

(No Model.)

W. J. LADD.

APPARATUS FOR ELECTROTYPING.

No. 339,431.

Patented Apr. 6, 1886.

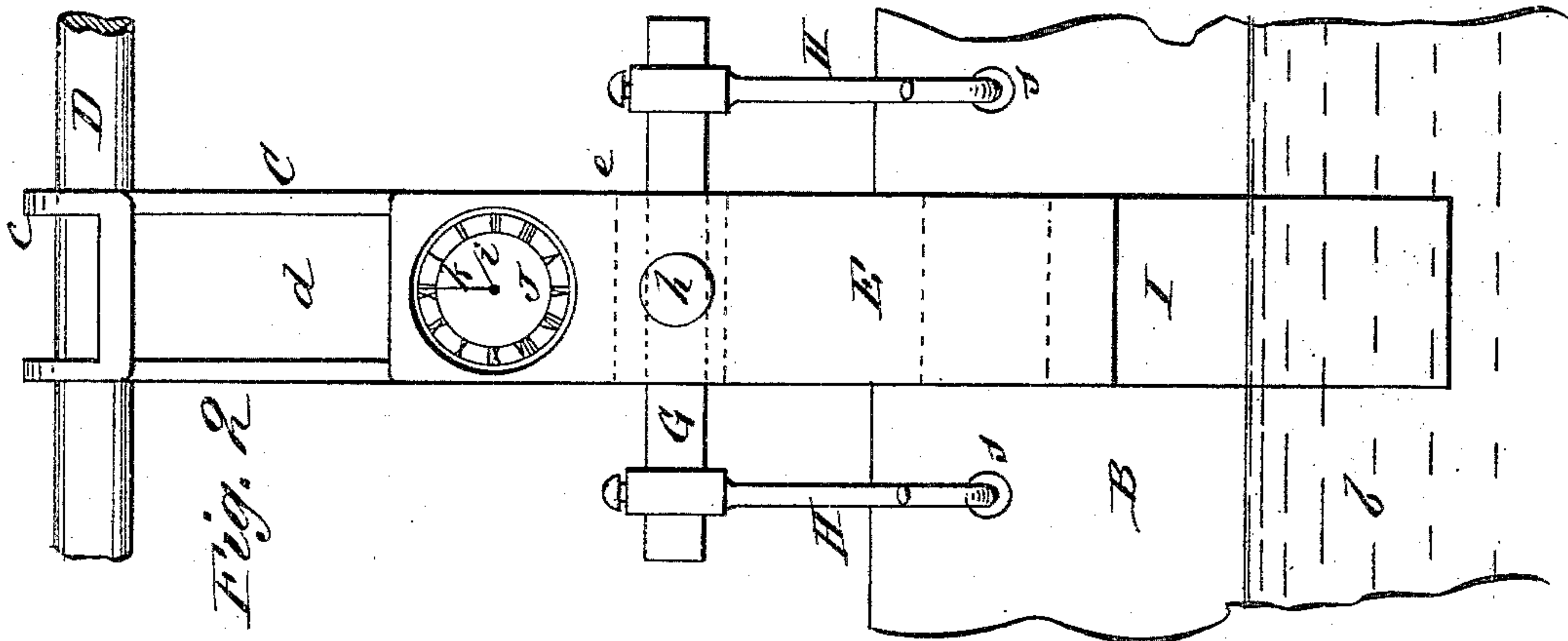


Fig. 2

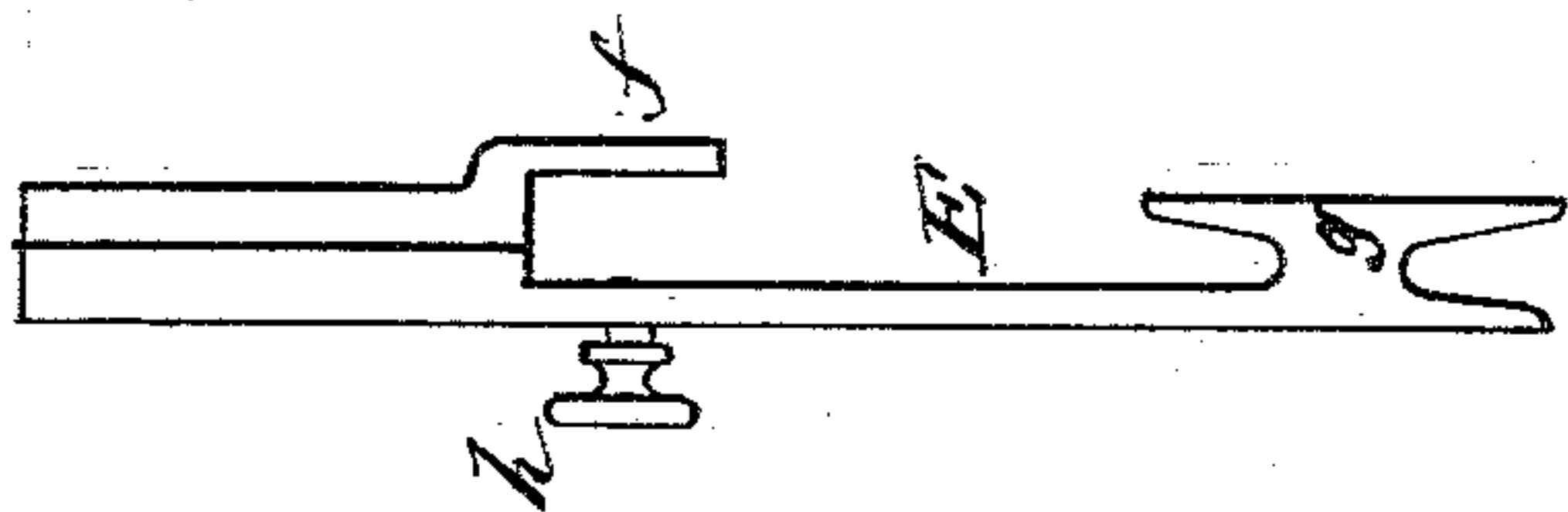


Fig. 3

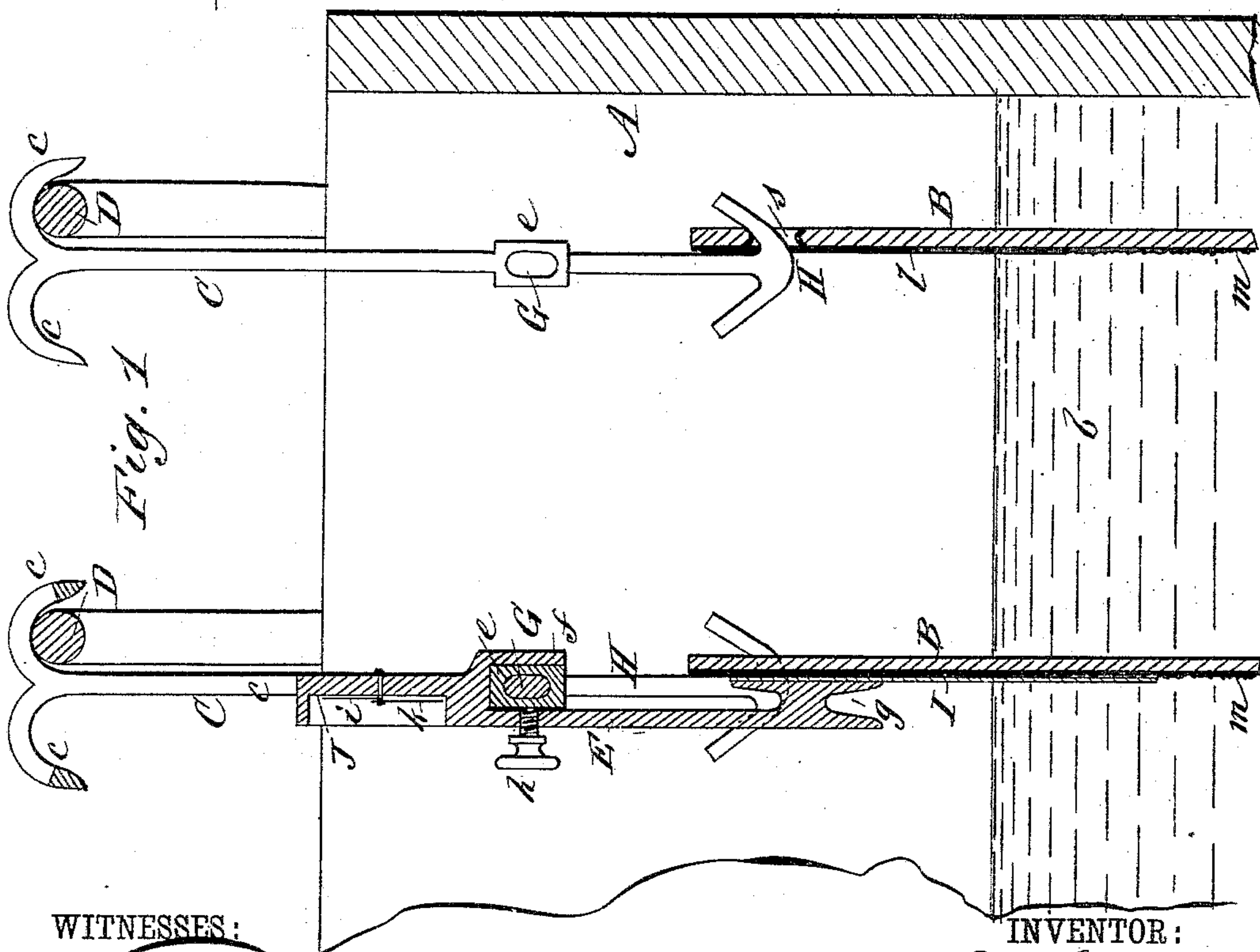


Fig. 1

WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM J. LADD, OF NEW YORK, N. Y.

APPARATUS FOR ELECTROTYPING.

SPECIFICATION forming part of Letters Patent No. 339,431, dated April 6, 1886.

Application filed June 30, 1885. Serial No. 170,264. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. LADD, of the city, county, and State of New York, have invented certain new and useful Improvements in Apparatus for Electrotyping, of which the following is a full, clear, and exact description.

This invention relates to devices for suspending electrotype-molds and forming electric connection therewith in the decomposing-trough of a battery.

One of the objects of my invention is to provide a ready means for connecting the electric current with the mold-case, and for disconnecting it therefrom, when required, without removing the mold from the bath.

It also has for its object the secure holding of the mold-case in the bath, the insuring a perfect electric connection when required, the reversibility of the device by which the mold is suspended, and the attachment of an indicating means for showing the length of time the electric current has been or should be applied.

