

No. 810,813.

PATENTED JAN. 23, 1906.

H. SANGUINETTI.
OSCILLATING CYLINDRICAL PULP STRAINER.

APPLICATION FILED MAY 12, 1905.

5 SHEETS—SHEET 1.

Fig. 1.

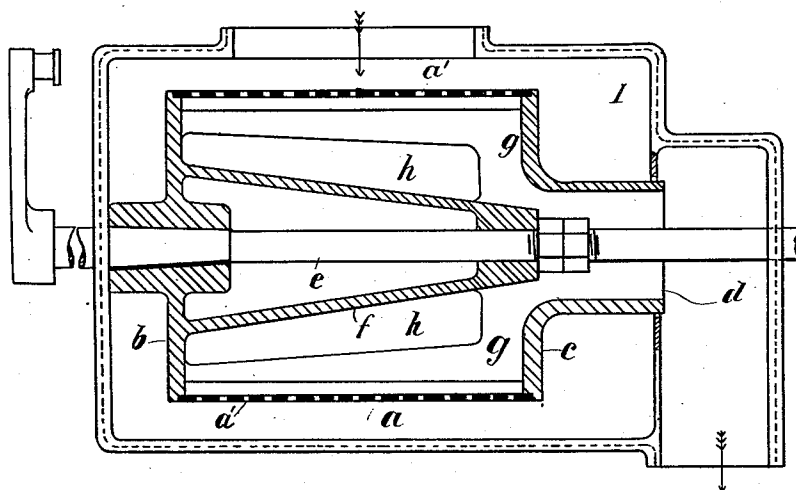
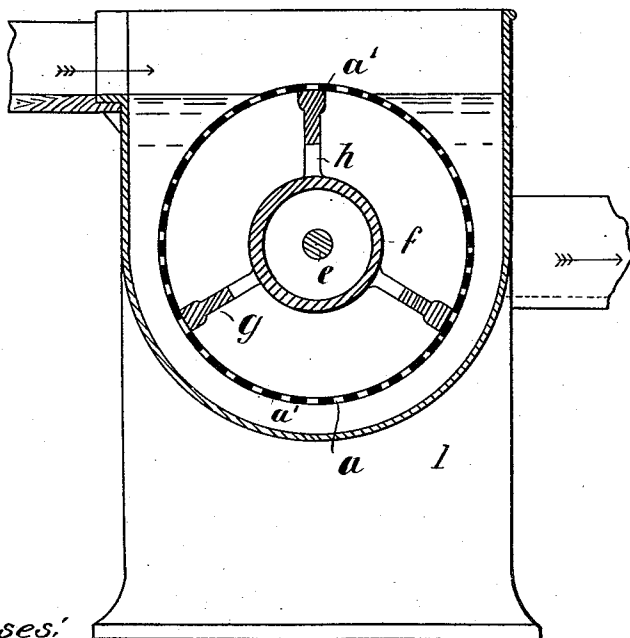


Fig. 2.



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5 SHEETS—SHEET 2.

FIG. 3.

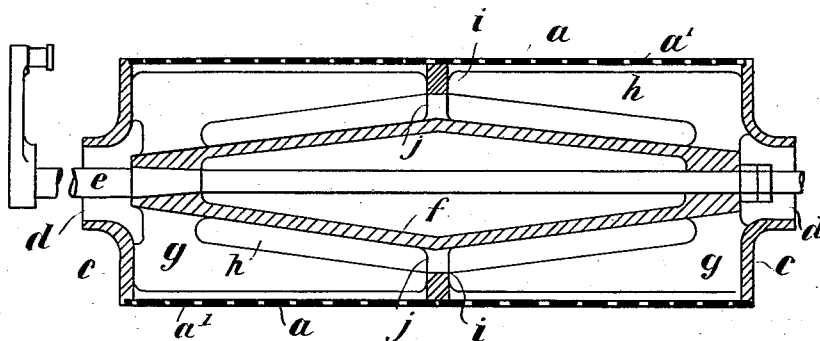
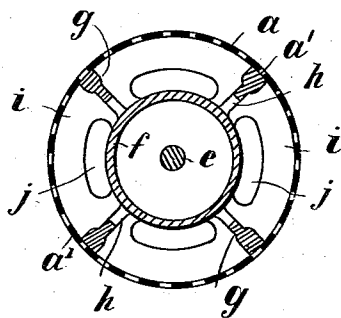


FIG. 4.



