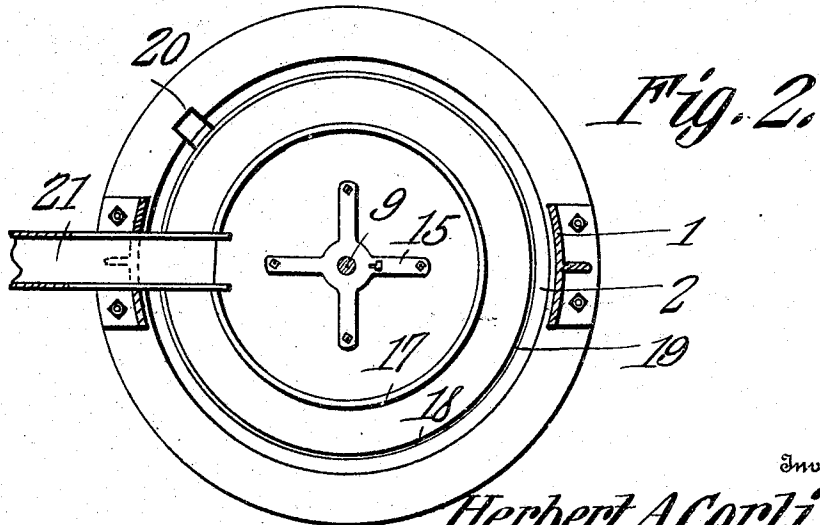
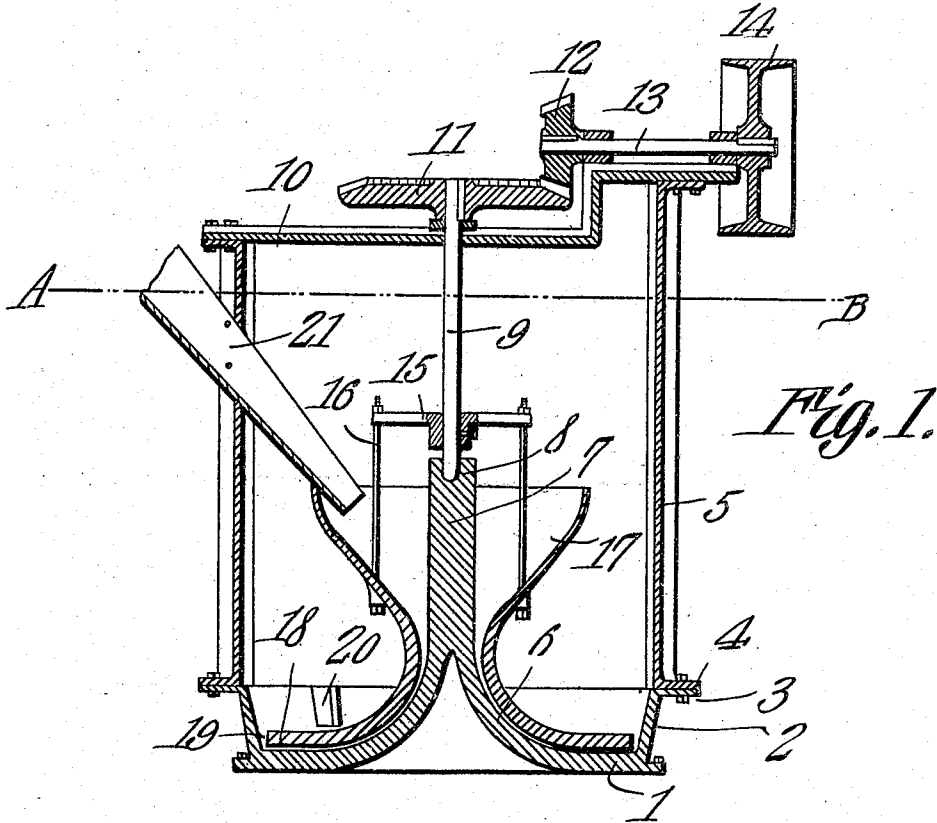


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AMALGAMATOR.

APPLICATION FILED JULY 21, 1909.

941,560.

Patented Nov. 30, 1909.



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UNITED STATES PATENT OFFICE.

HERBERT A. CORLISS, OF GRANTS PASS, OREGON.

AMALGAMATOR.

941,560.

Specification of Letters Patent.

Patented Nov. 30, 1909.

Application filed July 21, 1909. Serial No. 508,778.

To all whom it may concern:

Be it known that I, HERBERT A. CORLISS, a citizen of the United States, residing at Grants Pass, in the county of Josephine and State of Oregon, have invented a new and useful Amalgamator, of which the following is a specification.

This invention relates to amalgamators designed for reducing hydraulic concentrates, black sand, or any other reasonably fine material carrying gold which must be scoured before it will amalgamate.

One of the objects of the invention is to provide a machine of this character which is simple in construction and feeds automatically and thus requires no attention.

Another object is to provide an amalgamator having means whereby the scoured or pulverized material is brought into direct contact with mercury immediately subsequent to the grinding operation, it being necessary for such material to pass entirely through the mercury before it can leave the machine through the discharge provided therefor.

