(No Model.)

F. E. ALLEN.

SUCTION ROLL FOR PAPER MAKING MACHINES.

No. 573,752. Patented Dec. 22, 1896.

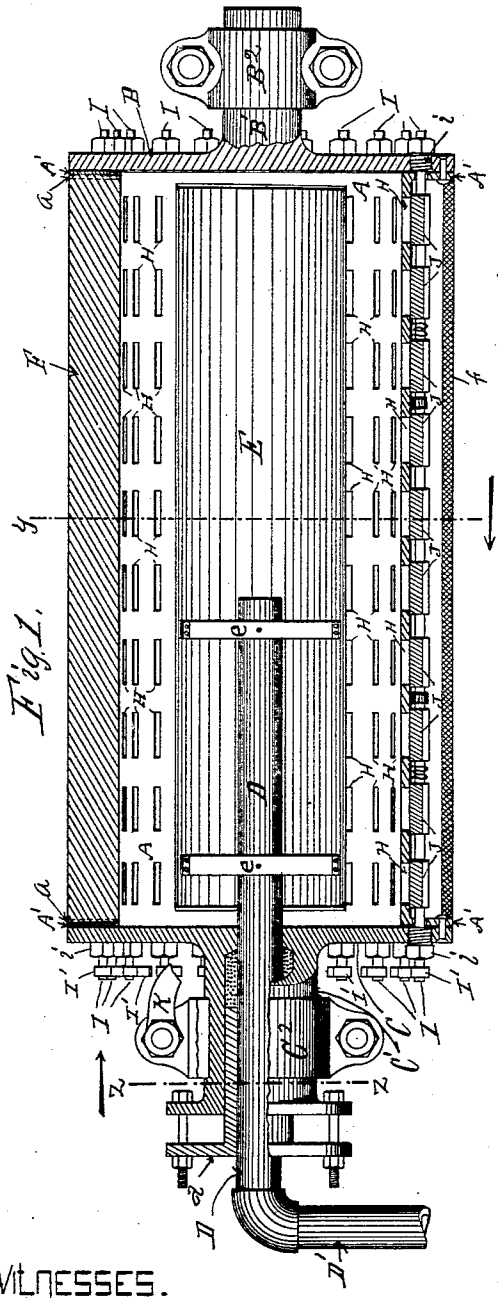

Fig. 1.

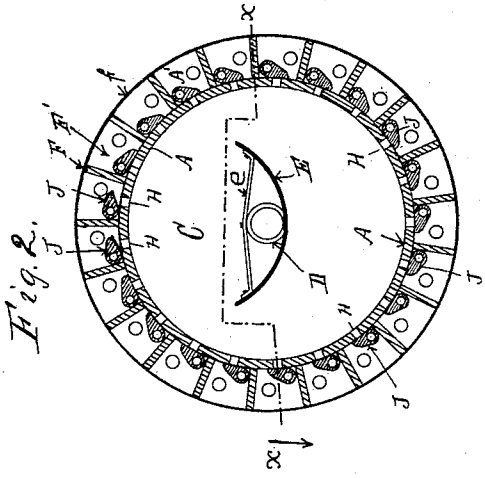

Fig. 2.

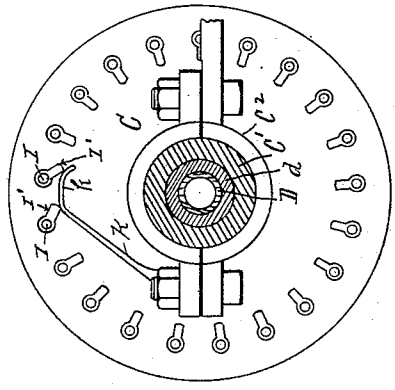

Fig. 3.

Witnesses.
Fred Einfeldt
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Inventor:
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UNITED STATES PATENT OFFICE.

FRED E. ALLEN, OF ERIE, PENNSYLVANIA, ASSIGNOR OF FIVE-EIGHTHS TO MARION B. MARSH AND WILLIAM F. WEIBLEN, OF SAME PLACE.

SUCTION-ROLL FOR PAPER-MAKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 573,752, dated December 22, 1896.

Application filed May 27, 1896. Serial No. 593,247. (No model.)

