(No Model.)

A. BRINCKMANN.

APPARATUS FOR ELECTROPLATING.

No. 258,214. Patented May 23, 1882.

Fig: 1

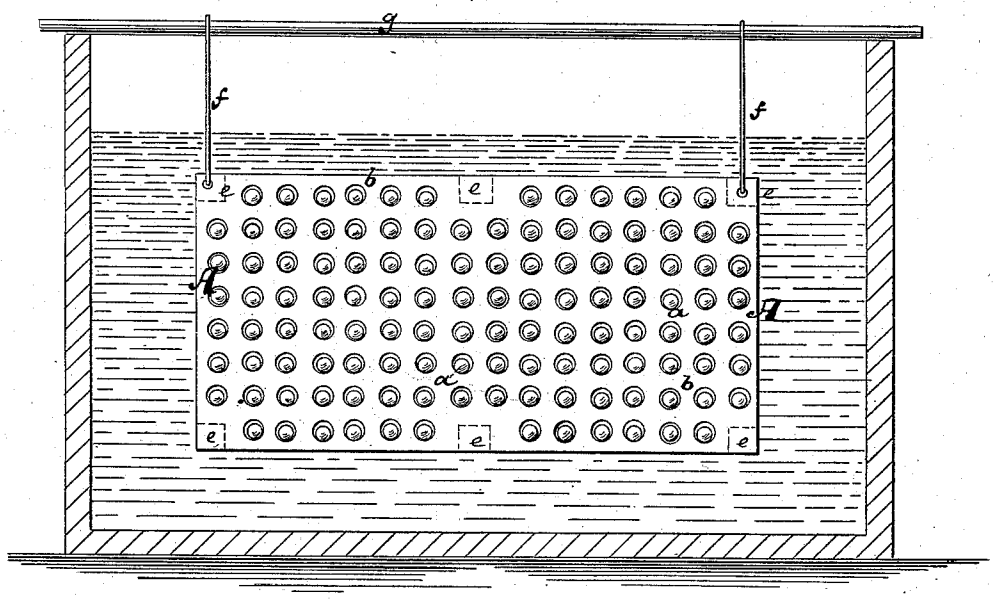


Fig: 4

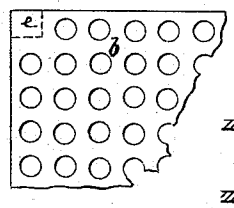


Fig: 3

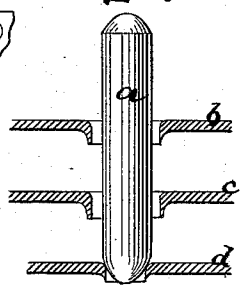


Fig: 5

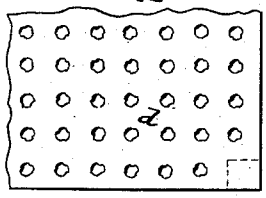
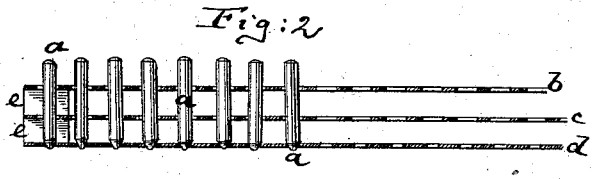


Fig: 2



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UNITED STATES PATENT OFFICE.

ALEXANDER BRINCKMANN, OF ASTORIA, ASSIGNOR TO HIMSELF AND GEORGE H. WOOSTER, OF NEW YORK, N. Y.

APPARATUS FOR ELECTROPLATING.

SPECIFICATION forming part of Letters Patent No. 258,214, dated May 23, 1882.

Application filed September 17, 1881. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER BRINCKMANN, of Astoria, in the county of Queens and State of New York, have invented a new and Improved Apparatus for Electroplating, of which the following is a specification.

Figure 1 is a side elevation of my improved electroplating apparatus. Fig. 2 is a horizontal longitudinal section of part of the same. Figs. 3, 4, and 5 are detail views, on enlarged scales, of portions thereof.

