J. H. JORDAN.

PLATING APPARATUS.

APPLICATION FILED JULY 9, 1913.

1,095,328.

Patented May 5, 1914.

2 SHEETS—SHEET 1.

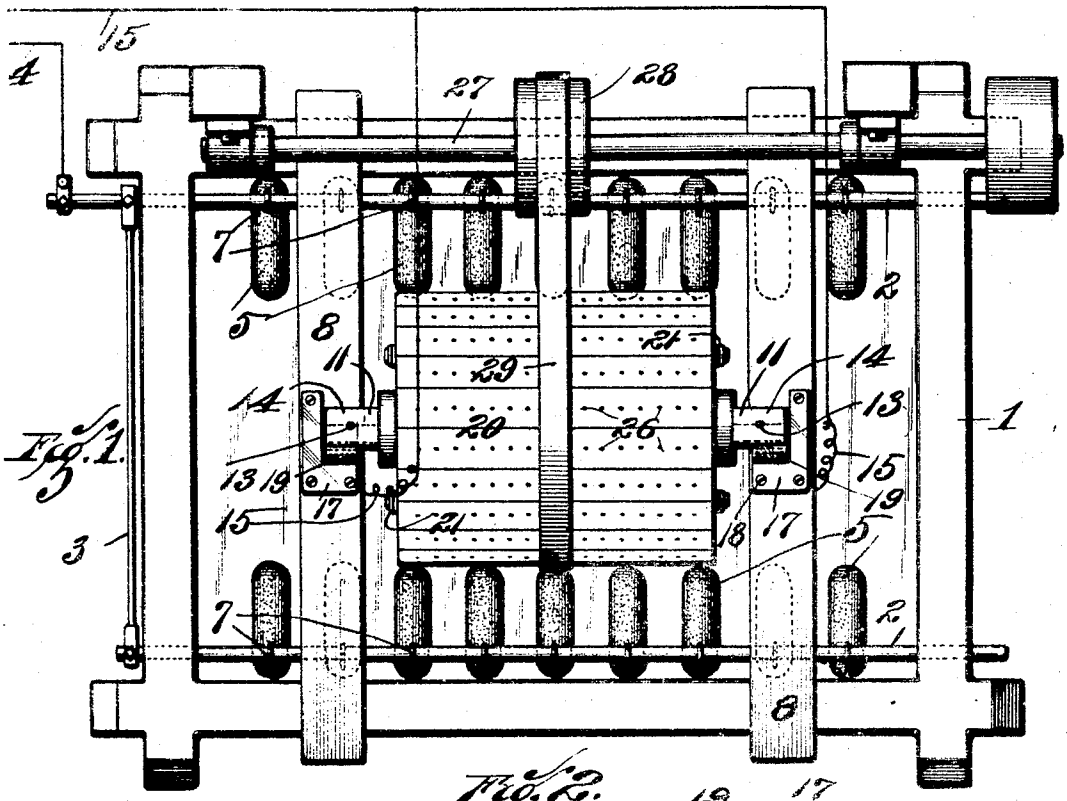


Fig. 1.

