L. SCHULTE.

PLATING MACHINE.

APPLICATION FILED AUG. 9, 1915.

1,185,946. Patented June 6, 1916.

Fig. 1.

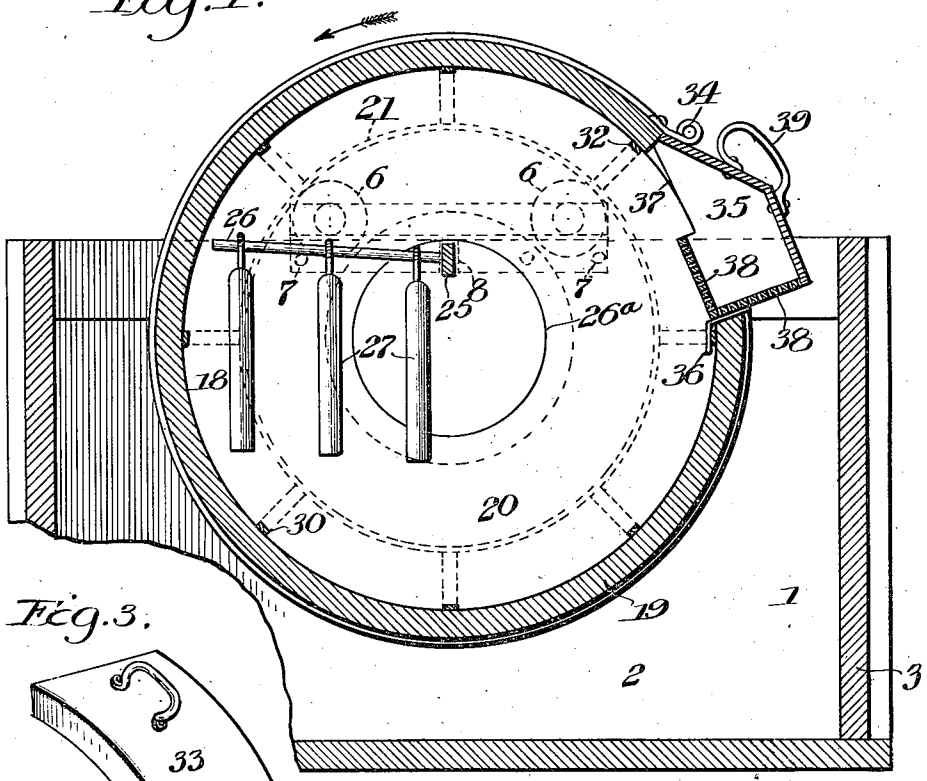
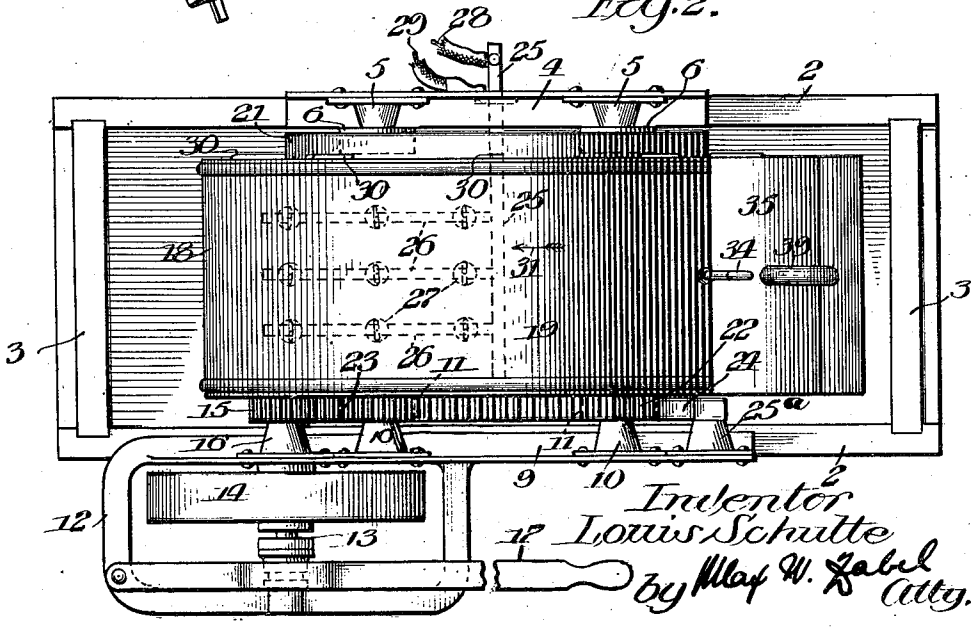


Fig. 3.

Fig. 2.



