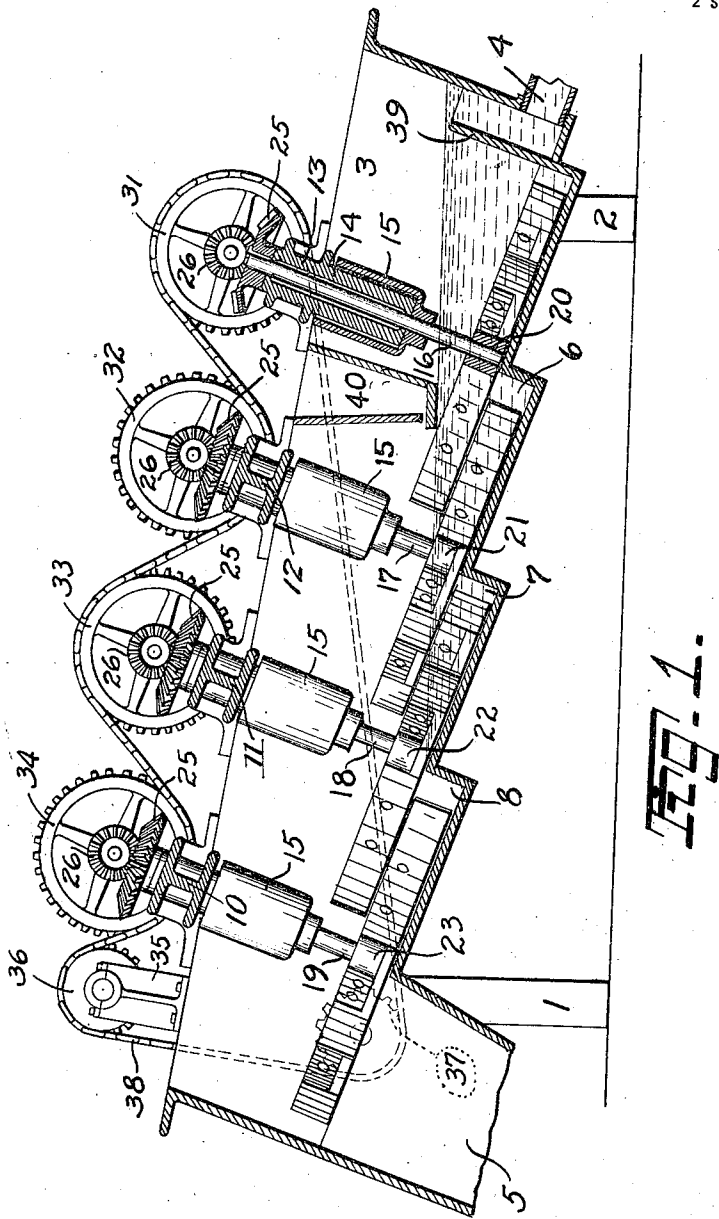


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ORE CLASSIFIER.
APPLICATION FILED MAR. 16, 1915.

Patented Apr. 11, 1916.
2 SHEETS—SHEET 1.



WITNESSES:
Albert R. Brown
A. H. Kephart

INVENTOR.
WILLIAM W. GUEST.
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Charles P. Griffin
ATTORNEY.

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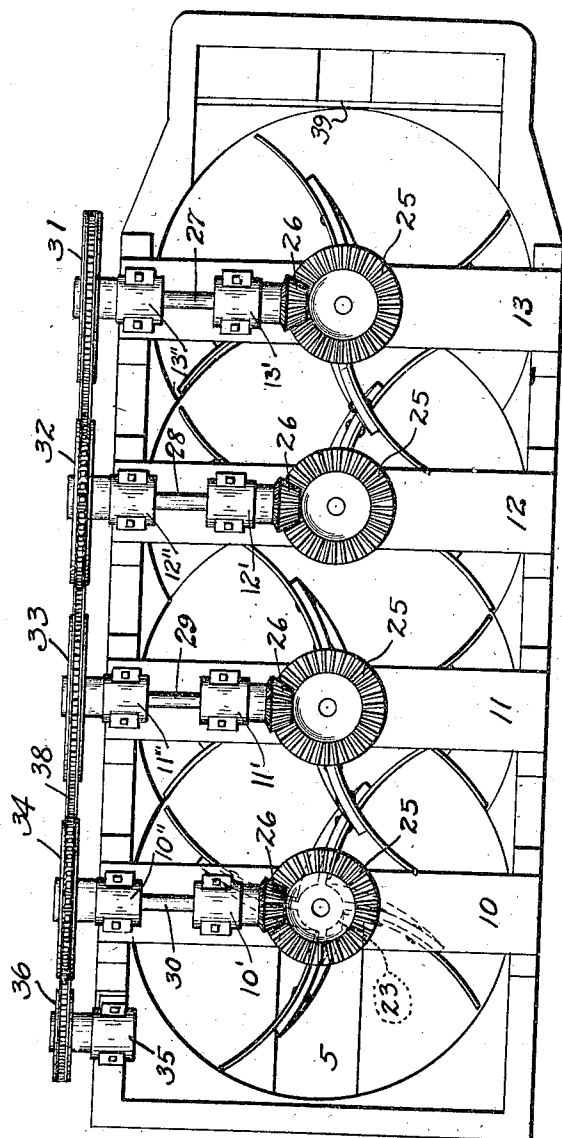


Fig. 2.

