Sept. 6, 1932. M. CATALA ET AL 1,876,399

MACHINE FOR THE MANUFACTURE OF ASBESTOS CEMENT PRODUCTS AND THE LIKE

Filed March 12, 1931 2 Sheets-Sheet 1

Fig. 1.

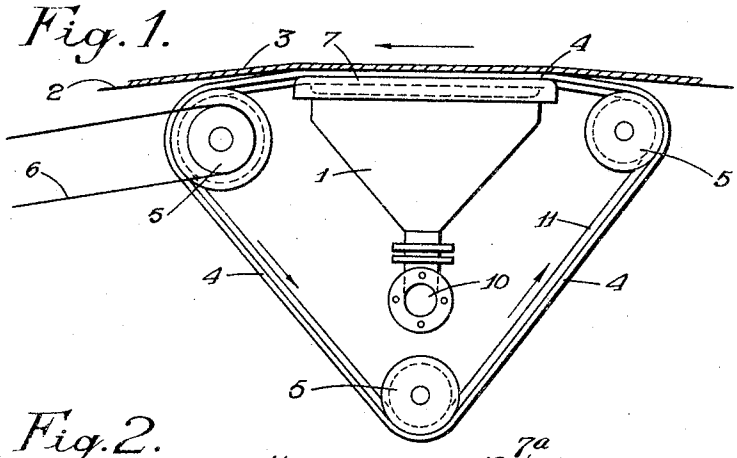
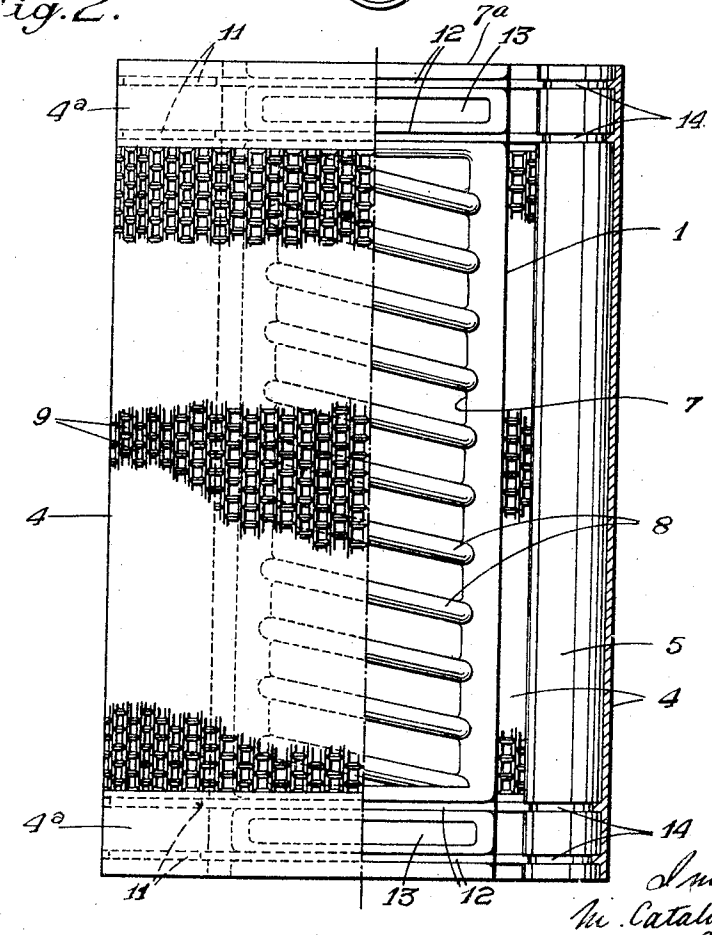


Fig. 2.



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Fig. 5.

