Jan. 27, 1931. E. S. THOMPSON 1,790,289

ELECTROPLATING MACHINE

Filed March 16, 1927 2 Sheets-Sheet 1

FIG 1

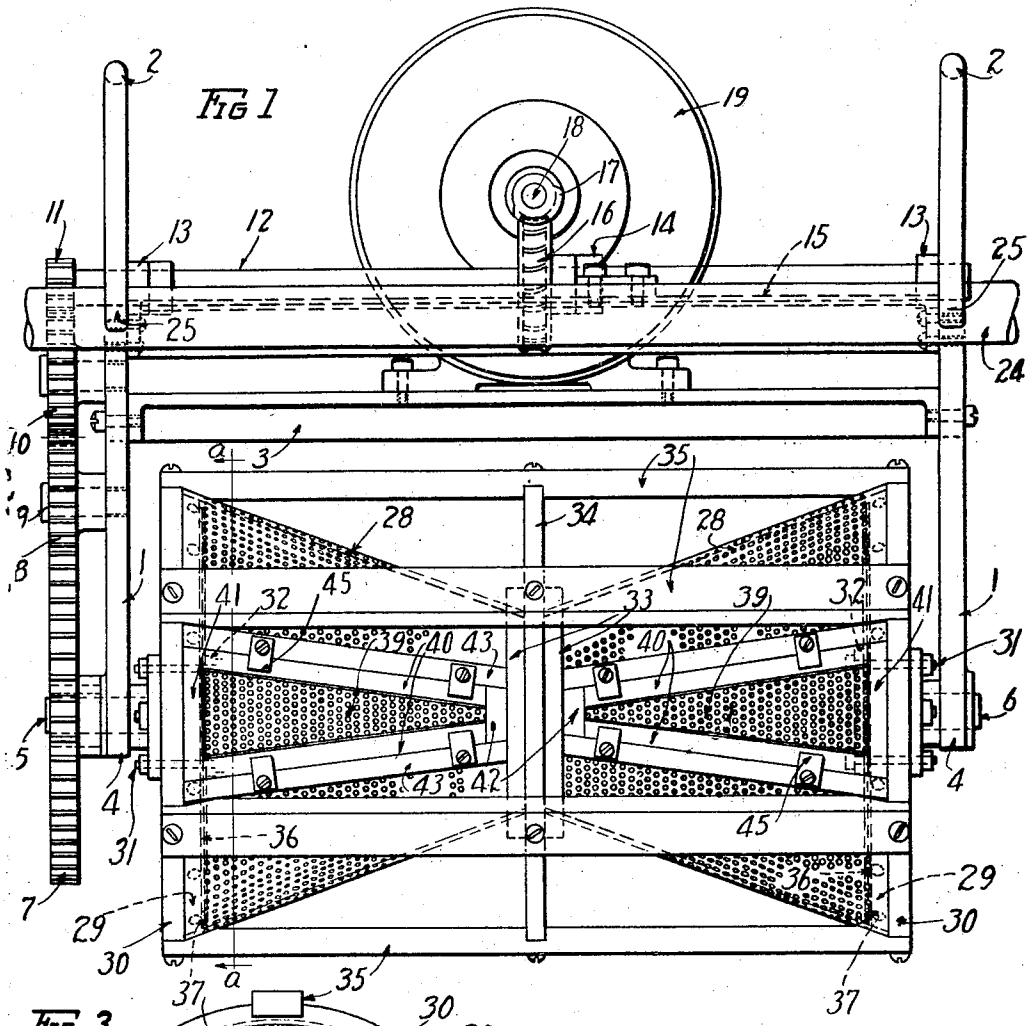
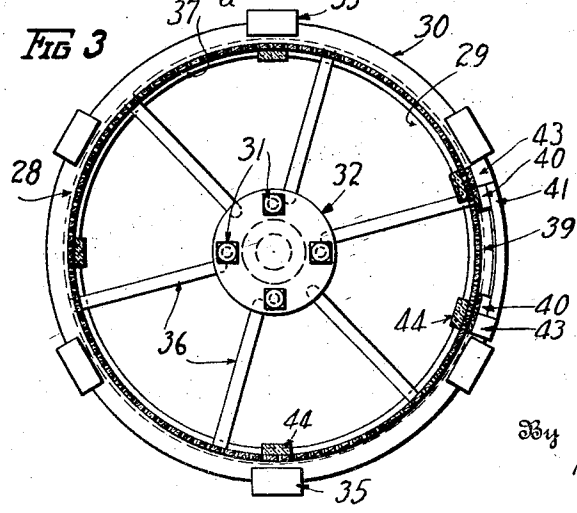


