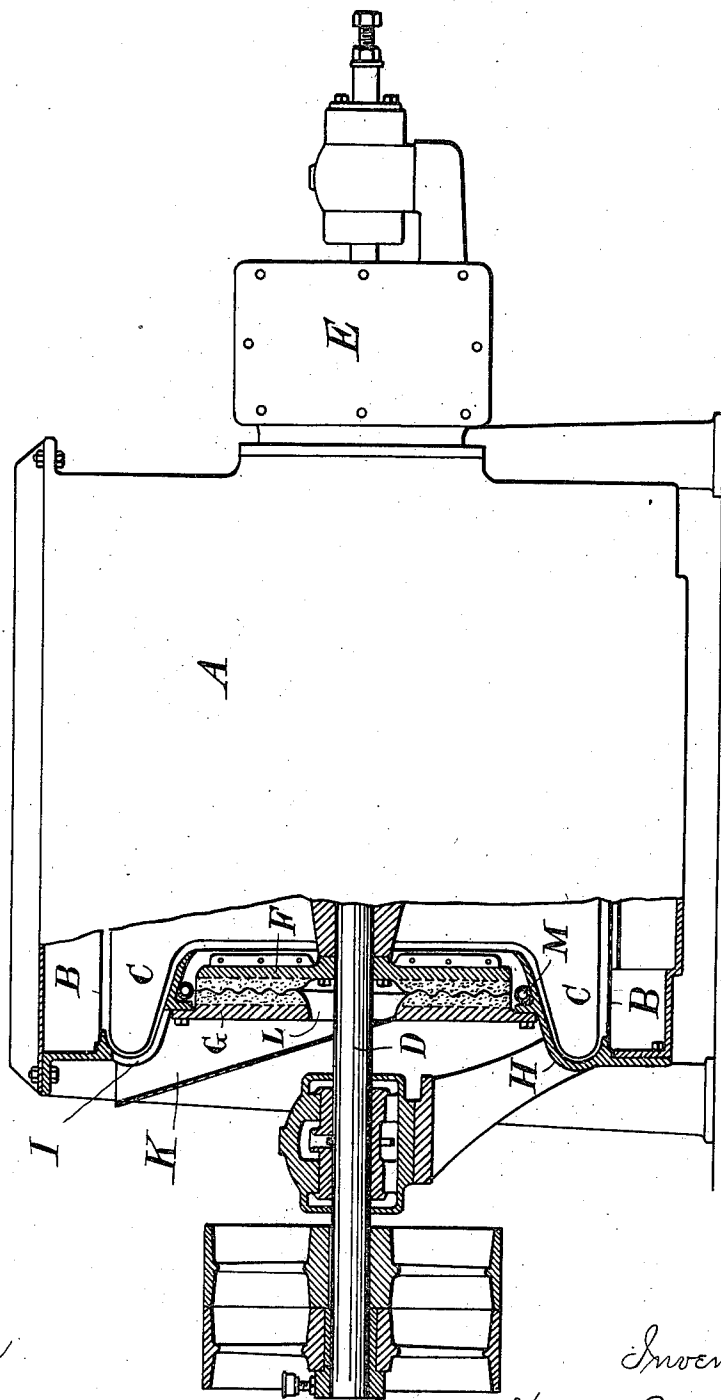


H. B. SÆTER.
MACHINE FOR TREATING PULP.
APPLICATION FILED MAR. 1, 1910.

975,798.

Patented Nov. 15, 1910.



Witnesses
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UNITED STATES PATENT OFFICE.

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MACHINE FOR TREATING PULP.

975,798.

Specification of Letters Patent. Patented Nov. 15, 1910.

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To all whom it may concern:

Be it known that I, HALLVARD BERTRAND SÆTER, a subject of the King of Norway, residing at Stavanger, Norway, have invented certain new and useful Improvements in Machines for Treating Pulp; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to machines for treating pulp and has for its object to provide a machine in which the sorting or straining of the pulp and the refining of the same is performed continuously in one machine, so that the pulp is repeatedly circulated through the operating parts of the machine.

Referring to the drawing, which shows an external view of the machine with a section to illustrate its function and organization, A designates the external casing of the strainer which may be of any approved form preferably a so-called centrifugal strainer having a cylindrical straining plate B and wings C which latter are connected with the shaft D, and throw the pulp and water on the inside of the strainer plate B, the pulp being fed to the wings from a hopper E. On the same shaft D which carries the strainer wings or on a separate shaft is mounted the rotatable member F of a grinding mill being mounted on the end wall H of the strainer. At a suitable point of said end wall, preferably at its top an opening I is provided through which the coarse particles of the pulp may enter a shoot K leading to a central opening L in the stationary member of the grinding mill.

The operation is as follows: The pulp in the strainer is thrown against the strainer plate and the fine particles pressed out through the same in the usual way, the coarse pulp is pushed forward along the straining surface toward the end of the strainer where the grinding mill or refiner is placed and successively pressed out through the opening I, falling down the chute to the opening L in the grinding mill, where the pulp is caught by the grinding

surfaces of the latter, these being as shown preferably corrugated, so that a large surface is obtained; the centrifugal force causes the particles to be thrown outwardly and after having passed the grinding surfaces which may have radial grooves, the pulp again enters the strainer either as shown behind the rotary member of the grinder, when the end wall H has a large central opening, or it is led through a suitable channel and return to the hopper E. In either case the pulp is again caught by the wings of the strainer and thrown on the straining surface.

M designates a spray pipe for facilitating the flow of the refined pulp back to the strainer.

The refiner or grinding mill may be of any suitable type, the one illustrated being only an example, the gist of the invention lying in the repeated automatic circulation of the pulp through the machine. In connection with the chute K and the opening L there may be arranged feed screws or wings causing a more rapid feeding of the pulp to the grinding surfaces.

The combined strainer and refiner may be arranged horizontally as shown or may be adapted for the vertical type of apparatus. In both cases the pressure between the grinding surfaces must be adjustable for instance by suitable screws or by making the shaft longitudinally adjustable.

I claim:

1. The combination with a cylindrical strainer and means for throwing pulp against the same, of a refiner, and means to feed the unstrained pulp to the refiner.

2. In combination with a strainer having a cylindrical straining surface and wings throwing pulp against the same of a refiner means to feed the material not brought to pass through the strainer plate to the refiner and means to feed the material treated by the refiner back to the strainer.

3. A combined strainer and refiner having a common shaft carrying the wings of the strainer and the moving member of the refiner, the stationary member of the refiner being mounted in the end wall of the strainer and a channel connecting the peripheral part of the interior of the strainer with the central part of the refiner, the peripheral part of the refiner freely communicating with the interior of the strainer

at a point between the center and the periphery.

4. A machine for treating pulp comprising a casing having a lateral discharge aperture, a cylindrical screen mounted in the casing, beater blades revoluble within the screen, an annular grinding member, a rotary grinding member cooperating with the latter and a chute to convey pulp discharged

from the discharge aperture to the aperture 10 in the annular grinding member.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

HALLVARD BERTRAND SÆTER.

Witnesses:

SARA HEGLAND,

EMMA B. TAYLOR.