(No Model.) 2 Sheets—Sheet 1.

E. A. CLARK.

ELECTROPLATING TOY APPARATUS.

No. 479,557. Patented July 26, 1892.

Fig. 1.

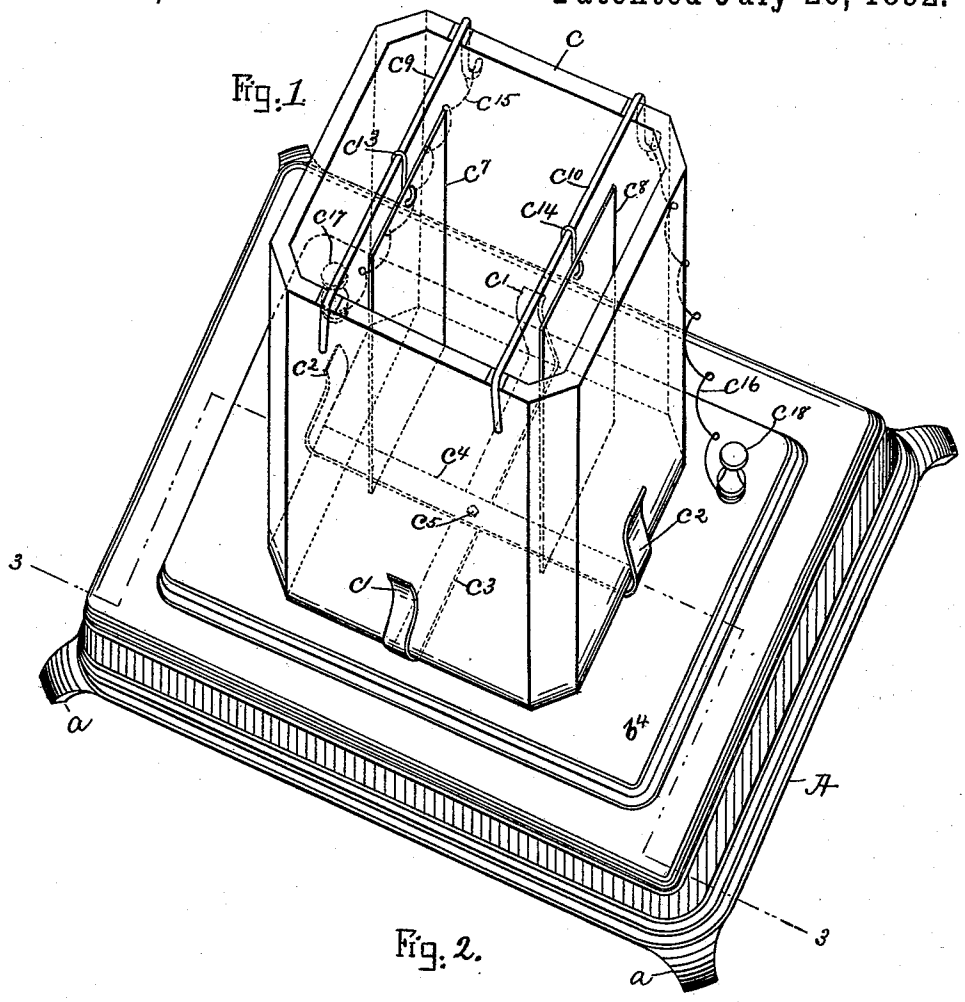
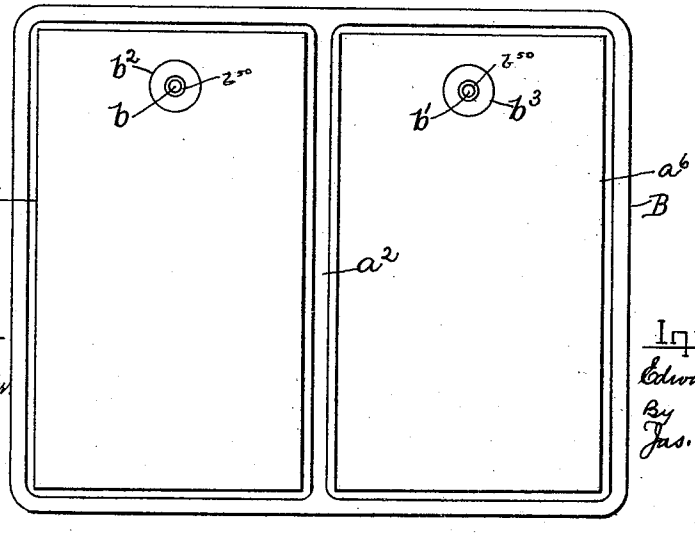


Fig. 2.