WITNESSES:

Albert R. Brown
A. H. Kephart

INVENTOR.

WILLIAM W. GUEST.

BY

Charles P. Griffin

ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM W. GUEST, OF ALAMEDA, CALIFORNIA, ASSIGNOR TO THE ECLA MINING CORPORATION, A CORPORATION OF ARIZONA.

ORE-CLASSIFIER.

1,178,640.

Specification of Letters Patent.

Patented Apr. 11, 1916.

Application filed March 16, 1915. Serial No. 14,712.

To all whom it may concern:

Be it known that I, WILLIAM W. GUEST, a citizen of the United States, residing at Alameda, in the county of Alameda, State of California, have invented a new and useful Ore-Classifier, of which the following is a specification in such full and clear terms as will enable those skilled in the art to construct and use the same.

10 This invention relates to a classifier for finely pulverized ores and its object is to produce two grades of material, that is, a slime product and a sand product.

15 An object of the invention is to produce a classifier which will be continuous in action and which will deliver a product at each end thereof as free as possible from the product sought to be eliminated.

20 An embodiment of the invention is shown in the drawing in which the same reference numeral is applied to the same portion throughout, but I am aware that there are many modifications thereof.

25 Figure 1 is a vertical longitudinal sectional view of the classifier, and Fig. 2 is a plan view of the classifier on a plane at right angles to the operating shafts, the feed trough being omitted.

30 The machine is supported by suitable legs 1 and 2 at each side thereof and comprises a trough 3 having a discharge opening 4 at one end for the slime and a discharge chute 5 at the other end for the sand. The bottom of the trough has a plurality of steps 6, 7 and 8 therein, such a number of steps being used as is deemed necessary to effect the given classification.

35 Extending across the top of the classifier are four cross bars 10, 11, 12 and 13, said cross bars having suitable bearing boxes 14 formed integral therewith at the center of the same, each of which bearing boxes is covered by means of a sleeve 15 connected with the several agitator shafts.

40 The agitator shafts 16, 17, 18 and 19 each carries an agitator 20, 21, 22, and 23, each agitator having four blades, the arrangement of the blades on one agitator being reversed from the arrangement on the next adjacent agitator. Each agitator shaft is provided with a horizontal bevel gear 25, while each bevel gear is in mesh with a pinion 26, of which there are four on four shafts 27, 28, 29 and 30. The shafts 27 to 55 30 are each provided with a sprocket wheel

as indicated at 31, 32, 33 and 34. Each cross bar is provided with bearings 10', 10''; 11', 11''; 12', 12'' and 13' and 13'' for the several horizontal shafts.

At the upper end of the tank there is a bearing block 35 for a sprocket wheel 36, while lower down on the side of the tank a sprocket wheel 37 is journaled. The sprocket wheels are all in the same plane and a chain 38 passes over the sprocket wheel 36, under the sprocket wheel 34, over the sprocket wheel 33, under the sprocket wheel 32 and over the sprocket wheel 31, so that each agitator is reversely rotated from the next adjacent agitator. At the lower end of the tank a plate 39 determines the height of the water and thereby determines the product delivered at both ends.

In actual operation the tank is built with such a number of agitators as may be deemed necessary to use on a particular ore to be treated and the angle at which the trough is set also determines the character of the classified product separated from the pulp fed to the tank through the trough 40. As the material is fed into the machine the pulp and ore accumulate in the tank until the water runs over the plate 39, while at the same time the agitators are turned slowly to bring any sand that may accumulate in the machine up the series of steps and ultimately discharge it through the chute 5, the fine slime remaining in suspension being discharged through the discharge opening 4.

60 An advantage of this machine is that the travel of the ore through the machine is considerably increased over the length of the machine, since the ore is worked back and forth by the several agitators, thereby effectively cleaning the sand and removing the slime therefrom.

65 Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States, is as follows, modifications within the scope of the claims being expressly reserved:

1. An ore classifier comprising a stepped tank having a discharge opening at each end thereof, a plurality of longitudinally arranged agitators in said tank, the blades of one agitator over and underlapping the blades of the next two adjacent agitators, means to rotate the agitators to deliver the coarser materials at the upper end of the tank while the finer materials are allowed

to run off at the lower end thereof and a feed chute at an intermediate portion of the tank.

2. An ore classifier comprising a stepped tank, having a discharge opening at each end thereof, a plurality of longitudinally arranged over and underlapping revoluble agitators in said tank adapted to deliver the coarser materials at the upper end of the tank while the fine materials are permitted to run out the lower end thereof, means to reversely rotate said agitators, and a feed chute at an intermediate portion of the tank.

3. An ore classifier comprising a stepped tank, having a discharge chute at each end thereof, a plurality of longitudinally arranged revoluble agitators having curved overlapping and underlapping blades adapted to deliver the coarser materials at the

upper end of the tank while permitting the finer materials to run out the lower end of the tank, and means to reversely rotate said agitators.

4. An ore classifier comprising a tank having an inclined bottom with a discharge outlet at both ends, a feed chute at an intermediate portion of the tank, a series of overlapping and underlapping agitators revoluble in proximity to the bottom of the tank, and means to reversely rotate the adjacent agitators of the tank.

In testimony whereof I have hereunto set my hand this 9th day of March, 1915, in the presence of the two subscribed witnesses.

WILLIAM W. GUEST.

Witnesses:

C. C. RUSS,

C. P. GRIFFIN.