No. 750,080. PATENTED JAN. 19, 1904.

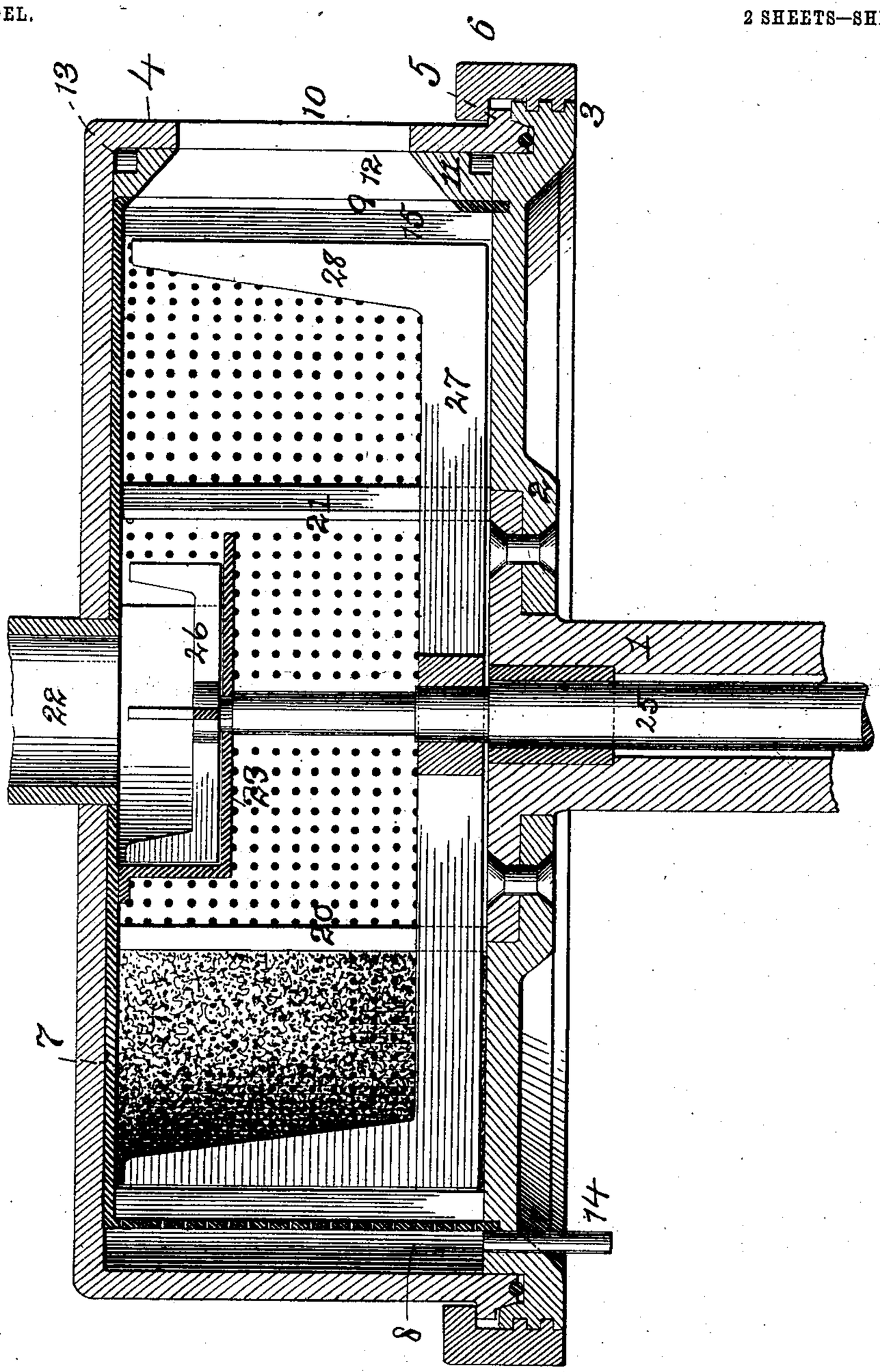
J. J. BERRIGAN.

CENTRIFUGAL MACHINE.

APPLICATION FILED JUNE 20, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

Gustave Dieterich

Edwin H. Dieterich.