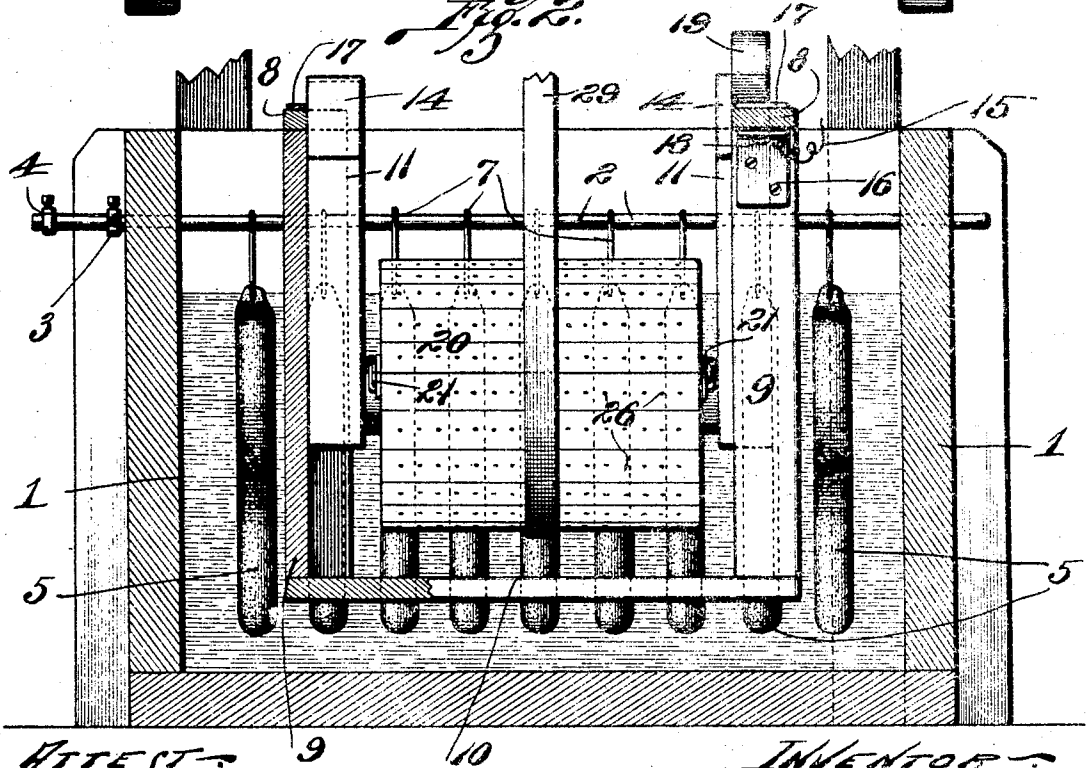


Fig. 2.

WITNESSES:

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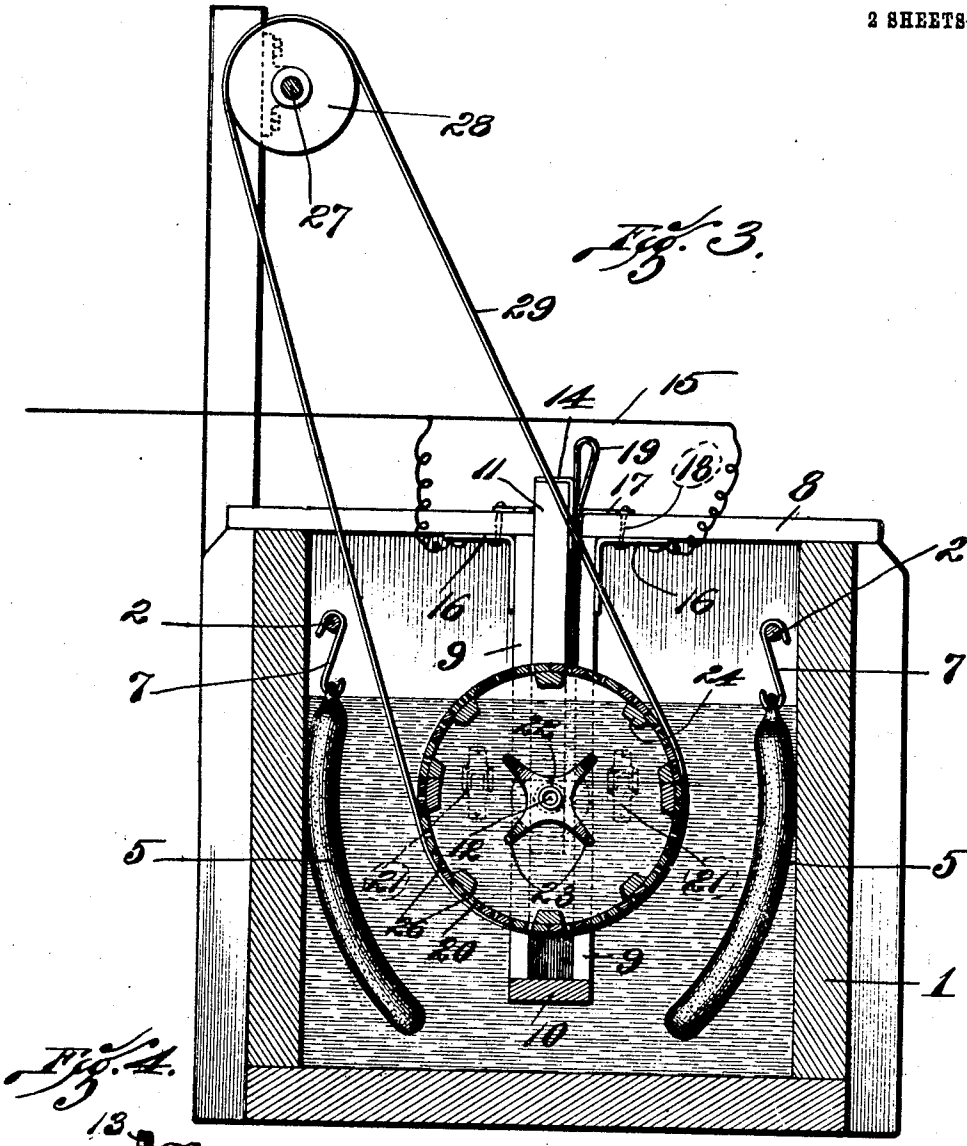
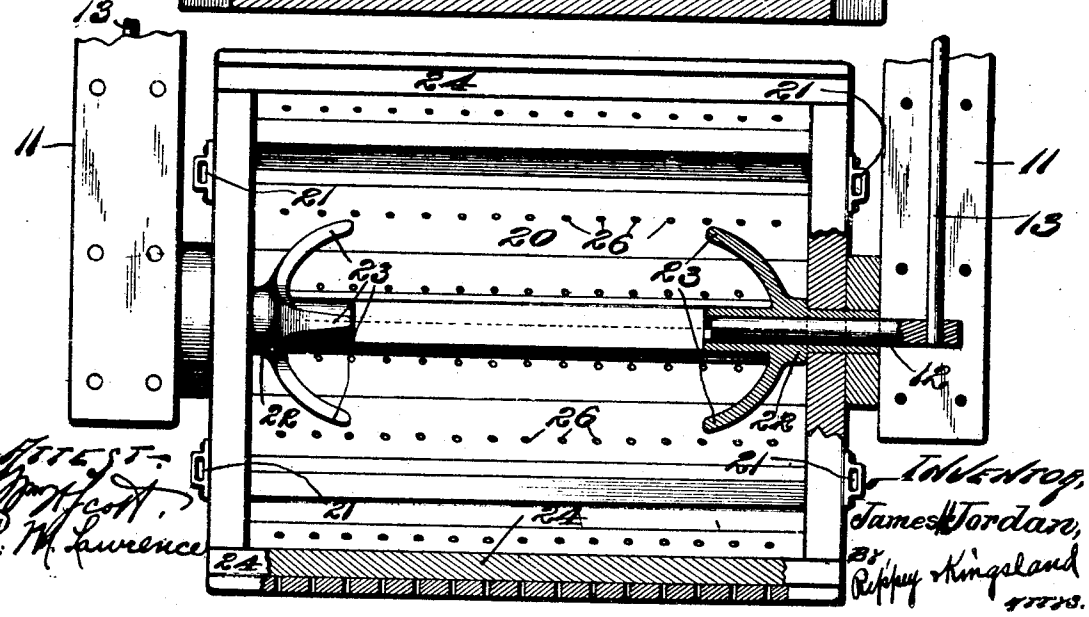


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES H. JORDAN, OF ST. LOUIS, MISSOURI.

PLATING APPARATUS.

1,095,328. Specification of Letters Patent. Patented May 5, 1914.

Application filed July 9, 1913. Serial No. 778,036.

To all whom it may concern:

Be it known that I, JAMES H. JORDAN, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have invented a new and useful Plating Apparatus, of which the following is a specification.

