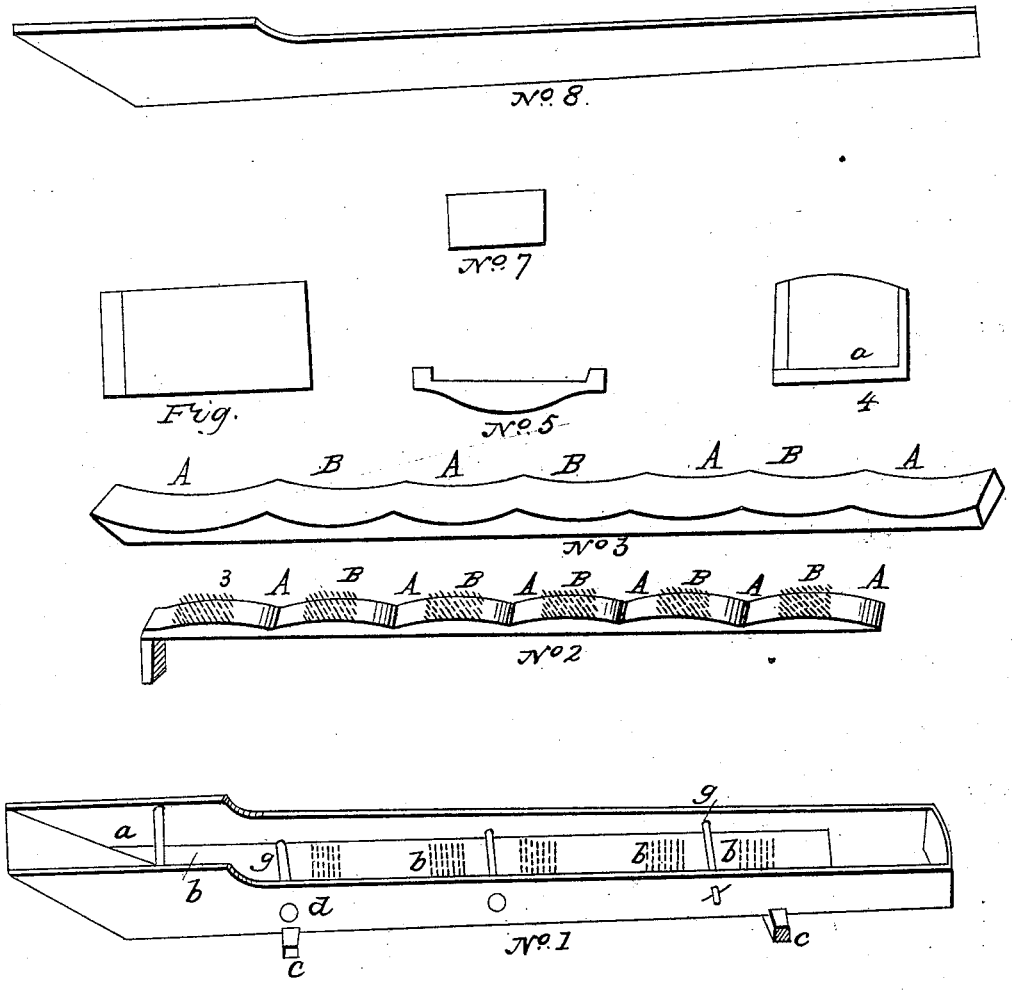
T. SEAY.

Ore Amalgamator.

No. 2,078. Patented May 4, 1841.



N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

THOS. SEAY, OF COLUMBIA COUNTY, GEORGIA.

APPARATUS EMPLOYED FOR SEPARATING GOLD FROM ITS ORES AND THE EARTHY SUBSTANCES COMBINED WITH IT.

Specification of Letters Patent No. 2,078, dated May 4, 1841; Antedated February 9, 1841.

To all whom it may concern:

Be it known that I, THOMAS SEAY, of Columbia county and State of Georgia, have invented a new and useful machine or mode for separating gold from its ores and earth by amalgamation, called the "undulating amalgamator," and I do hereby declare the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure (1) one represents a perspective view. Letter A is where the ores and sediment goes into the machine. Letter *f* is where it passes out. Letter *b* represents the heads of the pigs drawn through the top plank. Letter J represent the loops across the top plank for the purpose of drawing up the sides. Letter *d* represents the heads of the loops. Letter E represents the point of the loop with a draw pin. Letter C represents the points of the rockers.

No. 2 represents the top inverted with the head piece. Letter B represents the points of the pins driven through the convex parts. Letter A the concave parts. Letter C the head piece.

No. 3 represents the bottom plank. Letter A the concave parts. Letter B represents the convex parts.

No. 4 represents the tail piece of the bottom plank detached. Letter *a* is a hole through it for the water and sediments to pass off.

No. 5 represents the rocker detached.

No. 6 represents the head piece of the bottom plank detached.

No. 7 represents the head piece of the top plank detached.

No. 8 represents one side plank detached.

