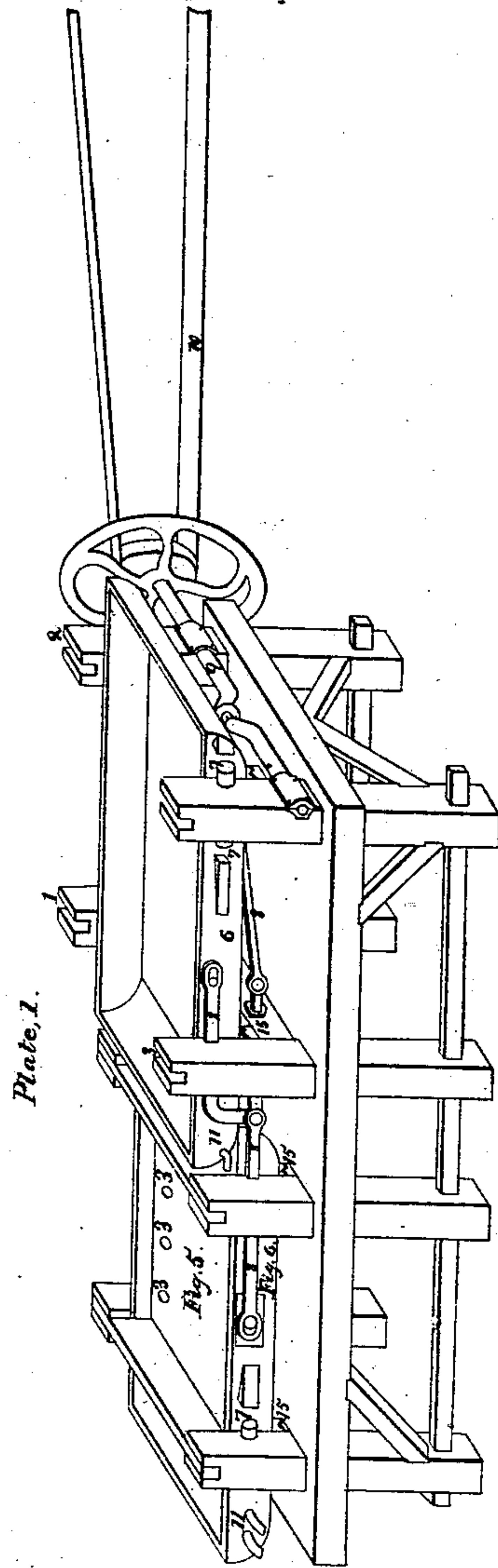
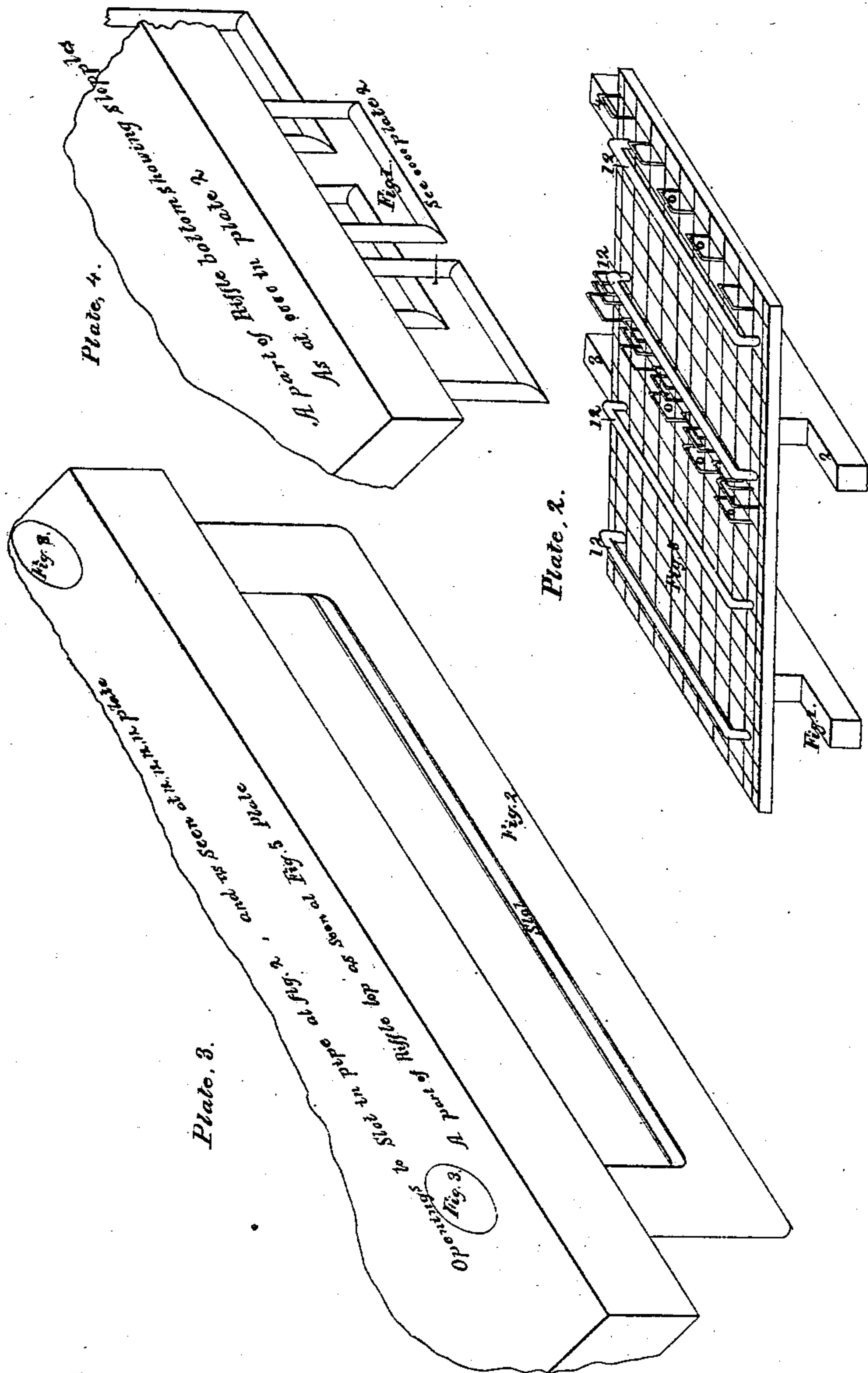


