

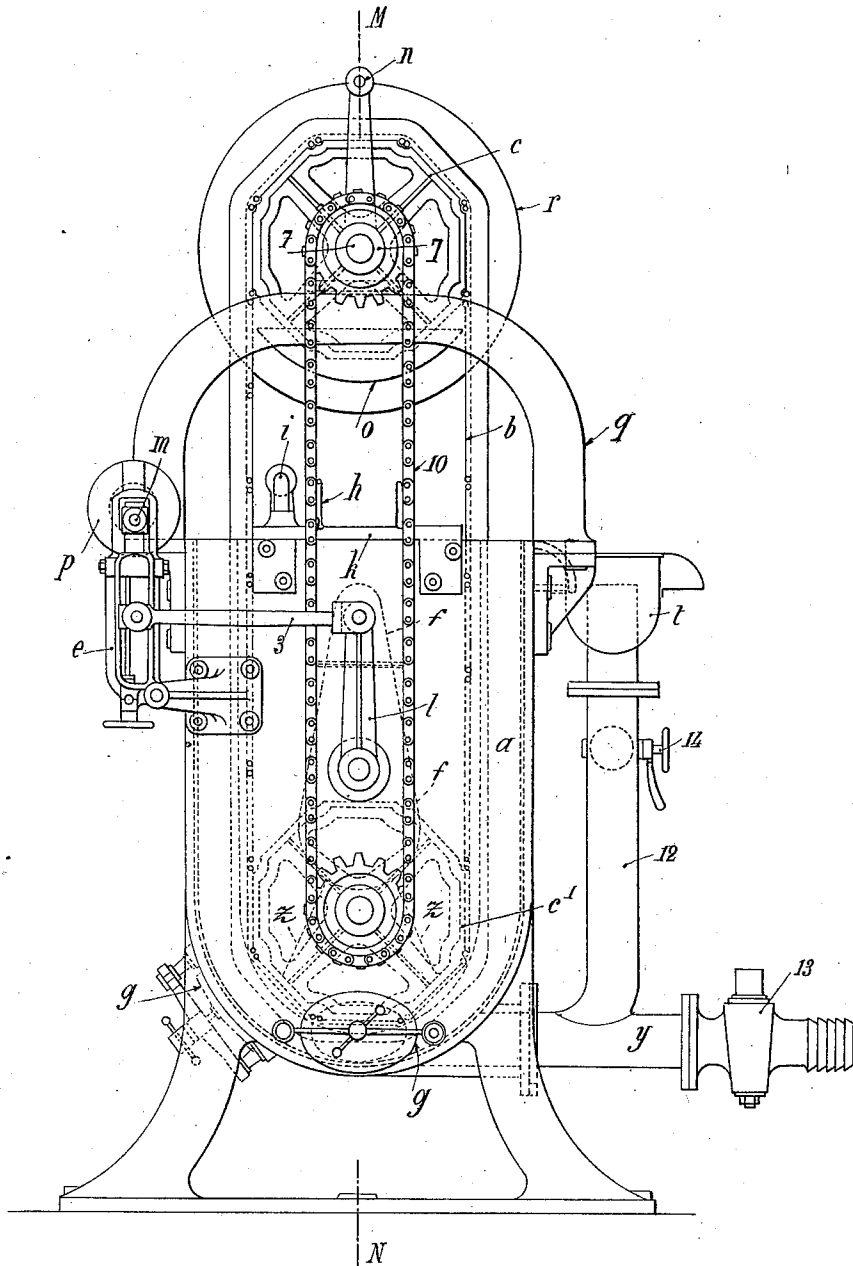
C. VIGREUX.  
 ROTARY PURIFIER FOR PAPER PULP AND THE LIKE.  
 APPLICATION FILED OCT. 11, 1911.

1,045,476.

Patented Nov. 26, 1912.

3 SHEETS—SHEET 1.

FIG. 1\_



Witnesses:  
 L. Cassa French  
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Inventor  
 Charles Vigreux  
 by *Attorney*  
 his Attorney

