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PROCESS FOR CLEANING AND RECOVERING SOLDERED JOINTS.

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To all whom it may concern:

Be it known that I, JEAN COUESNON, citizen of the Republic of France, residing at Paris, in the Republic of France, have invented certain new and useful Improvements in Processes for Cleaning and Recovering Soldered Joints, of which the following is an exact and complete description.

Several processes are already known for the cleaning and recovery of solders intended for example for the purpose of removing the dross and excrescences from soldered joints, or for the recovery of the metals composing the solder from the waste attending its use. One well known method is an electrolytic process in which the surface to be treated is connected electrically as an anode, the metal thereby becoming more or less spongy or muddy to an extent which permits its easy removal.

This method has the advantage of being very economical, the electric current necessary requiring only a very low voltage; but while it is easy and almost ideal in its results when used for the purpose of cleaning pure metallic surfaces it will give only mediocre results when used with alloys, brass, German silver, bronzes, etc.

With alloys it is found that the metals composing the alloy are affected differently, the surface, in place of being cleaned is destroyed, or at least partially deteriorated.

The object of my invention is to avoid this prime defect by using as an electrolyte in the electrolyzing bath a salt in solution capable of passing to the anode an ion which will combine with the metal to be removed, changing it into a product more or less granular and easily detachable, while the metal below the solder or alloy remains unaffected.

When treating tin or lead, brass, for instance, it is necessary to avoid simultaneous action on the zinc of the brass, which would leave the copper without its alloyed metal while action is taking place with the tin or the lead.

This result may be obtained by electrolyzing a soda solution of sodium zincate under which circumstances the zincate decomposes. The oxide travelling toward the anode would not have enough oxidizing power by itself to form the zincate of tin or of lead, but the soda of the solution furnishes the balance of power necessary, and the heavy metals are attacked, while the zinc of the alloy remains untouched.

Naturally there is no need to prepare a zincate solution beforehand; all that is necessary is to add oxide of zinc to the alkaline bath.

The operation proceeds at a very low voltage. The object to be cleaned having been placed at the anode it is only necessary thereafter to wipe it off or wash it with dilute acid in order to obtain an absolutely clean surface. It will be evident that in the case of other alloys it will be necessary to choose other suitable salts for the electrolyte (aluminate for aluminum, bronze, etc.), taking care to observe the principle of my invention, which is to bring about the decomposition of the salt of which the anion attacks the metal of the solder or of the dross, without having a tendency to attack one or the other of the component metals of the alloy.

This process permits in addition very advantageously the effective removal of the dross or excrescences of solder on soldered joints, thus obviating the need of nickel plating the outside of soldered pieces, the real purpose of which is to cover up all defects. In this case, on the contrary, the object is finished with an absolutely clean joint, and, if the soldered surfaces have been properly prepared so that the joint is tight it will be invisible.

Moreover, nickel plating, in the particular case of zincate electrolyte, may be replaced by the deposit of oxide of zinc which forms on all of the metallic surfaces exposed, and which is capable of taking a certain amount of polish.

I claim:—

1. An electrolytic process for cleaning alloys having soldered portions, by means of an electrolyte containing a salt the anion of which is capable of attacking the metals composing the solder without attacking the metals of the alloy.

2. An electrolytic process for cleaning objects having soldered portions which consists in introducing the article as an anode in an alkaline electrolyte containing a zincate.

In witness whereof, I have hereunto signed my name this 26th day of January, 1921, in the presence of a subscribing witness.

JEAN COUESNON.

Witness:
ANTOMI MONTEILHET.