

No. 855,745.

PATENTED JUNE 4, 1907.

P. ARGALL.
RADIAL ORE DISTRIBUTER.
APPLICATION FILED JAN. 5, 1907.

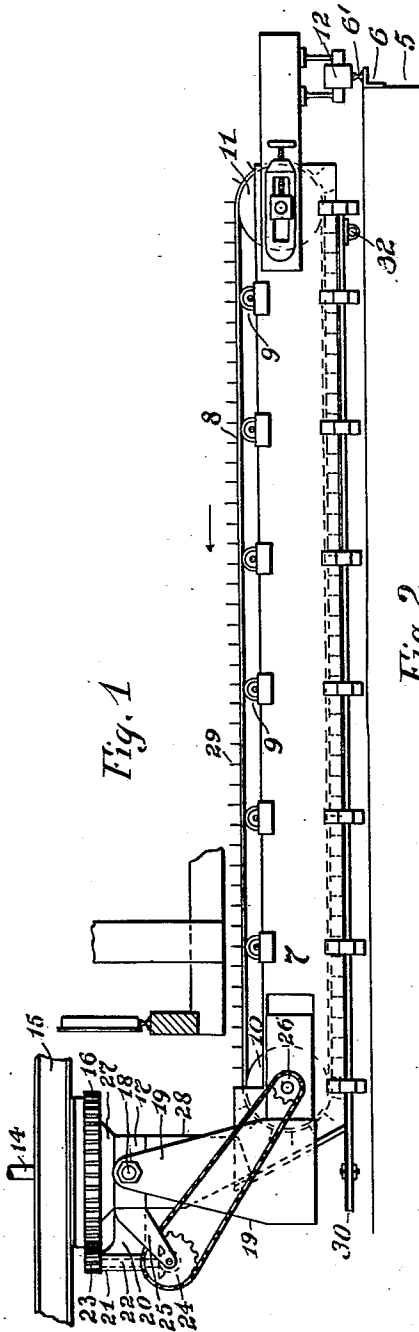


Fig. 1

Fig. 2

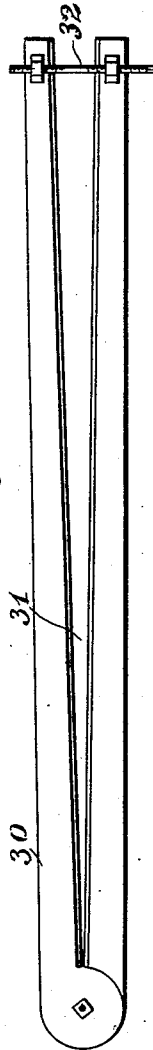


Fig. 4

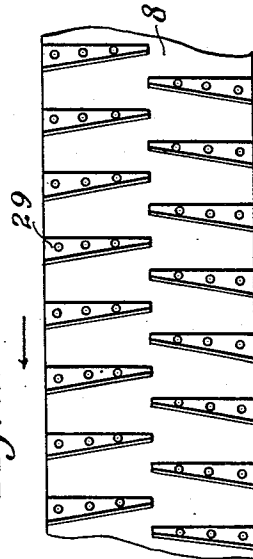
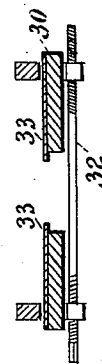


Fig. 3



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UNITED STATES PATENT OFFICE

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RADIAL ORE-DISTRIBUTER.

No. 855,745.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed January 5, 1907. Serial No. 350,930.

To all whom it may concern:

Be it known that I, PHILIP ARGALL, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Radial Ore-Distributers, of which the following is a specification.

My invention relates to the mechanical distribution of metalliferous sands or pulverulent ores in the circular tanks employed in the lixiviation departments of cyanid plants and similar situations, in which it is important to lay the material in regular and uniform layers for treatment.

Said invention is an alternative means to that shown in my copending application Serial No. 317485, for the mechanical conveyance and distribution of such ores, in which class of devices the ore is brought to the tanks arranged in line, preferably by belt conveyers and delivered over the center of each tank, where a vertical rotatory shaft is provided carrying at its foot a horizontal conveyer extending radially from the center to the circumference of the tank, which slowly revolves with the shaft similarly to the hands of a clock, and at the same time has a radial progressive motion in its conveyer portion which carries the sand outward to all parts of the tank as it progresses and revolves, means being provided to drop the sand in suitable proportional quantities as it travels, to insure its equable distribution in even layers throughout the tank.

This present invention consists in improved means for taking the sand as it is brought to the center of the tank and delivering it proportionally so as to insure its uniform distribution in even layers as above described.

In the drawings forming a part of this specification; Figure 1 is a side view of my improved radial distributor. Fig. 2 is a bottom view of the adjustable sectoral slot of the delivery frame. Fig. 3 is a cross section of said slot, enlarged. Fig. 4 is a plan view enlarged of a portion of the conveyer belt, showing the mode of attachment of the scrapers.

Similar numerals indicate similar parts in the different figures of the drawings.

