

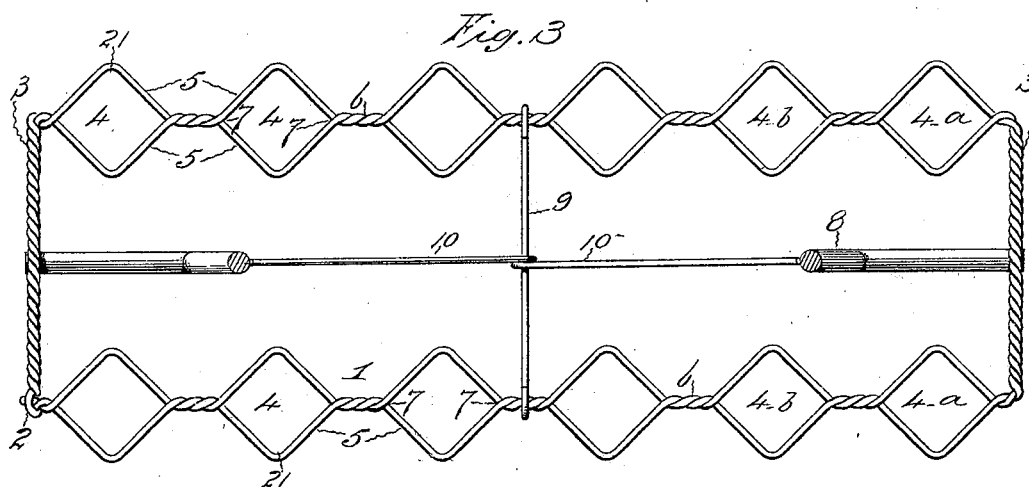
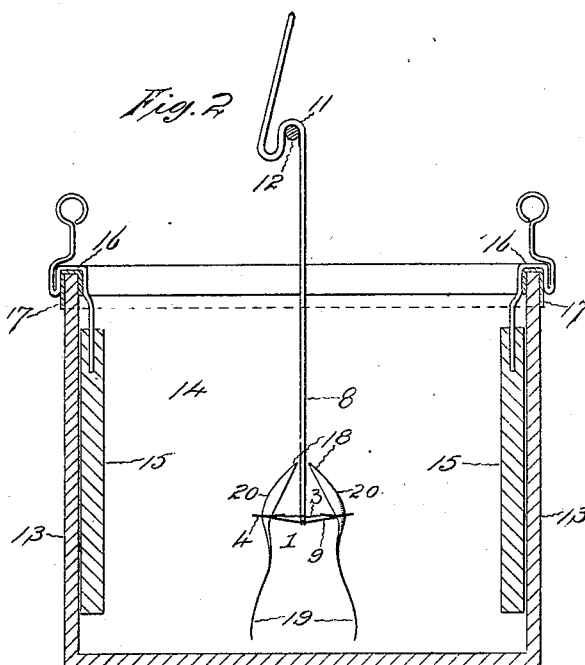
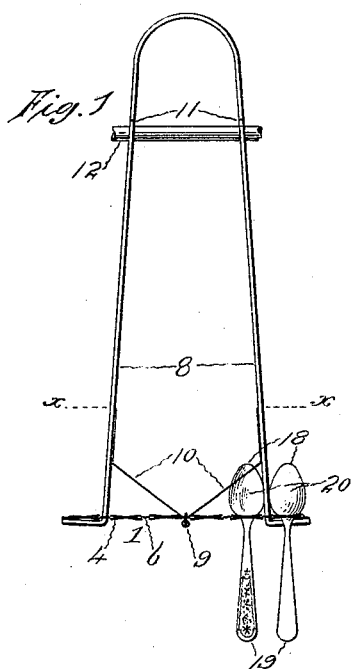
No. 645,785.

Patented Mar. 20, 1900.

W. Y. BUCK.
HOLDER FOR ELECTROPLATING.

(Application filed Sept. 22, 1899.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

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HOLDER FOR ELECTROPLATING.

SPECIFICATION forming part of Letters Patent No. 645,785, dated March 20, 1900.

Application filed September 22, 1899. Serial No. 731,286. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM Y. BUCK, of Bristol, Hartford county, Connecticut, have invented certain new and useful Improvements in Holders for Electroplating, which improvements are described in the following specification and are illustrated by the accompanying drawings.

