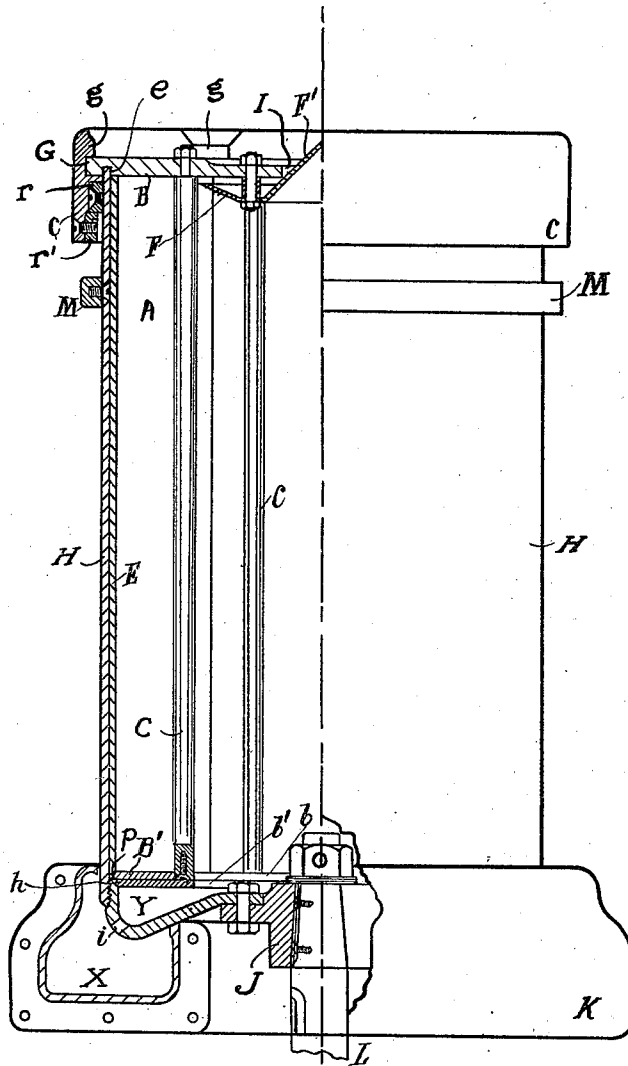


1,002,257.

3 SHEETS—SHEET 1.



Witnesses:

M. Keeling
C. L. Quinn

William J. Gee, ^{Inventor,}

By *B. Singer*
Attorney.

W. J. GEE.
CENTRIFUGAL APPARATUS.
APPLICATION FILED SEPT. 8, 1910.

1,002,257.

Patented Sept. 5, 1911.

3 SHEETS—SHEET 3.

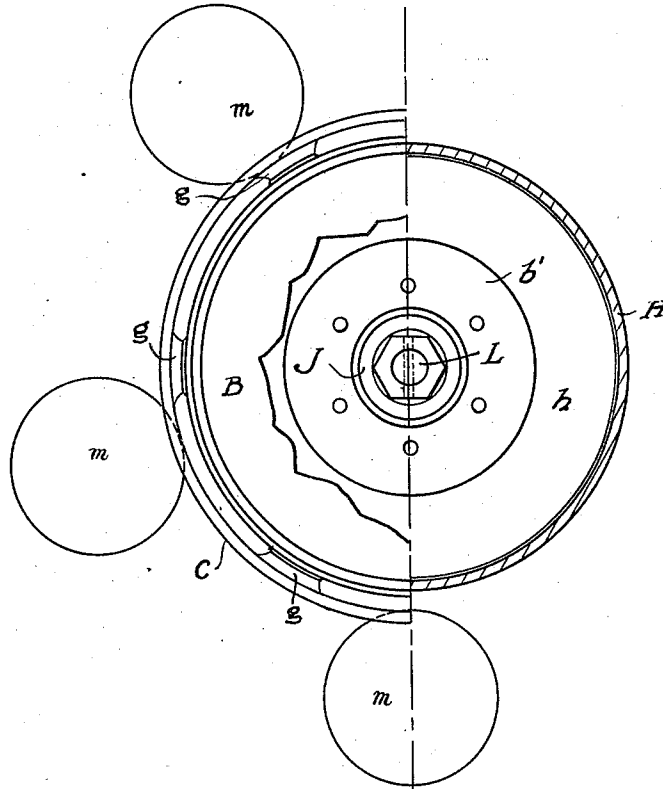


FIG. 4.



FIG. 5.

Witnesses:

M. Helling
C. H. Rubin

William J. Gee, Inventor

By *T. B. Singer,* Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM JOHN GEE, OF LONDON, ENGLAND, ASSIGNOR TO HYDRAULIC SEPARATING & GRADING COMPANY LIMITED, OF LONDON, ENGLAND.

CENTRIFUGAL APPARATUS.

1,002,257.

Specification of Letters Patent.

Patented Sept. 5, 1911.

Application filed September 8, 1910. Serial No. 581,046.

To all whom it may concern:

Be it known that I, WILLIAM JOHN GEE, engineer, a subject of the King of England, residing at 12 Hatton Wall, Hatton Garden, in the city of London, England, have invented certain new and useful Improvements in Centrifugal Apparatus, of which the following is a specification.

