

No. 728,737.

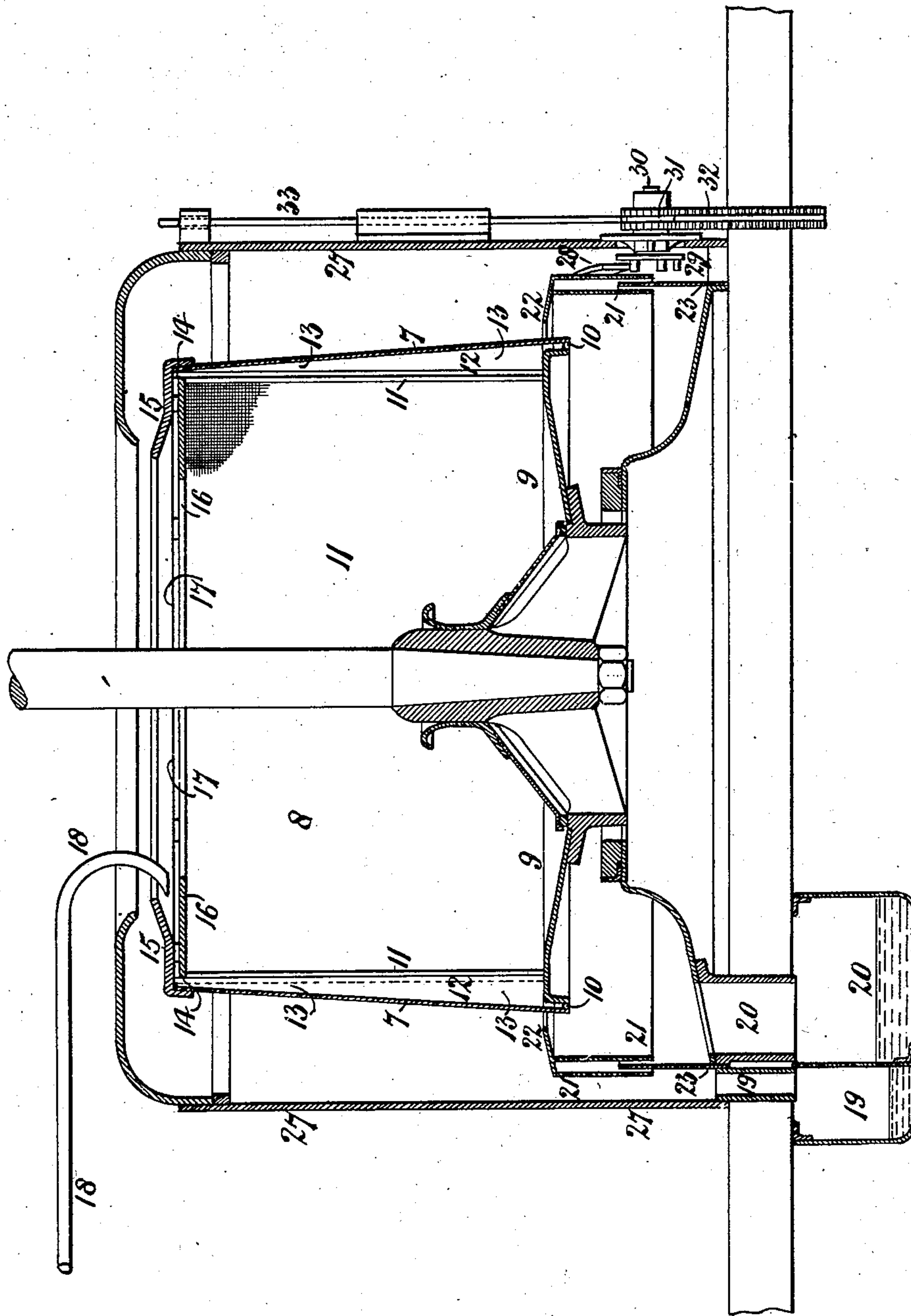
PATENTED MAY 19, 1903.

