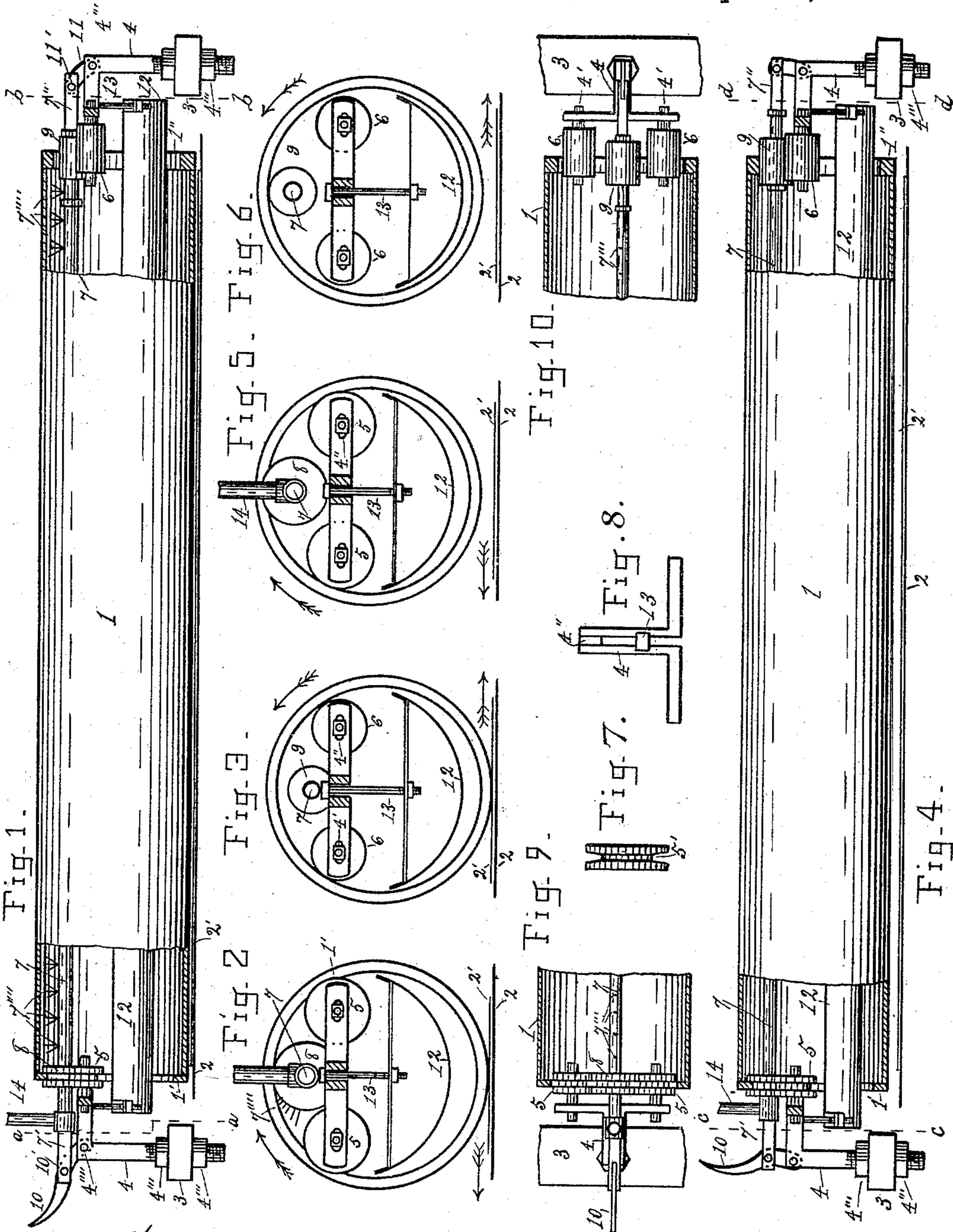


(No Model.)

J. C. YOUNG & W. L. DAVIS.  
DANDY ROLL.

No. 495,573.

Patented Apr. 18, 1893.



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# UNITED STATES PATENT OFFICE.

JOHN C. YOUNG AND WILLIAM L. DAVIS, OF NEENAH, WISCONSIN.

## DANDY-ROLL.

SPECIFICATION forming part of Letters Patent No. 495,573, dated April 18, 1893.

