(No Model.)

W. A. DUNLAP.

CLAMP FOR HOLDING ARTICLES TO BE ELECTROPLATED.

No. 414,860. Patented Nov. 12, 1889.

FIG. 1.

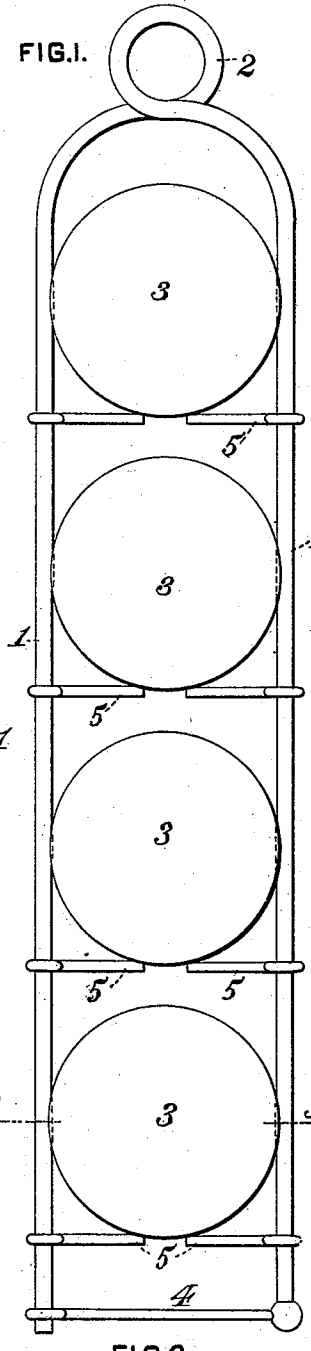


FIG. 3.

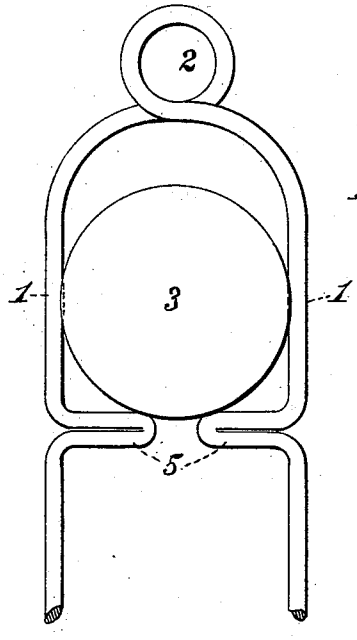


FIG. 4.

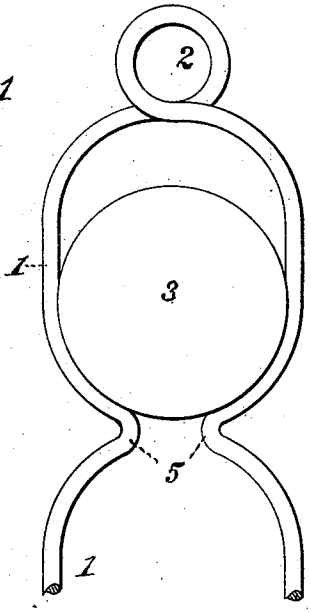
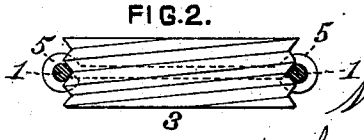


FIG. 2.



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UNITED STATES PATENT OFFICE.

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CLAMP FOR HOLDING ARTICLES TO BE ELECTROPLATED.

SPECIFICATION forming part of Letters Patent No. 414,860, dated November 12, 1889.

Application filed July 27, 1889. Serial No. 318,901. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. DUNLAP, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Clamps for Holding Articles to be Electroplated, of which improvement the following is a specification.

The invention described herein relates to certain improvements in clamps for supporting articles in an electroplating-bath; and the object of said invention is to provide a clamp by which articles varying considerably in size can be quickly grasped, and which will prevent contact between the articles and also afford increased electrical contact.

In general terms the invention consists in the construction and arrangement of parts, all as more fully hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a view in elevation of my improved clamp, having a number of can lids or caps secured thereby. Fig. 2 is a transverse section. Figs. 3 and 4 are similar views of modifications in structure, only a portion of the clamp being shown.

The clamp consists of side bars 1, of a length proportional to the depth of the bath and the number of articles which it is desired to treat at the same time, united together at one end by a spring 2, preferably formed by one or more coils or turns of the wire forming the side bars, as shown. These side bars, which are held by the spring when at normal tension at an angle to each other, are held against the articles 3 to be plated by means of a clamp 4, preferably consisting of a bar having eyes at its ends adapted to slip over the free ends of the side bars.

The length of this clamp will be proportional to the size of the articles 3.

It is necessary in electroplating that the articles being treated should not come in contact with each other, as a discoloration of the plating at the points of contact is caused thereby; hence I provide a series of inward projections 5 on one or both of the side bars, dividing the clamp into a series of compartments. The side bars are formed of conducting material, as iron or copper, and serve not only as a support for the articles, but also as conductors for the electric current to the articles. The projections or abutments 5 are also formed of conducting material and have an electrical connection with the sides, and therefore, when in contact with the articles, afford a considerable increase in the electrical contact-surfaces between the articles and the clamp. The side bars may be made straight, and the projections or abutments 5 formed either by attaching short sections of wire to the side bars, as shown in Fig. 1, or by bending in portions of the side bars at suitable intervals, as shown in Fig. 2. If desired, the sides may be bent into a series of curves, as shown in Fig. 3, the tangential points of such curves forming the projections or abutments 5.

It is preferred that the side bars should be formed of some yielding resilient material, so that they may accommodate themselves to articles varying in size.

I claim herein as my invention—

1. An electroplating-clamp having in combination side bars connected at one end and movable toward and from each other, a detachable clamp at the opposite end, and a series of inward projections dividing the clamp into a series of compartments, substantially as set forth.

2. An electroplating-clamp having in combination side bars, a spring at one end of said bars, a clamp at the opposite end, and a series of inward projections, substantially as set forth.

3. An electroplating-clamp having in combination yielding resilient side bars, a spring at one end of said bars, a clamp at the opposite end, and a series of inward projections dividing the clamp into a series of compartments, substantially as set forth.

In testimony whereof I have hereunto set my hand.

WILLIAM A. DUNLAP.

Witnesses:

W. B. CORWIN,

DARWIN S. WOLCOTT.