

(No Model.)

H. L. BRIDGMAN.
APPARATUS FOR ELECTRODEPOSITION.

No. 528,587.

Patented Nov. 6, 1894.

Fig. 1.

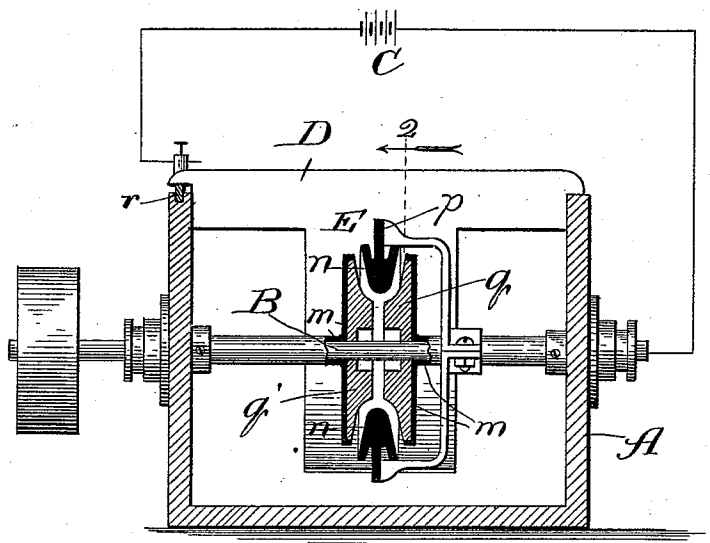
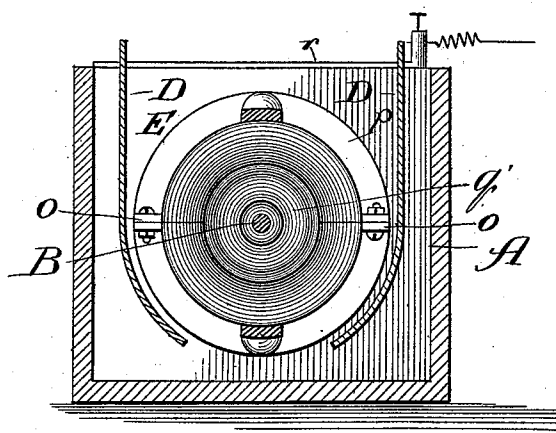


Fig. 2.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR ELECTRODEPOSITION.

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Application filed October 3, 1893. Serial No. 487,115. (No model.)

To all whom it may concern:

Be it known that I, HENRY L. BRIDGMAN, a citizen of the United States, residing at Blue Island, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Electrodepositing Apparatus, of which the following is a specification.

The object of my invention is to provide an electro-depositing apparatus which shall operate to produce complete metal (particularly copper) articles of manufacture, such as trolley-wheels, gear-pinions, journal bearings, and the like, by the electro-deposition of the metal inside a mold forming the cathode of the apparatus; and my invention consists in the general as well as the more specific construction of the cathode of the apparatus.

Referring to the accompanying drawings—Figure 1 is a view in sectional elevation of an electro-depositing apparatus provided with my improvement. Fig. 2 is a section taken at the line 2 on Fig. 1 and viewed in the direction of the arrow.

A is the vat to contain the electrolytic fluid, and B is a metal shaft, preferably rotatable and to that end journaled in the vat and connected with one pole of a generator C. The anodes D are hung from the upper edges of the vat to extend into the same; and they bear on a conducting strip *r* on one of the edges of the vat, the strip being connected with the opposite pole of the generator.

E is the cathode, composed, preferably, of copper, properly insulated and forming a hollow mold in which the electro-deposition of metal takes place to form the complete article of manufacture according to the configuration of the mold.

For producing with the apparatus the articles hereinbefore enumerated, the cathode-mold E is made in separable and relatively adjustable sections, that illustrated being adapted to form a trolley-wheel and comprising the two half-wheels *q* and *q'*, affording a center, secured on the shaft to rotate with it and in relative positions to form, between them, about the shaft, a mold for the trolley-wheel to be produced. The outer surfaces of the parts *q* and *q'* are covered with insulation *m*, which also covers the parts of the shaft exposed to the electrolytic fluid. The groove

about the periphery of the wheel is produced by a sectional annulus *p*, preferably of insulating (though it may be of insulated) material, the two sections of which are provided at their ends with flanges *o* at which to bolt them together; and the inner side of the annulus is substantially in the form, in cross-section, of a V-shaped circumferential head *n*, the apex of which is rounded, and which is supported on the shaft to rotate with it and surround the parts *q*, *q'*, and be concentric with and extend within the plane of the circumferential recess formed between them.

It is preferred to provide the cathode on a rotary shaft in the vat, owing to the desirable stirring of the liquid produced by the rotation of the cathode; but unless the center rotates the annulus need not. The inner metallic molding surfaces of the cathode are coated with graphite, or the like, material to prevent undue adhesion of the deposited metal.

The electrolytic action of the apparatus deposits the metal in the cavity afforded by the cathode-mold E and gradually builds up therein the article to be produced; and the peripheral formation of the resultant article is that of a groove, occasioned by the annulus *p*. The completed article of manufacture (trolley-wheel) may readily be removed from the apparatus, thereby also to prepare it for the manufacture of another, by separating the sections of the cathode-mold and removing them from the shaft, which, as will be seen, forms the core for producing the central opening in the trolley-wheel.

Of course, the construction of the mold will be in accordance with the particular article to be produced by electro-deposition.

What I claim as new, and desire to secure by Letters Patent, is—

1. In an electro-depositing apparatus, an insulated shaft supported in the electrolytic cell, and a cathode formed in sections separably supported on the shaft in relative positions to afford an intervening space forming the mold to receive the deposit of metal, substantially as and for the purpose set forth.

2. In an electro-depositing apparatus, a cathode comprising a hollow mold formed with a center and an adjustable and removable

annulus supported to encircle the center and formed with insulating material, substantially as and for the purpose set forth.

3. In an electro-depositing apparatus, a
5 cathode comprising a hollow wheel-mold formed with a center composed of the insulated sections q and q' separable and adjustable on a shaft B, and the sectional annulus

p supported to encircle the center and formed with insulating material and having the internal head n , substantially as and for the purpose set forth. 10

HENRY L. BRIDGMAN.

In presence of—

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