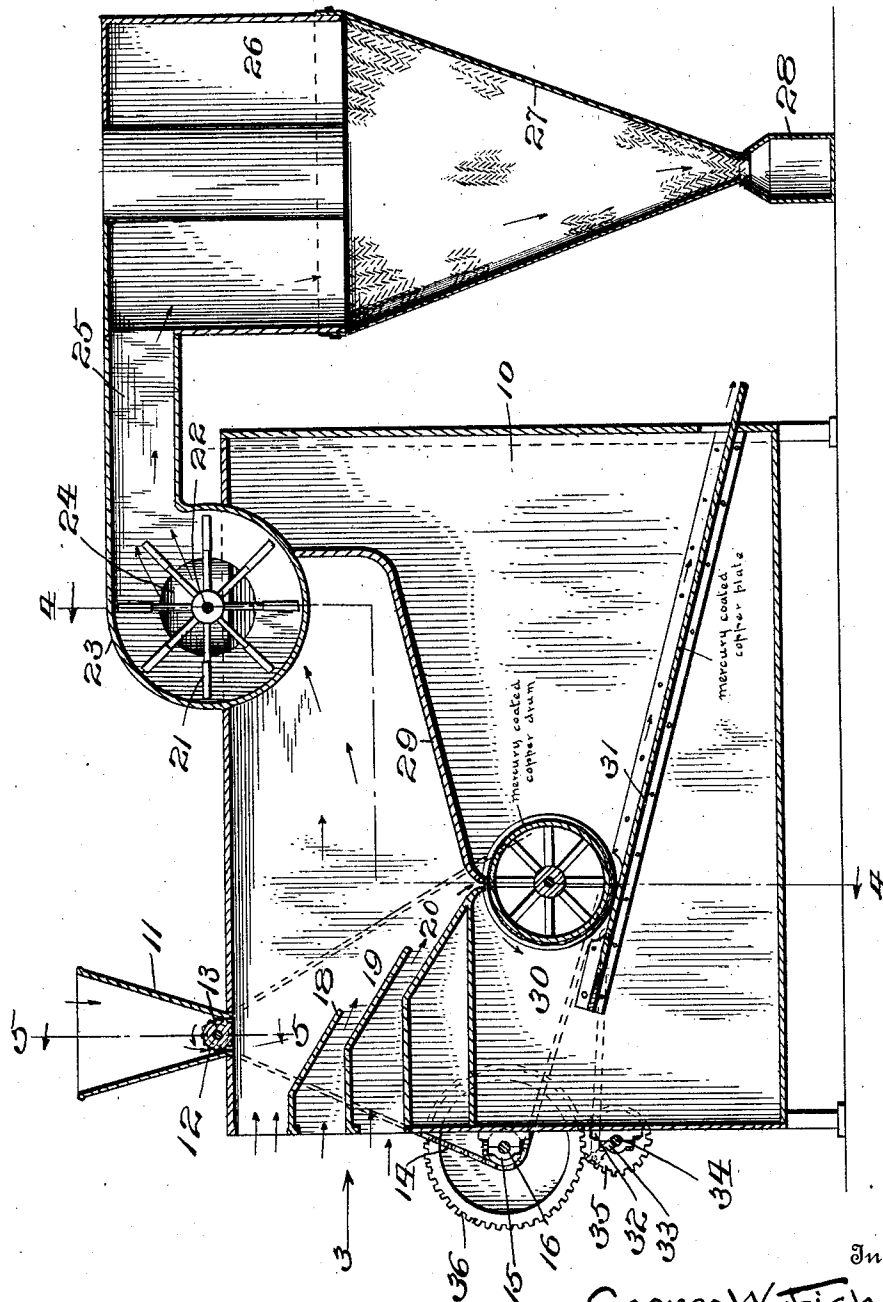


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ORE SEPARATOR.
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To all whom it may concern:

Be it known that I, GEORGE W. FISHER, a citizen of the United States, residing at Tacoma, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in Ore-Separators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to ore separators and has for an object to provide a separator for separating metallic particles and especially gold in dry, flaked or granular form from sand or other physical mixtures.

A further object of the invention is to provide a separator having improved means for withdrawing the light flaked particles of metal from the heavier particles of sand and with further means for catching and retaining the heavier particles of metal which are not withdrawn from the sand by the first step of the operation.

A further object of the invention is to provide a structure for exposing the combined sand and metallic particles to an induced draft of air to withdraw the lighter metallic particles and a further exposing of the metallic particles and sand to surfaces coated with an amalgamating substance.

With these and other objects in view the invention comprises certain novel constructions, combinations and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings the figure is a vertical longitudinal sectional view of the improved separator.

The improved separator which forms the subject matter of this application comprises a housing 10 of any approved construction having upon its top a hopper 11 into which the commingled metallic and sand particles are inserted to be acted upon. Within the hopper 11 a feed roller 12 is carried upon a shaft 13 and operated by a sprocket chain 14 which passes over a sprocket 15 carried upon a shaft 16 and actuated by any approved means of applying motive power, as a crank.

The material which is preferably employed in the present separator is a physical commingling of gold and sand. As the ma-

terial is fed by the roller 12 it falls upon a series of baffle plates 18, 19 and 20 which are separated by apertures through which a draft of air is induced by a fan 21. The fan 21 is mounted upon a shaft 22 and within a housing 23 such housing communicating with the housing 10 by means of passages 24. The air current induced by the rotation of the fan 21 passing between the baffle plates and through the passages 24 is discharged through a conduit 25 into a casing 26 which is provided with a conical receiving member 27 and at its apex communicating with a receptacle 28. The gold contained in the sand in light or flake form is acted upon by the induced draft of the air and is carried through the conduit 25 and discharged finally into the receptacle 28. Certain particles of the gold contained in the sand are however of such formation as to not be acted upon by the induced current and such particles, together with the sand are discharged from the baffle plates upon the hopper bottom 29 within the housing.

Immediately below the hopper bottom 29 a drum 30 is mounted to rotate, such drum being covered with a sheet of copper and the copper coated with a coating of mercury, which when it engages the gold contained in the sand amalgamates and retains the same. The drum is rotated also by the sprocket chain 14 and discharges the sand with such particles of gold as are not yet separated therefrom upon a copper plate 31, such plate being also coated with mercury to further act upon the gold particles found within the sand and to amalgamate and retain the same. The copper plate 31 is given a reciprocatory and shaking action by means of pitmen 32 actuated by crank arms 33 carried upon a shaft 34 which in turn is driven by a pinion 35 intergeared with the gear 36 carried upon the shaft 16. It will be apparent therefore that as material is fed into the hopper and the mechanism actuated by applying power thereto in any approved manner, as by the crank 17, the material will first be fed from the hopper to drop in front of the air spaces through which a current of air is induced by the fan 21 and on to the baffle plates 18 and 19. As before described, the induced current will carry from the sand the light formation of gold or metals contained there-

in and deposit the same in the receptacle 28, while the heavier particles will fall upon the hopper bottom 29 and be fed upon the mercury covered roller 30 and mercury
5 covered plate 31 and have the further particles of metal amalgamated by said roller and retained upon either the roller or plate. The sand which is not acted upon by the mercury will be discharged over the end of
10 the shaking plate 31 and the amalgamated values will be removed from the plate and drum in the usual manner.

I claim:—

The combination of a separating cham-

ber, means for passing a current of air 15 transversely through said chamber, means for feeding ore into said chamber across the current of air, said chamber having a discharge opening in its bottom below the feed means, an amalgamated cylinder below and 20 substantially closing said opening, and means for rotating said cylinder.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. FISHER.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."