

(No Model.)

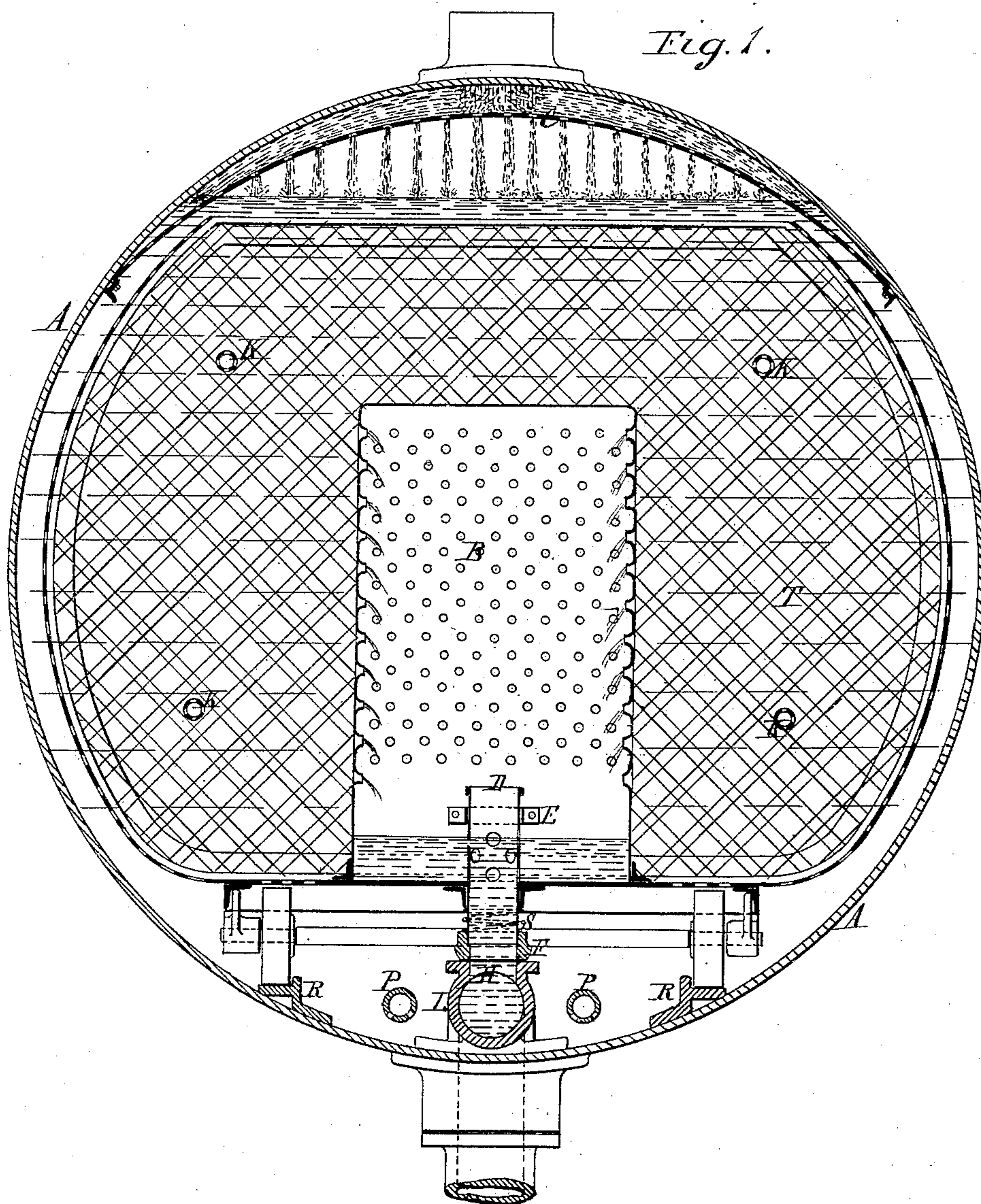
2 Sheets—Sheet 1.

W. MATHER.

APPARATUS FOR TREATING TEXTILE MATERIALS WITH LIQUIDS,
GASES, OR VAPORS.

No. 333,876.

Patented Jan. 5, 1886.



Witnesses.

Dennis Lumby.
Robert Everett.

Inventor.

William Mather.

By James L. Norris.

Atty.

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2 Sheets—Sheet 2.