J. W. MACFARLANE.  
CENTRIFUGAL MACHINE.  
APPLICATION FILED FEB. 25, 1903.

NO MODEL.

4 SHEETS—SHEET 1.

FIG. 1.



WITNESSES:

*P. W. Wright.*

*E. V. Collins*

INVENTOR

JAMES WRIGHT MACFARLANE

BY

*Horton and Horton*

HIS ATTORNEYS.

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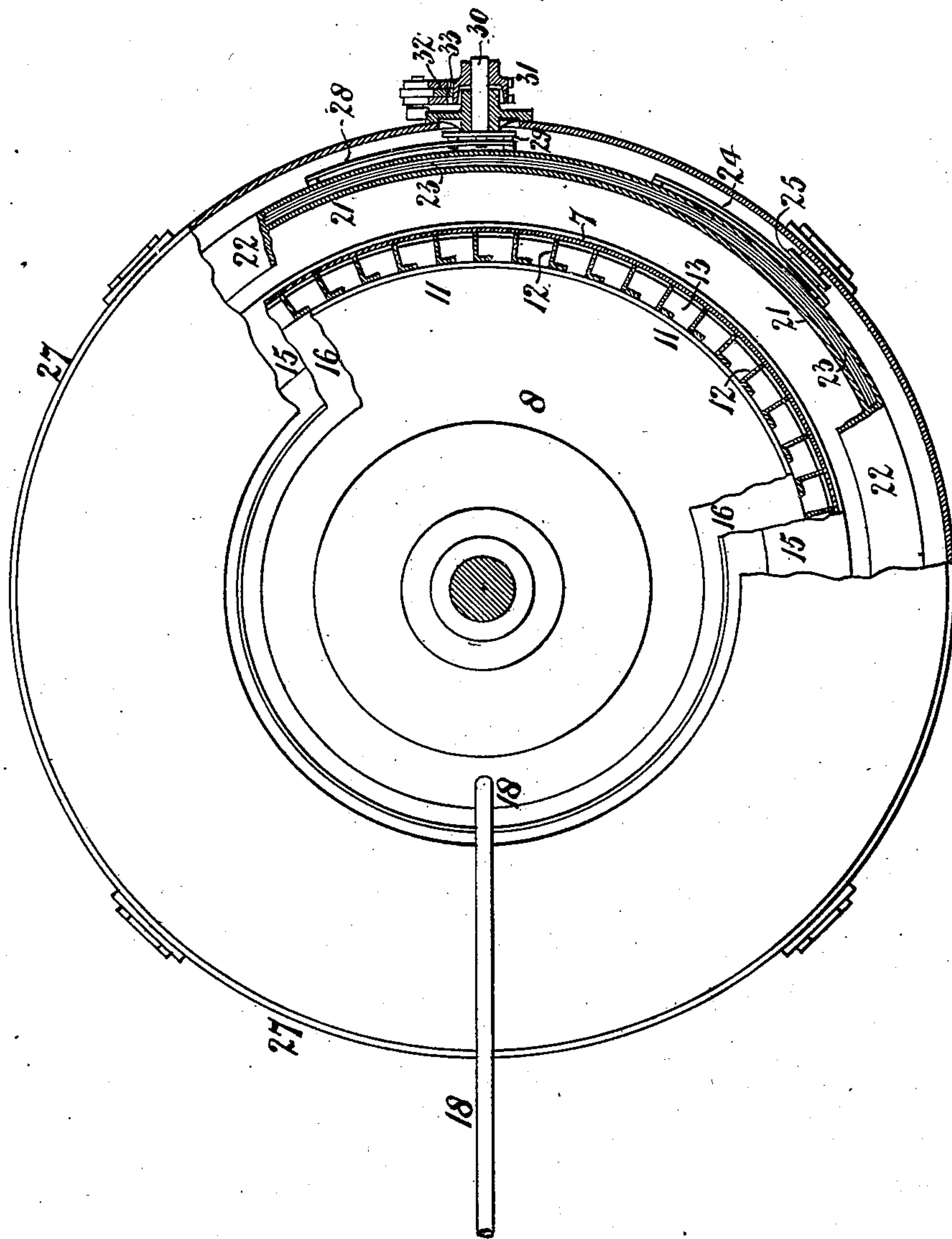
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NO MODEL.

