(No Model.) 2 Sheets—Sheet 1.

A. ALLEN.

AMALGAMATING MACHINE.

No. 590,291. Patented Sept. 21, 1897.

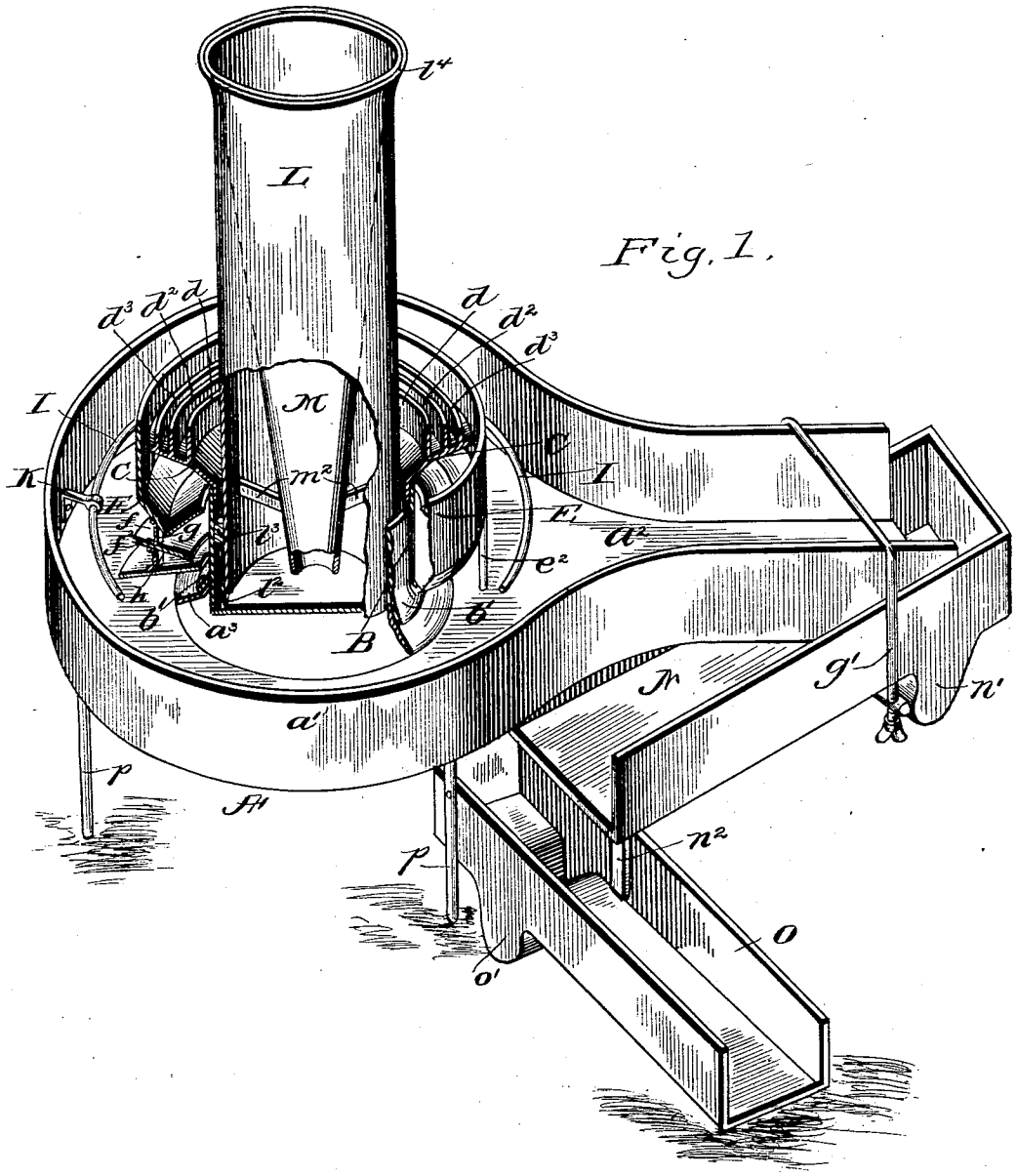

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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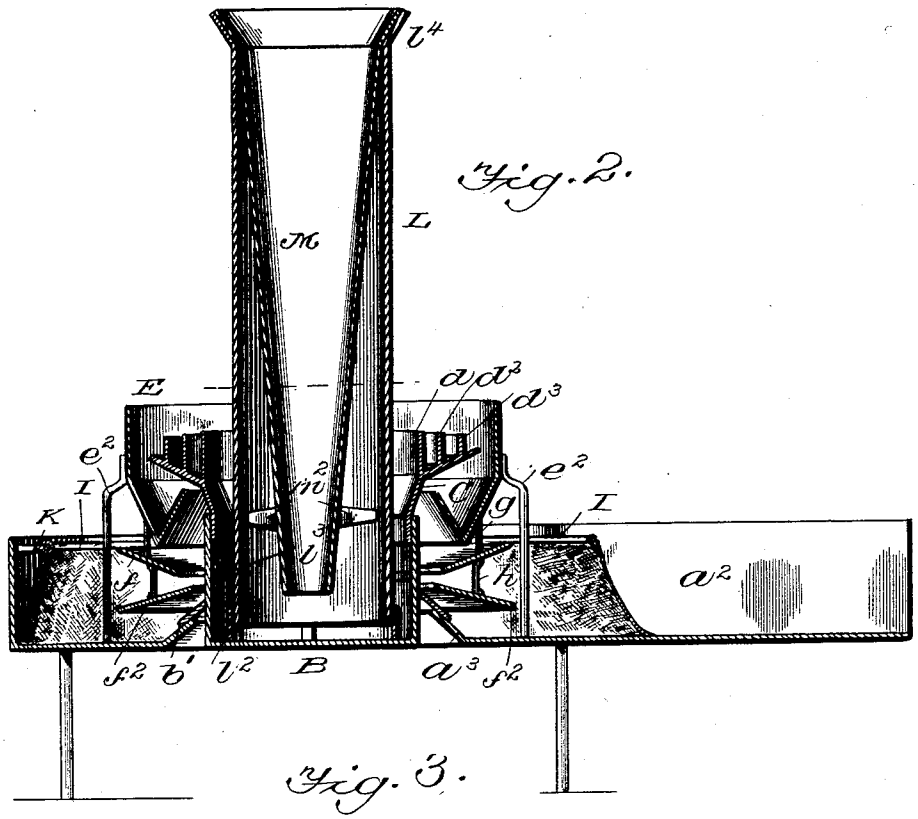
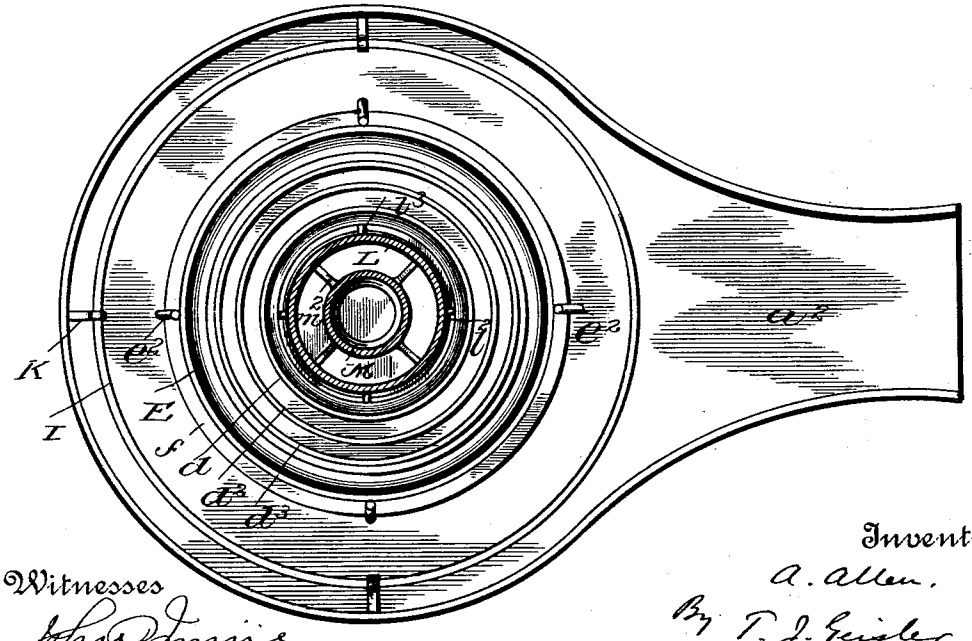


Fig. 2.

Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

ACHILLES ALLEN, OF MILTON, OREGON, ASSIGNOR OF ONE-HALF TO M. A. BAKER AND W. H. BAILEY, OF SAME PLACE.

AMALGAMATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 590,291, dated September 21, 1897.

Application filed August 1, 1896. Serial No. 601,353. (No model.)

To all whom it may concern:

Be it known that I, ACHILLES ALLEN, a citizen of the United States, residing at Milton, county of Umatilla, and State of Oregon, have invented a new and useful Amalgamating-Machine, of which the following is a specification, reference being had to the accompanying drawing as a part hereof.

My invention relates to amalgamating machines or devices for separating and saving gold particles from sand or pulp; and the object of my invention is to save every particle of the precious metal that can be caught.

The construction and operation of my device are as illustrated in the accompanying drawing and described below.

In the drawing the figure shown represents a perspective of my device with parts broken away so as to obtain a partial vertical section of certain parts to more clearly illustrate the same.

The letters designate the parts of my device referred to in the description thereof.

My invention is constructed as follows:

A is a trough suitably mounted on legs or other supports and provided with a high rim a', having an outlet at a^2. This trough is slightly inclined, so as to cause the refuse water and sand to run out through the outlet a^2 into the sluice-boxes N and O. In the center of such trough A is a circular opening, the periphery of which is provided with an upwardly-projecting flange a^3, a vertical section of which is seen in the left of the figure.

B is a deep trough or vat for mercury, the rim of which is provided with a downwardly-projecting flange or shoulder b', by means of which such vat is mounted over the opening in the trough A.

