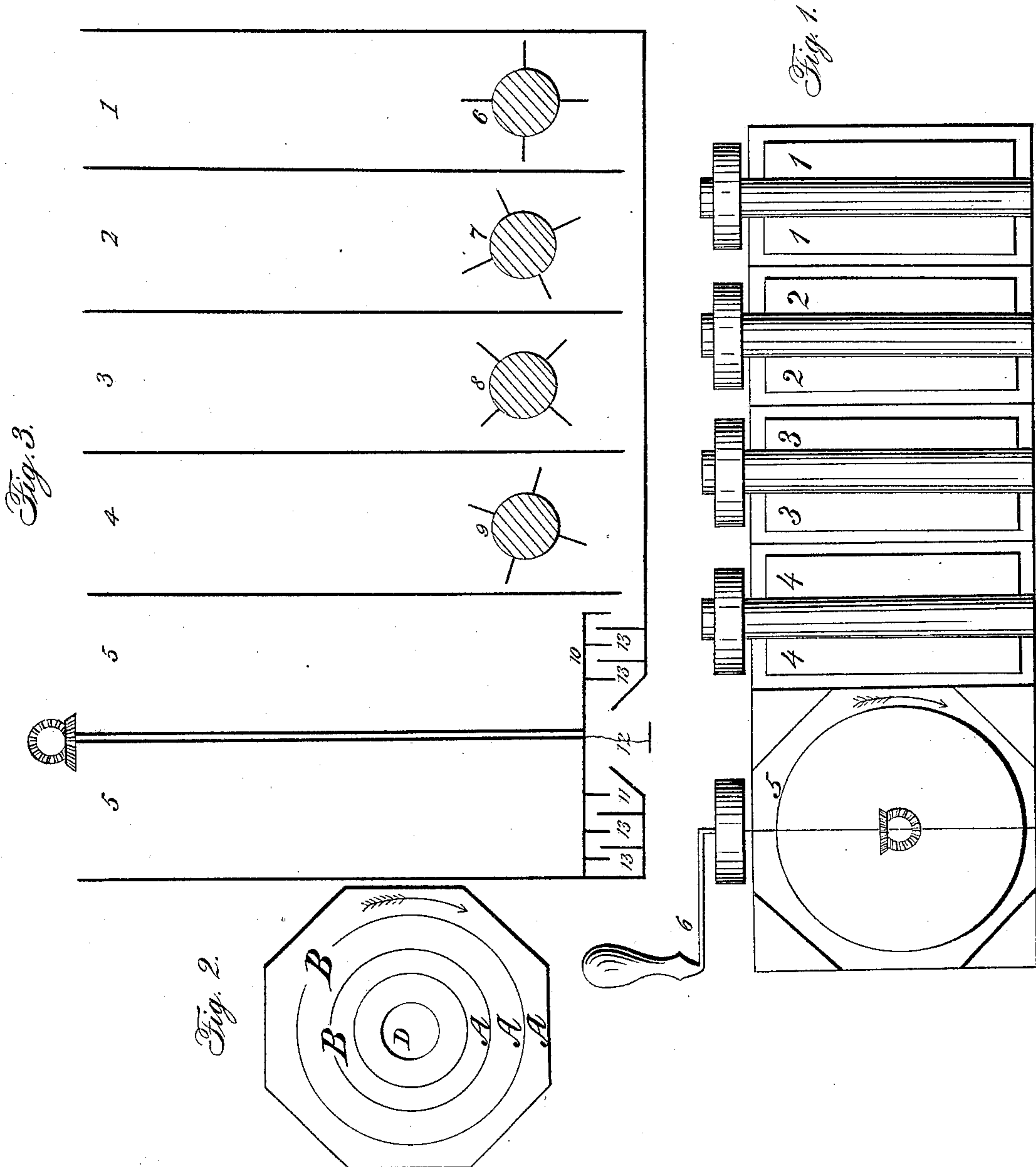


A. BUFFUM.
Ore Amalgamator.

No. 9,759.

Patented May 31, 1853.



Witnesses:

R. H. Russell
Meles B. Andrews,

Inventor:

Arnold Buffum

UNITED STATES PATENT OFFICE.

ARNOLD BUFFUM, OF NEW YORK, N. Y., ASSIGNOR TO JOHN D. LYNDE.

IMPROVED GOLD WASHER AND AMALGAMATOR.

