Nov. 3, 1925. 1,560,331

J. T. AYERS

APPARATUS FOR WASHING PAPER MACHINE FELTS

Filed Feb. 16, 1924

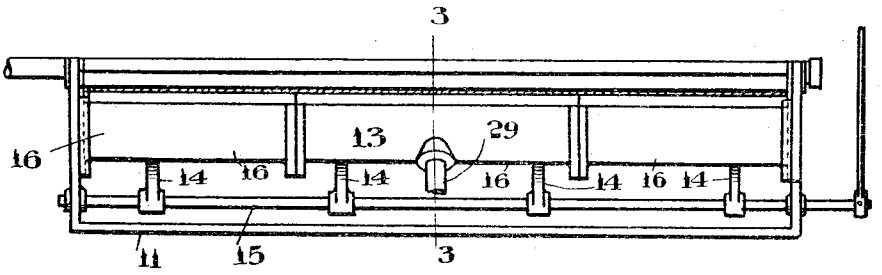


FIG. 1

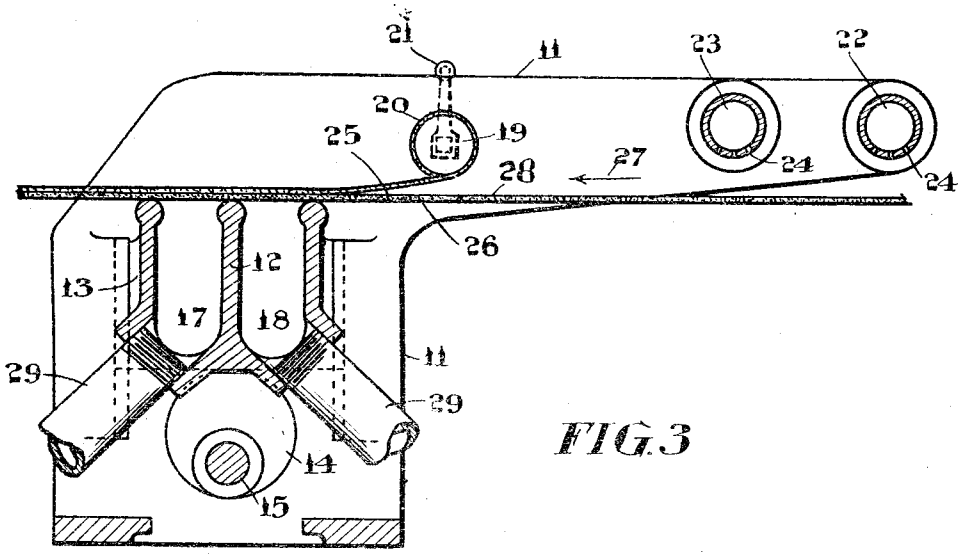


FIG. 3

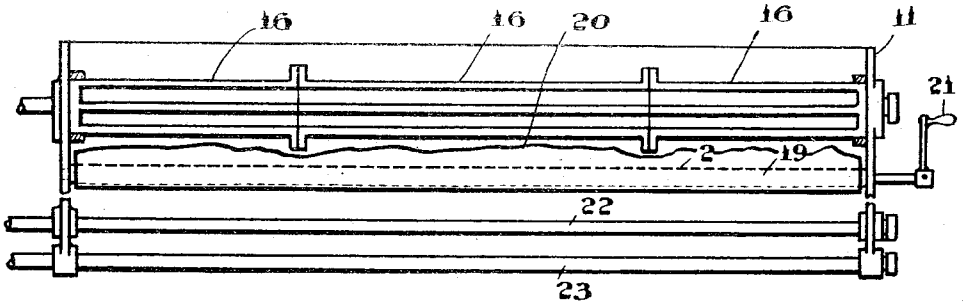


FIG. 2

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UNITED STATES PATENT OFFICE.

JOHN T. AYERS, OF LACHUTE, CANADA.

APPARATUS FOR WASHING PAPER-MACHINE FELTS.

Application filed February 16, 1924. Serial No. 693,390.

To all whom it may concern:

Be it known that I, JOHN T. AYERS, a subject of the King of Great Britain, and resident of the town of Lachute, Province of Quebec, and Dominion of Canada, have invented certain new and useful Improvements in Apparatus for Washing Paper-Machine Felts, of which the following is a full, clear, and exact description.

This invention relates to new and useful improvements in apparatus for washing paper machine felts, and the object of the invention is to provide a means whereby the felts may be washed while the paper machine is running.

Another object is to provide a means whereby the felt may be kept clean and free from all foreign matter.

A further object is to provide a felt washer which will easily and efficiently wash and dry the felt without decreasing the life thereof.

