(No Model.)

F. W. ZINGSEM.

APPARATUS FOR ELECTROPLATING SMALL ARTICLES.

No. 449,890. Patented Apr. 7, 1891.

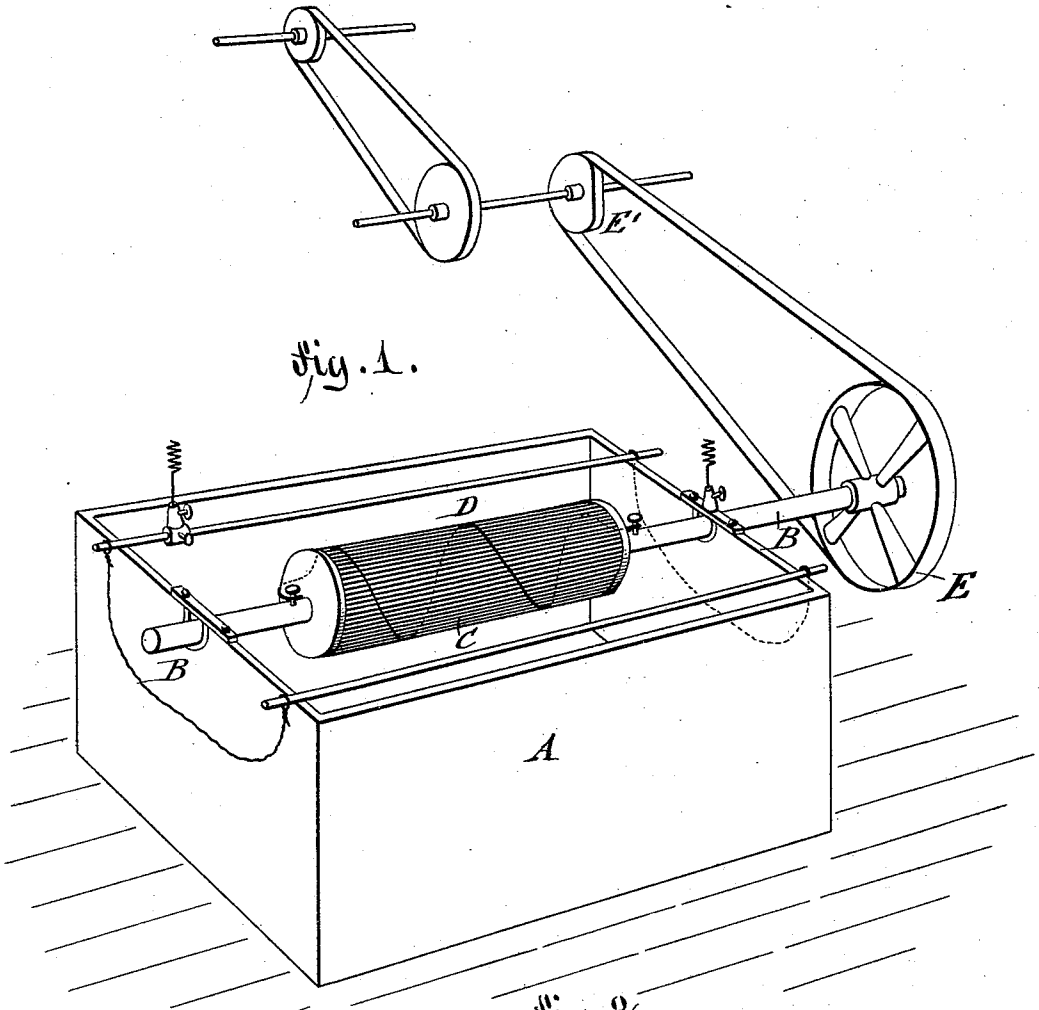
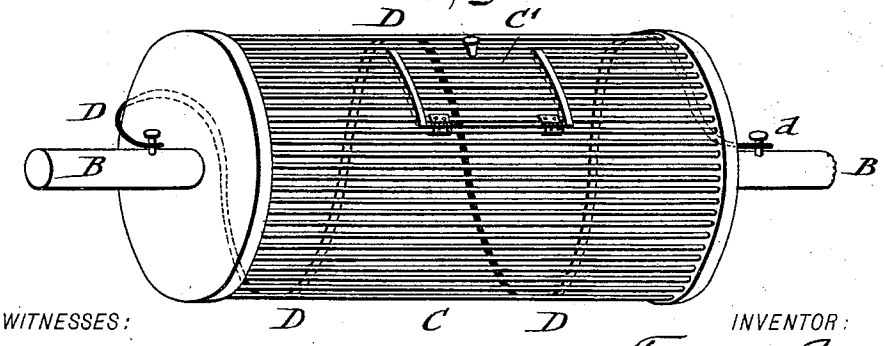


Fig. 1.

Fig. 2.



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APPARATUS FOR ELECTROPLATING SMALL ARTICLES.

SPECIFICATION forming part of Letters Patent No. 449,890, dated April 7, 1891.

