(No Model.)

J. H. LORIMER.

COTTON DRIER.

No. 332,543. Patented Dec. 15, 1885.

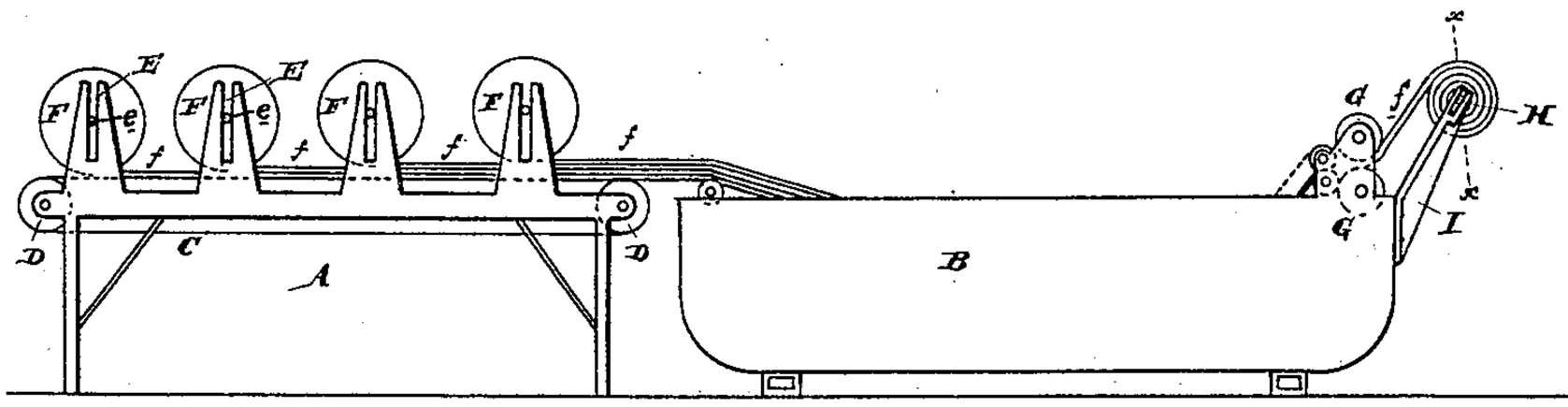

Fig. 1.

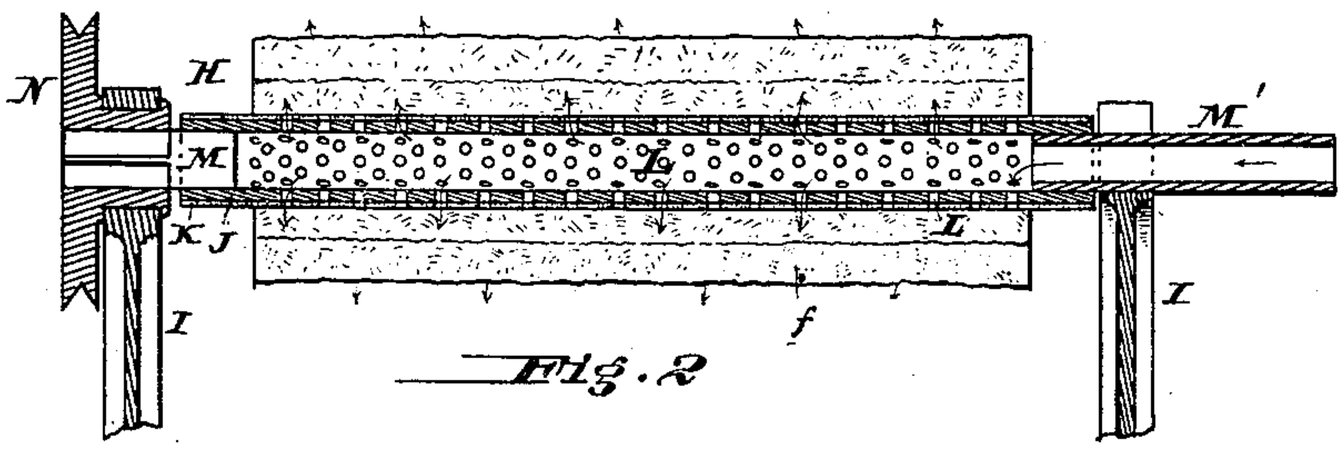

Fig. 2.