The invention consists in special means for these purposes, substantially as hereinafter described and claimed, and differs in important respects from other electrotyping devices or hangers having both a lower hook for suspending the electrotype-mold case, and an upper hook for suspension from the rod over the trough or bath; also in which provision is made for preventing the precious metal from being deposited on the back of the mold.

Reference is to be had to the accompanying drawings forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a longitudinal sectional elevation of a decomposing trough or bath in part of an electrotyping apparatus with my invention applied; Fig. 2, a vertical view at right angles to Fig. 1, and Fig. 3 a side view of a removable and reversible conductor used in my invention.

A is the decomposing trough or bath, of hot potash water *b*, or other suitable liquid, in which the molds B to be electrotyped are suspended. Each mold suspender or hanger C consists of a metal bar having duplicate upper hooks, *c c*, arranged to face in opposite directions from opposite sides of the bar, and

either of which may be used for suspending it on the rod D, over the trough connecting with the battery, thus providing for the reversibility of the hanger, which will be found a great convenience, while that one of the hooks *c* which is not used to suspend the hanger on the rod forms an open convenient finger-piece for handling the appliance by, and dispenses with a closed ring for the purpose which has no other function. Furthermore, each bar C has an opening, *d*, from back to front below the hooks *c c*, and terminating below in a cross-bar or piece, *e*. This opening *d* and cross-piece *e* serve to admit of the ready attachment and detachment of a removable conductor, E.

Through the cross-piece *e* a wooden or non-conducting rod, G, is passed in direction of the width of the hanger, and attached to each end of said rod is a hook, H, for suspending the mold by engaging with apertures *s* therein. These hooks may be made with a single prong projecting from one side only; but it will be found more convenient, in order to provide for reversibility, to make each hook a double one—that is, with prongs projecting from opposite sides—as shown in the drawings. Instead of the hooks H being insulated, as described, by a wooden rod passing through the cross-piece *e*, an insulated metal rod may be used, or an insulating material may be applied as a covering to the hooks themselves. Said hooks H should be placed at a proper distance apart to prevent the mold B from tilting either way.