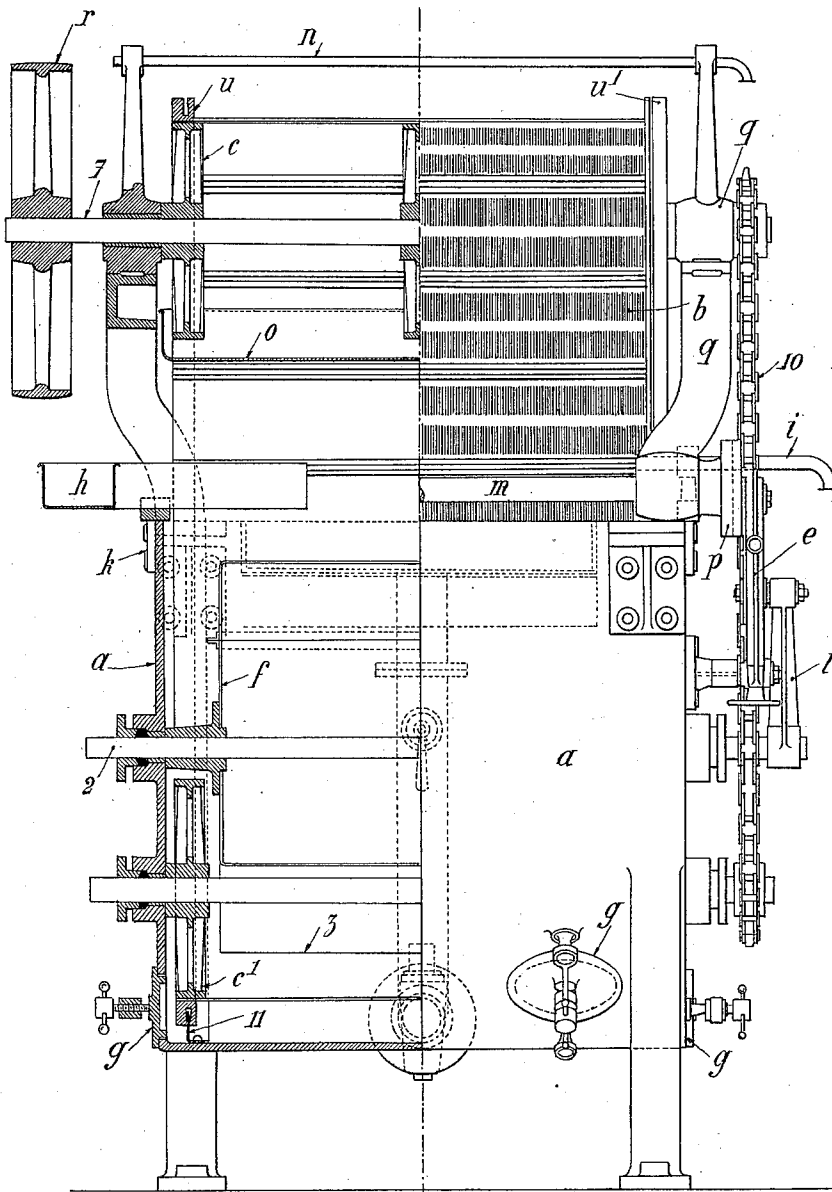
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3 SHEETS—SHEET 2.

FIG\_2\_



Witness:  
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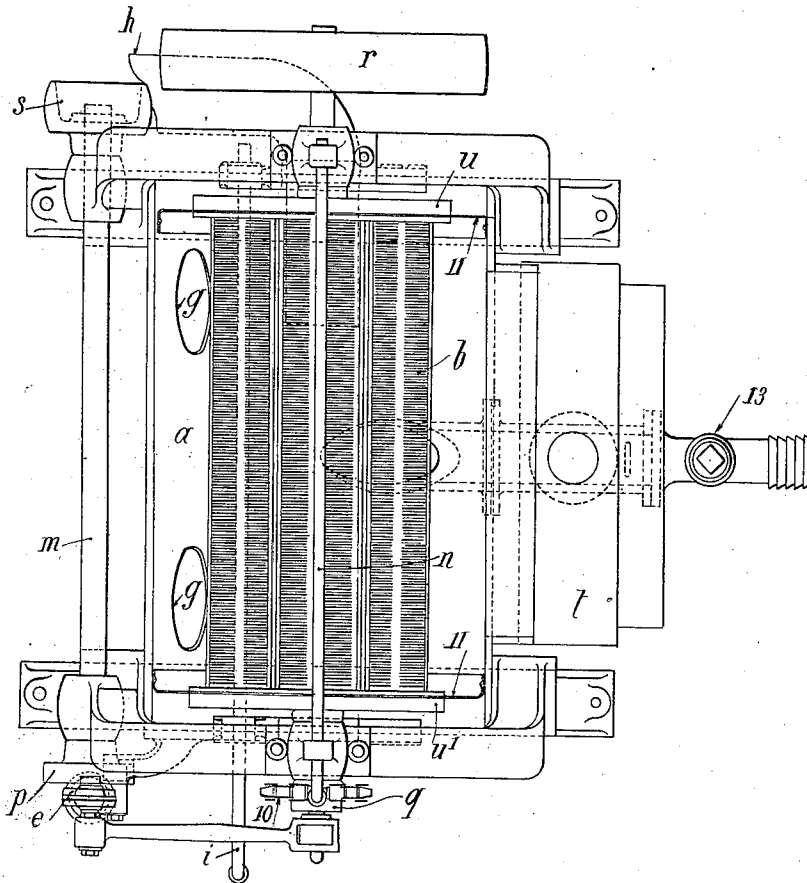
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3 SHEETS—SHEET 3.

