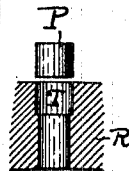
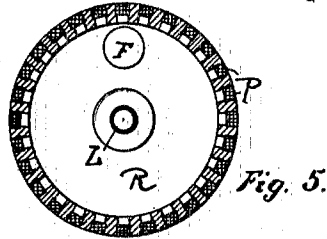
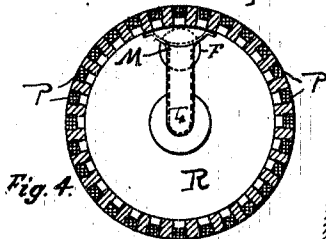
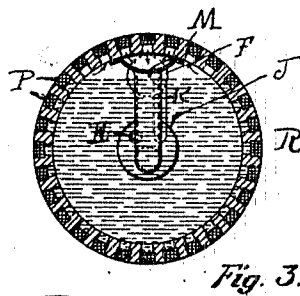
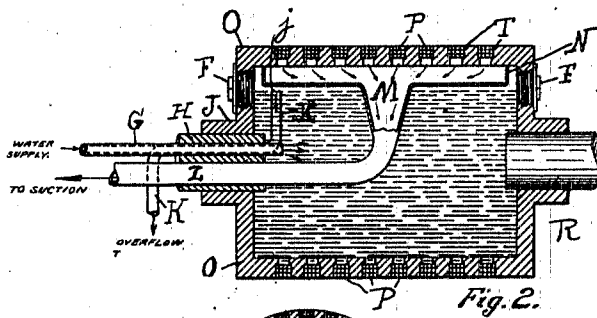
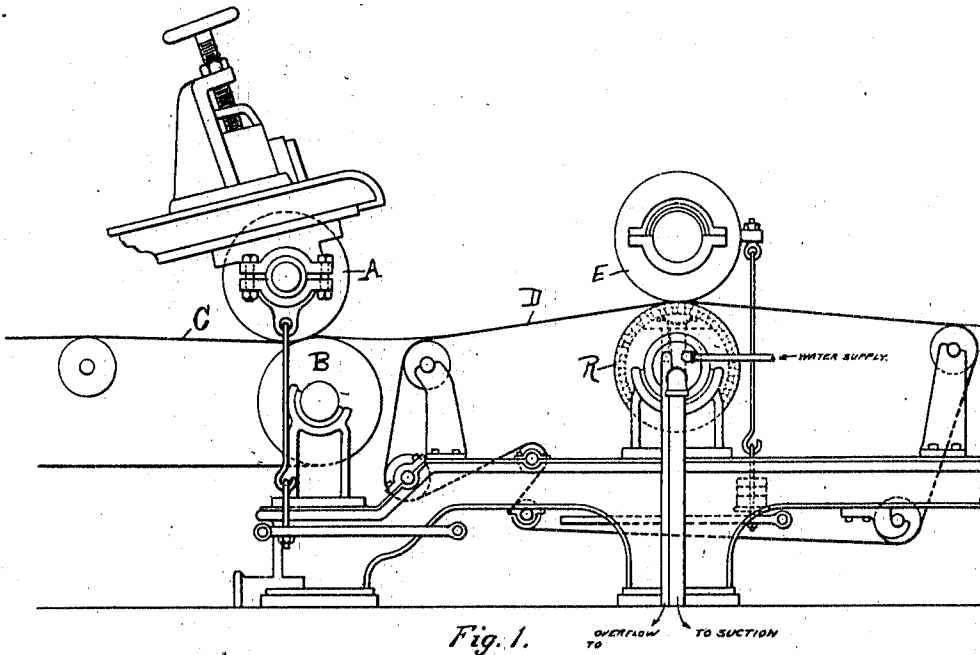


W. E. SHEEHAN.
PAPER MAKING MACHINE.
APPLICATION FILED JULY 17, 1912.

1,059,496.

Patented Apr. 22, 1913.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM E. SHEEHAN, OF ALBANY, NEW YORK.

PAPER-MAKING MACHINE.

1,059,496.

Specification of Letters Patent.

Patented Apr. 22, 1913.

Application filed July 17, 1912. Serial No. 709,911.

To all whom it may concern:

Be it known that I, WILLIAM E. SHEEHAN, a citizen of the United States of America, residing at No. 301 Madison avenue, in the city of Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Paper-Making Machines, of which the following is a specification.

