E. R. WILLIAMS.

ELECTROPLATING TANK.

APPLICATION FILED FEB. 23, 1910.

968,622.

Patented Aug. 30, 1910.

2 SHEETS—SHEET 1.

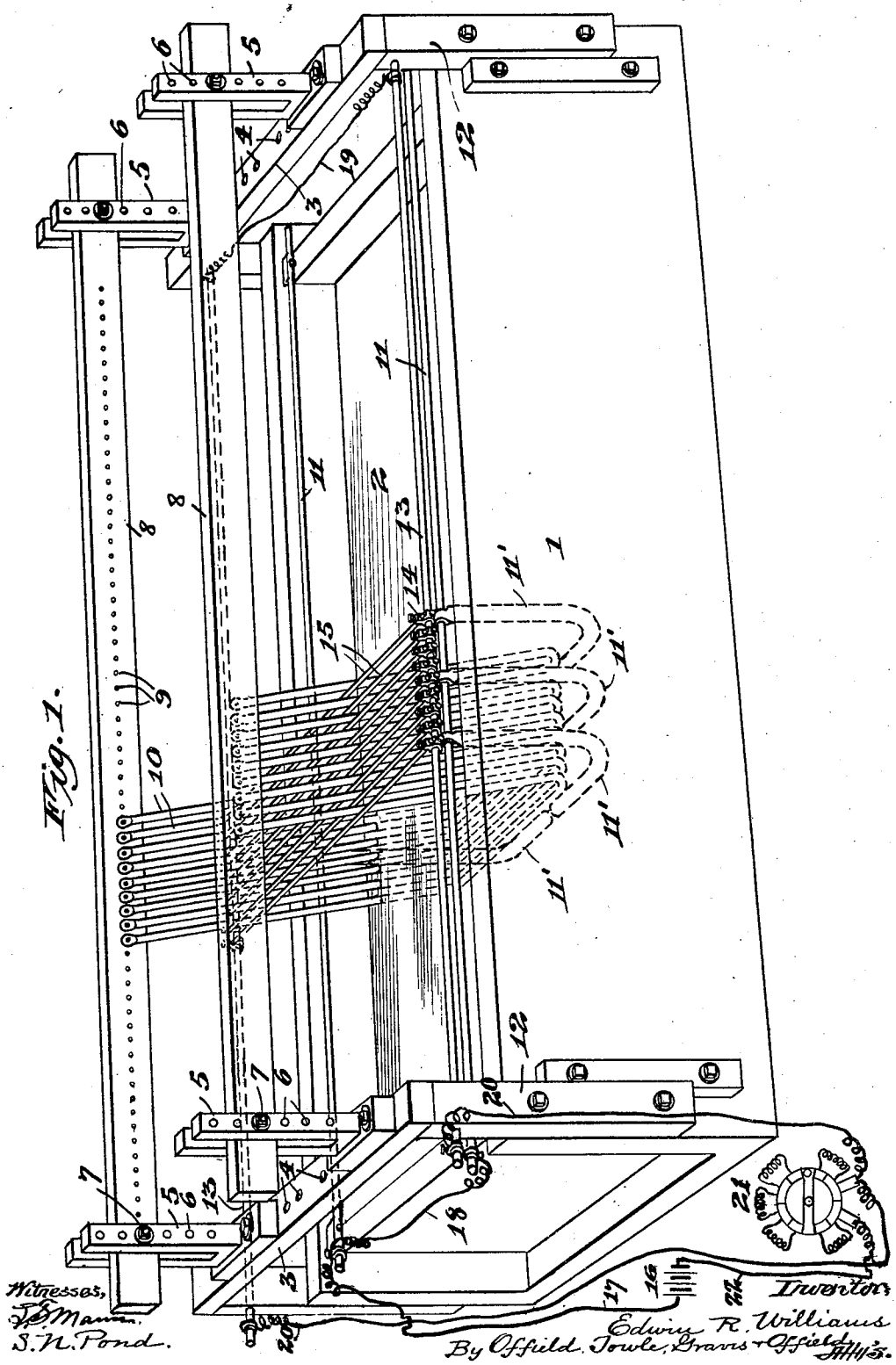

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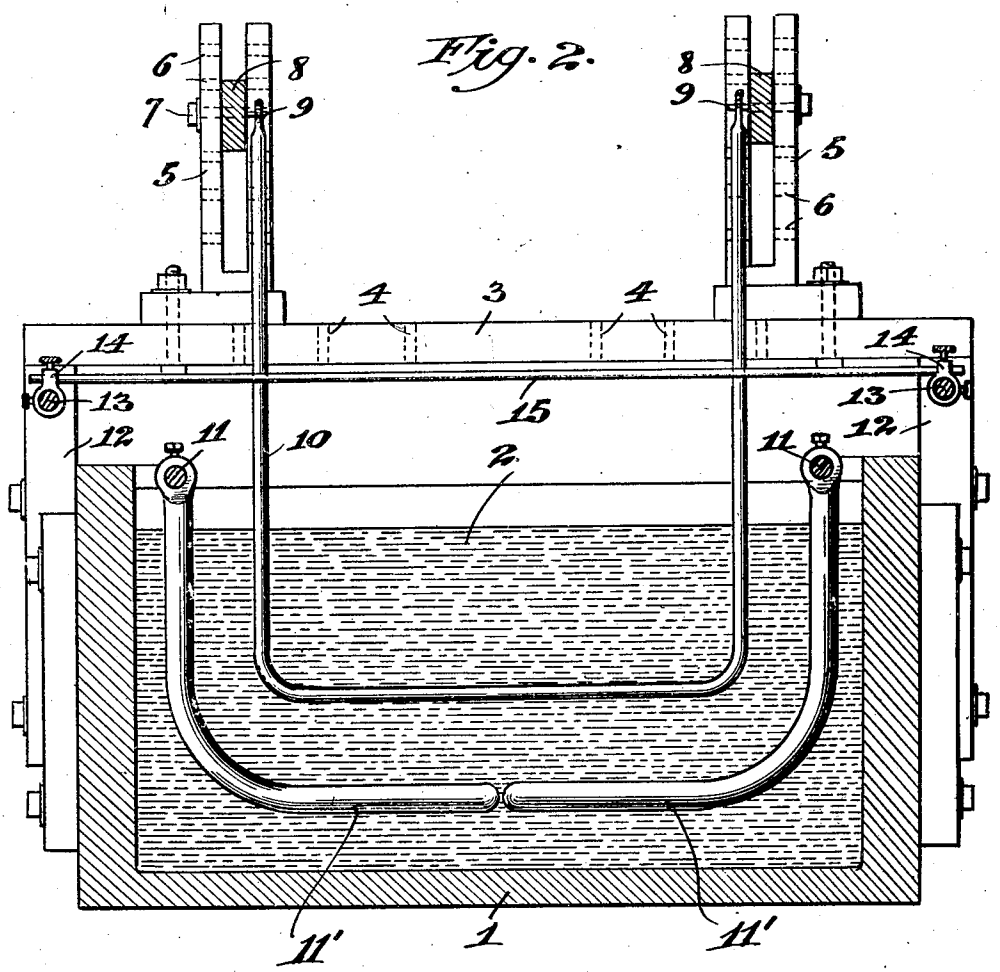
Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## ELECTROPLATING-TANK.

968,622. Specification of Letters Patent. Patented Aug. 30, 1910.

Application filed February 23, 1910. Serial No. 545,431.

*To all whom it may concern:*

Be it known that I, EDWIN R. WILLIAMS, a citizen of the United States, residing at Streator, in the county of Lasalle and State of Illinois, have invented certain new and useful Improvements in Electroplating-Tanks, of which the following is a specification.

This invention relates to the general art of the electro-deposition of metals to form a coating or plating, and has reference more particularly to a device for effecting the economical and rapid electroplating of U-shaped articles, such as handles of go-carts and the like.

Among the main objects sought to be obtained by the invention are, to increase the working capacity of electroplating tanks of this type; to reduce the time period heretofore usually required to effect the operation; to effect a more uniform and even deposition of the plating or galvanizing metal; to provide a means for easily and quickly adjusting the extent of surface subjected to the electroplating operation; and, generally, to provide an improved device of the character specified.

To these and other minor ends the device of my invention in its preferred form is generally characterized, as to its novel features, by the provision of a galvanizing tank equipped with one or more vertically adjustable rack bars mounted thereabove to support the handles or other devices at any desired depth in the solution, together with a series of curved anodes that are suspended from anode rods disposed lengthwise of the sides of the tank and project inwardly toward each other beneath the lower ends of the handles and at a substantially uniform distance from the latter, and contact rods disposed transversely of the tank and in contact with the handles, said contact rods themselves being in electrical connection with one side of the generator while the anode rods are connected to the opposite side of the generator.

The invention will be readily understood when considered in connection with the accompanying drawings which illustrate one particular form in which the invention may be embodied and in which,—

Figure 1 is a perspective elevation of the complete apparatus, and Fig. 2 is a transverse vertical section thereof.