INVENTOR

John J. Berrigan

BY Carl Berrigan

his ATTORNEY

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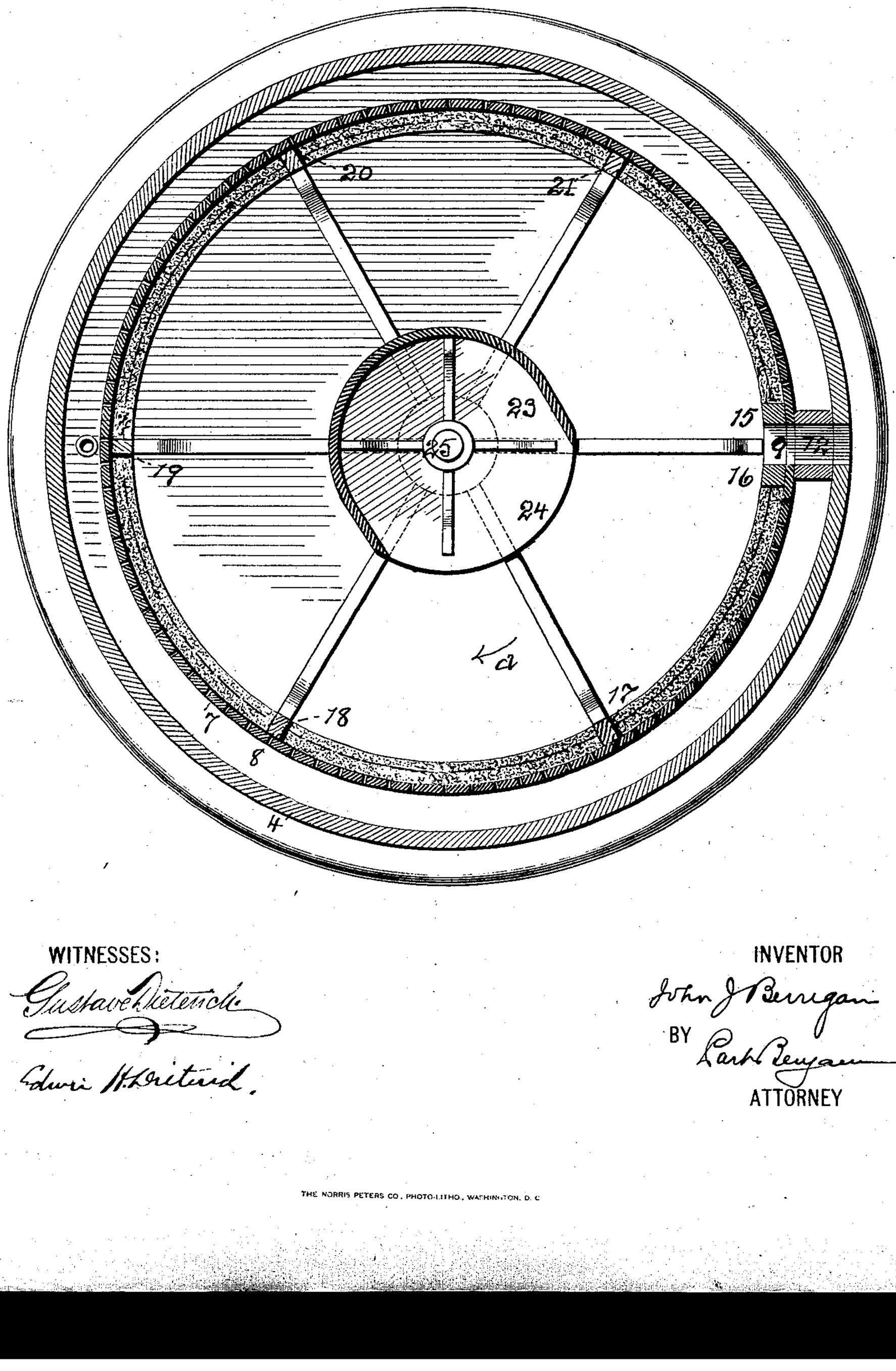
NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2.



WITNESSES:

Gustave Kieterich

Edwin H. Whitehead.

INVENTOR

John J. Berrigan

BY Carl Benjamin.

ATTORNEY

No. 750,080. Patented January 19, 1904.

UNITED STATES PATENT OFFICE.

JOHN JOSEPH BERRIGAN, OF EAST ORANGE, NEW JERSEY.

CENTRIFUGAL MACHINE.

SPECIFICATION forming part of Letters Patent No. 750,080, dated January 19, 1904.

Application filed June 20, 1903. Serial No. 162,384. (No model.)

To all whom it may concern:

Be it known that I, JOHN JOSEPH BERRIGAN, of East Orange, Essex county, New Jersey, have invented a new and useful Improvement in Centrifugal Machines, of which the following is a specification.

The invention relates to a centrifugal machine for separating solids and liquids, and more particularly to the type of machine disclosed in application, Serial No. 132,875, filed by me November 26, 1902.

The invention consists more particularly in the provision of vertical bars on the inner periphery of a perforated cylindrical chamber within the rotating bowl whereby the solid material projected against said periphery is caused to fill the spaces between said bars level with the surface thereof, so that the liquid within said perforated chamber is caused to pass radially through said material and perforations instead of flowing around the inner surface of said chamber.

In the accompanying drawings, Figure 1 is a vertical section, and Fig. 2 a horizontal section, of the apparatus.

