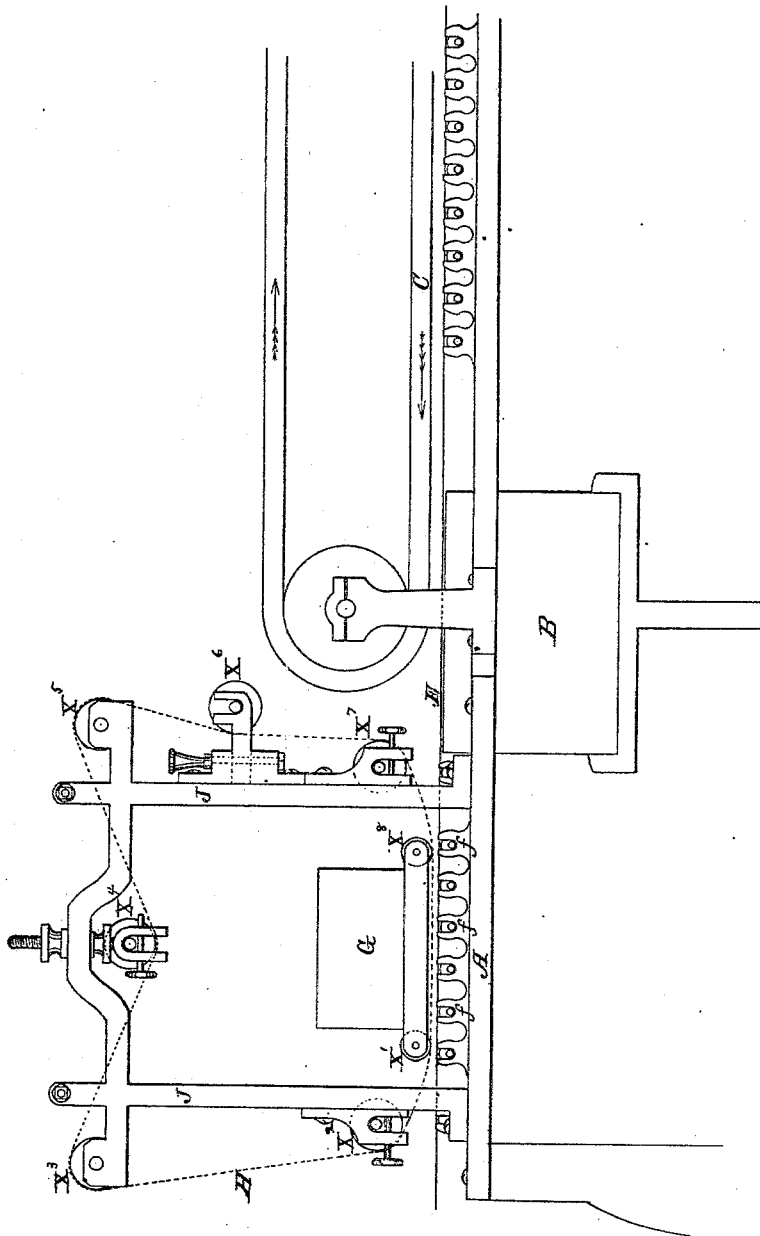


C. L. CRUM.  
Paper-Machine.

No. 164,814.

Patented June 22, 1875.



*with  
error*

INVENTOR:

*Chas. L. Crum*

BY

*Russell B.*

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

CHARLES L. CRUM, OF WINCHESTER, VIRGINIA.

## IMPROVEMENT IN PAPER-MACHINES.

Specification forming part of Letters Patent No. 164,814, dated June 22, 1875; application filed May 19, 1875.

*To all whom it may concern:*

Be it known that I, CHARLES L. CRUM, of Winchester, in the county of Frederick and State of Virginia, have invented a new and Improved Paper-Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification, in which the figure is a side elevation.

The object of my invention is to better adapt what is generally known as the Fourdrinier paper-machine to making heavy paper or boards out of straw, wood, or other material.

In the drawing, the frame A, rolls J, deckle C, suction-box B, and wire E represent parts of the paper-machine as usually constructed. I erect upon, and attach to, the frame A the frame J, to which is attached the rolls X<sup>2</sup>, X<sup>3</sup>, X<sup>4</sup>, X<sup>5</sup>, X<sup>6</sup>, and X<sup>7</sup>, one of which can be made adjustable as a guide-roll, and another as a stretch-roll, to carry the endless wire-cloth H, which is put in motion and run in the direction of the arrow by means of a belt and pulley on a shaft connected with one or more of the above-named rolls.

A shower-pipe and box to catch the water may be attached to the frame J, to wash out any particles of pulp that may adhere to the wire; or the same object can be attained by a doctor attached to one of the rolls.

The wire H runs with, and at the same speed as, the wire-cloth E.

G represents a suction-box, having a perforated bottom, and resting upon the wire H, and pressing slightly upon the pulp as it passes between the wires E and H.

A vacuum is created in the box G by a suction-pump or siphon, in the usual manner.

The small rolls X<sup>1</sup> and X<sup>8</sup> are to guide the wire under the box G, which may be made adjustable to the thickness of the pulp or paper by means of set-screws, connecting a flange or projection on the end of the box with the frame A.

It is best to have the suction-box provided with a small air-cock for regulating the suction.

The operation of my invention is as follows: As the pulp is carried along upon the wire-cloth E, the web is first formed upon the under side next to the wire, and it is with great difficulty that enough water can be drawn through the web to the under side. I therefore pass the pulp or web over the suction-box, as represented by B, and extract all the water that can be extracted to advantage through the wire E on the under side. I then pass it under the suction-box G with upper wire-cloth H between, and extract an additional quantity of water from the upper or top side of the pulp. It is then passed in the usual way through the couchers and presses to the driers.

Having thus described my invention, what I claim as new is—

1. The combination of the second upper wire-cloth H and suction-box G with the Fourdrinier machine, substantially as described.

2. The combination of the second upper wire-cloth H, box G, rolls X<sup>2</sup>, X<sup>3</sup>, X<sup>4</sup>, X<sup>5</sup>, X<sup>6</sup>, and X<sup>7</sup> with the Fourdrinier, substantially as described.

CHARLES L. CRUM.

Witnesses:

PHILIP W. BOYD,  
G. W. BOWTY.