

No. 726,948.

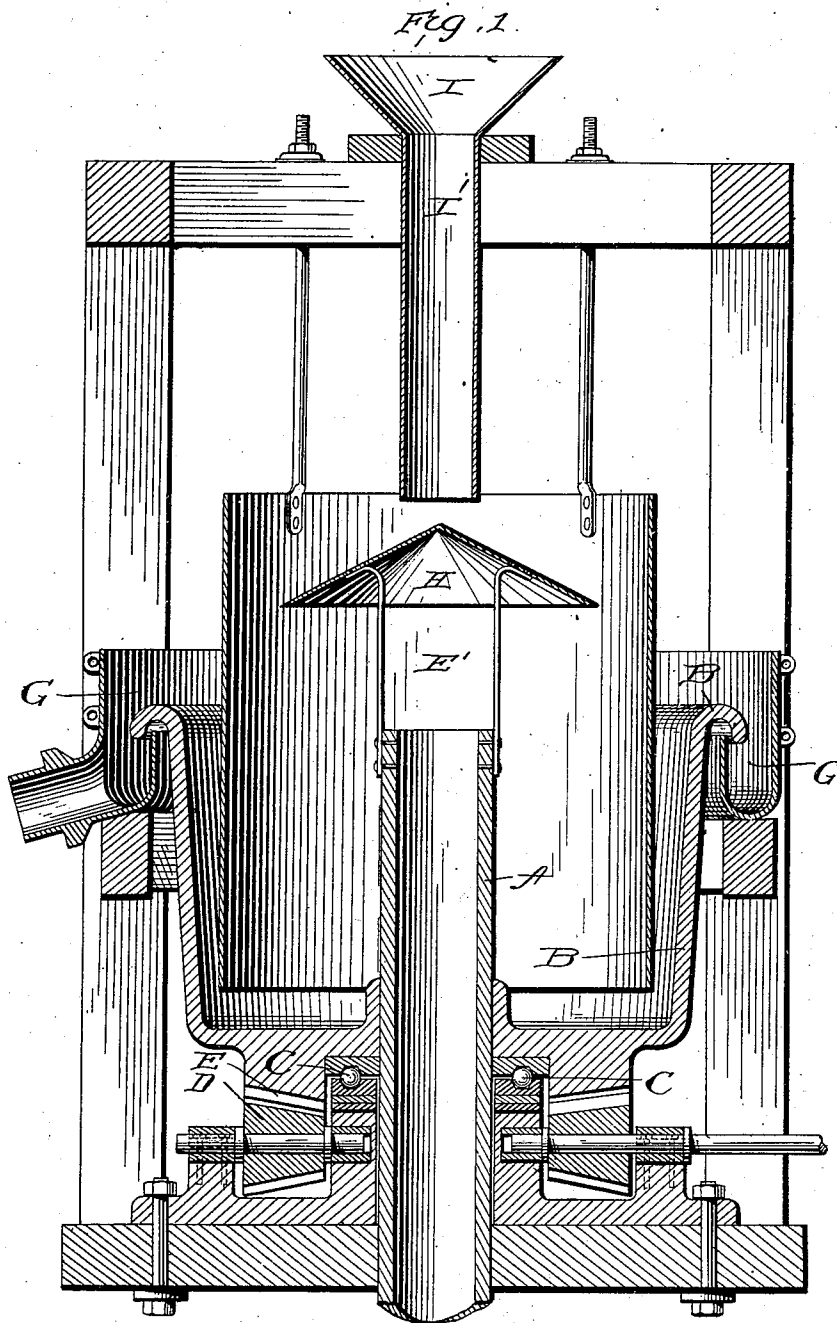
PATENTED MAY 5, 1903.

G. LAND.
CENTRIFUGAL ORE SEPARATOR.

APPLICATION FILED MAR. 26, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
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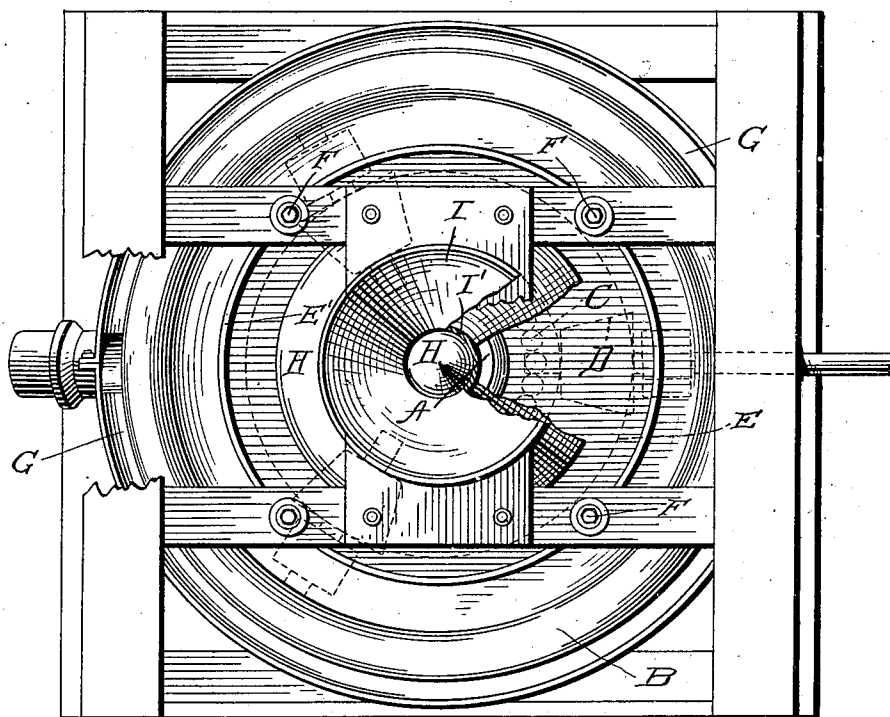
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NO MODEL.

