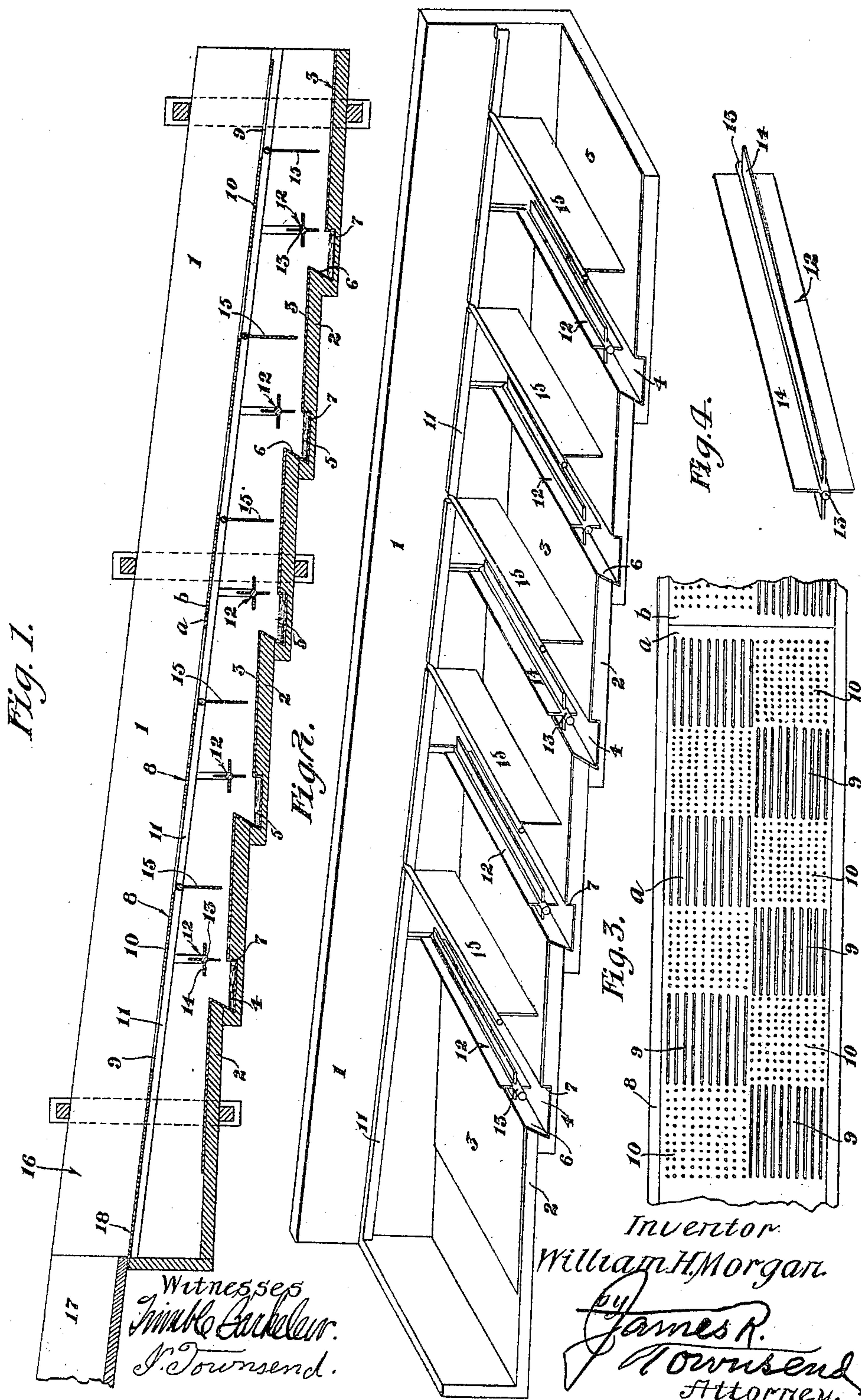


No. 816,243.

PATENTED MAR. 27, 1906.

W. H. MORGAN.  
AMALGAMATOR.

APPLICATION FILED JUNE 30, 1905.



Witnesses  
J. H. Barker.  
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# UNITED STATES PATENT OFFICE.

WILLIAM H. MORGAN, OF LOS ANGELES, CALIFORNIA.

## AMALGAMATOR.

No. 816,243.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed June 30, 1905. Serial No. 267,696.

*To all whom it may concern:*

Be it known that I, WILLIAM H. MORGAN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles, State of California, have invented a new and useful Amalgamator, of which the following is a specification.

An object of this invention is to provide an amalgamator adapted for saving coarse, fine, and float gold from hydraulic and other mines, dredges, and mills, and beach-sand.

The accompanying drawings illustrate the invention.

Figure 1 is a side elevation of this amalgamator in the form at present deemed most desirable, one side of the sluice-box being omitted for clearness of illustration. The screen and bottom of the sluice-box are sectioned. Fig. 2 is a perspective view of the sluice-box, showing the revoluble and the pendent plates, the protecting screens and one side of the box being omitted. Fig. 3 is a fragmental plan of the sluice-box, showing the screen having alternating slotted and perforated sections. Fig. 4 is a perspective view of one of the revoluble plates.

1 designates the sides, and 2 the bottom, of the box, having an amalgamated surface 3, which may extend up the sides of the box above the bottom.