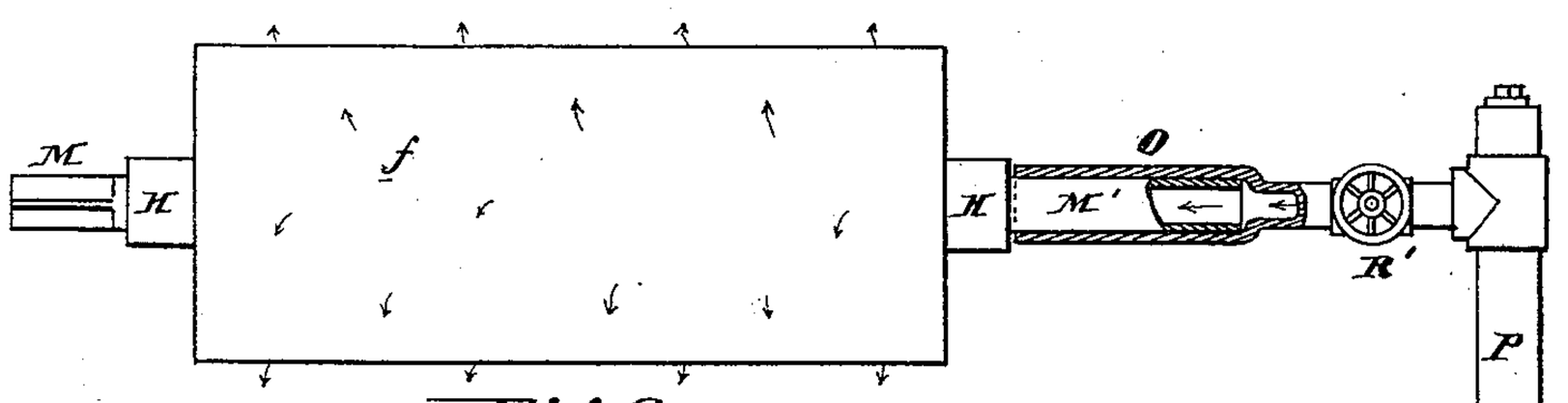

Fig. 3.

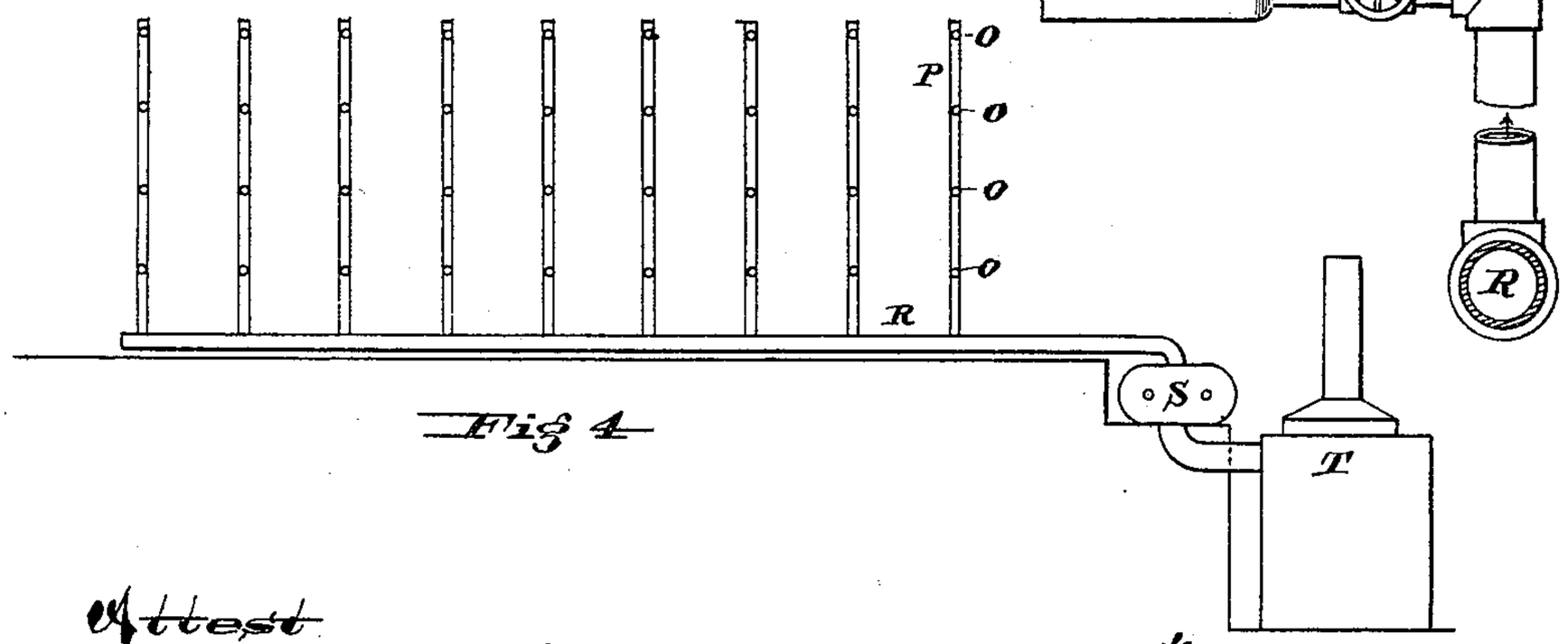

Fig 4.

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JOHN H. LORIMER, OF PHILADELPHIA, PENNSYLVANIA.

COTTON-DRIER.

SPECIFICATION forming part of Letters Patent No. 332,543, dated December 15, 1885.