My invention relates to paper making machines, and the object of my invention is to provide a means for drying a web of paper, pulp or similar substance; together with such elements and combinations as are hereinafter more particularly set forth and claimed. I accomplish these objects by means of the mechanism illustrated in the accompanying drawing in which:

Figure 1 is a side elevation of a Fourdrinier paper making machine provided with my invention, with parts broken away. Fig. 2 is a longitudinal section of the suction roll. Fig. 3 is a cross section of the suction roll. Fig. 4 is an end view of the suction nozzle, showing the roll in section. Fig. 5 is an end view showing a modified form of the suction roll. Fig. 6 is a detail view of the suction roll, showing the porous plug, P, and the hole, T, into which it fits in the roll, R.

Similar letters refer to similar parts throughout the several views.

I have shown in the drawings my invention applied to a Fourdrinier machine, although I do not limit myself to that particular kind of apparatus.

The couch rolls, A and B, are mounted in the usual manner and the paper pulp is deposited on the carrier, C, after which it is delivered to the felt, D, in the usual manner and passes between the press roll, E, and suction roll, R. I do not, however, limit myself to the position of the suction roll, R, nor to its arrangement as shown in Fig. 1 beneath the press roll, E, but I contemplate using the suction roll, R, without any other roll engaging it or the felt or carrier passing over it. My illustration of the suction roll, R, in operative connection with the press roll, E, is purely arbitrary and is not to be considered as even advisable in operation.

My suction roll, R, is hollow and is made of metal or any other hard material, or it may be constructed of a porous substance; but, in any event, it is provided with a series

of openings or holes, T, through the shell, O, extending through the periphery. In the end of the roll near the periphery and preferably in each end thereof, I place an opening extending into the interior of the roll which may be closed with the screw bolts, F, F, for the purpose of emptying the roll. I supply water or other liquid through a pipe, G, passing preferably through the thimble, H, which extends through the hub, J, at one end of the roll. I also place an overflow pipe, K, through the thimble, H, which has its discharge port, J, a short distance from the interior surface of the shell of the roll. Through the thimble, H, I also pass a suction pipe, L, which has a flaring nozzle, M, open at the end, but provided with a flange, N, which when in operative position approaches near but does not contact with the inner surface of the shell, O, of the roll. The nozzle, M, is preferably sufficiently long to embrace the line of the holes, T, extending from one end of the roll to the other and of sufficient width to embrace several of such lines of holes, three, as shown in Fig. 3, but I do not limit myself to the length or width of the nozzle which may be constructed to embrace more or less of the holes as may be desired. Into each of the holes, T, I place a porous plug, P, which may be made of felt or other material. The suction pipe, L, is connected with a suction pump, not shown.

The operation of my invention is as follows: The roll, R, is mounted in a paper making machine and the web of paper or pulp is conducted to it in any suitable manner. The roll is supplied with water up to the point of overflow, K. The water seals a large number, almost all, of the porous plugs, P, as shown in Fig. 3; suction is applied to the pipe, L, which draws the air and the water through the porous plugs embraced by the nozzle, M, and also takes out of the roll the air above the water in the roll, the air taking the direction shown by the arrows in Fig. 3, and the water and air passing through the porous plugs, P, taking the direction shown by the arrows in Figs. 2 and 3, and thereby drying the web of paper and pulp as it passes over the roll. As the roll revolves the porous plugs come over the nozzle, M, and are operated on by the suction produced through the nozzle.

Because of the fact that the flange, N, of the nozzle is free and clear of the interior

surface of the shell, O, there is no friction or wear on either the shell or the nozzle, and because of the water sealing the porous plugs a minimum amount of work is required by the suction engine or pump, and an effective amount of suction may be directed to the paper or pulp in a positive and practical manner.

My invention is simple in its construction and operation, inexpensive in its maintenance, readily adjusted and performs the work required of it in an economical and satisfactory manner.

I show, in Fig. 5 a modified form of my invention in which the suction pipe, L, is unprovided with a nozzle and there is no water placed in the roll.

What I claim as my invention and desire to secure by Letters Patent is:

1. In a paper making machine, a hollow suction roll provided with a series of openings therethrough; a series of porous plugs

placed in said openings; means for supplying liquid to said roll; an overflow in said roll placed a short distance from the shell; an exhaust pipe entering said roll; a nozzle on said exhaust pipe provided with a flange mounted to just clear the shell and to embrace a number of said porous plugs, substantially as described.

2. In a paper making machine, a hollow suction roll provided with a series of openings therethrough; a series of porous plugs placed in said openings; an exhaust pipe entering said roll, whereby suction may be applied to the wet paper and pulp passing over the roll, substantially as described.

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

WILLIAM E. SHEEHAN.

Witnesses:

MERLIN C. MORRISON,
FREDERICK W. CAMERON.