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FIG. 5.

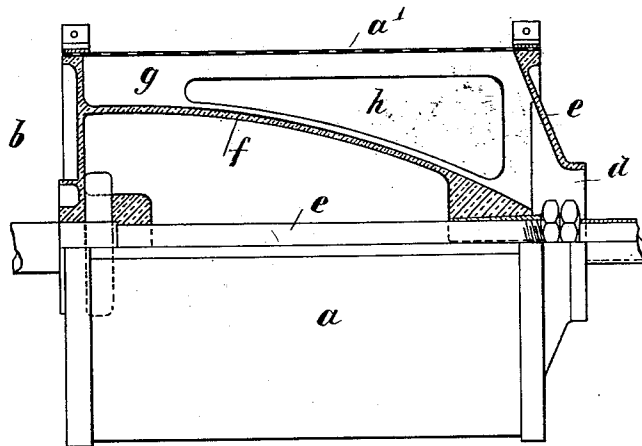


FIG. 6.

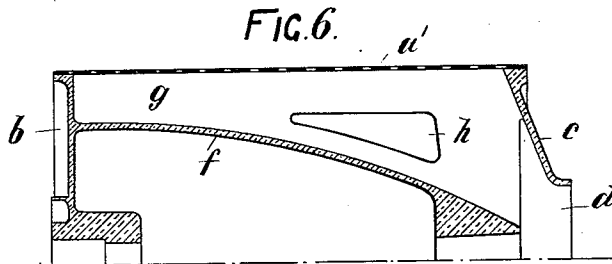
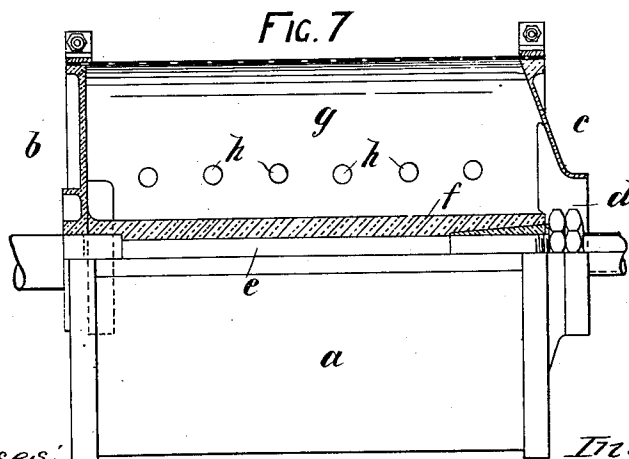


FIG. 7.



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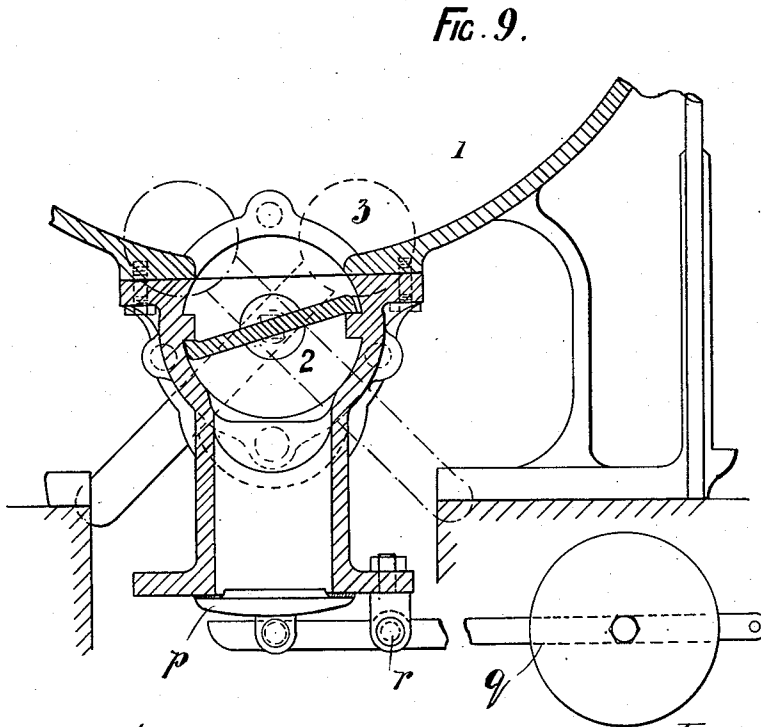
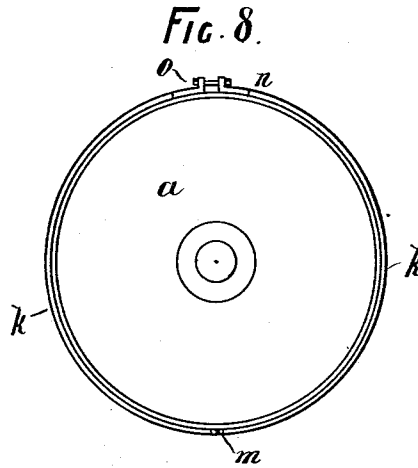
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5 SHEETS—SHEET 4.



