

No. 613,767.

Patented Nov. 8, 1898.

T. R. JORDAN.

APPARATUS FOR TREATING AURIFEROUS OR OTHER ORES.

(Application filed Aug. 28, 1897.)

(No Model.)

Fig. 2.

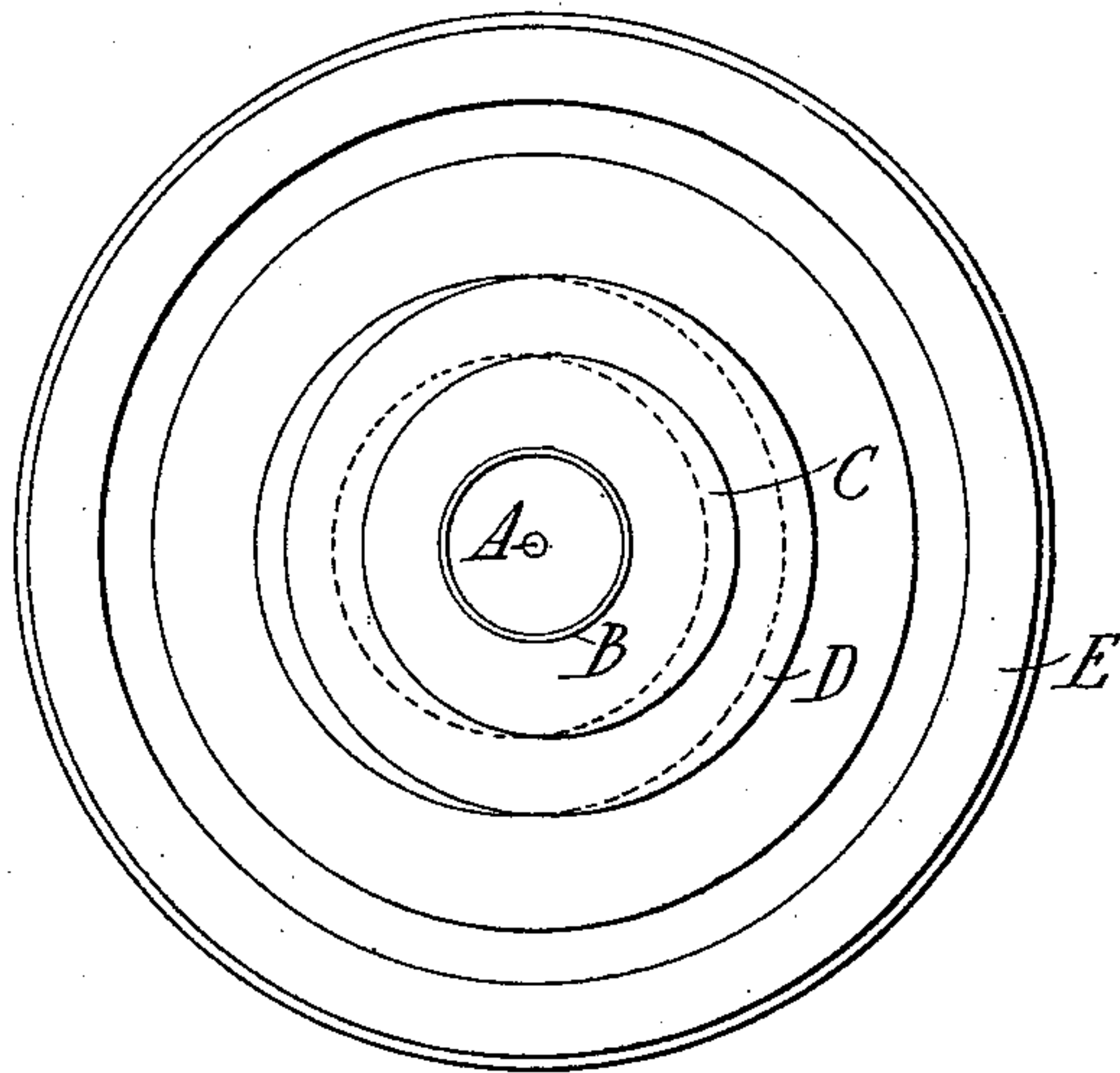
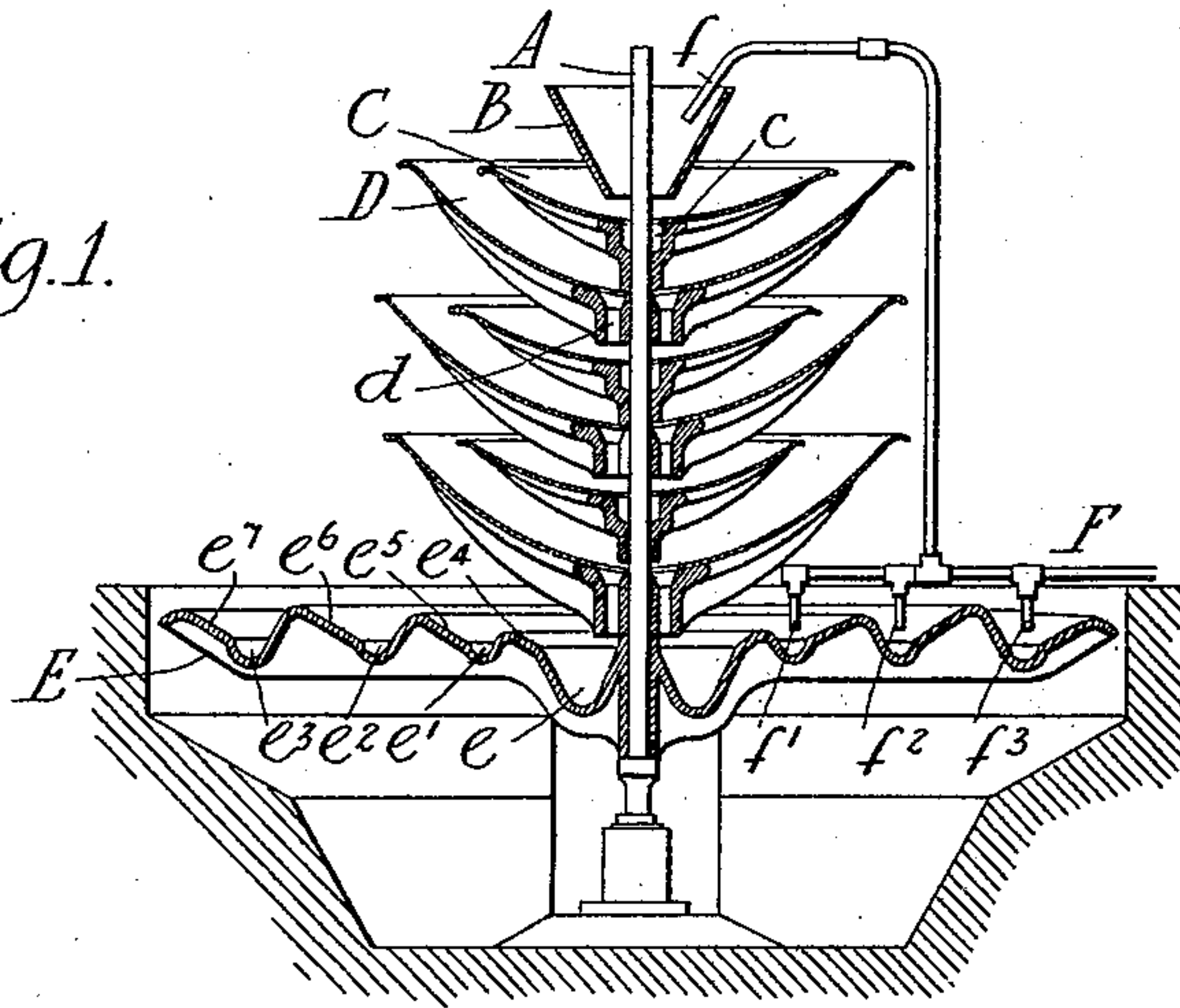


