(No Model.)

A. D. CLARKE.

AMALGAMATOR.

No. 248,710. Patented Oct. 25, 1881.

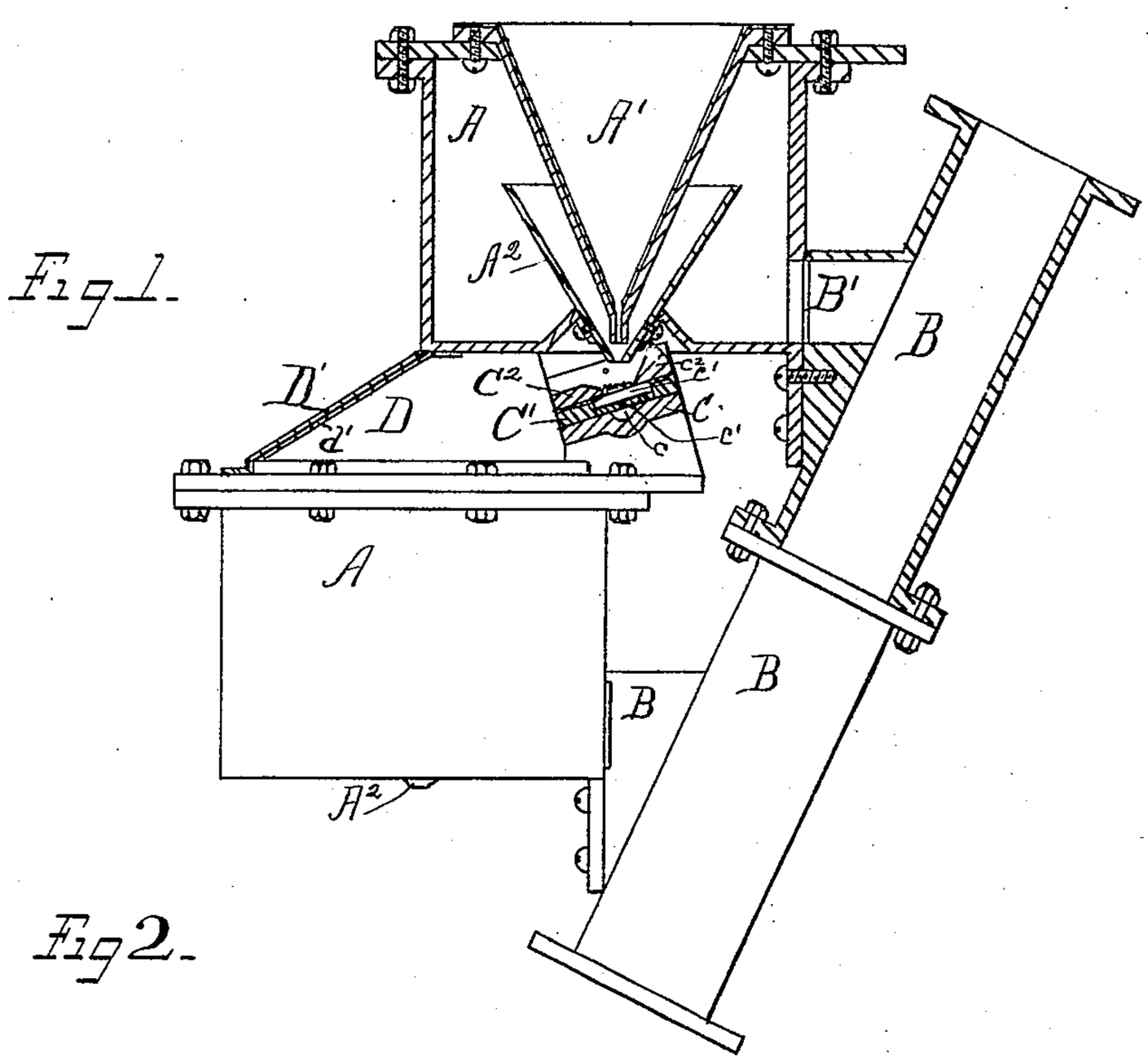


Fig 1.

Fig 2.

