E. D. BENNETT.

FELT CLEANER FOR PAPER MAKING MACHINES.

APPLICATION FILED NOV. 6, 1916.

1,267,359. Patented May 28, 1918.

FIG. 1.

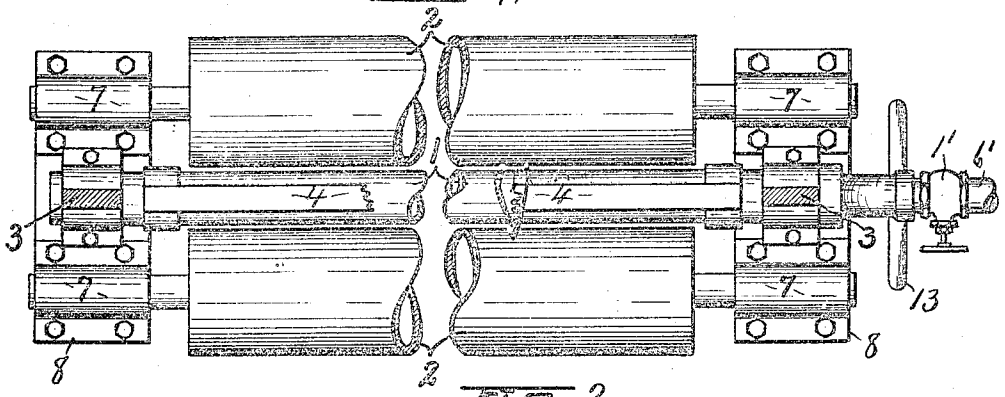


FIG. 2.

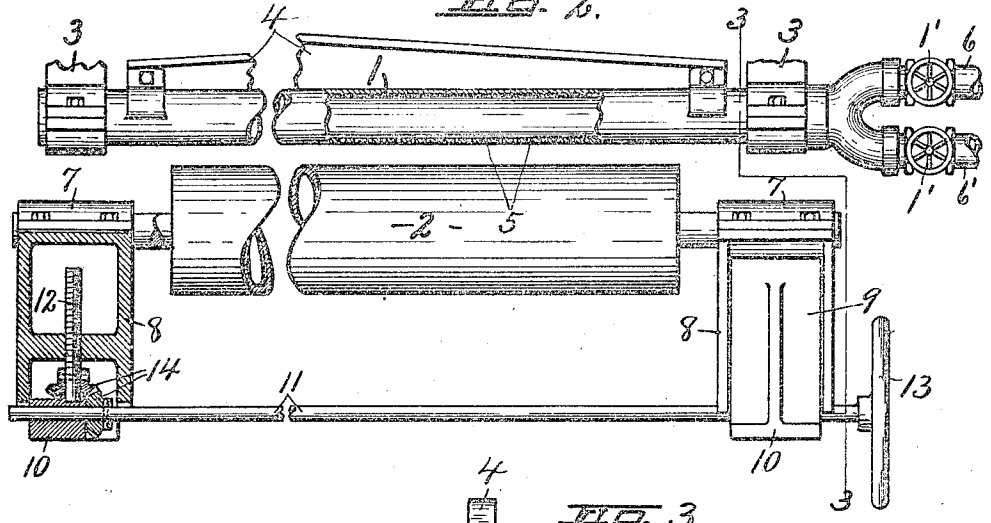
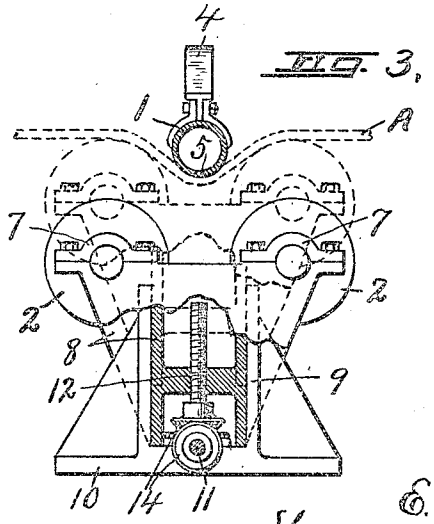


FIG. 3.



WITNESSES:

H. Hurst.

H. E. Chase

INVENTOR

E. D. Bennett

BY Howard S. Williamson

ATTORNEY.

UNITED STATES PATENT OFFICE.

EDWARD D. BENNETT, OF PULASKI, NEW YORK.

FELT-CLEANER FOR PAPER-MAKING MACHINES.

1,267,359. Specification of Letters Patent. Patented May 28, 1918.

Application filed November 6, 1916. Serial No. 129,701.

To all whom it may concern:

Be it known that I, EDWARD D. BENNETT, a citizen of the United States of America, and resident of Pulaski, in the county of Oswego, in the State of New York, have invented new and useful Improvements in Felt-Cleaners for Paper-Making Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in felt cleaners for paper-making machines, in which the felts after a relatively short period of use become matted or clogged with the paper stock, size and other substances to such an extent as to render them unfit for further use without cleaning.

