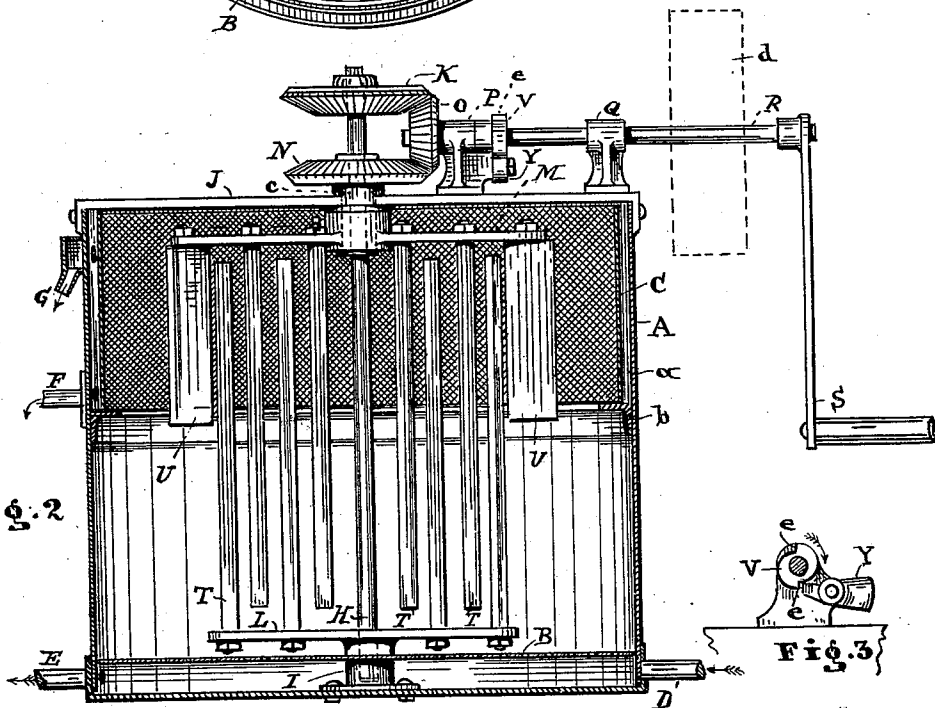
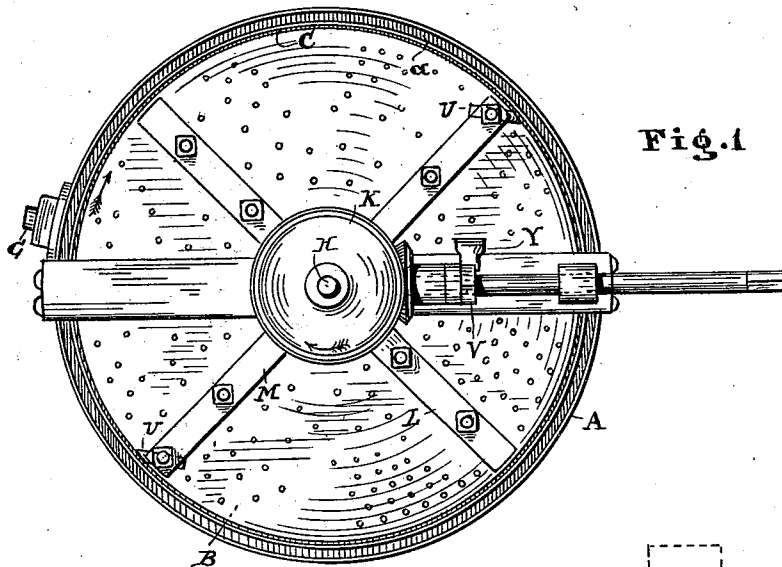


C. H. EVERS.
PULP WASHING MACHINE.

Patented June 2, 1896.



WITNESSES

E. G. Riefmiller
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UNITED STATES PATENT OFFICE

CHARLES H. EVERS, OF CLEVELAND, OHIO.

PULP-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 561,213, dated June 2, 1896.

Application filed November 7, 1895. Serial No. 568,182. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. EVERS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Pulp-Washing Machine; and I do hereby declare that the following is a full, true, and exact description thereof.

