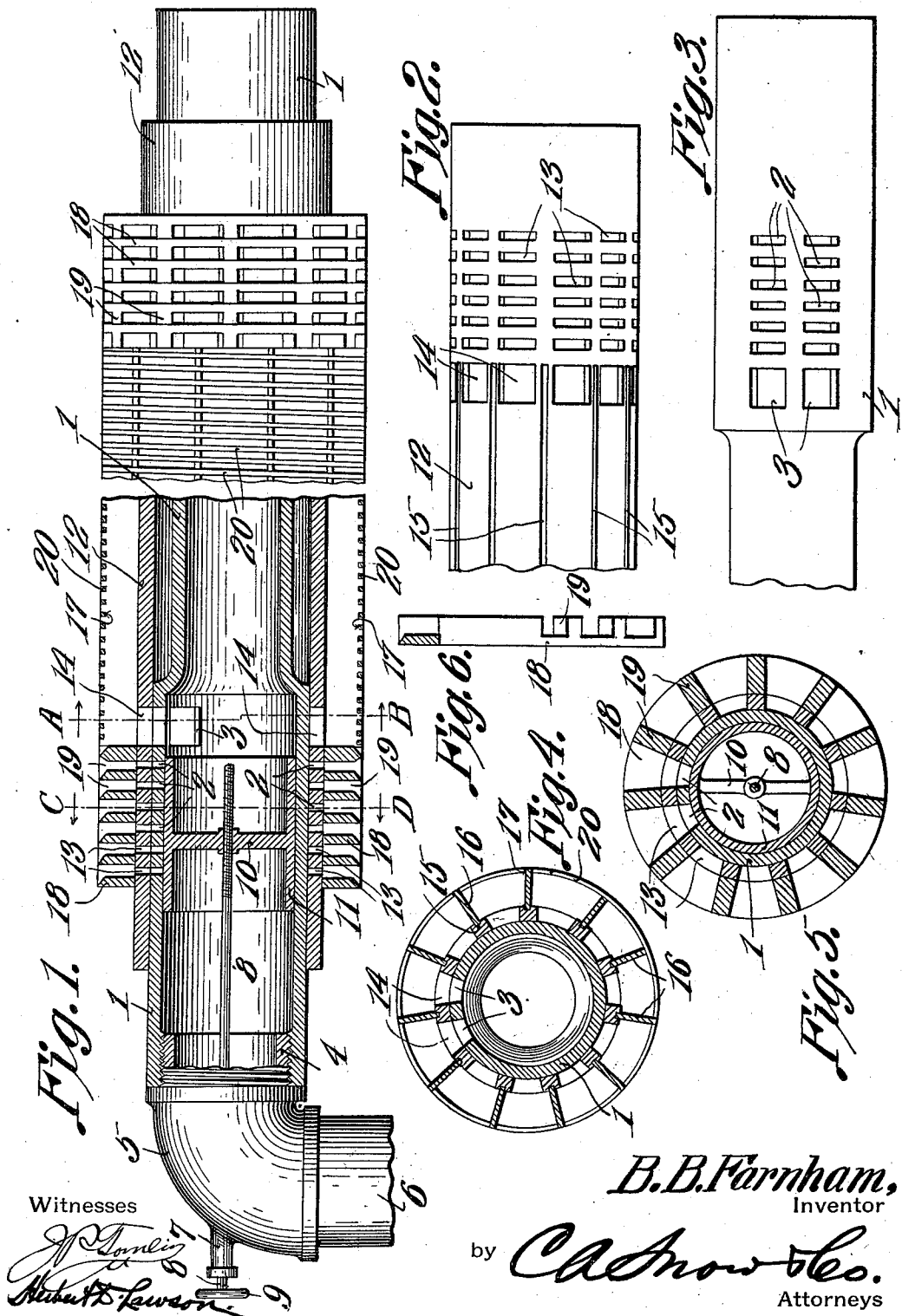


B. B. FARNHAM.
 SUCTION ROLL FOR PAPER MACHINES.
 APPLICATION FILED DEC. 20, 1910.

1,000,391.

Patented Aug. 15, 1911.



Witnesses

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UNITED STATES PATENT OFFICE.

BION B. FARNHAM, OF BUFFALO, NEW YORK.

SUCTION-ROLL FOR PAPER-MACHINES.

Specification of Letters Patent. Patented Aug. 15, 1911.

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Application filed December 20, 1910. Serial No. 598,357.

To all whom it may concern:

Be it known that I, BION B. FARNHAM, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Suction-Rolls for Paper-Machines, of which the following is a specification.

This invention relates to suction rolls for paper machines and of that type commonly employed for clearing the paper of water and for removing from the felts pulp and dirt which, under ordinary conditions, quickly accumulate, thus necessitating the washing of the felts and, consequently, resulting in a considerable loss of time.

One of the objects of the present invention is to improve upon the construction of rolls of this character and to provide novel means for regulating the area of the suction.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a view partly in section and partly in elevation of the suction roll. Fig. 2 is an elevation of one end portion of the revolving sleeve. Fig. 3 is an elevation of one end portion of the body of the roll. Fig. 4 is a section on line A—B Fig. 1. Fig. 5 is a section on line C—D Fig. 1. Fig. 6 is a view partly in elevation and partly in section of one of the rings used upon the sleeve.