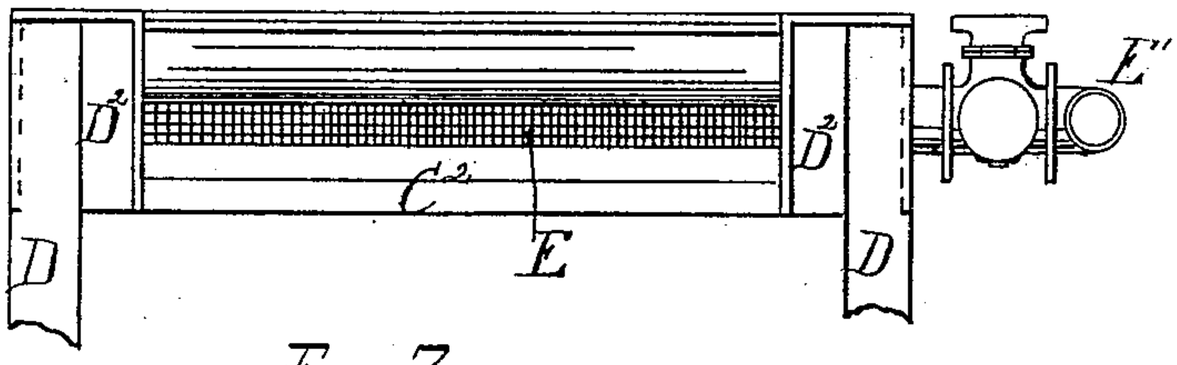


Fig 3.

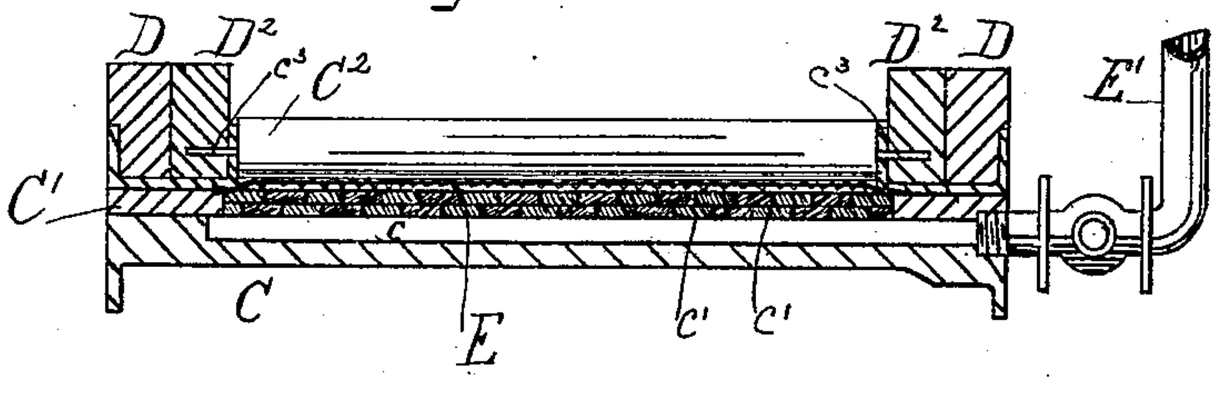
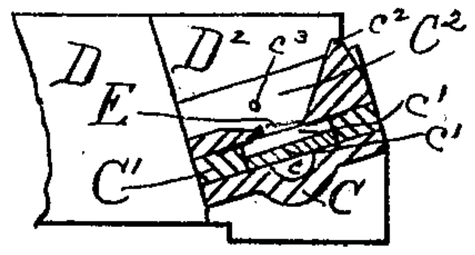


Fig 4.



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UNITED STATES PATENT OFFICE.

ALEXANDER D. CLARKE, OF OMAHA, NEBRASKA.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 248,710, dated October 25, 1881.

Application filed September 5, 1881. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER D. CLARKE, of Omaha, Douglas county, State of Nebraska, have invented certain new and useful Improvements in Amalgamators, of which the following is a specification.

In this invention I have made some improvements upon the amalgamators shown by me in former applications filed on the 8th day of April, 1881, and the 19th day of July, 1881, respectively.