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UNITED STATES PATENT OFFICE.

LOUIS SCHULTE, OF CHICAGO, ILLINOIS.

PLATING-MACHINE.

1,185,946. Specification of Letters Patent. Patented June 6, 1916.

Application filed August 9, 1915. Serial No. 44,590.

To all whom it may concern:

Be it known that I, LOUIS SCHULTE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Plating-Machines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to plating or tumbling machines and has for its object the provision of means to simplify the insertion and withdrawal of the goods or work from devices such as this where a rotatable barrel is used.

My invention contemplates the provision of means by virtue of which the work may be withdrawn from the barrel without removing it from its containing tank and by virtue of which in its preferred form the work may be withdrawn without reversing the direction of rotation of the barrel.

My invention further contemplates the provision of a structure of use more particularly with plating barrels wherein a large amount of anode surface within the drum may be employed without interfering with the goods to be plated, the structure being such that the drum itself need not be perforated, thus materially reducing the cost of construction. It is readily apparent that if a sufficient amount of anode surface be provided within the drum that the perforations need not be present as no anodes need be employed exteriorly of the drum. Furthermore my improved structure permits me to charge the drum with any and all kinds of articles however small without removing the drum from the solution and without disconnecting the plating current. My improved structure further permits me to have two-thirds of the drum submerged in the solution as I do not require a central shaft and bearings for its support.

My invention further contemplates as one of its important features the provision of a structure wherein the anodes are adjustably mounted upon devices above the axis of the drum, this adjustment making it possible to have a uniform distribution of current from the anodes toward the articles which are to be plated.

I will explain one form which my invention may take more in detail by referring to the accompanying drawing illustrating the same, in which—

Figure 1 is a vertical sectional view of my improved machine; Fig. 2 is a top view thereof, and Fig. 3 is a perspective view of the removable lid.

My improved device comprises a plating tank 1 having the suitable side walls 2, 2, and end walls 3, 3. This tank is adapted to be filled with solution practically to its top. One of the side walls 2 is surmounted by a cover plate 4 which carries brackets 5, 5, upon which rollers 6, 6 are rotatably mounted. The cap plate is held in place by means of the nuts or bolts 7 and has a cut-away portion at 8, the purpose of which will presently appear. The other side wall has a surmounting cap plate 9 which has arms 10, 10 similar to the arms 5, 5, which also support rollers 11, 11. The cap plate 9 in addition has a rectangular framework 12 in which a rotatable shaft 13 is mounted carrying a pulley 14 which is supposed to be suitably driven by means of a belt or otherwise. The shaft 13 has rigidly fastened to it a gear wheel or pinion 15 carried by the arm 16 secured to the cap plate 9. An arm 17 is designed to suitably connect the pulley 14 with the shaft 13, thus to drive the pinion 15.

A barrel 18 is adapted for operation within the tank, which barrel has a circumferential wall 19 and the side walls 20. The walls of this barrel of course are rigidly fastened together in any suitable manner. An annular flange 21 is fastened to one of the side walls 20 and is adapted to coöperate with the rollers 6 to rotatably support the barrel on that side. A similar flange 22 is fastened to the opposite side wall 20 of the barrel, but has on its exterior periphery teeth 23, thus to form a large gear wheel which is adapted to mesh with the pinion 15. The interior periphery of the flange 22 of course coöperates with the rollers 11 similarly as the flange 21 coöperates with the rollers 6. Then when the pinion 15 is rotated it will be readily apparent that the barrel 18 is rotated within the solution. A pawl or dog 24 also carried by an arm 25^a mounted upon the cap plate 9 may be used to hold the barrel 18 in any desired position of rest provided of course the pinion 15 is then not rotating the drum. Cen-

tral openings 26ª are provided in the side walls 20. A metallic anode carrier 25 is supported by the opposite sides 2 of the tank, but is not in electrical engagement with the cap plates 4 or 9 as these are cut-away, for instance, as shown at 8. This anode carrier has extending arms 26 upon which suitable anodes 27 may be movably placed. By having the anode carrier above the axis of the barrel I am enabled to obtain a very large amount of anode surface, thus dispensing with anodes mounted exteriorly of the barrel and thus making it unnecessary to perforate the barrel. One wire 28 of the external circuit may then be connected to the anode carrier 25 and the other lead in wire 29 may be, for instance, connected to the cap plate 4 so that the current extends from this cap plate to the roller into the flange 21 and from there by means of conducting extensions 30 into the interior of the barrel. The direction of rotation of the tank is indicated by the arrow 31.

