No. 737,353. PATENTED AUG. 25, 1903.

J. W. CORNELIUS & J. NIEMER.

CONNECTING HOOK FOR ELECTROTYPERS.

APPLICATION FILED JULY 5, 1902.

NO MODEL.

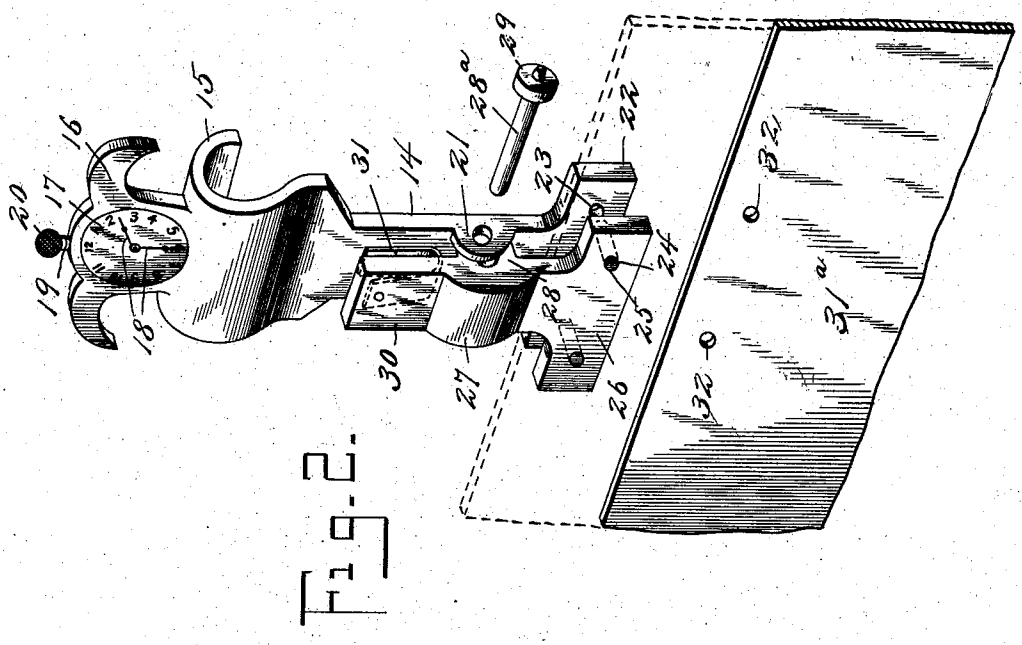


Fig. 2.

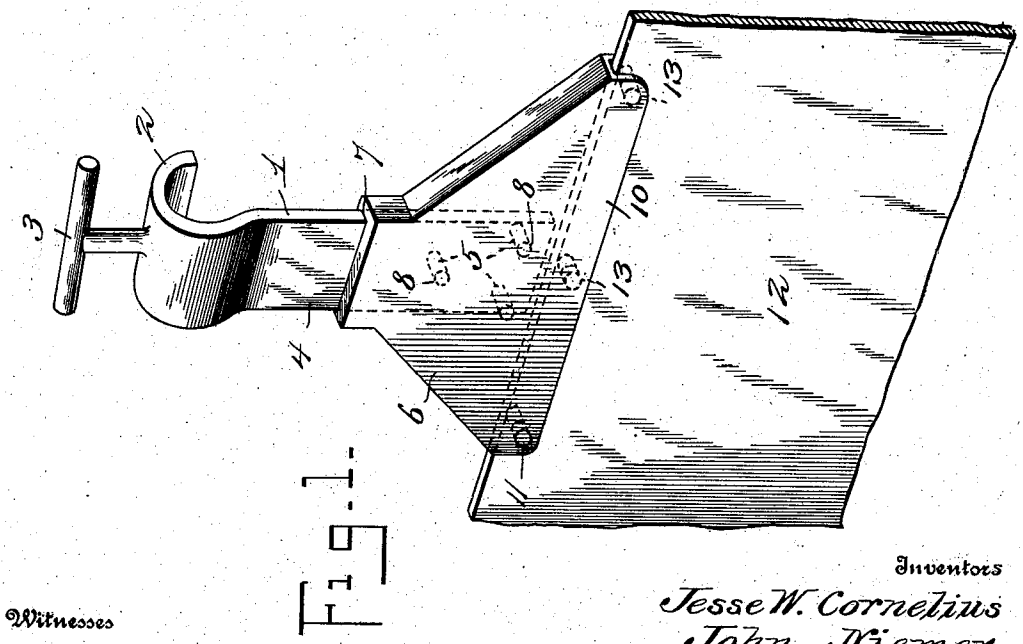


Fig. 1.