Referring to the drawings, 1 designates the tank proper herein shown as of plain rectangular form, and adapted to contain the usual nickel solution indicated at 2. 3 designates each of a pair of cross bars surmounting the opposite ends of the tank, said cross bars being provided with a plurality of apertures 4 for adjustably bolting thereto the upright forks 5. These latter are likewise provided with a plurality of holes 6 adapted to be engaged by bolts 7 for adjustably supporting a pair of longitudinal bars 8 above the tank, these latter being provided on their inner sides with longitudinal rows of closely set pins 9 on which may be hung in close arrangement the handles 10, the lower ends of which dip into the solution 2 to a depth determined by the height of the rack bars 8.

Extending from end to end of the tank and lying just inwardly of the upper ends of the side walls thereof are a pair of anode rods 11, to which are secured at intervals a series of curved anodes 11′ that dip into the solution and are curved at substantially a right angle, their inner ends extending to within a slight distance of each other at approximately the transverse center of the tank, and parallel therewith and mounted in posts 12 secured to the corners of the tank are a corresponding pair of cathode rods 13. Extending between the cathode rods 13 and supported thereon by adjustable collars 14 are a series of contact rods 15 against and in contact with which the handles 10 lie; the suspending of the handles 10 at a slight angle to the vertical insuring a sufficient contact by gravity.

The current is supplied from the positive pole of the generator indicated at 16 by a conductor 17 leading to one of the anode rods 11, and thence, through a connecting conductor 18 to the companion anode rod, thence through the curved anodes 11′, thence through the solution and the handle bars 10 to the contact rods 15, thence through the connections 14, cathode rods 13, and a conductor 19 connecting one end of said cathode rods, and through conductors 20 connected to the opposite ends of said cathode rods to a rheostat 21, and thence by a conductor 22 to the negative pole of the battery 16.

It will be observed that the form of the anodes 11′ is such that any pair of opposed

anodes unitedly conform substantially to the form of the immersed portion of the handles, and such pair of anodes is spaced at approximately uniform distances from the immersed portion of the handles at all points, which insures a substantially uniform deposition of metal upon the handles. The manner and means of supporting the handles and effecting their contact with the cathode bars are such that the handles may be set very close together, thus insuring a large capacity for the device. The described manner and means of supporting the rack bars 8 permits a quick and easy adjustment vertically of these bars so as to regulate the depth of immersion of the handles; and the pins 9 afford an easy and quick means of mounting the handles, since the latter can be readily sprung at their free ends over said pins and as easily removed therefrom.

I claim:

1. In an electroplating apparatus of the character described, the combination with a tank adapted to hold the plating solution, of a pair of rack bars mounted above and lengthwise of said tank and provided with means for suspending from and between them U-shaped handles, means for vertically adjusting said rack bars, and means for passing an electric current through said solution and handles, substantially as described.

2. In an electroplating apparatus of the character described, the combination with a tank adapted to hold the plating solution, of forks mounted above the end walls of said tank, respectively, a rack adjustably mounted in and extending between said forks, means on said rack for suspending articles to be plated immersed at the desired depth in the solution, and means for passing an electric current through said solution and articles to be plated, substantially as described.

3. In an electroplating apparatus of the character described, the combination with a tank adapted to hold the plating solution, of a pair of forks mounted above each end wall of said tank, rack bars mounted in and between opposing forks, respectively, and vertically adjustable therein, pins on said rack bars for suspending from and between the latter U-shaped handles with their lower ends immersed in the solution, and means for passing an electric current through said solution and handles, substantially as described.

4. In an electroplating apparatus of the character described, the combination with a tank adapted to hold the plating solution, of a rack surmounting said tank and adapted to support the articles to be plated, anode rods extending lengthwise of said tank, anodes suspended from said rods and having their lower ends immersed in the solution and curved inwardly toward each other, cathode rods also mounted on and longitudinally of said tank, contact rods extending between said cathode rods, and means for connecting the poles of a generator to said anode rods and cathode rods, respectively, substantially as described.

5. In an electroplating apparatus of the character described, the combination with a tank adapted to hold the plating solution, of vertically adjustable rack bars surmounting said tank and provided with means for suspending therefrom a plurality of U-shaped handles with the closed ends of the latter immersed in the solution, anode rods extending lengthwise of said tank, anodes suspended from said rods and dipping into the solution below said handles, each pair of opposed anodes unitedly having substantially the form or contour of the immersed portion of a handle, cathode rods also mounted on and longitudinally of said tank, contact rods extending between said cathode rods and adapted to be engaged by said handles above the solution, and means for connecting the poles of the generator to said anode rods and cathode rods respectively, substantially as described.

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