(No Model.)

W. R. MILLER.

AMALGAMATOR.

No. 245,388. Patented Aug. 9, 1881.

Fig. 1.

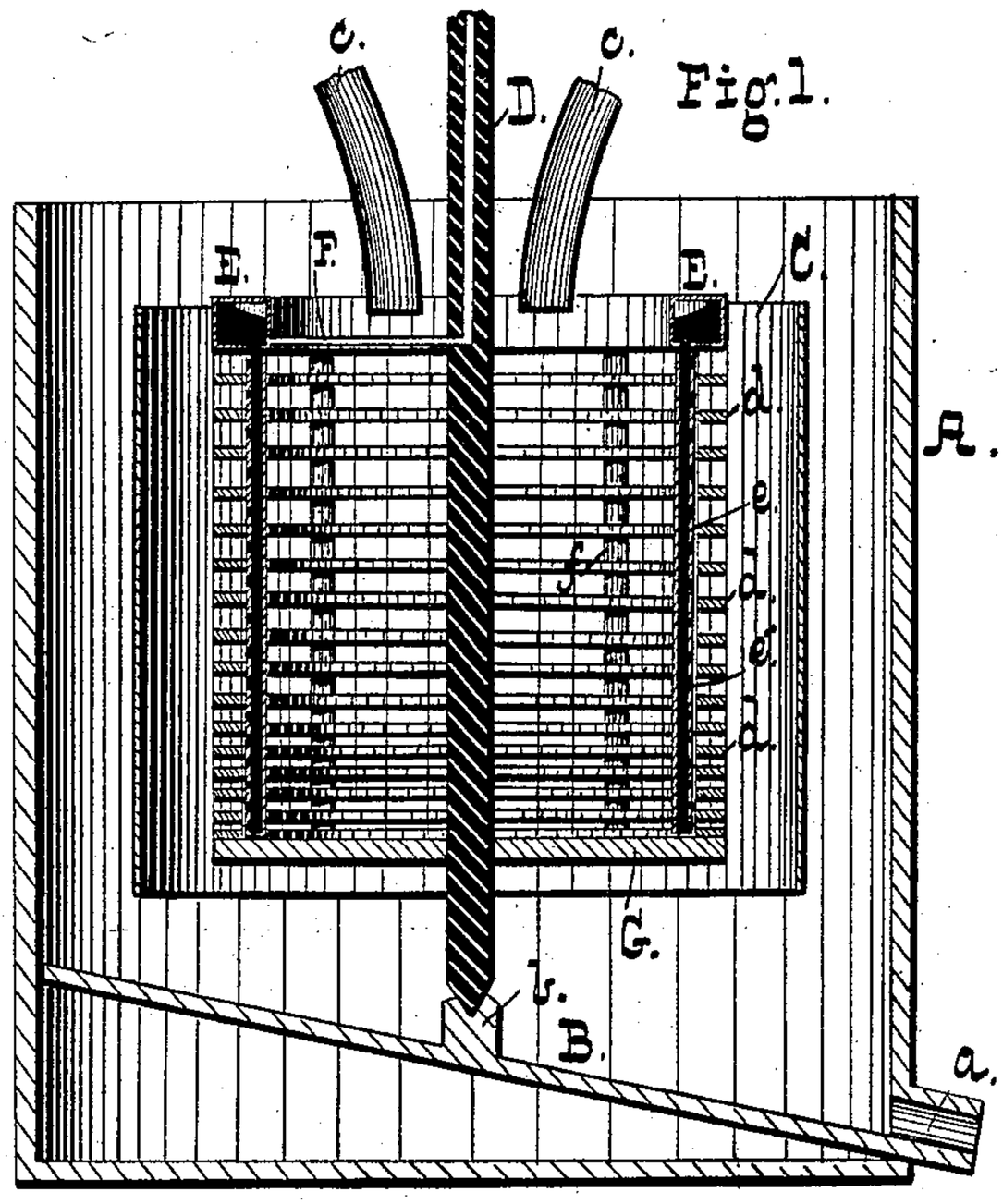
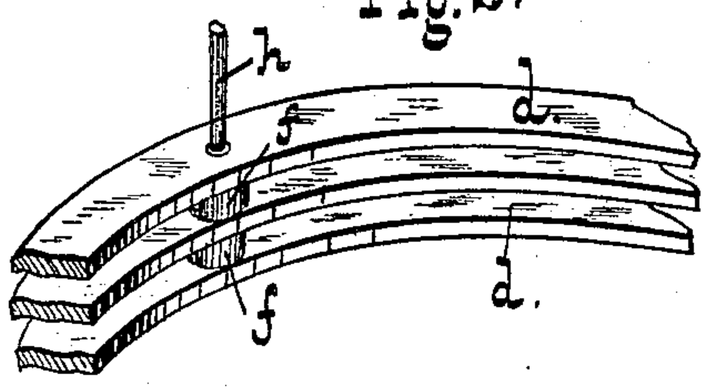


Fig. 2.



