

No. 897,144.

PATENTED AUG. 25, 1908..

P. PRIEM.

HORIZONTAL CENTRIFUGAL SEPARATING MACHINE FOR LIGNIN,
CELLULOSE, AND THE LIKE.

APPLICATION FILED JUNE 15, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

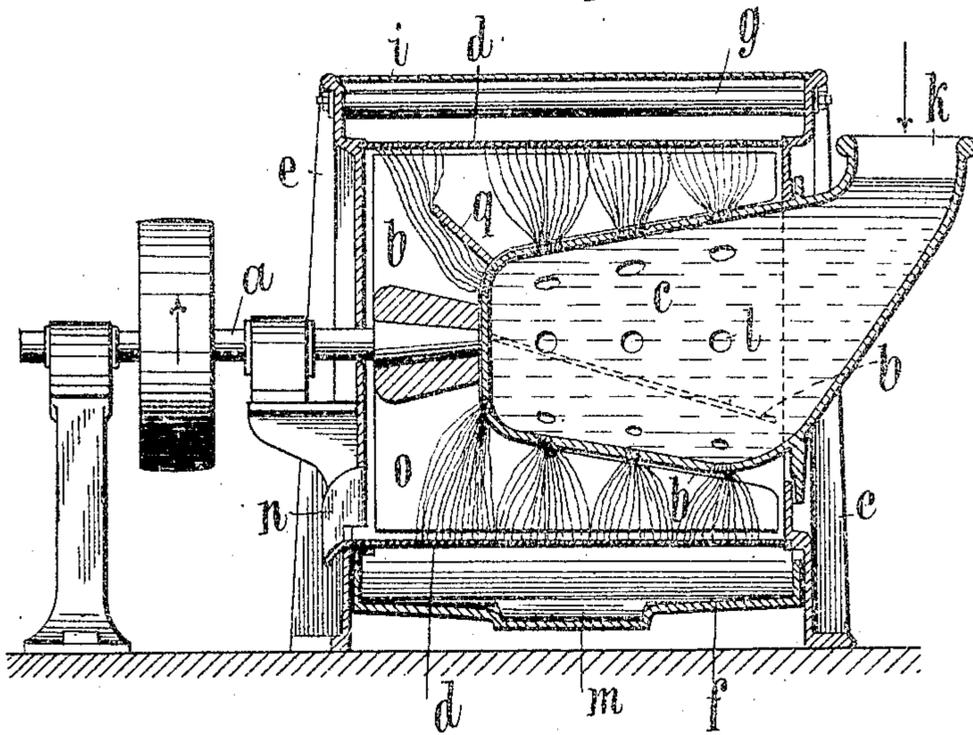
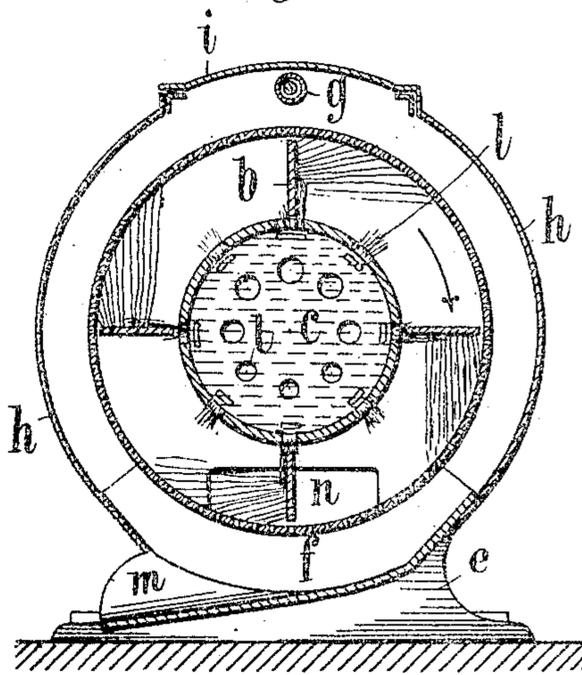