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5 SHEETS—SHEET 5.

Fig. 10.

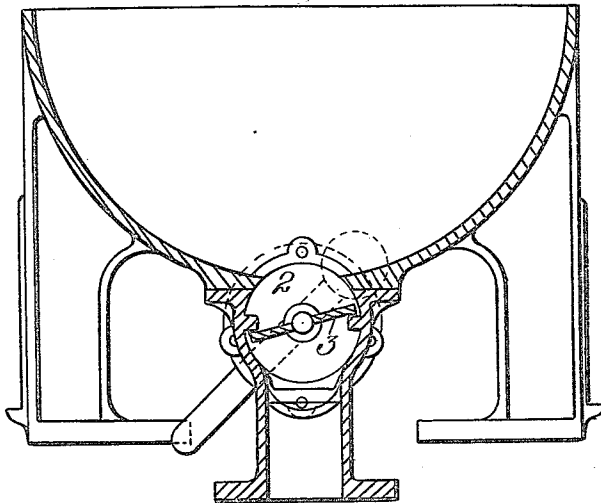
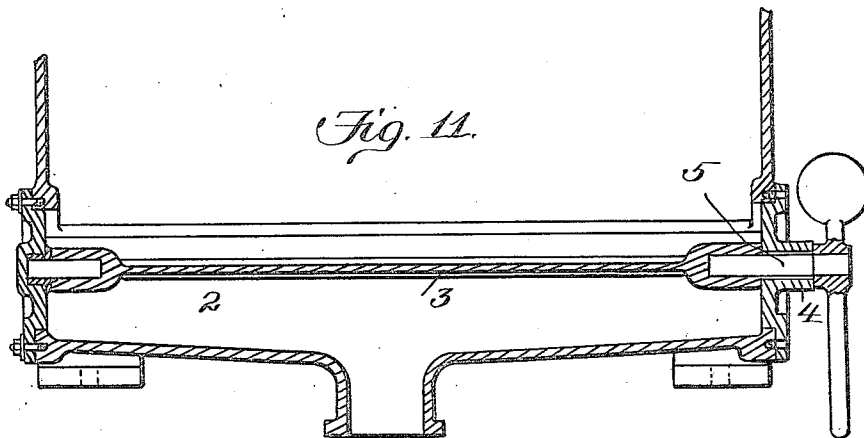


Fig. 11.



Witnesses

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UNITED STATES PATENT OFFICE.

HERBERT SANGUINETTI, OF LONDON, ENGLAND.

OSCILLATING CYLINDRICAL PULP-STRAINER.

No. 810,813.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed May 12, 1905. Serial No. 280,126.

To all whom it may concern:

Be it known that I, HERBERT SANGUINETTI, gentleman, a subject of the King of Great Britain, residing at 110 Jermyn street, in the county of London, England, have invented certain new and useful Improvements in and Relating to Oscillating Cylindrical Pulp-Strainers, of which the following is a specification.

