

No. 786,978.

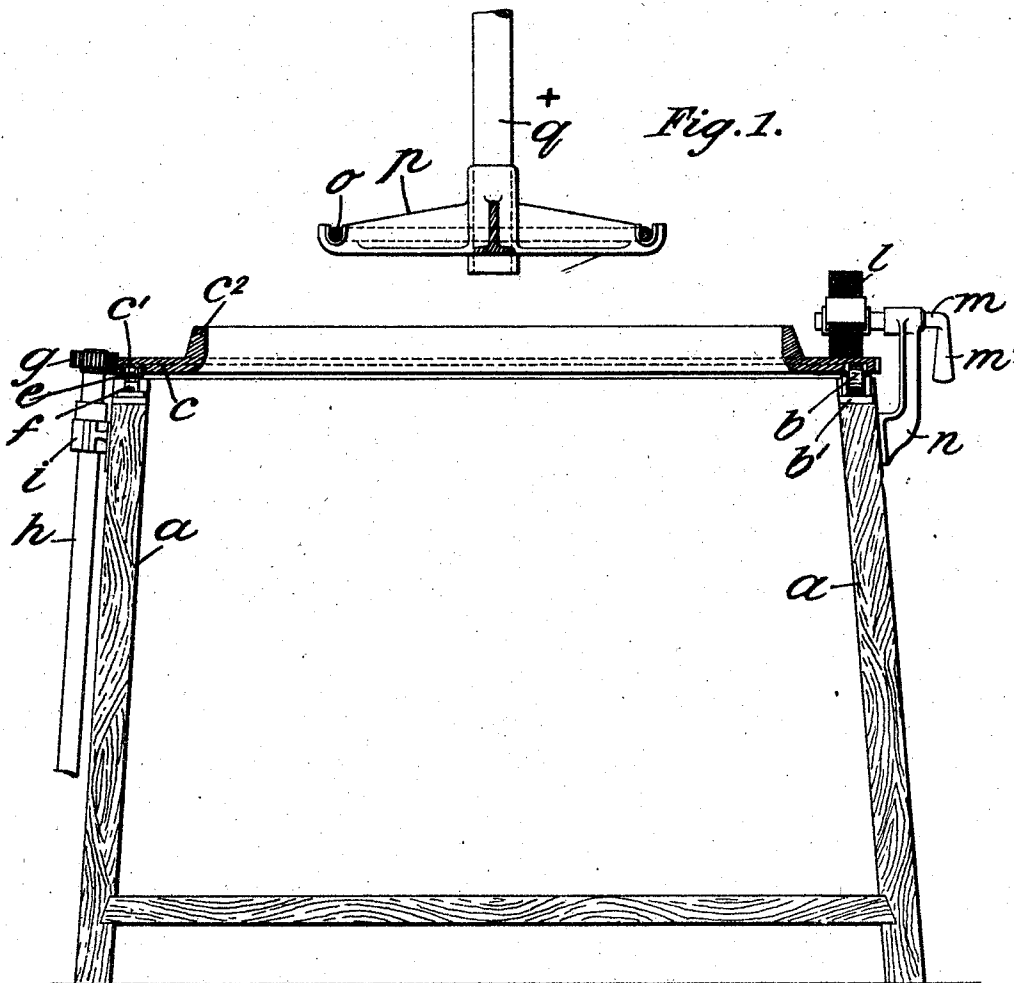
PATENTED APR. 11, 1905.

I. E. LEWIS & J. A. COREY.

DEPOSITION TANK.

APPLICATION FILED FEB. 23, 1904.

3 SHEETS—SHEET 1.



Witnesses

Albert B. Smith.
Grace Ogle.

