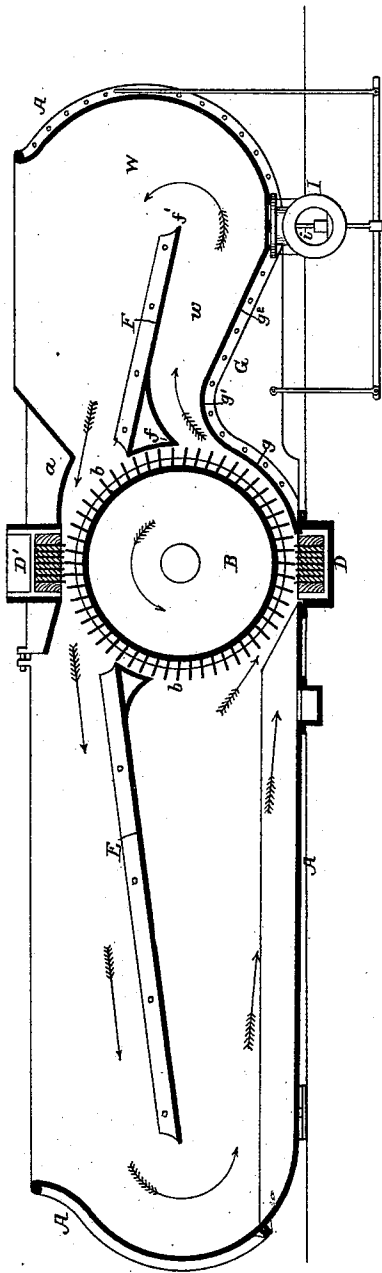


(No Model.)

G. MILLER.
PULPING ENGINE.

No. 508,734.

Patented Nov. 14, 1893.



Witnesses:

Alex. Barkoff
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UNITED STATES PATENT OFFICE.

GUYON MILLER, OF DOWNINGTOWN, PENNSYLVANIA.

PULPING-ENGINE.

SPECIFICATION forming part of Letters Patent No. 508,734, dated November 14, 1893.

Application filed January 16, 1893. Serial No. 458,515. (No model.)

To all whom it may concern:

Be it known that I, GUYON MILLER, a citizen of the United States, and a resident of Downingtown, Chester county, Pennsylvania, have invented certain Improvements in Pulping-Engines, of which the following is a specification.

My invention relates to certain improvements in the pulping engine described and claimed in the patent granted to me on the 6th day of September, 1892, No. 482,184, and the object of my present invention is to energize the current in the machine so that the material will be fed to the upper blades more rapidly. This object I attain in the following manner, reference being had to the accompanying drawing in which the figure is a longitudinal sectional view of the machine.

In treating paper stock in a pulping engine it is necessary to carry the material a certain distance in the water before bringing it in contact with the blades a second time, so as to thoroughly mix the material and present new fiber or new surfaces to the action of the blades, and consequently in this machine where the disintegrating is done at two points, it is not only desirable but essential that the pulp shall be so traversed in the machine that new surfaces will be presented to both sets of blades, and the object of my present invention is to provide means whereby the pulp will be forced from the lower to the upper channel more quickly, and will be carried from the upper channel to the lower without receiving a rolling motion.

A is the casing of the engine.

B is the roll having suitable disintegrating blades *b*. This roll extends from one side to the other of the tub or casing, and is situated near the middle of the tub. The roll is mounted in suitable bearings supported in any manner, but I preferably use the support shown in the patent mentioned above. The roll is driven in the direction indicated by its arrow.

D are the lower blades, and D' are the upper blades. These blades act with the roll to disintegrate or draw out the fibers of the pulp.

E is the forward mid-feather, inclined from a point adjacent to the roll, down to a point near one end of the tub, presenting an inclined plane for the material to travel upon

from the upper discharge point, preventing the rolling of the stock in the tank at the point where it leaves the blades.

