

(No Model.)

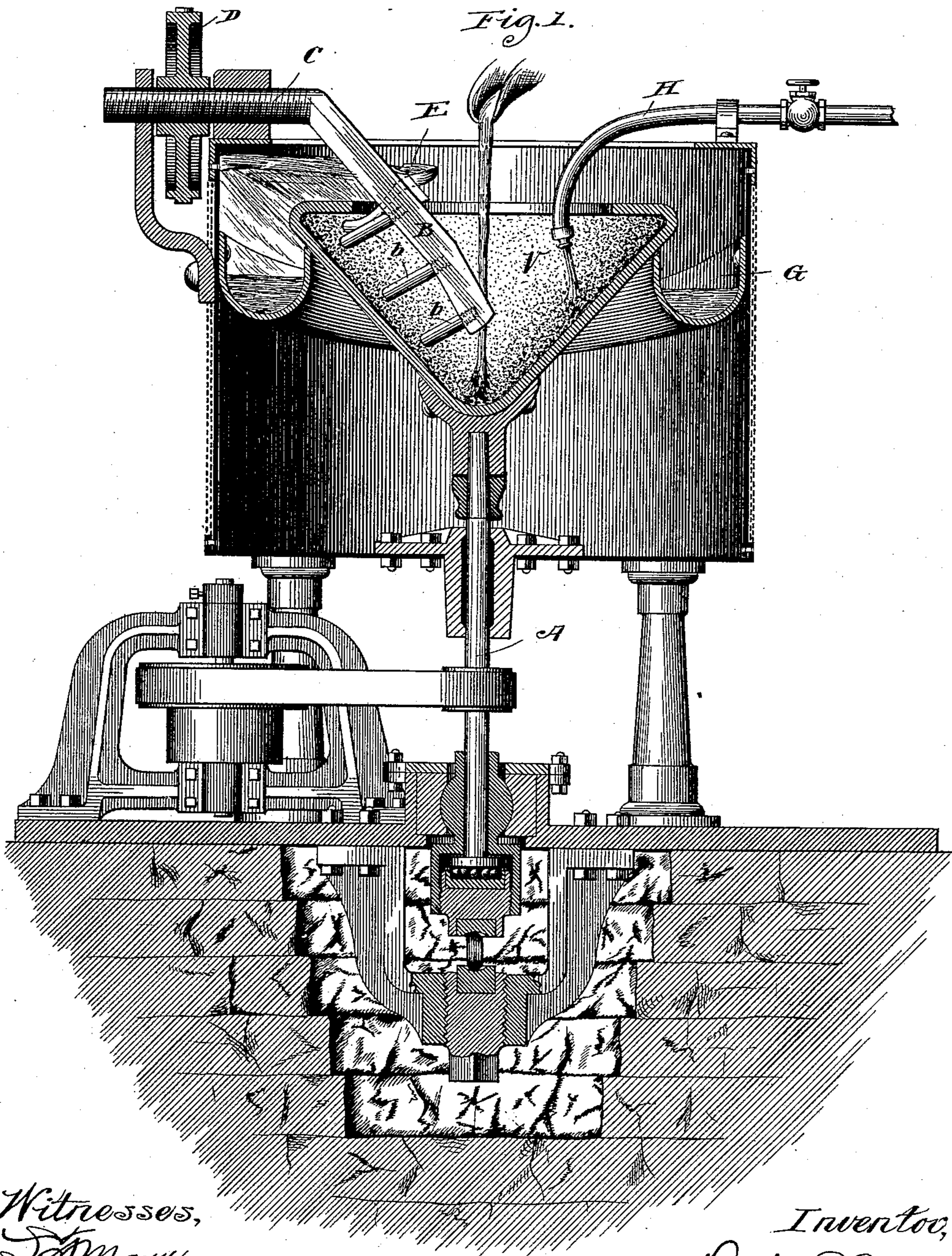
2 Sheets—Sheet 1.

O. B. PECK.

APPARATUS FOR SEPARATING PARTICLES OF METALLIC OR MINERAL  
BEARING SUBSTANCES OF DIFFERENT SPECIFIC GRAVITY.

No. 444,613.

Patented Jan. 13, 1891.



Witnesses,  
J. Mann,  
Martin Olsen

Inventor,  
O. B. Peck  
By, Banning & Banning & Payson  
Attys.