Application filed October 17, 1890. Serial No. 368,482. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK WILLIAM ZINGSEM, of the city, county, and State of New York, a citizen of the United States, have invented certain new and useful Improvements in an Apparatus for Electroplating Small Articles, of which the following is a specification.

This invention relates to an apparatus by which the electroplating and finishing of small articles can be accomplished economically and requiring hardly any manipulation either before or after the plating operation; and the invention consists of an apparatus for electroplating small articles, which comprises a tank for the solution, said tank being provided with bearings of suitable conducting material, a shaft supported in said bearings, a reticulated rotary drum on said shaft, constructed of wood or other non-conductive material, into which the articles to be plated are placed, and a conducting-wire that extends spirally at the interior of the baskets, said wire being connected by suitable screws with the shaft, so that the current passes from the anodes through the solution to the conducting-wire and to the articles to be plated, which latter form the cathode of the bath, and then through the shaft back to the source of electricity. An intermittent rotary motion is imparted by suitable mechanism to the drum, so that the articles in the basket change their position from time to time while passing through the bath until the plating operation is accomplished, which takes place mainly during the period at which the basket is at rest.

In the accompanying drawings, Figure 1 represents a perspective view of my improved apparatus for electroplating small articles, showing the solution-tank and the basket for the articles supported in the same. Fig. 2 is a perspective view of the basket, drawn on a larger scale.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a solution-tank of any approved construction, which is provided at opposite sides with suitable conductive bearings for a supporting-shaft B. To the shaft B is applied a cylindrical basket C, which is constructed of disk-shaped heads and longitudinal rods of wood or other non-conducting material, said rods being placed sufficiently close together to prevent the dropping of the articles between the rods. The basket C is provided with a hinged gate C′, having a suitable locking device, so that the same can be opened or closed for dumping the articles into or removing the same from the basket. The basket C, instead of being formed of longitudinal rods, may be made of any other construction, provided that the cylindrical portion of the same is so construceed that the solution has ready access into the same, while the articles are retained in the basket and prevented from dropping from the same. A conducting-wire D passes from a fastening-screw *d* on the shaft B radially along one head of the basket, and then in spiral windings along the inside of the rods to the opposite head of the same, it being tied by suitable strings to the longitudinal rods of the basket. The wire D conducts the current to the articles in the basket, so as to bring successively the entire body of the same under the influence of the electric current and the plating action of the bath. One pole of the source of electricity is connected by a conducting-wire with the anodes of the bath in the usual manner, so that the current passes through the anodes and the solution to the spiral conducting-wire D, it being then transmitted to the articles in the basket which form the cathode of the bath, and then over the shaft and its bearing back to the generator of electricity. To one end of the shaft C is applied a driving-pulley E, the belt of which is connected to a cam E′ on the counter-shaft overhead, which is cut off or flattened at one side. The counter-shaft receives rotary motion by a belt-and-pulley transmission from a suitable line-shaft. The eccentric cam E′ serves to impart intermittent rotary motion to the shaft B and basket C, as the transmitting-belt is slack when it passes over the flat side of the cam, so as not to transmit motion, while when the belt is on the arc-sharped part of the cam the shafts and basket are set in motion. The periods of motion and rest of the basket are timed in proportion to the condition of the bath and the size and the quantity of the articles to be plated.

When the plating operation is to be carried out the articles, instead of being strung up on wires are dumped into the basket, the lower part of which is submerged in the bath. The driving-belt is then applied to the pulley on the shaft of the basket, so that by the flattened cam alternating motions and rests are imparted to the basket. By the rotary motion imparted to the basket a shifting of the articles in the basket takes place, so that a friction is produced between the articles, which exerts a polishing action on the same, by which the bubbles of hydrogen are removed that are formed on the surface of the articles by the decomposing action of the current on the solution. During the periods of rest the metal coating is mainly deposited on the surface of the artices from the solution, so as to form a homogeneous and tenacious deposit on the surface of the articles. The next rotary motion produces another shifting action on the articles, so that another layer of metal is deposited, and so on, until the required thickness of deposit is obtained. The spiral conducting-wire extending along the inside of the basket conducts the current to the entire body of articles in the basket and keeps them always in proper electric contact with them both, the result being a uniform and highly-polished deposit or layer of metal of any required thickness on the surface of the articles, so that the same, on being removed from the basket and dried, are in condition for delivery and use.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An apparatus for electroplating small articles, which consists of a solution-tank, a shaft supported in conductive bearings of said tank, a rotary reticulated drum of non-conductive material attached to the shaft, and a conducting-wire connected to the shaft and extending spirally through the drum, substantially as set forth.

2. An apparatus for electroplating small articles, composed of a solution-tank, a shaft supported in conductive bearings of said tank, a rotary reticulated drum of non-conductive material attached to said shaft, a conducting-wire extending spirally through the drum, and mechanism for imparting intermittent rotary motion to said drum, so that the plating action is accomplished mainly during the periods of rest of the drum, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

FREDERICK WM. ZINGSEM.

Witnesses:
PAUL GOEPEL,
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