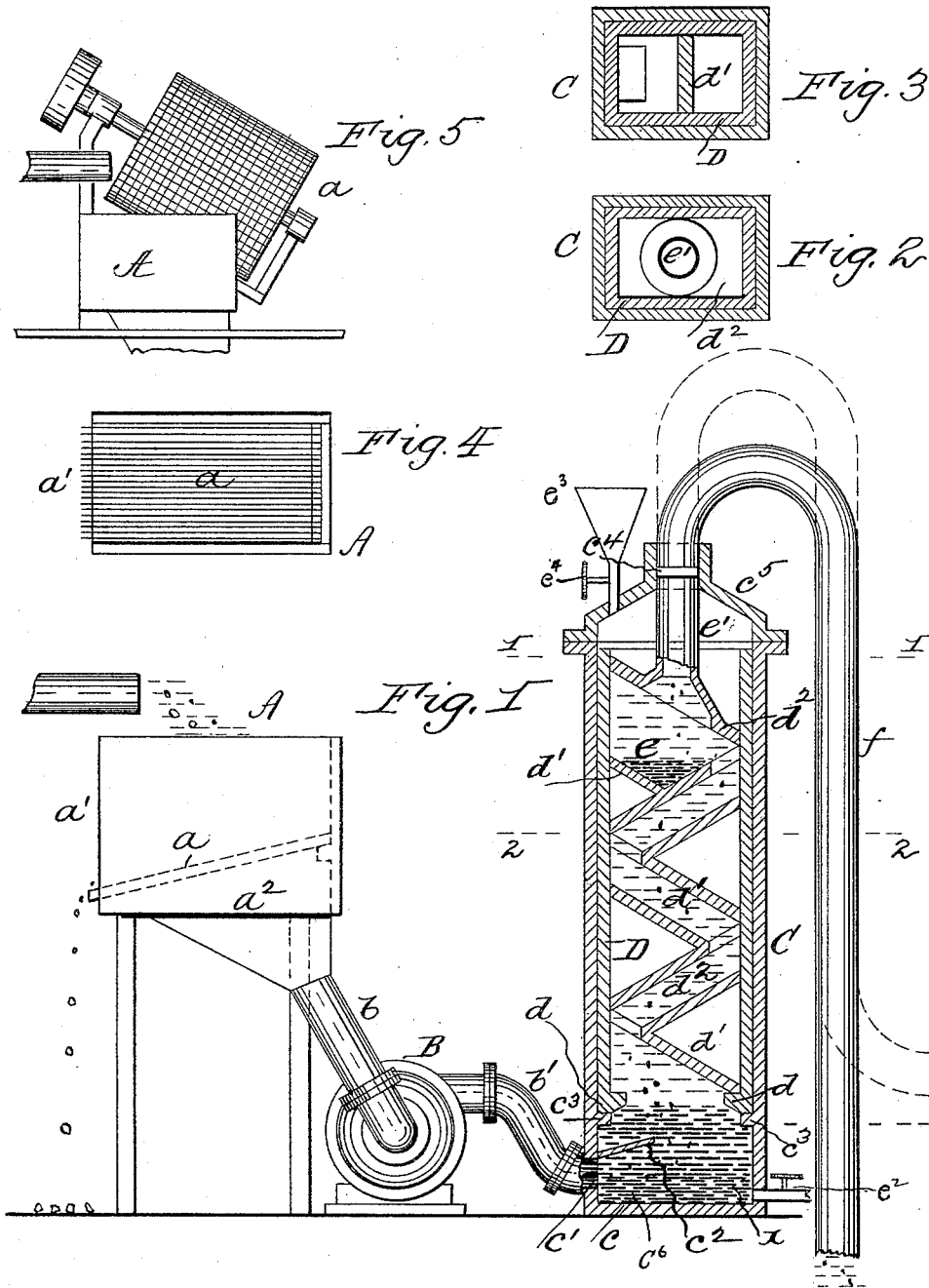


(No Model.)

C. F. PIKE.
AMALGAMATOR.

No. 458,838.

Patented Sept. 1, 1891.



WITNESSES:

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CHARLES F. PIKE, OF PHILADELPHIA, PENNSYLVANIA.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 458,838, dated September 1, 1891.