This invention relates to a plating apparatus of the type in which metallic articles are plated with brass or copper or nickel or other suitable plating materials, and in which the plating material is transferred and applied to and upon the articles to be plated while submerged in liquid, by the action of an electric current.

An object of the invention is to provide an improved apparatus for plating various articles and objects, comprising a tank or vat arranged to contain a liquid in which the anodes are submerged, in combination with a movable support for holding the articles to be plated submerged in the liquid in the tank or vat, and means for moving the articles to be plated, while subjecting the anodes and the articles to the action of an electric current.

Another object of the invention is to provide an apparatus for the purpose mentioned comprising a tank or vat in which the anodes are submerged, a revolving drum or barrel adapted to contain the articles to be plated, and means for moving (rotating, in the present instance), the drum or barrel while constantly subjecting the anodes and the articles to be plated to the action of an electric current. The drum or barrel may be removed from one tank or vat to others of different sizes, and containing different solutions.

Other objects will appear from the following detailed description, reference being made to the accompanying drawings in which I have illustrated one embodiment of my invention, and in which—

Figure 1 is a plan view of a preferred type of apparatus embodying one form of my invention. Fig. 2 is a longitudinal sectional view of the tank or vat showing in elevation the support for the articles which are to be plated. Fig. 3 is a cross sectional view of the tank or vat and the support for the articles. Fig. 4 is a view, partially in section, of the support for the articles which are to be plated detached from the tank or vat in which said support is immersed while in use for plating purposes.

The vat or tank 1 is arranged to contain the liquid in which the anodes and the articles to be plated are immersed, and may be of any desired dimensions and shape. In Figs. 2 and 3 the tank or vat is illustrated as containing the liquid. Above the liquid, near each side of the tank, a rod 2 is supported, one end of said rods being connected by a metallic connection 3. One of said rods is connected to a wire 4 constituting a part of an electric circuit, so that said rods practically constitute one terminal or pole of an electric circuit. The rods 2 constitute supports from which the anodes 5 are suspended. Suitable hangers 7 are utilized for supporting the bodies 5, and said hangers are removably engaged over the rods 2 at opposite sides of the tank or vat, as clearly illustrated.

Two supporting members 8 rest upon the upper edges of the walls of the tank or vat, transversely of the rods 2. The supporting members 8 support a depending frame, comprising the two vertical members 9, and a connection 10 between the lower ends of said vertical members. The side members 9 are channeled vertically and constitute guides in which the members 11 are removably positioned. Each member 11 supports an axial rod 12 (Fig. 4), from which wires or rods 13 extend. The wires or rods 13 extend upwardly through the members 11 and contact with metallic plates 14 at the top of said members 11. A wire 15 which is in circuit with the wire 4 connects two metallic plates 16 attached to the under side of the supports 8. The plates 16 are in circuit with plates 17 on the upper sides of the supports 8 through the medium of the metallic connections 18. When the members 11 are positioned in the frame, that is when the members 11 are within the grooves of the vertical frame parts 9, said members 11 are firmly retained in position by the metallic wedges 19 which contact with the plates 14 and 17, thereby completing the circuit from the wires 15 to the axial members 12.

The support for the articles to be plated, in the present instance, is in the form of a revoluble drum or barrel 20. The drum or barrel 20 is preferably composed of two sections detachably secured together by clasps 21, of known construction, so that by releas-

ing the clasps one of the sections may be removed, thereby affording ready access to the interior of the drum or barrel for purposes of removing therefrom or placing therein the articles to be plated. Each end of the drum or barrel is provided with a metallic hub member 22. The axial rods 12 extend into the hubs 22 thereby supporting the drum or barrel 20 in the required position, so that the articles therein will be immersed in the liquid within the tank or vat 1. Each hub 22 is provided with a number of inwardly extending curved arms or projections 23 by which the articles within the drum or barrel 20 and which are to be plated, are subjected to the required electrical energy. The drum or barrel 20 is of strong construction, being provided with suitable reinforcements 24 which extend from end to end of the drum or barrel, and which constitute interior abutments by which the articles will be kept in constant relative movement during rotation of the drum or barrel. Constant relative movement of the articles is desired in order that all surfaces thereof may be equally exposed to the action and effects of the electric current. The wall of the drum or barrel is provided with numerous holes or perforations 26 through which the liquid freely passes when the apparatus is in use.

