

No. 649,817.

Patented May 15, 1900.

C. W. DAY.
PULVERIZING AND SEPARATING MACHINE.

(Application filed Apr. 15, 1898.)

(No Model.)

Fig. 1.

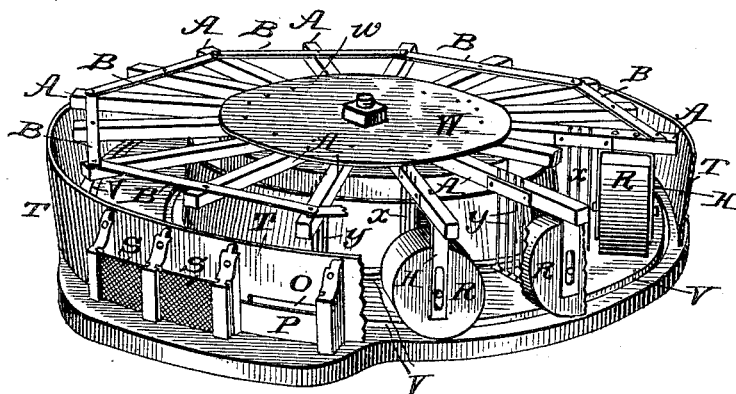


Fig. 2.

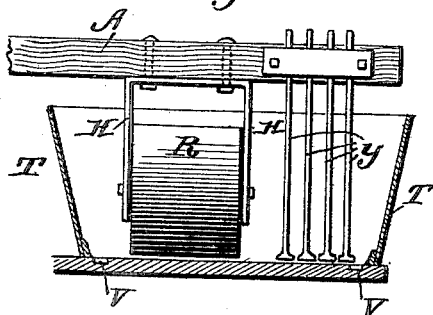


Fig. 4. Fig. 5.

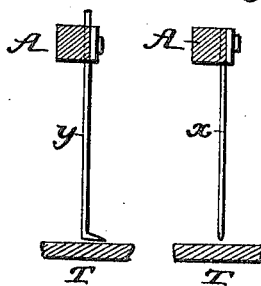


Fig. 3.

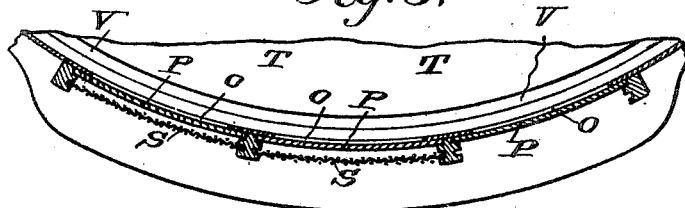
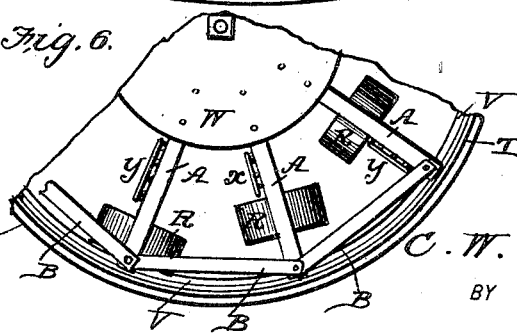


Fig. 6.



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CHARLES WESLEY DAY, OF SANTA CRUZ, CALIFORNIA.

PULVERIZING AND SEPARATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 649,817, dated May 15, 1900.

Application filed April 15, 1898. Serial No. 877,703. (No model.)

To all whom it may concern:

Be it known that I, CHARLES WESLEY DAY, a citizen of the United States, residing in the city of Santa Cruz, in the county of Santa Cruz and State of California, have invented a new and Improved Pulverizing and Separating Machine, of which the following is a full description.

The mill is designed and adapted for extracting precious metals from their ores, particularly from talc, talcose, slate, and clay. I employ crushing-rolls which travel in a circular trough containing the ore and a suitable quantity of mercury for amalgamating purposes.

The invention is embodied in the novel construction, arrangement, and combination of parts hereinafter described with reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved mill, part being broken away to show the interior construction. Fig. 2 is an enlarged cross or radial vertical section of a portion of the mill. Fig. 3 is an enlarged horizontal section showing the relative arrangement of the openings, screens, and plates for closing said openings. Figs. 4 and 5 are sectional views showing, respectively, scrapers and stirrers. Fig. 6 is a plan view of a portion of the apparatus.

The materials and dimensions and number of parts given below are only approximate and can be varied to any desired extent.

Referring to the drawings, the mill consists of an annular iron trough T, two feet wide, on bottom and with a groove V, one inch wide, on each side of bottom to hold mercury. Its outside diameter is eleven feet. In the side of the trough are suitable openings *o* for the delivery of waste or tailings, with screens S dropped into grooves outside of said openings, and also plates P two inches wide, dropped into grooves on the inside, leaving a space of about one inch between screens and plates. These openings can be closed entirely by inserting wider plates. Above this trough is an iron hub or wheel W five feet in diameter, lying horizontally and revolving on a vertical post or shaft *w*, located in the center of the circle of the trough. This hub or wheel is supported and runs on balls rolling in a circular groove. In this hub or wheel are six-

teen sockets, four inches by four inches, in which are inserted wooden arms A, extending over the trough, said arms being easily taken out for convenience of cleaning. The ends of these arms are braced or tied together with rods B. Attached to each arm and extending downward are two vertical steel bars or hangers H, with slots that admit the ends of the axle of a roller and hold said roller in place, the slots allowing the roller to rise and fall over the uneven surface of the bottom or to roll over any obstruction. The rollers R are of cast-iron, twelve inches in diameter and eleven inches face. They do not track, in order that the whole surface of the bottom may be utilized in the crushing—that is to say, while one, two, or more rollers run in the same circle—say next to the outer rim or side of the trough T—other rollers run in a circle of less diameter—say in the middle of the trough—and others still run in a third and yet smaller circle—say next to the inner rim or side of the trough. Thus the whole surface of the bottom of the trough will be thoroughly worked over by means of rollers of less length than the inner diameter of the trough.

I employ steel tines or stirrers X, Fig. 5, and scrapers Y, Fig. 4, either alone or in connection with the rollers R, for working the sticky ore material. The tines X may be attached to one of the arms A and the scrapers Y to another arm, as shown in Fig. 1, alongside a roller. Both tines and scrapers extend down nearly or quite to the bottom of the trough T.

The mill may be fed and driven—i. e., rotated—by any convenient means, such as usually employed in this class of apparatus.

I am aware that mills have been made with rollers and also with annular troughs, but such mills will not work talc ore, because the ore builds up or packs into a compact mass, like hard putty, instead of becoming pulverized and flowing off with the water. The merit and novelty of this mill consist largely in the combining of the two operations of crushing rock and puddling clay, so that it successfully treats an ore which partakes of the nature of both rock and clay.

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

The improved mill for reducing talc and clay ores, comprising a vertical post, or shaft, a series of radiating arms, hangers pendent from said arms and provided with vertical
5 slots, rollers journaled in said slots, and arranged at different distances from the post, a series of scrapers and stirrers attached to and pendent from the said arms and arranged in radial line with said rollers, exteriorly or in-

teriorly thereof, and the scrapers and stirrers 10 alternating on the respective arms, and the circular trough, having a flat bottom with side grooves, as and for the purpose specified.

CHARLES WESLEY DAY.

Witnesses:

AUGUSTUS ST. CLAIR,

WILLIAM WHITWELL PARKER.