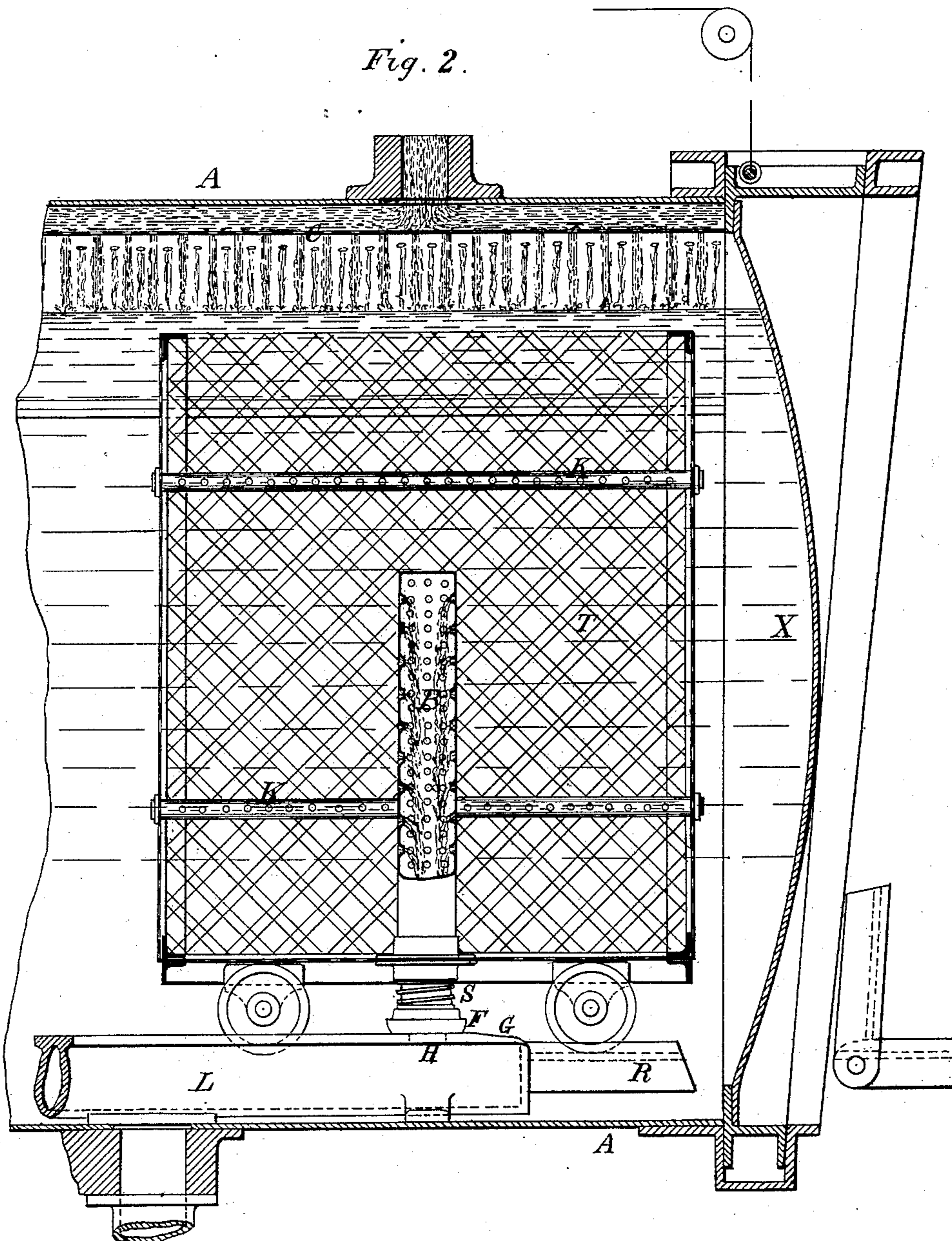
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Fig. 2.



Witnesses.

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Robert Everett.

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Atty.

UNITED STATES PATENT OFFICE.

WILLIAM MATHER, OF SALFORD, COUNTY OF LANCASTER, ENGLAND.

APPARATUS FOR TREATING TEXTILE MATERIALS WITH LIQUIDS, GASES, OR VAPORS.

SPECIFICATION forming part of Letters Patent No. 333,876, dated January 5, 1886.

Application filed August 11, 1885. Serial No. 174,164. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MATHER, a citizen of England, residing at Salford, in the county of Lancaster, England, have invented
5 new and useful Apparatus for Treating Textile Materials with Liquids, Gases, or Vapors, of which the following is a specification.

