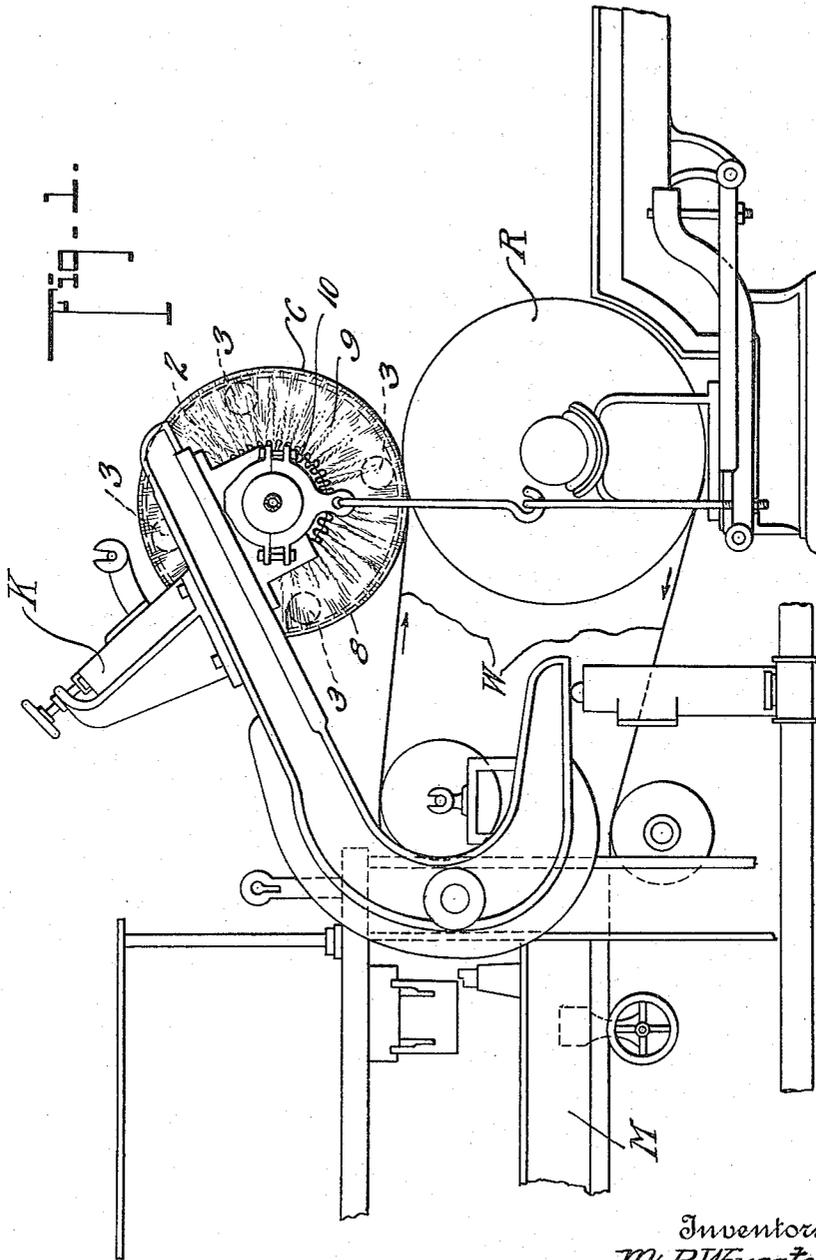


L. J. DEANE & M. P. WINGATE.  
PAPER MACHINE.  
APPLICATION FILED APR. 26, 1915.

1,155,219.

Patented Sept. 28, 1915.  
2 SHEETS—SHEET 1.