F is the rear mid-feather, and this mid-feather is also inclined from the roll down toward the opposite end of the tub. A lip *f* depends from the lower inner edge of this mid-feather, and is placed as near as possible to the blades, so as to direct the material as it is thrown from the blades by the centrifugal action of a roll to and through the channel *w* communicating with the rear space W at one end of the machine.

G is a back fall situated at the rear of the roll. Its forward face or surface *g* is so inclined that it acts as an inclined way to lead the material up to the apex *g'* into the channel *w*. The rear surface *g''* of this back fall is also inclined downward preferably at a greater degree than the mid-feather, making the channel *w* tapering. Consequently as the material is thrown out by the roll into the channel *w*, it naturally propels with great force the material ahead of it, driving the same up and around the end *f'* of the mid-feather, after which said material is caused in part by the pressure behind it, and in part by the action of the roll, at the upper part of the machine, to pass between said roll and the upper blades.

I preferably extend the framing of the upper blades D' rearwardly as shown, so as to form a hood *a* having a curved under surface, so that as the blades of the roll strike the pulp and throw it at a tangent, the pulp will strike the hood *a*, and the curve of the latter is such that the pulp will be thrown into the channel between the roll and the upper blades. The bottom of the forward end of the tub is inclined toward the lower blades as shown in the drawing, and the discharge pipe I is attached to the bottom of the tub directly back of the back fall. The rear end of the tub as well as the forward end of the tub, is curved, not only to allow for the easy flow of material, but also forming with the back fall, a funnel-shaped discharge for the material, so that when it is wished to empty the tub the valve *i* is opened, and the material escapes through the outlet, and the material in the forward end of the tub flows by gravity to-

ward the roll which discharges it into the space *w*, from which point it flows by gravity to the outlet.

I claim as my invention—

5 1. The combination in a pulping engine, of the casing, the disintegrating roll, blades thereon, upper and lower disintegrating blades acting in conjunction with said roll, a forward mid-feather and a rear mid-feather, 10 said mid-feather forming upper and lower passages, with a back fall in the lower passage directly back of the roll, substantially as described.

2. The combination in a pulping engine, 15 of the casing, the disintegrating roll, blades thereon, upper and lower blades acting in conjunction with said roll, a mid-feather back of the roll forming upper and lower passages, and inclined from a point at the roll to a point 20 some distance beyond the same, with a back fall directly back of the roll, forming with the mid-feather a contracted channel for the material as it passes away from the lower side of the roll, substantially as described.

25 3. The combination of the casing, the roll, upper and lower blades, a mid-feather in front of the roll forming an upper and lower passage, said mid-feather being inclined from a point adjacent to the roll down to a point near 30 the forward end of the casing, and presenting an inclined plane for the material to travel upon from the upper discharge point, substantially as described.

35 4. The combination of the casing, the roll, upper and lower blades, a forward mid-feather and a rear mid-feather, said mid-feathers forming upper and lower passages, with a hood projecting rearwardly and downwardly from

the upper blades and over the roll so that as the blades of the roll strike the pulp and 40 throw it at a tangent, the pulp will strike the hood and be thrown into the channel, between the roll and the upper blades, substantially as described.

5. The combination of the casing, the roll, 45 blades acting in conjunction with said roll, a back fall, and a transverse mid-feather forming upper and lower passages, said mid-feather having a lip *f* at the roll, substantially as described. 50

6. The combination of the casing, the roll situated near the center of the tub, blades acting in conjunction with said roll, transverse mid-feathers forming upper and lower passages for the material on both sides of the 55 roll, a back fall at the rear of the roll and in the lower passage, the bottom of the casing in front of the roll being inclined toward the blades in the lower passage, with a discharge opening in the bottom of the tub directly back 50 of the mid-feather, the rear end of the tub being inclined toward the discharge opening so that when it is wished to empty the tub, the material in the forward end of the tub will flow to the roll and be discharged thereby 55 into the space back of the roll which is drained on opening the outlet valve, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of 70 two subscribing witnesses.

GUYON MILLER.

Witnesses:

HENRY HOWSON,
JOSEPH H. KLEIN.