

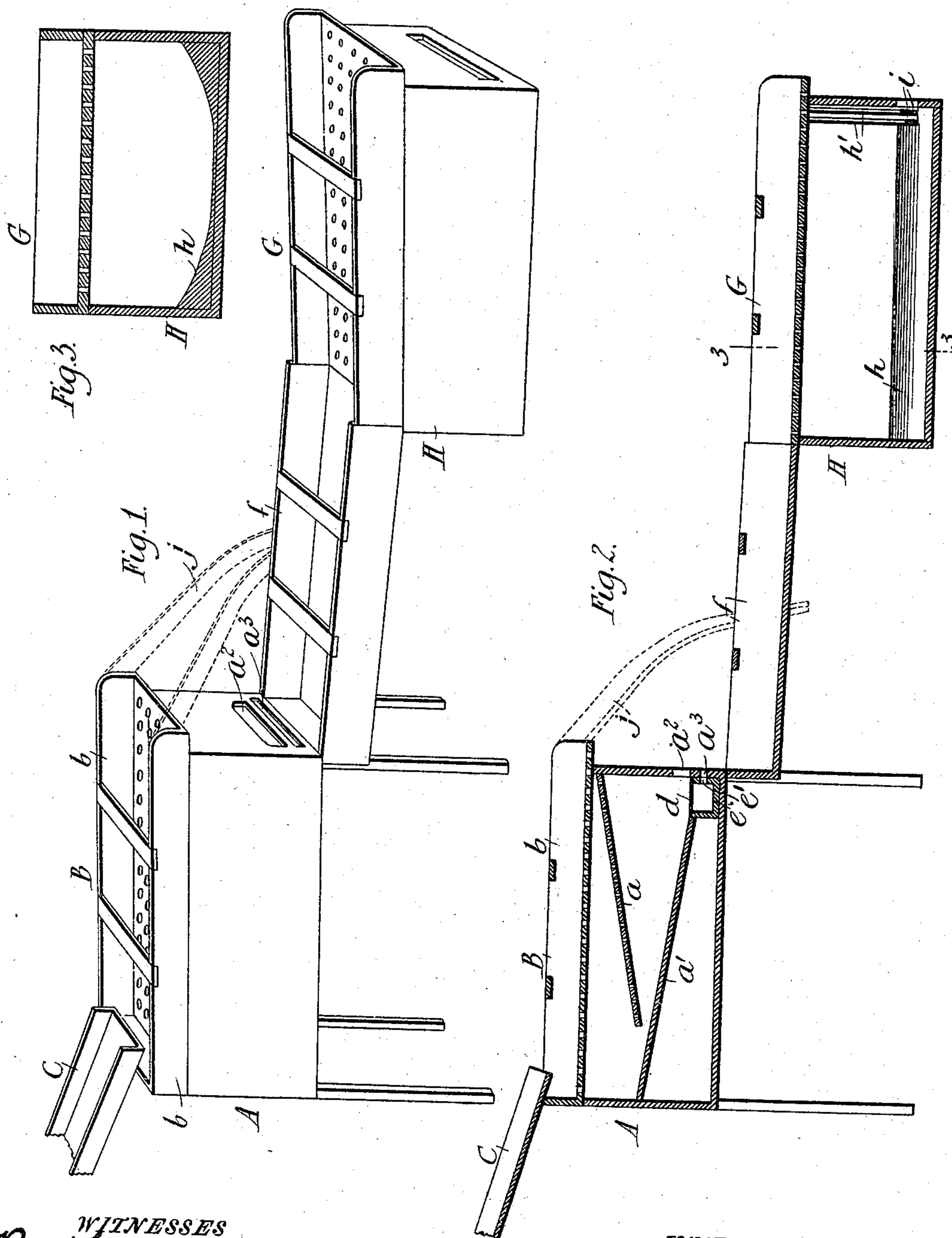
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Patented Jan. 9, 1900.

J. P. McEVILLY.
APPARATUS FOR TREATING PLACER ORES AND SANDS.

(Application filed Jan. 21, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR TREATING PLACER ORES AND SANDS.

SPECIFICATION forming part of Letters Patent No. 640,929, dated January 9, 1900.

Application filed January 21, 1898. Serial No. 667,452. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. McEVILLY, a citizen of the United States, residing at Helena, in the county of Lewis and Clarke and State of Montana, have invented certain new and useful Improvements in Apparatus for Treating Placer Ores and Sands; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to apparatus for the treatment of ores and sands for the extraction therefrom of the contained precious metals.

The invention is more especially applicable to the operations of placer-mining; and its use, while attended with but comparatively little labor, results in a great saving of the metal, and more especially that of the character which is known as "float-gold" and which in the operations heretofore has been largely lost.

The nature of my invention is fully and clearly disclosed in the following detailed description, which is to be read in connection with the accompanying drawings.

