No. 777,362. PATENTED DEC. 13, 1904.

J. L. YOUNGS.

SUCTION DEVICE FOR PULP MACHINES.

APPLICATION FILED MAR. 2, 1904.

NO MODEL.

FIG. 1.

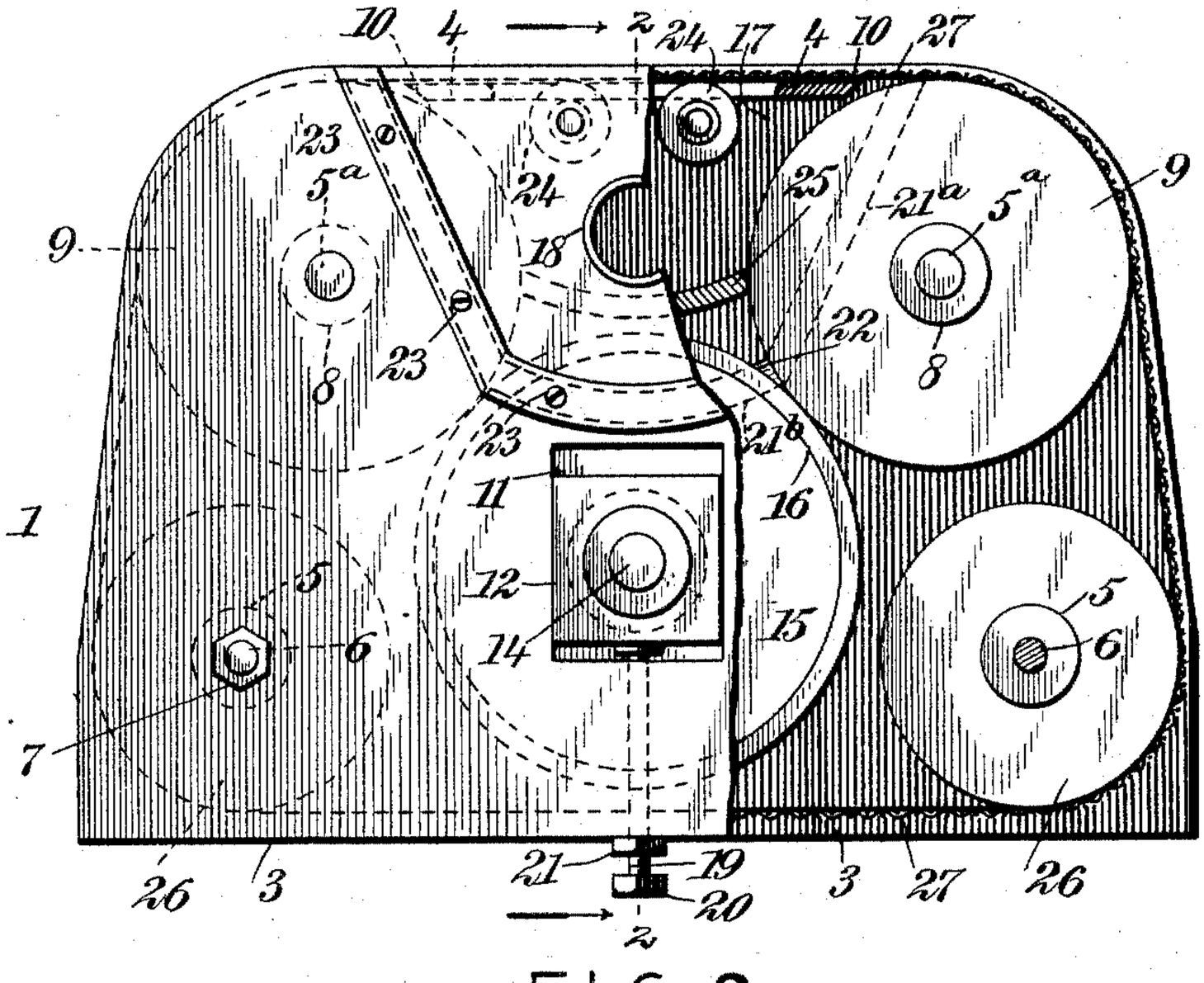
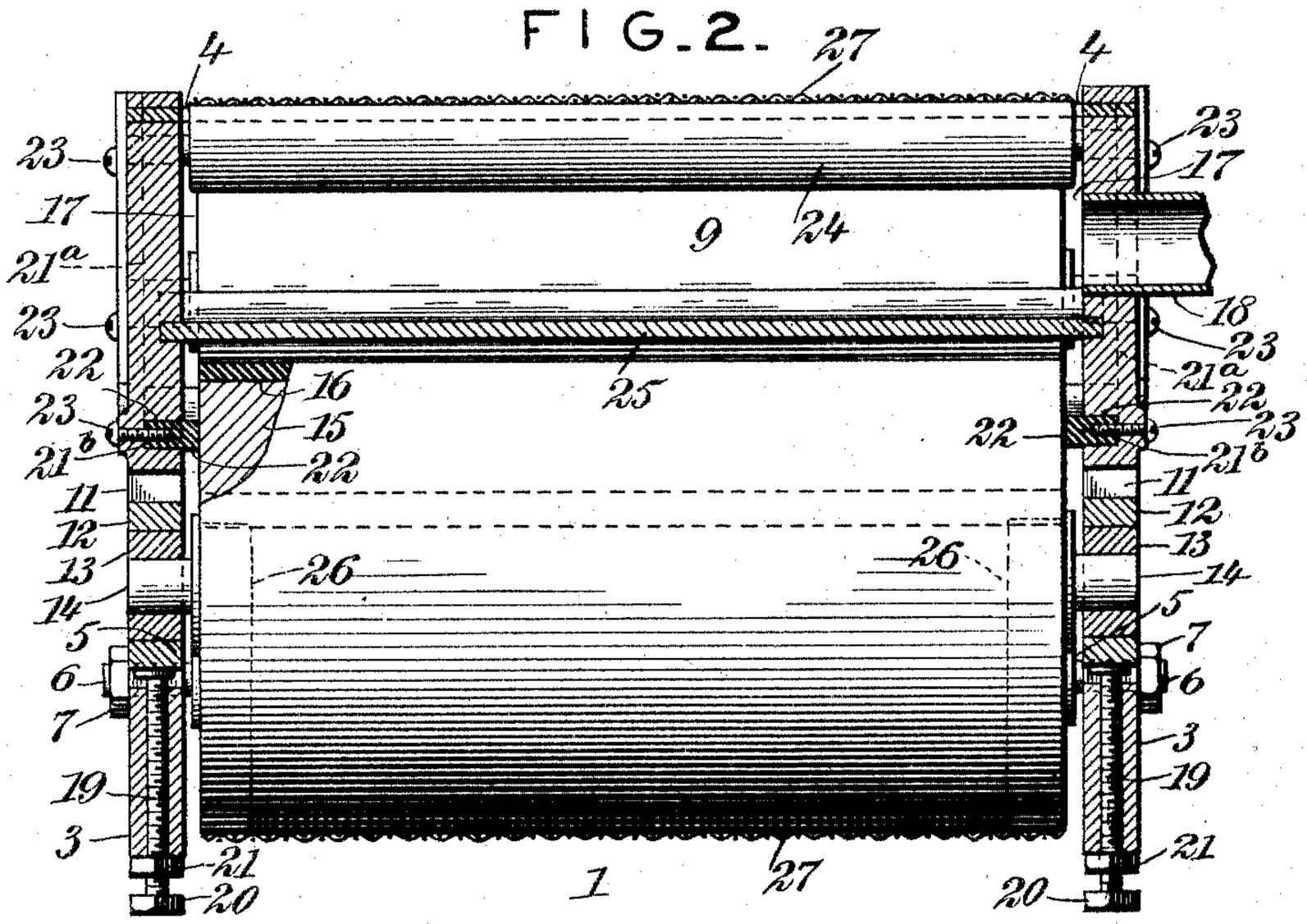


FIG. 2.