On the upper edge of the rim of the mercury-trough B is mounted a circular plate or collar C of the form shown in the partial vertical section thereof. On this plate or collar C are mounted one or a series of rings d, d^2, and d^3. If a series of rings be used, the latter are graduated as to height, the inner ring d being the widest and the outer d^3 the narrowest. The circular plate C with its accompanying ring or rings constitute a sort of riffle.

E is a trap supported on standards e^2 on the floor of the trough A, such trap being constructed as shown in the partial section.

f and f^2 are two inclined circular plates or collars suspended below the trap E by means of straps g h.

I is a ring extending around the trough A, being supported therefrom by arms K, from which ring a blanket i is suspended, so as to surround the collars f and f^2 to catch any "foul" mercury and float-gold that might otherwise be wasted.

L is a cylinder with bell-mouth l^4, such cylinder being mounted on short standards l^2 above the floor of the mercury-trough B and steadied by means of stays l^3; and in the cylinder L is suspended the receiver or funnel M, the mouth of which is attached to the mouth of the cylinder L and the discharge end thereof being slightly above the base of such cylinder L and the funnel being braced by stays m^2. The sluice-boxes N and O are provided with pockets n' and o'. The upper end of the lower sluice O is supported on a rod p, which is one of the front legs of the trough A, and the upper sluice N is supported on the sluice O by a short post n^2 at its lower end and an adjustable bail g' at its upper end.

My device operates as follows: The bottom of the vat B is covered with a quantity of mercury sufficient to inclose the discharge end of the cylinder L. The pulp or "slime" is then fed into the mouth of the receiver M, which is of sufficient height to give the feeding mass ample pressure to force its way through the mercury in the trough B, and while so doing a portion of the mercury will separate into minute particles and mingle with the pulp or slime as it "boils" up between the walls of the cylinder L and trough B. The whole mass is kept in constant agitation, the particles of gold coming in contact with the mercury, forming an amalgam. As the agitated mass is finally forced above the rim of the trough B it passes over the riffle C, which retards its progress and reagitates and evenly distributes the same as it overflows the outer edge of the riffle C into the trap E. The construction of the trap E is such as to again agitate the overflowing mass and separate and catch any particles of mercury or amalgam that may be still suspended therein. To facilitate this, the riffle C and the trap E and the inclined circular plates f and f^2, over which the mass finally passes before dropping

into the trough A, are respectively covered with a film of mercury. The mass upon dropping into the trough A passes through the outlet a^2 into the sluices N and O. To catch stray particles of amalgam or mercury which may still float in the outflowing refuse, the sluices N and O are provided with the pockets n' and o' and are each coated with mercury throughout.

From the ring I may be suspended a blanket, as already mentioned, to catch any foul quicksilver that has failed to cohere with the body of mercury.

The different parts of my device, with the exception of the cylinder L and the trough B, are constructed of copper and are silver-plated. The cylinder and trough B, I prefer to make of sheet-iron, but other suitable material may be substituted for either or any other part of my device.

Now what I claim is—

1. An amalgamating-machine, consisting of a trough, A, suitably supported, so as to be slightly inclined, and having an outlet a^2; a central opening in such trough with an upwardly-projecting flange a^3; the trough or vat B, mounted over the opening in trough A; the plate or riffle C; the trap E; the circular plates or collars f, f^2; the cylinder L provided with a receiver M, and suitable sluices and supports therefor, for carrying off the refuse, the parts being combined substantially as set forth.

2. An amalgamating-machine, consisting of a trough A, suitably supported so as to be slightly inclined, and having an outlet a^2; a central opening in such trough with an upwardly-projecting flange a^3; the trough or vat B, mounted over the opening in trough A; the plate or riffle C; the trap E; the circular plates or collars f, f^2; the cylinder L provided with a receiver M; means for supporting a blanket around the trap E, for the purposes described; and suitable sluices and supports therefor, for carrying off the refuse, the parts being combined substantially as set forth.

3. An amalgamating-machine, comprising a trough A having an outlet a^2, a mercury-vat B supported on said trough, a receiver discharging into said vat, a riffle or plate C arranged about the upper edge of said vat, and a trap E beneath and surrounding said riffle, substantially as described.

4. An amalgamating-machine, comprising a trough A having an outlet a^2, a mercury-vat B supported on said trough, a receiver discharging into said vat, a riffle or plate C arranged about the upper edge of said vat, a trap E beneath and surrounding said riffle, and supported independently of said receiver, and amalgamating-plates beneath said trap on which the overflow from said trap will impinge, substantially as described.

5. An amalgamating-machine, comprising a trough A having an outlet a^2, a mercury-vat B supported on said trough, a receiver discharging into said vat, a riffle or plate C arranged about the upper edge of said vat, a trap E beneath and surrounding said riffle, amalgamating-plates beneath said trap, and a blanket suitably supported so as to surround said trap and descend to the trough and catch the float-gold, substantially as described.

In testimony whereof I have hereunto set my signature this 17th day of July, 1896.

ACHILLES ALLEN.

In presence of—

T. J. GEISLER,

GEO. W. HAZEN.