A. C. WENZEL.

Apparatus for Holding Grain Nickel Anodes.

No. 208,003. **Patented Sept. 10, 1878.**

Fig. 1.

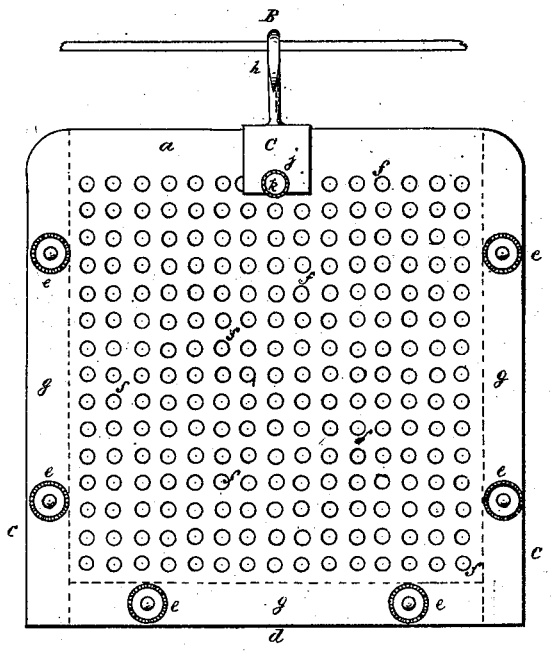


Fig. 2.

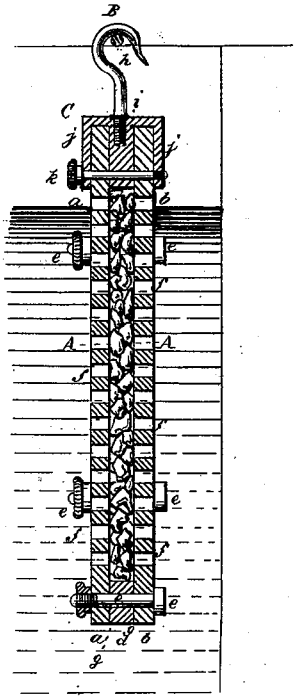


Fig. 3.

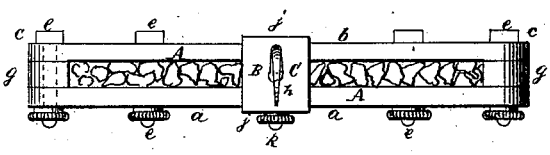
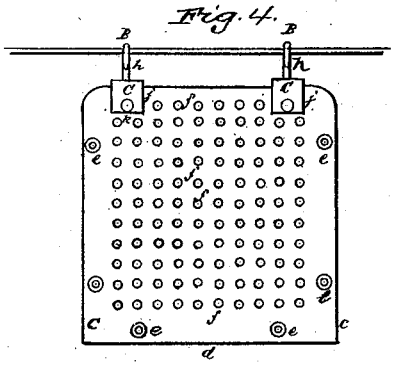


Fig. 4.



Witnesses.

R. Boecklen.

P. C. Frankenberg

Inventor.

Adolph C. Wenzel

UNITED STATES PATENT OFFICE.

ADOLPH C. WENZEL, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN APPARATUS FOR HOLDING GRAIN-NICKEL ANODES.

Specification forming part of Letters Patent No. **208,003**, dated September 10, 1878; application filed July 13, 1878.

To all whom it may concern:

Be it known that I, ADOLPH C. WENZEL, of the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in the Construction of Grain-Nickel Anodes for Nickel-Plating, which improvements are fully set forth in the following specification and accompanying drawings, in which—

Figure 1 represents a face view of the anode according to the construction with my improvements. Fig. 2 is a vertical cross-section of the same. Fig. 3 is a top view of the same. Fig. 4 represents a face view of the same, shown on a more reduced scale, and shown attached with several anode-hooks.

A represents the grain of nickel used in the anode, which, with my improvements, is applied loose, so that it may be cleansed readily; and to hold it in the bath I construct a flat vertical box of sides *a* and *b*, secured together at each end *c*, and also at its bottom *d*, by means of screw-bolts *e*, which are made of hard rubber, and with heads on one end of each, and with a screw-nut fitted on the opposite end, as shown. Said sides of the box are made flat and with nearly equally-distributed perforations *f*, as shown, entirely over their flat face, with exception of the narrow portion along their edge, used for securing them together. Along between the ends and bottom portions of the two sides are employed narrow strips *g* to keep said sides equal distance apart, and the screw-bolts aforesaid pass through said strips as well as through the sides, as shown. Said perforated sides, as well as the strips aforesaid between them, are made of carbon or graphite, and the space between the said sides is made of about the dimensions to admit between them with facility the largest grain of nickel used as anode, so that the box made of said strips and sides contains only a thin layer or strip of grain-nickel, so that each grain may come in contact with the carbon, and by means of the perforations *f* through the sides of the box the bath solution has a free access to each grain of the nickel.

B represents the anode-hook, by which it is suspended on the conducting-wire. Said hook is attached to a binding clamp or staple, C, which combines the carbon sides of the anode with the hook. The top part of the hook has a proper bent eye, *h*, for ready application over the conducting-wire, and the bottom end of the same is made with a screw-thread fitted and to enter readily into the top of the staple C, so that the hook may be at any time detached for cleaning or substituting. The staple C has a lip, *i*, from its top down between the sides *a* and *b*, and also one, *j*, over each outside of the top portion of said sides, as shown. By means of a binding-screw, *k*, employed through the lower ends of said lips *i* and *j j* and through the carbon sides *a* and *b*, the said lips are firmly pressed upon said sides.

In the Figs. 1, 2, and 3 only one hook and staple, C, is shown, as it may be used with an anode of small dimension. In most cases I employ two or more of them, as shown in Fig. 4. Said staples and hooks are made of metal, such as copper or brass, and they are always located above the level of the bath solution to obviate contact therewith.

From the foregoing it is readily seen that the sides *a* and *b* of the nickel-anode box are readily taken apart to remove the grain-nickel for cleansing or substituting by removing the screw-bolts *e* and the binding-screws *k* and the staples C.

In constructing the grain-nickel anode with the perforated detachable carbon-box, as above described, the deposit process is greatly benefited in consequence of the large surface of the nickel presented to the bath solution and the superior connection with the carbon. By the convenient provision for removing the nickel for cleansing a great deal of time is saved. The dimension of the perforations *f* is made small enough to prevent the escape of the grains of nickel.

What I claim as my invention, and desire to secure by Letters Patent, is—

In grain-nickel anodes, the construction of the perforated carbon-conducting sides *a* and *b* and the strips *g*, secured between by the non-conducting or rubber screw-bolts *e*, with the conducting-staple C, having lips *i* and *j*, the binding-screw *k*, and hook B, substantially as and for the purpose herein specified and shown.

In witness whereof I have hereunto set my hand.

ADOLPH C. WENZEL.

In presence of—

R. BOEKLEN,

GANT VON FRANKENBERG.