Oscillating strainer-cylinders are already known which are fitted inside with fans, beating-arms, or partitions, participating in the oscillating motion of the cylinder; but these partitions have the disadvantage of dividing the interior of the cylinder into separate chambers almost independent of each other, the consequence being that different conditions of pressure exist in the liquid in the various compartments, whereby efficient and economical working of the apparatus is impaired.

One object of the present invention is to remedy this evil by a suitable arrangement of these paddle-arms, fans, or partitions; and the present strainer-cylinder, moreover, embodies an arrangement for facilitating the discharge of the stuff from the cylinder even when it oscillates at a rapid rate, whereby the efficiency of the apparatus is also materially increased.

In the annexed drawings, Figure 1 shows a single cylinder in longitudinal transverse section. Fig. 2 is a cross-section of the same, while Figs. 3 and 4 are respectively longitudinal and transverse sections of a double-cylinder strainer. Fig. 5 shows an alternative form of opening *h* in the longitudinal partition *g* for facilitating equality of pressure in adjacent compartments; and Fig. 6 shows another form of such opening, differing from the preceding figure mainly in the size of such opening and the curvature of the conical central tube *f*, these two figures indicating approximately the range of size of opening, which may be modified according to the character of the stuff. Fig. 7 shows another modification in which a number of smaller holes are used to replace the one opening before illustrated. Fig. 8 shows in end elevation one of the hoops and its locking device for holding the strainer-plates in position, drawn to a larger scale. Fig. 9 by a cross-sectional view shows a part of a vat with the strainer removed, illustrating the

valve arrangement of the pocket for use in cleansing the vat during working. Figs. 10 and 11 illustrate, respectively, in transverse and longitudinal section, the outlet-valve arrangement.

a is the cylinder, which is fitted at either end with a bearing or stiffening plate *b* and *c*, respectively, the latter plate being provided with the outlet *d*. Within the cylinder *a* the shaft or spindle *e*, set into oscillating motion by some mechanism, is borne in a conical nave or central tube *f*.

In order to establish uniform conditions of pressure within the apparatus in each of the compartments formed by the longitudinal partitions *g*, these latter are provided with openings or recesses *h*. Thereby all the compartments of the apparatus are rendered communicating with each other, the unequal conditions of pressure otherwise existing are compensated, and generally the entire action in the interior of the cylinder is rendered more elastic.

The conical hub or center tube *f* mentioned above forms a suitable deflection surface for the discharge of the stuff from the cylinder *a*, which will enable the apparatus to meet the requirements as regards a regular discharge of stuff even with a rapid rate of oscillation.

As will be seen from Figs. 3 and 4, the single cylinder just described may also be executed in the form of a double cylinder. The cylinder *a* is stayed in its center internally by a partition *i*, which in accordance with the fundamental idea of the invention is likewise perforated or recessed at *j j*, so as to establish effective communication throughout the compartments of the cylinder. The discharge of the stuff ensues along the periphery of a double cone serving as nave or central tube toward the two end plates *c*, which are provided with outlets *d*. The cylindrical strainer is mounted in a cast-iron trough 1 and is caused to oscillate rapidly through six to twelve degrees about its axis by means of a vibrating crank. The plates are removable. Two plates are used, and their flanged longitudinal edges fit into grooves in the frame of the cylinder *a*, the joint being made by a strip of wood or rubber. The plates are held in position on the cylinder *a* by means of ring or strap parts *k*, adjustable at the ends *l*, which also serve by compressing a packing material for making the joint.

Those who use plates of different gage do not require to have an extra spare cylinder, as all plates are adjusted to fit any cylinder of same diameter. The plates can be removed in a few minutes, cleaned, and replaced or others substituted for them of a larger or smaller gage. The straining-cylinder *a* may be circular in cross-section or prismatic or polygonal at pleasure and consists, as is well known, of a number of finely-slit metallic sheets *a'*, which the pulp must pass through in order to be strained.