A drive shaft 27 is supported in suitable position above the tank or vat and is equipped with a pulley 28 from which a belt 29 passes around the tank or barrel 20, so as to maintain the tank or barrel in rotation when in use.

When in use the apparatus is assembled substantially as illustrated and described, the materials to be plated being within the drum or barrel 20 and immersed within the liquid. The metallic arms or projections 23 are in circuit with the wires 15 and constitute the negative terminals or poles, while the anodes 5 are in circuit with the wires 4 and constitute the positive terminals or poles. The drum or barrel 20 may be rotated by the shaft 27 under control of the operator by known appliances, so that the articles to be plated will be subjected to constant action of the electric current, as a result of which the articles will be plated evenly and uniformly with the material transferred thereto by the action of the electric current. The plating may be made of any suitable or required thickness, dependent upon the time the articles are subjected to the action described, assuming that the electric current is at all times of sufficient voltage. Different articles may be plated with different materials, such as brass or nickel or copper or other suitable plating materials, and the apparatus has been found to be of superior merit in plating by all of these materials.

It will be understood that there may be various variations in the construction and arrangement of the different parts of the apparatus without departing in the least from the spirit and scope of the invention. I do not restrict myself to specific features of arrangement and construction but

What I claim and desire to secure by Letters Patent is:

1. A plating apparatus comprising a tank arranged to contain a solution, means for supporting the anodes in an electric circuit and immersed in the solution in said tank, an axial rod in an electric circuit at each end of said tank, a drum revolubly supported by said rods, and a plurality of terminal arms extending inwardly from each end of said drum, substantially as described.

2. A plating apparatus comprising a tank arranged to contain a solution, a movable support at each end of said tank, a rod supported by each of said supports, an electric circuit communicating with said rods, a hub revolubly mounted on each of said rods, a drum supported by said hubs, and a series of terminal arms on each of said hubs extending inwardly from the adjacent end of said drum.

3. A plating apparatus comprising a tank arranged to contain a solution, axial rods supported in said tank, an electric circuit communicating with said rods, a hub revolubly mounted on each of said rods, a drum supported by said hubs, terminal arms rigid with each hub and extending inwardly from the adjacent end of said drum, and means for rotating said drum.

4. A plating apparatus comprising a tank arranged to contain a solution, means for supporting the anodes in an electric circuit and immersed in the solution in said tank, two axially alined rods supported distant from each other in said tank, an electric circuit communicating with said rods, a drum supported by said rods, and a series of terminal arms extending inwardly from each end of said drum and in circuit with said rods respectively, substantially as described.

5. A plating apparatus comprising a tank arranged to contain a solution, means for supporting the anodes in an electric circuit and immersed in the solution in said tank, two rods arranged in an electric circuit in said tank, a series of arms arranged upon each of said rods, a drum supported by said rods and arranged to contain the articles to be plated, a series of abutments extending inwardly from the inner surface of the drum, and means for rotating said drum, substantially as described.

6. A plating apparatus comprising a tank arranged to contain a solution, means for supporting the anodes in an electric circuit and immersed in the solution in said tank, a drum arranged to contain the articles to

be plated revolubly supported in said tank, two separate rods extending into said drum, an electric circuit communicating with said two rods, a hub revolubly mounted on each of said rods, a series of inwardly extending arms rigid with each of said hubs, means for rotating said drum and said hubs, and a number of abutments extending inwardly from the inner side of said drum whereby the articles will be prevented from sliding along the inner surface of the drum when said drum is rotated, substantially as described.

In witness whereof, I have signed this specification in the presence of two subscribing witnesses.

JAMES H. JORDAN.

Witnesses:
L. C. KINGSLAND,
J. D. RIPPEY.