(No Model.)

J. H. LORIMER.

APPARATUS FOR DRYING PAPER PULP.

No. 393,770. Patented Dec. 4, 1888.

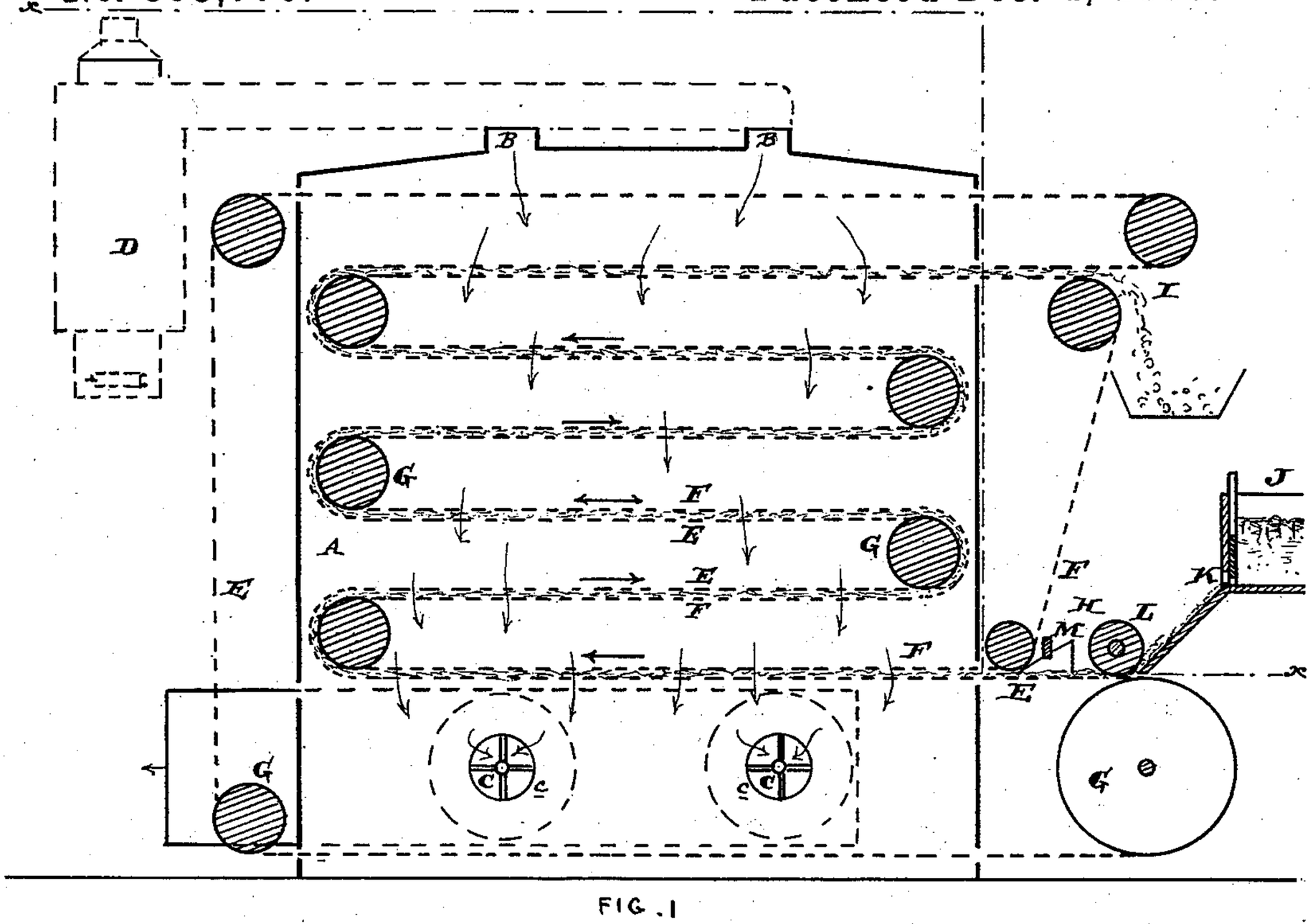

FIG. 1

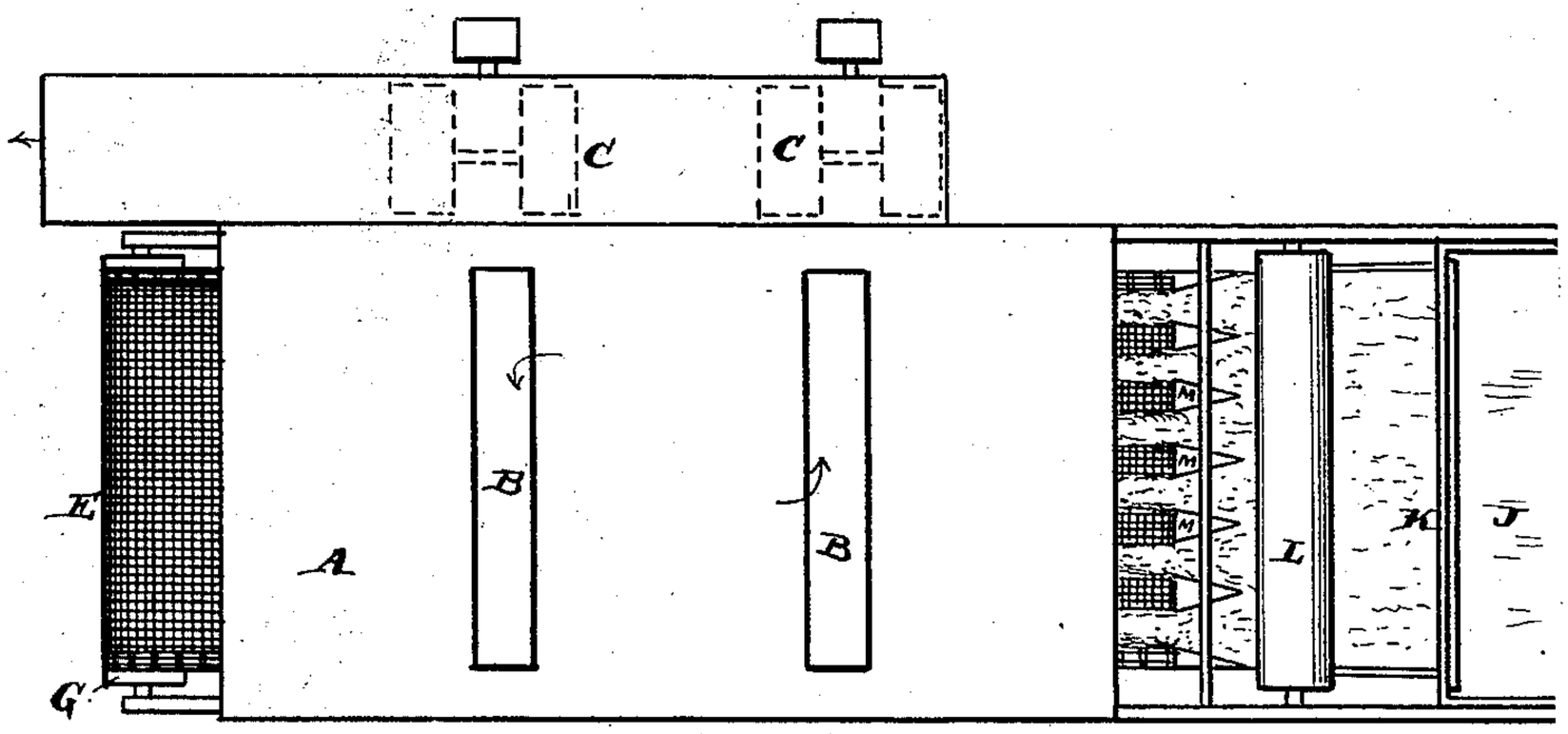

FIG. 2

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Inventor,
John H. Lorimer.
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UNITED STATES PATENT OFFICE.