4 SHEETS—SHEET 2.

FIG. 2.



WITNESSES:

*P. W. Wright*

*E. C. Allen*

INVENTOR

JAMES WRIGHT MACFARLANE

BY

*Howden and Howden*  
HIS ATTORNEYS

No. 728,737.

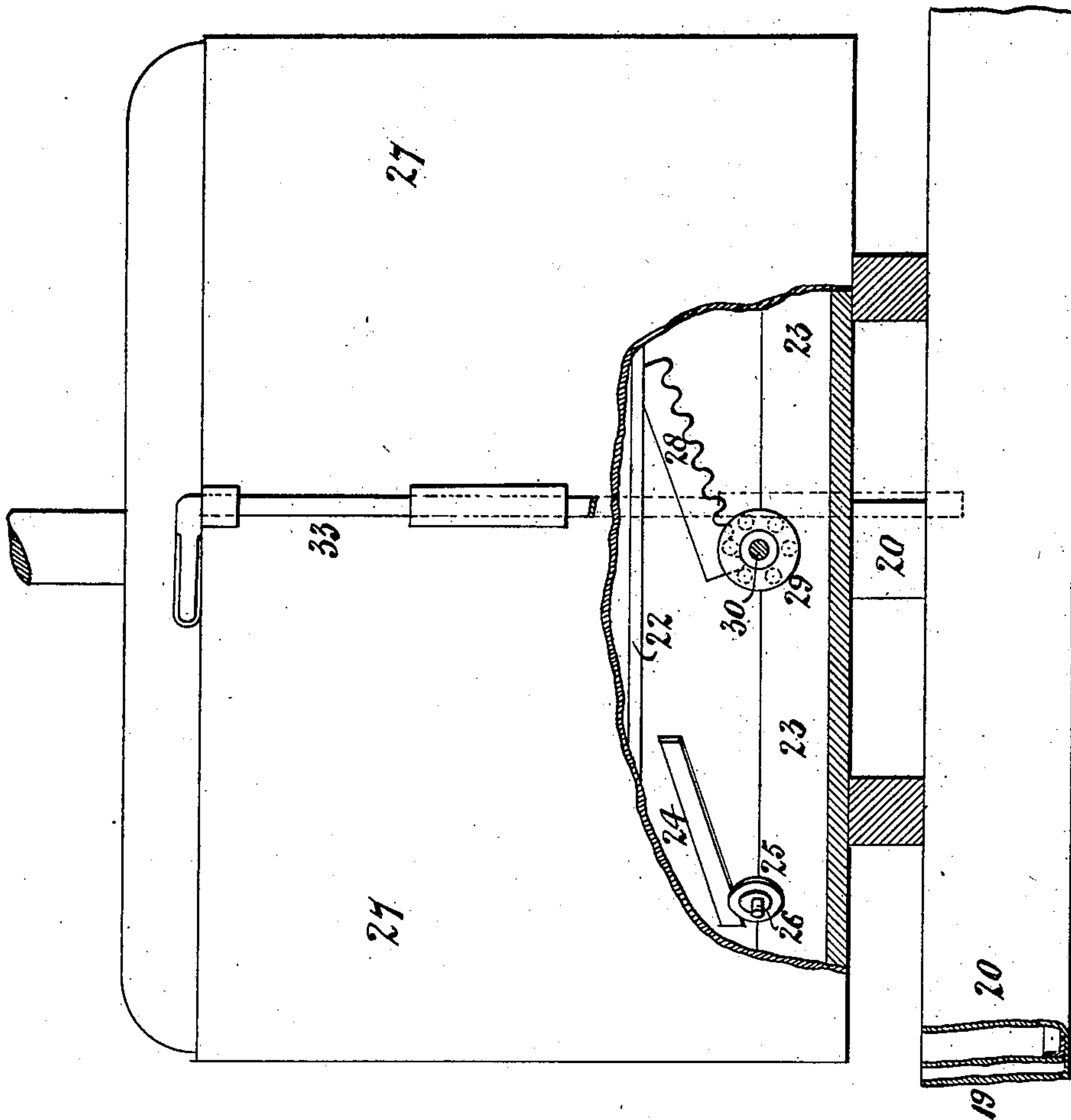
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NO MODEL.