In the said drawings, Figure 1 is a perspective view of my invention. Fig. 2 is a vertical longitudinal sectional view, and Fig. 3 is a transverse sectional view taken in line 3 3 of Fig. 2.

Referring to the said drawings by letter, A denotes a casing, on the open upper end of which is secured a screen B, having an orifice of a size a sufficient to prevent the passage of the coarser particles therethrough into the interior of the casing. The end of the sluice C rests on or is located adjacent to the rear end of the screen, and the latter is provided with side flanges b , whereby the larger particles, such as gravel, coming from the sluice pass over the screen and are discharged therefrom over its front end, which preferably extends beyond the casing end, as shown.

In the casing A are removable partitions aa' , the upper partition a being inclined from the upper front casing end downwardly, while the lower partition a' is reversely inclined

and terminates at the lower front end of the casing, whereby the coarser particles which enter the casing are carried first along the upper partition and then along the lower partition and finally over a screen d , which is arranged at the lower end of the partition a' and in the plane thereof. The upper partition a is provided with a plurality of fine perforations, through which the finer particles pass and fall into the lower partition, from which they are discharged through the meshes of the screen d into a tank e below the screen containing quicksilver. The casing is provided adjacent to the screen d with an opening a^2 , through which the material is discharged, and at e' in the outer side of the tank is an opening registering with an opening a^3 in the casing A to allow of the escape of the fine sand.

The casing A is elevated by standards or other suitable support, and at its lower edge is a trough or sluice f , which is inclined downwardly and has its outer end resting on a screen G, which is similar in construction to the aforesaid screen B, but showing a finer orifice. The screen G rests on a casing H, which is open at its upper end and is provided with a bottom h , transversely concave in cross-section and containing quicksilver. The peculiar form of this bottom h is employed to obtain agitation of the particles falling thereon from the screen G to bring the values into contact with the quicksilver. The falling particles are deflected toward the center by the concavity of the said bottom, and in this way the necessity for a separate agitator is dispensed with. At the forward end of the casing are grooves $h' h'$, in which are movably inserted slat-riffles $i i$, the purpose of which is to regulate the quantity of sand which is to be retained.

In the operation of my invention the larger particles, such as very coarse gravel and rock, pass from the sluice over screen B and are disposed of by tailing over a chute j , which deposits them at one or both sides of the trough f , the result being that only the finer particles find their way into the casings and are subjected to treatment. The employment of the screens also results in the passage into the casing of sufficient water only to carry off the light sand particles. The mesh of the screen G is

of such fineness that only fine sand and metal can pass therethrough into the casing H, the metal being brought into contact with the quicksilver through the agitating action of the falling particles and the water. The exclusion from the casings of the larger particles and the heavy water-currents precludes undue agitation and prevents the loss of the precious metals, which would otherwise ensue, the result being that a sufficiently large proportion of the metal is saved to warrant the treatment of the heretofore-discarded tailings.

The mercury tank or well *e* is employed for amalgamating the particles of gold which become separated during the passage of the material through the casing A. The remaining particles, which are separated in the passage of the material through the trough *f* and screen G, are amalgamated in the mercury-well formed by the concave bottom *h*. The riffles or slats *i* are employed to adjust the size of the passage through the end of the casing H, and thereby regulate the quantity of sand which is to be retained with the mercury.

An important feature of my invention is the facility with which the various parts may be removed for the purpose of cleaning, and, moreover, the parts are so constructed as will permit of the apparatus being knocked down into a small compass for transportation. The apparatus may be quickly set up by any one not necessarily skilled in the art, and the operation may be carried on very inexpensively.

I claim as my invention—

1. In combination with a trough receiving screened material, of a casing having a screen

at its top on which the trough discharges, a bottom below the screen containing quicksilver said bottom being concaved in transverse section to obtain agitation of the particles, an outlet in the casing end above the lowermost portion of the bottom, and means for controlling said outlet.

2. An apparatus for collecting float-gold consisting of a runway of relatively fixed initial and terminal casings or closures arranged at different levels, each having a top screen of different-sized perforations, the fixed perforated top of the terminal casing connected with the inclined imperforate bottom of the initial casing by an intervening sluice, a mercury-containing tank transversely in the initial casing at the junction of the latter with said sluice, a mercury-containing tank arranged in the terminal casing at right angles to the initial tank and having a transversely-concaved bottom, the initial-inclined bottom terminating in a screen for the initial tank, an opening in the casing-wall at said screen, an overflow-opening in the tank and an opening in the casing registering with said tank-overflow opening, the said openings discharging into the sluice, an overflow-opening at the outer end of the concave tank and riffles having their lower edges on a level with the bottom of the overflow-opening, their upper edges having a graduated relation to the top of said overflow-opening.

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

JAMES P. McEVILLY.

Witnesses:

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