(No Model.)

O. CAMPBELL.

APPARATUS FOR CONCENTRATING AND AMALGAMATING ORES.

No. 433,850. Patented Aug. 5, 1890.

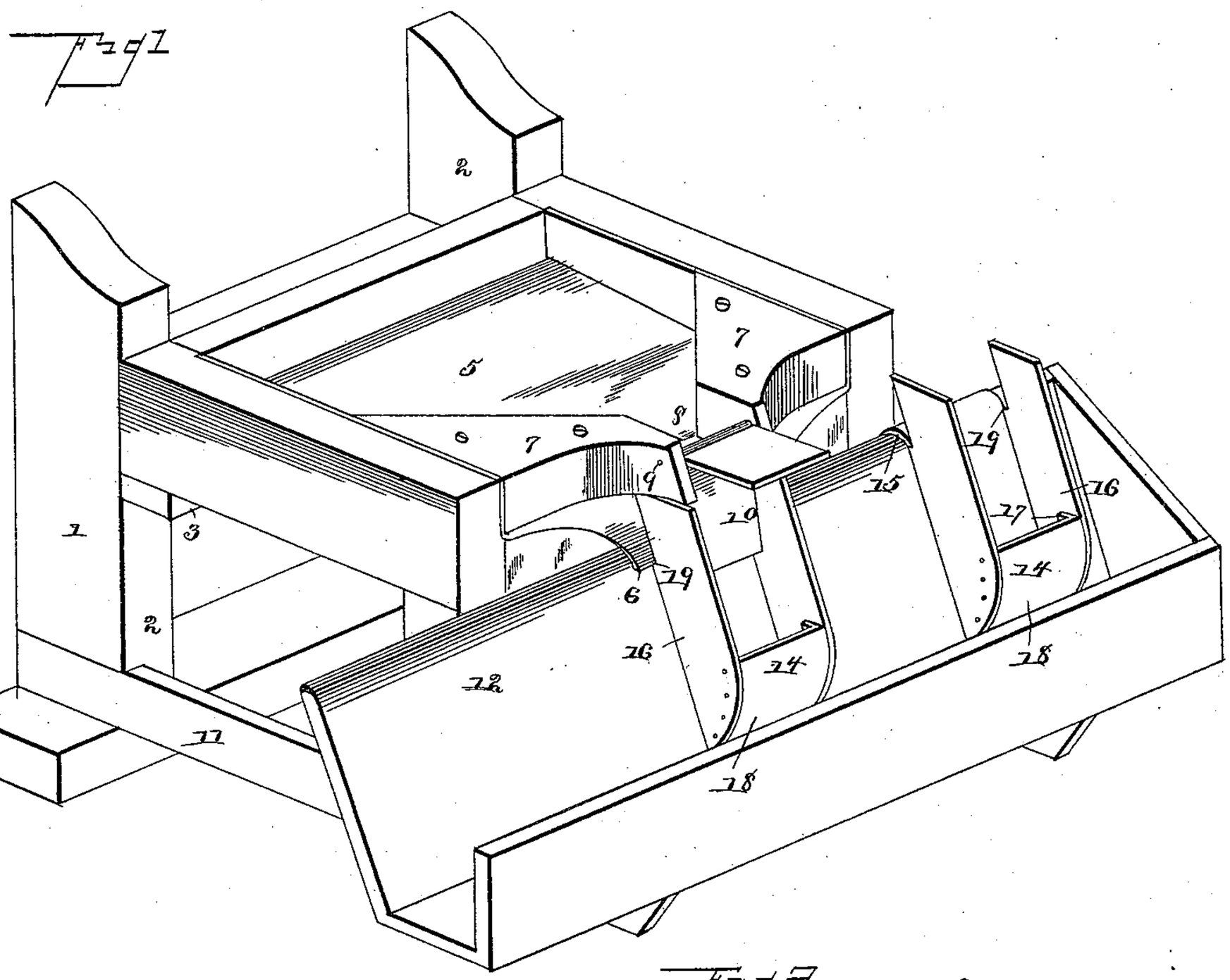

Fig 1

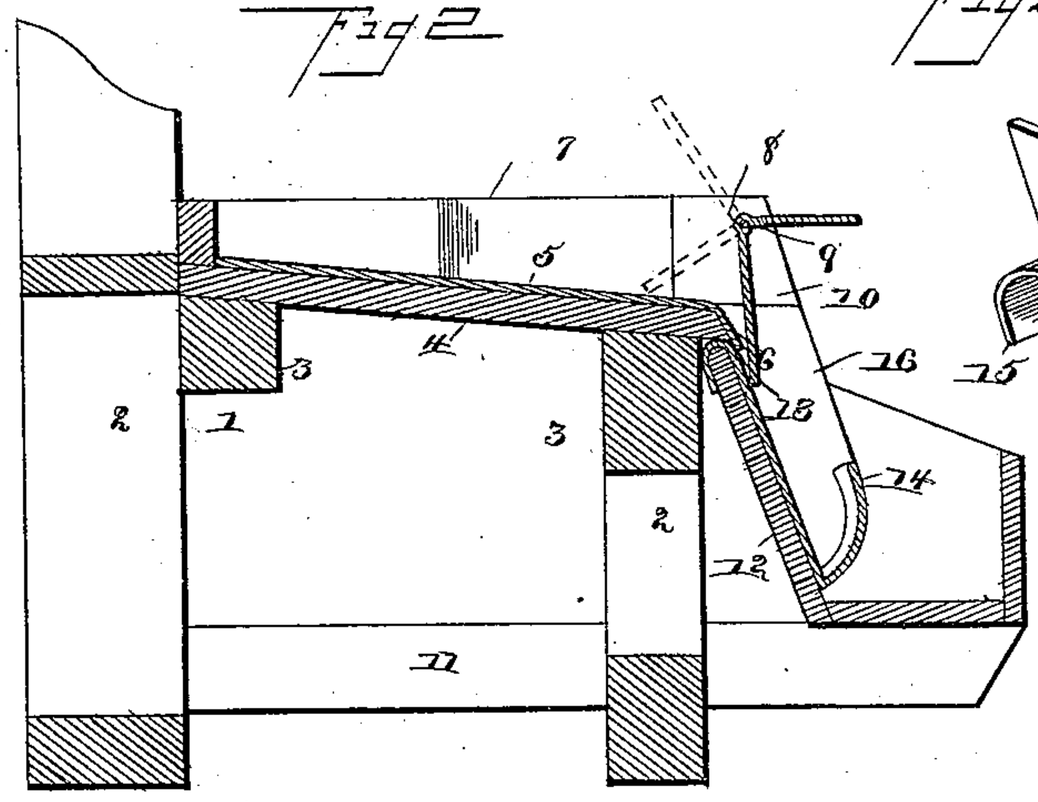

Fig 2

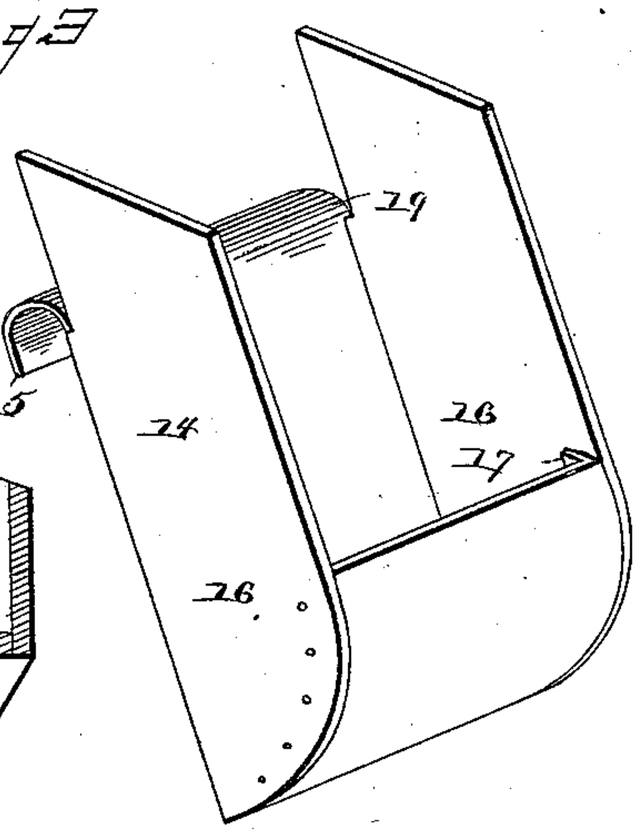

Fig 3

Witnesses:

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UNITED STATES PATENT OFFICE.

OREN CAMPBELL, OF LAWRENCE, KANSAS.

APPARATUS FOR CONCENTRATING AND AMALGAMATING ORES.

SPECIFICATION forming part of Letters Patent No. 433,850, dated August 5, 1890.

Application filed August 16, 1889. Serial No. 320,927. (No model.)

To all whom it may concern:

Be it known that I, OREN CAMPBELL, a citizen of the United States, residing at Lawrence, in the county of Douglas and State of Kansas, have invented a new and useful Apparatus for Concentrating and Amalgamating Ores, of which the following is a specification.

This invention has relation to improvements in separating-tables for overflow-troughs of stamp-mills or other forms of water-sluices used in cleaning ores, and among the objects in view are to effect a saving of the proportionate amount of precious metal, to obviate the necessity of large supplies of water for cleansing purposes, to practically free the metal from sand and other adherent foreign bodies, to obviate the necessity of frequent cleaning of the separating-table and therefore a loss of time in the operation of the machine, and to so construct the machine as to be capable of a continuous and unremittent operation upon the ores as they come from the sluice and stamp-mill.

With these general objects in view the invention consists in certain features of construction hereinafter specified, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 represents the perspective of a stamp-mill table provided with improvements in accordance with my invention. Fig. 2 is a longitudinal section of the same. Fig. 3 is a detail in perspective of one of the removable mercury-receiving pockets, illustrating its construction.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 represents the usual frame-work of a separating-table, the construction of which has no special reference to my present invention, and therefore requires no specific description, it being simply necessary to say that it consists of four standards 2, connected by cross-bars 3, and a superimposed top 4, all securely bolted together.

