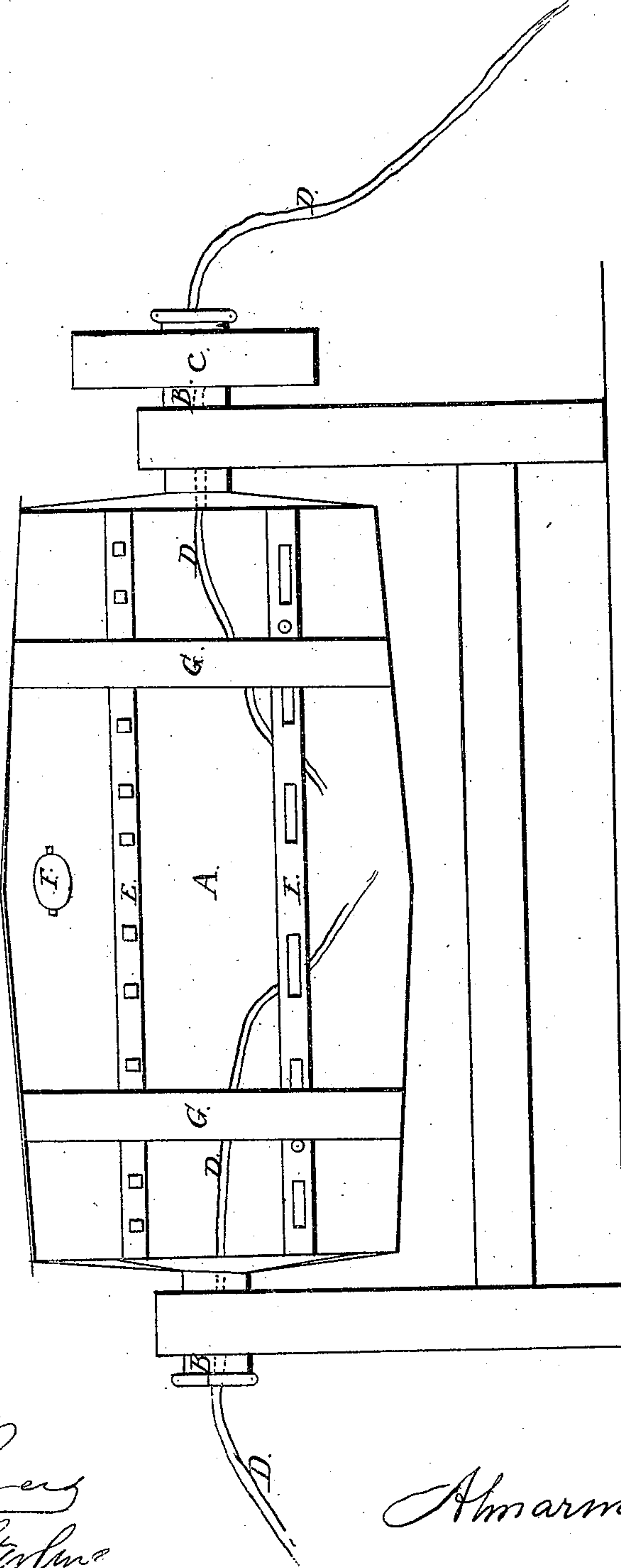
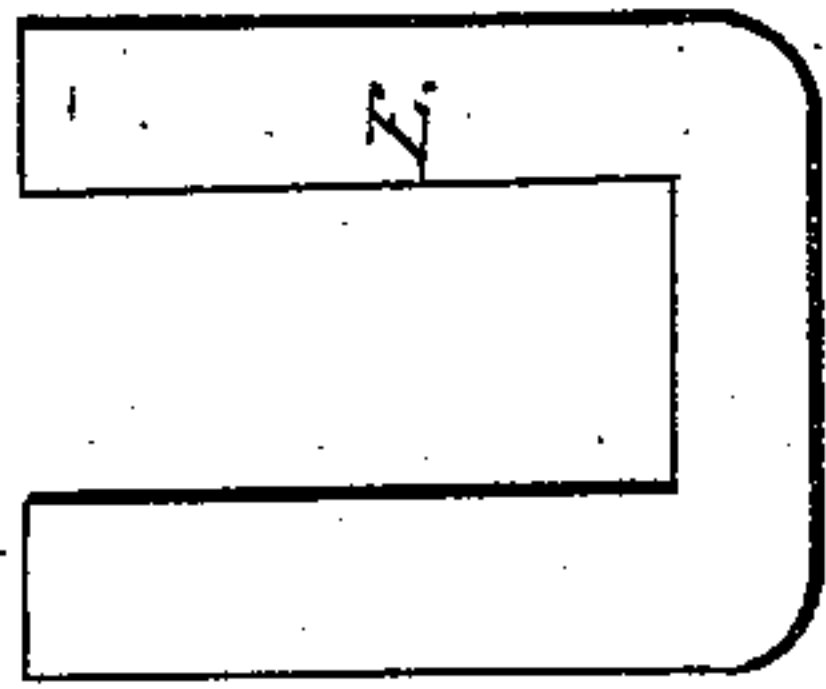


A. B. Paul

Amalgamator.

