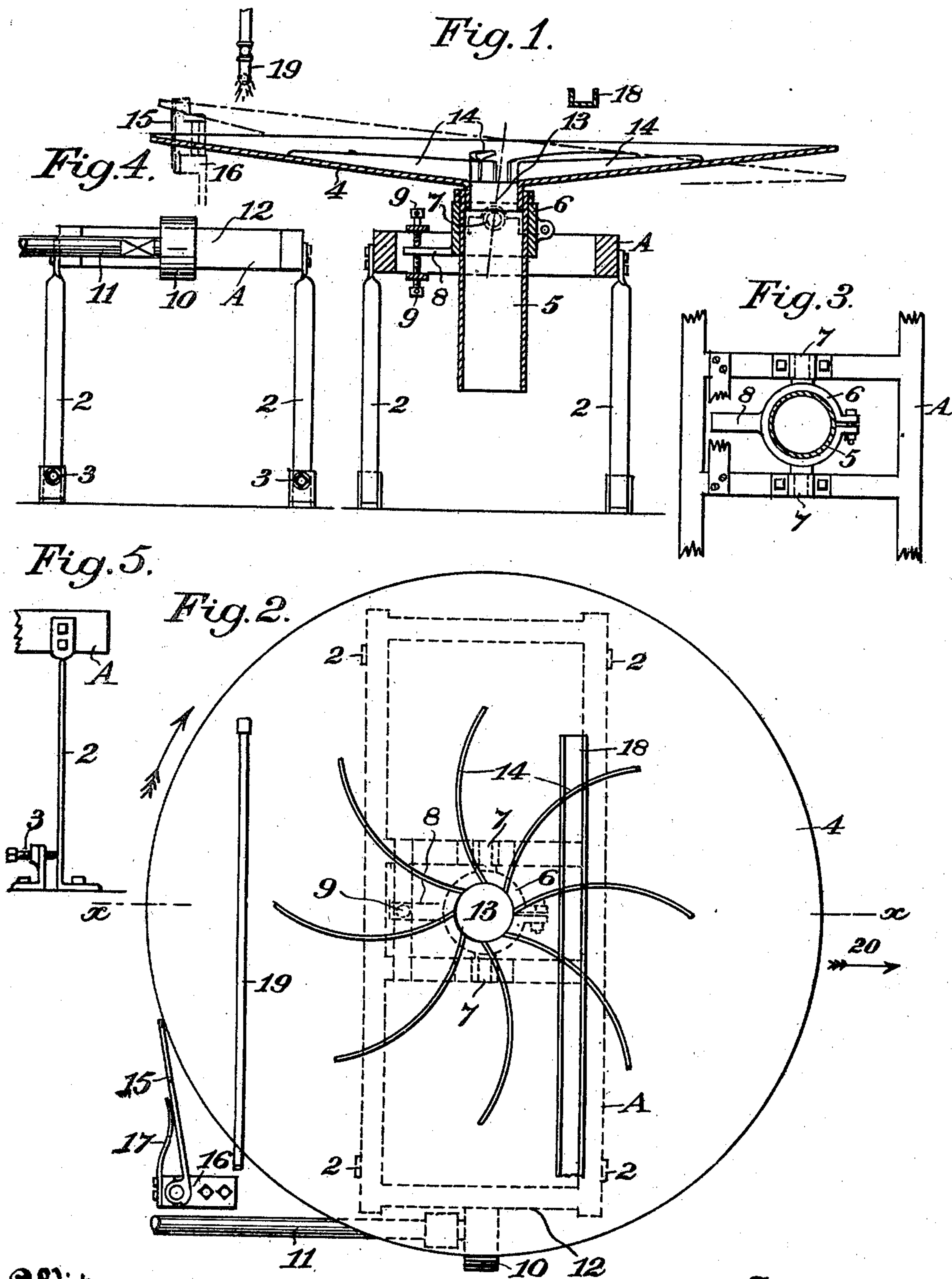


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PATENTED JAN. 27, 1903.

C. BROWN.
ORE CONCENTRATOR.
APPLICATION FILED DEC. 12, 1901.

NO MODEL.



Witnesses,

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UNITED STATES PATENT OFFICE.

CLARENCE BROWN, OF BISHOP, CALIFORNIA.

ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 719,181, dated January 27, 1903.

Application filed December 12, 1901. Serial No. 85,597. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE BROWN, a citizen of the United States, residing at Bishop, county of Inyo, State of California, have invented an Improvement in Ore-Concentrators; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in devices for separating the valuable portion of comminuted ore from its gangue.

It consists of the parts and the constructions and combinations of parts which I will hereinafter describe and claim.

Figure 1 is a vertical section on the line xx , Fig. 2, of my invention. Fig. 2 is a plan. Fig. 3 is a plan showing the trunnioned collar. Fig. 4 is a view of the table end operated by the cam. Fig. 5 is a side view of the supporting-standard.