The removable conductor E serves, when applied to the hanger, to establish electric connection between the mold and the rod D over the trough, and when removed from the hanger breaks such connection by reason of the insulation of the hooks H. This conductor E, which conveys the electric current to the face of the mold, consists of a plate having a hook, *f*, on its upper part, which might be arranged to attach to the bar D over the trough, but which I prefer to arrange so as to enter within the opening *d* in the hanger, and to hook over or connect with the cross-piece *e* thereof, as shown in the drawings, and to construct it so that it may be inserted from either side of the hanger through the opening *d*, thus providing for the reversibility of the plate-conductor. The lower end of said con-

ductor E is made to form an arm, *g*, adapted to rest firmly on the upper part of the face side of the mold, but not projecting down into the water or liquid in the trough. A strip of carbon or metal, preferably copper, *I*, is fitted to the face of the mold. This strip is of sufficient length to reach below the surface of the bath, thus forming, when the conductor E is applied to the hanger, a perfect circuit from the rod over the trough to the mold in the bath. A set-screw, *h*, may be applied to the conductor E to bind it on the cross-piece *e*, and thereby more firmly secure said conductor when desired.

For the purpose of indicating the time at which the electric current was applied, or, if preferred, to indicate at what time connection should be broken, so as only to expose the mold for the proper length of time to the action of the electric current, the face of the conductor E might be suitably prepared for marking with chalk or pencil such time or times upon it, or the hanger itself may be so marked or fitted with figures to indicate the time; but it will be found more convenient to use a dial, *J*, with time-divisions on it and having adjustable hour and minute hands *i k*, which may be set to indicate the hour and the minute when the current was applied or when it should be disconnected, so that by comparing the same at any time with a running time-piece it will show how long the metal has been depositing upon a particular mold. This indicating-dial *J* may be applied either directly to the hanger or indirectly thereto through the conductor E, as shown. It may not, however, always be found convenient to remove the mold after the metal has been depositing upon it for the proper length of time, or it may be necessary to stop depositing for a certain length of time, or over night, and to subsequently complete the work. This may be done by removing the metallic conductor E, leaving the mold to hang in the metallurgic bath. Fig. 1 of the drawings shows one hanger as having the removable conductor in section applied to it and the mold, and another of the hangers as having the mold suspended in the bath, but with the conductor E removed.

To prepare the mold and to restrict the deposit to the face of it, the mold-case may be first faced with wax or other impressible non-conducting substance, *l*, an impression, *m*, of

the type then made in the wax, and afterward plumbago or other suitable material applied to the surface thus impressed, and with which the carbon or copper plate *I* is made to connect.

The apparatus, it will be perceived, provides for the secure hold of the mold in its proper position for the electric current being applied when required, and for the establishment of a perfect circuit, free from all liability to accidental detachment, also for breaking the electric connection.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the insulated lower hooks, *H*, with the slotted hanger *C*, having reverse upper hooks, *c c*, and a lower electric connecting-piece, substantially as and for the purposes described.

2. The combination, with a mold-hanger having insulated lower hooks, of a detachable plate-conductor for passage of the electric current, and a carbon or copper strip for continuing the passage of the current to the mold, essentially as specified.

3. The removable and reversible plate-conductor *E*, having a hook, *f*, to provide for its suspension and attachment, and a lower arm, *g*, for establishing electric connection with the mold, substantially as described.

4. The combination of a reversible mold-hanger having insulated lower hooks, and a reversible plate-conductor for passing the electric current to the mold, essentially as specified.

5. The combination of the mold-hanger *C*, having reverse upper hooks, *c c*, a slot, *d*, and lower cross-piece, *e*, with the detachable and reversible plate-conductor *E*, having a hook, *f*, constructed to engage with said cross-piece, and a lower arm, *g*, for continuing the current to the mold, substantially as described.

6. In apparatus for suspending electrotype-molds in the bath which provides for deposit of the metal over the face of the molds, the combination, with said apparatus, of a dial-indicator for determining the period of exposure of the molds to the action of the electric current, essentially as herein set forth.

WM. J. LADD.

Witnesses:

A. GREGORY,
C. SEDGWICK.