(No Model.)

J. JETT.

AMALGAMATOR.

No. 525,984. Patented Sept. 11, 1894.

Fig. 1

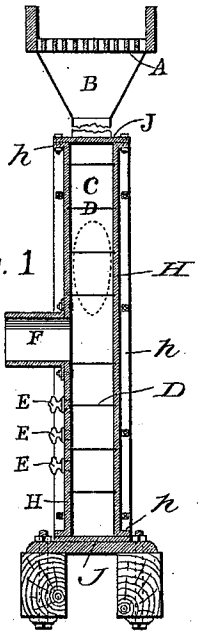


Fig. 2

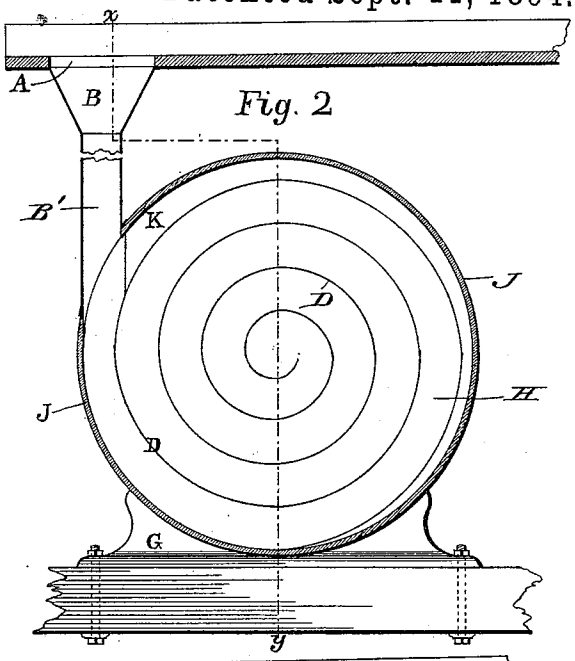
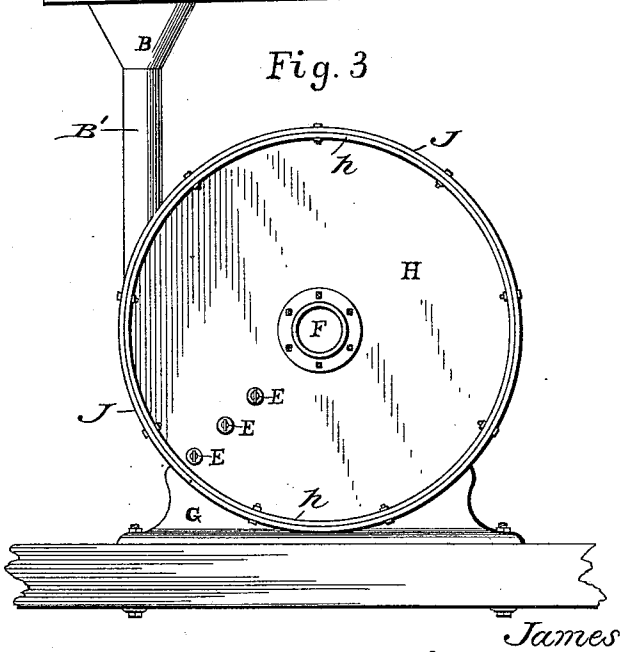


Fig. 3



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UNITED STATES PATENT OFFICE.

JAMES JETT, OF WALLA WALLA, WASHINGTON.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 525,984, dated September 11, 1894.

Application filed October 24, 1893. Serial No. 489,068. (No model.)

To all whom it may concern:

Be it known that I, JAMES JETT, a citizen of the United States of America, residing at Walla Walla, in the county of Walla Walla and State of Washington, have invented certain new and useful Improvements in Amalgamators, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in amalgamators or apparatus for separating gold from gold bearing sands or ores; and it consists in the special construction of the amalgamator, as will be hereinafter fully set forth and claimed. The amalgamator is constructed so as to form a helical channel which is adapted to contain mercury or quicksilver, the ore being fed into the outer end of the helical channel and discharged at the center, the lower portion of the coil forming the channel holding the mercury through which the ore is forced by gravity combined with water pressure.

