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D. T. BARRY.

PLACER MACHINE.

APPLICATION FILED MAY 13, 1904.

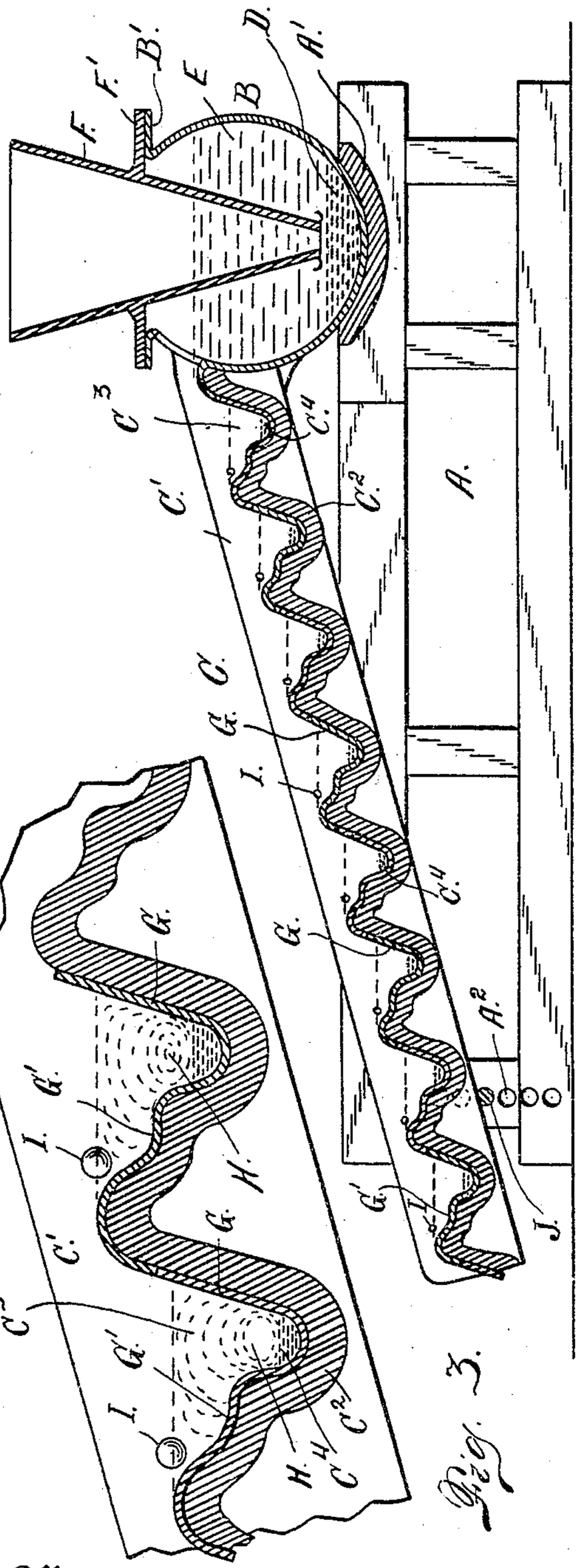

Fig. 3.