The invention consists briefly in providing a cleaning apparatus which may be positioned in proximity to an idle portion of the felt of a paper machine. In this position the felt travels in an inverted position, that is to say, with the pulp contacting surface facing downwardly. The apparatus comprises a vacuum box, which may be raised or lowered relatively to the felt, and a series of fluid conducting pipes disposed on the opposite side of the felt from said box and to one side thereof. On the opposite side of the felt from said vacuum box, a sealing screen is positioned mounted on a roller.

In the drawings:—

Fig. 1 is an elevation of the apparatus.

Fig. 2 is a plan view of the apparatus.

Fig. 3 is a cross sectional end elevation taken on the line 3—3, Figure 1.

Referring more particularly to the drawings, 11 designates a framework of any suitable form which may be made separate from the frame of the paper machine, or it may be made integral with and forming part of the frame of said machine. The frame includes end members 12, between which a vacuum box 13 is vertically slidable, the position of the box being controlled by cams 14 mounted on a rotatable shaft 15 journalled in the frame. The vacuum box may be of any suitable construction and is therefore not limited to the sectional construction illustrated in Figures 1 and 2, in which the box is built up of sections 16 connected end to end. Preferably, the vacuum box is of duplex construction, that is to say, it includes two entirely separate vacuum chambers 17 and 18, each of which has an independent outlet pipe, through which the fluid contents of the chamber may be exhausted. A suitable distance above the vacuum chamber and to one side thereof is mounted a roller 19, around which may be wound a sealing member 20 composed of cotton, felt or like material. The roller is rotatably mounted on the frame 11 and is provided with a handle 21 or other suitable winding device for wrapping the vacuum chamber sealing member 20 around the roller when it is in the inoperative position. A suitable distance to one side of the roller 19, pipes 22 and 23 are provided. These pipes are provided on their lower surface with perforations 24 in any suitable arrangement and number and the pipes may be supported by the end members of the frame, as shown, or they may be supported independently of the frame and at any suitable distance therefrom. The felt 25 passes between the suction box and the roller 19, travelling in the direction indicated by the arrow 27 with the paper carrying surface 26 of the felt facing downwardly towards the suction box. The pipes are so positioned that they are slightly above the upturned back 28 of the felt 25 and on the opposite side of the felt from the suction boxes.

The operation of the device is as follows:—

The pipes 22 and 23 may be connected to a water, steam or air supply, and the pipes 29 are connected to an exhausting device. The suction box normally occupies a depressed position out of contact with the felt. When it is desired to wash the felt, the shaft 15 is rotated so that the cams 14 lift the suction box into contact with the felt, as shown in Figure 3. The exhausting apparatus is then rendered operative, so that a partial vacuum is created in both the chambers 17 and 18, tending to draw air down through the felt and to remove particles of foreign matter adhering to the surface 26 of the felt. To create a more efficient suction in the box, the sealing member is placed above the felt directly above the suction boxes to prevent an excess of air from passing through the felt. A washing fluid or steam under pressure is then admitted to the device through

the pipe 22 and air under pressure may be admitted to the device through the pipe 23. During these movements or operations, the felt is moving in the direction indicated by the arrow 27 and the fluid and air discharge against the back of the felt, thereby cleaning same. The washing fluid loosens the foreign matter in the felt and the air assists in driving the surplus water through the felt and drying same. The felt then passes over the suction boxes, which draw any surplus water and foreign matter through the pipes 29. By operating in this manner, the felt is brought to a substantially dry condition, so that its water absorbing qualities when in use are much improved. The pipes 22 and 23 may be used to supply steam, cold water, soapy water or any such cleaning fluid. Air may be fed through the pipe 23 and this air blast, combined with the suction operating on the felt, extracts nearly all the moisture and substantially dries the felt. The chambers of the suction box are entirely independent, so that different degrees of vacuum may be produced in the two chambers if desired.

Having thus described my invention, what I claim is:—

1. An apparatus for cleaning paper machine felts, comprising a suction box disposed for engagement with the face of the felt, means for sealing said suction box positioned above said felt, and means for directing washing and drying fluids against the back of the felt.

2. An apparatus for cleaning paper machine felts, comprising a suction box disposed for engagement with the face of the felt, a flexible sealing member for said box positioned above said felt, and means for directing washing and drying fluids against the back of the felt.

3. An apparatus for cleaning paper machine felts, comprising a double-chambered suction box disposed for engagement with the face of the felt, a flexible sealing member positioned above the back of the felt and the suction box, and means for directing washing and drying fluids against the back of the felt.

4. An apparatus for cleaning paper machine felts, comprising a suction box disposed for engagement with the face of the felt, a flexible sealing member positioned above the suction box and the back of the felt, means for rolling the flexible sealing member clear of the felt when it is not in use, and means for directing washing and drying fluids against the back of the felt.

In witness whereof, I have hereunto set my hand.

JOHN T. AYERS.