This invention relates in general to the art of electroplating and to apparatus for holding the work during the process of plating by that art. It relates in particular to frames which are used in electroplating for the purpose of holding spoons and other flat ware in the electrolytic bath. In the plating of those articles it is often desirable that the deposit, instead of being distributed equally upon all parts of the work, should be heavier upon those parts which are to be exposed to the most wear and lighter upon those which are less exposed. Thus in general all the outside of the bowl, and in particular those parts of the bowl and of the handle by which a spoon when laid upon its back comes in contact with a table or other flat surface upon which it is laid, require a thicker and more durable deposit, while for the inside of the bowl and for the front side of the handle of a spoon and for the corresponding parts of a fork or other like article a thinner plating is sufficient. If the weight of the deposit upon the first-mentioned parts be increased to any extent, it is obvious that the durability of the plating in general must be increased proportionately. For the purpose of obtaining such inequality of deposit such articles have in times past been subjected to a process of "sectional plating," so called, which consists in first plating only those parts of the work which require the thickest deposit and in afterward plating by a second operation the whole surface of the work, including the parts plated first. This method, with its repeated cleanings and other treatments of the work, is both expensive and inconvenient. It is the prime object of my invention to provide means for accomplishing the desired unequal distribution of the deposit in a convenient and economical manner and without any such multiplicity of operations. For that improvement in the art of electroplating

I have applied for a separate patent by application Serial No. 723,910, filed July 15, 1899.

Again, the common method of "wiring," so called, whereby pieces of work are suspended in the vat by means of separate copper wires, is objectionable on account of the lines and markings which are often produced upon the work in those places where the wires are looped around it. The same method is further objectionable because it is often difficult or inconvenient to strip the deposit from the copper wire without simultaneously dissolving away parts of that wire and because the latter grows brittle or rotten after being used and cleaned a few times, and the common method of setting the work in holes through a suspended metallic plate is also objectionable, because the large surface of the plate attracts a large part of the deposit and constitutes a large percentage of the permissible surface of the cathode. Hence it is a further object of my invention not only to prevent such objectionable markings of the work and such consumption of copper wire, but also to deposit the plating as little as possible upon the holder and as much as possible upon the work, while regulating the deposit upon the latter in the unequal manner which is above described.

Again, the frames that were used before the date of this invention for the purpose of holding flat ware in plating solutions consisted, essentially, of a horizontal plate or bar of metal provided with a suitable support and perforated from top to bottom by a number of holes which were adapted to admit a portion of each article held. By reason of the slotted or angular shape of such perforations some holders of this kind were adapted to keep the work facing only in one or the other, or both, of two opposite directions, while other such holders, having such perforations differently shaped, permitted the work to turn miscellaneously into any direction. Manifestly a single holder of this old kind has a very limited range of usefulness. Hence it is a further object of my invention to provide mechanism for holding pieces of work suspended in any of a considerable number of different positions relatively to each other and to keep them facing steadfastly in any

of several different directions, as the character of the work may require.

To accomplish the specified objects of my invention, I make use of a flat rack or frame made of twisted iron or steel wire and having two parallel horizontal rows of angular meshes arranged in pairs. Being adapted to hold pairs of spoons or of other like articles with their bowls or other like concavities opening near and directly toward each other, this invention makes the work receive its thickest plating on the outside of the bowl and on the back of the handle, upon the same principle on which a pitcher or other hollow article is plated more heavily without than within when no precautions are taken to equalize the external and the internal deposits. Being adapted by the angularity of its meshes to hold pieces of work in any of several unchanging positions, the same device may be used as a substitute for all of those old frames which are adapted to hold the work in any of those positions, and being formed of small iron or steel wire the rack receives but little deposit and is readily cleaned of silver by simply reversing the current through the silver-bath.

The best manner in which I have contemplated applying the principles of my invention is shown in the drawings.

Figure 1 is a side view of a holder that is constructed in accordance with those principles. In this figure two spoons are shown in position in the holder. Fig. 2 is an end view of the same holder with a pair of spoons therein, all in position in an electroplating-vat. Fig. 3 is a plan of the same holder, on an enlarged scale, the handle being cut off on the section-line *xx* of Fig. 1.