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No. 777,362. Patented December 13, 1904.

UNITED STATES PATENT OFFICE.

JOSEPH LEWIS YOUNGS, OF CHATEAUGAY, NEW YORK.

SUCTION DEVICE FOR PULP-MACHINES.

SPECIFICATION forming part of Letters Patent No. 777,362, dated December 13, 1904.

Application filed March 2, 1904. Serial No. 196,142. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH LEWIS YOUNGS, a citizen of the United States, and a resident of Chateaugay, in the county of Franklin and State of New York, have invented new and useful Improvements in Suction Devices for Pulp-Machines, of which the following is a full, clear, and exact description.

This invention relates to suction devices or apparatus; and it consists, substantially, in the construction and combinations of parts hereinafter particularly described, and pointed out in the claims.

The invention has reference more especially to the class of suction devices or apparatus employed in the manufacture of paper and other pulp for the purpose of eliminating or withdrawing therefrom as much as possible the moisture contained therein, (previous to the delivery of the pulp to the driers or presses therefor,) and is intended as an improvement upon the device or apparatus illustrated and set forth in former Letters Patent granted to me on the 15th day of December, 1903, No. 747,029.

The principal object of the present invention is to simplify the construction and organization of parts of which the device or apparatus is constituted and also to lessen the cost of manufacture thereof, as well as to secure effective and reliable results in operation.

The above and additional objects are attained by means substantially such as are illustrated in the accompanying drawings, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is an end elevation, partly broken out, of a suction device or apparatus embodying my improvements; and Fig. 2 is a vertical transverse sectional view thereof, taken on the line 2 2 in Fig. 1.

In the embodiment of my present improvements as herein shown I employ end pieces or sections of special construction, between which are supported a set of rolls so organized as to form (without other auxiliaries) a suction-chamber, suitable means being disposed between said end pieces and the ends of said rolls for maintaining said chamber air-tight from beneath. I also employ an endless band of reticulated material (as in my former patent referred to) passing over two of the rolls of the set mentioned, as well as around suitable guides therefor, and while I have herein represented my improvements in a certain preferred embodiment it will be understood, of course, that I am not limited to the precise details thereof in practice, since immaterial changes therein may be resorted to coming within the scope of my invention.

Specific reference being had to the drawings by the designating characters marked thereon, 1 represents my improved suction device in its entirety, the same comprising duplicate end pieces or sections 3 3, united or joined together at the upper edges thereof by flat strips 4 4, disposed a suitable distance on either side of a median vertical plane passing through the structure, said end pieces being also connected at the lower portions thereof beyond said strips by means of shafts 5 5, having reduced journals 6 passing through openings or bearings therefor in the end pieces, said journals being provided on their outer ends with suitable nuts 7 for preventing said end pieces from spreading. Mounted between said end pieces, also beyond said strips 4 4 and above the shafts 5 5, are the journals 5^a 5^a of shafts 8 8 of duplicate rolls 9 9, each of such diameter that the successive portions of the constantly-rotating surface thereof will always be close to and flush with the upper surface of the adjacent strip 4, the outer edge of the latter being beveled at 10 in conformity with the shape of the roll, as shown. Below and intermediate of the bearings of the said journals of the shafts 8 8 the side pieces or sections 3 3 are formed with corresponding enlarged rectangular openings 11 11, in each of which is fitted a vertically-movable block 12, provided with a bearing-ring 13 for the end or journal of a shaft 14 of an enlarged roll 15, preferably having a covering 16, of rubber or other elastic material, portions of the constantly-rotating surface of which are always in contact with portions of the rotating surfaces of said rolls 9 9. In this way a suction-chamber 17 is formed between the last-named rolls, the roll 15, and the intervening inner surface portions of the side pieces, as is apparent, one of

said side pieces having an opening therein communicating with said chamber and fitted with the end of a pipe 18, which may be connected with a pump or other suction device. (Not shown.) Working through a vertical threaded opening therefor leading from the lower edge of each side piece and communicating with the opening 11 in the latter is a screw 19, working against the lower edge of the corresponding block 12 for the purpose of vertically adjusting said roll 15, the lower projecting portion of said screw having a head 20 and provided with a jam or tightening nut 21.