Fig. 2.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

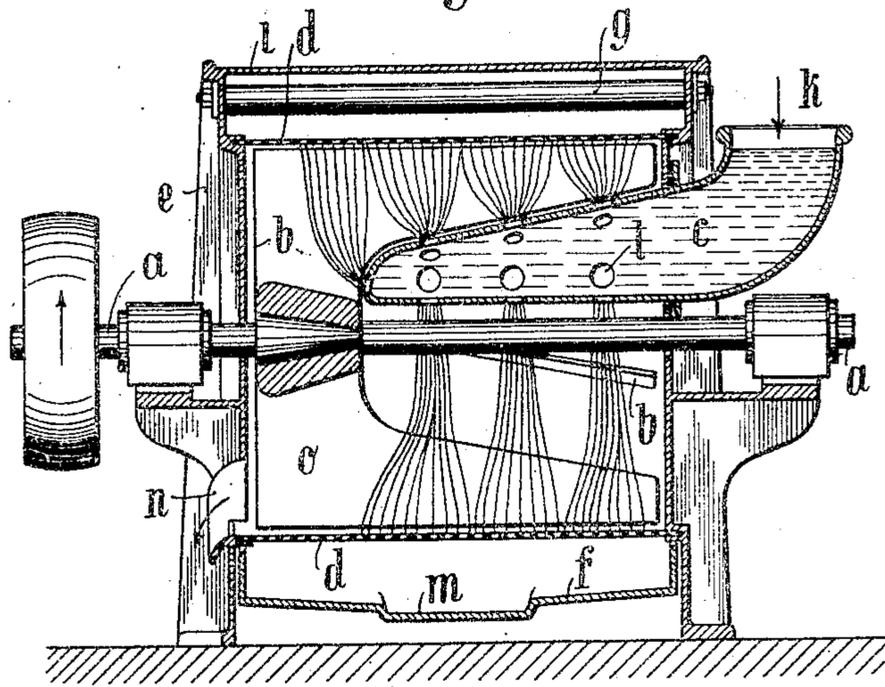
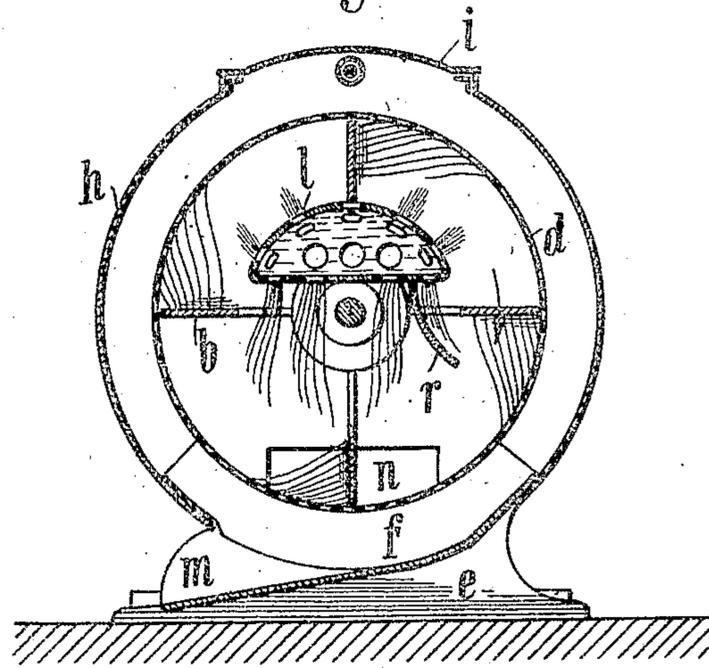


Fig. 4.



WITNESSES

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PAUL PRIEM, OF HEIDENHEIM-ON-THE-BRENTZ, GERMANY.

HORIZONTAL CENTRIFUGAL SEPARATING-MACHINE FOR LIGNIN, CELLULOSE, AND THE LIKE.

No. 897,444.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed June 15, 1908. Serial No. 438,616.

To all whom it may concern:

Be it known that I, PAUL PRIEM, a subject of the King of Saxony, residing at 5 Bahnhofstrasse, Heidenheim-on-the-Brenz, Germany, have invented certain new and useful Improvements in Horizontal Centrifugal Separating-Machines for Lignin, Cellulose, and the Like; and I do hereby declare the following to be a full, clear, and exact description of the invention.