Witnesses  
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Inventors  
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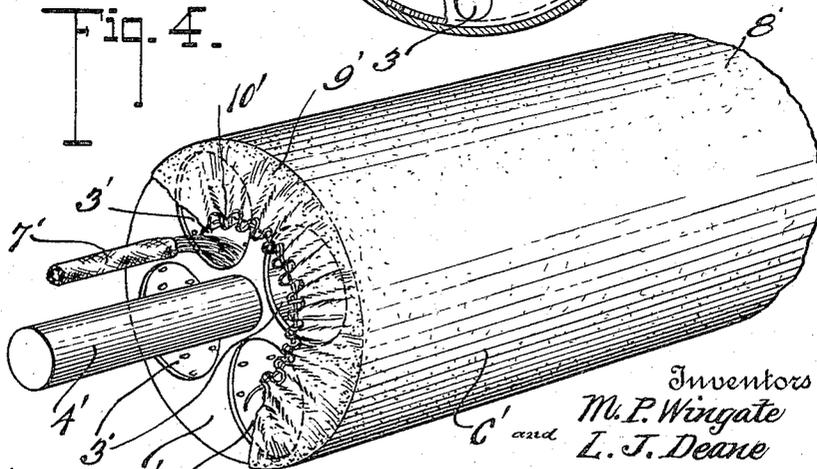
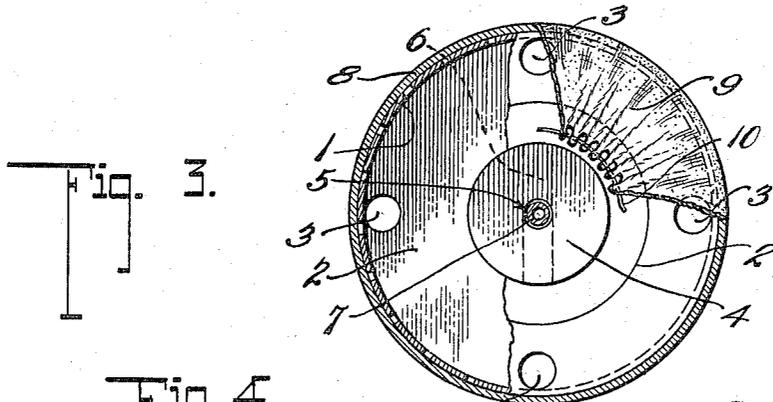
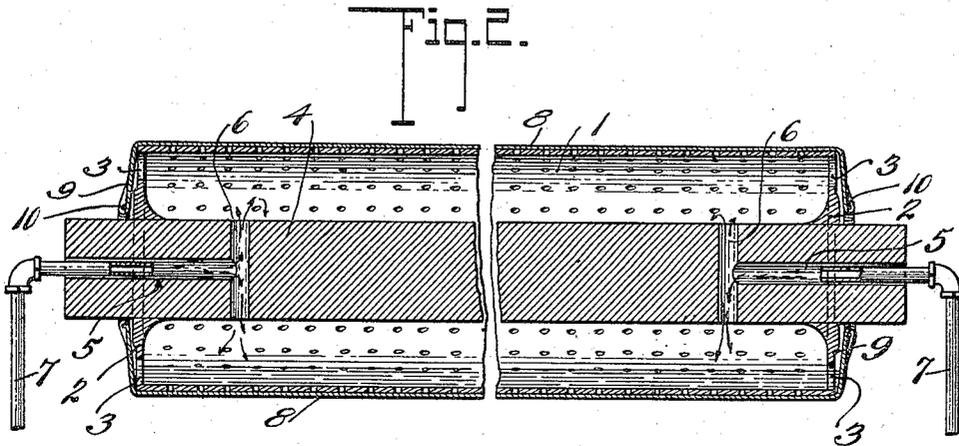
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2 SHEETS—SHEET 2.



Witnesses  
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# UNITED STATES PATENT OFFICE.

LEWIS J. DEANE AND MACK P. WINGATE, OF MILLINOCKET, MAINE.

## PAPER-MACHINE.

1,155,219.

Specification of Letters Patent. Patented Sept. 28, 1915.

Application filed April 26, 1915. Serial No. 23,983.

*To all whom it may concern:*

Be it known that we, LEWIS J. DEANE and MACK P. WINGATE, citizens of the United States, residing at Millinocket, in the county of Penobscot and State of Maine, have invented certain new and useful Improvements in Paper-Machines; and we do 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.