Application filed March 29, 1892. Serial No. 426,887. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN C. YOUNG and WILLIAM L. DAVIS, citizens of the United States, residing at Neenah, in the county of Winnebago and State of Wisconsin, have invented a new and useful Improvement in a Dandy-Roll for Paper-Machines, of which the following is a specification.

Our invention relates to an improvement in the construction of dandy-rolls wherein the usual heavy end journals are dispensed with, and a dandy-roll much lighter than those heretofore in use is produced, and also to an improved manner of supporting it in its position upon the wire of a paper machine, and furthermore, to an improvement in the manner of preventing the dirt and impurities of the paper pulp from becoming embedded within its exterior covering and of cleaning its interior when it has become foul with said impurities. We attain these objects by the construction shown in the accompanying drawings, in which—

Figure 1 is a longitudinal elevation of a dandy-roll supported at its ends upon the frame of a paper machine and also resting upon the sheet of paper upon the wire of said machine, a portion of each end of the dandy-roll being in section and also a portion of the machine frame. Fig. 2, is an end view of the dandy-roll, taken upon the line *a, a*, of Fig. 1. Fig. 3, is an end view of said roll, taken upon the line *b, b*, of Fig. 1. Fig. 4, is a longitudinal elevation of the dandy-roll, similar to Fig. 1, except that the dandy-roll is raised above and clear of the paper and wire. Fig. 5, is an end view of the dandy-roll, taken upon the line *c, c*, of Fig. 4, and Fig. 6 is an end view taken upon the line *d, d*, of Fig. 4. Figs. 7, 8, 9 and 10 are detail views, Fig. 7 being a side elevation of one of the grooved rollers of the device, Fig. 8 a top view of one of the angular brackets upon which rollers are journaled, Fig. 9 a top view of a short section of the left hand end of Fig. 1, the dandy-roll being in section and the conductor belonging in its interior being omitted, and Fig. 10, a like view of the right hand end of Fig. 1. Figs.

1, 4, 9 and 10 are upon the same scale, the others upon an enlarged one.

Similar figures of reference indicate like parts in the several views.

Fig. 1 indicates the dandy-roll; 2, the wire of a paper machine and 2', a sheet of paper thereon; 3, the paper, or Fourdrinier machine frame sides; 4, an angular supporting bracket, upon which the rollers, 5, 5, and 6, 6, are journaled and by which the dandy-roll is retained in its position upon the machine wire; 7, a pipe passing through the roll and extending from each end thereof; 8 and 9, rollers revoluble upon said pipe; 10, a link lever, connecting one extremity of the pipe 7, with the supporting bracket 4, at the left of the roll and 11, a link connecting the opposite extremity of the pipe and the bracket; 12, a conductor passing through the roll and being suspended near each end of the roll from the brackets 4, by means of the bolts 13; 14, a section of hose, or a pipe, for connecting the pipe 7 with the source of a water supply and conducting water to it for the purpose of keeping the dandy-roll clean.

The dandy-roll may be made upon a frame work of wire, and covering said frame work with wire cloth of a fine mesh in a usual and well known manner, the particular formation of its cylindrical shell being no part of our present invention. The ends of the dandy-roll we leave open for nearly their entire area, their only obstruction being a narrow and thin ring 1', at one end and a wider one, 1'', that is, wider lengthwise of the dandy-roll, at the other end, which rings are firmly connected to the outer shell of the dandy-roll.

The rollers 5, 5, 6, 6, are revoluble upon journals, or pins, 4', which pins are adjustable in the slots 4'', in the arms of the brackets, 4. The rollers 5, are formed with a narrow tapering groove, 5', for receiving the inner edge of the ring 1' and the rollers 6, are formed with wide faces upon which the inner edge of the ring 1'', rests and upon which the dandy-roll may revolve and may be moved longitudinally, when putting it in position or removing it from the machine. The two roll-

ers 5, are grooved for the purpose of retaining the dandy-roll in its position transversely of the machine wire, and with the two rollers 6, retain it from movement with the wire as said wire moves forward in the operation of the paper machine.

The brackets 4, are each adjustable vertically upon the sides of the Fourdrinier frame 3, by means of nuts 4'', upon the threaded portion of their lower ends. By means of this vertical adjustment and the horizontal adjustment of the roller journals before described, the device can be adapted to dandy-rolls of different diameter, and the downward pressure of the roll upon the sheet of paper upon the wire can be varied to any degree within the limits of the weight of the dandy-roll.