The improvements consist, mainly, in the use of a diaphragm composed of two layers of short blocks of wood, placed edge to edge, with the joints broken across the mercury-feeding opening or recess, instead of a single block of wood running lengthwise of said opening. I find that if the wood becomes damp from any cause the mercury does not freely percolate through it, and in order to insure the percolation under such circumstances it is necessary to have a pressure upon the mercury equal to that caused by an unnecessarily high column thereof. By the change mentioned a modified flow of the mercury between the joints of the blocks is insured by the pressure of a column a few inches high only, and such modified flow is sufficient for the operation of the apparatus without any percolation through the pores.

Another branch of the invention consists in placing over the diaphragm a layer of wire-cloth, whereby the blast is prevented from blowing the mercury too freely and easily from the diaphragm, the cloth acting to detain the mercury until a thorough commingling between it and the mineral has taken place.

In the accompanying drawings, forming part of this specification, Figure 1 is a side view, partly in section, of that portion of the amalgamator embodying my present invention. Fig. 2 is a plan of the diaphragm and mercury-box detached; and Figs. 3 and 4 are respectively central, vertical longitudinal and cross sections of Fig. 2.

In said drawings, A represents box or case, in which is inserted and supported a funnel, A′, to which the mineral is fed. The lower end of this funnel within the box A is surrounded by the casing A^2, so that proper direction is imparted to the air-blast, which enters the box A through the connection B′ from the conduit B.

The diaphragm and mercury-holder, which is placed immediately under the mouth of the funnel and casing A′ and A^2, is composed of the under plate, C, having a longitudinal recess, *c*, into which the mercury is admitted, the rectangular frame C′, which incloses and holds the pieces *c′*, which make up the diaphragm, and the upper and inclosing frame, C^2. The latter is provided with a raised ledge, c^2, at the back side, which shuts the opening between it and the box A or casing A′ at that side, so that none of the blast can escape there. A hood composed of end pieces, preferably of metal, D, which fit upon the ends of C^2, and an inclined sheet-metal roof, D′, which latter is lined by an amalgam plate, *d′*, incloses the diaphragm and mercury-holder at the ends and front, and conducts the blast into the funnel of the next box A, precisely as in my previous application of the 19th day of July, 1881.

D^2 are filling-blocks, which are secured to the frame C^2 by pins c^3, passed through raised ledges at the ends of the diaphragm-opening, as shown in Fig. 3. The hood incloses these blocks.

The diaphragm, as clearly illustrated in Figs. 3 and 4, is composed of short blocks of wood *c′*, laid edge to edge across the mercury-recess, and in two layers, the joints in one layer breaking joints with the other layer. This construction permits ready adjustment if the wood becomes so swollen by dampness as to close the joints too tightly by reducing the width of one or more blocks in each layer, and it also permits tightening the blocks by removing one or more blocks and inserting others of increased width.

The wire-cloth E is placed over the diaphragm, and held by being clamped between the frames C′ and C^2. Its operation will be understood from what has already been said.

E′ is the vertical mercury-supply pipe, connected to the end of recess *c* in plate C. The parts C, C′, and C^2 are, of course, connected firmly together by bolts or otherwise, substantially as indicated in the former application. By diverting the mineral after it strikes the diaphragm, as it is caused to be by the construction shown, much of it will strike the amalgam plate *d′* in the hood with saving results.

This wire-cloth is intended more especially to be used when the mineral earth or sand is mixed with water before it reaches the diaphragm. The wire-cloth does not lie flat upon the diaphragm, but is preferably raised a little

therefrom at the lower edge, so as to stand at an angle, as appears in Fig. 4.

I claim—

1. In an amalgamator, a diaphragm, through which the mercury is fed to the blast-driven mineral, composed of short blocks of wood, substantially as set forth.

2. The combination, with a diaphragm through which the mercury is fed to the blast-driven mineral, of a layer of wire-cloth placed over the diaphragm, substantially as and for the purpose set forth.

3. The combination, with the boxes A A′ A², of the plate C, frames C′ and C², and the hood D D′ *d*′, whereby the blast is guided from one box to the next, substantially as set forth.

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