No. 641,360. Patented Jan. 16, 1900.

L. H. BARRICKS.

ELECTRIC AMALGAMATOR.

(Application filed Oct. 2, 1899.)

(No Model.)

Fig. 1.

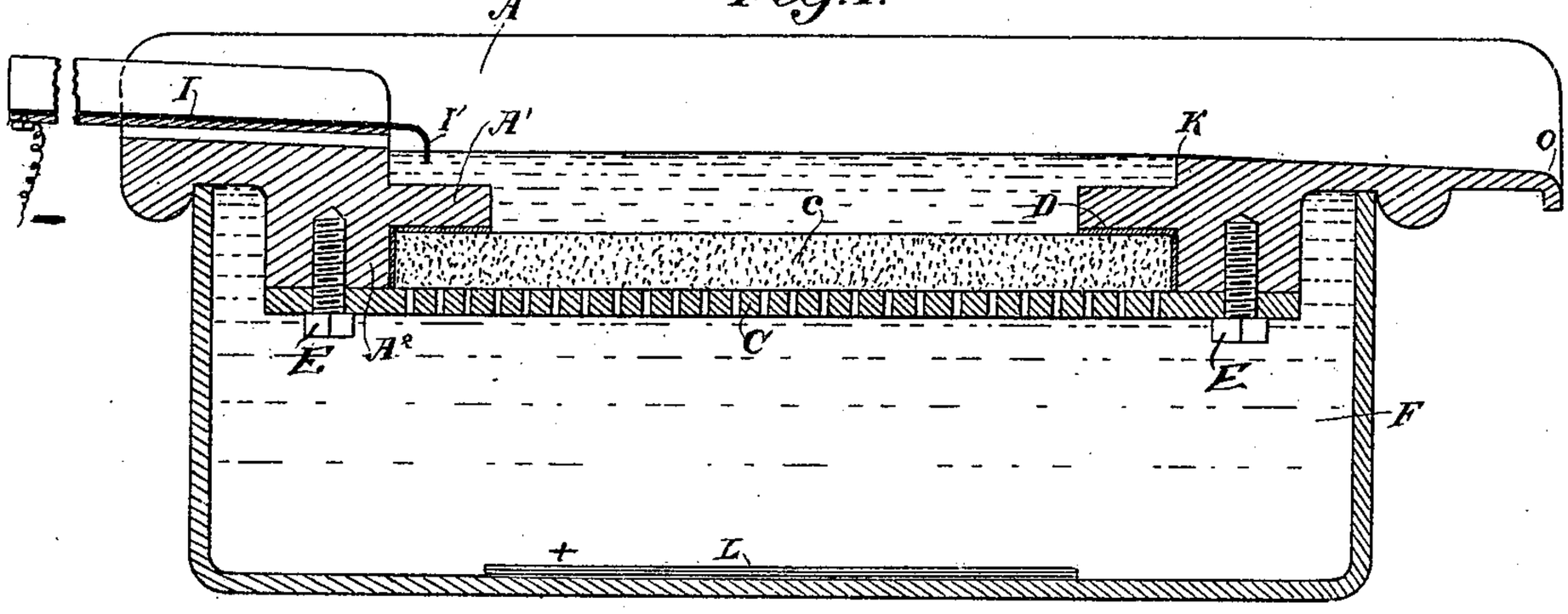


Fig. 2.