The pipe 7, we have applied for the purpose of accomplishing two objects, one being to raise the dandy-roll and to retain it above and free from the wire and the paper thereon. The pipe is provided with two rollers, one being a grooved roller, similar to Fig. 7, into which groove the ring 1', of the dandy-roll is at all times slightly within, but does not rest in the bottom of the groove when the dandy-roll is in use upon the paper. The other roller, 9, is a straight faced one and its surface like the bottom of the groove in the roller 8, is slightly below the ring 1'' of the dandy-roll when it is in use, or is revolving. The pipe is provided at each end with a slotted plug, the plug 7', at one end having pivoted in its slot the link lever 10 and the plug 7'', at the other end the link 11. The other extremity of the links are pivoted within a slot in the outer angle of the bracket 4. 10', 11' and 4''', are pins upon which the links are pivoted.

When the dandy-roll is in operation the outer, or lever end of 10 is in a nearly horizontal position as is shown in Fig. 1, but when it is desired to raise the dandy-roll clear of the wire and paper it is moved toward the roll, assuming a nearly vertical position, as shown in Fig. 4, the link thereof being moved a little past a vertical line so that the pipe will remain in its raised position. As the lever 10 is raised the pipe 7 is also raised, the groove of the roller 8 catching the ring 1', and lifting the dandy-roll, the roller 9, at the same time receiving the ring 1'', of the dandy-roll upon its surface, and said rollers being movable longitudinally upon the pipe, the dandy-roll is raised from the wire and paper by said movement of the lever. The grooves in the rollers, 5, 5 and 8, are made for the purpose of preserving the position of the dandy-roll transversely of the wire.

In dropping the dandy-roll to the wire and paper, they having a forward movement transversely of said roll, the sudden contact of the dandy-roll and paper will have a tendency to make a break in said paper. The rollers 8 and 9 above described are provided for the

purpose of avoiding this difficulty. When the dandy-roll is elevated from the wire it rests upon and will revolve freely upon the rollers, 8 and 9. As the operator moves the lever 10 for dropping the dandy-roll upon the paper with one hand, with the other he gives to the dandy-roll a spin, whirling it in the direction which the paper will carry it, whereby at the moment it strikes the paper, the paper and dandy-roll both traveling in the same direction, the tendency to break the paper is greatly lessened, if not entirely obviated. The other object we accomplish is, to assist in keeping the interior of the dandy-roll clean and free of refuse matter. This we do by providing the pipe with numerous small holes, 7''', along one side near its upper surface, for its entire length within the roll and by connecting the pipe by means of a conduit, as the pipe or a hose, 14, with a water supply source. By means of a valve at some convenient point the water can be applied at such times and in such quantities as required and numerous jets of water, 7''', can be thrown upon the interior of the roll its entire length. The water can be applied continually, while the roll is in use, or at only such times as the operator desires. When the dandy-roll is elevated from the wire and paper by the raising of the rollers, 8 and 9, and jets of water then applied it will be necessary for the operator to revolve the dandy-roll with his hand in order to have the washing completely over its entire surface.

For gathering and removing the drippings and refuse matter from the interior of the dandy-roll a conductor, 12, is extended through it and projects from each end thereof, beyond the edge of the wire, so as to carry the refuse matter away from it. The conductor should be nearly the width of the interior diameter of the dandy-roll and have a small inclination from one end to the other. It is supported near each end of the dandy-roll by means of the bolts, 13, the conductor being adjustable vertically, by means of nuts upon their threaded lower end, whereby the necessary inclination may be given for readily carrying away the washings.

Our improvement provides for the continuous running and use of the dandy-roll as the cleansing of its interior can be performed without stopping the running through of the paper, removing the dandy-roll from the machine, or even lifting it from the wire. Should it however become exceedingly foul it can be raised from the wire, cleaned and again lowered without taking it from the machine, or stopping but for a short time.

It is evident that the form of the brackets and the manner of adjusting the rollers, 5 and 6, both vertically and horizontally, may be changed in various ways without departing from the principles of our invention, and we do not confine our invention to the exact

form of bracket herein shown, or the manner of effecting their adjustment.

The rings, 1' and 1'', of the dandy-roll, or the rollers, 5, 6, 8 and 9, one or the other of them, are to be made preferably, of a somewhat elastic material like leather, raw-hide or india-rubber.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination with a dandy-roll having open ends and interior, of guiding rollers which enter said ends, bear upon their interior face and restrain the transverse movement of said dandy-roll, said rollers being journaled upon supporting brackets and arranged in pairs at each end of the dandy-roll, one roller at each side of the axial center thereof and both rollers above said center, whereby the dandy-roll may be raised from said rollers, and means for raising the dandy-roll from the paper machine wire, and from said guiding rollers, for retaining it in a raised position, and also, for lowering the same, substantially as described.