The circumferential wall 19 of the tank has its continuity broken at 32 which is ordinarily closed by means of the removable lid 33 shown in Fig. 3, and which is mounted in place and held in place by the clamp 34. Thus to charge the tank the removable lid is taken out of place and the articles charged into the tank, whereupon the lid is replaced in position and held there by the clamp 34. The barrel may then be rotated either to tumble the articles, plate them, or pickle them, or perform whatever actions thereon may be desired.

The solution enters the barrel through the openings 26ª. Now when it is desired to remove the articles from the barrel, the removable lid 33 is taken off and my improved transportable unloader 35 is mounted in place as shown in Figs. 1 and 2. This transportable unloader similarly to the removable lid has prongs 36 to engage the inner surface of the circumferential wall 19 of the barrel, and is at its opposite extremity adapted to be held in place by the clamp 34. This transportable unloader is completely inclosed except at its mouth 37 as is readily apparent, but has perforations 38, 38 in two of its walls. Now if the tank is rotated, for instance, in the direction of the arrow in Fig. 1, with the unloader in position, then the articles in the course of this movement will fall into the unloader filling the same, but permitting the liquid to drain through the holes 38. The filled unloader may then be removed by unclamping the clamp 34, a handle 39 permitting transportation of this unloader. If the capacity of the unloader is not sufficient to take in all of the articles with one filling, then this unloading operation may be carried on several times until all of the articles are discharged from the barrel. The articles can then be carried by means of this unloader to any desired point for further operation thereon as may be desired.

From what has been described it is thought the nature of my invention will be readily clear to those skilled in the art, and it will also be apparent that the specific illustration herein is not intended to limit my invention to the particular form shown as my invention is susceptible of many and various modifications within the scope of the appended claims.

Having however thus described one form which my invention may take, what I claim as new and desire to secure by Letters Patent is:

1. In a machine of the character described the combination with a rotatable barrel having an opening in the peripheral portion thereof, and a removable basket adapted for temporary attachment over said opening to receive and hold articles discharged from said barrel during the rotation thereof.

2. In a machine of the character described the combination with a rotatable barrel having an opening in the peripheral portion thereof, and a removable basket having perforations in one or more sides thereof adapted for temporary attachment over said opening to receive and hold articles discharged from said barrel during the rotation thereof.

3. In a machine of the character described the combination with a rotatable barrel having an opening in the peripheral portion thereof, a removable basket having perforations in one or more sides thereof adapted for temporary attachment over said opening to receive and hold articles discharged from said barrel during the rotation thereof, and means for removably holding said basket in position.

4. In a machine of the character described the combination with a rotatable barrel having an opening in the peripheral portion thereof, a removable basket having perforations in one or more sides thereof adapted for temporary attachment over said opening to receive and hold articles discharged from said barrel during the rotation thereof, and means for removably holding said basket in position, said basket having an open mouth on its side facing the center of said barrel for the reception of the articles aforesaid.

5. In a machine of the character described the combination with a tank adapted to contain electrolyte, of a barrel partially submerged within said tank, and means for rotatably carrying said barrel, said means including a pair of annular flanges upon the opposite sides of said barrel, and a pair of rollers associated with the interior periphery of each flange fixedly supported relative to said tank.

6. In a machine of the character described the combination with a tank adapted to contain electrolyte, of a barrel partially submerged within said tank, means for rotatably carrying said barrel, said means including a pair of annular flanges upon the opposite sides of said barrel, and a pair of rollers associated with the interior periphery of each flange fixedly supported relative to said tank, one of said flanges having gear teeth on its exterior periphery, and a pinion meshing with said teeth for rotating said barrel.

7. In a machine of the character described the combination with a tank adapted to contain electrolyte, of a rotatably mounted barrel partially submerged within said tank, means for rotating said barrel, one side of said barrel having a central opening therein, and an anode carrier projecting into said barrel above the axis of rotation of said barrel.

8. In a machine of the character described the combination with a tank adapted to contain electrolyte, of a rotatably mounted barrel partially submerged within said tank, means for rotating said barrel, one side of said barrel having a central opening therein, an anode carrier projecting into said barrel above the axis of rotation of said barrel, and anodes carried by said anode carrier.

9. In a machine of the character described the combination with a tank adapted to contain electrolyte, of a rotatably mounted barrel partially submerged within said tank, means for rotating said barrel, one side of said barrel having a central opening therein, an anode carrier projecting into said barrel above the axis of rotation of said barrel, arms projecting from said anode carrier, and a plurality of anodes movably mounted upon each arm.

In witness whereof, I hereunto subscribe my name this 15th day of July, A. D. 1915.

LOUIS SCHULTE.

Witnesses:
MAX W. ZABEL.
HAZEL A. JONES.