Inventors
I. E. Lewis and J. A. Corey
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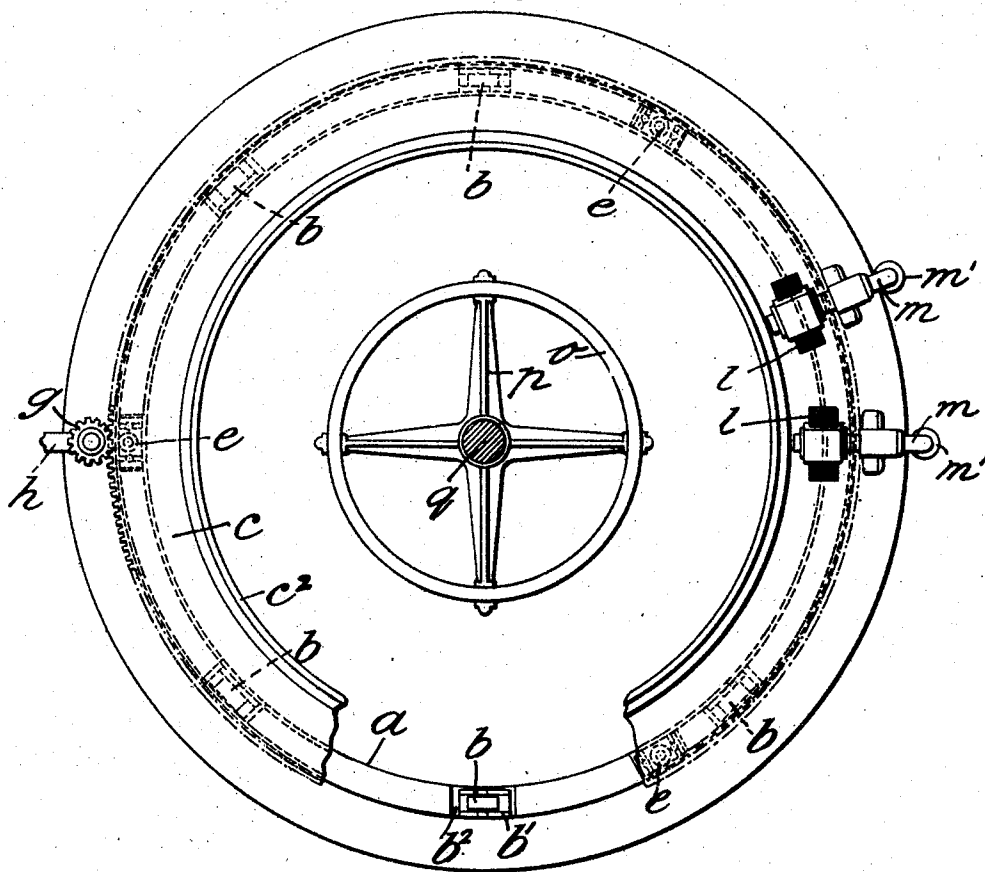
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

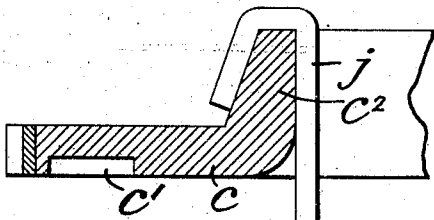


Fig. 3.

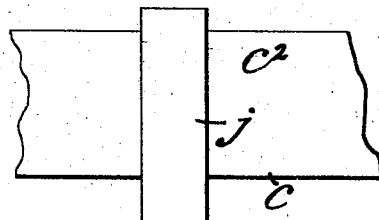
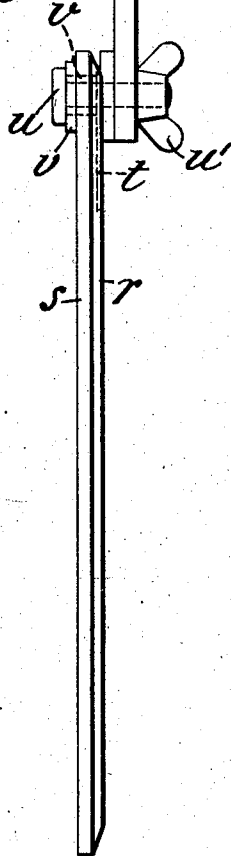
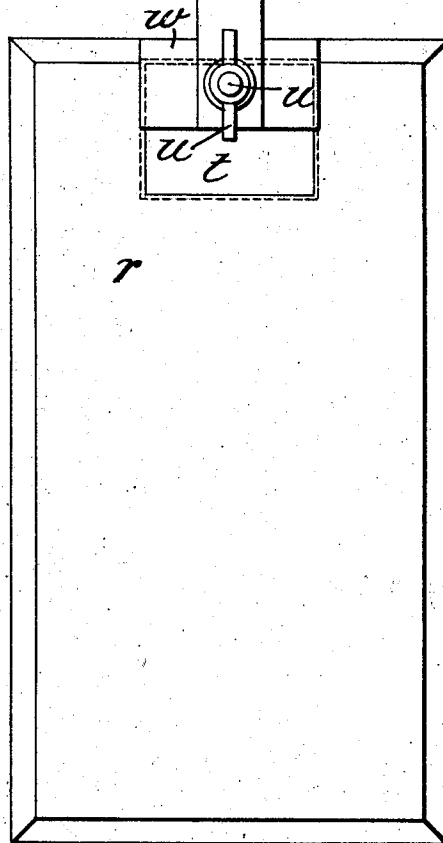


