Dec. 2, 1924. 1,517,631

G. JONES

ANODE FOR USE IN ELECTROPLATING

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Fig. 1

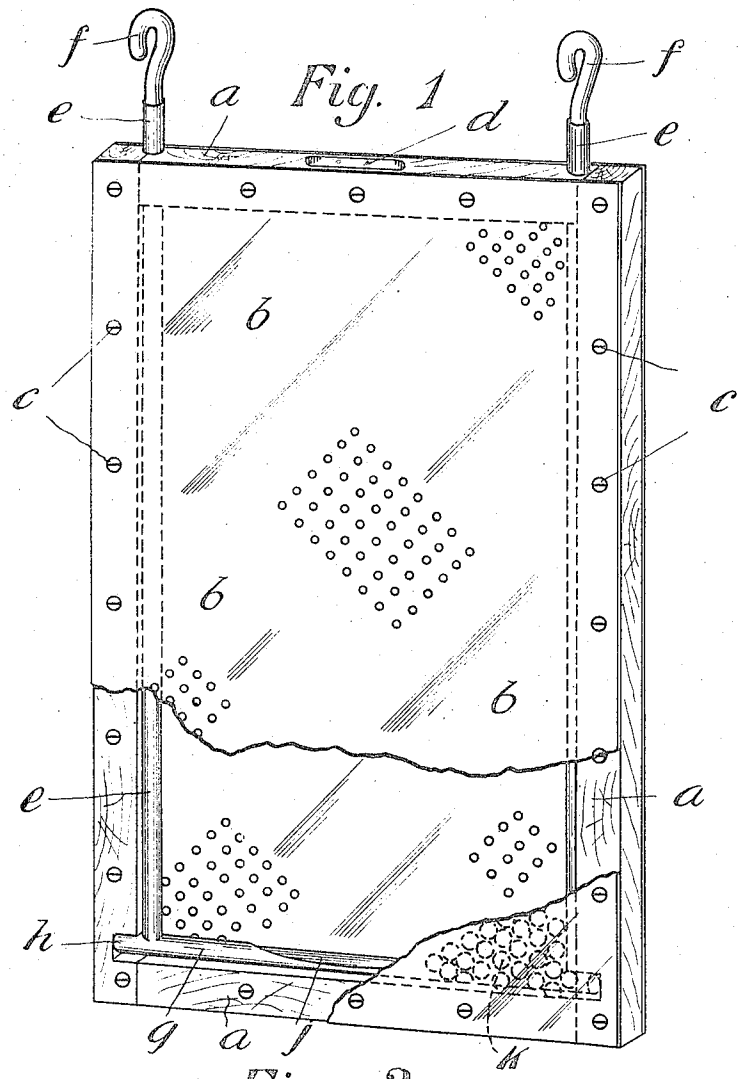
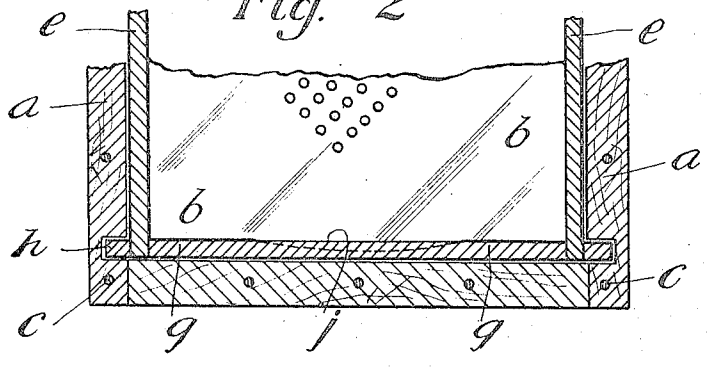