FIG. 3.



Witnesses:

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# UNITED STATES PATENT OFFICE.

CHARLES VIGREUX, OF BALESMES, FRANCE.

ROTARY PURIFIER FOR PAPER-PULP AND THE LIKE.

1,045,476.

Specification of Letters Patent.

Patented Nov. 26, 1912.

Application filed October 11, 1911. Serial No. 654,058.

To all whom it may concern.

Be it known that I, CHARLES VIGREUX, civil engineer, a citizen of France, residing at Balesmes, Indre-et-Loire, in the Republic of France, have invented new and useful Improvements in Rotary Purifiers for Paper-Pulp and the Like, of which the following is a specification.

This invention relates to rotary purifiers for paper pulp and the like.

In the manufacture of paper it is necessary to purify the pulp before it reaches the paper-making table in the paper-making machine. For this purpose three kinds of purifiers have been employed hitherto. These are 1, the flat purifiers which have the advantage of utilizing completely the purifying surface but have also the disadvantage of being impossible to be cleaned during work, being very heavy and very bulky; 2, polyhedral or cylindrical rotary purifiers which have the advantage of being capable of being cleaned during work, but have also the disadvantage of an incomplete utilization of the purifying surface, and consequently of being expensive and bulky. Moreover in order to cause the fibers to pass through the strainer plates, violent shocks are imparted to this type of apparatus whereby the strainer plates are rapidly deteriorated and finally, 3, apparatus with bellows formed by flat strainer surfaces on which the straining of the pulp is facilitated by agitators with vanes, in combination with shocks also imparted to the strainer surfaces.

This last type of apparatus has scarcely any advantage over the other two types hereinbefore mentioned; it is expensive, and although it may remedy to a slight degree the disadvantages of the said other two types, it retains however these disadvantages in part.

Now a rotary purifier according to this invention is designed to unite in one apparatus the advantages of all the types of purifiers known hitherto and more particularly of flat purifiers and rotary purifiers, while avoiding the disadvantages which are enumerated hereinbefore.

The improved rotary purifier consists substantially of a series of strainer plates joined together to form an endless chain which is adapted to plunge into a trough so as to divide the latter into an inner compartment for receiving the pulp to be purified, and an outer compartment for receiving

the pulp after it has been purified by passing through the strainer plates. The endless chain composed of these strainer plates has imparted to it a very slow rotary motion. It allows of utilizing a very large proportion of the straining surface, and also allows of the plates being cleaned.

One construction of a purifier according to this invention is illustrated by way of example in the accompanying drawings in which—

Figure 1 is a front elevation of the purifier. Fig. 2 is a side elevation in half section on the line M—N of Fig. 1. Fig. 3 is a plan thereof.

As shown, the apparatus comprises a jointed chain *b* composed of perforated plates like the plates of the ordinary pulp purifiers. These plates are made of copper, brass or any other metal, and they are jointed to one another in any suitable or known manner. The chain *b* is supported at its upper portion by a revolving polygonal drum *c* on which the plates are adapted to rest and which drives the jointed chain by imparting continuous rotary motion to it. At its lower end, the chain *b* passes around a drum *c'* similar to the drum *c*. This drum *c* is itself driven by known mechanism, for instance by a pulley *r* fixed on a shaft 7 mounted in bearings *q* fixed on a cast iron trough *a* into which the chain *b* plunges. The lower drum *c'* is also rotated from the shaft 7 through a transmission chain 10.

Rubber bands *u u'* are fixed on the longitudinal edges of the chain *b*. They are each provided with a longitudinal slot into which extends an angle iron bar 11 fixed to the trough *a* and making with the rubber band a tight joint in such a manner as to divide the trough into two distinct compartments situated, one inside and the other outside of the plate chain *b*.

The pulp is supplied into the trough *a*, namely inside the plate chain by a charging chute *h* which is mounted on a support *k* and is readily dismountable for cleaning, so that more than half of the plate chain constituting the purifier proper is actually utilized for purifying. By making the part of the chain which plunges into the trough, longer than the part which emerges therefrom, an increasing strainer area may be obtained in proportion to the total surface of the chain. After passing from the inside to the outside through the strainer

plates, the strained pulp passes out of the trough through a spout *t* which may be provided on one edge only, or on both edges of the trough. The purified pulp may also  
 5 pass out through the lower pipe *y* which is connected by means of a pipe 12 to the chute receiving the purified pulp from the spout *t*. Upon the end of the pipe *y* is mounted a drain cock 13 for use in cleaning the trough.  
 10 The pipe 12 is provided with a regulating throttle valve 14.