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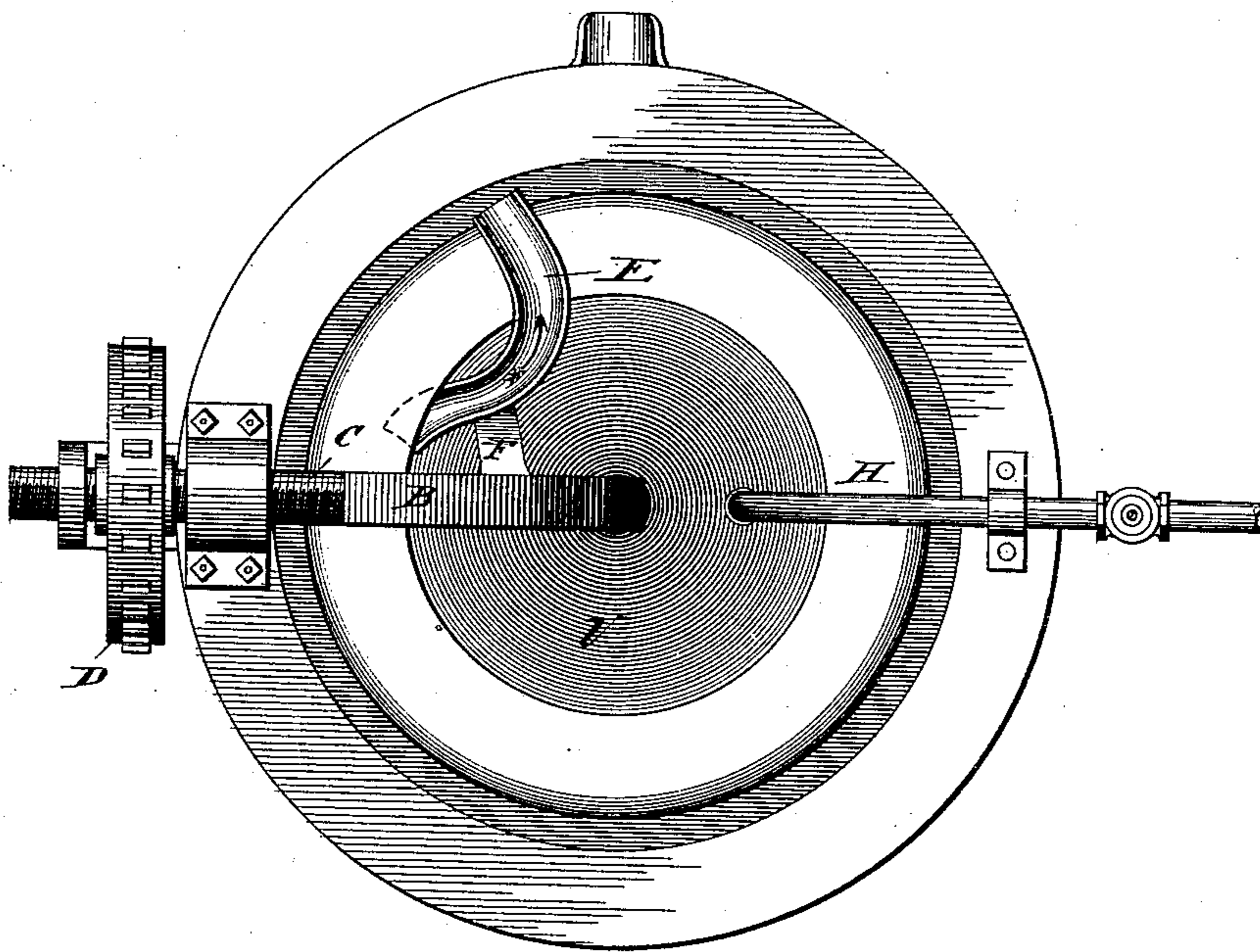
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*Fig. 2.*



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# UNITED STATES PATENT OFFICE.

ORRIN B. PECK, OF CHICAGO, ILLINOIS, ASSIGNOR TO MELINDA PECK, OF  
SAME PLACE.

APPARATUS FOR SEPARATING PARTICLES OF METALLIC OR MINERAL-BEARING SUBSTANCES OF DIFFERENT  
SPECIFIC GRAVITY.

SPECIFICATION forming part of Letters Patent No. 444,613, dated January 13, 1891.

Application filed May 10, 1889. Serial No. 310,274. (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, Illi-  
nois, have invented certain new and useful  
5 Improvements in Apparatus for Separating  
Particles of Metallic or Mineral-Bearing Sub-  
stances of Different Degrees of Specific Grav-  
ity, of which the following is a specification.

The object of my invention is to make an  
10 apparatus for use in separating the particles  
of different metallic or metal-bearing sub-  
stances either from each other or from the  
materials or ores with which they may be com-  
bined where the particles are of different spe-  
15 cific gravities and without first reducing such  
substances to a molten condition; and my in-  
vention consists in the features and details  
of construction hereinafter described and  
claimed.

