UNITED STATES PATENT OFFICE.

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PROTECTING-VARNISH FOR ELECTRODES OF ELECTROLYTIC CELLS.

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To all whom it may concern:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, and a resident of Llewellyn Park, in the town of West Orange, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Protecting-Varnishes for Electrodes of Electrolytic Cells, of which the following is a description.

My invention relates to varnishes for protecting members or articles disposed as electrodes in electrolytic cells, as, for example, where it is desired to protect surface portions of members disposed as cathodes in electroplating cells from any action or deposition of metal thereon in the operation of the cells, so as to provide "cut-outs" on such members.

The invention resides in an improved varnish for this purpose which is very effective and which is not affected either by acid or alkaline electrolytes, and also in an electrode for electrolytic cells provided with a protecting coating of such varnish.

My invention is based on the discovery that a varnish comprising a coumarone or para coumarone resin, when applied to a surface portion of the electrode of an electrolytic cell on which the plating takes place, usually the cathode, will more effectively protect such surface portion from any action of the electrolyte and the deposition of any metal thereon, than any of the varnishes usually employed for this purpose. In preparing my improved varnish I dissolve a coumarone or para coumarone resin in a suitable solvent, preferably toluol, until the solution obtained is of such viscosity as to enable it to be readily applied to the electrode which it is desired to protect by brushing or dipping.

There are a number of coumarone or para coumarone resins, the same being obtained by subjecting the coal tar solvent naphthas to the polymerizing action of strong sulfuric acid. The melting points of these coumarone or para coumarone resins vary considerably, and I prefer to employ for my improved varnish that one of such resins having the highest melting point, as I find that the best results are obtained thereby.

Two coats of the varnish prepared as described above are applied to the surface portion of the cathode or electrode to be protected, either by brushing or dipping. Upon drying, this varnish forms a very hard, coherent and non-porous coating on the electrode which is attacked neither by acid nor alkaline electrolytes. Moreover this varnish, unlike other varnishes heretofore employed for the same purpose, adheres tenaciously to the surface portions of the electrode to which it is applied, is not underrun by the electrolyte or plating bath of the cell in which the electrode may be disposed, and where two coats of the varnish are applied as described, there are no fine holes or pores present in the surface of the coating of varnish and consequently the plating or deposition of metal at any point on the surface of the electrode beneath the varnish is prevented as the electrolyte cannot penetrate the varnish.

While I have described the preferred form of my improved varnish and the preferred methods of preparing and applying the same, it is to be understood that my invention is to be limited only as defined by the terms of the appended claims.

Having now described my invention, what I claim as new and desire to protect by Letters Patent, is as follows:

1. An electrode for an electrolytic cell having a surface portion thereof coated with a varnish comprising a coumarone or para coumarone resin, substantially as described.

2. An electrode for an electrolytic cell having a surface portion thereof coated with a varnish, comprising that one of the coumarone or para coumarone resins having the highest melting point, substantially as described.

This specification signed this 24th day of September, 1919.

THOS. A. EDISON.