2 SHEETS—SHEET 2.

Fig. 2.



Attest:
Commodore
James M. Flier

Inventor
Gordon Land,
By Miss Spear
Att.

UNITED STATES PATENT OFFICE.

GORDON LAND, OF DENVER, COLORADO, ASSIGNOR TO O. H. P. BAXTER
AND W. F. OAKES.

CENTRIFUGAL ORE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 726,948, dated May 5, 1903.

Application filed March 26, 1902. Serial No. 100,074. (No model.)

To all whom it may concern:

Be it known that I, GORDON LAND, a citizen of the United States, residing at Denver, Colorado, have invented certain new and useful
5 Improvements in Centrifugal Ore-Separators, of which the following is a specification.

My invention relates to improvements in centrifugal ore-separators.

The object of the invention is to provide a
10 better means of separating the light or suspended matter from the heavy particles as they pass in transit mixed with water or other fluid from the operation of milling or sluicing to the dump or waste. As is well known,
15 the values passing away in the form of slimes is practically lost in the methods generally employed for metalliferous ore separation.

It is my purpose in devising the present improvements to seek to obtain only a single
20 separation in the operation of my machine.

I have illustrated the invention in the accompanying drawings, in which—

Figure 1 is a central vertical section, and Fig. 2 a plan view with parts broken away.

25 In the drawings, A indicates a vertical stand-pipe, which is rigidly connected to and forms the axis of rotation of a rotary bowl B. The bowl is mounted upon an antifriction-bearing C and is driven by gears D, engaging a circular rack E on the bottom of the
30 bowl, the gears being driven in any suitable manner. The pipe A forms the discharge-pipe for the waste material, as hereinafter specified, and extends downward through the bearing, from which point the material discharged may be led to waste in any suitable
35 manner. The upper end of the pipe A, as will be seen, is located slightly below the upper edge or rim of the bowl. This pipe or tube A is of suitable size to permit of the
40 free passage of all of the water and slimes that are separated by centrifugal action during the rotating of the bowl. The heavy material is thrown outward by centrifugal
45 force and is intercepted in its departure from the center by a vertical cylindrical wall E', preferably of steel, which is arranged pendent and held in place by suitable adjusting-rods F, which provide a means of raising the
50 annular intercepting wall above the bottom of the revolving bowl a sufficient distance to

allow the mass of moving particles (which, driven by centrifugal force, have filled the space within this circular wall) to escape below the outer space of the larger rotating
55 bowl, where by further and constant centrifugal action it is carried away into the circular trough G provided to receive it. As it is well known that the center of a liquid mass in circular motion is always depressed and the
60 outer mass raised higher, I have placed my outlet-pipe in the center of action, so as to permit of the escape of the lighter material near the point of least motion. This affords an almost perfect means of producing a single
65 separation of the lighter material from the heavy, the latter being by centrifugal force carried away from the center and against the intercepting wall, from whence it finds, partly by gravity and partly by rotary force, an outlet
70 below to the larger area of the rotating bowl and finally into the waste-trough. The separation produced by this action does not contemplate the saving of any but the very light suspended matter and floating slimes. When
75 it is desirable to save values found in the heavy material, other means should be employed to operate in conjunction therewith.

A circular depressed cone-shaped hood H is provided for the top of the outlet stand-
80 pipe, which is attached thereto and is made to rotate with it and serves as a means of separating the pulp as it enters the rotating bowl from above. This is of service in scattering the mass and in freeing the contained
85 slimes as they reach the surface, where further centrifugal action separates the heavy from the light. The slimes, &c., are fed through funnel I and pipe I'.

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

1. In an ore-separator, a rotating bowl, a central supply-pipe for the ore to be separated, a centrally-arranged outlet-pipe for
95 the valuable slimes depending through the bottom of said bowl, and an intercepting suspended cylindrical wall interposed between the central discharge and the outer bowl and serving as a means of deflecting the heavy
100 material to its escape-outlet at the surface of the rotating bowl, substantially as described.

2. In an ore-separator, a rotating bowl having an axially-arranged discharge-pipe for valuable slimes depending through the bottom of said bowl and rotating therewith, a
5 deflecting-hood secured to the upper end of said discharge-pipe, an annular deflector encircling said hood and slime-outlet pipe and terminating above the bottom of the bowl, and an ore-inlet pipe above the hood and in

line with said outlet-pipe, substantially as is described.

In testimony whereof I affix my signature in presence of two witnesses.

GORDON LAND.

Witnesses:

HARRY E. BRIGGS,
JAMES O. PARISH.