2. The combination with a dandy-roll having open ends and interior, of guiding rollers which enter said ends and are journaled upon supporting brackets and arranged in pairs at each end of the dandy-roll, one roller being at each side of the axial center thereof, and both rollers above said center, and being provided, those at one end of the dandy-roll with grooves in their peripheries for receiving the ring 1', of said end of the dandy-roll, and those of the opposite end with straight faces for receiving the ring 1'', of said opposite end, the rollers being arranged to bear against the interior face of said rings and to restrain the transverse movement of the dandy-roll, the grooves in said rollers restraining its longitudinal displacement, and means for raising the dandy-roll from the paper machine wire and from said guiding rollers, for retaining it in a raised position, and also, for lowering the same, substantially as described.

3. The combination with a dandy-roll having open ends and interior of guiding rollers which enter said ends, bear upon their interior face and restrain the transverse movement of said dandy-roll, said rollers being journaled upon supporting brackets and arranged in pairs at each end of the dandy-roll, one roller being at each side of the axial center thereof, and both rollers above said center, a pipe having holes provided for escaping jets of water arranged within, and longitudinally of the dandy-roll, and projecting from each end thereof, a conduit connecting said pipe with a water supply, rollers revoluble upon said pipe, one near each end of the dandy-roll, a plug in each end of the pipe, each plug being hinged to a support independent of the dandy-roll and the pipe thereby adapted for a vertical movement and the

rollers thereon for raising the dandy-roll from the paper upon the paper machine wire, for retaining it in a raised position, and also, for lowering the same, substantially as described.

4. The combination in a dandy-roll having open ends and interior, of a conductor, suspended independently of the dandy-roll, extending through and projecting from each end thereof and beyond the edge of the paper machine wire, and having a width of approximately the interior diameter of said dandy-roll, substantially as set forth.

5. The combination in a dandy-roll having open ends and interior of a conductor, extending through and projecting from each end thereof and beyond the edge of the paper machine wire, and having a width of approximately the interior diameter of said dandy-roll, and said conductor being suspended independently of the dandy-roll, and having means for varying the inclination thereof in a longitudinal direction, substantially as set forth.

6. The combination with a dandy-roll having open ends and interior, of guiding rollers which enter said ends, bear upon their interior face and restrain the transverse movement of said dandy-roll, said rollers being journaled upon supporting brackets and arranged in pairs at each end of the dandy-roll, one roller being at each side of the axial center thereof, and both rollers above said center, and being adjustable in both a vertical and horizontal direction, whereby they may be adapted for use with dandy-rolls of different diameter, and means for raising the dandy-roll from the paper upon the paper machine wire, and from the aforesaid guiding rollers, for retaining it in a raised position and for lowering the same, substantially as described.

7. The combination in a dandy-roll having open ends and interior and rings at each end thereof whose interior faces bear upon rollers for restraining the transverse movement of said dandy-roll, of a roller having a tapering groove in its periphery adapted to receive the ring of one of said ends and to restrain the dandy-roll from longitudinal movement, substantially as set forth.

8. The combination with a dandy-roll having open ends and interior, of guiding rollers which enter said ends, bear upon their interior face and restrain the transverse movement of said dandy-roll, said rollers being journaled upon supporting brackets and arranged in pairs at each end of the dandy-roll, one roller being at each side of the axial center thereof, and both rollers above said center, whereby the dandy-roll may be raised from said rollers, a pipe having holes provided for escaping jets of water arranged within and longitudinally of the dandy-roll and projecting from each end thereof, a conduit connecting said pipe with a water sup-

ply, rollers revoluble upon said pipe, one  
near each end of the dandy-roll, a plug in  
each end of the pipe, each plug being hinged  
to a support independent of the dandy-roll  
5 and the pipe thereby adapted for a vertical  
movement and the rollers for elevating the  
dandy-roll, above, and clear of the paper  
upon the paper machine wire, and to retain  
it in its elevated position, and also, to return  
10 it to the paper, a conductor suspended under  
said pipe independently of the dandy-roll,

and being adapted to receive the drippings  
of said pipe and the washings from the inte-  
rior of the dandy-roll and to discharge the  
same beyond the edge of the paper machine 15  
wire, substantially as described.

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