The object of this invention is to produce an apparatus for thoroughly and equally and at all points electroplating with nickel or other deposit small articles of metal—such as the plate-pins used in piano-fortes, or the like, particularly goods that are liable to slip in their holds, the apparatus being intended more particularly for plating articles that have a form which renders it difficult to suspend them in any of the usual apparatus for electroplating now in existence. Plate-pins, for example, such as the one shown at *a* in Fig. 3, (which figure shows it exaggerated nearly three times the natural size,) having a cylindrical body and rounded ends, if placed in any of the known apparatus for the purpose of being electroplated, are liable to be grasped so tightly therein as to prevent the nickel from reaching the places where they are grasped, and if not grasped tightly are liable to slip out of their holds, and thus to defeat the entire object for which they are inserted in the bath. Another defect of ordinary apparatus is that the pins would interfere with each other, coming in contact with one another, especially in apparatus in which they have to be agitated during the plating process.

My invention consists in the construction of a perforated screen, which is composed of one or a series of metallic plates, that are united by metallic connections into one electrical conductor, and are by metallic fastenings united to the conductor leading to the battery. One or more of said plates are perforated to receive and guide the pins. This screen is adapted to sustain the pins or articles to be plated, as hereinafter more fully described. By my invention every particle of the "screen" assists in the operation of drawing the nickel from the solution to the pins to be plated, it being in direct metallic connection with the battery, and at the same time every portion of the said screen performs its duty of maintaining the pins to be plated in proper position without unduly grasping them, and without rendering them liable to fall from their position, holding them, also, one entirely separated from the other.

In the accompanying drawings, the letter A represents my improved screen or apparatus. The same is composed, as shown in Fig. 2, of three parallel plates, *b c d*, of copper or equivalent metal, which plates are united into one structure by posts, plates, or blocks *e e*, also made of copper or its equivalent, said posts, plates, or blocks being at the corners of the screen, and, if desired, also between the corners, as indicated in Fig. 1. Thus the screen A is entirely of metal, with passages between its plates, through which the things to be plated can be reached by the fluid of the bath. This screen is suspended into a tank by copper or other wires *f f* from a copper rod, *g*, which is in communication with the zinc pole of the battery of the plating apparatus. The anodes of nickel, or the like, are suspended into the same tank from a rod that connects with the coal pole of the battery.

The several plates *b c d* are perforated in such manner that one outer plate, *b*, has larger holes than the other outer plate, *d*, as clearly shown in Fig. 3, the intervening plate, *c*, having holes as large as the plate *b*, or thereabout. These holes are in the several plates aligned, so that they will permit the pins *a*, or other articles to be plated, to be inserted. Fig. 3 shows clearly that the pin *a* to be plated rests on the plate *d*, and is prevented from falling by the remaining plates, *b* and *c*. The pin is at no place of the length tightly grasped, but merely leans on such contact-surfaces as are provided for its reception into the said plates; and in order to insure the more fully all absence of positive contact-surfaces, or of continuous contact-surfaces, and prevent the appearance of dark rings in the plated pin, I prefer to make the holes in the plate *d* irregular or angular, and not circular, as shown in Fig. 5, so that there will only be tangential and

not circular supporting-points on the plate *d* for the end of the pin *a*. The plate *d* may even be solid or of woven wire.

The screen may either be suspended vertically, as shown in Fig. 1, in which case the pins *a* rest in a horizontal position, or it may be placed horizontally, in which case the pins will stand vertically, as shown in Figs. 2 and 3, or the screen may be more or less inclined. In either position it properly holds the pins *a*, or such things as are to be plated.

It will be readily perceived that the solution into which the screen, with the pins, is dipped has access to all the parts of the circumference of each pin, the mere contact-surfaces not being sufficient to prevent the solution, or at least the nickel which is drawn from the solution to said pins, from reaching every portion thereof. The pins are all separated from each other, as indicated, and free to the electroplating process.

I am enabled with my machine to operate much more rapidly than can be done with the ordinary apparatus.

I am aware that wire screens have already been proposed in devices for plating screws beneath perforated top plates for grasping and holding the screws. My invention is intended to permit the plating of the entire surface of a pin, ends, and sides, and avoids therefore the covering of either end or the tight grasping of the pin at any place.

I claim—

In an electroplating apparatus, a screen constructed of two or more metallic plates, both having aligned perforations which are smaller in one plate than in the other, said plates being adapted to expose both ends of the articles to be plated to the solution, and being united by metallic posts or parts for metallic connection with the conductor of a battery, substantially as specified.

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