

METHOD AND APPARATUS FOR REGULATING THE CONCENTRATION OF SUBSTANCES IN ELECTROLYTES

Abstract:

A method and an apparatus are described for regulating the concentration of metal ions in an electrolytic fluid, which is used for the deposition of metal with insoluble anodes and additionally contains compounds of an electrochemically reversible redox system. With the oxidised form of said system, metal is dissolved in an ion generator 1, traversed by the fluid, so that these compounds are thereby reduced. For the deposition of metal, the dissolved metal ions on the item to be treated are reduced. The compounds of the redox system in the reduced form are oxidised again on the insoluble anodes in the electroplating system 13.

In order to keep the concentration of the metal ions in the electrolytic fluid constant, at least a portion of the electrolytic fluid, contained in the electroplating system, is conducted through one or a plurality of electrolytic auxiliary cells 6, which have at least one insoluble anode 8 and at least one cathode 7, and such a high electric current flow is set between the anodes and the cathodes of the auxiliary cells that the current density on the anode surface is at least 6 A/dm², and the current density on the cathode surface is at most 3 A/dm². For such purpose, the ratio between the surface of the anodes and the surface of the cathodes of the auxiliary cells is set to at least 1 : 4.