

UNITED STATES PATENT OFFICE.

SHERARD OSBORN COWPER-COLES, OF LONDON, ENGLAND.

ELECTRODEPOSITION OF ALLOYS.

No. 898,189.

Specification of Letters Patent.

Patented Sept. 8, 1908.

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To all whom it may concern:

Be it known that I, SHERARD OSBORN COWPER-COLES, a subject of the King of Great Britain, residing at Grosvenor Mansions, 82 Victoria street, Westminster, London, England, have invented new and useful Improvements in the Electrodeposition of Alloys; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved process for the electrodeposition of brass and like alloys.

In the electrodeposition of brass and similar alloys the chief difficulty which has heretofore been experienced in practice is to obtain for any length of time an alloy of the desired composition. The composition of the alloy can be regulated within certain limits by varying the relative percentages of the metals in solution through the adjustment of the temperature of the electrolyte and the current density with the corresponding increase or decrease in voltage and moving the cathode but this regulation is not sufficient in cases where it is desired to deposit an alloy of any thickness, for instance, to produce brass sheets or tubes.

Now, my invention has for its object to obviate this defect, that is to say, to provide means whereby the composition of the alloy deposited can be more effectually controlled and to this end it consists in employing, in addition to an anode of the alloy to be deposited, say brass, anodes of copper and zinc which can be connected to the circuit which supplies the electric current passed through the brass anode. Furthermore, resistances are inserted in the conductors which convey the electric current to the zinc and copper anodes, whereby the amount of current flowing through these anodes, and as a consequence, the amount of metal that goes into the solution, can be regulated. I have found that good results can be obtained in practice with such an arrangement of anodes by employing an electrolyte composed of double cyanids of copper and zinc and potassium,

but it will be understood that I do not wish to confine myself to the employment of an electrolyte of this composition. I have obtained excellent results with an electrolyte prepared as follows, that is to say, a 10% solution of cyanid of potassium is brought to the point of saturation by passing an electric current through a brass anode the cathode being protected by a porous pot, and the electrolyte being then worked under the condition already mentioned, small quantities of cyanid of potassium being added from time to time as found necessary.

I am aware that it has been proposed in the electrodeposition of alloys to employ separate anodes of the metals to be deposited, each of which is arranged in conjunction with a resistance so that the amount of current flowing through the said anodes can be controlled to regulate the relative amounts of the metals deposited; also that it has been proposed to employ double cyanids of copper, zinc and potassium in the composition of electrolytic baths.

I claim

1. In the art of electrodeposition, the method of depositing alloys which consists in employing an anode of the alloy to be deposited and an anode of each of the metals composing the alloy, substantially as described.

2. In the art of electrodeposition, the method of depositing alloys which consists in employing an anode of the alloy to be deposited and an anode of each of the metals composing the alloy, and independently varying the current passing through the anodes of the metals of the alloy as desired, substantially as described.

3. In the art of electrodeposition, the method of depositing brass, which consists in employing an anode of brass together with an anode of zinc and an anode of copper and varying the current passing through the anodes of zinc and copper as desired, substantially as described.

SHERARD OSBORN COWPER-COLES.

Witnesses:

C. G. REDFERN,
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