Fig. 2



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Fig. 3

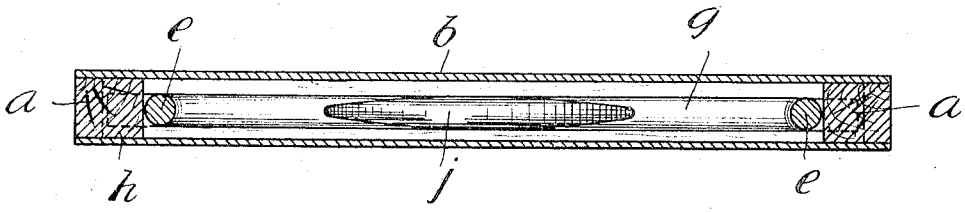
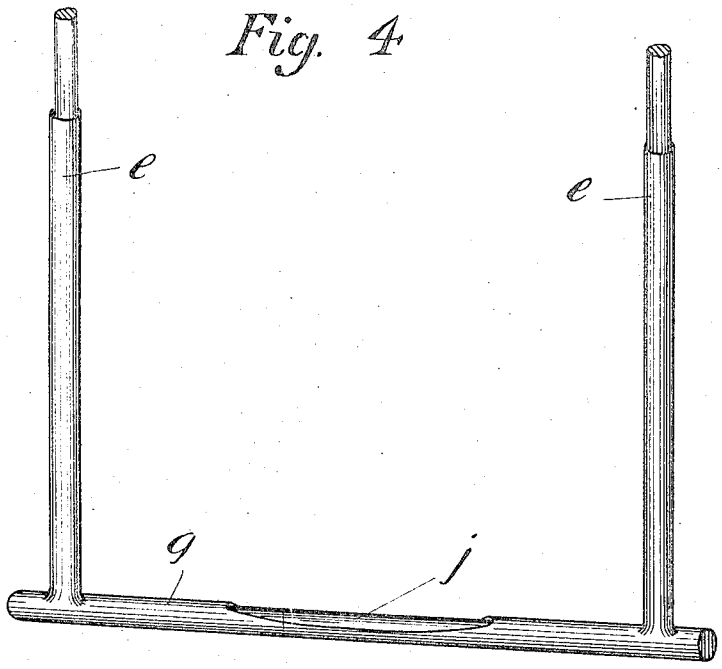


Fig. 4



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UNITED STATES PATENT OFFICE.

GIRALDUS JONES, OF BIRMINGHAM, ENGLAND.

ANODE FOR USE IN ELECTROPLATING.

Application filed December 13, 1923. Serial No. 680,306.

To all whom it may concern:

Be it known that I, GIRALDUS JONES, a subject of the King of Great Britain, of 58, St. Oswalds Road, Small Heath Park, Birmingham, England, have invented certain new and useful Improvements in Anodes for Use in Electroplating, of which the following is a specification.

This invention relates to improvements in anodes for use in electro-plating and refers to anodes particularly adapted for use in the electro-deposition of metals such as nickel or cobalt which are commonly supplied commercially in the form of small pellets, shot rondelles or cubes.

One object of my invention is to provide an improved type of anode in which the metal can be efficiently employed in this form without the necessity of melting it down and casting it in the form of plates.

Another object of my invention is to provide an anode in which the leads by which electric current is conveyed to the plating metal are efficiently protected against the action of the acid or other electrolyte in the plating vat or tank so that the effective working life of the leads and hence of the anode as a whole is considerably prolonged.

A further object is to provide an anode which possesses the advantages set forth above, but which is comparatively simple in construction and can be manufactured at such a cost as to make it a satisfactory commercial article.

These and other advantages of my invention will be apparent from the description herein in conjunction with the accompanying drawings in which:—

Figure 1 is a perspective view of the complete anode with part of one side broken away.

Figure 2 is a vertical section through the lower part of the anode.

Figure 3 is a transverse section plan of the lower part of the anode.

Figure 4 is a perspective view of the current leading member with the upper part broken away.

In the form illustrated the anode consists of a hollow box which is built up from a rectangular frame of wooden strips or battens *a* and is closed on both sides by perforated sheets *b* of celluloid or other acid-resisting material. These sheets *b* are secured to the wooden framework by screws *c* of which the heads are covered after insertion with celluloid or acid-proof varnish to protect them against the electrolyte.

The upper batten *a* has a central aperture *d* through which the plating metal in divided form is adapted to be introduced, and has further apertures near each end for the passage of the current conveying and anode suspending rods *e*.

These rods at their upper ends are bent round into eyes *f* to receive a horizontal rod or hook by which the anode is suspended and by which electric current is conveyed to the rods, and at their lower ends are secured into a transverse bar *g* which passes across the bottom of the anode and the ends of which project into recesses *h* in the side battens *a*, so that the weight of the anode can be supported by the rods *e*.

