G. L. WALLACE.

ELECTROPLATING TANK.

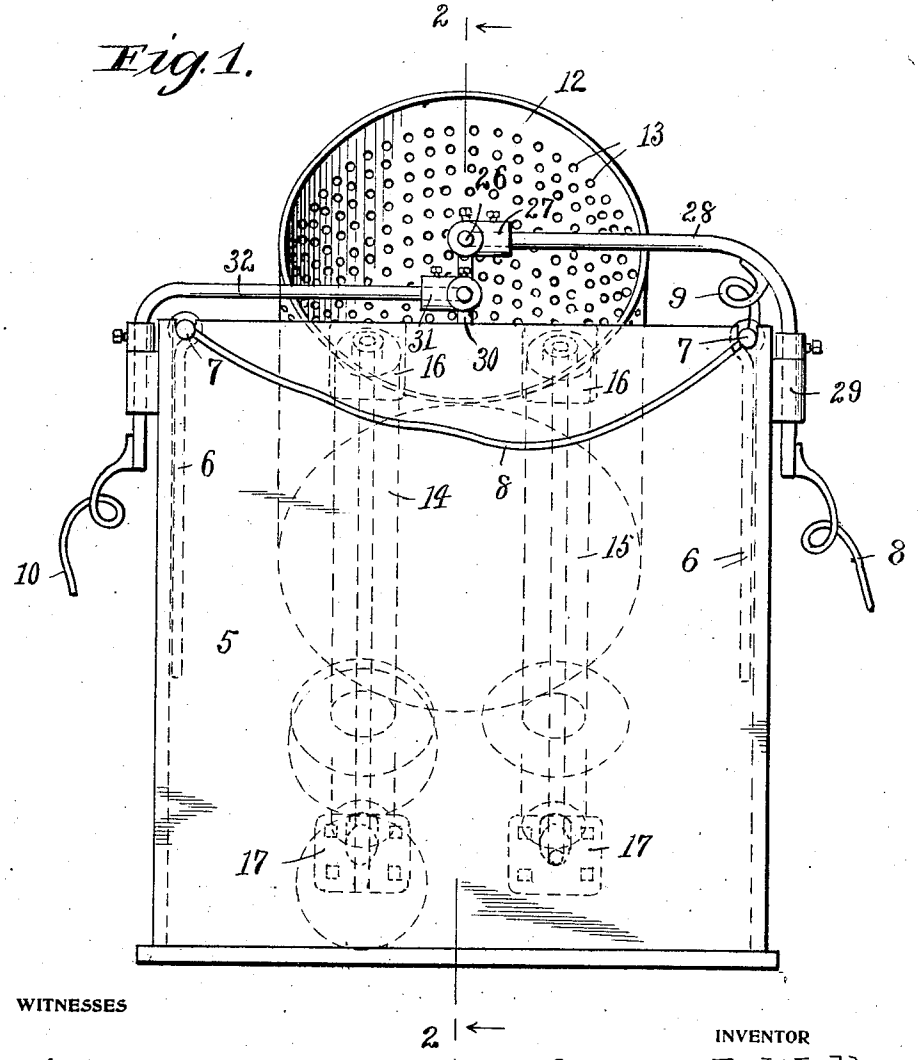
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943,721.