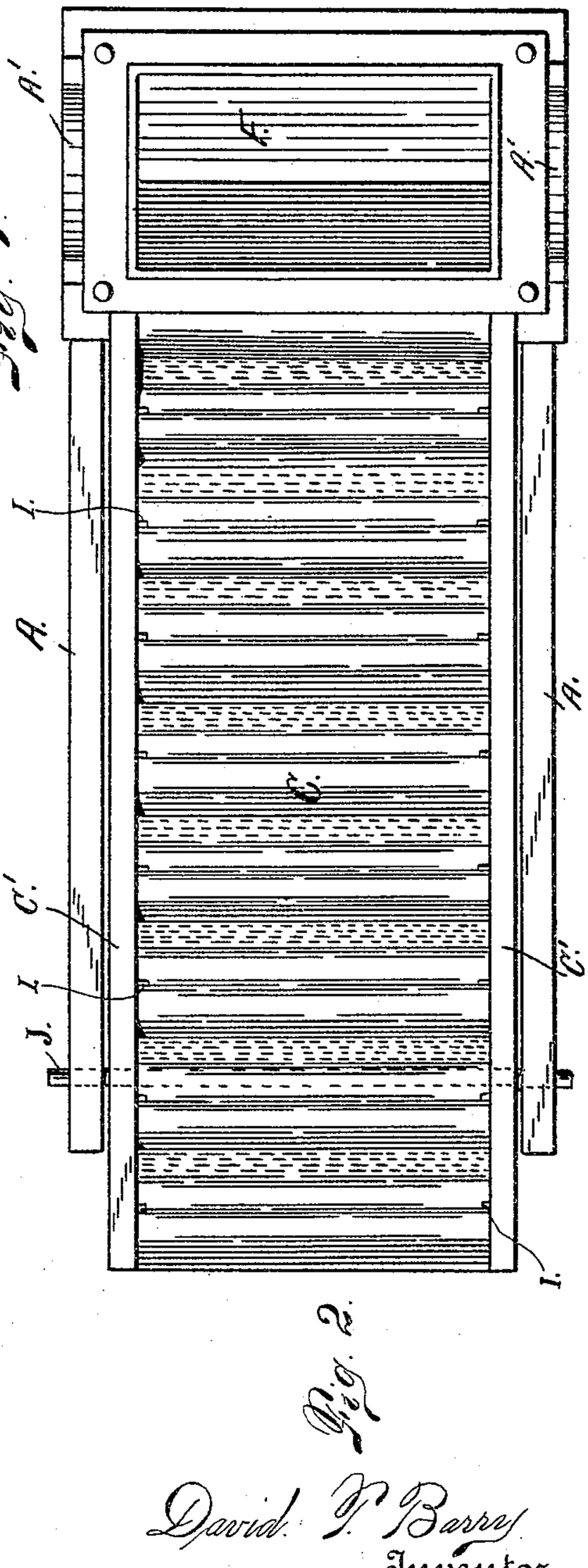

Fig. 2.

Witnesses
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No. 792,111. Patented June 13, 1905.

UNITED STATES PATENT OFFICE.

DAVID T. BARRY, OF DENVER, COLORADO.

PLACER-MACHINE.

SPECIFICATION forming part of Letters Patent No. 792,111, dated June 13, 1905.

Application filed May 13, 1904. Serial No. 207,862.

To all whom it may concern:

Be it known that I, DAVID T. BARRY, a citizen of the United States of America, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Placer-Machines; 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.

My invention relates to improvements in placer-machines or machines adapted to separate the free precious metals, as gold and silver, from the gangue or dirt with which they are found mingled in their natural state. The machine is also adapted for use in saving free mineral values where the same are found in pulverized quartz.

My object is to provide a machine of this class which shall be simple in construction, economical in cost, reliable, durable, and efficient in use.

The machine, generally speaking, consists of a sluice of any desired length whose bottom consists of a series of depressions or valleys to which bottom are applied removable amalgamated plates or plates coated with mercury. In the bottoms of these valleys or depressions is placed a quantity of liquid mercury, and the bottoms of the valleys are so shaped that the pulp or water and dirt or sand containing the values forms an eddy in the bottom of each valley whereby the material is brought into intimate contact with the mercury. Slightly above the bottom of each valley and on the lower side of the same the amalgamating-plate is provided with a ledge upon which an important portion of the values is caught as the material is fed through the sluice. This ledge is located between the bottom of the valley in which the eddy is formed and the top or highest extremity of the plate on the lower side of the valley, whereby all the material must pass over this ledge on its way through the sluice, the latter being suitably inclined to give the material the desired rapidity of travel. To the upper extremity of the sluice is attached a receptacle provided with a hopper which reaches nearly to the bottom thereof. The lower part of the receptacle, below the mouth of the hopper, is provided with a quantity of liquid mercury, the top of the mercury occupying a plane a short distance below the bottom of the hopper. This mercury is considerably below the inlet extremity of the sluice, so that a considerable quantity of liquid is retained in the receptacle above the mercury. The sluice is adjustably mounted, whereby its inclination may be regulated at will. Provision is also made for retaining the amalgamating-plates securely in place, whereby they will not accidentally become displaced, while at the same time they may be readily removed for cleaning purposes.

Having briefly outlined my improved construction I will proceed to describe the same in detail, reference being made to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a vertical longitudinal section taken through the apparatus. Fig. 2 is a top or plan view of the same. Fig. 3 is a fragmentary view of the sluice shown on a larger scale.

The same reference characters indicate the same parts in all the views.

Let A designate a suitable relatively stationary framework upon one extremity of which is mounted a receptacle B, which is rounded to engage a seat A′, mounted on the frame at one end, whereby the receptacle may turn in this seat as the sluice C is raised or lowered, the sluice being rigidly connected with the receptacle at its upper extremity. In the bottom of the receptacle B is placed a quantity of liquid mercury D, while above this mercury is located a quantity of water or pulp E. Mounted on this receptacle B and projecting into the same to a position near the top of the mercury is a hopper F, having flanges F′ engaging top flanges B′ of the receptacle B, whereby the hopper is supported securely in place.