Application filed October 1, 1884. Serial No. 144,441. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. LORIMER, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Drying Cotton in the Lap, of which the following is a specification.

My invention has reference to apparatus for drying cotton after it has been dyed in laps; and it consists in tubular spindles having radial apertures over their entire surface, said spindles being adapted to receive the cotton lap after the same has left the dyeing-vat and made portable, whereby, when it contains sufficient quantity of cotton, it may be attached to suitable piping, through which dry air or gas, either hot or cold, may be drawn or forced, the said air or gas being required to pass entirely through cotton upon said spindle, causing the same to dry rapidly, and in many details of construction, all of which are fully set forth in the following specification, and shown in the accompanying drawings, which form part thereof.

Heretofore it has been customary to dry the dyed laps into small pieces and spread the same over suitable drying apparatus, which operation was exceedingly slow, unsatisfactory, and expensive.

I am aware that it is not broadly new to force a hot drying medium through material to be dried, as it has been proposed, in English Patent No. 314 of 1872, to provide a conduit with upright pipes having perforations, upon which sheaves of grain are placed, and through which the hot air or gas is forced; but the apparatus therein set forth is not suitable for the purpose of drying cotton.

By my improved apparatus I am enabled to dry the cotton in laps, and without in any manner destroying the continuity of the same, rendering the operation quick, satisfactory, and in every sense most desirable, as it is most effectively accomplished and the expense greatly reduced.

In the drawings, Figure 1 is a side elevation of a suitable dyeing-machine for dyeing cotton in the laps. Fig. 2 is a sectional elevation on line X X of my improved drying-spindle upon which the dyed lap is received and dried. Fig. 3 is a side elevation of the drying-pipes and spindle and its lap, as shown, the method of attaching the said drying-spindle to the drying-pipes, through which the hot air or gas is drawn or forced; and Fig. 4 is a side elevation showing the relative arrangement of the drying-pipes, blower, and heater.

A is a feeding-table for feeding the laps to the dyeing-vat B, which latter may be of any suitable construction, and preferably provided with the squeezing-rolls G. The table A is provided with an endless apron, C, which works over pulleys D.

F are rolls of cotton laps, and have their spindles *e* adapted to work in the vertical guide-slots E of the table A, the said rolls of cotton resting upon traveling apron C, whereby the laps *f* are drawn off said rolls with a uniform velocity, and these laps are laid one upon the other, as shown, forming, say, four layers, or are fitted upon traveling apron in the dye-vat B. After being dyed the lap has the excess of dyeing-liquor expressed by passing between the squeeze-rollers G, and the dyed lap (composed of the four layers pressed together) is received upon my improved drying-spindle H, which is made hollow and provided with the radial apertures L. The surface of this spindle may be coated with paper or cloth, against which the cotton lap may rest to prevent its sticking to the iron, and also to form a more or less rough surface to insure the cotton being rolled upon the spindle after coming from the squeeze-rollers. One end of the said spindle is closed by the plug M, preferably made square on its end, and the other end has a tubular extension, M′. This spindle is supported at one end of the dye-vat by braces I, one of which braces carries the dry-pulley N into the square end of the plug M, feeds, as shown in Fig. 2, and by which the said spindle may be rotated.

R is a base-pipe, and P are the rolls of vertical stand-pipes opening therefrom, and closed at the top and provided with a series of horizontally-projecting receiving-nozzles, O, adapted to receive the tubular ends M′ of the spindle H, as shown in Fig. 3. These nozzles are provided with valves R′, of any suitable construction, either automatic or otherwise, so that when any spindle is removed the nozzle by which it was supported shall become closed to the passage of the drying medium. The spindle may be screwed into the nozzle, if desired, or may

simply slide therein and be held in place by the screw Q, the particular method of attachment being immaterial to my invention.

S is a blower, and T a heater, as shown. The dry and heated air is adapted to be forced through pipes R and P, and through the perforated spindle and lap, as indicated by arrows. It is self-evident, however, that the air may be drawn through said laps in the opposite direction, if so desired, and instead of heated air cold dry air or other gas may be used.

By the arrangement of stand-pipes P and their nozzles O a large number of spindles may be attached at one time and require but small amount of space.

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

1. A spindle upon which to dry dyed cotton in laps, made hollow or tubular, with its surface covered with paper or cloth or their equivalent, and provided with radial apertures opening upon the surface to be covered by the cotton, and a passage to convey the drying medium to or from the interior of the spindle, substantially as and for the purpose specified.

2. A spindle upon which to dry dyed cotton in laps, made hollow or tubular and provided with radial apertures opening upon the surface to be covered by the cotton, and a passage to convey the drying medium to or from the interior of the spindle, in combination with mechanism for creating a forced draft of air or gas, and conveying or conducting pipes provided with sockets or their equivalent, to which said spindles may be detachably secured, substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

JOHN H. LORIMER.

Witnesses:
R. M. HUNTER,
FRANCIS S. BROWN.