SENATZ & KNOWLTON.

AMALGAMATOR.

No. 64,258.

Patented Apr. 30, 1867.



Witnesses:
E. Wheaton
Samuel Cross

Inventor:
Anthony J. Senatz
George W. Knowlton

United States Patent Office.

ANTHONY J. SENATZ AND GEORGE W. KNOWLTON, OF SACRAMENTO,
CALIFORNIA.

Letters Patent No. 64,258, dated April 30, 1867.

IMPROVED AMALGAMATOR.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, ANTHONY J. SENATZ and GEORGE W. KNOWLTON, of the city of Sacramento, in the county of Sacramento, and State of California, have invented a new and improved Mode of Amalgamating and Separating Gold, Silver, and other Precious Metals from the rock, sand, earth, or other base materials with which they may be combined in their native state; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of our invention consists in providing two pans with copper bottoms, raised one above the other, and connecting by a rod of iron with slots therein, on each side of the pans, and a vibrating spring at the outside of the pans, the pans running on grooved rails, and having pins connected with the slots on each side. The two pans are also connected by pipes leading from the top pan, for the water and sand to run into the lower pan, wherein there are discharge pipes provided. We also claim a series of riffles, made of wood, brass, iron, or other suitable metals, and attached to plates, which are to be attached to stationary upright posts on each side of the frame, and having the riffles facing downwards on the inside of the pans.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation, reference being had to the accompanying drawings, making a part of this specification, in which—

Plate 1 is a perspective view of the whole machine complete, with one riffle-bed out, which is shown bottom side up at plate 2, and having only a portion of the staples on, and four riffle pipes. The object of these pipes is to carry the quicksilver to the bottom of the pans, as at the slot in fig. 2, plate 3. Fig. 3, on top of same plate, shows the opening into this slot for charge.

Plate 4 is a drawing, on an enlarged scale, of the staples used on the riffle-beds. These beds may be made of wood or metal, and if of wood the staples may be made of wire, of suitable size, driven into it; or if made of cast iron, the pins or staples may be cast with it. The pans, as represented in plate 1, fig. 6, are lined with copper plate, and made of an oblong form, with ends turning upwards.

We construct a frame, as represented in plate 1, of any convenient size to contain the copper-bottomed pans moving therein on slides, by means of the power applied to the iron bars or rods, with slots attached to the sides of these pans with pins. At the top of the posts of the frame we place the riffle-bed, secured by mortise and tenon, as represented in plate 1, figs. 1, 2, 3, 4. These figures represent notches to receive the riffle-bed facing downwards, and corresponding with the inverted riffle-bed, represented in plate 2, fig. 5.

Plate 1, figure 5, is the riffle-bed in position.

Plate 1, figure 6, are the pans, lined with copper, and having the ends turned upwards.

Plate 1, figure 7, is a rubber or spiral spring.

Plate 1, figure 8, are the connecting rods required for driving, in the ends of which are slots.

Plate 1, figure 9, is the main shaft with crank.

Plate 1, figure 10, is the driving power.

Plate 1, figure 11, are discharge pipes.

Plate 1, figure 15, are slides on which the pans move.

When in operation, the sand, earth, or other base material with which the precious metal may be connected, is thrown into the open end of the copper-bottomed pan, uppermost in the frame, which is supplied with a sufficient stream of water, and put in motion by the power, plate 1, fig. 10, applied on the shaft with crank, as at fig. 9, connecting with the iron rods with slots in the ends, as at fig. 8. By this motion, the water and sand, earth, rock, &c., in the pans are moved backwards and forwards with a ripple, produced by the turned-up ends of the pans; and are also thrown upwards against the riffles in the stationary beds facing downwards, until they are sufficiently washed to escape through the discharge pipes, as at fig. 11, plate 1. The gold or other precious metal amalgamates with the quicksilver received into the bottom of the pans through the slots in the riffle-beds, as represented in plate 2, fig. 12, and in plate 3, fig. 3, the undulating motion being secured by the slots in the iron bars.

What we claim as our invention, and desire to secure by Letters Patent, is—

The copper-bottomed pans, with the iron rods or bars and slots in the end, fastened to the sides of the pans with pins, and by means of which rods or bars the pans are fastened together, and an undulating motion is secured for the water and earth, which are dashed upwards against the stationary riffles, whereby the earth or sand is prevented from becoming solid.

We also claim, as a part of the same machine, the turned-up ends of these pans, and the stationary riffle-beds connected with the pans; all of said parts being the machine in combination, which will produce the intended effect.

ANTHONY J. SENATZ,
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Witnesses:

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SAMUEL CROSS.