My present invention relates to centrifugal apparatus in which a rotatably mounted casing is adapted to receive and carry therewith, upon rotation, an inner frame provided with radially extending plates and detachable peripheral plates, upon the latter of which the charge is collected.

The object of my invention is to facilitate the emptying and recharging of the cylinder and to draw the whole charge at a single operation, and thereby make the cylinder ready for work, whereby the time during which the cylinder has to be stopped is considerably shortened and the whole operation facilitated. I attain this object by the construction and arrangement of parts shown in the accompanying drawings, in which,—

Figure 1 is a side elevation, in part vertical central section of the device embodying my invention. Fig. 2 is a side elevation of an inner frame member adapted to be contained within a casing, a detail of Fig. 1. Fig. 3 is a plan view of Fig. 2 in part central transverse section. Fig. 4 is a top plan view of Fig. 1 parts being removed and broken away to bring out details of construction. Fig. 5 is a plan view of a segmental peripheral plate, a detail of the apparatus.

Similar characters refer to similar parts throughout the several views.

In the drawings, A represents an outer casing rotatably mounted on a base K, rotation being imparted to the casing by any suitable means through a spindle L, carrying a collar J, to which the casing is secured. It will, however, be seen that any suitable means for transmitting a rotative motion to the casing may be used without detracting from the spirit of my invention.

Adapted to be supported within the outer casing is a removable frame A comprising top and bottom plates B and B' respectively, separated by longitudinally grooved tie-rods C. Radially extending plates D, extending between and carried by the top and bottom plates and entering the said grooves in the

tie-rods, form the vanes required in the apparatus.

With particular reference to Figs. 1 and 3, it will be seen that I provide segmental peripherally disposed plates E which extend between the top plate B, rest against the beveled periphery *p* of the bottom plate B', and when within the casing H, rest against the inner wall of the casing.

As shown in Fig. 3, the plates E are disposed segmentally between the radially extending plates D and are arranged to allow a small space, indicated at *s*, between the lateral margins thereof. During the operation of the apparatus the charge accumulates in the space between plates D and E, wherefrom it is removed by drawing the frame A from the casing H and passing a knife edge through the opening *s* to separate the charge from the plates D and the charge removed by the plates E. A duplicate set of plates E may be provided whereby the apparatus may be assembled and put in operation immediately after the plates E, together with the charge, have removed from the apparatus.

The top plate B of the frame A is provided with an inlet opening I and in order to secure better distribution of the liquid, a distributor is provided underneath the inlet opening. The distributor consists of a dished disk F of larger diameter than the inlet opening, and from the disk F rises a cone F' extending into the inlet opening, from which it will be seen that this cone and disk throw the incoming liquid toward the plates E.

The bottom plate B' of the frame A, preferably rests on a plate *h* carried by the casing H, although it is understood that lugs or a flange might be provided to serve the purpose for which it is designed. Both plates are apertured as at *b* and *b'* which form an outlet to a channel Y, formed by the casing and provided with outlets *i* for communication to a collecting chamber X in the base K to receive and conduct away the water or other liquid after the solid has been separated.

In order to obtain tight joint between the frame A and the casing H, to retain the various members of the apparatus in assembled operative relation to each other, and to insure a positive rotation of the frame A

with the casing H, I provide a groove *e* in the top plate B which receives the upper margin of the casing H, and a collar C which connects the plate with the casing.

5 The connection of the casing H, through the collar C, with the plate B, may be accomplished by spaced apart projections G carried by the plate B and similar spaced apart projections *g* carried by the collar C and

10 adapted to engage each other, the former under the latter. The collar C is movable circumferentially by means of the rings *r* and *r'* the former being secured to the casing H while the latter is carried by the collar C.

15 If desired, for the stabilization of the rotative casing, a collar M may be provided as a runway for steadying wheels *n*, diagrammatically shown in connection with Fig. 4.

The operation of the device is as follows:—The apparatus is assembled as shown in Fig. 1 and rotation transmitted to the casing and members carried thereby through the spindle L. The material to be treated has entrance through the opening I and is

20 thrown by the member F toward the vanes or plates D. The solid matter accumulates between the plates D and E as hereinbefore described, wherefrom the liquid matter escapes to the base portion K. The means for

30 removing the charge collected upon the

plates E and the reassembling of the device having been previously described.

I claim:—

1. A centrifugal apparatus comprising in combination, a rotatable outer casing, a 35 frame removably disposed therein and comprising upper and lower members, tie rods uniting said members, radial plates extending from the lower to the upper members and projecting outwardly from said rods to 40 said casing, and segmental peripherally disposed plates lying against said outer casing and setting loosely between the outer margins of said radial plates, substantially as and for the purposes set forth. 45

2. A centrifugal apparatus comprising in combination, a rotatable outer casing, a frame structure disposed therein to rotate therewith and comprising upright members, radially disposed plates extending outwardly 50 therefrom to the casing, and segmental plates disposed loosely between the outer margins of said radial plates and against said casing.

In testimony whereof I have hereunto set 55 my hand in the presence of two witnesses.

WILLIAM JOHN GEE.

Witnesses:

FRANK WM. JONES,
GEO. J. B. FRANKLIN.

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