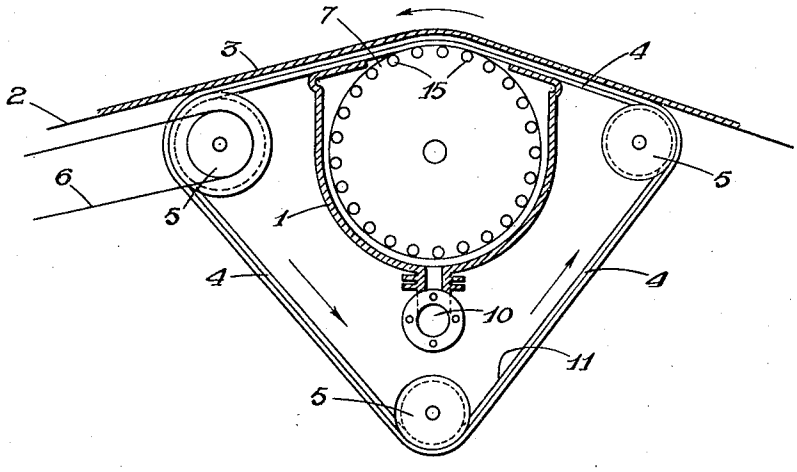


Fig. 3.

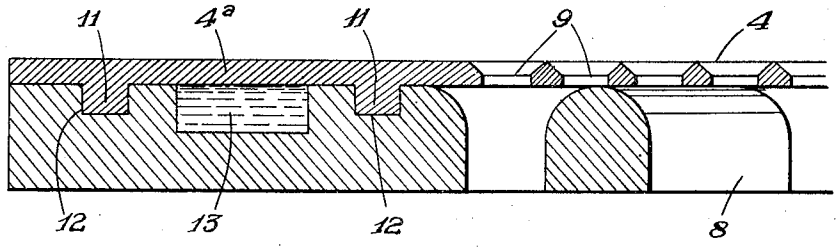
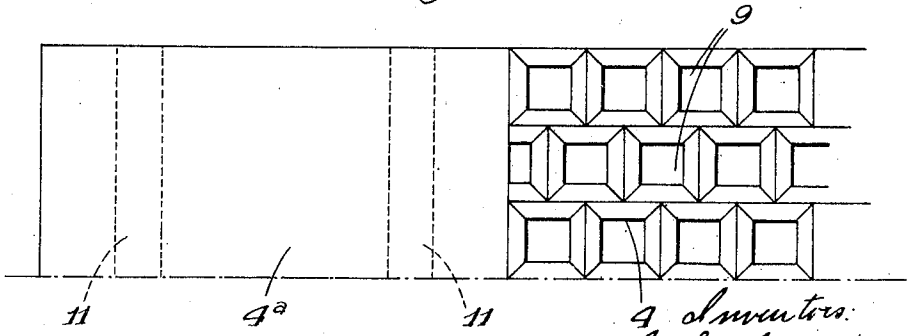


Fig. 4.



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UNITED STATES PATENT OFFICE

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MACHINE FOR THE MANUFACTURE OF ASBESTOS-CEMENT PRODUCTS AND THE LIKE

Application filed March 12, 1931, Serial No. 522,114, and in Belgium March 22, 1930.

This invention relates to suction boxes used in machines for the manufacture of asbestos-cement products and like machines of the kind used for papermaking, to dry by suction the sheet of asbestos-cement, asbestos, cardboard or paper, for example, produced in the machine and led above the suction box by a felt member upon which said sheet rests. The felt, through which water is sucked from the sheet to be dried by the vacuum set up in the suction box, is subjected to heavy wear due to friction against the bars or the perforated plate fitted to the suction mouth of said box.

Wear is particularly rapid if the sheet to be dried contains abrasive matter, such as cement, which reduces the resistance of the felt by impregnating the same and furthermore penetrates between it and the suction mouth bars, thus substantially increasing its coefficient of friction.

The object of this invention is to eliminate friction between the felt and the suction box.

To this end, according to the invention, an endless apron is interposed between the felt and the suction mouth, said apron being of a material stronger than felt, moving at the same speed as the latter and alone rubbing against the bars of the suction box. Said apron may be arranged round the box to run on grooved guide rollers, one of which at least is driven in synchronism with the feed rollers of the felt. Said apron consists preferably of a broad rubber felt, suitably perforated across a portion of its width equal to the width of the suction mouth to facilitate the drying process, said belt having solid edges provided underneath with ribs adapted to slide in corresponding grooves of the suction box to ensure proper guidance and tightness.

Said rubber apron withstands friction against the bars of the box satisfactorily and such friction may, according to the invention, be reduced to a minimum if said bars are arranged obliquely relatively to the direction of travel of the apron and felt, instead of being placed at right angles thereto as heretofore.

Two constructional embodiments of the invention are illustrated by way of example in the accompanying drawings:

Fig. 1 shows a side elevation of a suction box, having an endless apron according to the invention.

