

(No Model.)

O. B. PECK.
MACHINERY FOR CENTRIFUGALLY TREATING PARTICLES OF METALLIC
OR MINERAL BEARING SUBSTANCES OF DIFFERENT DEGREES OF
SPECIFIC GRAVITY.

No. 444,619.

Patented Jan. 13, 1891.

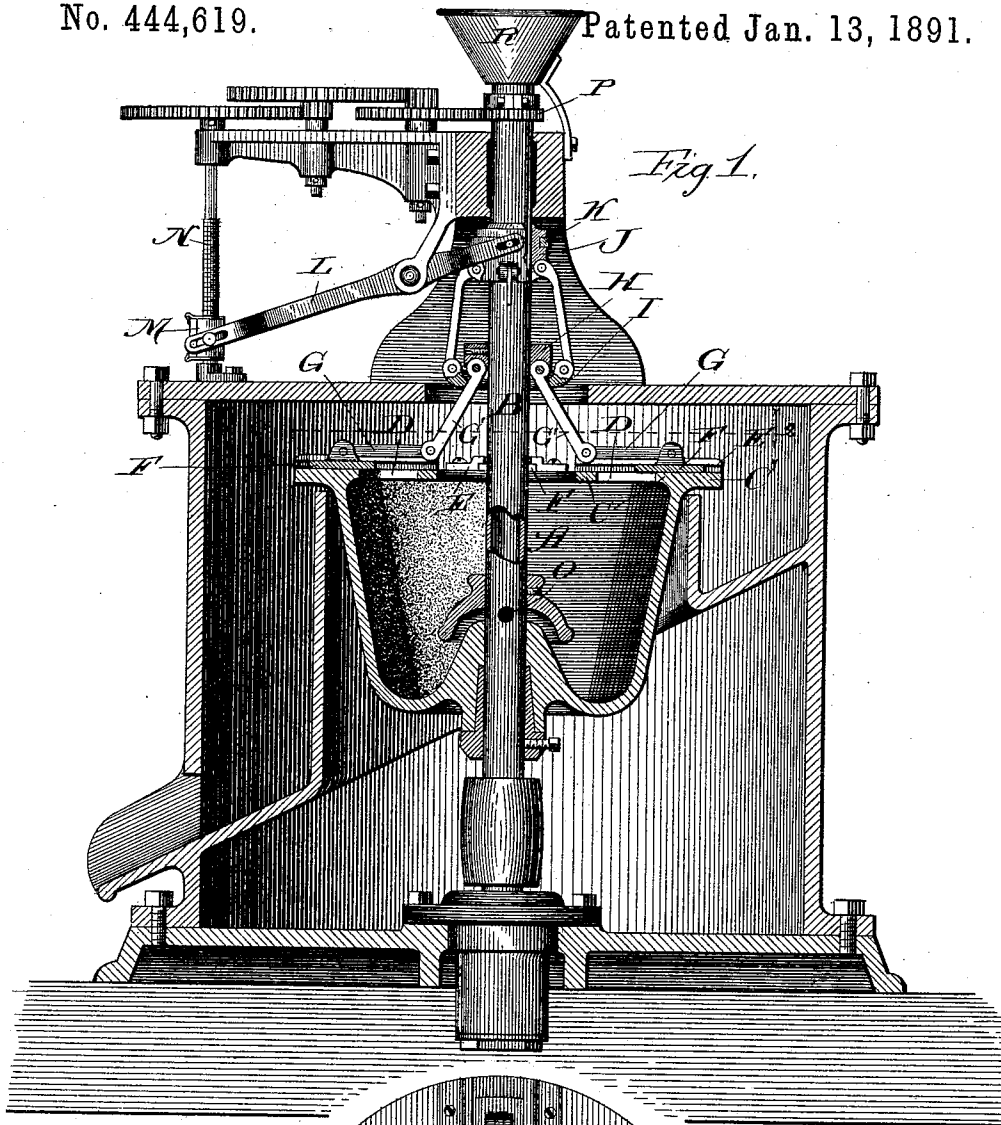
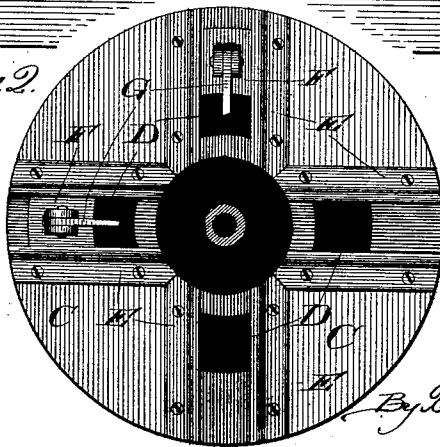


Fig. 2.



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MACHINERY FOR CENTRIFUGALLY TREATING PARTICLES OF METALLIC OR MINERAL-BEARING SUBSTANCES
OF DIFFERENT DEGREES OF SPECIFIC GRAVITY.

SPECIFICATION forming part of Letters Patent No. 444,619, dated January 13, 1891.

Application filed May 23, 1890. Serial No. 352,912. (No model.)

