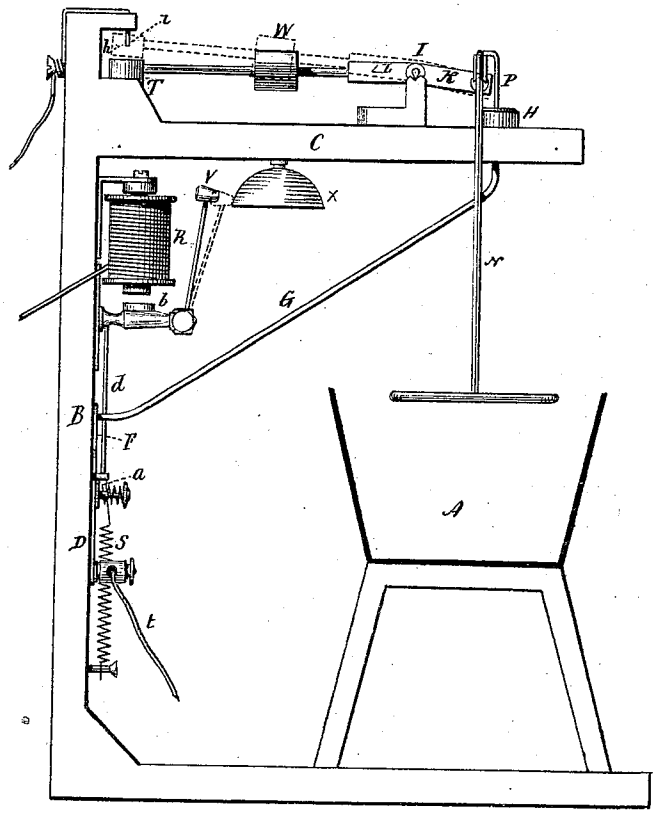
2 Sheets--Sheet 1.

W. C. HOMAN.

Electro-Plating Apparatus.

No. 148,459. Patented March 10, 1874.

Fig. 1



Witnesses.

J. W. Shumway

A. J. Tibbetts

Wm. C. Homan.

Inventor

By Atty.

John P. Earle

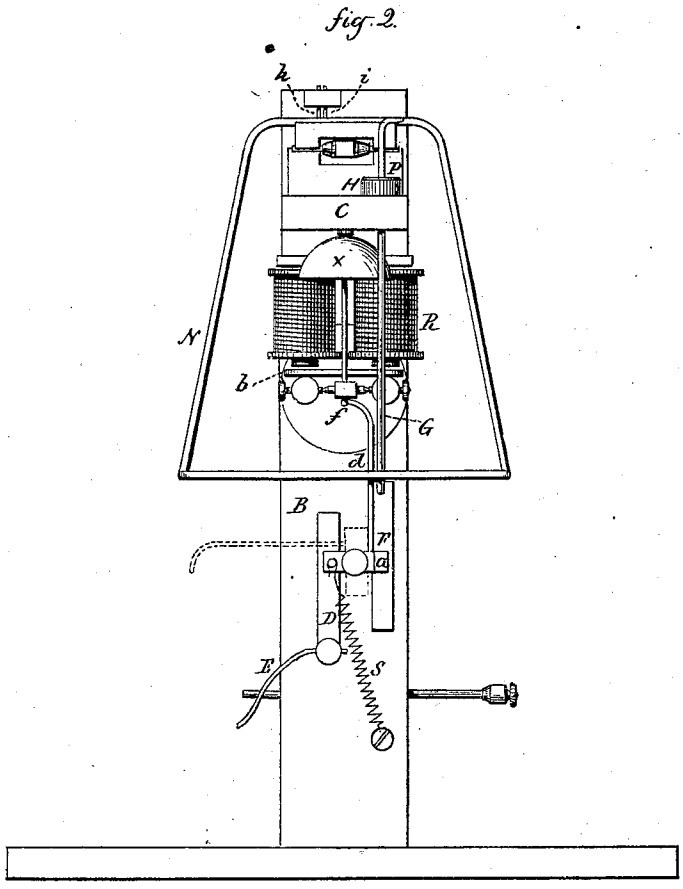
2 Sheets--Sheet 2.

W. C. HOMAN.

Electro-Plating Apparatus.

No. 148,459. Patented March 10, 1874.

fig. 2.



Witnesses.

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Inventor

By Atty's.

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UNITED STATES PATENT OFFICE.

WILLIAM C. HOMAN, OF WEST MERIDEN, CONNECTICUT, ASSIGNOR TO THE MERIDEN BRITANNIA COMPANY, OF SAME PLACE.