To all whom it may concern:

Be it known that I, FRED E. ALLEN, a citizen of the United States, residing at the city of Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Suction-Rolls for Paper-Making Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention relates to improvements in suction-rolls for paper-making machines; and it consists in the improvements hereinafter set forth and described, and illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal horizontal section of my improved suction-roll on the line *x x* in Fig 2, looking in the direction of the arrow. Fig. 2 is a transverse section of the same on the line *y y* in Fig. 1, looking in the direction of the arrow. Fig. 3 is an end view of the same from the line *z z* in Fig 1, looking in the direction of the arrow.

In the construction of my invention illustrated in the accompanying drawings, A is a cylindrical shell provided with a radial flange A′ on each end thereof. B is a closed head securely bolted to one end of the cylindrical shell A and provided with a journal B′, and C is a head securely bolted to the opposite end of the shell A and provided with a hollow journal C′, through which a suction-pipe D passes to the interior of the cylinder, a stuffing-box *d* surrounding the pipe D within the journal C′, so as to make an air-tight joint therewith. These journals B′ and C′ are adapted to rotate in suitable bearings B^2 and C^2. The outer end D′ of the suction-pipe D connects with a suitable suction-pump, (not shown,) and the inner end extends into the cylinder, preferably to a point near the center thereof longitudinally, and has secured thereto, by means of supports *e e*, a drip-pan E, which extends nearly the entire length of the cylinder-shell A and which is adapted to catch any water passing into the cylinder and discharge the same through the suction-pipe D. In the inner faces of the flanges A′ A′ on the ends of the shell A are radial slots *a*, equidistant from each other, in which are placed longitudinal strips F, which divide the periphery of the cylinder into chambers or pockets F′. These longitudinal strips F are preferably made of wood, and to the outer edges of these strips is secured a sheet of fine wire-gauze *f* and forms a bearing-surface for the wet felt. (Not shown.) Through the shell A, near the center of each of said chambers or pockets F′, there is a series of longitudinal openings H, extending nearly the entire length of the shell A, and in each of said chambers or pockets F′ there is an oscillating valve-rod I, journaled in stuffing-boxes *i* in the cylinder-heads, and secured to said valve-rods are a series of valves J, adapted to close the openings H in the cylinder, as illustrated in Fig. 2.

Upon one end of each of the valve-rods I is an arm I′, and secured to one of the journal-bearings C^2 is an arm K, which is provided with a cam-shaped upper end *k*, with which the arms I′ contact and oscillate the valve-rods I, so as to raise the valves J off of their seats, as illustrated in Figs. 2 and 3, during the time the chambers or pockets F′ are covered by the wet felt as it travels over the cylinder A, rotated in unison with the travel of the wet felt, the suction operating on the wet felt during the time the valves J are raised to extract the water therefrom.

Having thus fully described my invention, so as to enable others to construct and operate the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination in a suction-roll, of a hollow cylinder, journals, one of which is hollow, on the heads thereof, a suction-pipe communicating with said hollow journal, a series of longitudinal chambers or pockets around the periphery of said cylinder, openings from each of said chambers or pockets through the shell of the cylinder, valves in said chambers adapted to close the openings through the cylinder-shell, and valve-rod mechanism for intermittently opening said valves, substantially as and for the purpose set forth.

2. The combination in a suction-roll, of a hollow cylinder, journals, one of which is hol-

low, on the heads of said cylinder, a suction-pipe communicating with said hollow journal, a series of chambers around the periphery of the cylinder, openings through the cylinder-shell in the bottom of each chamber, valves for closing said openings, valve-rods for moving said valves, and cam mechanism for successively operating said valve-rods and valves at a certain point during each rotation of said cylinder, substantially as and for the purpose set forth.

3. The combination in a suction-roll, of a hollow cylinder, journals, one of which is hollow, on the heads thereof, a suction-pipe extending through said hollow journal, substantially to the center of said cylinder, a horizontal pan within said cylinder, secured to and draining into said suction-pipe, a series of equal-sized longitudinal chambers or pockets around the periphery of said cylinder, a series of openings through the cylinder-shell in the bottom of each of said chambers or pockets, valves in each of said chambers adapted to close the openings through the cylinder-shell, a valve-rod connected with the valves in each of said chambers extending out through the ends of each chamber, an arm on each of said valve-rods, and a cam-surface adapted to engage said arms and successively oscillate each valve-rod so as to open the valves connected therewith at one point during each rotation of said cylinder, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FRED E. ALLEN.

Witnesses:
RANDOLPH SHIRK,
JOHN S. RILLING.