For facilitating the operation, that is to say, the passing of the pulp through the strainer plates, the apparatus is provided  
 15 with a bell *f* of large capacity mounted in the trough *a* inside the chain. This bell which consequently reduces the volume of the pulp contained in the apparatus, is furnished with two vanes *z* at its lower part  
 20 and it is rocked on its axle 2 by means of a lever *l* connected by a connecting rod 3 to an oscillating lever or link *e* connected at its upper end to a wrist pin in the crank plate *p*. This crank plate *p* is carried by a shaft  
 25 *m* receiving motion from a pulley *s*. The amplitude of the rocking motion of the bell *f* is regulated during the working of the apparatus by shifting the connecting rod in the oscillating lever or link *e*.

30 The cleaning of the strainer plates is effected from the inside toward the outside by a water sprinkler *i*. The cleaning from the outside to the inside is effected by a sprinkler *n*, the products of this cleaning  
 35 operation being received by a chute or gutter *o*. Four manholes *g* provided in the wall of the trough *a* allow of cleaning.

Various detail modifications may obviously be made in the hereinbefore described  
 40 construction without departing from the nature of the invention.

The improved apparatus is suitable not only for the straining of paper pulp, but also for the purifying of all materials which are  
 45 capable of being strained through ordinary strainer plates.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

50 1. In a rotary purifier for paper pulp and the like, the combination of strainer plates pivotally jointed together, packing means carried by said plates, a trough through which said plates are adapted to  
 55 pass, means carried by the trough for engaging said packing means and forming therewith a tight joint to divide the trough into a plurality of compartments, means for supporting said strainer plates and means  
 60 for causing the material to be purified to pass through said plates, substantially as described and for the purpose set forth.

2. In a rotary purifier for paper pulp and the like, the combination of strainer plates  
 65 pivotally jointed together in the form of an

endless chain, packing means carried by said plates, means for imparting to said chain a slow rotary motion, a trough in which the said chain dips, means on said trough for forming with said packing means a tight  
 70 joint so as to divide the interior of the trough into two separate compartments, means for feeding the pulp to be purified to one of the compartments and means for discharging the purified pulp from the other  
 75 compartment, substantially as described and for the purpose set forth.

3. In a rotary purifier for paper pulp and the like, the combination of strainer plates pivotally jointed together in the form of an  
 80 endless chain, drums for supporting said chain, means for imparting to the drums a slow rotary motion, a trough in which said chain dips and against the sides of which it works with a tight joint so as to divide  
 85 the interior of the trough into two separate compartments, means for feeding the pulp to be purified to the compartment inside the endless chain, a bell in said compartment, said bell being provided with vanes,  
 90 means for imparting to the bell a rocking movement for the purpose of facilitating the passing of the material through the strainer plates and means for discharging the purified material from the compartment  
 95 outside the endless chain, substantially as described and for the purpose set forth.

4. In a rotary purifier for paper pulp and the like, the combination of strainer plates pivotally jointed together in the form of an  
 100 endless chain, drums for supporting said chain, means for imparting to the drums a slow rotary motion, a trough in which said chain dips, rubber bands fixed on the sides of the chain, said bands having each a longitudinal slot, angle iron bars fixed to the  
 105 inner wall of the trough and extending into the longitudinal slots of the bands, whereby the interior of the trough is divided into two separate compartments, means for feeding the pulp to be purified to one of the compartments and means for discharging the purified pulp from the other compartment, substantially as described and for the purpose set forth.

5. In a rotary purifier for paper pulp and the like, the combination of strainer plates pivotally jointed together in the form of an endless chain, drums for supporting  
 110 said chain, means for imparting to the drums a slow rotary motion, a trough in which said chain dips, rubber bands fixed on the sides of the chain, said bands having each a longitudinal slot, angle iron bars fixed to the inner wall of the trough and extending into the longitudinal slots of the bands, whereby the interior of the trough is divided into two separate compartments, means for feeding the pulp to be purified to the compartment inside the endless chain,

a bell in said compartment, said bell being provided with vanes, means for imparting to the bell a rocking movement for the purpose of facilitating the passing of the material through the strainer plates, a water sprinkler inside the chain, a second water sprinkler outside the chain, means for causing the water sprinklers to project water on to the chain when cleaning the same, and means for discharging the purified material at the top and bottom of the trough from

the compartment outside the chain, substantially as described and for the purpose set forth.

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

CHARLES VIGREUX.

Witnesses:

ANTOINE LAVOIX,  
H. C. COXE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."