N^o 90,777.

Patented Jan. 1, 1869.



Witnesses:

Geo. E. Rogers
Matthew R. Sterling

Inventor:

Abraham B. Paul

United States Patent Office.

ALMARIN B. PAUL, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 90,777, dated June 1, 1869.

IMPROVED ELECTRO-MAGNETIC AMALGAMATOR FOR GOLD AND SILVER.

The Schedule referred to in these Letters Patent and making part of the same.

Know all men by these presents:

That I, ALMARIN B. PAUL, of San Francisco, California, have made a new and useful invention in the amalgamating of gold and silver, and separating of the precious from the baser metals, and which I call "Paul's Electro-Magnetic Amalgamator and Separator."

The following, taken together with drawings and figures, with letters attached, is a full and correct description thereof.

The nature of my improvement consists in separating the baser from the precious metals by electricity and magnetic action, and in amalgamating the precious metals thereafter, from ores in a finely-pulverized and dry state, by means of a simple horizontal glass or earthen barrel, or cylinder of any given size, and the addition of mercury.

To enable others skilled in the art to understand and use the invention, and the process of amalgamation therewith, I will proceed to describe the same.

A, Figure 1, is a horizontal hollow glass or earthen cylinder, or barrel, supported on its hollow axles by means of suitable bearings.

B B are the hollow glass or earthen trunnions, through which the electric wires are passed, one end being connected with the positive, the other with the negative pole of the electric battery, and the other ends are introduced into the cylinder.

C C are magnets, placed on the inside of barrel, and arranged in plates, so as to point to the centre of the barrel, for the purpose of acting magnetically upon the ores.

During the introduction of electricity, the ore is kept free of mercury, and either end of the hollow shaft, or trunnions, is left open, for the expulsion of dampness or fumes during chemical action. As soon as the ore has been fully acted upon, and ready for amalgamation, the electric current is withdrawn, and the mercury introduced, through an opening in the barrel, a suitable opening being made on the side or end of barrel, for receiving the ore, and discharging the same, which is now taken and separated by "settlers," as ore impregnated with mercury is ordinarily separated. An adjustable cover is used for said opening.

On one of the axles is a pulley, for giving a rotary motion to the barrel.

The progress of amalgamation with the above-described apparatus is as follows, viz:

The metalliferous, or finely-pulverized ore is placed in the glass or earthen cylinder A, in such a quantity as to occupy less depth than one-half of its diameter. The opening is then closed. The electric current is then put on, (the conducting-wires being already introduced through the trunnions.) The barrel is then set in motion, at a fair speed, the moisture and fumes escaping through the hollow trunnions, or axles B B.

After the period of, say, one hour or more, agreeable to the rebellious character of the ore, the electricity is withdrawn, and mercury is introduced, in a large quantity, say from thirty-three to fifty per cent. of weight of ore, according to richness in the precious metals. The amalgamation now begins, and goes on by the revolution of the barrel and its contents, by which the mercury is thoroughly subdivided and incorporated with the ore.

Fig. 1, barrel.

A, barrel.

B B, trunnions, or hollow axles.

C, driving-pulley.

D D D, electric wires.

E, magnets.

F, opening.

G, metallic bands, or hoops.

Claims.

I claim—

1. The construction of the horizontal rotating hollow-axled glass or earthen cylinder A, for the purpose of amalgamating and separating metals, whether precious or base.

2. The introduction of electricity, through hollow axles, or trunnions, into glass or earthen barrels, for the purpose of preparing ores for amalgamation, and for separating metals.

3. The introduction of magnets into glass or earthen barrels, for the purpose of acting magnetically upon ores during separation and amalgamation.

4. The amalgamation of pulverized ore, in a dry or wet condition, with mercury, in glass or earthen barrels, or cylinders.

San Francisco, California, March 5, 1869.

ALMARIN B. PAUL.

Witnesses:

GEO. E. ROGERS,

MATHEW R. STIRLING.