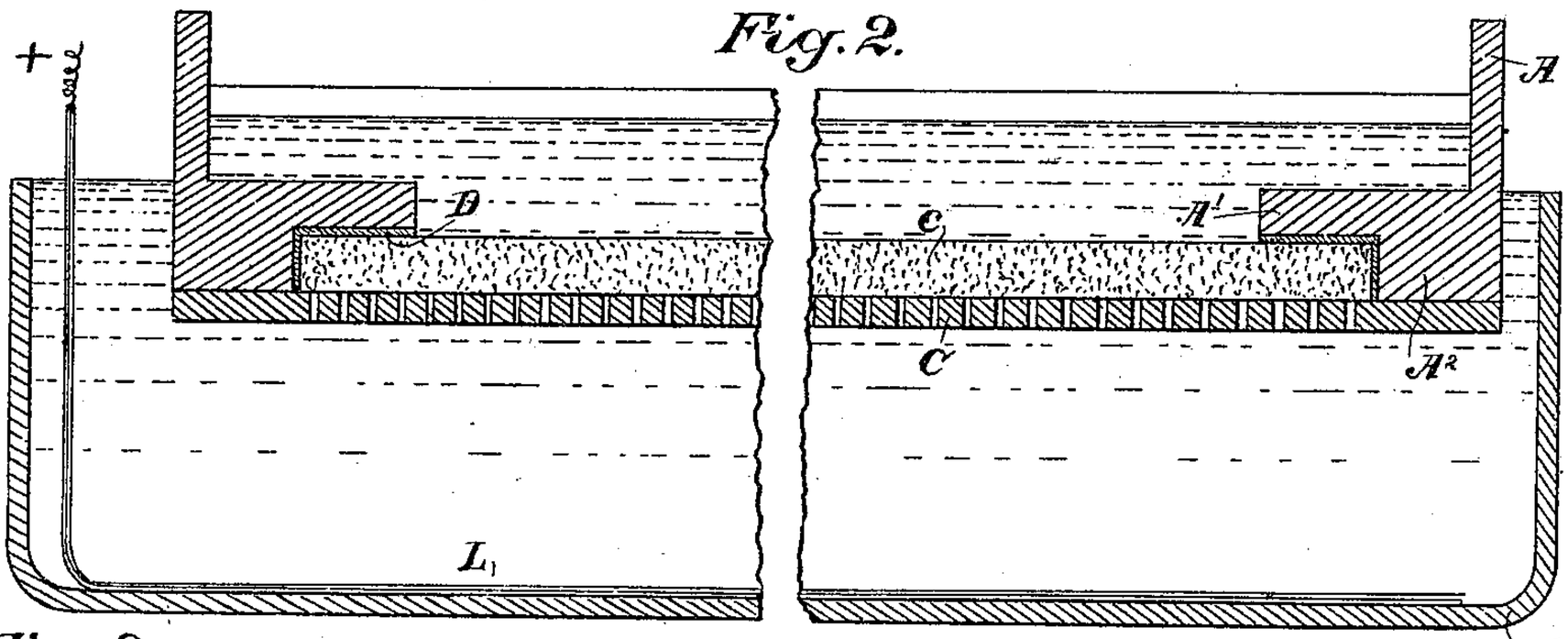
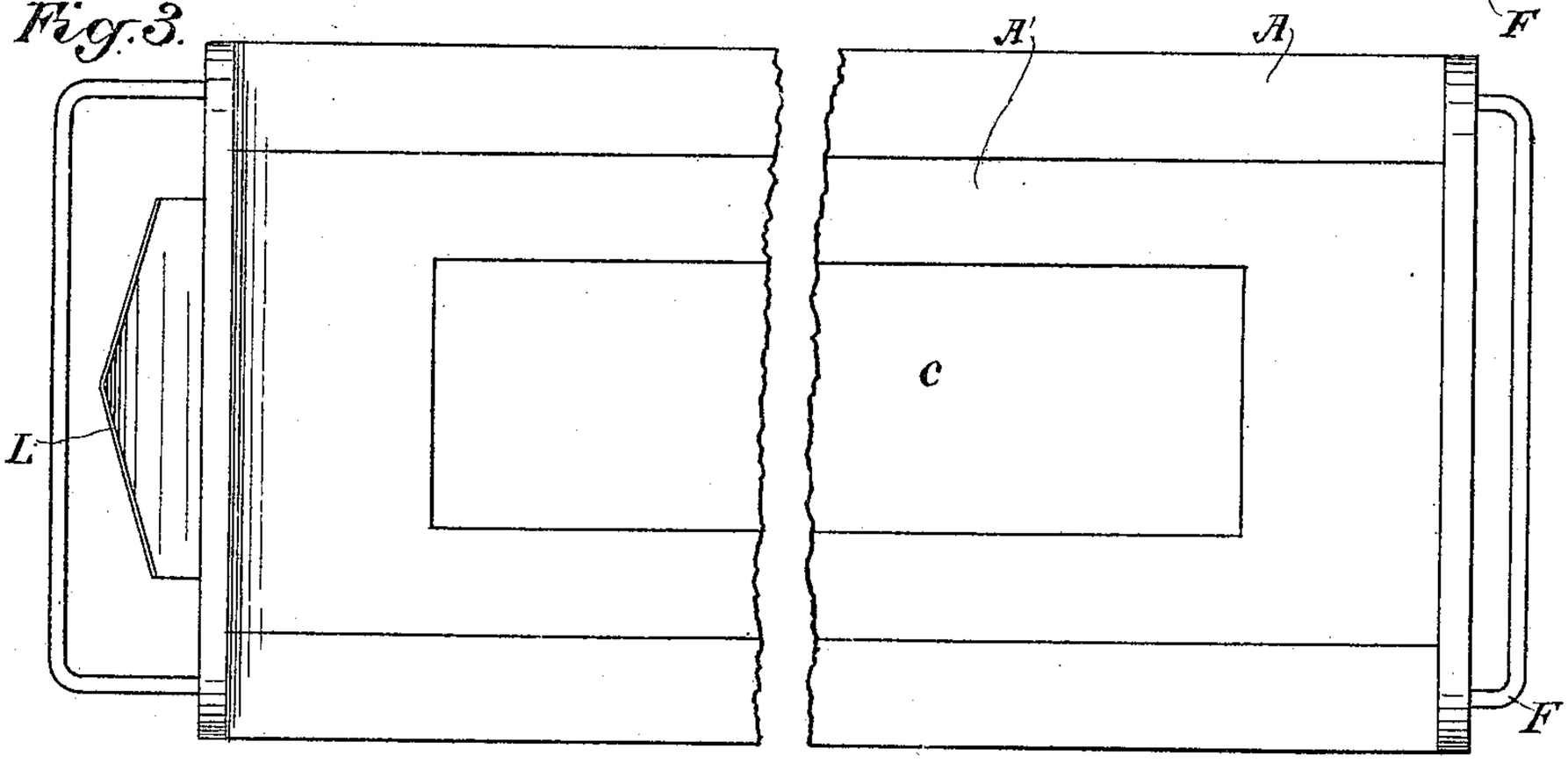


Fig. 3.