IMPROVEMENT IN ELECTROPLATING APPARATUS.

Specification forming part of Letters Patent No. **148,459**, dated March 10, 1874; application filed December 27, 1873.

To all whom it may concern:

Be it known that I, WILLIAM C. HOMAN, of West Meriden, in the county of New Haven and State of Connecticut, have invented a new Improvement in Device for Gaging the Amount of Deposit in Electroplating; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view, and in Fig. 2 a front view.

This invention relates to the construction of a mechanism for automatically determining the amount of deposit in electroplating. It is impossible to determine this by time, as the deposits are not uniform.

Various devices have been resorted to in order to govern such deposit, but without the complete success attained in this invention.

This invention consists in the arrangement of a lever and counter-balance, the articles to be plated suspended upon the short arm of the lever, the counter-balance indicating the amount of deposit required, and combining with this an independent magnet, the poles of which are brought into connection so soon as the amount of deposit overcomes the counter-balance, and this connection of the poles breaks the connection between the articles to be plated and the plating metal, stops the action in the bath, and at the same time sounds an alarm to indicate that the work is complete.

A is the bath in which the electroplating is done. The apparatus is here represented as attached to a post, B, with an arm, C, extending therefrom. On the post B is a plate, D, connected by the wire E to the negative pole, and near this, but disconnected, a similar plate, F. From this plate F a rod or wire, G, extends up and terminates in a cup, H, of mercury. Upon a fulcrum, I, a lever, L K, is hung, and upon the arm K the frame N, which supports the article to be plated, is hung. This frame is formed with an arm, P, so as to dip into the cup of mercury and make connection with the wire G, the mercury allowing the frame to rise and fall without friction, and without breaking the circuit. Between the two plates D F a bar, *a*, is pivoted, which, when turned up at right angles to the plates, as seen in Fig. 2, connects the plates and makes the circuit; but when turned down, as denoted in broken lines, the plates are disconnected and the circuit broken. Above the plates D F, or in a convenient position, an electro-magnet, R, is arranged, below which lies the armature *b*. From the bar *a* an arm, *d*, extends up, and is held by a notch or projection, *f*, from the said armature *b*, so that, when the armature rises to the magnet, it will disconnect the arm *d;* then the spring S will instantly draw down the bar *a* and arm *d*, and break the connection between the two plates. The wire from one pole of the magnet is broken, at *h i*, above the end of the arm L of the lever, and below these, on the end of the lever, is a cup, T, of mercury, which, when the lever rises, as denoted in broken lines, will immerse the two ends *h i* and make the circuit, causing the magnet to instantly act, and draw to it the armature *b*, and breaks the circuit, as before described. W is an adjustable weight on the lever L.

The operation of the device is as follows: The articles to be plated are hung upon the frame N and immersed in the bath. To this is then added a weight corresponding to the amount of metal required to be deposited on the said articles; then the weight W is adjusted to counterbalance the articles and the weight on the frame in the bath; then the weight which has been placed on the frame is removed, and the weight W will then hold down its end of the lever and the cup T from the ends *h i;* then the connection made between the plates D F, as before described, and the depositing of the metal upon the articles proceed in the usual manner. So soon as the deposit is sufficient to overcome the weight W, that arm of the lever will rise, and bring the cup T of mercury up to the ends *h i*, and connect the magnet. This instantly trips the arm *d*, as before described, and breaks the circuit in the bath, and stops further action.

In order to sound an alarm when the circuit

is broken, or the work complete, the hammer V is attached to the armature *b*, so that, as that flies up, the hammer will strike a bell, X, and sound an alarm.

By this construction the greatest accuracy is attained as to the amount of deposit, and the breaking of the circuit at the time of completion of such deposit is made automatic, and thus much time and loss of metal are saved.

It will be understood that the frame N is to be formed corresponding to the work to be done, it only being essential that the frame shall be suspended upon the one arm K of the lever, and in connection with one pole of the battery.

I claim as my invention—

1. The combination of the supporting-frame N, the lever L K, the cup T, the magnet R, and bar *a*, constructed and arranged substantially as described, the said bar *a* being tripped to break the main circuit, when the circuit through the magnet is closed by the rising of the lever L.

2. In combination with the supporting-frame N, lever L K, magnet R, and bar *a*, the mercury-cup H, making the connection between one pole and the frame N, substantially as described.

3. In combination with the supporting-frame N, lever L K, magnet R, and bar *a*, the hammer V and bell X, substantially as and for the purpose described.

WM. C. HOMAN.

Witnesses:
J. H. SHUMWAY,
A. J. TIBBITS.