WITNESSES.

W. A. Bertram

D. L. H. Barclay.

INVENTOR

W. R. Miller

BY

R. D. Williams

ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM R. MILLER, OF BALTIMORE, MARYLAND.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 245,388, dated August 9, 1881.

Application filed June 14, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. MILLER, of Baltimore city, State of Maryland, have invented certain new and useful Improvements in Amalgamators; and I hereby declare the same to be fully, clearly, and exactly described as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical sectional view of the device, and Fig. 2 is a perspective view of a part of the cage or basket.

My invention has reference, in general, to that class of amalgamators designed to project the auriferous ore against an amalgamated surface; and it consists in certain improvements upon the apparatus described in an application for Letters Patent filed by me June 9, 1881.

My present invention relates, in particular, to certain features of construction of the mercury-distributer and of the basket, the construction of the latter being such that it is fitted for general use as a centrifugal machine, as will be hereinafter more fully set forth.

In the drawings, A is the outer casing, having discharge-spout *a*, and B is the floor, which is made to incline toward the outlet *a*.

C is an amalgamated surface, made either in the form of a plate or series of plates, or else, and by preference, in the form a series of tubes or rods mounted vertically within suitable supports, and constituting a cage surrounding the central revolving basket.

D is the central shaft, mounted upon a step, *b*, and driven by a belt upon a pulley in the usual way, and to it is secured the base-plate G. From the latter extend upward a number of rods, *h*, upon which are strung the rings *d d*, which constitute the basket, a washer, *f*, being interposed upon each rod between each pair of rings. These washers are graduated in thickness, so that the spaces between the rings gradually increase in width from the bottom toward the top of the basket, as shown.

E is an annular trough, from which lead one or more pipes, *e*, to the bottom of the basket. These pipes have a lateral slit or series of perforations, *e'*, and are designed to supply mercury to the plate or series of rods C.

F is a pipe leading from the center of the shaft D to the trough E, and *c c* are the inlet-spouts for the ore.

Such is the construction of the device.

In operation the basket is caused to revolve rapidly, and the ore and water are supplied to the basket through the spouts *c c*, and are thrown forcibly outward through the spaces between the rings *d* against the rods or plates C. The gold adheres to the amalgamated surface and the refuse ore falls upon the floor B and is discharged through the spout *a* to the jigs or separators, in order to recover any particles of gold or amalgam mechanically carried away with the ore.

When it is desired to reamalgamate the rods or plate C it is only necessary to supply mercury to the trough E through the pipe F, when the mercury descending the pipes *e* is also thrown outward by centrifugal force against the surrounding surface, and adheres thereto. A most important result is attained by the peculiar construction of the basket. As the latter is kept wholly or partially filled with the ore and water pending the operation of the machine the material settles somewhat, the heavier particles falling to the bottom of the machine so that were the spaces between the rings uniform a greater quantity of material would be discharged at the bottom of the basket than near the top, and the lower portion of the plate C would be worn away, and would require amalgamation before the upper portions. The described construction equalizes wear, and renders the amalgamation of the ore uniform throughout the extent of the surrounding surface. It will be readily understood that this feature is not confined in its adaptability to amalgamators, but is of importance in applying the machine to other uses.

The basket is of such construction that any of its parts may be readily renewed when worn out, and the mesh of the basket may readily be altered as desired by simply inserting washers of the desired thickness.

In lieu of annular washers wedges or blocks, or other devices for spacing the rings, may be used.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an amalgamator, a revolving basket having peripheral discharge-spaces for the ore, increasing in capacity from the bottom toward the top of the basket, in combination with a

circumjacent amalgamated plate or cage, substantially as and for the purpose set forth.

2. In an amalgamator, a revolving basket consisting of a series of rings separated by washers, increasing in thickness from the bottom toward the top of the basket, substantially as set forth.

3. In combination with the base-plate and series of vertical rods, the rings and washers mounted thereon, as set forth.

4. In combination with the central shaft and base-plate rigidly secured thereto, the rods *h*, rings *d*, and washers *f*, as set forth.

5. In combination with the revolving basket, the slitted or perforated tubes *e*, attached to and revolving with the basket, as and for the purpose set forth.

6. In combination with the basket and annular trough E, the depending slitted or perforated pipes *e* and plate C, as set forth.

7. In combination with the basket and central shaft, the plate C, annular trough E, pipe F, and depending discharge-pipes *e*, substantially as described.

WM. R. MILLER.

Witnesses:
R. D. WILLIAMS,
JNO. T. MADDOX.