In the views the numeral 1 denotes the horizontal rack or body of the holder. For certain of the specified purposes of the invention rack 1 is preferably formed of a single piece of iron or steel wire doubled at the middle 2, twisted together, and bent into a closed, flat, and generally-rectangular figure, as shown in Fig. 3. The opposite end portions of the rack (denoted by the numerals 3) are mere straight cables of the wire twisted together uninterruptedly, while the two opposite sides or edge portions of the rack consist of two duplicate straight rows of meshes or openings 4, formed by and between untwisted parts or strands 5 of the twisted wire and separated from each other by twisted portions of the same wire. These openings are at a convenient distance apart in their respective rows, so that the articles held in them cannot come into contact with each other, are of general rectangular or diamond shape, and are of uniform size, large enough to admit the shanks or handles but not the bowls of the work and to hold the latter hanging loosely by the bowls in the positions indicated in Figs. 1 and 2. At the opposite ends of each mesh the strands 5, converging toward twists 6, form with each other the two terminal angles which are denoted in

a single instance by numerals 7 in Fig. 3, and at the opposite sides of each mesh, midway between those twists, the same strands form, respectively, the similar angles which are denoted in another instance by the numerals 21. These meshes being arranged in two equal rows side by side are also arranged in a number of pairs, each of which has its two members in line with each other at right angles with the sides of the holder. Thus the two meshes 4^a constitute one pair, the meshes 4^b another pair, and so on.

Rack 1 is provided with an electrically-conductive wire handle 8, which is rigidly united therewith at cables 3 and is electrically attached thereto by wires 9 and 10, which are soldered on as braces and supports. Handle 8 has a bend 11, by which the device may be suspended in the usual manner as a movable conductive hanger. In Figs. 1 and 2 the apparatus is shown hanging from a conductive rod 12, representing the negative pole of the circuit.

In Fig. 2 the numerals 13 denote the side walls of a vat containing the plating solution 14, in which the work is suspended. The anodes 15, being plates of silver or other metal, are submerged in the solution at a little distance from the work on opposite sides of the holder, being suspended by hooks 16, which are in electrical contact with a copper strap 17, representing the positive pole of the circuit.

The work, which is represented by the spoons 18, is placed in the holder by inserting the handles 19 in the several meshes 4 from above and by permitting them to descend therein till the bowls 20 are stopped by contact with the mesh. When the work is thus placed in such a position as to be held in angles 7 in the position shown, those articles which are placed in a single pair of those meshes—as, for example, in meshes 4^a or in meshes 4^b—assume positions of slight inclination in opposite directions, with the bowls 20 of each pair near together and opening toward each other, as plainly shown in Fig. 2. Under the same circumstances the handles 19 are swung out a little toward the anodes 15, while the backs of both the bowls and the handles are turned directly toward those plates. At the same time the bowls 20, being set in the positions indicated, present but an insignificant portion of their surface, theoretically mere points, upon the edges of the bowls to contact with the converging wires 5, and all these conditions remain undisturbed when the holder is agitated in the bath, being maintained by the tendency of the work to retain the positions indicated by reason of the weight of the work. In this position of the work the heaviest plating is deposited upon the back side of the bowl 20, which is nearest the adjacent anode and is exposed to a large and unobstructed mass of the solution, and upon the back side of the handles 19, while the inside of each bowl and the front side of the handles, being shadowed by

their form and location, receive a considerably-thinner deposit. At the same time the work, being suspended as described only by the edges of the bowls, is left free from all those lines and objectionable markings which are frequently produced when work is suspended in the vat by the common method of wiring, and the work has an equal stability of position whenever it is for any purpose inserted in the meshes in a cross position between angles 21.

Such being the construction and operation of my improved holder for electroplating, I claim as my invention—

1. In a holder for electroplating, a rack of wire, doubled and twisted together, closed into the general form of a parallelogram, and having two rows of angular meshes, formed between strands of such twisted wire, arranged in pairs, and separated from each other by portions of said twisted wire, in combination with a conductive handle, which

is rigidly united with said rack, and is adapted to hold the same suspended in bath in a general horizontal position, substantially as and for the purpose specified.

2. In an electroplating-holder for flat ware, a flat rack, made of electrically-conductive wire, doubled and twisted together, and having angular meshes, formed by and between the separate strands of such twisted wire, and adapted to hold such ware unchangeably in any of several predetermined fixed positions, in combination with a similarly-conductive handle, which is rigidly and electrically united with such rack, and is adapted to hold the same suspended in bath, substantially as and for the purpose specified.

In testimony whereof I hereunto set my name in the presence of two witnesses.

WILLIAM Y. BUCK.

Witnesses:

WILLARD EDDY,
CHARLES P. EDDY.