Witnesses.

Laurits P. Möller

S. C. Fearing.

Inventor.

Edward A. Clark

By Jas. H. Churchill

Atty.

(No Model.) 2 Sheets—Sheet 2.

E. A. CLARK.

ELECTROPLATING TOY APPARATUS.

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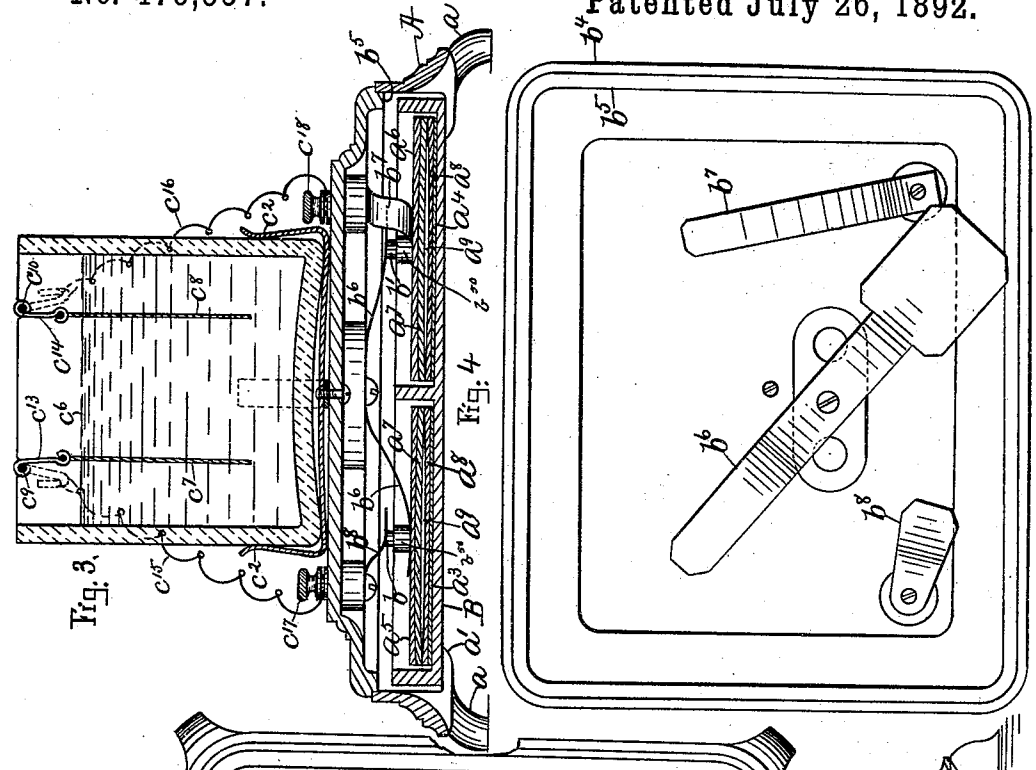

Fig. 3.

Fig. 4.

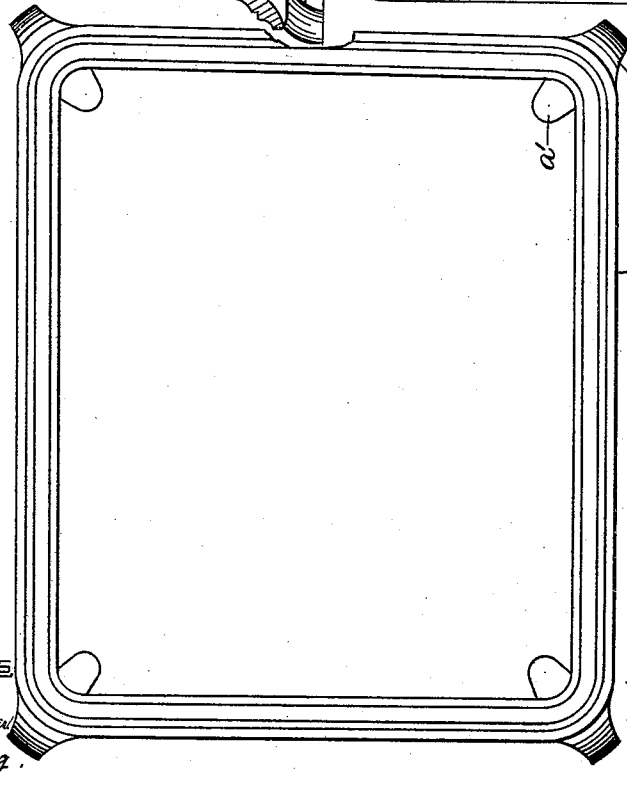

Fig. 5.

