

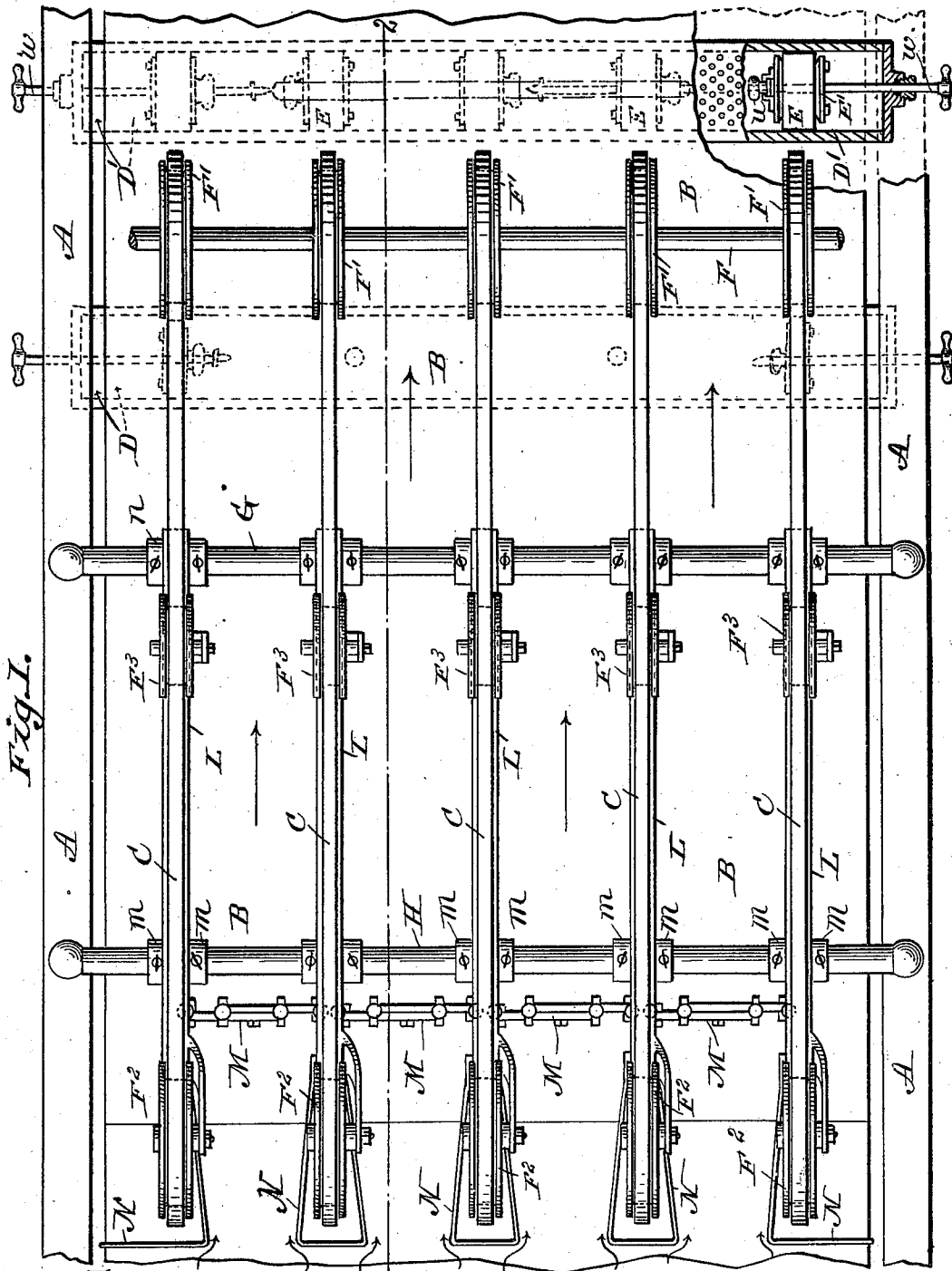
(No Model.)

3 Sheets—Sheet 1.

H. A. MOSES.
PAPER MAKING MACHINE.

No. 574,559.

Patented Jan. 5, 1897.