FIG 3



Inventor

Edgar S. Thompson

By Staley & Welch

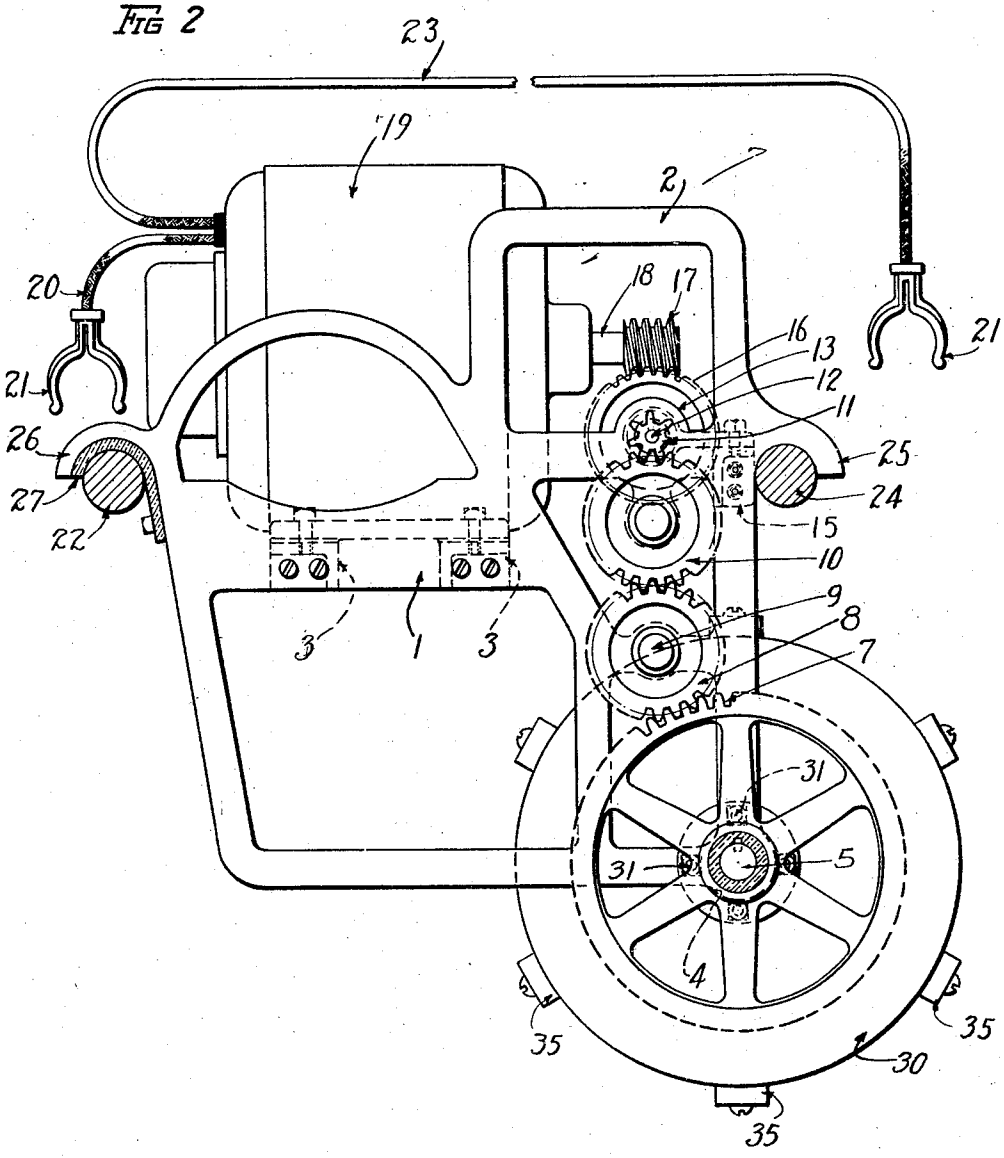
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FIG 2



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Patented Jan. 27, 1931 1,790,289

UNITED STATES PATENT OFFICE

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ELECTROPLATING MACHINE

Application filed March 16, 1927. Serial No. 175,853.

This invention relates to improvements in electro-plating machines, it more particularly relating to that class of plating machines wherein revolving barrels or drums are used.

Another of the objects is to provide a portable plating device of a unitary construction so that it may be placed in and taken out of various tanks as desired.

Another object is to provide a portable plating device in which is incorporated as a unitary part thereof means for rotating the barrel.

Other objects will appear from the following description and claims.

In the accompanying drawings:

Fig. 1 is a front elevation of the apparatus embodying my improvements.

Fig. 2 is an end elevation.

Fig. 3 is a section on the line *a*—*a* of Fig. 1.