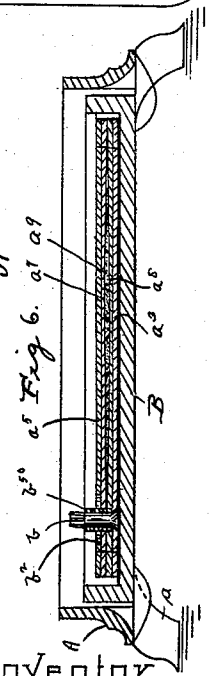

Fig. 6.

Witnesses
Laurits N. Miller
Sol. C. Fearing.

Inventor.
Edward A. Clark
By Jas. H. Churchill
Atty.

UNITED STATES PATENT OFFICE.

EDWARD A. CLARK, OF BOSTON, MASSACHUSETTS.

ELECTROPLATING TOY APPARATUS.

SPECIFICATION forming part of Letters Patent No. 479,557, dated July 26, 1892.

Application filed March 16, 1892. Serial No. 425,084. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. CLARK, residing in Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Electroplating Toy Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to provide a novel electroplating toy apparatus especially adapted for use by students for experimental purposes or by children or other persons for amusement.

In accordance with my invention, a hollow base provided with a cover, preferably made detachable from the base, contains a removable battery, and the said cover supports and has attached to it a jar or vessel, preferably of glass, in which an electrolytic solution is placed, and in which solution the object to be electroplated is suspended. The jar or vessel is preferably detachably secured to the cover by means of a holder, which is firmly secured to the cover, and from which the jar or vessel may be readily removed for the purpose of refilling, cleaning, &c. The hollow base is provided with, preferably, two batteries, having their poles connected to the plates or electrodes in the electroplating jar or vessel, as will be described.

The particular features in which my invention consists will be pointed out in the claims at the end of this specification.

Figure 1 is a perspective view of an electroplating toy apparatus embodying my invention; Fig. 2, a top or plan view of the battery-containing cell; Fig. 3, a vertical section of the apparatus shown in Fig. 1, the section being taken on the line 3 3; Fig. 4, an under side view of the cover removed; Fig. 5, a top or plan view of the base with the battery-containing cell removed; and Fig. 6, a sectional detail to be referred to, the section being taken on the line 6, Fig. 3.

The supporting frame or base A, preferably made as herein shown, it being provided with supporting legs or feet a and with inwardly projecting lugs a', supports a battery-containing cell B, preferably divided by the wall a^2 into two chambers or compartments containing like batteries, which are preferably composed of copper plates or electrodes a^3 a^4, zinc plates or electrodes a^5 a^6, and interposed pads, each of which consists of an upper layer a^7 of blotting-paper or other absorbent material, a lower layer a^8 of like material, and an intermediate layer a^9 of copper sulphate crystals or like electrolytic material. The copper plates a^3 a^4 are provided with terminal studs or posts b b', extended up through the pads and through suitable holes b^2 b^3 in the zinc plates or electrodes a^5 a^6, the said studs or posts having fitted upon them, as herein shown, sleeves b^{50}, of rubber or other insulating material, to avoid possible contact of the zinc plates a^5 a^6 with the said studs.

The base A is provided with a cover b^4, preferably made detachable from the base and provided on its under side with a lip or rim b^5, adapted to fit within the base A, as shown in Fig. 3. The cover b^4 has secured to its under side contact springs or arms b^6 b^7 b^8, the contact-arm b^6, when the cover b^4 is fitted on its base, making contact with the terminal post of one of the batteries (herein shown as the post b') and also with the zinc plate a^5, and the contact-arm b^8 making contact with the post b, while the contact-arm b^7 makes contact with the zinc plate a^6. The cover b^4 has mounted on it a jar or vessel c, preferably of glass, the said jar being preferably detachably mounted on the said cover by means of a holder (herein shown as upright spring-arms c' c^2) secured to or forming part of metal strips c^3 c^4, which are firmly secured to the cover, as herein shown, by the screw c^5, the upright spring-arms c' c^2 being preferably turned outward at their upper ends to permit the jar c to be readily placed in position on the cover. The jar c contains the electrolytic solution c^6, in which is suspended the electrodes c^7 c^8, the electrode c^8 being the object to be electroplated, and the other electrode c^7 being a metal like that which is to be deposited on the object or electrode c^8. The electrodes c^7 c^8 may be suspended in the solution c^6 from rods c^9 c^{10}, preferably extended across the jar or vessel c and resting in grooves or notches c^{12} in the top of the jar, the said electrodes, as herein shown, being secured to the rods c^9 c^{10} by hooks c^{13} c^{14}. The rods c^9 c^{10} are and preferably will be joined by wires c^{15} c^{16} to binding-posts c^{17} c^{18}, extended through the