Fig. 4.



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UNITED STATES PATENT OFFICE.

IVON E. LEWIS AND JAMES A. COREY, OF LONDON, ENGLAND.

DEPOSITION-TANK.

SPECIFICATION forming part of Letters Patent No. 786,978, dated April 11, 1905.

Application filed February 23, 1904. Serial No. 194,921.

To all whom it may concern:

Be it known that we, IVON EESSER LEWIS, a subject of the King of Great Britain and Ireland, residing at The Homestead, Barretts Grove, Stoke Newington, and JAMES ALBERT COREY, a citizen of the United States of America, of Messrs. Eyre and Spottiswoode, New Street Square, London, England, have invented new and useful Improvements in and Relating to the Deposition of Metals, of which the following is a specification.

This invention relates to apparatus for electrodepositing metals, and particularly for the production of printers' electrotypes.

The invention has for its general object to render practicable and economical the employment of high-current densities to effect a uniform and reguline deposit of metal and to produce the work rapidly.

According to the invention a circular vat is employed, upon which is mounted an annular negative electrode which is rotated for the movement of the cathodes within the electrolyte.

According to the invention other constructional features are involved, which are hereinafter more particularly described.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of an electrodepositing apparatus as provided according to the invention, and Fig. 2 is a plan corresponding thereto; and Figs. 3 and 4 are respectively end and front detail elevation, showing a method of carrying the case or mold upon the hooks or holders, which are hung upon the negative electrode or cathode ring.

In carrying the invention into effect we provide a wooden tank *a* of circular form, which we preferably line with lead. The tank is advantageously of tapered form—that is to say, of greater diameter at the bottom than at the top. A number of rollers *b* are carried in brackets *b'* upon the upper edge of the vat. Within recesses *b²*, provided to receive the said brackets, and upon these rollers *b* the negative electrode or cathode ring *c* is mounted so as to be capable of rotation. The negative electrode or cathode ring *c* is provided of any suitable con-

ducting metal or alloy and with means to permit of its retaining its position concentric with the vat on rotation and for the purpose is advantageously provided with a circumferential groove *c'* on its under face, into which rollers *e*, provided with brackets *f*, mounted upon the top edge of the vat, enter, and being three or more in number serve effectively to center the cathode-ring *c*. The edge of the cathode-ring *c* is provided with teeth, with which meshes a pinion *g*, mounted upon a shaft *h*, carried in brackets, such as *i*, upon the side of the vat, to which power is transmitted by any suitable gear. The inner edge of the cathode-ring *c* is diverted upwardly to form a flange *c²* of wedge shape in section, upon which hooks or holders *j*, connected to the case or mold *r*, may engage, so that the weight of the case or mold will serve to insure good contact, and by which, moreover, the case or mold may be firmly held in a vertical position and prevented from any displacement by centrifugal force.

Brush-contacts *l* are advantageously mounted upon spindles *m* in brackets *n*, fixed to the outside of the vat *a*, so that on turning the handle or cable-socket *m'* of the spindle *m* the brushes may be brought into or out of contact with the cathode-plate *c*, as may be necessary, according to the requirements of the work.

The anodes are advantageously arranged upon a metallic ring *o*, carried by a spider *p*, which is fixed upon a vertical spindle *q*. This vertical spindle *q* may be carried in a bracket from the ceiling or otherwise mounted with the facility of vertical movement to bring the anodes into or out of the electrolyte, as required.

