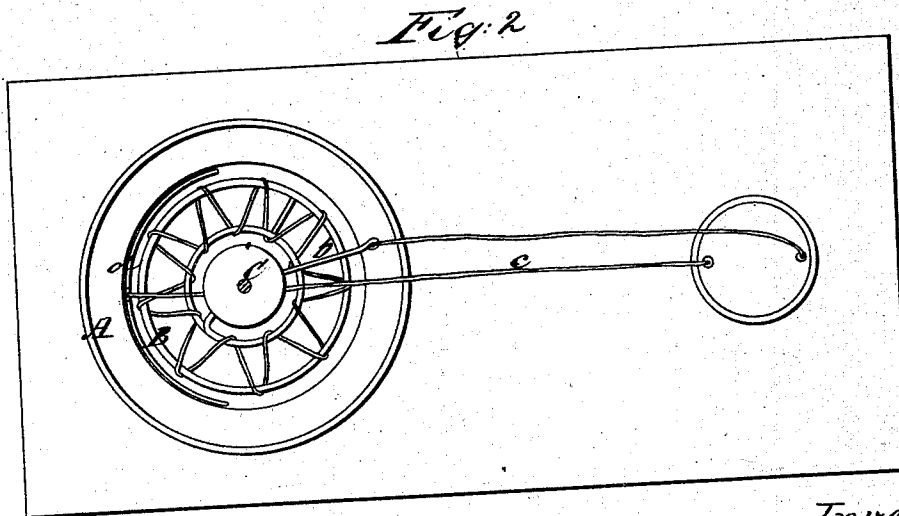
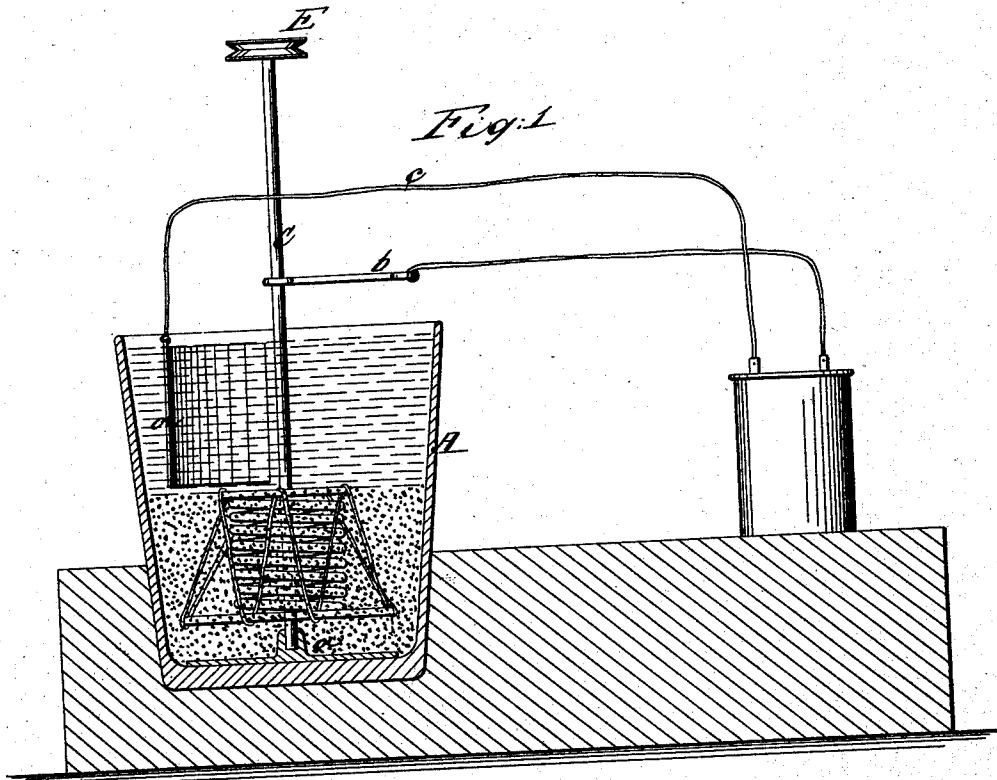


J. H. RAE.

MODE OF TREATING AURIFEROUS AND ARGENTIFEROUS ORES.

No. 61,866

Patented Feb. 5, 1867.



Witnesses:
W. Haupp
Rudolf Wust

Inventor
Julius H. Rae

UNITED STATES PATENT OFFICE.

JULIO H. RAE, OF SYRACUSE, NEW YORK.

IMPROVED MODE OF TREATING AURIFEROUS AND ARGENTIFEROUS ORES.

Specification forming part of Letters Patent No. 61,866, dated February 5, 1867.

To all whom it may concern:

Be it known that I, JULIO H. RAE, of Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Treating Auriferous and Argentiferous Ores; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 represents a transverse vertical central section of the apparatus which may be used in carrying out this invention.

Figure 2 is a plan or top view of the same.

Similar letters of reference in both views indicate corresponding parts.

This invention consists in treating auriferous and argentiferous ores with a current of electricity or galvanism for the purpose of separating the precious metals from the gangue. In connection with the electric current suitable liquids or chemical preparations, such, for instance, as cyanide of potassium, are used, in such a manner that by the combined action of the electricity and of the chemicals, the metal contained in the ore is first reduced to a state of solution and afterwards collected and deposited in a pure state, and that the precious metals can be extracted from the disintegrated rock or ore at a very small expense and with little trouble or loss of time.

In carrying out this process a jar, A, may be used, such as shown in the drawing. This jar is made of glass or other suitable material, (the size depending upon the electric battery to be used in connection therewith,) and into said jar is placed the pulverized rock, filling the same half full or more. On the rock is poured the proper chemical preparation in a fluid state, such, for instance, as cyanide of potassium. Through the center of the jar passes a vertical shaft, C, which terminates upon a metal plate, *a*, by preference of platina, which rests on the bottom of the jar, and to said shaft is attached a cage, B, of

platina wire or other suitable material. This cage is made in the form of a truncated cone, its base extending close to the inner circumference of the shaft, or it may be made in any other suitable form or shape, a series of spirals, for instance, which will produce the same effect. On the shaft C is mounted a pulley, E, which may be connected with any suitable mechanism for the purpose of imparting a rotary motion to said shaft and the cage connected therewith, so that the contents of the jar will be agitated and each particle of the pulverized rock shall come in contact with the metal cage B and plate *a*. The shaft C is connected by a wire, *b*, with one, say the positive pole of the battery, thus converting the shaft, the cage, and the plate *a* into an electrode, and the other or negative pole of the battery connects by a wire, *c*, with a thin slip or coil, *d*, of copper or other suitable material, forming a base on which the precious metals are deposited. By the action of the electric current the action of the chemicals on the metals contained in the rock is materially facilitated and a perfect solution thereof is effected, and from this solution the precious metals are precipitated upon the base *d*, whence the same can be easily collected. By this process gold or silver can be extracted from rock in an absolutely pure state and with very little expense.

What I claim as new, and desire to secure by Letters Patent, is—

1. The within-described process of treating auriferous or argentiferous rock, by exposing the same to the combined action of a current of electricity and of suitable solvents or chemicals, substantially such as herein specified, or any others which will produce the same effect.

2. Separating gold or silver from the rocks containing the same by the action or aid of electricity, substantially as described.

3. Using the agitator B as an electrode, substantially as and for the purpose set forth.

JULIO H. RAE.

Witnesses:

W. HAUFF,

GEO. F. SOUTHERN.