cover b^4 and electrically connected to the contact-arms b^8 b^7.

When it is desired to start the electroplating, the cover b^4 is removed and the battery-pads moistened, after which the cover is replaced. The electric circuit from the battery through the electroplating solution may be traced as follows, viz: from the copper plate a^3 and its terminal post b by contact-arm b^8 to binding-post c^{17}, thence by wire c^{15} to rod c^9, hook c^{13} to plate or electrode c^7, thence through the solution c^6 to the electrode or object c^8, thence by hook c^{14}, rod c^{10}, and wire c^{16} to binding-post c^{18}, thence by contact-arm b^7, zinc plate a^6, battery-pad to copper plate a^4 and its post b', thence by contact spring or arm b^6 to zinc plate a^5 through the battery-pad to the copper plate a^3.

The electroplating apparatus herein shown is simple in construction and can readily be operated by students for experimental purposes and also by children and other persons for amusement, and affords an easy method of becoming familiar with the fundamental principles of this branch of electric industries.

I have herein shown the jar or vessel c as secured to the cover b^4 by means of a holder, from which the said jar is detachable, and while I prefer this construction I do not desire to limit my invention in this respect, as the said jar might be permanently secured to the said cover. So, also, I do not desire to limit myself to any particular form of conductor for connecting the electrodes c^7 c^8 with the binding-posts c^{17} c^{18}.

I claim—

1. In an electroplating toy apparatus, the combination of the following instrumentalities, viz: a battery-containing base provided with a cover, contact-arms secured to the under side of the cover and co-operating with the positive and negative poles of the battery contained in said base, a jar or vessel attached to the cover on its upper side and adapted to contain an electrolytic solution, electrodes suspended within the said jar or vessels, and conductors connecting the said electrodes with the contact-arms on the under side of the cover, substantially as described.

2. In an electroplating toy apparatus, the combination of the following instrumentalities, viz: a battery-containing base provided with a cover, contact-arms secured to the under side of the cover and co-operating with the positive and negative poles of the battery contained in said base, a holder attached to the cover on its upper side, a jar or vessel detachably secured in said holder and adapted to contain an electrolytic solution, electrodes c^7 c^8, suspended in said solution, supports for said electrodes, and conductors connecting the said electrodes with the contact-arms on the under side of the cover, substantially as described.

3. In an electroplating toy apparatus, the combination of the following instrumentalities, viz: a battery-containing base consisting of the frame A, provided with the detachable cover b^4, a battery-containing cell supported within said base and provided with two batteries, each consisting of two metal plates and interposed electrolytic material, contact-arms b^6 b^7 b^8, attached to the under side of the cover and co-operating with the positive and negative poles of the said batteries, binding-posts secured to the upper side of the cover and electrically connected to the contact-arms b^7 b^8, a jar or vessel attached to the upper side of the cover and provided with electrodes c^7 c^8, and conductors connecting the said electrodes with the said binding-posts, substantially as described.

4. In an electroplating toy apparatus, the combination of the following instrumentalities, viz: a battery-containing base consisting of the frame A, provided with the detachable cover b^4, a battery-containing cell supported within said base and provided with two batteries, each consisting of two metal plates and interposed electrolytic material, contact-arms b^6 b^7 b^8, attached to the under side of the cover and co-operating with the positive and negative poles of the said batteries, binding-posts secured to the upper side of the cover and electrically connected to the contact-arms b^7 b^8, a holder attached to the upper side of the cover, a jar or vessel detachably secured in said holder, electrodes c^7 c^8 in said jar or vessel, supports for said electrodes, extended over the jar or vessel, and conductors connecting the said supports to the binding-posts, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD A. CLARK.

Witnesses:
JAS. H. CHURCHILL,
SADIE C. FEARING.