Rigidly attached to the receptacle B is the sluice C, which is composed of vertical sides C′ and a bottom C^2, having a series of depres-

sions or valleys C^3, in the bottom of which is placed a quantity of liquid mercury C^4. Upon the bottom of this sluice is placed a series of amalgamated plates G, which closely fit the bottom of the sluice, which is shaped to cause an eddy H (see Fig. 3) to be formed as the pulp or ore and water enter the bottom of the valley, whereby the mercury is caused to mingle thoroughly and intimately with the material under treatment. Just above this eddy is located a ledge G′, forming a sort of offset between the bottom of the valley and the highest point of the plate G. Each plate G fits into a valley, and its upper portion engages the highest part of the bottom between the two valleys. Hence a plate G is provided for each valley of the sluice or each depression containing the liquid mercury and shaped to form an eddy below the ledge or shelf G′, upon which the greater portion of the values is caught. The plates when in position are held in place by transverse pins I, whose extremities are supported by the opposite sides of the sluice. These pins are located in such proximity to the plates that they are prevented from being accidentally displaced. However, they permit the removal of the plates when the latter are held in the proper position.

The rear extremity of the frame or that remote from the seat A′ is provided with a number of openings A^2. In one of these openings is inserted a pin J, upon which the sluice rests. It is evident that by removing this pin the trough may be raised or lowered, thus increasing or diminishing its inclination. As the inclination of the trough is adjusted the receptacle moves in its curved seat A′.

When the apparatus is in use, a suitable quantity of mercury is placed in the receptacle B and also in each of the valleys of the sluice. The material to be treated is then fed into the hopper F and passing downwardly first comes in contact with the mercury in the bottom of the receptacle. The material under treatment then overflows into the sluice and passes downwardly therein through the various valleys or depressions in succession. Some of the free mineral values are caught in the mercury in the receptacle B, while the other values are taken up by the mercury in the various depressions. The material under treatment is further impoverished of its free mineral values by the amalgamating-plates, upon the ledges G′ of which an important portion of the mineral values is caught.

Having thus described my invention, what I claim is—

1. In a machine of the class described, the combination of a suitable support having a curved seat, a receptacle engaging the seat, the engaging portion being curved to conform to the curve of the seat, a sluice rigidly connected with the receptacle at a suitable point above its bottom, the said sluice being suitably inclined and having a series of valleys and removable amalgamating-plates mounted on the bottom of the sluice and made to conform to the shape of said bottom, the bottom of each valley being comparatively narrow and shaped to form an eddy as the pulp falls thereinto, each plate being provided with a ledge located between the top and bottom of the valley, and suitable means for supporting the sluice whereby its inclination may be regulated at will.

2. In a machine of the class described, the combination with a suitable support, of a receptacle movably mounted on the support, a hopper mounted on the receptacle, the lower extremity of the hopper projecting into the receptacle a suitable distance, the receptacle being provided with a quantity of liquid mercury, and a sluice rigidly connected with the receptacle and composed of two side parts, the bottom forming a series of valleys, and removable amalgamating-plates mounted on the bottom and made to conform to the shape of said bottom, the bottom of each valley being comparatively narrow and shaped to form an eddy as the pulp falls thereinto, each plate being provided with a ledge located between the top and bottom of the valley, the sluice being downwardly inclined from the receptacle, and adjustable supporting means to permit a change of inclination, substantially as described.

3. The combination with a suitable support, of a receptacle having a curved bottom, the support having a concave seat curved to conform to the curve of the receptacle, the top of the receptacle having flanges, a hopper mounted on the receptacle and having flanges intermediate its extremities, the hopper-flanges resting on the hopper of the receptacle, and a sluice rigidly connected with the receptacle and suitably inclined downwardly from the receptacle, and means for regulating the inclination of the sluice for the purpose set forth.

4. In a machine of the class described, the combination with a suitable receptacle, of a sluice connected with the upper portion of the receptacle, the latter being provided with an outlet to allow the material to pass into the sluice, the said sluice having two vertical sides and a bottom forming a series of valleys, removable amalgamating-plates engaging the bottom of the receptacle, and transverse pins applied to the sides of the receptacle to hold the plates in position against accidental displacement, the said pins being located sufficiently above the plates to permit the removal of the latter when properly manipulated.

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

DAVID T. BARRY.

Witnesses:
JAMES A. SMITHAM,
A. J. O'BRIEN.