Fig. 2 is a plan view of the same, the left half of which shows the endless apron, which in the right half is omitted.

Fig. 3 is a vertical section, upon a larger scale showing the edge of the apron and that of the table of the suction box provided with sealing grooves.

Fig. 4 is a plan view, upon a larger scale, of a portion of the apron and

Fig. 5 is a view similar to Fig. 1, showing the invention applied to a drum suction box.

In Fig. 1, 1 is the suction box, 2 is the felt and 3 is the sheet to be dried. An endless rubber apron 4 is interposed between felt 2 and case 1, said apron traveling upon rollers 5 around the box 1 in the same direction and at the same speed as the felt 2. To this end, one roller 5 is actuated by a member 6, which may be driven from a part of the machine in which pass the felt 2 and the sheet to be dried 3.

The suction mouth 7 of box 1 is fitted with bars 8 (Fig. 2), arranged obliquely with the least possible inclination relatively to the direction of travel of felt 2 and apron 4, to minimize friction between the apron and the rounded angles of the bars.

The middle portion of rubber apron 4 is perforated in large meshes 9 between which water or other liquid, drawn from sheet 3 through felt 2, may fall freely into the box 1, to be discharged by pipe 10. Edges 4^a of apron 4 are solid across a width equal to that of the solid edge 7^a of suction mouth 7. The lower face of each said edge has two longitudinal ribs 11, which pass along corresponding grooves 12 in edge 7^a of the suction mouth, on either side of a narrow trough 13 containing a liquid such as water (Fig 3).

The ribs 11 and grooves 12 form a baffle which prevents air from entering into mouth 7 through the gap between apron edge 4^a and edge 7^a of said mouth, whilst the portion of

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apron 4 contained between ribs 11 comes into contact with the liquid in trough 13 and forms, in substance, a water seal by means of which the tightness of the device is enhanced.

Circular grooves 14 are provided in rollers 5, to fit the ribs 11 of the apron, and thus to guide the latter.

The interposition of endless apron 4 wholly frees the felt 2 from friction with the suction box and the main cause of wear is thus eliminated.

The invention may also be applied to suction boxes whose bars are not fixed but form a revolving drum as shown at 15 in Fig. 5, in which the other members are indicated by the same reference numbers as in Fig. 1.

In this alternative, sealing means similar to the foregoing may likewise be provided.

Constructional details herein described and illustrated by way of example do not, of course, limit the invention and modifications may be made without departing from its scope.

We claim:

1. In a machine for the manufacture of asbestos-cement products, the combination with a suction box, of an endless felt band adapted to move across the mouth of said box, an endless apron of pervious material interposed between said band and the mouth of said box, said apron having solid edge portions, and longitudinal ribs on said edge portions having a sealing engagement with the side edges of the mouth of said box.

2. In a machine for the manufacture of asbestos-cement products, the combination with a suction box, of an endless felt band adapted to move across the mouth of said box, an endless apron interposed between said band and the mouth of said box, said apron having a wide pervious central portion and narrow solid longitudinally ribbed edge portions, said box having longitudinally grooved side edges, the ribbed edge portions of said apron having a fluid tight engagement with the grooved side edges of said box.

3. In a machine for the manufacture of asbestos-cement products, the combination with a travelling endless felt band, of a suction box having a suction mouth, sealing troughs on each side of said mouth, and a travelling apron interposed between said felt band and said suction mouth, said apron comprising a perforated central portion extending over the greater part of its width and solid sealing edge portions adapted to co-operate with said troughs to seal the side edges of said suction mouth.

4. In a machine for the manufacture of asbestos-cement products, the combination with an endless felt band, of a suction box, an endless apron adapted to travel across the mouth of said suction box, said felt band resting on said apron and travelling therewith over said box, said box having grooved side edges, said apron comprising a belt of rubber having a central perforated portion of a width equal to the width of said mouth and solid ribbed edges having a sealing engagement with the grooved side edges of said box.

5. In a machine for the manufacture of asbestos-cement products, the combination with an endless felt band, of a suction box, a revolving drum in said box, supporting bars for said band on said drum, and an endless apron interposed between said felt band and said bars, said apron comprising a perforated central portion and solid edge portions having a sealing engagement with the side edges of said box.

In testimony whereof we have signed our names to this specification.

MAURICE CATALA.
ALBERT HUART.