In the employment of an apparatus as hereinbefore described for electrotyping the molds are suspended from the flange *c²* of the cathode-ring *c* by the hooks or holders *j*. The ring *c* is then rotated, the circuit completed, and the electrode position then rapidly effected. It will be understood that by the rotation of the cathodes in the electrolyte it is possible to secure a good reguline deposit of metal upon the cathodes and that high-current densities may be used, by means

of which the electrodeposition is rapidly effected. It will also be understood that cases or molds of any size may be employed which may instantly be mounted in any position upon the ring.

An annular vat may obviously replace one of circular form, and the rotating ring may be mounted above the vat in any suitable manner other than that hereinbefore described.

In Figs. 3 and 4 a method of carrying the case or mold *r* upon the hooks or holders *j* is illustrated, in which *s* is the mold-backing, *t* is a strip of brass for making electric contact between the mold and the hook or holder *j*, *u* is a bolt passing through an ebonite or other insulating-sleeve *v* and serving to connect the backing-plate *s*, carrying the mold *r*, to the end of the hook or holder *j*, and *u'* is a fly-nut on the screw-threaded extremity of the bolt *u* for tightly connecting the case or mold to the hook or holder, and *w* is a transverse bar integral with the lower extremity of the hook or holder *j* for contacting with the brass plate *t*.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. An electrodepositing apparatus, more particularly applicable for printers' electrotyping, consisting of an electrolytic vessel of circular form, an annular negative-electrode carrier rotatable thereon, in a position coincident with the top annular edge of the said electrolytic vessel, gear-teeth upon the said annular negative-electrode carrier, and gear for engaging said gear-teeth and for causing the rotation of said negative-electrode carrier upon the annular edge of the electrolytic vessel, substantially as described.

2. An electrodepositing apparatus, more particularly applicable for printers' electrotyping, consisting of an electrolytic vessel of circular form, an annular negative-electrode carrier rotatable thereon in a position coincident with the top annular edge of the said electrolytic vessel, means upon said top annular edge for holding the said annular negative-electrode carrier in position positively against any lateral displacement, gear-teeth upon said annular negative-electrode carrier, and gear for engaging said gear-teeth and for the rotation of the said annular negative electrode, substantially as described.

3. An electrodepositing apparatus, more particularly applicable for printers' electrotyping, consisting of an electrolytic vessel of circular form, an annular negative-electrode carrier rotatable thereon, in a position coincident with the top annular edge of the said

electrolytic vessel, an annular groove on the under face of said annular negative-electrode carrier, rollers mounted upon the edge of the electrolytic vessel and running within said groove for positively preventing the lateral displacement of the said carrier, gear-teeth upon said carrier, and gear for engaging with said gear-teeth and rotating said annular negative-electrode carrier, substantially as described.

4. An electrodepositing apparatus, more particularly applicable for printers' electrotyping, consisting of an electrolytic vessel of circular form, an annular negative-electrode carrier rotatable thereon, in a position coincident with the top annular edge of the said electrolytic vessel, an annular groove on the under face of said annular negative-electrode carrier, rollers respectively disposed in a horizontal and vertical plane mounted upon the edge of the electrolytic vessel and running within said annular groove, gear-teeth upon said carrier, and gear for engaging with said gear-teeth and for rotating said annular negative-electrode carrier, substantially as described.

5. An electrodepositing apparatus, more particularly applicable for printers' electrotyping, consisting of an electrolytic vessel of circular form, an annular negative-electrode carrier rotatable thereon, in a position coincident with the top annular edge of the said electrolytic vessel, said negative-electrode carrier being provided with a wedge-shaped flange for carrying the hooks by which the cases or molds are suspended and gear for rotating said annular negative-electrode carrier, substantially as described.

6. An electrodepositing apparatus more particularly applicable for printers' electrotyping, consisting of an electrolytic vessel of circular form, an annular negative-electrode carrier rotatable thereon, in a position coincident with the top annular edge of the said electrolytic vessel, said negative-electrode carrier carrying a wedge-shaped flange, hooks having their extremities inclined for engagement with the inclined face of the flange of the negative-electrode carrier, said hooks carrying cases or molds, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

IVON E. LEWIS.
J. A. COREY.

Witnesses:

WILLIAM EDWARD EVANS,
JOHN SMITH.