Patented Dec. 21, 1909

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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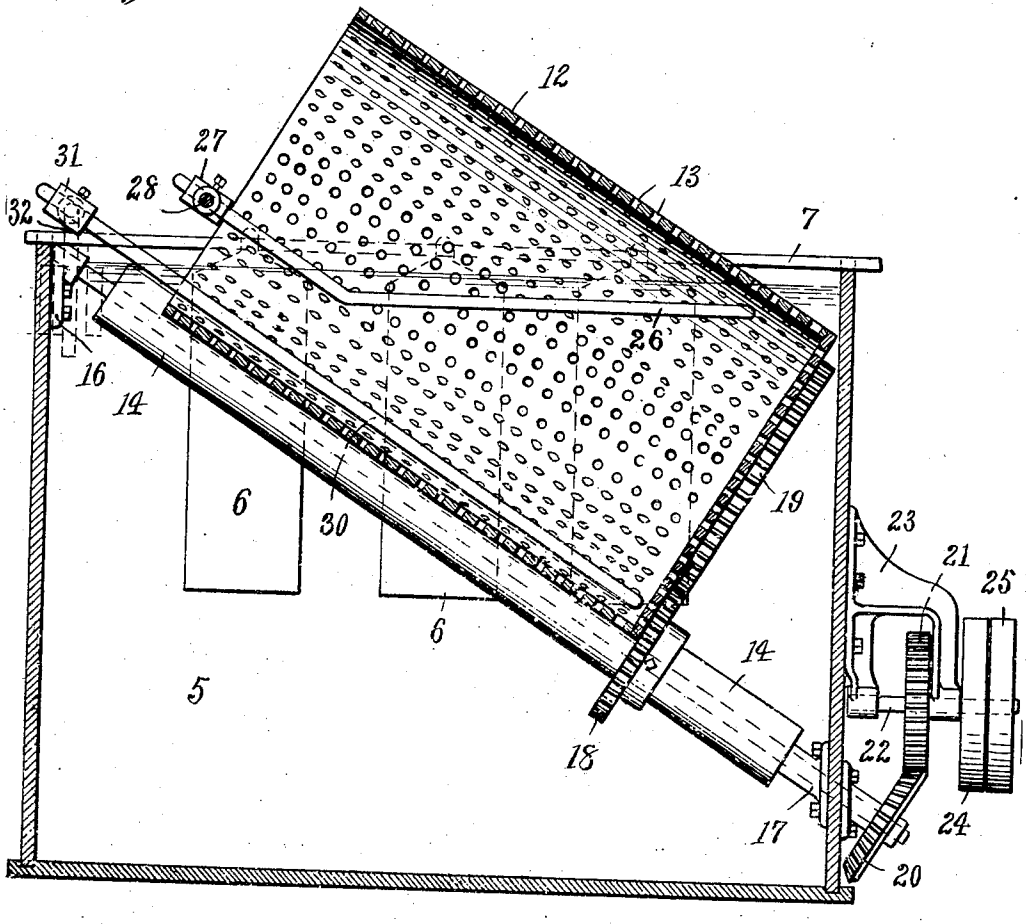
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2 SHEETS—SHEET 2.

Fig. 2.



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GEORGE L. WALLACE, OF BRIDGEPORT, CONNECTICUT.

ELECTROPLATING-TANK.

943,721. Specification of Letters Patent. Patented Dec. 21, 1909.

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To all whom it may concern:

Be it known that I, GEORGE L. WALLACE, a citizen of the United States, and resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Electroplating-Tanks, of which the following is a specification.

My invention relates to improvements in electro-plating devices of the tumbler type and has for its object to simplify and cheapen the construction of tanks of this sort and at the same time to improve their efficiency; to construct the tank so that the movable receptacle for retaining the work to be plated can readily be removed or replaced for the purpose of receiving or removing the articles to be plated.

My plating apparatus obviously belongs to the class wherein several series of anodes and one cathode are employed for depositing the metal, one within the work carrying receptacle while the others are located in both said receptacle and the stationary tank within which the work carrying receptacle is located and in part submerged within the plating solution contained within said tank.

Upon the accompanying two sheet of drawings forming a part of this specification similar characters of reference denote like or corresponding parts throughout the several figures and of which,

Figure 1, shows a front end elevation of my improved type of plating tank complete and in an operative position, and Fig. 2, shows a central vertical sectional view through the machine as seen from arrows, line 2—2 of Fig. 1.

Referring in detail to the characters of reference marked upon the drawings 5 represents the stationary tank of my plating apparatus which would in all probability be constructed of wood, slate or cement and substantially the shape and proportions shown in the drawings. This tank is open at the top as is customary in this general class of devices, and is provided upon opposite sides with a series of anodes 6 suspended from a rod 7 through which an electric current is passed from the attached wires 8.