The present method of cleaning these felts involves what is commonly known as "roping" or "bunching" of the fabric under considerable pressure, usually accompanied by the application of suitable cleansing fluids, but it is well-known that this process not only leaves the felt in a more or less wrinkled or creased condition, but actually tends to destroy the fabric and requires considerable time during each "cleaning up" period.

The main object is to avoid the necessity of this "roping" or "bunching" treatment and all of the detrimental effects attributable thereto, and at the same time to increase the life of the felt and general working efficiency of the machine, and also to produce a more thorough cleansing and restoration of the felt in considerably less time than has heretofore been practised.

Other objects and uses relating to specific parts of the cleansing device will be brought out in the following description.

In the drawings—

Figures 1 and 2 are, respectively, a top plan and a side elevation, partly broken away and partly in section, of a felt cleansing device embodying the various features of my invention.

Fig. 3 is an end view, partly in section, of the same device in normal position, the dotted lines indicating the position assumed by the rollers during the cleansing operation.

The felt —A— (shown by dotted lines, Fig. 3) which is to be cleaned and restored is usually made in the form of a belt, the upper side of which carries the moisture-laden stock, while the lower side is more or less slack and accessible for the adjustment of the cleaning device thereto.

As illustrated, this cleaning device comprises a pipe —1— extending transversely across the upper face or back of the felt —A—, and a pair of rollers —2— extending transversely across the lower or exposed face of the felt parallel with, but at opposite sides of, the vertical plane of the pipe —1— and, therefore, in spaced relation horizontally or lengthwise of the felt.

The pipe —1— is preferably held at or near its ends in or upon stationary supports —3— and is reinforced by a truss —4— to resist upward pressure stresses produced by the impingement of the felt against its under side by the rollers —2—, as will be hereinafter described.

The lower side of the pipe —1— overlying the adjacent portion of the felt —A— is open preferably by small perforations —5— to permit the passage of water, steam, air or other cleansing fluid therethrough and through the previous felt from the inside outwardly, or in a direction opposite to that of the entrance of the stock, size or other substance which has become embedded or incorporated in the interstices of the felt and which it is desired to remove.

As shown, one end of the pipe —1— is closed and the other end is provided with branch inlets —6— and —6'— adapted to be connected to the sources of supply for different cleansing fluids under pressure, as may be necessary or desired, each branch inlet being provided with a separate valve —1'— whereby it may be closed when the other is opened or both opened at will.

The rollers —2— are normally disposed in a plane some distance below that of the pipe —1— to allow the felt to travel freely through the intervening space when the cleaning device is not in use, but are adapted to be moved bodily into engagement with said felt to lift the adjacent portion thereof into contact with the open underside of the pipe —1— in such manner as to entirely cover the perforations —5—, and for this purpose are mounted in suitable bearings —7— in vertically movable frames —8— which are guided in stationary upright ways —9— of a main supporting frame —10— Fig. 3.

The means for moving the frames —8—

with the rollers —2— thereon vertically comprises a horizontal shaft —11— and vertical screw shafts —12—, the shaft —11— being journaled in suitable bearings in the frame —10— and provided with a hand-wheel —13— by which it may be turned, while the screw shafts —12— are driven from the main shaft —11— by bevel gears —14— and are engaged in threaded apertures —15— in the movable frames —8—, as shown more clearly in Figs. 2 and 3, to raise and lower said frames and rollers mounted thereon.

One or more of these cleaning devices may be built in or permanently attached to the paper-making machine so as to be ready for use at any time by raising the roller-supporting frames —8— so as to press the adjacent portion of the felt firmly against the perforated lower side of the pipe —1— and then opening one or the other or both of the valves —1'—, whereupon the cleaning fluid entering the pipe usually under pressure will be forced through the perforations and underlying portions of the felt to forcibly expel the stock, size or other substance which may have lodged in the interstices of the fabric, and at the same time restores the surface of the felt to its original condition.

This method of cleaning is not only more expeditious and thorough, but avoids the wrinkles, creases and mutilation so common in the present "roping" process and greatly increases the life of the felt.

In some instances, it may be possible to accomplish similar results by creating suction in the pipe —1— in which case it would simply be necessary to reverse the arrangement of the pipe —1— and rollers —2— relatively to the felt so that the substance which may be embedded therein would be drawn outwardly by suction instead of by pressure and, therefore, I do not wish to limit my invention to the use of fluid under pressure in the pipe —1—.

I claim—

A felt-cleaning device for paper-making machines comprising a pipe having an open side adjacent the felt, and means for creating a fluid current in the pipe and through the open side thereof and adjacent portion of the fabric for removing any substance which may have become lodged in the felt, a pair of rollers for engaging the felt at opposite sides of the pipe, and means for adjusting said rollers to force said felt against the open side of the pipe.

In witness whereof I have hereunto set my hand this third day of November, 1916.

EDWARD D. BENNETT.

Witnesses:

MERRIT H. FRITZEE,

THOMAS S. MEACHAM.