No. 747,029. PATENTED DEC. 15, 1903.

J. L. YOUNGS.

SUCTION DEVICE FOR PULP MACHINES.

APPLICATION FILED MAR. 31, 1903.

NO MODEL.

Fig. 1.

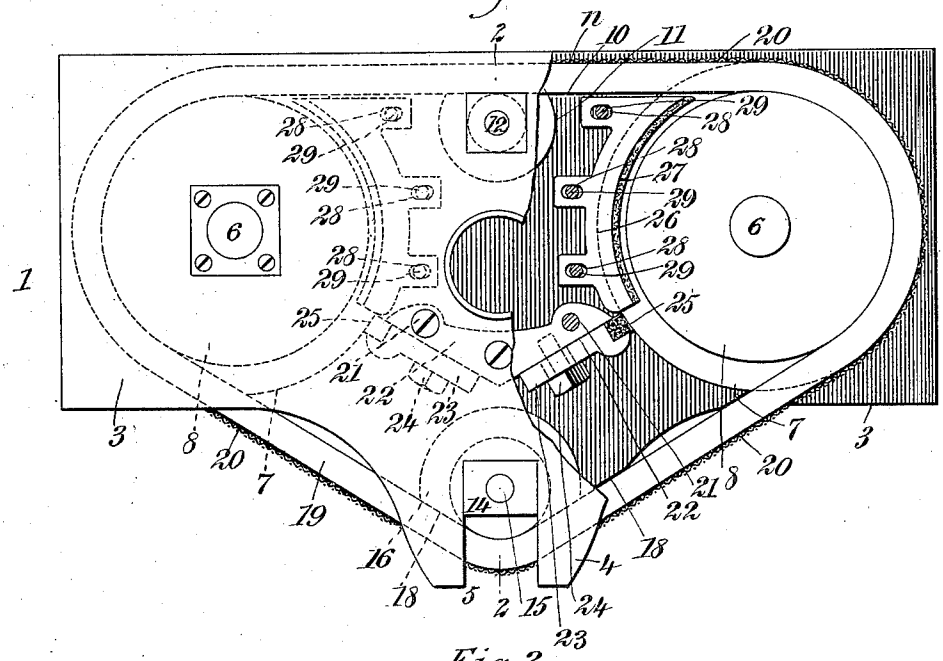
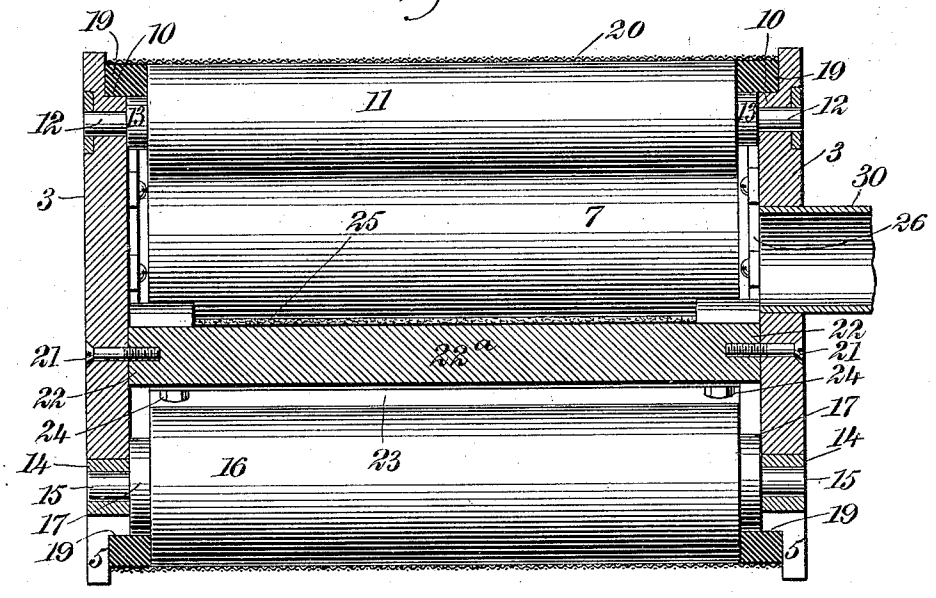


Fig. 2.



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No. 747,029. Patented December 15, 1903.

UNITED STATES PATENT OFFICE.

JOSEPH LEWIS YOUNGS, OF CHATEAUGAY, NEW YORK.

SUCTION DEVICE FOR PULP-MACHINES.

SPECIFICATION forming part of Letters Patent No. 747,029, dated December 15, 1903.

Application filed March 31, 1903. Serial No. 150,359. (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 a new and Improved Suction Device 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, organization, and combinations of parts hereinafter particularly described and claimed.

In the manufacture of paper and other pulp it is sometimes the practice to subject the pulp to air-suction by which to eliminate or remove therefrom as much as possible of the moisture contained therein previous to the delivery of the pulp to the driers or presses therefor, and in the use of many forms of suction devices hitherto devised for this purpose expensive losses have occurred and disadvantages have been encountered due principally to the frequent stoppages of the machine caused by undue friction produced by the suction device.

The present invention has for its principal object to overcome many former objections to suction devices for this purpose and to provide a device of the kind which is exceedingly simple both in the construction and organization of the parts or elements thereof.

A further object is to provide a suction device for the purpose named which is effective and reliable in action, comparatively inexpensive to manufacture and operate, and one also possessing the capacity for long and repeated service.

A still further object of the invention is to provide a suction device of the character referred to which is composed of few parts easily assembled together and which also are easily repaired and replaced, besides not being liable to get out of order.