The use of such apparatus as previously used so far as known to me has been accompanied by the defect of gradual stoppage of the slits in course of time, and this defect is not preventable, despite of mechanical cleansing contrivances applicable and operated during working, necessitating a hand cleansing while the cylinder is at rest and not working. To effect this manipulation completely and thoroughly, the cylinder-shell is made to take in two pieces, each piece *a'* quickly and certainly cleansible both inside and outside. The two portions *a'* of the cylinder-shell consist peripherically of metallic sheet longitudinally turned down or bordered in order to offer to an intermediate packing-block, of rubber, wood, metal, or other packing material, a sufficient contact and securing surface. With a stout metallic sheet the border or edge may be replaced by an angle-iron riveted on throughout its length. The screwing of the metal sheets upon the cylinder covers or ends *b* is effected by straps or bands *k*. For the purpose of carrying the sheet-metal cylinder-shell at intermediate points and also to further secure the cylinder-covers together the bars are correspondingly arranged.

In long cylinders the shell may be divided transversely two or more times. Then two of the previously-described shells are arranged to meet and bear against each other at their larger diameters.

The packing of the circular joints and the packing at the head ends is not effected by rubber rings, but by "tightening-bands" of brass having rubber sleeve or tubing placed on their lower side and hinges *m*, lugs *n*, and bolts *o*, respectively indicated in side view, Fig. 8.

As shown by Fig. 9, to facilitate the cleaning of the cast-iron vat it is formed below in the form of a sack or pocket 2, and therein are formed bearings 4, carrying a pair of trunnions 5 and a circular slide 3, which slide acts as a valve which permits of the emptying of the machine while it is at work without interfering with its action. This emptying of the circular slide can be promoted by letting water pass through the slide. To avoid any risk of the slide 3 being choked and of its mobility being impaired thereby when dealing with "stuff" of a very unctuous nature, I

sometimes provide a discharge-valve either of the trap or of the hinged type instead of the circular type. *p* shows a convenient form of valve for the purpose carried by a lever weighted at *q* and centered at *r*.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. An oscillating strainer-cylinder for paper and cellulose manufacture, provided with partitions, dividing the interior space of the cylinder into compartments, which partitions participate in the oscillating motion of the cylinder, the said partitions being provided with openings so arranged as to establish communication between the various compartments of the cylinder and so as thereby to increase the efficiency of the apparatus by reason of the compensation of pressure afforded in the interior of the cylinder, substantially as described and shown by the drawings.

2. A pulp-strainer comprising an oscillatory cylinder having the wall thereof perforated, a substantially conical-shaped nave extending through the cylinder, suitably connected therewith and facilitating the discharge of the stuff from the cylinder during the operation thereof, and a driven shaft extending through the nave and suitably connected therewith.

3. A pulp-strainer comprising an oscillatory cylinder having the wall thereof perforated, a double-coned-shaped nave extending through the cylinder and facilitating the discharge of the stuff therefrom during the operation of the cylinder, a central stay-partition interposed between the nave and the wall of the cylinder, said partition being perforated, and a driven shaft connected with the nave for oscillating the cylinder.

4. A pulp-strainer comprising a casing provided at one end with a pocket, a rotatable slide arranged in said pocket and constituting a discharge-valve, counterbalanced means for rotatably supporting said slide, an oscillatory strainer-cylinder arranged within said casing, and perforated partitions within said strainer-cylinder.

5. A pulp-strainer comprising an oscillatory cylinder having the wall thereof perforated, a closure-plate provided with an outlet and arranged at one end of the cylinder, a closure-plate at the other end of the cylinder, a conical-shaped nave within the cylinder, and a driven shaft extending through said outlet at one end of the cylinder, through the said nave and the plate at the other end of the cylinder and adapted when operated to impart oscillations to the cylinder.

6. A pulp-strainer comprising a casing provided with a pocket having an outlet, a rotatable slide arranged in said pocket and adapted to act as a closure means between the cas-

ing and the pocket, an oscillatory cylinder arranged within said casing, and perforated partitions within said strainer-cylinder.

5 7. A pulp-strainer comprising a casing provided with a pocket having an outlet, a rotatable slide arranged in said pocket and adapted to act as a closure means between the casing and the pocket, an oscillatory cylinder arranged within said casing, perforated partitions within said strainer - cylinder, and a

counterbalance means for closing the outlet of said pocket.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HERBERT SANGUINETTI.

Witnesses:

GEO. J. B. FRANKLIN,
W. J. NORWOOD.