

1,282,263.

This technical drawing shows a cross-section of a mechanical device, possibly a pump or engine component. The main body is a cylinder (1) with a piston rod (2) passing through it. The piston rod is connected to a piston (3) on the left and a crankshaft (4) on the right. The crankshaft is shown in a cross-section (5) and is connected to a flywheel (6). The piston rod is also connected to a crankshaft (7) and a flywheel (8). The device is mounted on a base (9). The drawing includes various numbered parts (1-9) and a dashed line indicating a section cut.

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UNITED STATES PATENT OFFICE.

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ELECTROLYTIC PROCESS.

1,282,263.

Specification of Letters Patent.

Patented Oct. 22, 1918.

Application filed June 27, 1917. Serial No. 177,174.

To all whom it may concern:

Be it known that I, MATTHEW M. MERRITT, a citizen of the United States, and a resident of Danvers, county of Essex, Commonwealth of Massachusetts, have invented an Improvement in Electrolytic Processes (B), of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This application pertains to improvements in electrolytic processes and more particularly, though not exclusively, to improvements in processes of depositing copper on rotating cylinders or mandrels wholly or partially immersed in an electrolyte.

One of the difficulties of sheet copper deposited by electrolytic processes is that the edges of the deposited sheet are rough, and are likely to be somewhat thicker than the body of the sheet. This is probably due to the fact that more ions in the electrolyte are attracted to the edges of the sheet, which forms the cathode, than to other portions thereof. By my invention I am able to form electrolytically a cathode sheet which is substantially of even thickness throughout, and the edges of which are relatively small and require little if any trimming.

In the drawing, in which I have shown a preferred form of apparatus for practising my invention:

The figure is an elevation partly in section of an electrolytic bath, and of a rotating cathode of the type which I prefer to use in connection with my invention.

Referring to the drawing, I have shown a receptacle 1 to contain the electrolyte, a drum cylinder or mandrel 2, preferably rotatable in bearings 3, 4 and preferably only partially immersed in the electrolyte. The cylinder is preferably rotated by any suitable driving mechanism typified by the pulley 5. The drum 2 may be connected with the electric circuit through a connection 6 contacting with the shaft 7 of the cylinder. The drum is preferably hollow, and covered with a sheet of metal which may be treated with mercury as claimed in my co-pending application, Serial No. 158,428, filed March 29, 1917. The copper sheet deposited on the cylinder 1 is preferably adapted to be removed from the drum after completion of

the deposit in the manner set forth in my co-pending application, Serial No. 177,173, filed June 27, 1917.

To prevent irregular deposits and excessive thickness adjacent the ends of the deposit, I provide a conducting medium connected to the cathode circuit, and which I elect to term a thief, herein shown as a wire 8 located adjacent to but insulated from that portion of the copper deposit which is to form the sheet. Those portions of the cathode on which no deposit is desired may be coated with shellac or similar insulation of any well-known kind.

I have found in practice that those irregularities and that excess of copper, which otherwise would form on the edges of the sheet, will form on the thief, which preferably is at all points substantially equidistant from the edge of the deposited sheet. A similar thief 9 is arranged adjacent the opposite edge of the deposited sheet.

While I have shown in the drawing and have described one specific embodiment of a preferred apparatus with which my invention may be practised, it will be understood that changes may be made in such apparatus and in the method of practice of my invention without departing from the scope thereof. My invention is best defined in the following claims.

Claims:

1. A method of preventing irregular deposits adjacent the edges of articles formed by electrolytic deposit, which comprises providing a thief adjacent the marginal portion thereof.

2. A method of preventing irregular deposits on or adjacent the edges of metallic plates electrolytically deposited on a mandrel, which comprises providing a conductor adjacent the edges of the cathode, and passing an electric current through said conductor.

3. A method of preventing irregular deposits adjacent the edges of electrolytically deposited sheets, which comprises furnishing supplemental cathodes adjacent the edge of said sheets, and passing an electric current through said supplemental cathodes to attract from the electrolyte the surplus ions which would normally deposit on the edges of the sheet, causing irregularities thereof.

4. The process of making copper sheets, which comprises providing a cylindrical mandrel, connecting said mandrel to an electric circuit to form a cathode thereof, coating with a nonconductor those portions of the mandrel on which no deposit is to be made, providing a conductor adjacent the edges of the cathode on the surface of said mandrel, and connecting said conductor to the electric circuit to form a supplemental cathode thereof. 10

In testimony whereof, I have signed my name to this specification.

MATTHEW M. MERRITT.