Referring to the figures by characters of reference 1 designates the stationary tubular member of the roll, said member being reduced annularly for a desired distance between its ends and having, within its enlarged end portion, preferably two series of apertures 2 and 3, all of the apertures being preferably rectangular, as shown in Fig. 3 and the apertures 3, which are nearest the reduced portion of the member 1, being of much greater area than any one of the apertures 2. These apertures are disposed along lines extending longitudinally of the stationary member 1 and are so positioned

that, when said member is set up upon the machine, the apertured portion will be nearest the felts to be acted upon. This stationary member has one end engaged by a nipple 4 extending from an elbow 5, said elbow being attached to a pipe 6 extending to a suction pump not shown. A boss 7 extends from the elbow and has a screw 8 swiveled therein, the outer end of this screw being provided with a hand wheel 9 or the like whereby it can be readily rotated. The inner end of the screw engages a spider 10 formed within a tubular cut-off or valve 11 slidable within each end portion of the stationary member 1 so as to close any desired number of the openings 2 and 3.

A sleeve 12 is mounted for rotation upon the end portions of the stationary member 1, and is provided adjacent each end, with annular series of apertures 13 and 14, the apertures 13 being movable into and out of register with the apertures 2 while the apertures 14 are adapted to move into register successively with the apertures 3. Longitudinally extending grooves 15 are formed along the outer face of the sleeve, said grooves being parallel and being extended between the openings 14. These grooves are designed to receive longitudinally extending spacing strips 16 extended radially from the sleeve and having notches 17 in their outer edges. The ends of these strips constitute abutments for rings 18 fitting tightly about the sleeve and between the annular series of openings 13, each of these rings being provided, on one face, with ribs 19 bearing against the next adjoining ring and extending between the apertures 13 of one of the adjoining series. It will thus be seen that each of the apertures 13 opens into a space formed between two ribs 19 and two rings 18. As shown in Fig. 1, the outer ends of the ribs are beveled. A wire or shell of copper or other suitable metal is wrapped about the spacing strips 16 and within the notches 17, this wire forming the face of the roll between the two sets of rings 18.

As has heretofore been stated the roll is to be placed with the apertures 2 and 3 nearest the felts to be cleaned. It will be apparent therefore, that the felts will contact with those portions of the rings 18 and wire 20 located adjacent the openings 13 and 14 registering with openings 2 and 3. When a suction is established through pipe

6 from the stationary member 1, air will rush into said member through these registering openings. Water, dirt, etc., will thus be drawn into the stationary member not only between the rings located above the openings 2 and 3 but also between the convolutions of the wire and into those spaces between the strips 16 opening into the apertures 14 and 3. In other words air will only be sucked into the roll at those points where the said roll contacts with the felts. As the roll sleeve 12 revolves, additional openings 13 and 14 are brought into register with the openings 2 and 3. By shifting the valve or cut-off 11 longitudinally by means of screw 8, the area of the suction surface can be increased or diminished, it being apparent that, when the valve is moved inwardly, it will cover one or more of the openings 13 and can even be shifted a sufficient distance to cover the openings 3.

What is claimed is:—

1. A suction roll including a stationary tubular member reduced annularly between its ends, said member having an inlet opening adjacent said reduced portion and a series of additional smaller openings, a revoluble tubular member mounted upon the stationary member and spaced from said annular reduced portion, said bearing member having annular series of apertures movable successively into register with the apertures within the stationary member, there being spaced rings upon the apertured portion of said revoluble member and forming passages therebetween opening into the respective apertures, there being longitudinal grooves between the rings, spacing strips detachably mounted within the grooves and abutting against the rings, said strips forming longitudinal passages therebetween opening into one set of apertures, and a material wrapped around said spacing strips to bind them within the grooves and to constitute, with the peripheral portions of the rings, the working surface of the roll.

2. A suction roll including a stationary tubular member reduced annularly between its ends, said member having an inlet open-

ing adjacent said reduced portion and a series of additional smaller openings, a revoluble tubular member mounted upon the stationary member and spaced from said annular reduced portion, said bearing member having annular series of apertures movable successively into register with the apertures within the stationary member, there being spaced rings upon the apertured portion of said revoluble member and forming passages therebetween opening into the respective apertures, there being longitudinal grooves between the rings, spacing strips detachably mounted within the grooves and abutting against the rings, said strips forming longitudinal passage therebetween opening into one set of apertures, and a material wrapped around said spacing strips to bind them within the grooves and to constitute, with the peripheral portions of the rings, the working surface of the roll, a valve slidably mounted within the stationary member, and an adjusting screw engaging the valve and swiveled within one end portion of the stationary member and constituting means for shifting the valve to close one or more of the apertures within the stationary member.

3. A suction roll including a tubular member mounted for rotation and having annular series of apertures, rings extending around the member and between the series of apertures, ribs upon the rings, said ribs and rings cooperating to form passages communicating with the respective openings, a stationary apertured tubular member within the revoluble member, said apertures being adapted to successively communicate with the openings in the respective series in the revoluble member, a slidable valve and means for shifting said valve within the stationary member for closing any one of the openings within said member.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

BION B. FARNHAM.

Witnesses:

JNO. R. H. NEAL,
HAROLD O. FOOT.