To enable others skilled in the art of making and using my invention, I will proceed to describe its construction and operation. I take two plank sixteen or eighteen feet long eighteen inches wide and two or two and half inches thick. The one I design for the bottom I mark square across every two feet. I then strike a circle on both edges of the plank from one mark to the other so as to clip one inch into the plank. I then add or trim it out exactly to the circle scribed, which forms a circle or concave dipping one inch in two feet as will be seen in the annexed drawings by reference to Fig. No. 3. Letters A represent the concave parts formed by trimming out the same circle scribed. Letter B represents the convex parts of the same. I then lay off my top plank in the same way and cut a convex so as to precisely fit the concave of the bottom. I then get the center of every concave, and by laying off six inches each way from the center I get one foot. I then check that foot into two inch squares; at every square I bore a quarter inch hole. I then bore a similar hole in the center of every check. I then fill those holes with pins letting them come through one inch and a half as will be seen by reference to the annexed drawing Fig. No. 2. Letter B, represents the points of the pins as they appear through the convex parts which is to rest on the concave parts of the bottom when put together. I then take two plank one inch thick as will be seen by reference to the annexed drawing Fig. No. 8 and confine them with nails close and tight to each side of the bottom piece which forms something similar to a trough. I then take a piece of plank of the same thickness and width of the bottom and bevel one end so that when the bevel part rest on the head parts of the bottom, it will incline two feet forward making the top part of the side pieces two feet longer than the bottom part. In that situation I secure it tight and fast with nails to the sides and bottom. This I call the head piece of the bottom, which will be seen by reference to the annexed drawing Fig. No. 6. I then nail a piece of inch plank across the tail end with a hole in the bottom for the water and sediments to pass off which will be seen by reference to Fig. No. 4. Letter *a* represents the hole for the water and sediments to pass through. I then nail a piece of inch plank to the head of the top plank of just the width of the same and made to come up even with the top parts of the side planks as will be seen by reference to the annexed drawings Fig. No. 2. Letter C represents the arm attached to the top piece.

No. 7 represents the same detached. This I call the head piece of the top plank.

No. 5 represents the rocker detached. I then take my top piece and fit the pins that pass through the convex parts and rest them on the concave part of the bottom, having the top piece short enough to leave a space

sufficient between the head of the top piece and the head of the bottom piece for the water and ore to pass in and a space at the lower end so that I can examine at leisure to see that there is no quicksilver working down with the ores and sediment. I then draw the sides close and tight to the top by loops, as will be seen by reference to the annexed drawings Fig. No. 1, letter *g* representing the loops crossing the top. Letter *d* shows the heads of two loops. Letter E represents the point of one with a draw pin. By these loops the sides is drawn so close to the top plank that no water can pass above the top plank. I then attach common rocker near each end which can be seen by reference to the annexed drawing Fig. No. 1 and letters *c c* and fix them on a firm foundation with the amalgamator inclined just enough for the water to carry off the sediment without the quicksilver. This is best discovered by trying the sediments and seeing whether they contain any quicksilver, as a very slight alteration in the depth of the curves will make a great difference in the inclination. If the quicksilver works through I give it less inclination. This machine is put in motion by attaching a common lever to any part of it. The lever can be put in motion by the hand or machinery so as to give it about thirty two motions a minute on its rockers; it should rise and fall four or five inches every motion. When the pounded ore is dry it should be put into a hopper similar to a grist mill with a shoe loosely attached to it and the sides of the amalgamator between the head piece of the bottom plank and the head piece of the top plank.

The rocking of the machine will keep the shoe in motion and give regular feed: at the same time a constant stream of water should be emptying in at No. 1 letter *a*.

When the ore is pounded in water it should be conducted in at the last mentioned place. The head piece of the top prevents it from going over as will be seen by reference to the annexed drawing No. 1, letter *y*, and forces it through the inch and a half space formed by the pins driven through the convex of the top plank as seen in the annexed drawing No. 2, letter B. I commonly put in thirty pounds of quicksilver that being divided and put into concaves from first to third commencing at the upper part or head of the amalgamator, it is dashed in every direction with the gold and sediment among the pins which rest on the concave of the bottom so that it is impossible for the lightest particle of gold to escape as the quicksilver is dashed against the top and presenting a new surface every motion by the amalgamator and nothing that passes through can rise higher than the top. As the gold passes through the concaves it comes in contact with the quicksilver amalgamates and remains with it in the concaves of the bottom piece. The quicksilver having too much gravity to pass off with the ores and sediments.

The pins as represented in the annexed drawing No. 2 letters B gives the quicksilver a new surface every motion and causes it to rise to the top plank by striking them and scattering in every direction in the concaves they keep the sediments loose and free from backing in the concaves which they would otherwise do and obstruct the whole process.

When I wish to take the gold out I stop the sediments and ore from going in and keep the amalgamator in motion a few minutes. I then unloop the top or unclamp the side pieces, raise the top out and find the gold and quicksilver in the concaves of the bottom without any ore or sediment whatever.

The above description is for fine pounded ores. When I wish to separate the gold from coarse pounded ores or gravel sediment I then lay the top aside and work as above without the top, as the top is constructed only for fine pounded or ground ore.

What I claim as my invention and desire to secure by Letters Patent is—

The constructing of the above described rocking trough or amalgamator with an undulating surface on its bottom plank in combination with the top plank provided with pins and fitting into said trough which will produce the desired effect.

THOMAS SEAY.

Witnesses:

JOSEPH W. GRIFFITH,

HENRY WINFREY.