R. A. MORTON.

SAVE ALL FOR PAPER-MAKERS.

No. 193,344. Patented July 24, 1877.

Fig. 1.

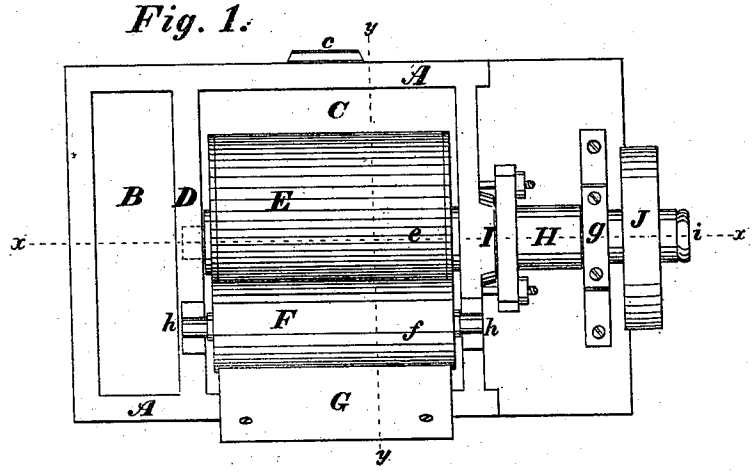


Fig. 2.

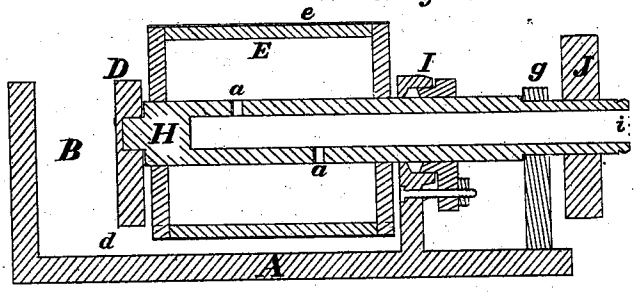
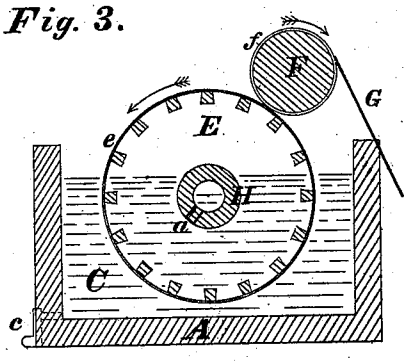


Fig. 3.



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Matthew Nicholson,
Witnesses.

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UNITED STATES PATENT OFFICE.

ROLAND A. MORTON, OF CARDWELL, NEW BRUNSWICK, CANADA.

IMPROVEMENT IN SAVE-ALLS FOR PAPER-MAKERS.

Specification forming part of Letters Patent No. **193,344**, dated July 24, 1877; application filed October 19, 1876.

To all whom it may concern:

Be it known that I, ROLAND A. MORTON, of Cardwell, in the county of Kings, Province of New Brunswick, and Dominion of Canada, justice of the peace, have invented a new and Improved "Save-All" for Paper-Manufacturers, the mechanism and operation of which are fully set forth in the following specification, reference being had to the accompanying drawings.

As in the different operations of paper manufacturing a small portion of the pulp is liable to run to waste, the object of my invention is to separate and cleanse the same from the water and such impurities as may be mixed with it, by an arrangement of mechanism at once simple, cheap, and efficient.

In the drawings hereto attached, Figure 1 is a plan view of my invention; Fig. 2, a vertical longitudinal section through the line *x x* of plan; and Fig. 3, a vertical cross-section through the line *y y* of Fig. 1.

Similar letters of reference indicate corresponding parts.

The tank A is divided into two compartments, B and C, by the partition D, except a small connecting-passage at bottom of D.

The drum E, the periphery of which is covered with fine wire-cloth *e*, is mounted on the hollow shaft H, and is caused to rotate in compartment C by power applied to driving-pulley J. Shaft H is set in suitable journal-bearings, and the escape of water around it is prevented by packing I. The shaft within the drum has a number of perforations, as at *a*.

By the rotation of drum E a reverse rotary motion is communicated to the couch-roll F, which lies evenly upon the drum, the axis being parallel with shaft H, and set in suitable bearings *h h*. The couch-roll has a covering, *f*, of felt or other fibrous material.

A thin metallic plate or scraper, G, is so placed and adjusted as to incline, with slight pressure, against the couch-roll, for the purpose of removing the pulp adhering to it.

Operation: The water containing pulp, otherwise liable to run to waste, is discharged through a proper conductor into compartment B, whence it flows through passage *d* into compartment C, filling the same up to or above H. As the drum E revolves the water passes through the web *e* and into the hollow shaft H through the apertures *a a*, and is discharged at *i*. At the same time the pulp adhering to E *e* is taken up by couch-roll F *f*, from which it is separated by the blade or scraper G, falling into a box prepared to receive it. When the operation is completed the water remaining in the tank is discharged at outlet *c*, carrying with it any grit or sedimentary matter which may have been deposited. So effectual is the working of the machine that scarcely a fiber of pulp is allowed to escape, and the value of that which is saved is enhanced by the thorough cleansing.

I do not claim to be the inventor of a drum covered with wire-cloth, or of a felt-covered couch-roll, for I am aware that both of these have been in use in the manufacture of paper, but in a manner and for a purpose quite different from that which I have designed; but

I do claim as my invention and desire to secure by Letters Patent—

The "save-all" consisting of the tank, sieve-covered drum, hollow perforated shaft, and the couch-roller and scraper, substantially as described.

ROLAND A. MORTON.

Witnesses:

GEORGE W. MCCREADY,

MATTHEW NICHOLSON.