12 represents a rotary receptacle for carrying the work to be plated which is also formed of wood, earthenware, rubber, glass or other non-conductive material and of substantially a cylindrical or barrel shape as shown. It is provided with numerous small perforations 13 to allow the fluid of the tank to readily enter when the receptacle is contained therein as shown in the drawings. This receptacle is supported upon a pair of inclined rolls 14 and 15 that are arranged adjacent to and in line with each other. They are each provided with shafts one end of which are journaled in bearings 16 secured to the upper inner portion of one side of the tank and 17 secured to the lower portion of the opposite side of the tank. Upon each of these rolls is mounted a gear 18 that serves as a holding means for the receptacle resting thereagainst and further serves to mesh with a larger gear 19 centrally located upon the lower end of the work carrying receptacle. One of these gears, namely that upon the driving roll 14 serves to rotate the cylindrical receptacle with the movement of the rolls upon which it is supported while the second gear upon the idler roll 15 simply serves to assist in supporting, guiding and steadying the receptacle while in operation. Upon the outer end of the driving roll shaft 14 is mounted a bevel gear 20 that meshes with and is driven by a plain gear 21 mounted upon a shaft 22 journaled in the bracket 23 secured to the outside of the tank. The said shaft 22 is further provided with a tight and loose pulley 24 and 25, by means of which the rolls may be driven or stopped at will as in the act of revolving the receptacle to tumble or plate the parts therein or to permit the receptacle to be removed.

The solution within the tank is normally retained at substantially the level indicated in Fig. 2, and is sufficient to more than cover the usual quantity of articles placed within the receptacle and likewise more than sufficient to cover the anode and cathode contained therein. The receptacle being perforated the solution of the tank and receptacle both find substantially the same level. The solution in the receptacle is also renewed from the tank with each operation, thus permitting the said solution to be kept charged and be used over and over as desired.

The anode 26 within the receptacle is preferably disposed at an angle thereto and parallel with the surface of the solution covering the same, and it is adjustably supported within a sleeve 27 carried upon an arm 28 mounted in a bracket 29 secured to the side of the tank and electrically con-

nected as at 9 to the rod 7, in a way which permits it to be swung around to one side for the removal of the receptacle.

The cathode indicated by 30 and located within the receptacle is disposed longitudinally therein and adjacent to the lower side and provided with a connection 10 to the negative pole of dynamo. While this cathode is arranged comparatively near to the side of the receptacle yet in practice it would be stiff enough to prevent the weight of the articles to be placed therein from bearing the same down against the receptacle and interfering with its rotation. Through this means it will readily be apparent that the current is passed through the solution in the tank from one electrode to the other in a way to disintegrate the one and to charge the solution and form a metal deposit upon the work, not shown, when submerged within the bath. This cathode connection has a double purpose, *i. e.* first to form the negative connection with the articles to be electro-plated and second to stir the work or articles to be electro-plated, and thereby enabling the operator to secure a more even plate or distribution of metal on same. This element 30 like the other is supported in a sleeve 31 which in turn is carried by an arm 32 mounted in the bearing 33 secured to the side of the tank. The construction of this arm like the arm 28 previously described is such as to permit the cathode to be first drawn up to free the receptacle and then swung around out of the way, thereby allowing the receptacle to be lifted up out of the tank, causing the fluid to freely flow out through its perforations and thereby leaving the plate articles therein free to be poured out.

Having thus described my invention what I claim and desire to secure by Letters Patent is:—

1. In an electro-plating device, the combination with a tank, of longitudinally disposed supporting rolls located within the tank, a cylindrical receptacle mounted upon said rolls and adapted to be turned thereby, means for operating the rolls and receptacle to tumble articles when placed therein, a cathode and anode within the tank and adapted to be suspended within a solution when contained therein.

2. In an electro-plating device, the combination with a tank, of a pair of angularly disposed supporting rolls located within the tank, a perforated cylindrical receptacle mounted upon said rolls, means for rotating the rolls and receptacle, a suitable cathode and anode arranged within the receptacle and adapted to be submerged within a solution when contained therein.

3. In an electro-plating device, the combination with a tank, of a pair of angularly disposed supporting rolls located within the tank, gear connections intermediate the rolls and receptacle to operate the latter from the former, means for rotating the rolls and receptacle, a cathode and anode arranged within the tank and solution when contained therein.

4. In an electro-plating device, the combination with a tank, of a pair of elongated rolls angularly mounted within the tank and provided with a supporting means, a perforated cylindrical receptacle arranged with its side against the rolls and its bottom end portion against said supporting means, mechanism for rotating the rolls, barrel and supporting means, and an anode and cathode mounted within the tank and adapted to be contained in a plating solution when placed therein.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 29th day of March, A. D. 1909.

GEORGE L. WALLACE.

Witnesses:
C. M. NEWMAN,
RUTH RAYMOND.