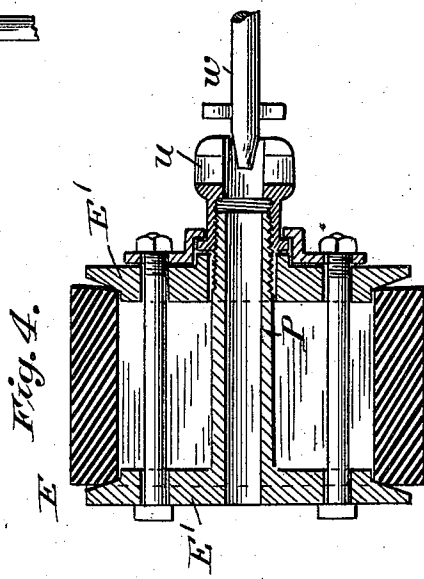
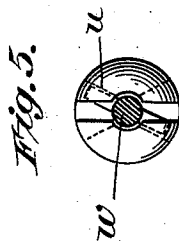
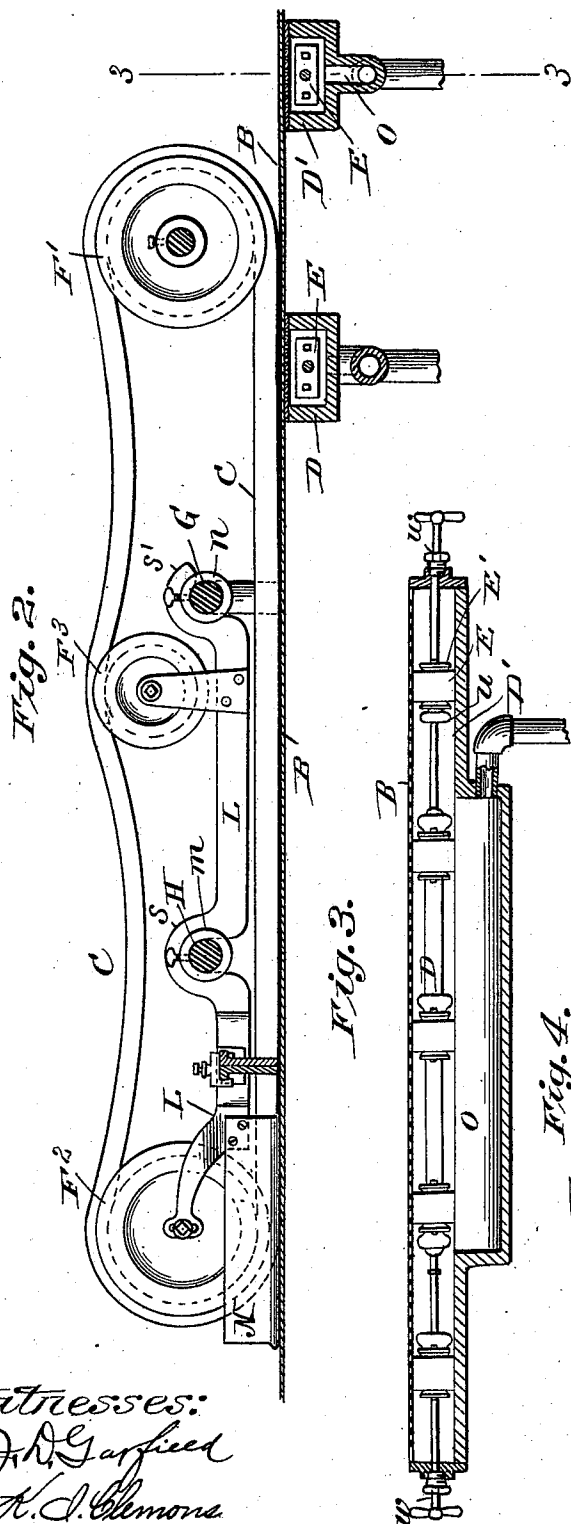
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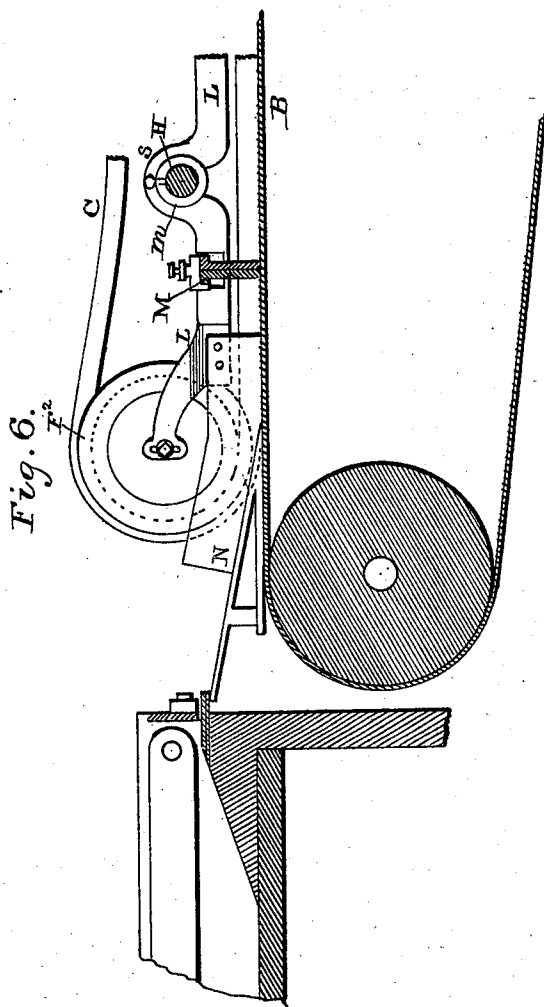
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

