

UNITED STATES PATENT OFFICE.

GEORGE R. EVANS, OF SAN FRANCISCO, CALIFORNIA.

METALLIC ALLOY.

SPECIFICATION forming part of Letters Patent No. 601,338, dated March 29, 1898.

Application filed June 15, 1897. Serial No. 640,906. (No specimens.)

To all whom it may concern:

Be it known that I, GEORGE R. EVANS, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Metallic Alloys; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

I have discovered that an alloy composed of the metals cobalt and tin has a wonderful and peculiar affinity for quicksilver, (mercury,) and that it can be used with immense advantage instead of the silver amalgamated plates which are at present used in mining for the purpose of collecting and saving small particles of precious metals by the amalgamation process. I have also discovered that this alloy can be deposited on copper and other metals by the ordinary electroplating process and that plates or sheets of copper when coated or plated with this alloy are far superior to silver amalgamated plates as a quicksilver-holding surface for saving the precious metals.

The alloy cannot be electrodeposited in the ordinary plating solutions heretofore used for plating with silver or nickel; but I have discovered, devised, and invented a solution and process of producing the same in which it can be electrodeposited on other metals by the electroplating process, which process and solution will form the subject of a separate application. Thus far I have obtained the best results from a mixture of one ounce of cobalt with sixteen ounces of tin; but I do not confine myself to these proportions. The resulting metal or alloy is hard and brittle and fractures with a bright luster. It is non-corrosive and does not oxidize. When deposited by the electroplating process, it forms a bright

smooth surface much like silver, and the deposited metal is coherent, compact, and tenacious.

This metal or alloy has a peculiar affinity for quicksilver that gives it special value in mining operations. The metallic surface of this alloy attracts quicksilver and holds it firmly, and its great peculiarity is that the quicksilver will be held and retained on its surface in globules or ridges, even against the force of water or fine particles of sand passing over it, thus forming, as it were, obstructions or riffles on the surface of the plate that will arrest and insure the amalgamation of the precious metals carried in the pulp or earthy matter passing over it. The alloy-surface is hard and firm and does not absorb the mercury and amalgam like silver or copper; neither does it slush or scale, but it retains the quicksilver and amalgam in active and healthy condition.

By the use of this metal I can greatly increase the savings in quartz-mill operations, in working tailings, in placer-mining, and, in fact, in all branches of mining. It is cheaper and far more durable than silver amalgamated plates and requires less trouble to attend to. Being non-corrosive and non-oxidizable, it can be manufactured into various articles, such as spoons and light ware, and it can be used for general plating purposes.

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

In an amalgamator amalgamating-plates having a surface formed of an alloy composed of cobalt and tin, substantially as described.

In testimony whereof I have hereunto set my hand this 1st day of June, 1897.

GEORGE R. EVANS.

Witnesses:

HARRY J. LASK,
FRED C. HART.