In order to render the suction-chamber 17 perfectly air-tight at the ends and bottom thereof, I form in the inner surfaces of the side pieces 3 3 suitable downwardly-converging grooves 21[a], which begin at short distances beyond the outer beveled edges of the transverse strips 4 4 and extend obliquely of the end faces of the rolls 9 9 to points alining with adjacent peripheral portions of the latter, where they are joined by downwardly-curved grooves 21[b], located below the intermediate peripheral portion of the roll 15, and in each set of these grooves I place or insert a correspondingly-shaped shoe 22, of rubber or other suitable material and of a depth exceeding that of the grooves, (see Fig. 2,) thus to completely close the spaces between the ends of the several rolls referred to and the adjacent surfaces of said side pieces. Said shoes are adjustably secured in place by screws 23, passing through raised portions of the end pieces at the bases of the grooves, as shown. Also mounted between the side pieces near the upper edges thereof are the ends or journals of the shafts of preferably duplicate small rolls 24, extending across the suction-chamber, with portions of the rotating surfaces thereof always flush with the upper surface of the strips 4 4, and beneath these rolls and also extending across the suction-chamber is a curved trough 25 for catching any moist pulp, &c., which may be drawn into said chamber in the operation of the device. Mounted upon each of the shafts 5 near the ends thereof and within the side pieces 3 3 are disks or guide-pulleys 26 for an endless traveling band 27, of wire-gauze or other reticulated material, passing around and over the rolls 9 9 and sweeping the upper surfaces of the strips 4 4 and the small rolls 24, said band being also guided at the edges thereof by the side pieces.

From the foregoing it will be seen that by mounting the structure in proper position, so that the upper surface of the gauze band 27 will come beneath the traveling pulp-carrying felt, (not shown,) the superfluous water or moisture may be rapidly withdrawn from the pulp on producing a suction in the suction-chamber through the pipe 18. By means of the strips 4 and the small rolls 24 the felt will be prevented from being drawn into said chamber, however powerful the suction thereon may be.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A suction device for the purpose named, comprising end pieces, a set of rolls mounted between the same, forming a suction-chamber, and expansible means for maintaining the ends and bottom of said chamber air-tight.

2. A suction device for the purpose named, comprising end pieces, a set of rolls mounted between the same, forming a suction-chamber, and means for closing the spaces between the ends of said rolls and the side pieces, and means for adjusting the position of the closing means.

3. A suction device for the purpose named, comprising end pieces having grooves in their inner faces, a set of rolls mounted between the same, forming a suction-chamber, and elastic shoes adjustably seated in the grooves and closing the spaces between the ends of said rolls and the said side pieces.

4. A suction device for the purpose named, comprising end pieces, a set of rolls mounted between the same and forming a suction-chamber, a reticulated band passing over some of the rollers of the set, and a trough in the suction-chamber.

5. A suction device for the purpose named, comprising end pieces, duplicate horizontally-separated rolls and a third roll mounted between the same, forming a suction-chamber, smaller rolls and flat strips intermediate of and having their upper surfaces flush with the upper surfaces of said duplicate rolls, an endless reticulated band passing over said surfaces of the duplicate and smaller rolls and the strips, guides for the band, and means inserted in grooves in the inner surfaces of the side pieces for closing the spaces between such surfaces and the ends of the duplicate and third rolls.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH LEWIS YOUNGS.

Witnesses:
OREN J. LAMB,
ALBERT TOURVILLE.