4 designates transverse riffles sunken in the bottom 2 of the box and spaced apart and charged with mercury 5. The upper walls 6 of the riffles are overhanging, as clearly shown in Figs. 1 and 2, and are deeper than the lower walls 7, causing an eddy at each riffle.

8 is a screen arranged to shield the amalgamated surface 3. Said screen is preferably constructed with alternating slotted and foraminated or circularly-perforated sections 9 and 10 and rests on cleats 11 and is preferably made in two or more sections, as *a* and *b*, for each box and is readily removable and conveniently handled. It would unduly weaken the screen to slot the entire surface thereof; but by providing alternate slotted and foraminated sections the entire surface of the screen may be perforated in a more advantageous manner than if either slots or circular perforations alone were used.

12 designates revoluble amalgamated plates extending crosswise of the box above the sunken riffles, preferably at the lower sides

thereof, and projecting downstream above the lower walls of the riffles, respectively, one of the revolving plates being provided for each of the sunken riffles. Said revolving plates are preferably constructed of a shaft 13 and blades 14, four in number, radiating from the shaft.

I contemplate ordinarily making the riffles and revoluble amalgamated plates of about proportions as follows: The upper wall 6 of the riffle may be, say, three inches deep and the lower wall 7 one inch deep, while the blades 14 of the revoluble amalgamated plates will be about three inches wide from the shaft to the outer edge. It is to be understood, however, that I do not limit the invention to any particular proportions. The size of the revoluble amalgamated plates would vary according to the size of the sluice-box and the character and amount of the material to be handled. The width and depth of the riffles may also be varied in like manner.

The revoluble amalgamated plates 12 work entirely above and clear of the riffles and are in no sense agitators.

15 designates pendent amalgamated plates extending transversely of the sluice-box, above the bottom amalgamated surface 3, between the riffles 4, and underneath the screen 8.

16 is the head of the sluice-box, into which the flume 17 empties.

18 is an upward extension of the screen 8, which allows the water to flow down underneath the screen to the amalgamated surface of the riffled bottom 2 of the box.

The perforations are arranged in sections, and the openings in alternate sections at 9 are in the form of slits or slots of considerable length, and the foraminations of the intermediate sections at 10 are of less length, so that the character of the streams of material flowing onto the amalgamated surfaces will be varied.

The swinging plates 15 are straight, so that they may lie flat upon the surface of the stream passing thereunder and may readily catch the fine particles of gold which are to be encountered mostly at or near the surface of the water.

The slotted sections 9 are designed to allow the material to flow more freely upon the portions of the amalgamated surface beneath them than upon the other portions of such



surface, thus to produce a better action of the material on said surfaces for amalgamating the precious metals therein contained.

In practical use the sluice-box will be placed in position in the flume-line at the tail of the mill or wherever the gold-bearing material is to be treated, and the water flowing down through the flume will enter the sluice-box at 16, and the water and finer material will pass down through the screen, while the water and coarser material will pass down over the screen. The material passing through underneath the screen will form in eddies at the riffles, dropping the heavier material, and as the material passes on through the sluice-box the gold will come in contact with the mercury and the amalgamated surface of the bottom and sides of the boxes and of the amalgamated, revoluble, and pendent plates. The material which passes over the alternately slotted and perforated screen is caused to drop the material, which will go through the slots or perforations of the screen to settle upon and be acted upon by the amalgamated surfaces. The revoluble plates are located relative to the upper wall of the riffle in such a manner as to cause the greater force of the current to act upon one of the blades with greater force than the other, so as to cause the revolution of the plates through the action of the current. The pendent plates will be swung upward and toward the tail of the sluice-box, and the floating gold which may come into contact therewith will be caught by the amalgamated surface. There is one swinging pendent plate for each riffle.

I claim—

1. An amalgamator comprising an inclined sluice-box provided with an amalgamated surface and having depressions forming riffles sunk in the bottom and spaced apart and charged with mercury; the upper walls of the

riffles respectively being overhanging and deeper than the lower walls, and a screen arranged to shield the amalgamated surface.

2. An amalgamator comprising a transversely-inclined sluice-box provided with an amalgamated surface and having a series of transversely-extending depressions forming riffles sunk in the bottom and spaced apart and charged with mercury, transverse revoluble amalgamated plates arranged respectively above the riffles and a screen arranged to shield the amalgamated surface.

3. An amalgamator comprising an inclined sluice-box provided with an amalgamated surface and having depressions forming riffles sunk in the bottom and spaced apart and charged with mercury; the upper walls of the riffles being overhanging and deeper than the lower walls; revoluble amalgamated plates arranged above the riffles and a screen arranged to shield the amalgamated surface and said riffles and plates.

4. An amalgamator comprising a longitudinally-inclined sluice-box provided with an amalgamated surface and having a series of transversely-extending depressions forming riffles sunk in the bottom and spaced apart and charged with mercury, a screen arranged to shield the amalgamated surface, transverse revoluble amalgamated plates arranged under the screen and above the riffles and straight, swinging pendent amalgamated plates between the sunken riffles and beneath the screen, said swinging plates adapted to lie substantially flat upon the surface of the stream passing thereunder.

In testimony whereof I have hereunto set my hand, at Los Angeles, California, this 9th day of June, 1905.

WILLIAM H. MORGAN.

In presence of—

JAMES R. TOWNSEND  
JULIA TOWNSEND.