5 represents a pan, preferably formed of Russia iron, or other suitable metal, the walls of which are secured to the cross-bars of the frame-work and the front edge of which is extended to form a depending lip 6, inclined slightly downward. If desired, I may upturn the front corners of the pan or tank 5; but for obvious reasons prefer to mount therein triangular blocks 7 at each side of the front edge to form a reduced exit port or chute 8. Between the blocks I pivot upon a shaft 9 a water-governing gate 10, the tendency of which is to remain closed, and is opened by the supply of water. Below the mouth of the pan, and located upon opposite horizontal bar 11, which projects in front of the frame-work, is mounted an inclined waste-trough 12, the rear wall of which is inclined laterally to about seventy degrees, said rear wall being overlapped by the lip or tongue 6 of the pan 5, and forming a space 13 between the tongue and rear wall.

14 represents sheet-metal mercury-receiving pockets, and the same are provided with a rearwardly-disposed hook-shaped flange 15, which takes over the rear wall of the waste-trough, each of which is adapted to be slid therealong and into line with the chute of the tank, and into said pocket depends the governing-valve, which not only performs its function of governing, but also serves to maintain the pocket in position and against an undesired lateral movement. The construction of pocket preferred is as herein shown, the same consisting of a blank of metal, the longitudinal sides of which are folded to form opposite sides 16 and the lower end of the blank bent upwardly, and upon the edges of the sides, as at 17, to form a rounded bottom 18. The upper end of the blank is oppositely slit, as at 19, and the central portion or that portion intermediate the slits bent rearwardly to form the flange.

The operation of my invention will be readily apparent in that the ore and water flowing into the pan or tank passes down through the chute thereof with force by reason of the chute and into a mercury-pocket, which is aligned under the chute. The constant pouring of the water and ore into the pocket agitates the same and preserves a bright surface of mercury, which readily adheres to the gold or silver and rejects the refuse material which overflows into the waste-trough. As one pocket becomes filled it is slid from under the chute, the L-shaped governor being reversed for that purpose, so that its opposite half forms a gate for the chute and prevents the escape of the contents of the pan during the change. A new pocket

having been slid along into position, the gate is reversed and the operation repeated, the pockets being emptied and returned.

Having described my invention, what I claim is—

1. In an apparatus for concentrating and amalgamating ores, the combination, with the frame, of a pan or tank mounted thereon and terminating at one end in a reduced discharge-chute provided with a gate, substantially as specified.

2. In an apparatus for concentrating and amalgamating ores, the combination, with the frame, of a pan or tank mounted thereon, provided at its inner opposite corners with triangular blocks, forming a reduced chute, and a gate pivoted in the chute between the blocks, substantially as specified.

3. In an apparatus for concentrating and amalgamating ores, the combination, with the frame having a pan or tank terminating at one end in a chute, of a trough mounted under the chute, and a removable mercury-receiving pocket supported by the trough in line with the chute, substantially as specified.

4. In an apparatus for concentrating and amalgamating ores, the combination, with the frame having a pan or tank terminating at one end in a chute, a gate mounted in the chute, of a trough inclined and arranged below the chute and provided with an inclined rear wall, and a removable mercury-pocket having a flange engaging the inclined wall of the trough, and adapted to slide thereon and be locked in position by the gate, substantially as specified.

5. In an apparatus for concentrating and amalgamating ores, the combination, with the frame of a pan or tank mounted thereon and terminating in an inclined lip, opposite triangular blocks mounted in the open end of the tank and forming a chute, a pivoted L-shaped reversible gate mounted in the chute between the blocks, an inclined waste-trough mounted below the chute and having an inclined rear wall overlapped by the tongue arranged below the chute, and a series of mercury-pockets provided at their rear edge with a locking-flange adapted to embrace the edge of the trough and to be slid along into line with the chute, substantially as specified.

6. In an apparatus for concentrating and separating ores, a metallic mercury-receiving pocket consisting of a single blank piece of metal slitted inwardly at each end near its opposite sides, the intermediate portion or bottom being bent backwardly at one end to form a supporting flange or loop, the opposite end of the intermediate portion or bottom extending beyond the sides, flanged and turned upwardly and backwardly and secured to the upturned sides forming a pocket, substantially as specified.

7. In an apparatus for concentrating and amalgamating ores, the ore-receiving tank terminating in a chute, and a pivoted gate 10, mounted in the chute, in combination with the trough 12, arranged below the chute, and a removable mercury-receiving pocket adapted to be locked in position by the gate, as set forth.

8. In an apparatus for concentrating and amalgamating ores, the ore-receiving tank terminating in a discharge-chute, and the trough arranged thereunder, in combination with the series of removable mercury-pockets loosely mounted upon the edge of the trough and adapted to be successively moved under the chute, substantially as specified.

9. In an apparatus for concentrating and amalgamating ores, the tank or pan terminating in a chute provided with a pivoted L-shaped gate, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

OREN CAMPBELL.

Witnesses:

D. E. GRAHAM,

W. G. FEARING.