In many operations to which textile materials are subjected for soaking, washing,
10 bleaching, or dyeing they have to be treated with liquids—such as water, alkaline, or acid solutions—mordants or dyes with gases—such as carbonic, anhydride sulphurous acid, or chlorine—or with vapors—such as steam—and
15 it is of great advantage for economizing time, labor, and heat, and for preventing injury to the fiber to give them such treatment without handling or moving them or subjecting them to great or sudden changes of temperature.

20 My invention relates to apparatus for this purpose so arranged that the materials once piled in trucks of peculiar construction, which I will presently describe, and conveyed in these trucks into a tightly-closed chamber
25 can receive either continuously or intermittently such treatment as may be required without being handled or moved or alternately heated and cooled, provision being made for allowing the liquids, gases, or vapors em-
30 ployed to penetrate thoroughly and uniformly the whole of the material piled in the trucks.

Figure 1 of the accompanying drawings is a transverse section; and Fig. 2 is a part longitudinal section, showing the chamber and one
35 of the trucks which constitute my apparatus according to my invention.

The chamber A is a cylindrical vessel like a horizontal boiler, having fixed in its lower part rails R R, on which the trucks are run.
40 It has also in its lower part a liquor-pipe, L, which has its upper side flanged and planed smooth and level, and perforated pipes P P for admitting steam, or vapor, or gases. At its upper part there is a crescent casing, C,
45 with numerous perforations for admitting liquid to sprinkle the materials in the trucks. At either end or both ends of the chambers there is a door, X, arranged as a wedge sluice-valve to close tightly when it is lowered. The
50 chamber may be made sufficiently long to contain a row of the trucks T, each of which is

framed of open lattice-work, which may be enameled or otherwise coated to provide
against soiling the materials which it contains. In the middle of each truck there is a
55 hollow partition, B, having its sides and ends perforated with numerous holes, and its bottom closed by a plate through which passes a telescopically-sliding pipe, D, which is urged downward by a spring, S, as far as permitted
60 by a stop, E, which arrests a collar at the top of the pipe D. The lower end of the pipe D terminates with a boss, F, which is faced true and level. At the end of the pipe L there is
65 formed a slope, G, downward from its upper surface, such that when a truck is run into the chamber the boss F has to ride up this slope, rising in opposition to the spring S, and then
70 as it slides along the level upper face of L it is kept by the spring in close contact with it. At certain parts of the pipe L there are open-
75 ings H through its upper face, each of these openings being so placed as to be exactly under the pipe D of each truck when it is in position, thus making communication between
the pipe L and the interior of each partition, B, the joint between the boss F and the upper face of L being kept sufficiently tight by the pressure of the spring S.

The material to be treated, whether fibers
80 in the mass or yarns or woven fabrics, are piled in the truck T around and over the hollow partition B, and to prevent the lower layers from being too much pressed by those above, perforated pipes K are laid at various
85 heights and in various positions along the truck, their ends resting on the lattice-framing at each end of the truck. Liquor supplied to C will fill the chamber, pass from
90 without inward through the material in the truck into the partition B, and thence to the pipe L, by which it is run off or withdrawn.

In many cases it is of advantage to connect the pipe L to the suction, and the casing C to the discharge of a rotary or other pump, which
95 maintains a circulation of the liquor through the chamber and through the material in the trucks. When the chamber is emptied of liquor, steam, vapors, or gases can be admitted either by the pipes P or by the casing C. In
100 many cases it is advantageous to supply steam by the pipes P while a moderate amount of

liquor is admitted by the apertures of C to sprinkle over the material and keep it moist, the drainage being withdrawn by the pipe L.

Obviously the direction of the fluid-currents in the chamber might be inverted, fluid being supplied by the pipe L rising through the partition B, penetrating the material in the truck from within outward, and being withdrawn through the casing C.

10 I am aware that for the treatment of various materials they have been loaded in trucks and run into tightly-closed chambers, to be subjected therein to the action of fluids. I therefore make no general claim to such mode
15 of treating materials, or to apparatus for that purpose; but,

Having thus described the nature of my invention and the best means I know for carrying the same into practical effect, I claim—

For treating textile materials with liquid, 20 gases, or vapors, in combination with a chamber, A, having tightly-closing door or doors X, a pipe, L, flanged and planed on its upper face, and lattice trucks T, with central perforated partitions, B, and telescopic pipes 25 D, urged down by springs, substantially as and for the purposes herein set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 18th day of 30 July, A. D. 1885.

W. MATHER.

Witnesses:

OLIVER IMRAY,

GEORGE JOHN BOTHWELL FRANKLIN.