Similar numbers of reference indicate like parts.

1 represents a hollow vertical shaft, which is rotated by any suitable means. 2 is a disk carried by said shaft and provided with a threaded circumference 3. 4 is an inverted bowl seated in said disk and provided with a flange 5. A threaded ring 6, shouldered to bear upon said flange, engages with the thread on the circumference of the disk 2, and in this way the bowl 4 is secured upon said disk. Within the bowl 4 is an inverted cup 7, forming a chamber the walls of which are perforated, as shown. The lower edge of this cup is seated in a recess in the disk 2. The cup 7 is of less diameter than the inverted bowl 4, so that there is an annular space 8 left between them. In the wall of the perforated cup 7 is an opening 9, and in the wall of the bowl 4 is a smaller opening 10. Between openings 9 and 10 is a partition 11, in which is a passage 12, connecting openings 9 and 10. Openings 13 in the partition 11 allow of circulation of water around the annular spaces 8, which water may escape through the pipe 14. Within the perforated cup 7 and against the wall thereof are a number of bars, two of which, 15 16, are disposed on each side of the opening 9, and the others, 17 18 19 20 21, are equally spaced around the cup's inner periphery. Extending through the upper sides of the cup 7 and bowl 4 is a feed-pipe 22, which communicates with the receiving-box 23, secured on the under side of the top of the cup 7, and this box is open at one side, as shown at 24. Passing through the shaft 1 is a shaft 25, which is also rotated by any suitable means and which extends upward through the bottom of the box 23 and carries within said box radial arms 26. Said shaft also carries a number of arms 27, on the extremities of which are vertical scrapers 28. The outer edges of said scrapers 28 extend to the inner surface of the bars 15 16 17, &c.

The operation of the device is as follows: The combined solid and liquid materials to be separated are fed into the machine through the pipe 22, both shafts 1 and 25 being in rotation. The material passes into the feed-box 24, from which by the action of rotation of arms 26 and of the centrifugal force it is projected from the open side against the inner surface of the perforated cup 7 between the bars 16 and 17. The solid material then fills the spaces on the inner periphery of cup 7 which is included between the bars 16 17. The surplus material is then carried by the rotating scrapers 28, which move in the direction of the arrow *a*, Fig. 2, to the spaces between the bars 17 18. When that space in like manner becomes filled, the surplus is then in the same way carried to fill the spaces between bars 18 and 19, and so on until finally the space between the bars 21 and 15 is filled. After all these spaces have thus been filled, as shown in Fig. 2, the material originally projected against the layer included between bars 16 17 is carried around by the scrapers over the surface of the material already deposited in the manner described to the outlet 9, through which outlet and opening 12 in partition 11 and opening 10 in bowl 4 the solid material is projected by the centrifugal force and is collected in any suitable receptacle. It will be obvious that any liquid which

by the action of centrifugal force is thrown against the inner periphery of the perforated cup 7 will, by reason of the presence of the bars 15 to 21, be prevented from flowing around that inner periphery, and hence will be caused to pass through the perforations in the cup 7, and so to the annular space 8 between the cup and bowl 4. Hence there will be a constant escape of liquid from the space 8 through the pipe 14, while at the same time the solid material removed by the scrapers will be projected through the openings 9, 12, and 10.

I claim—

1. In an apparatus for the separation of solids and liquids, a rotary receptacle, a cylindrical chamber therein having a perforated wall and means disposed within said chamber for preventing circulation of liquid around the inner periphery of said wall.

2. In an apparatus for the separation of solids and liquids, a rotary receptacle, a cylindrical chamber therein having a perforated wall and bars on the inner surface of said wall disposed parallel to the axis of rotation of said receptacle.

3. In an apparatus for the separation of solids and liquids, a rotary receptacle, a chamber therein concentric therewith and having a perforated wall and bars on the inner surface of said wall disposed parallel to the axis of rotation of said receptacle; the said receptacle having an opening in its bottom communicating with the space surrounding said chamber.

4. In an apparatus for the separation of solids and liquids a rotary receptacle, a cylindrical perforated partition within the same, a conduit between openings respectively in said partition and said receptacle, means for dividing the inner periphery of said perforated partition into sections adapted to become filled with solid material and means for conveying surplus solid material deposited on the surface of the material in said sections to said conduit.

5. In an apparatus for the separation of solids and liquids a rotary receptacle, a cylindrical perforated partition within the same, a conduit between openings respectively in said partition and said receptacle, means for dividing the inner periphery of said perforated partition into sections adapted to become filled with solid material, and means for conveying surplus solid material deposited on the surface of the material in said sections to said conduit; the said receptacle having an outlet for the escape of liquid located outside of said partition.

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

JOHN JOSEPH BERRIGAN.

Witnesses:

WM. H. SIEGMAN,

I. A. VAN WART.