To all whom it may concern:

Be it known that I, ORRIN B. PECK, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful
5 Improvements in Machinery for Centrifugally Treating Particles of Metallic or Mineral-Bearing Substances of Different Degrees of Specific Gravity, of which the following is a specification.

10 The object of my improvement has more particular reference to means for gradually diminishing the opening through which the material treated is discharged, so that the heavier particles may be retained in the vessel,
15 gradually increasing the accumulated mass until the vessel has become sufficiently filled to be emptied; and my invention consists in the features and details of construction hereinafter described and claimed.

20 In the drawings, Figure 1 represents a side elevation, partly in section, of my improved machinery; and Fig. 2 represents a plan view of the revoluble vessel.

If fine or powdery material be introduced
25 into a vessel run at a high rate of speed, the particles will be thrown outward by centrifugal force and assume a position around the sides of the vessel, forming a wall nearly vertical to the point of the discharge opening or passage farthest from the center, and if this point
30 in the discharge opening or passage is not changed or varied when more material is introduced the particles will be carried up the wall of accumulating material and passed
35 through the openings and be discharged from the vessel. If, however, the farthest point of the discharge-openings be gradually brought nearer the center or axis of rotation, there will be permitted to gradually accumulate in
40 the vessel additional material, thickening the wall already accumulated in the proportion that the openings are closed.

In making the improvements hereinafter described I make a revoluble vessel A of the
45 desired size and form and support it on a revoluble shaft B, by which it may be rotated at the desired speed. The revoluble vessel is partially closed by preferably an inwardly-extending flange C, which may be made integrally with the vessel or afterward attached

to it in any suitable manner. The flange C is provided with openings D, preferably four in number, and at the sides of such openings are arranged guides E, adapted to guide the covering-plates from the edge toward the center. The covering-plates F are arranged in
55 the guides E so that they can be moved back and forth in or out along them. As they are moved in, their edges will extend over the discharge-openings D, so as to diminish or
60 cover them to the extent that the plates overlap. By gradually moving these plates in, therefore, the outer edge of the opening through which the lighter portion of the material treated is discharged is gradually moved
65 toward the center of the vessel, permitting the heavier particles to gradually accumulate around the sides in the vessel and to be retained therein. To move these covering-plates in slowly and gradually and at a uniform rate, I pivot on them links G and G',
70 which are so pivoted together as to form an elbow or joint between the links. The upper ends of the links G' are pivotally connected to a collar H around the revoluble shaft B,
75 fixed as to its vertical position. A ring or collar I is arranged outside of the links G', encircling them near their upper end and adapted to be moved up or down, as hereinafter described. As it moves down, the links G' are
80 forced more and more into a vertical position alongside of the shaft B. This draws the covering-plates in and covers more and more of the discharge-openings of the vessel. To
85 gradually force the collar I down, so as to gradually diminish the discharge-openings of the vessel, I connect it by links with another collar J, capable of being moved up and down on the shaft B. As the revoluble vessel rotates it will be understood, of course, that the
90 collars H, I, and J, together with their links, rotate with it. In a channel of the collar J, however, is arranged another collar K, which does not rotate, and which is connected by pins to lever L, suitably fulcrumed. The
95 outer end of this lever is connected by a pin to a nut M on a threaded rod N. The upper end of the shaft B is provided with a pinion P, which meshes or engages with a train of gear-wheels suitably speeded to rotate the
100

threaded rod N at a slow rate of speed. As the rod N is rotated the nut M is gradually raised and the end of the lever connected to the collar K lowered. This carries the collars 5 J and I down to the same extent that it is lowered and at the same rate of speed. This gradually forces the covering-plates F in toward the center of the machine through the connection of the links G and G', above explained. 10

It is to be understood that at the beginning of the operation the nut M is to be at the bottom of the rod N and at its top at the end of the run, and that before beginning a succeeding operation it is to be restored to its initial position. As the links and other parts would interfere with the introduction of the material to be treated, I make the upper portion of the shaft B hollow and provide it with a 20 hopper R and introduce the material through it and on into the revoluble vessel by means of the openings O. As it is obvious that other means could be employed to diminish the discharge-openings of the vessel, I do not desire 25 to limit myself strictly to the details of construction described and shown above, but shall claim, broadly, a revoluble vessel in which the material is centrifugally treated,

the discharge-openings of which may be gradually diminished to permit an increasing 30 accumulation of material treated around its sides.

What I regard as new, and desire to secure by Letters Patent, is—

1. In machinery for centrifugally treating 35 particles of metallic or mineral-bearing substances of different degrees of specific gravity, the combination of a revoluble vessel having discharge-openings, means for gradually and automatically moving the points of discharge toward the axis of rotation of the vessel, and means for rotating the vessel, substantially as described. 40

2. In machinery for centrifugally treating 45 particles of metallic or mineral-bearing substances of different degrees of specific gravity, the combination of a revoluble vessel having discharge-openings, means for gradually and automatically diminishing the discharge-openings from their outer sides toward the 50 axis of rotation of the vessel, and means for rotating the vessel, substantially as described.

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Witnesses:

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