4 SHEETS—SHEET 3.

FIG. 3.



WITNESSES:  
*P. W. Wright.*  
*E. W. Collins*

INVENTOR  
JAMES WRIGHT MACFARLANE  
BY  
*Howton and Howton*  
HIS ATTORNEYS







# UNITED STATES PATENT OFFICE.

JAMES WRIGHT MACFARLANE, OF KINGSTON, SCOTLAND.

## CENTRIFUGAL MACHINE.

SPECIFICATION forming part of Letters Patent No. 728,737, dated May 19, 1903.

Application filed February 25, 1903. Serial No. 144,954. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES WRIGHT MACFARLANE, a subject of the King of Great Britain and Ireland, and a resident of Kingston, in the county of Glasgow, Scotland, (whose postal address is 98 Dundas street, Kingston, Glasgow, Scotland,) have invented certain new and useful Improvements in Centrifugal Machines, (for which I have applied for a British patent, No. 26,716, dated December 4, 1902,) of which the following is a specification.

My invention has for its object to improve the construction and action of centrifugal machines so as to obtain a better classification or separation of the syrups, liquors, and washings which are discharged from the centrifugal machine during the operations of purging, liquoring, washing, or steaming of sugar and similar granular substances.

My improvements are shown on four accompanying sheets of explanatory drawings, to be hereinafter referred to, in which drawings—

Figure 1 is a vertical section, Fig. 2 a sectional plan, and Fig. 3 an elevation, partly in section, at right angles to Fig. 1, showing a centrifugal machine as made according to one modification of my improvements. Figs. 4, 5, and 6 are partial sectional elevations showing variations in certain details.

In carrying out my invention according to the modification shown in Figs. 1 to 3 the shell 7 of the basket 8 is coned, though it might be made cylindrical, and it is constructed without the usual perforations. The bottom 9 of the basket is attached by riveting or otherwise at intervals to this shell, and the effluent liquor is permitted to escape only through suitable openings 10, formed, preferably, at the bottom, as shown, though these openings might be at the top of the basket 8 or in any other plane at right angles to the axis of the machine between the bottom and top of the basket as circumstances determine. These openings 10 thus form practically a single discharge from the basket. Instead of placing the usual perforated linings 11, which act as strainers or sieves, close against the inner surface of the shell 7 of the basket 8 they are supported at a distance therefrom, as shown, by means of angle-bars

12 or the like, so that an annular space 13 is left between the linings 11 and the basket-shell 7, the discharge 10, hereinbefore described, leading from this annular space 13. The shell 7 of the basket 8 carries the load, and since it is unperforated it is of considerably greater strength than a perforated shell of the same weight would be and is thus better able to carry the load. An annular opening 14 is also formed around the top of the annular space 13 between the linings 11 and the shell 7, and a cover-piece 15, secured to the shell and flanged inward and upward over this opening 14 and over the top part 16 of the basket, forms a chamber 17, which communicates by the opening 14 with the annular space 13 between the shell 7 and linings 11, but not with the inside of the chamber 8, where the materials being operated upon are contained. An injector or nozzle 18, of any suitable known form, projects into this circular chamber 17, and by means of this injector water, liquor, or steam or any mixture of any of these can be injected into the circular chamber 17 and through the opening 14 into the annular space 13, and so wash away or dissolve any remaining liquid or small grains which have passed through the linings 11 and which the centrifugal force has not been sufficient to completely discharge from the interior of the basket-shell 7, thus providing a ready means of cleaning and preventing possible choking up of the discharge 10 and linings 11.