With these and other objects in view, the invention consists in certain novel details of construction and combination therefor, hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings, the preferred form of the invention has been shown.

In said drawings; Figure 1 is a central vertical section through a machine embodying the present improvements; Fig. 2 is a section on line A—B of Fig. 1.

1 designates a bowl having an annular flange 2 upstanding from the margin thereof and inclined outwardly, the upper edge of said flange being provided with an out-standing flange 3, to which are bolted or otherwise secured ears 4 formed at the lower ends of the standards 5. The bowl 1 has a central, substantially conical, upstanding portion 6 merging into a standard 7 in the upper end of which is formed a socket 8. This socket constitutes an end bearing for a shaft 9 which extends through the cross-bar 10 of the casing and is provided with a beveled gear 11 meshing with the forward drive gear 12. The last named gear is secured to a shaft 13 which is journaled upon the casing and has a drive pulley 14 attached thereto.

A spider 15 is secured in any preferred manner to the shaft 9 adjacent its lower end, the arms of this spider having rods 16 connected thereto and extending downwardly therefrom, the lower portion of the rod being secured within the wall of a substantially conical feed end 17 of a grinding disk 18. This disk is so shaped as to rest snugly upon the upper or grinding face of the bottom of the bowl 1 and the adjoining portion of the conical extension 6, the feed hopper 17 being so shaped as to direct the material downwardly between the grinding disk 18 and the extension 6 and the bottom of the bowl 1. By providing the connecting rods 16, the grinding disk 18 and its hopper 15 are caused to rotate with the shaft 9. It will be noticed that the edge of the disk 18 extends perpendicularly to the bottom of the bowl 1 and is adapted to cooperate with the inclined annular band 2 to form a tapered annular compartment 19 for holding mercury for amalgamating the values discharged between the bottom 1 and the disk 18. A discharge opening 20 is formed in the flange 2 at a point above the level of the upper face of the disk 18 and a feed chute 21 is secured to the standard 5 and opens into the hopper 15.

In using the machine herein described, the value bearing material is discharged into the hopper 17 through the chute 21, it being understood that said hopper and the disk 18 are rotated continuously by the shaft 9 and the mechanism employed for actuating it. Water is preferably used for washing the said material into the hopper 17 and it will facilitate the movement of the material between the grinding members and then through the outlet 20. The material, which is supplied to the hopper 17, will move downward by gravity between the disk 18 and the conical extension 6, and then between the disk and the bottom of the bowl 1, the said material during this movement, being subjected to the scouring or grinding action of the parts 1, 6 and 18, and being finally discharged into the compartment 19 where all of the freed values will quickly amalgamate with the mercury within the compartment. The material will then be discharged into the outlet 20.

It has been found that by constructing a device such as herein described, all of the values contained within the material dis-

charged into the hopper 17, become amalgamated and there is therefore hardly any perceptible waste.

The rods 16 are fitted loosely within the arms 17, and by turning the nuts thereon said rods will elevate or lower within the revoluble grinding members and thus regulate the grinding action.

When it is desired to clean up, the spider 15 is released from the shaft 9 and the revoluble grinding member can then be elevated above the flange 2 and access readily had to the working faces of the bowl and of the disk.

It is of course to be understood that various changes may be made in the construction and arrangement of the parts without departing from the spirit or sacrificing the advantages of the invention.

What is claimed is:—

1. An amalgamator including a bowl having a central conical projection, a disk revoluble about said projection, said disk and the bottom of the bowl constituting grinding members, there being an annular compartment surrounding the disk and constituting a mercury receptacle, and means cooperating with the upper end of the projection for supporting the disk at a desired distance from the projection.

2. A machine of the class described including a bowl having an upstanding centrally disposed, upwardly tapered portion, a grinding member revolubly mounted upon said portion and having a feed hopper movable therewith, a drive member bearing against and supported by the upper end of the tapered portion, and an adjustable connection between said member and said hopper, said member and tapered portion cooperating to support the grinding member at a desired distance from the tapered portion.

3. A machine of the class described comprising a bowl having a centrally disposed, upstanding and upwardly tapered portion, a grinding portion revolubly mounted upon said portion above the bottom of the bowl, a shaft journaled at one end and supported by said portion, a hopper integral with said grinding member, arms radiating from the shaft and adjustable connections between the arms and the hopper portion.

4. A machine of the class described including a bowl, having an upwardly tapered, relatively fixed grinding member integral with the bowl, a revoluble grinding member coöperated with said fixed member, a shaft journaled within said tapered portion of the fixed member, a feed hopper integral with the revoluble grinding member, and adjustable connections between the shaft and the hopper.

5. An amalgamator including a bowl having a central conical projection extending above the bowl and constituting the bottom thereof, a disk surrounding and conforming with the contour of the lower portion of the projection, said disk having a central hopper opening thereinto, a drive shaft bearing downward upon the projection and adjustable connections between said shaft and the hopper, said shaft and projection cooperating to support the disk at a desired distance from the projection, there being a mercury containing compartment between the bowl and the periphery of the disk and an outlet within the bowl and above the periphery of the disk.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HERBERT A. CORLISS.

Witnesses:

MARCUS W. ROBBINS,
TULARE E. LINKEY.