HORACE A. MOSES, OF MITTINEAGUE, MASSACHUSETTS.

PAPER-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 574,559, dated January 5, 1897.

Application filed January 29, 1896. Serial No. 577,300. (No model.)

To all whom it may concern:

Be it known that I, HORACE A. MOSES, a citizen of the United States of America, residing at Mittineague, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Paper-Making Machines, of which the following is a specification.

This invention relates to paper-making machinery, and has for its object the production of several strips of paper on a common making-wire, each strip having an edge resembling that of hand-made paper, or, as it is called, "deckle-edged" paper; and the invention consists in certain peculiar constructions and arrangements of deckle-straps and suction-boxes and other accessory parts, all as hereinafter fully described and claimed.

In the drawings forming part of this specification, Figure 1 a plan view of a portion of the frame of a Fourdrinier paper-machine, showing a portion of the wire and the arrangement of the deckle-straps thereon and one end of the suction-box in section. Fig. 2 is a sectional view of the wire and suction-boxes and slices on line 2 2, Fig. 1. Fig. 3 is a longitudinal section of a suction-box with the partitions removed. Fig. 4 is an enlarged cross-section of one of the suction-box partitions on line 3 3, Fig. 2. Fig. 5 is a front view of one of the nuts on the suction-box partitions, showing in section the adjusting-rod therein. Fig. 6 is a detail view showing the relation of the apron and breast-roll to the deckles and other parts.

In the drawings, A is the frame of the paper-machine.

B is the endless wire.

C represents the deckle-straps, D D' the suction-boxes having the partitions E therein, and M are the slices between the deckle-straps.

The deckles are applied to the wire in very much the same manner as in the ordinary Fourdrinier machine.

A shaft F, running in bearings on each side of the frame in a position at right angles to the line of movement of the deckle-straps, carries the grooved pulleys F', over which the deckle-straps run and whereby one extremity of said straps is supported.

On two other shafts G and H, parallel to

said shaft F, supported on each side of the frame A, are supported the frames L, which carry the pulleys F² and F³, which support, respectively, the opposite end of the deckle-strap and the upper portion of said strap between the two ends thereof.

Between the frames L, and attached thereto near the forward ends of said frames, are the slices M, which are adjustable vertically and in a line transversely to the line of movement of the deckle-straps.