Our invention relates to improvements in machines for manufacturing paper, and more particularly to those commonly known as the Fourdrinier type employing moisture absorbing couch rolls constructed of apertured shells and jackets of absorbent material surrounding the same and adapted to remove moisture from the pulp conveyed thereto by the usual Fourdrinier wire.

Heretofore, in employing couch rolls of this class, difficulties have been encountered, since numerous small particles of pulp, fiber and the like, permeate through the absorbent jackets of the rolls and accumulate between such jackets and the apertured shells, thus causing numerous projections upon the peripheries of said jackets. As these projections come in contact with the Fourdrinier wire and pulp thereon, they not only form depressions in the sheet of pulp, thereby producing ununiform sheets of paper, but they exert excessive pressure and wear upon the Fourdrinier wire as well as upon the absorbent jacket. This necessitates, under the present day methods, removing the couch rolls a number of times during each month, and often a plurality of times in a week, after which the jackets must be removed from said rolls in order to remove the deposits under such jackets. Needless to say, this requires a great amount of time and labor and necessitates that the machine be inactive while one roll is being removed and another applied.

It is therefore the object of our invention to overcome these undesirable features by providing means whereby the deposits beneath the absorbent jackets may be removed therefrom without first removing the roll from the machine.

With this object in view, the invention resides in certain novel features of construction and combinations of parts hereinafter described and particularly pointed out in

the appended claims, two embodiments of the invention being shown in the accompanying drawings wherein like reference characters designate the same parts throughout the several views and wherein:

Figure 1 is a side elevation of a portion of a Fourdrinier machine improved in accordance with our invention; Fig. 2 is a longitudinal section of the type of couch roll shown in Fig. 1; Fig. 3 is an end view partly in section of this type of roll, and Fig. 4 is a perspective view of a portion of a couch roll showing a slightly different manner of cleaning the same.

In these drawings, constituting a part of the application, a portion of a Fourdrinier paper machine M is shown, this machine including the usual relatively fixed roll R around which one end of the Fourdrinier wire W is looped, and a couch roll C which is movable toward and away from the roll R, said roll C being normally disposed upon the wire W to compress the pulp thereon, thus partially drying the same and absorbing an appreciable amount of moisture prevalent therein. The machine M also includes the usual knife or the like K which travels upon the upper side of the couch roll C for the purpose of preventing moisture thereon from being conveyed upon the sheet of pulp disposed on the upper reach of the wire W. The construction so far briefly described, with the exception of the roll C, is well known to those skilled in the art to which the invention relates and further description or exposition is therefore deemed superfluous.

The couch roll C is disclosed in the drawings as comprising a cylindrical apertured shell 1 having open-work end walls 2 shown in the present application as provided adjacent the shell 1, with circumferentially spaced outlet openings 3. The centers of the two end walls 2 are provided with hubs or the like through which the opposite ends of the shaft 4 pass and to which said shaft is secured in any preferred manner, the aforesaid ends of said shaft 4 being here shown as provided with longitudinally disposed ports 5 which lead inwardly and deliver into transverse ports 6, the latter opening through the periphery of the shaft 4 into the perforated shell 1. The ports 5 receive therein any preferred means for supplying washing fluid, such as water thereto,

such means being shown in Figs. 1, 2 and 3 in the form of flush pipes 7 through which water may be forced into the interior of the shell 1 at will.

As is common with devices of the class described, the apertured shell 1 is provided with a jacket 8 of any preferred style of absorbent material, felt being usually provided for this purpose. To removably secure the jacket 8 upon the shell, the ends 9 of said jacket are continued past the ends of the shell 1 and inwardly into contact with the outer edge portions of the end walls 2, at which point they are laced at 10 around the ends of the shaft 4 as indicated most clearly in Fig. 3.

As hereinbefore suggested, after the roll C has been used for some time, fragments of pulp, nap, dirt, etc., permeate through the jacket 8 and accumulate in deposits between said jacket and the cylindrical shell 1, thus causing projections upon the periphery of the former, which projections produce the undesirable results well known to those skilled in the art to which the invention relates, but previously set forth herein.

