F. A. CLOUDMAN.

Rag-Washing Machine for Paper Making.

No. 197,764. Patented Dec. 4, 1877.

Fig. 1.

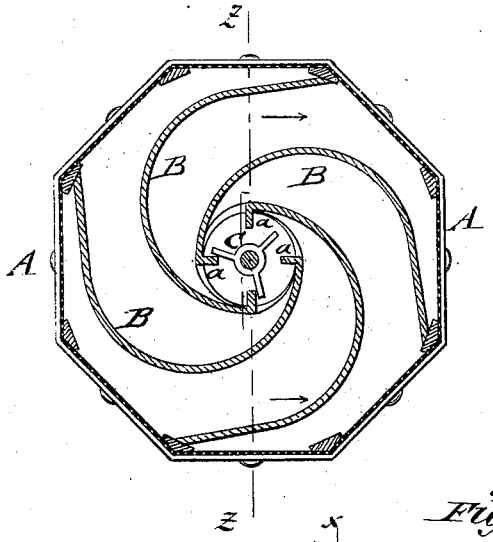


Fig. 2.

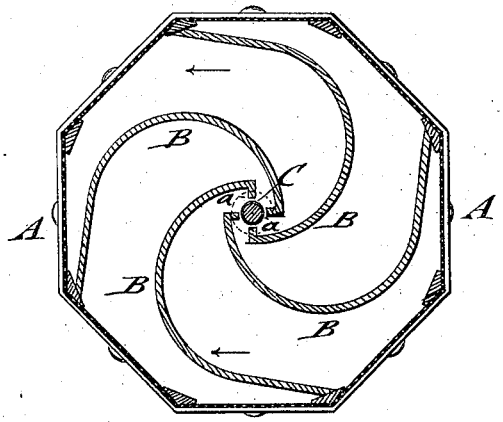
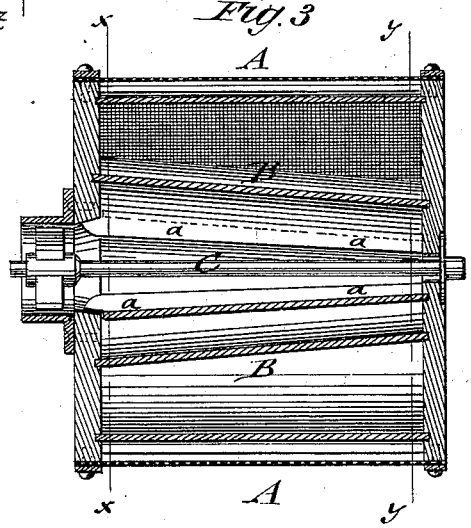


Fig. 3



WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANK A. CLOUDMAN, OF CUMBERLAND MILLS, MAINE, ASSIGNOR TO S. D. WARREN & CO., OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN RAG-WASHING MACHINES FOR PAPER-MAKING.

Specification forming part of Letters Patent No. **197,764**, dated December 4, 1877; application filed November 3, 1877.

To all whom it may concern:

Be it known that I, FRANK A. CLOUDMAN, of Cumberland Mills, in the county of Cumberland and State of Maine, have invented a new and Improved Rag-Washing Machine, of which the following is a specification:

In the accompanying drawing, Figures 1 and 2 are vertical transverse sections of a cylinder washer for rag-washing machines, on lines *x x* and *y y*, Fig. 3, respectively; and Fig. 3 is a vertical longitudinal section of the same on line *z z*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to improvements in the interior construction of cylinders of rag-washing engines used in paper-manufacturing; and it consists of a number of spiral buckets that extend from the circumference toward and slightly past the central outlet, terminating at their inner edges in angular flanges. The buckets are also inclined toward the longitudinal axis, from the rear toward the front, and made of a continuous piece of wood, which is preferable to metallic buckets.

Referring to the drawing, A represents a cylinder washer as used in the manufacture of paper in rag-washing engines. The periphery of the cylinder is covered with wire-cloth, in the usual manner, to admit the water but exclude the rags.

The cylinder A is arranged at the inside with a number of curved buckets, B, that extend in a spiral from the circumference toward and slightly past the central outlet.

The cylinder is revolved by a central shaft, C, secured to the rear end or head of the cylinder, and, by radial arms, to a cylindrical casing around the central outlet of the front head.

The inner edges of the buckets terminate in flanges *a*, placed at right angles thereto, so that the water cannot flow from one bucket into the one next following until the latter has left the water-line of the tub, or, in other words, has ceased to dip water for that revolution of the cylinder. The buckets are also secured to the cylinder at an angle of inclination to the longitudinal axis of the cylinder from the rear head toward the outlet, as clearly shown in Fig. 3. This inclination of the buckets allows the water to pass off freely as soon as it has reached the level of the bottom of the outlet, and allowing none to be lifted higher than the center.

In the elevation of each bucketful of water to the outlet a portion of it flows past the center of the shaft and counterbalances a portion of the weight due to that on the outside.

The volume of water is not only lifted to a lesser height, by reason of the peculiar form of the buckets and their inclination toward the outlet, but it is also lifted more directly, or by a shorter line, than by any other washing device now in use, so as to require, consequently, less power.

The spiral buckets are preferably made of one continuous piece of wood, which is sawed in the same manner as the wood for carriage and sleigh bodies, from the periphery of the log.

Such wooden buckets are superior to metallic buckets, as the action of chemicals thereon is not injurious to the bucket and to the pulp. The use of such single-piece wooden buckets adds greatly to the value of the cylinder for rag-washing engines, and forms an essential feature of my improvement in cylinder washers.

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

1. A cylinder washer for rag-washing engines, having spiral interior buckets extending from the circumference to the central outlet, substantially as set forth.

2. A cylinder washer for rag-washing engines, having spiral interior buckets extending from the circumference toward and slightly past the central outlet, the inner edges of said buckets being flanged, substantially as and for the purpose described.

3. A cylinder washer for rag-washing engines, having spiral interior buckets extend-

ing from the circumference toward and slightly past the central outlet, and being secured at an angle of inclination from the rear to the front head, substantially as and for the purpose specified.

4. In cylinder washer for rag-washing engines, a spiral interior bucket made of a continuous single piece of wood, substantially as and for the purpose described.

FRANK A. CLOUDMAN.

Witnesses:
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