20 In the drawings, Figure 1 shows a trans-  
verse vertical section of my improved appa-  
ratus, and Fig. 2 shows a plan view of the  
same.

In making the receiving-vessel as I prefer  
25 to make it the walls flare or slant outwardly  
from the bottom toward the top. The top is  
provided with a rim or cover which extends  
out a short distance from the sides, so as to  
catch the material under the same. The bal-  
30 ance of the top of the receiving-vessel is left  
open.

The material intended to be treated in the  
receiving-vessel consists of ores or metal-  
bearing substances reduced to a fine or pow-  
35 dery condition, so as to consist of very minute  
particles.

To prevent the material treated from pack-  
ing or caking against the sides of the receiv-  
ing-vessel, I provide a stirrer or agitator B,  
40 having an arm C, preferably screw-threaded  
and passing through suitable bearings and  
through the screw-threaded hub of a sprocket-  
wheel D, which is intended to be rotated by  
a sprocket-chain or other suitable means.

45 By the rotation of the sprocket-wheel slowly  
in one direction or the other the agitator or  
stirrer can be adjusted in or out from or to-  
ward the walls of the receiving-vessel. I pre-  
fer also to provide the agitator or stirrer with

small pins or fingers *b*, screwed into its side 50  
next to the walls of the receiving-vessel.  
Where they are screwed in they may be easily  
removed as they become worn and new ones  
inserted in their places. These pins or fin-  
55 gers extending toward the walls of the re-  
ceiving-vessel serve to stir and agitate the  
material as it settles against the same, and  
thus keep it constantly in a condition adapted  
to the movement of the heavier particles  
60 through the material toward the outside as  
driven by centrifugal force. By adjusting  
the parts in a proper way the fingers *b* may  
be gradually carried out from the walls or  
sides of the receiving-vessel, permitting an  
65 accumulating thickness of the heavier parti-  
cles of the material treated to be retained or  
held by centrifugal force against the sides or  
walls of the receiving-vessel.

In order to remove the lighter particles of  
the material treated, instead of permitting 70  
them to fly off at a tangent at the top, I pre-  
fer to employ a cutter or scoop E, adjustable  
with the agitator or stirrer toward or from the  
walls of the receiving-vessel, so that as the  
fingers of the stirrer permit a thicker bed of 75  
material to settle against the sides of the re-  
ceiving-vessel the cutter or scoop will also  
permit the same by moving away from the  
walls at the same rate that the stirrer or agi-  
tator moves. To secure this end I prefer to 80  
arrange the cutter or scoop on an arm F of the  
agitator or stirrer, so that it will be adjust-  
able by the same means that are used to ad-  
just the agitator or stirrer. Of course the  
cutter or scoop might be adjusted on inde- 85  
pendent means, although I prefer to use one  
means of adjustment for both. The opera-  
tive end of the cutter or scoop is arranged at  
an angle with the sides of the receiving-ves-  
90 sel and opens against the direction of rota-  
tion, so that as the material is carried around  
with the receiving-vessel the particles re-  
volving at the proper distance from the sides  
will be caught by the cutter or scoop and car-  
ried through the same to be deposited in an 95  
annular trough G or any other suitable re-  
ceptacle that may be provided.

As in some cases it is desirable to wash or

dilute the material treated with water while  
in the revolving receiving-vessel, I provide a  
pipe H, that is connected with a tank or other  
water-supply, so that by opening a cock wa-  
5 ter may be admitted into the receiving-ves-  
sel. I prefer to direct the end of the pipe H  
toward one of the sides of the receiving-ves-  
sel, so that as the water rushes out of the  
same it will strike against the side of the ves-  
10 sel at an angle, so as to exert a stirring or  
agitating effect, as well as to dilute and wash  
the material treated.

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

15 In an apparatus for separating particles of  
different degrees of specific gravity contained  
in metallic or metal-bearing substances, the  
combination of a revoluble receiving-vessel  
adapted to receive the material to be treated

while in a fine or powdery condition, having 20  
its sides or walls flaring or increasing in hori-  
zontal diameter from the bottom to the top, a  
stirrer or agitator arranged in the receiving-  
vessel, but non-rotatable therewith and ad- 25  
justable toward or from its sides or walls, a  
cutter or scoop arranged in the receiving-ves-  
sel, but non-rotatable therewith, with its op-  
erative or open end against the direction of  
rotation and adjustable toward or from its 30  
sides or walls, a revoluble actuating-shaft ro-  
tating said vessel as it revolves, and means for  
rotating the actuating-shaft, substantially as  
described.

ORRIN B. PECK.

Witnesses:

THOMAS A. BANNING,  
SAMUEL E. HIBBEN.