The frames L are made, as shown in Fig. 2, with a looped portion s, fitting over the shaft H, and a hook-shaped end portion s', fitting over the shaft G. Collars m m on shaft H and n n on shaft G are set up close to said frames L and secured thereon by set-screws after the said frames have been placed in their proper positions on said shafts G and H. This construction permits of the easy removal and adjustment of said frames, which is of great advantage in making the changes incidental to changing the width of a web or in reducing or adding to the number of webs to be made on the machine.

Attached to the forward end of the frames L are the dams N, which surround completely the ends of the deckle-straps, and are attached to each side of the frame L and so arranged that their lower edges, shod with felt or similar material, have a bearing on the wire of the machine, whereby any pulp is prevented from getting under the deckle-straps. These dams N are made of metal and preferably of copper, and are secured by screws to the ends of the frames L, as shown in Fig. 2. The two dams on the outside deckles are extended out to the edge of the wire.

The two suction-boxes D D' are placed as is customary in paper-machines of this class. The suction-box D is of the usual construction and is provided with the end partitions only. The second box D', however, is provided with the same number of partitions as there are deckle-straps and each partition is adjusted in the box in a line centrally with the central line of the deckle-strap. Each of said partitions is made considerably wider than the deckle-strap, to the end that as said several strips leave the straps a portion of each edge of each strip or the web of paper shall overlap the edge of the partition, where-

by said overlapping portion will not be subjected to the action of the suction from said box D', the web passing on through the machine with an excess of water contained in its edges, which has the effect of producing, when the paper is dry, the uneven surface and ragged edge which characterize hand-made paper.

It has been found in practice that the common manner of connecting the suction-pipes of the pumps operating on the suction-boxes is inoperative where there are more than two partitions in said box, and to overcome this defect the suction-box is made as shown in Fig. 2 and 3—viz., with a longitudinal opening O, made in the bottom of the box, which is long enough to extend from the space between the first two partitions in one end of the box to the space between the first two partitions in the opposite end of said suction-box, whereby each of the divisional spaces in the suction-box is submitted to the action of the suction-pumps in the same manner as if the box were provided with only two partitions, as in box D, (shown in dotted lines in Fig. 1,) that is to say, every space between the partitions is connected with a common air-conduit, which conduit is connected to a suction-pump.

The suction-boxes are made rectangular in cross-section, as shown in Fig. 2, and the partitions E therein so constructed as to be expansible within the box in all directions, which construction is shown in Fig. 4 and is such as is commonly used in paper-machines.

The various partitions are arranged in their respective places, beginning with those in the center, by being passed into the box from each end, and when in place opposite the end of the deckle-strap secured there by means of a T-headed wrench W, applied to the slotted nut *u* on the sleeve P, forming part of the partition E, whereby the side E' of the partition is moved toward the opposite side E, forcing the rectangular rubber gasket outwardly against the inner walls of the suction-box, making it tight.

It will be seen that the construction and arrangement of the parts of a paper-machine

herein described permit the adaptation of the machine to the making of any width of strips of paper, each edge of which has the rough hand-made paper edge, which is of great advantage, as the strip can be made of just the width necessary to fold once on a line parallel with the rough edges, so that said rough edges, when folded into a note size, form the two outward edges of the sheet. If desired, the same machine can be used for the production of strips of various widths of paper at the same time.

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

1. The suction-box, having a longitudinal opening O in its bottom, and a suction-pipe connected thereto, combined with the adjustable partitions, means for expanding them in place, the deckles, and the endless wire, substantially as described.

2. In a paper-making machine, the combination with the moving endless wire-cloth, of three or more deckle-straps supported adjustably on suitable frames over said wire-cloth, dams attached to the forward ends of the frames supporting said deckle-straps, and a suction-box divided into two or more compartments by movable partitions, a common air-conduit opening into all of the said compartments and communicating with the suction-pipe of a pump, whereby air is withdrawn from said compartments, regardless of the position of the partitions between them, substantially as set forth.

3. In a paper-making machine in combination, the main frame thereof, the deckle-frames thereon having the looped portions *s* and *s'*, therein, for engagement with the shafts G and H, supported on said main frame, and collars on said shafts for holding said frames in position on said shafts, and the dams N, secured to one end of said deckle-frames, substantially as set forth.

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