The above and additional objects are attained by means substantially such as are illustrated in the accompanying drawings, in which—

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

Before proceeding with a more detailed description it may be stated that in the embodiment of my improvements herein shown I preferably employ a casing of special construction in which is supported a plurality of specially-organized rolls over which is carried an endless belt or band of wire-cloth of suitable mesh, and I also employ a specially-constructed suction-chamber within the casing, together with means whereby the different joints and crevices between the parts are rendered securely air-tight. It will be understood, however, that I am not limited to the precise details of said embodiment 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 two end pieces or sections 3 3, each substantially oblong in form and having a central hanging portion 4, each of said hanging portions being formed with a comparatively deep notch 5, leading upwardly from the edge thereof. Having their bearings in said end pieces or sections are the ends or journals 6 6 of duplicate rotatable rolls 7 7, each of which latter is reduced in diameter all around at each end to form an intermediate short section 8, a portion of the constantly-moving surface of which is always flush with the upper surface of a longitudinal ledge 10, formed or provided on the inner surface of the adjacent end section 3 of the device, as shown, and located intermediate the said rolls 7 7, at the upper part of the suction device, is a rotatable roll 11, which is considerably smaller in diameter than either of the first-mentioned rolls, the journals 12 of this said roll 11 being likewise supported in suitable bearings therefor in the said end pieces or sections 3 3. This roll 11 is so mounted that a portion of its constantly-moving surface will be intersected or touched by an imaginary horizontal line uniting the uppermost portions of the said rolls 7 7, and each end of said roll 11 is likewise reduced in diameter to form a short section

13 intermediate the main diameter of the roll and the corresponding journal, a portion of the moving surfaces of said sections 13 also always being flush with the aforesaid ledges 10 on the inner sides of the end sections 3 3. (See Fig. 2.) Mounted in bearings 14 therefor, which are slidable vertically between the sides of the notches 5 in the hanging portions 4 of said end sections 3 3, are the journals 15 of a tension-roller 16, said roller also being formed at each end with an intermediate short section 17 of reduced diameter, and the said hanging portions being provided on their inner surfaces with ledges or projections 18, located at either side of each of the notches 5 in the end sections 3.

Passing around the reduced intermediate section at either end of each of the rolls referred to is a suitable band 19, (preferably elastic,) which is of a thickness substantially equal to the difference between the diameters of each roll and its said sections, each band being also of a width substantially equaling that of the space between the ends of each roll and the adjacent surfaces of the side pieces or sections 3 3, and fitted to the outer surfaces of said bands are the edge portions of an endless apron 20, of foraminated material, as wire-gauze, as shown, it being understood that the said roll 16 by its weight serves to maintain said bands and said apron taut upon the rolls.

Secured to the inner surfaces of the side pieces or sections 3 3 by means of screws 21 or in any other suitable way are corresponding brackets 22, the under surface of each of which is formed with angular or reversely-inclined faces, as shown, and said brackets being connected by a longitudinal member 22^a. Also connecting said brackets are adjustable bars 23, (see Fig. 1,) secured at each end by means of screws 24 passing through the same and entering said angular faces of the brackets, the outer edge of each of said bars being provided with a strip 25, (flexible or not, as desired,) having contact with the periphery of the adjacent roll 7. (See Fig. 1.) Also fitted to the inner surface of each end piece or section 3 3 is an adjustable shoe 26, which is curved at 27 in conformity with the periphery of the adjacent reduced section 8 of the roll 7, said shoes each being formed with slotted lugs 28, through which pass the screws 29 for supporting the shoes in place.

From the construction described and shown it will be seen that I provide an interior suction-chamber, entering which from one end of the device is a pipe 30, which may lead to a pump or other similar device. Now by mounting the suction device in proper position, so that the upper surface of the wire-gauze apron will come beneath the traveling felt, (not shown,) by which the wet pulp is carried, the superfluous wet or moisture may be rapidly withdrawn from such pulp on producing a suction in said chamber through said pipe. By the use of my device the felt and pulp will not be drawn into the suction-chamber, no matter how powerful the suction, and it is apparent that the operation may be carried on uniformly and successfully.

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 sections having central hanging portions at their lower edges, said portions each being formed with a notch, a pair of rolls supported in the upper part of the sections, an endless wire-gauze apron passing over said rolls, an intermediate supporting-roll for the apron, and a roll supported in bearings freely slidable between the sides of said notches, and by its weight imparting tension to the apron.

2. A suction device for the purpose named, comprising a casing having end sections provided with hanging portions formed with notches, and provided on the inner surfaces thereof with horizontal ledges, and with ledges also on said inner surfaces at the sides of the notches, a pair of rolls having their bearings in said end sections, and each roll having a section thereof at each end of reduced diameter, a portion of the surfaces of said sections being always flush with said horizontal ledges, elastic traveling bands passing around the said reduced sections of said rolls, and also traversing all the ledges, and having attached thereto the edge portions of an endless traveling apron of foraminated material passing over the rolls, a suction-chamber intermediate the rolls and said apron, and a slidable tension-roll for the apron, having its bearings in the said notches.

3. A suction device for the purpose named, comprising a casing having end sections, a pair of rolls having their bearings in said sections, an endless apron of foraminated material passing around the rolls, a supporting-roll for the apron, also having its bearings in said end sections, curved shoes secured to the inner surfaces of the end sections adjacent to each of the rolls first named, brackets also secured to such surfaces, and connected by a bar, said brackets each having reversely-inclined faces on their under sides, bars connecting these faces, each having a strip bearing against said first-named rolls, and a suction-pipe entering the chamber thus formed.

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

JOSEPH LEWIS YOUNGS.

Witnesses:
JAMES BONNER,
WILLIAM HILL.