When such an occurrence takes place, with our improved machine, it is simply necessary to introduce water or other flushing fluid into the minute space between the shell 1 and its surrounding jacket 8, thus softening the several deposits therein and allowing the same to work therefrom through the apertures in said shell. From the latter, the fluid with the deleterious matter therein will be discharged through the several outlet openings 3 therein. It is to be observed, however, that due to the fact that the laces 10 are disposed near the center of the end walls 2, a considerable body of water or other fluid used will be trapped within the roll, this body of water now also producing advantageous results when the roll is rotated while retaining such body therein, it being evident that this will produce a cleaning effect upon all interior parts of the device.

In the form shown in Figs. 1, 2 and 3, the fluid is introduced into the space between the shell 1 and jacket 8, by conveying such fluid through the pipes 7 and ports 5 and 6, into said shell, from which the fluid will seep through the numerous apertures and will thereby soften the material deposited between the shell and jacket. We wish it understood, however, that although this means of introducing water into the couch roll is preferable, other construction for so doing might well be provided. Furthermore, it will be clearly understood that but one of the flush pipes 7 and ports co-acting therewith need be employed, although quicker results are obtained by the use of one of such pipes at each end of the shaft 4.

As illustrative of another manner in which the flushing fluid may be introduced into the roll, see Fig. 4, in which the couch roll C' is of substantially the same construction as that previously described. In this figure, however, the end walls 2' of the roll are provided with larger outlet openings 3' which are substantially covered by the inwardly turned ends 9' of the absorbent covering 8', such ends being laced around the central shaft 4' as disclosed at 10'. It will be observed, however, that considerable space will be left between the shaft 4' and the lacing 10', thereby exposing the inner sides of the openings 3', this being advantageous, since the flushing fluid may be forced through these openings into the couch roll by the provision of a common type of flexible pipe or hose 7' as disclosed in the figure in question. Needless to say, this method of introducing the scavenging water or other fluid operates to as great advantage as the method previously described.

From the foregoing description, taken in connection with the accompanying drawings, it will be evident that we have not only improved the construction of Fourdrinier paper machines, to the extent of providing rejuvenating means for the couch rolls thereof, but we have produced an innovation in the methods of so rejuvenating or lengthening the lives of such rolls.

In the foregoing, we have described certain specific details of construction for producing probably the best results, and in the drawings have shown such details, but it will be evident that we need not be limited thereto otherwise than to the extent to which the appended claims limit us.

We claim:

1. A machine for removing moisture from paper pulp including a moisture absorbing couch roll comprising an apertured cylindrical shell, a moisture absorbing jacket surrounding the same, and a flush pipe discharging into said shell.
2. A machine for removing moisture from paper pulp including a moisture absorbing couch roll comprising an apertured cylindrical shell, openwork end walls therefor, a moisture absorbing jacket surrounding said shell, and a flush pipe discharging into the shell through one of the end walls thereof.
3. A machine for removing moisture from paper pulp including a moisture absorbing couch roll comprising an apertured cylindrical shell, open-work end walls therefor, a moisture absorbing jacket surrounding said shell and continuing inwardly around the outer edge portions of said end walls, and a flush pipe discharging into the shell through one of said end walls thereof.
4. A machine for removing moisture from paper pulp including a moisture absorbing couch roll comprising an apertured cylin-

dricial shell, a moisture absorbing jacket surrounding the same, and a fluid inlet into said shell for the admission of a flushing fluid.

5 5. The method of rejuvenating absorbent couch rolls having deposits between their apertured shells and the absorbent jackets thereof, consisting in introducing a fluid into the space occupied by the deposits.

10 6. The method of rejuvenating absorbent couch rolls having deposits between their apertured shells and the absorbent jackets thereof, consisting in trapping a body of fluid in said apertured shells and rotating the same while retaining such fluid therein.

7. The method of rejuvenating absorbent 15 couch rolls consisting in the admission of a fluid between the apertured shells of said rolls and the absorbent jackets surrounding the same.

In testimony whereof we have hereunto set 20 our hands in presence of the subscribing witnesses.

LEWIS J. DEANE.  
MACK P. WINGATE.

Witnesses:

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G. B. MORAN,  
CARL W. ULRAL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."