The present invention relates to a horizontal, centrifugal separating machine for lignin, cellulose and the like, in which water in which the lignin etc. is suspended is thrown against the sieve by a propeller revolving on a horizontal axis.

According to the invention water containing the material is introduced into the propeller in many separate, for the most part radially directed, jets, by a distributor projecting far into the interior of the propeller, the blades of which strike the jets and throw the liquid uniformly divided against the surrounding sieve.

In vertical centrifugals, distributors of this kind which project far into the interior of the propeller and through which the lignin suspension is fed to the propeller in many separate jets have already been frequently employed. This arrangement however has not been employed heretofore in horizontal centrifugal separating machines. Its use here was not obvious, because it did not appear possible to distribute the water containing the material uniformly on all sides to the blades of the propeller. According to the present invention this difficulty is overcome by arranging the orifices of the distributor with a view to the varying pressure of the liquid at the various points in the distributor.

In order that the invention may be clearly understood, reference is made to the accompanying drawings in which two machines embodying my invention are represented by way of example, and in which:

Figures 1 and 2 are longitudinal and transverse sectional elevations respectively of one form of machine, while Fig. 3 is a longitudinal sectional elevation of another form, and Fig. 4 is a vertical transverse section through part of the latter form.

Referring to Fig. 1, the propeller *b* rotates with the axis *a*, and the distributor *c* projects into the propeller. The screen or sieve *d* is held by the two end walls *e* which are

connected below by an intermediate member *f* and above by the transverse *g*. The exterior casing is formed by two easily removable lateral sheet metal walls *h* and a cover *i*, the latter being capable of being opened at any time.

The water carrying the material enters at *k* into the distributor *c* and passes from this uniformly distributed on all sides to the propeller *b* through numerous orifices *l* in jets which are for the most part ejected radially. By reason of their direction the jets are struck powerfully at right angles and the water is thrown in a fine spray against the sieve *g*. The blow of the propeller against the jets separates such particles of lignin matter as may still adhere together.

The separated material which is thrown through the sieve *d* collects in the connecting member *f* and flows away at the outlet *m*. The coarse material which remains in the sieve rotates with the propeller and is thrown out by its slanting blades through the opening *n* which may be arranged in any suitable position in the end wall, even at the top.

The working zone *o*, beyond the inner end of the distributor *c*, serves for removing water from the coarse material and can also be used for separating the water containing the material by arranging walls *q* on the propeller *b* which deflect the liquid to this portion of the propeller as is indicated in Fig. 1.

In the machine according to Figs. 1 and 2 the distributor *c* is arranged on the axis of the propeller. This construction is the most favorable for distributing the water. In Figs. 3 and 4, however the distributor is arranged at one side above the shaft *a*, so that it is possible to provide a good journal for the latter and the length of the machine is diminished. In this construction guide-walls *r* (Fig. 4) can be projected below the distributor to guide the jets of water to the propeller blades.

In the construction Figs. 1 and 2 the orifices *l* are arranged regularly in the surface of the distributor *c*. In order to distribute the water uniformly in all directions, the orifices must therefore have a width which varies in the inverse proportion of the hydrostatic pressure which exists at the various levels of the orifices. In the construction Figs. 3 and 4, on the contrary, the orifices of the distributor are of uniform size but are arranged non-uniformly numerically, there

being, as is seen in cross-section in Fig. 4, five orifices in the top of the distributor and only four in the bottom.

I claim as my invention:

- 5 1. In a centrifugal separating machine of the character described, a propeller rotating on a horizontal axis, and a stationary distributor arranged within the blades of the propeller and adapted to feed a suspension
- 10 to said blades in radially directed jets, substantially as described.
2. In a centrifugal separating machine of the character described, a propeller rotating

on a horizontal axis and a stationary distributor arranged within the blades of the pro- 15 peller and adapted to feed a suspension to the latter in uniform quantity on all sides simultaneously, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of 20 two subscribing witnesses.

PAUL PRIEM.

Witnesses:

EMIL GIERSBERG,
JOHANN BAPTIST LOSSMANN.