JOHN H. LORIMER, OF PHILADELPHIA, PENNSYLVANIA.

APPARATUS FOR DRYING PAPER-PULP.

SPECIFICATION forming part of Letters Patent No. 393,770, dated December 4, 1888.

Application filed January 5, 1887. Renewed May 8, 1888. Serial No. 273,254. (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 an Improvement in Apparatus for Drying Paper-Pulp, of which the following is a specification.

My invention has reference to apparatus for treating wet paper-pulp for the purpose of drying the same; and it consists in certain improvements, all of which are fully set forth in the following specification, and shown in the accompanying drawings, which form part thereof.

In carrying out my invention I feed the paper-pulp mash in a thin flat stream upon an endless apron of open-work, which runs in conjunction with a second endless apron of open-work, so that the pulp is held between the two and carried back and forth through a drying-chamber, through which strong drafts of dry air, either hot or cold, are constantly passing. From this it will be observed that the material is exposed to the direct action of the air-currents alternately upon opposite sides. To improve the efficiency by utilizing the effect of capillary attraction, I prefer to subdivide the layer of pulp into a series of long parallel strips forming slotted passage-ways for the air, offering but little resistance. The edges of the pulp bounding these passage-ways soon become dry, and the capillary action causes the moisture from the interior to find its way to the surface, when it is evaporated, and so on. The result is the most speedy drying of the pulp, and that too in the most economical manner.

In the drawings, Figure 1 is a sectional elevation of a drying-machine embodying my invention, and Fig. 2 is a plan view of same.

A is the drying-chamber, and has air-inlets B at the top and outlet *c* at the bottom, leading to suction-fans C, which keep up a constant draft of air, which may be heated by a furnace or heater, D, indicated in dotted lines.

In place of creating the draft by suction it may be performed by force or pressure.

E and F are two endless aprons of open-work, which lie close to each other and pass back and forth through the drying-chamber, being guided therein by rollers G. At two places these aprons pass outside of the drying-chamber—viz., at H, where the pulp is fed between them, and at I when the dried pulp is removed. The aprons pass back and forth in the chamber at right angles to the air-currents, whether they be vertical or horizontal, and expose alternately aprons to the direct action of the air. When the aprons pass outside of the chamber they separate.

J is the pulp-mash box into which the paper-pulp is placed and from which it is run by a sluice, K, onto the apron E. The excess of water may be expressed by a roller, L, and the layer of pulp divided into a series of narrow layers by plows M, against which the pulp is pressed.

After the layer of pulp is subdivided it is held in place by the other apron, F, and between these two aprons it passes back and forth through the drying-chamber, being subjected on both sides to the action of the air-currents. After being dried it is brought to the outside of the chamber A, at the place of discharge I, where the dried pulp is removed. The operation takes place in a continuous manner and with great rapidity.

The capillary action plays an important part in the speediness in which the drying operation may take effect, as it is by this physical phenomenon that the moisture from the interior of the dense pulp is brought within active reach of the air-drying currents.

I do not limit myself to any particular details of the apparatus, as that may be modified in various ways without departing from my invention.

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

In apparatus for drying paper-pulp, the combination of two endless traveling aprons of open-work, a closed chamber through which said aprons pass back and forth, suitable air-forcing apparatus to force or draw air through said chamber and the traveling aprons therein, a pulp box or hopper, a feed from said hopper to said aprons, and guides arranged close to the upper surface of the traveling apron to divide the pulp as it passes to the aprons into a series of parallel strips, substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

JOHN H. LORIMER.

Witnesses:
R. M. HUNTER,
WILLIAM C. MAYNE,