and then closed. This operation may

30 be performed by removing the end of the pipe M. The level of the liquid within the reservoir should not reach quite to the top thereof. The liquid is prevented from entering the

pipe M, when the pump is in operation by means of valves commonly known and used 35 in connection with pumps. It will, therefore, be obvious that the reservoir K, serves as a storage tank for the supplying of one or a series of vats.

Having now particularly described and as- 40 certain the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is.

In apparatus for dyeing rinsing scouring mordanting and similarly treating textile ma- 45 terials in slivers rovings yarn and similar states of preparation, the combination of a vat, a hollow plate, perforated tubes communicating with the interior of the hollow plate, a closed receiver having an air cock and noz- 50 zles having flexible pipes communicating with the vat and hollow plate respectively, a closed reservoir communicating with the upper part of the receiver, and an air pump communicating with the reservoir; all constructed and 55 arranged substantially as hereinbefore described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 25th day of No- 60 vember, 1889.

RODOLPHE NICKLÈS.

Witnesses:

A. SELLY,

CHAS. P. WILLIAMS.