Application filed December 20, 1890. Serial No. 375,314. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. PIKE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Amalgamators, of which the following is a specification.

My invention has relation to amalgamating apparatus wherein the gangue is first caused to rise through a body of mercury and then travel in contact with amalgamating-plates before being discharged from the apparatus; and it has for its object simplicity of construction and efficiency of operation, for rapidly and economically working large quantities of gangue in a given time, to make the apparatus especially available for use in placer mining, and for working dredged or raised river-bottom material, particularly so when the same contains low-grade float gold or ore.

My invention accordingly consists of the combinations, constructions, and arrangements of parts, as hereinafter more particularly described in the specification, and pointed out in the claims.

Reference is had to the accompanying drawings, wherein—

Figure 1 is an elevation, partly in section. Fig. 2 is a section on the line 1 1, Fig. 1. Fig. 3 is a like view on the line 2 2, Fig. 1. Fig. 4 is a plan of one form of grate or screening box, and Fig. 5 is an elevation of another form of the same.

A represents a grate or screening box having an inclined grate or screen a , with open or delivery end a' for the discharge of all the waste or debris of a solid or bulky nature, and an open bottom a^2 , having a pipe connection b with a suction and force pump B, which has a pipe connection b' with the bottom c of the amalgamator C. The latter consists preferably of an upright chamber having within it projecting from one side above and adjacent to the opening c' for pipe b' a plate or spreader c^2 , above which are located side lugs c^3 , supporting an inner casing or sleeve D, having at its lower edge inwardly-projecting flanges d , which support a series of alternately-inclining plates d' d^2 , which are preferably amalgamating-plates removable from the casing D. The upper plate d' is formed with

a mercury-containing pocket e , having outlet-cock e^2 , and the upper plate d^2 is provided with a pipe connection e' , which leads to an opening c^4 on the lid or cover c^5 of the amalgamator C, having inlet e^3 , closed by a cock e^4 . From the exit-opening c^4 may lead a flexible siphoning-pipe f . At the bottom of the amalgamator in the well c^6 is located a body of mercury x , which is balanced therein by the pressure from the pump B, which pressure is high enough to not only balance such mercury, but also to force the gangue therethrough and elevate it through the amalgamator.

The operation is as follows: The gangue and water supplied to the grate-box A is screened of its waste and forced by the pump B into the mercury x , being spread in the same by the plate c^2 , thence raised through the same and through the channel between the amalgamating-plates d' d^2 and discharged through the pipe f . By using the latter as a siphon-leg and adjusting it the rate of discharge from the amalgamator may be varied as desired. As the gangue passes through the mercury x , more or less of the float-gold is concentrated therein, and such of it as escapes such action is correspondingly treated by contact with the plates d' d^2 . The mercury-pocket e is provided to catch any gold or mercury that may remain on the gangue previous to being discharged from the amalgamator. If desired, a rotating cylindrical grate or screen may be substituted for the flat-grate in box A. (See more plainly Fig. 5.)

An apparatus constructed and operated as above described will rapidly and economically concentrate the ore from large quantities of gangue in a given time, and is adapted for use alone or in connection with other forms of amalgamators or concentrators, described and shown by me in two other pending applications, filed by me of an even date herewith, Serial Nos. 375,312 and 375,313.

What I claim is—

1. The combination of the outer casing C, having a mercury-pocket at its lower end, and a force-pump communicating with said mercury-pocket to support the mercury in said pocket, the removable inner casing D, supported within said outer casing above the inlet from the pump and provided with a series

of inclined plates, and a removable cover at the upper end of the casing, having a siphon secured thereto, substantially as set forth.

5 2. The casing C, having mercury-pocket c^6 at its lower end, lugs c^3 above said pocket, removable inner casing D, resting on said lugs, distributor c^2 in pocket c^6 , and alternately-inclined plates d' d^2 in casing D, the top plate d' having pocket e and the top plate d^2 hav-

ing a pipe e' , leading to the discharge end of the amalgamator, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES F. PIKE.

Witnesses:

GEO. R. BYINGTON,
S. J. VAN STAVOREN.