To protect the rods *e* and bar *g* from the action of the electrolyte they are entirely covered with a coating of celluloid or other acid-resisting material from a point just below the eyes *f*, but in order that current may be conveyed to the plating metal in the anode, part of this coating is cut away at, or near, the centre of the bar *g* to leave an exposed part *j* of the bar. Part of the lower strata of the mass of divided metal in the anode, some of which is shown at *k* in Fig. 1, makes contact with the exposed part of the bar *g* and thus electrical contact is established between the eyes *f* of the rods *g* and the divided plating metal and current is conveyed thereto.

The only part of the bar *g* which is exposed to the electrolyte is the upper face near the centre and the action of the electrolyte on this part is extremely slow, and adequate protection is provided for the junctions of the rods *e* with the bar *g*, at which points electrolytic action would be rapid if exposed causing the junctions to be eaten away and the rods *e* to become detached from the anode. The sides of the central portion of the bar *g* which would otherwise be exposed to the electrolyte entering the anode are also protected by the covering, and only the upper surface on which the anode metal actually lies is left exposed.

The rods *e* and the bar *g* may conveniently be of the same metal as that which is to be deposited.

The bottom or feed bar *g* is preferably made of especially hard rolled nickel which

avoids any porosity and renders its anti-corrosive properties much greater, thus with only a small surface exposed, and that actually in contact with the anode metal, the life of the feed bar is very great.

I claim:

1. An anode for use in electro-deposition of metals comprising in combination a container with perforated walls, means for suspending said container, means for introducing anode metal in divided form into said container, current conveying means in said container disposed so that the anode metal when in the container will rest on a portion of said current conveying means, and said current conveying means being protected on all sides from the electrolyte except the portion on which said anode metal will rest.

2. An anode for use in electro-plating, comprising a hollow closed container having perforated side walls, an aperture in the upper end of the container for the insertion of plating metal in divided form, suspension and current carrying rods secured at their lower ends into a transverse feed bar passing across the container, a protective acid-proof coating over the said rods and feed bar, and an unprotected portion of the said feed bar within the container upon which the anode metal will rest.

3. An anode for use in electro-plating, comprising a hollow closed container having perforated side walls, an aperture in the upper end of the container for the insertion of plating metal in divided form, suspension and current carrying rods secured at their lower ends into a transverse feed bar passing across the container, a protective acid-proof coating over the said rods and feed bar, and an unprotected portion of the said feed bar, within the container, the unprotected portion of the bar being formed by cutting away the protective coating over a length of the upper face of the bar.

4. An anode for use in electro-plating comprising a hollow closed container having perforated side walls, an aperture in the upper end of the container for the insertion of plating metal in the divided form, suspension and current carrying rods secured at their lower ends into a transverse feed bar passing across the container, a protective acid-proof coating over the said rods and feed bar, and unprotective portion of the said feed bar within the container, plating metal being adapted to be introduced into the container through the aperture in the upper end thereof and to make electrical contact with the unprotected portion of the transverse bar.

5. An anode for use in electro plating, comprising a hollow closed container having perforated side walls, an aperture in the upper end of the container for the insertion for plating metal in divided form, suspension and current carrying rods secured at their lower ends into a transverse feed bar passing across the container, a protective acid-proof coating over the said rods and feed bar, an unprotected portion of the said feed bar within the container, the upper ends of the suspension and current carrying rods projecting above the upper ends of the container and being unprotected and bent round to receive means from which the anode is suspended and by which electric current is conveyed to the rods.

6. An improved anode for use in electro-plating comprising a rectangular frame of wooden strips closed on both sides by perforated sheets of celluloid secured to the strips, an aperture in the upper strip for the insertion of anode metal in divided form, a horizontal metal bar passing across the anode and projecting into recesses into the side strips of the frame, rods projecting through the upper strip of the frame and secured at their lower ends to the horizontal bar, a protective acid-proof coating over the said rods and over the said bar, with the exception of a short length which is exposed for establishing electrical contact with the plating metal which is inserted into the anode.

7. An anode for use in electro-plating comprising a container for receiving anode metal in divided form, and a current conveying bar at the bottom of the container covered and protected from the electrolyte except for a portion at the top thereof whereon the divided metal will fall and rest making electrical contact with the bar.

8. In an anode for use in electro-plating, a hollow container for receiving anode metal in divided form, a current conveying bar in the bottom of the container, the ends of which extend into the opposite sides of the container the bar being covered and protected from the electrolyte except for an intermediate portion thereof whereon the divided metal will engage making electrical contact with the bar, suspension rods engaging the bar adjacent the ends thereof and extending above the container for suspending it.

In testimony whereof I affix my signature.

GIRALDUS JONES.