Referring to the drawings, 1 1 are metallic side frames with integrally cast hand-holds 2 to facilitate lifting and carrying. The side frames are spaced apart and braced by a pair of metallic cross-members 3, preferably of angle section, and are extended downwardly, terminating in bosses 4 in which are journaled trunnions 5 and 6. A gear 7 is, if metallic, preferably bushed with a non-metallic or insulating bushing, secured to trunnion 5; if the gear is non-metallic, it may be attached directly to the trunnion. Meshing with this gear 7 is an idler gear 8 preferably nonmetallic, rotatably mounted on a shoulder stud 9 threaded in a boss in the side frame, and this gear meshes with a second idler gear 10, similarly mounted, gear 10 being meshed with pinion 11 secured to one end of a transverse shaft 12 rotatably mounted in bosses 13 in the side frames and a bearing 14 secured at about the center of a cross-member 15 which is attached to the side frames 1.

A worm wheel 16 is keyed to shaft 12 and meshes with a worm 17 on the shaft 18 of an electric motor 19, this motor being preferably but not necessarily of a type as to be adaptable to operation on the plating current. A flexible conductor 20 is attached to the positive binding post of the motor and provided with a spring clip 21 adapted to engage the positive tank rod 22, and a second flexible conductor 23 with a similar spring clip 21 attached to the negative binding post engages the negative or cathode tank rod 24.

The entire unit is preferably suspended from the tank rods, there being hooks 25, on the front side of the device, in direct electrical contact with negative tank rod 24, while hooks 26, on the rear, have each a curved insulating member 27 secured thereto, these serving to prevent a short-circuit of the plating current from one tank rod 22 to the other.

The plating barrel is in the present case formed with two compartments, each consisting of a perforated sheet of non-absorbent material, such as pyralin, formica, celluloid, or the like, rolled into the form of a frustrum of a cone with its large end secured to the shouldered portion 29 of a non-absorbent head 30, with the small ends of the conic frustrum turned toward each other. In the present case, screws (not shown) are employed to secure the sheets 28 to the shoulders of the heads, the heads of the screws being covered with suitable material to prevent corrosion. The small ends of the cones are inserted in tapered openings in rings 33 which are secured to a partition disk 34, this disk and the heads 30 being connected by a plurality of longitudinally-extending non-absorbent bars 35 suitably secured to the disk and heads.

Secured to the inner face of the shouldered portion of each head is a centrally-arranged contact plate 32, bolts 31 being employed to secure the plates to the heads, which bolts also pass through the flanges of the trunnions 5′ to secure the trunnions to the barrel.

A plurality of metallic contact strips 36

arranged in a substantially radial manner are soldered or otherwise attached to each contact plate 32 and to a concentric annular ring 37 located inside the compartment near the inner periphery at the large end, and due to the slope of the sides of the barrels, articles placed therein gravitate toward and maintain contact with the rings 37 and strips 36, so that an electrical circuit is formed between the anode or positive tank rod 22, through the electrolytic solution to the articles being plated in the barrel, thence to the contact rings 37, strips 36, plate 32, bolts 31, trunnions 5 and 6, and frames 1 1 to the negative or cathode tank rod 24.

Openings for doors 39 are cut in the sides 28, the doors being approximately of the same curvature and preferably of the same material as the barrel, as are also the reenforcing strips 40, 41 at the longer end, and 42 at the shorter end. To strengthen the door opening, strips 43 are placed on the exterior in line with the opening, while on the interior, strips 44 are secured with their edges projecting over into the door opening to act as rests for the doors; these same strips 44 are also located at various other places inside the barrel to serve as retarders and to promote and maintain a tumbling effect among the articles. When the doors are in place, they are secured by oblong turn-buttons 45.

In operation, the unit is suspended from the tank rods, it being assumed that there is sufficient depth of solution in the tank to cause partial immersion of the barrel. The spring clips on the motor leads are engaged with their respective rods to furnish the motor with current from the plating circuit to rotate the barrel. If it is desired to change to another solution, the unit is readily transported from one tank to another.

Having thus described my invention, I claim:

1. In a plating machine, a unitary structure consisting of a supporting frame, a revoluble barrel mounted in said frame, a motor mounted on said frame having an operative connection with said barrel, and means associated with said frame for removably supporting the same on the anode and cathode rods of a plating tank.

2. In a plating machine, a main supporting frame, a revoluble barrel mounted in said frame, an electric motor mounted on said frame having its shaft geared to the shaft of said barrel, said frame arranged to be removably supported upon a negative and positive rod of a plating tank and means for supplying current to said motor from said rods.

3. In a plating machine, a unitary structure adapted for suspension in a tank having parallel spaced-apart anode and cathode rods arranged along the top thereof consisting of parallel spaced-apart connected side frame members, hand holds integrally formed with the upper portion of said frame members, a barrel revolubly mounted at the lower end of said frame members, an electric motor carried by said frame members above said barrel, a worm on the shaft of said motor, a worm wheel meshing with said worm, a gear wheel connected with said barrel, a train of gears between said worm wheel and said gear, and a pair of hook-shaped members on the outer sides of each of said frame members adapted to hook over said anode and cathode rods.

EDGAR S. THOMPSON.