To collect the separate washings as they escape from the basket 8 and direct them into one or other of the gutters 19 20, by means of which they can be led away in any desired manner, there is provided a cylindrical screen, which consists, preferably, of two annular plates 21, joined together at their upper edges by an inwardly-projecting lip 22, the plates being concentric with and one on each side of a fixed annular plate 23, extending up from the bottom of the casing. The screen 21 is of greater diameter than the basket 8 and is capable of being raised or lowered, as herein-after described, so that the effluent from the basket will be caught and conducted into one or other of the gutters 19 or 20, provided for the purpose, according to the position of the inwardly-projecting lip 22 of the screen 21.



relatively to the position of the discharge 10, provided for the escape of the effluent from the basket 8. To actuate the screen, there is fixed on its outer side a series of inclines or helices 24. These inclines bear on rollers 25, carried on studs 26, secured in the fixed outer casing 27, or, as shown in Fig. 5, the inclines 24 are stationary, being formed on the fixed annular plate 23, and the rollers 25 are carried by the screen 21. When the screen 21 is rotated, as hereinafter described, it is raised or lowered by the action of the inclines 24 and the rollers 25. To rotate the screen 21, there is fixed to it an incline rack 28, which gears, preferably, with a crown-wheel 29, as shown, or it might be a pinion. The crown-wheel 29 is carried by a stud 30, secured in the casing 27, and is driven by a pinion 31 on it, gearing with a rack 32 on a handled shaft 33, movable on end, or, as shown in Fig. 4, the crown-wheel 29 may be driven by bevel-gearing 34 from a shaft 35, turning in bearings 36, secured to the casing 27, or, according to the arrangement shown in Fig. 5, the crown-wheel and rack may be dispensed with, in which case a handle 37, attached to the screen 21 and projecting through an opening of suitable length in the casing 27, is provided, by means of which the screen may be pulled around, or, as shown in Fig. 6, the screen 21 may carry pins 38, engaging in slots 39 in a block 40, rotatable through gearing 41 from an external handle 35. On the screen 21 being rotated by any of these methods described or by equivalent means it is raised or lowered by the action of the inclines 24 and rollers 25, as hereinbefore described.

What I claim as my invention is—

1. In centrifugal machines, a basket having a solid shell, perforated linings supported in

the basket so as to leave an annular space between such linings and the shell, a circular chamber communicating with this annular space, a discharge-opening leading from such space, and injector mechanism connected with the circular chamber, in combination with collecting-gutters and a movable screen for conducting the effluent into one or other of the gutters, substantially as described.

2. In centrifugal machines, a basket having a solid shell, perforated linings supported in the basket so as to leave an annular space between the linings and the shell, a circular chamber communicating with this annular space, and a discharge-orifice leading from this space with means for washing out the annular space and preventing choking of the discharge and linings, substantially as described.

3. In centrifugal machines, the combination with a basket having a discharge-orifice, of collecting-gutters, a cylindrical screen for conducting the effluent into one or other of such gutters, inclines and rollers carrying such screen, an inclined rack on the screen, a handled shaft, and gearing connecting such shaft and the rack, substantially as described.

4. In connection with centrifugal machines having discharge-gutters, cylindrical screens for conducting the effluent into one or other of such gutters, and operating devices which will rotate and at the same time raise or lower such screens, substantially as described.

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

JAMES WRIGHT MACFARLANE.

Witnesses:

GEORGE PATTERSON,  
DAVID FERGUSON.