5 is a portion of the circular tank over which the distributor is located, 6 being a marginal flange on the edge of said tank on which the outer end of the distributor frame is carried and runs on rail 6'. 7 is the frame

of the distributor carrying the endless conveyer belt-8, which is supported and runs on rollers 9 located at suitable intervals. Said belt is mounted on pulleys 10, 11, the outer one (11) of which is preferably adjustable for tension. 12 is a wheeled carriage supporting the outer end of the distributor frame 7 to run on rail 6' mounted on the marginal flange of the tank. Both the distributor frame and the conveyer belt derive their motions by means not novel to this invention, the primary element here shown being the rotatory shaft 14 located centrally over the tank, said shaft being in practice carried on a movable carriage or so called tripper of which 15 is the bottom member. 16 is a stationary gear firmly secured to said bottom member. 17 is a rectangular spider frame secured to the foot of said rotary shaft 14, to which is pivoted by bolts 18 the member 19 which carries the inner end of distributor frame 7, in such manner as to permit flexibility of movement to the outer end as it travels around the tank. 20 is a bracket arm branching from the spider frame 17, carrying a sleeve 21 in which is mounted the short upright shaft 22 having pinion 23 in mesh with stationary gear 16 and geared at its lower end to sprocket wheel 24, supported from frame 17 by bracket arms 25, which sprocket wheel is chain geared to sprocket pinion 26 on shaft of pulley 10, whereby the conveyer belt 8 is driven longitudinally when shaft 14 rotates while at the same time the distributor frame and belt move angularly around the tank by the rotation of shaft 14 to which said frame is centrally secured at its inner end. 27 is a receiving hopper into which the pulverulent ores are introduced by means not herein shown, and 28 is a discharging hopper which delivers the said ore to the conveyer belt; all of which being foreign to this present invention need not here be more particularly described.

29 are scrapers, preferably of sheet metal, riveted or otherwise secured to the outer surface of the traveling belt 8. Said scrapers are set on the belt preferably at an angle of from 10 to 20 degrees from the normal, inclined toward the center to facilitate the movement of the sands toward the central line as they advance. The arrow indicates the direction of travel. These scrapers claw the sand from the delivery hopper 28 as they make the turn over pulley 10 and move it

radially outward over the bottom 30 of the distributor frame. Said bottom is constructed of two pivoted members forming between them an adjustable sectoral slot 31, adjusting means being provided in the right and left adjusting screw 32 operating in threaded brackets secured to said members. The bottom pieces 30 are preferably of wood, but they are overlaid by the metal plates 33, which extend at the edges slightly beyond the wooden support, as shown, to promote free discharge and avoid choking, particularly near the center, where the sectoral slot is necessarily narrow.

The belt and the plane on which it travels are considerably wider than the sectoral slot, so as to carry sufficient ore outside of the slot near the center of the tank to keep the slot supplied as the material travels outward. The belt is preferably inclosed at the sides to prevent the material from falling outward, and these inclosures aid in forcing the ore toward the slot under the action of the scrapers. The radial character of the edges of the slot insures the proportional discharge of the material in accordance with the expanding area to be covered as the material advances, with great simplicity and accuracy.

The mode of operation is as follows: Pulverulent ore being supplied to the apparatus by means not a part of this invention, falls into receiving hopper 27, and thence drops through spider frame 17 into discharging hopper 28. The machine being set in motion the rotating central shaft 14 carries with it the radial distributor frame in an annular sweep around the tank and at the same time through the connecting gears above described the conveyer belt 8 is caused to travel in the direction indicated by the arrow. The scrapers affixed to said belt remove the sands in suitable quantities and carry them outward along the metallic bottom of the distributor, where they fall through the sectoral slot in a constant shower in due proportional quantity as they advance outward toward the periphery, being thus evenly distributed around the tank by the circular sweep of the conveyer and the combined radial delivery. The material is thus deposited in uniform layers with mathematical precision. To insure that sufficient sand shall be carried to the periphery, and on the other hand that no surplus shall remain to be carried up over the foot pulley 11 the slot adjustment means is operated until correct delivery is obtained.

I claim,

1. In an ore distributor, in combination, a vertical rotatory shaft, a hopper in proximity to said shaft, a horizontal frame pivotally secured at one end to said shaft, an endless conveyer belt mounted on said frame, scrapers on the outer surface of said belt, gearing between said vertical shaft and said belt whereby the latter is caused to travel longitudinally when said shaft is in rotation, and an adjustable slotted bottom to said frame over which said scrapers travel, substantially as specified.

2. In an ore distributor, in combination, a circular tank, a vertical rotatory shaft mounted centrally over said tank, a marginal trackway on the edge of said tank, a horizontal frame pivotally secured at one end to said shaft, sustained at its other end by a wheeled support running on said trackway, an endless conveyer belt mounted on said frame having scrapers at intervals on its outer surface, gearing between said vertical shaft and said belt whereby the latter is caused to travel when said shaft is in rotation, a bottom to said frame having an adjustable angular slot with radial sides, and means for adjusting the angular opening of said slot, substantially as specified.

3. In an ore distributor, a conveyer frame, an endless traveling belt mounted on said frame, having scrapers attached at intervals to the outer surface thereof, a bottom to said frame having a sectoral slot therein over which said scrapers pass, and means to adjust the angular opening of said slot, substantially as specified.

4. In an ore distributor, a conveyer frame, horizontally disposed, having the bottom thereof formed with an adjustable sectoral slot, means to adjust the angular opening of said slot, a series of movable scrapers carried on said frame, moving over said slot, a vertical driving shaft for said frame, means for moving the frame around said shaft, and means to simultaneously move the scrapers radially relative to said shaft, substantially as specified.

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

PHILIP ARGALL.

Witnesses:

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W. A. REYNOLDS.