My invention relates to improvements in pulp-washing machines in which inversely-rotating paddles are employed for the agitation of said pulp, and the object of my improvement is to so construct and arrange said paddles that the washing or cleaning of the pulp can be effected in a most thorough and expeditious manner. I attain this object in a machine constructed substantially as shown in the accompanying drawings, in which—

Figure 1 represents a plan view of said machine. Fig. 2 is a vertical section thereof, and Fig. 3 represents certain parts thereof detached.

Like letters of reference denote like parts in the drawings and specification.

For filtrating purposes it is customary to employ pulp made from or consisting of suitable fibrous substances, and by washing or rinsing this filtering medium it is rendered serviceable for repeated usage. To facilitate the rinsing or washing of this pulp, I have contrived a machine which substantially consists of the following construction—viz., the cylindrical open tank A and the perforated disk B, which is located in fixed position near the bottom of said tank. (See Figs. 1 and 2.) Around the upper portion of said tank extends the screen C, forming an annular space *a* with said tank, and support is had for said screen upon the angle-iron *b*.

D indicates an inlet-pipe.

E and F are outlet-pipes, (ordinarily shut,) and G serves for an overflow.

Supported in operative position within said tank is the shaft H, the fixed transverse bar J and step-bearing I forming the necessary supports therefor. Upon the shaft H are secured the upper bevel-wheel K and the lower wing L, while the upper wing M is carried by means of the elongated hub *c* of the wheel N, which extends through the bar J and loosely turns upon the shaft H. Both the above-mentioned wheels are in "gear" with the pin-

ion O. The brackets P and Q upon the bar J serve as supports for the horizontal driving-shaft R of the pinion O, and either a pulley, as indicated by the dotted lines *d*, or a crank S may be used as a means for imparting motion to said shaft R. Secured to each of the arms L and M are a series of paddles T T, (the profile thereof may be either triangular or rectangular,) and in addition to these paddles I provide the scrapers U U in connection with the upper arm M. Said scrapers pass around in close proximity to the screen and are held secure in such angular or slanting position, so as to render impossible the accumulation of pulp upon said screen. However, this peculiar position of the scrapers in relation to the screen renders said scrapers operative in but one direction, such as is indicated by the arrow, Fig. 1. To guard against turning in the opposite direction, I apply an automatic locking device in connection with the shaft R, which device consists of the cam-collar V and the pawl Y. (See Figs. 2 and 3.) The cam-collar V being closely set up against the bracket P also serves in the function of a set-collar for said shaft R to retain the pinion properly in gear with the wheels K and N. The pawl is pivoted to one side of the bracket P in such manner as to strike up against the shoulders of the cams *e e* in the attempt of turning the shaft reversely to the operative course of said scrapers. If the scrapers were allowed to move in opposite direction to the arrow, then the pulp would be forced against the screen C instead of clearing the screen for the purpose of causing a rapid action of the screen in draining the dirty rinsing-water from the pulp. Furthermore, the pulp, owing to the slanting position of the scrapers, is effectually thrown between the reversely-rotating paddles, by and through which the entire mass or substance becomes agitated, which results in readily freeing said pulp from the impure matter with which it is charged when taken from the filter.

When and while the machine is in motion for the purpose of washing the pulp, fresh or clean water is continually supplied through pipe D. The water rises through the perforated disk B and overflows through spout G charged with the impure matter which had loosened from the pulp.

Upon stopping of the machine or apparatus the valve or cock controlling the waste-pipe F is first opened for draining the space *a*. Afterward the lower interior space is drained
5 through pipe E, whereupon the pulp can be removed, while all the interior parts of the apparatus can remain intact.

What I claim, and desire to secure by Letters Patent, is—

- 10 1. A pulp-washing machine comprising a circular tank, having a perforated disk near the bottom thereof, a cylindrical screen forming with the upper portion of said tank an annular space, the water-inlet below said disk
15 and an overflow outside of said screen, inversely-rotating paddle-wings, one of which is provided with scrapers in close proximity to

said screen and an operating mechanism with automatic locking device for said paddle-wings all constructed and arranged substantially as and for the purpose set forth. 20

2. In a pulp-washing machine, a circular tank, an internal screen C and inversely-rotating paddle-wings L and M, one having
25 scrapers for said screen, in combination with the driving-shaft for said wings, the cam V and pawl Y constructed and arranged substantially as and for the purpose set forth.

In testimony whereof I hereunto set my hand and seal in presence of two witnesses. 30

CHARLES H. EVERS. [L. S.]

Witnesses:

B. F. EIBLER,

JULIUS MUELLER.