A represents the bed or frame of my device, mounted upon the spring-standards 2. Upon the frame is mounted the table 4 in the following manner: This table is circular in form and is secured upon a hollow shaft 5. A collar 6 is hung by suitable trunnions 7 in the frame, and the shaft carrying the table is adapted to be slipped into and is supported and revolvable in this collar. On one side of the collar is a projecting arm 8, which is adjustably held between the screws 9, carried on the frame. By reason of the shaft being pivotally suspended, as described, the table may be tipped at any desired angle and be held there by means of the adjusting-screws, as is manifest. It is desired also to subject the table to a horizontal reciprocating or shaking movement at right angles to the line of inclination, and this is effected by means of a cam 10, secured upon a drive-shaft 11, engaging with an end, as 12, of the frame, causing the latter to oscillate upon the spring-standards at each revolution of the shaft. The tension of these springs may be regulated by suitable means, as screws 3. By varying their tension the rapidity and force of the return of the frame and table may be regulated almost at will. The surface of the table is concaved and a central opening 13 communicates with the hollow portion of the shaft 5. A series of radiating curved strips 14 are secured upon this concaved surface. These

strips are highest at their inner and lower ends adjacent to the shaft-opening and gradually taper to nothing at their outer ends, which terminate short of the edge of the table. An intermittent rotary or step by-step motion is imparted to the table by means of an arm or dog 15 engaging slantingwise the periphery of the table as the latter and frame are reciprocated. This dog is pivoted to a fixed support 16 and is held in constant but light contact with the sides of the table by means of a spring 17. As the frame and table are moved outward by the action of the cam the dog slides gently along the edge of the table, which latter for the time being does not revolve. On the sudden return movement of the table, occasioned by the release of the cam and the tension of the springs 2, the tapered end of the dog bears firmly against the table, causing the latter, by the frictional contact with the dog, to turn a certain desired space.

The pulp is fed upon the table through the trough 18 at a point adjacent to the lower side of the table, as shown.

A perforated pipe 19 delivers a supply of fresh water continuously along the elevated side of the table, so that the wash is across the table.

The ultimate result of the tilting of the table, the delivering of the ore at a spot beyond the lowermost point of the table and below the central horizontal line thereof, together with the constant bumping, the intermittent rotation, and the ultimate washing from the pipe 19, is that the gangue is gradually taken outward and over the side of the table, as at 20, by centrifugal force, combined with the wash of the water, while the heavier and more valuable particles gradually gravitate toward the center of the table. The concentrates lodge against the curved strip 14, and when these strips arrive at the highest point of the table the force of the flow of the water is sufficient to wash them down into the central shaft-opening 13, whence they are discharged as desired.

This device is applicable for amalgamating purposes as well by simply using a pan whose surface has been properly "silvered" and closing the central opening 13, the combined

intermittently rotatable and reciprocating action of the table serving to furnish the necessary agitation to effect perfect amalgamation.

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

1. In an ore-concentrator, the combination of a main supporting-frame; means for oscillating the same; a table having a central discharge-tube; a ring surrounding the tube said ring having trunnions projecting from diametrically opposite points and journaled upon the frame whereby the table is capable of being tilted in a plane at right angles to the direction of oscillation of the frame; and means including a spring-pressed dog engaging the perimeter of the table by which the table is given a step-by-step rotation.

2. In an ore-concentrator, the combination of a main frame; spring-standards supporting the same; means for imparting a horizontal shaking movement to the frame; a circular table having a depending centrally-located discharge-tube; a ring embracing said tube and having trunnions at diametrically opposite points on its sides said trunnions journaled upon said frame whereby the table and ring are tiltable in a plane at right angles to the direction of oscillation of the frame; and means by which the table is given a step-by-step rotation.

3. In an ore-concentrator the combination of an endwise-shaking frame having an open center; a circular table having a central hollow shaft extending through the open center of the frame; a ring having trunnions extending horizontally located at diametrically opposite points and journaled upon said frame, said ring receiving the said shaft and providing means for tilting the table in a plane at right angles to the direction of oscillation of the frame; an arm projecting from the ring at right angles to the trunnions, and means engaging the arm above and below and adjusting the position of the table; and means for giving the table a step-by-step rotation.

4. In an ore-concentrator the combination of an open center frame; means for oscillating the frame; a circular table having a hollow shaft centrally located and disposed within the open center of the frame; a split collar receiving said shaft and having trunnions projecting from diametrically opposite points and journaled upon said frame; an arm extending centrally from one side of the collar; adjusting-screws on the frame for holding the arm in different positions; and means by which the table is given a step-by-step rotation.

5. The combination, in an ore-concentrator of a skeleton frame; the spring-standards; means for regulating the tension of said standards; a circular table having a hollow shaft depending from its center; a ring having oppositely-located trunnions journaled upon the frame, said ring receiving said shaft; means for adjustably holding the table at different angles and a spring-pressed dog or arm engaging the perimeter of the table and giving the table a step-by-step rotation.

6. In an ore-concentrator, the combination of an open center frame; spring-standards supporting the same; a circular table of dished form, having a hollow shaft leading from its bottom; a series of radiating strips upon the table, curved continuously in one direction and made highest at their inner or lower ends adjacent to the shaft-opening and tapering and substantially merging into the surface of the table at their outer ends, a ring inclosing said shaft and having oppositely-located trunnions journaled upon said frame; means for tilting the ring and fixing it in a tilted position; and means for imparting to the table a step-by-step rotation.

In witness whereof I have hereunto set my hand.

CLARENCE BROWN.

Witnesses:

S. H. NOURSE,
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