UNITED STATES PATENT OFFICE.

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APPARATUS FOR DECANTING OR SETTLING LIQUIDS.

1,073,146.


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To all whom it may concern:

Be it known that I, RUDOLF KÖRNER, a subject of the Emperor of Austria-Hungary, residing at Niederlößnitz, near Dresden, in the Kingdom of Saxony, Germany, have invented certain new and useful Improvements in Apparatus for Decanting or Settling Liquids, of which the following is a specification.

10 The invention is of special importance for example in its application to paper mills. The water flowing off from a paper-making machine contains numerous fibrous particles, which float about in the water and flow off therewith.

Now the object of the apparatus according to the present invention is to recover these fibrous particles from the effluent water, so that they can again be returned to the paper-making machine and thus escape being lost.

In the accompanying drawings the new apparatus is fully illustrated; Figure 1 being a side elevation partly in section, of the invention, and Fig. 2, being a plan view of the same, also partly in section.

The funnel a is shown in this construction as made of sheet metal but, if necessary, the said funnel a could also be made of masonry-work. In the upper part of the funnel a there is built in an inverted frusto-conical member b which has no spout or point. In the upper portion of the funnel b there is a roof-shaped cover c. The lower edge of the funnel b is also provided with an annular edge d that is turned upward, a similar edge e also being provided in the roof-shaped cover c.

The water is supplied through pipe f into the center of the apparatus and runs down on the roof-shaped surface e over the upper edge of a cylindrical container g. The principal objects of the parts g, c, e are to cause the water to be uniformly distributed in all directions and made to flow over the edge e without any eddying movements.

Running completely around the entire apparatus is a groove or channel h to the periphery of which the overflow chute i is attached. The overflow chute i and the chute h are destined to conduct the purified water to the proper outlet or outlets.

A scum formation takes place on the surface of the water around about the edge e and, in order to remove this, there is provided a short intermediate chute n with a valve o. This valve o is normally kept closed but, if a large quantity of scum has collected, then the said valve o is opened for a short space of time so as to allow the scum to escape at n and i.

At the lowest point of the funnel b there is an escape pipe m which is only opened when it is required to subject the whole apparatus to a thorough cleaning.

The object of the pipe k is to carry off the fibrous particles separated from the water and return them to the paper-making machinery.

The water arrives from all sides between the edge e and the funnel b with a slow steady movement in the downward direction shown by the arrows and is thus guided in the funnel b toward the middle. As the water flows off at the top through h, the movement is consequently bound to take place in an outward arc-shaped direction around the edge d. In order to understand the operation of my apparatus properly, it must be pointed out that the speed of the water is slow in general, but it is not uniform as it flows much more slowly at e than at d. At the top or level of the edge d the speed is the greatest, and the water will not flow more slowly again until it attains its minimum at the top or level of h. The centrifugal movement of the water around the edge d at the point where the letter a is inserted in the drawing brings the actual purificative effect into play as, in this zone, at a the fibrous particles are thrown out of the water by the centrifugal force and sink slowly downward into the deeper zone marked y, from which it is removed through pipe k by a suitable pump.

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

In apparatus for decanting or settling liquids, a vertical frame, a funnel mounted on said frame, an escape pipe at the lower end of said funnel, an inverted frusto-conical member b, mounted centrally in said funnel and extending above it, an upwardly and inwardly inclined lip on said member b, a roof-shaped member c, in the upper part of member b having an upwardly and out-
wardly inclined lip, a supply pipe, a shallow
receiver into which said pipe discharges, a
receiver wider and higher about said first
mentioned receiver, an exterior overflow
channel, around the upper edge of said fun-
nel and extending below it, an escape pipe t,
and a chute u, connecting the interior of
said funnel with said escape pipe, as herein
set forth.

RUDOLF KÖRNER. [L. s.]

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
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