Fig. 1.



Witnesses

Ben Temple Webster -
S. E. Zimmerman

Inventor

Thomas Rowland Jordan

By

W. W. Dudley & Co.
His Attorneys

UNITED STATES PATENT OFFICE.

THOMAS ROWLAND JORDAN, OF NEW YORK, N. Y., ASSIGNOR TO THE
ANGLO-AMERICAN REDUCTION COMPANY, OF SAME PLACE.

APPARATUS FOR TREATING AURIFEROUS OR OTHER ORES.

SPECIFICATION forming part of Letters Patent No. 613,767, dated November 8, 1898.

Application filed August 28, 1897. Serial No. 649,806. (No model.)

To all whom it may concern:

Be it known that I, THOMAS ROWLAND JORDAN, a subject of the Queen of Great Britain, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Apparatus for Treating Auriferous or other Ores; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to the treatment of auriferous and other ores and sands for the extraction therefrom of the precious metals contained therein; and it consists in a new and improved construction of an amalgamating-machine by the operation of which are secured the maximum results in the direction of the recovery of the precious metals, provision being made for bringing the values into constant and continuous contact with amalgamated surfaces and for recovering the fine float-gold at the earliest stage in the operation of the machine.

The following description is directed to the details of construction and operation of my improved amalgamating-machine, and in connection with such description attention is directed to the accompanying drawings, in which—

Figure 1 is a vertical central sectional view of my improved amalgamating-machine. Fig. 2 is a plan view thereof.

Referring to the said drawings by letter, A is a vertical spindle suitably journaled and provided with any convenient means for its rotation. Near the upper end of the spindle is a hopper B, into which the material to be amalgamated is fed, said hopper being preferably concentric with the spindle, as shown. Fixedly mounted on the spindle, to revolve therewith, are a plurality of dishes C C, concentrically or eccentrically disposed, each of which is provided adjacent to the spindle with an annular depression or well c, containing mercury.

D D are dishes which are alternated in po-

sition with the dishes C and fixed on the spindle. The dishes D are of larger diameter than the dishes C and have a greater concavity and present a greater inclination of surface than the latter. In the dishes D, near the spindle, are openings d, providing passages therefrom to the next adjacent dish C.

Immediately below the dishes C and D is a concentrating-pan E, fixed and concentrically mounted to the spindle to revolve therewith, and said pan is provided adjacent to the spindle with a comparatively deep concentrically-disposed annular well e, the sides of which are sharply inclined, as shown. Beyond the well e are a number of shallow concentrically-disposed wells e' e² e³, which increase in depth outwardly, and between these wells are inclined surfaces e⁴ e⁵ e⁶ e⁷, which increase in height outwardly, as shown.

F is a water-supply pipe provided with an outlet f, discharging into the hopper B, and with outlets f' f² f³, discharging into the wells e', e², and e³.

In the operation of my improved amalgamating-machine it will be noted that all of the surfaces which I term "acting" are in motion and that such motion is or may be eccentric or concentric to the spindle with which they revolve. The surfaces of the dishes C and D are of copper, and said dishes, as before stated, are alternated in position and have different concavities or inclination of surface, with the result that the material under treatment on entering the dishes C will be carried by centrifugal action over the periphery thereof and onto the surface of the dish D below, where it is carried by gravity, the centrifugal action being overcome by the gravity of the material over the inclination of the surface to the center, and reaching the openings d it passes therethrough and falls onto the next adjacent dish C. The material, with a supply of water, is fed into the machine through the hopper B and falls on the surface of the mercury in the well of the uppermost dish C, with the result of arresting and amalgamating the fine float-gold at the earliest stage of the operation. The centrifugal action, with or without the eccentric motion of the revolving dish, causes the particles of the material to be carried over the surface of the

dish, with the result that the auriferous and argentiferous values contained in the material are brought into constant and continuous frictional contact therewith and become
 5 absorbed by the mercury or amalgam with which the surface is covered. The material is carried by the described action to and over the periphery of the dish and falls therefrom onto the next adjacent dish D. This second
 10 dish is, as before stated, of greater concavity than the dish C, and its surface has consequently a comparatively greater inclination. The weight of the material, therefore, overcomes the centrifugal action of this dish D,
 15 with the result that the material gradually falls to the center and passes through the openings d to the next adjacent dish C, where it is again operated upon, as previously stated. The material after passing over the series of
 20 dishes C D falls through the openings d in the lowermost dish into the well e of the concentrating-pan E and is here agitated by a current of water from outlets presently to be referred to, which causes the lighter particles
 25 to be suspended, the heavier particles falling to the bottom of the said well. The centrifugal action due to the movement of the pan causes the lighter particles of the material to be carried over the inclined surfaces $e^4 e^5 e^6 e^7$
 30 and into the wells $e' e^2 e^3$, portions of the material being retained in the wells for retreat-

ment. The action of the concentrating-table is to a great extent controlled by the force of the water-currents which are supplied to the wells through the outlets f' , f^2 , and f^3 . 35

I claim as my invention—

1. In an amalgamating-machine, the combination with a vertical spindle and means for rotating the same, of a series of dishes concave throughout and mounted on the spindle with their peripheries eccentric to the latter, and having varying degrees of concavity substantially as and for the purpose set forth. 40

2. In an amalgamating-machine the combination with a vertical driving-spindle, of a series of revoluble dishes the peripheries of which are set eccentrically to the spindle, said dishes having in their base a well for the reception of mercury, and a series of dishes and having a degree of concavity in excess of that of the latter and having outlets in their base, and a revolving concentrating-pan provided with a series of concentric wells and interposed inclined surfaces, and a water-supply, substantially as described. 55

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

THOMAS ROWLAND JORDAN.

Witnesses:

WM. A. TOPPING,
 B. BENJ. SCHIFF.