Specification forming part of Letters Patent No. 9,759, dated May 31, 1853.

To all whom it may concern:

Be it known that I, ARNOLD BUFFUM, of the city, county, and State of New York, have invented a new and Improved Mechanical Arrangement for Separating Gold from Pulverized Ore or from other Substances by the Amalgamating Process, which arrangement is called "Buffum's double-acting gold-separator;" and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

The mechanical arrangement consists of a flume—say four feet long, eighteen inches wide, and eighteen inches deep—closed on the bottom, sides, and ends, except a small aperture through which the sand and impurities are washed away. The flume is divided into, say, five compartments by crosswise perpendicular partitions having a connecting open passage-way between the lower end of the partitions and the bottom of the flume open perpendicularly one inch. Compartments 1 2 3 4 are centrifugal amalgamating-compartments. 5 is a centripetally-discharging compartment. Centrifugal-acting agitators, each about eighteen inches long and six inches diameter, composed of central shafts surrounded with water-moving appendages, are suspended one in each centrifugal compartment crosswise of the flume at a clear elevation of two inches from the bottom, and are connected by pulleys and belts outside of the flume. The discharging-aperture is in the center of the bottom of the centripetal compartment, and is surrounded by a conical inclined plane five inches diameter at the base, two and a half inches open at the top, and one and a half inches high. A series of circular channels within one another surround the conical inclined plane. These channels are formed by true circular divisions rising from the bottom two inches, having connecting-openings of three inches each cut out from each division. Immediately above these there is a water-moving and ore-guiding table suspended and revolving horizontally, which carries the water in this compartment in a regular whirlpool motion and confines the circulation of the ore to a close contact with the quicksilver. The lower side of this water-moving and gold-guiding table may be a plane or of any other desired form or configuration; but I prefer constructing it with concentric

flanges projecting down, so as to revolve in the channels of the bottom, and thereby aid in producing and continuing the current through those channels.

In practical operation the bottom of the flume is covered with a bed of quicksilver, the water and ore are poured in at the top of compartment No. 1, where the ore settles down to a contact with the first centrifugal agitator. The revolving of the agitators carries the water circularly around their centers and produces an agitation which washes the ore and moves it through the connecting-openings directly upon the surface of the quicksilver. The rotation of the agitators being perpendicular produces a downward centrifugal action, throwing and pressing the gold upon and into the quicksilver, thereby securing the most sure and perfect amalgamation and saving of the gold. The action of the whirlpool in the centripetal compartment carries the impurities circularly in the channels and centripetally through the openings to the central aperture, where they pass away, while the conical inclined plane prevents the escape of quicksilver.

In the drawings, Figure 1 represents a top view of the flume with its arrangements. 1 2 3 4 are the centrifugal amalgamating-compartments with the centrifugal-acting agitators. 5 is the centripetal discharging-compartment with the horizontally-revolving table. 6 represents a crank to give revolving motion to the table and the agitators. 7 represents the line of connecting-belts.

Fig. 2 is an inside view of the bottom of the centripetal compartment with the table removed. Letter A represents the circular channels; B, the openings in the dividing-flanges; C, the base of the conical inclined plane; D, the central aperture through which the impurities pass away.

Fig. 3 represents a sectional elevation of the whole machine. 1 2 3 4 are the centrifugal amalgamating-compartments. 5 is the centripetal discharging-compartment. 6 7 8 9 are the centrifugal-acting agitators. 10 is the revolving table; 11, the conical inclined plane; 12, the discharging-aperture; 13, the circular dividing-flanges.

The size and the proportions of the arrangement admit of variations. The number of compartments may be increased or diminished. An additional centrifugal compartment, with

a discharging-aperture in the end of the flume at an elevation sufficient to prevent the escape of quicksilver, may be substituted for the centripetal discharging-compartment.

What I claim as my invention in the arrangement of gold-separators, and desire to secure by Letters Patent, is—

1. The furnishing of the centripetal discharging-compartment with a horizontally-revolving water-moving and ore-guiding table, in combination with a discharging-aperture surrounded by a conical inclined plane at the center.

2. The arrangement of the circular guiding-channels with connecting-openings so adjusted as to secure an irregular spiral passage from the periphery to the aperture at the center.

3. The arrangements for gold-separators, whether the centrifugal and centripetal compartments be used in combination, or either of them separately.

New York, April 11, 1853.

ARNOLD BUFFUM.

Witnesses:

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