In the accompanying drawings, forming part of this specification, Figure 1 is a sectional view of an amalgamator constructed in accordance with my invention. Fig. 2 is a transverse sectional view, and Fig. 3 is a side elevation.

A designates a screen which is located at one end of an ordinary flume, said screen being positioned above the hopper B and is used to exclude coarse gravel and foreign substances from the amalgamator. The hopper leads into the amalgamator through the pipe or conduit B′. The casing is preferably made up of such metal or material that the mercury or quicksilver will not adhere thereto, and said casing is made up of side pieces or plates H H connected to each other at their outer edges by a band J which is bolted to the flanges *h* which project from the side pieces as shown. The inner surface of each side piece or plate is provided with a helical groove which commences at the outer edge of said plate and terminates near its center. Within the helical grooves formed in the side pieces are adapted to lie the edges of a helical strip D of copper or other suitable material for which mercury has an affinity, said strip being clamped between the side pieces so as to provide a helical channel which begins at the periphery of the casing and terminates at the center of the same. One of the side pieces H has a central aperture to which is connected a discharge pipe F for the waste material, and this side piece is also provided with a series of apertures which are on a line below the discharge pipe and are adapted to be closed by suitable plugs. Through these apertures mercury or quicksilver is introduced into different parts of the helical channel. A cut-off or plate K is located between the side pieces of the casing to one side of the conduit B′.

The apparatus hereinbefore described rests upon a suitable cradle or support G.

In practice after the amalgamator is charged with mercury or quicksilver the ore or gold bearing sand is fed into the hopper B and passes therefrom into the helical channel at its outer end and the weight of the sand and water pressure will carry the material from the commencement of the helical channel to the discharge opening, and the mercury or quicksilver is kept in motion so that it will effectively collect the gold.

It is obvious that with this device but a very small head of water is required.

After a sufficient quantity of ore has been passed through the amalgamator one of the side pieces can be removed and the copper strip taken out and a new one substituted, the gold collected on the copper strip being removed in the usual manner.

It will be noted that in practice the amalgamator is kept filled with water and the ore or sand is forced through the helical channel by the water pressure so that the heavy gold is collected by the mercury in the lower portions of the channel while the float gold is collected on the upper sides of the strip.

I am aware that prior to my invention it has been proposed to provide an amalgamator with parallel plates having formed thereon corresponding projecting portions which form two helical channels, the ore being received at the center of the coil and discharged at the outer end. My invention is distinguished from such a device in that I employ a single strip of metal which is let into or confined between the side pieces of the casing to form a single continuous channel so that the strip can be readily removed for separating the gold

or amalgam therefrom, and in that the water is carried by gravity and a slight water pressure.

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

1. An amalgamator comprising a casing composed of side pieces having helical recesses, said side pieces being connected at their outer edges by a band, the band having an opening to which is connected the supply pipe, one of the side pieces having a central discharge aperture, and a helical strip removably secured between the side pieces, substantially as shown and for the purpose set forth.

2. In an amalgamator, the combination, of a casing having peripheral entrance and a central discharge aperture, one of the side pieces of the casing being removable from its support, both of the side pieces of the casing having helical recesses and a removable helical strip clamped between the side pieces of the casing so as to form a continuous passage from the entrance to the discharge opening, substantially as shown.

3. In an amalgamator constructed substantially as shown, a casing comprising side pieces and a band secured to the outer edges of the side pieces, the side pieces having corresponding helical grooves on their inner sides which are adapted to receive a removable helical strip, substantially as shown, and for the purpose set forth.

4. An amalgamator comprising a casing having a peripheral supply and a central discharge, of a helical strip removably secured within the casing to form a continuous channel from the supply to the discharge opening, one of the side pieces of the casing having apertures located above the lower coils of the helical band for charging said channel, having plugs or stoppers for said apertures the amalgamator being connected with a water and ore supply, substantially as shown and for the purpose set forth.

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Witnesses:
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