Witnesses,
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UNITED STATES PATENT OFFICE.

LOUIS HENRY BARRICKS, OF SAN FRANCISCO, CALIFORNIA.

ELECTRIC AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 641,360, dated January 16, 1900.

Application filed October 2, 1899. Serial No. 732,325. (No model.)

To all whom it may concern:

Be it known that I, LOUIS HENRY BARRICKS, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Electric Amalgamators; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device for separating gold and silver from pulp and ore with which they are associated.

It consists of the parts and the constructions and combinations of parts hereinafter described and claimed.

Figure 1 is a longitudinal section through the riffle. Fig. 2 is a cross-section of the same. Fig. 3 is a plan view.

The object of my invention is to provide a means for increasing the activity of amalgamation of gold, silver, platinum, copper, and other like metals, and this I effect by the employment of one or more riffles, which may be attached to the apron of a stamp-battery or located in the sluice-box or in other convenient relation with the passing pulp.

As shown in the present case, the body of the riffle is made as shown at A and may be of iron or any other suitable material, and this is fitted to rest upon a box or tray F. The interior of the riffle is opened and is formed with flanges A′ and projections A^2, extending downwardly, upon which a perforated brass plate C is secured by bolts, as shown at E. Upon this plate is fixed the porous plate *c*, made of pottery, asbestos, or other suitable material through which water will slowly filter. This plate rests upon the perforated plate C, and its sides and portion of the upper surface projecting beneath the flanges A′ are thus retained in place. In order to make a perfectly tight joint around the edges, I employ a cement D of any suitable character which will prevent the leakage of mercury which is placed upon the top of the porous plate *c* and fills the space over the plate and within the main body A of the riffle up to the edge K, over which the discharge of pulp takes place.

I is a copper plate which serves as a bottom to that portion of the sluice or apron over which the pulp approaches the riffle. The edge of this plate is bent downward, as shown at I′, so as to dip into the mercury within the riffle A.

In the bottom of the box or tray F is a conducting-plate L, and with this the positive pole of an electrical conductor is connected.

The box F is filled with a saline solution extending up to the top and above the level of the porous plate *c*, as shown, so that the tendency of the saline fluid is to pass through the porous plate and into contact with the mercury which lies on the top of the plate. The negative pole of the battery or other source of electric energy is connected with the plate I, which plate is insulated from or kept out of contact with the riffle A; but by reason of the edge I′ dipping into the mercury an electrical current will pass from the positive to the negative pole through the saline solution, the porous plate, and the mercury. The saline solution will pass through the perforations in the plate C and slowly seep through the porous clay or equivalent plate *c*, coming directly in contact with the mercury. The current passing directly through the salt water to the mercury and thence to the copper plate I will act first to decompose the salt in contact with the mercury, liberating sodium in quantities in proportion to the strength of the electrical current. The sodium thus liberated acts to purify the mercury, keeping the same in an active condition in the well-known manner of sodium amalgam. The material contained in the metals to be amalgamated passes over the plate I and the lip I′, thence over the surface of mercury, and out over the edge K to the discharge-lip O, where it again enters the sluice or other conveying device and may again pass through similar riffles to any extent.

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

1. An electric amalgamator including a metallic frame or body having a perforated plate secured to its bottom, a porous plate resting upon the metal plate and forming a bottom upon which mercury is placed, a pan or box upon which the frame or body is supported, adapted to contain a saline solution, a sluice connecting with the frame above the porous plate, and having a copper plate in its bottom dipping into the mercury and serving

as the negative pole of an electric circuit, and a plate in the pan or box and serving as the positive pole of said circuit.

2. An electric amalgamator interposed in a sluice or other conductor and consisting of an iron frame or body having an open central portion with flanges, a perforated plate secured to the bottom of said portion, a porous plate resting upon the perforated plate and having a hermetical cement joint around the periphery whereby a body of mercury may be retained upon said plate, a pan upon which the frame or body is supported, said pan having a conductor disposed along the bottom, a copper plate forming the bottom of the sluice which delivers into the frame or body, said plate having its edge turned downwardly to dip into the mercury, and an electrical circuit having a positive pole connecting with the conductor within the pan, and a negative pole with the copper plate.

In witness whereof I have hereunto set my hand.

LOUIS HENRY BARRICKS.

Witnesses:
S. H. NOURSE,
JESSIE C. BRODIE.