Witnesses

Hazzy L. Amer.

Chas. S. Hoyer.

Inventors

Jesse W. Cornelius

John Niemer.

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 737,353. Patented August 25, 1903.

UNITED STATES PATENT OFFICE.

JESSE W. CORNELIUS AND JOHN NIEMER, OF CINCINNATI, OHIO.

CONNECTING-HOOK FOR ELECTROTYPERS.

SPECIFICATION forming part of Letters Patent No. 737,353, dated August 25, 1903.

Application filed July 5, 1902. Serial No. 114,420. (No model.)

To all whom it may concern:

Be it known that we, JESSE W. CORNELIUS and JOHN NIEMER, citizens of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented new and useful Improvements in Connecting-Hooks for Electrotypers, of which the following is a specification.

This invention relates to electrotypers' connection-hooks for suspending cases or cathodes and copper plates or anodes from a battery-pole into the solution, the said hooks also acting as conveyers of the current. The improved hook will allow the copper plate that is to be precipitated in the copper solution to be entirely submerged at all times, thus insuring an even wear of the said plate. The upper part of the hook, or hook proper, will be constructed of copper, brass, or a composition of both, and if this part of the hook entered the solution the copper therein would precipitate, thereby destroying the hook and requiring the use of a new hook for every new copper plate used. The present invention overcomes this disadvantage by incasing and fastening the bottom part of a hook within a lead or a combination of lead, tin, or antimony casting. The copper solution has no effect on this latter combination of metals, and therefore no waste will result.

In some of the old methods electrotypers rivet a lug on the top of the plate and then paint or wax the portion of the same that hangs in the solution. If small air-holes, which cannot be avoided by this method, form in the paint or wax, the solution goes through the said holes and attacks the hook or lug in a short while.

Other electrotypers use a long hook reaching from the pole of the battery to holes in the corners of the anode and extending under the surface of the solution when suspended in the latter. This latter method results in a very great and expensive waste, as the hooks have to be frequently removed. If the hooks are short and hang above the surface of the solution, the copper plate wears away unevenly and wastes the copper, as the center of the plate wears through first, leaving a thick piece at both ends. Another bad feature resident in this method is the collection of sulfate where the hook and the copper plate connect, thus causing the current to become irregular and requiring a frequent change of the suspending device. The present invention obviates these disadvantages by having all the connections air-tight, obstructing corrosion, and preventing an attack of the copper in the hook proper by the solution. The improved hook and copper plate or anode when once in position do not need attention until the copper plate is entirely precipitated. After the copper plate is fully precipitated the hook is removed from the pole of the battery and dipped into the metal-pot and the lower cast casing is melted off and again recast onto a new plate.

In the drawings, Figure 1 is a perspective view of the improved hook and a portion of a plate adapted to be attached thereto and constituting an anode. Fig. 2 is a perspective view of a modified form of the hook and a portion of the plate constituting a cathode.

Referring to Fig. 1, the numeral 1 designates the hook proper, having an upper bent terminal 2, with a T-bar or grip 3 rising from the center thereof to serve as a handle. Depending from the bent terminal 2 is a flat shank 4, which will have its lower extremity formed with a plurality of transversely-extending openings 5, as shown by dotted lines. Securely held on the lower extremity of the shank 4 is a substantially triangular casting 6, preferably composed of lead or a combination of lead, tin, or antimony or such other composition of materials that may be readily cast on and melted off the shank 4 and having the characteristics of non-corrosion and resistance of attack by the solution in which the plate held by the improved device is suspended. The casing or inclosure formed by the casting 6 is securely fastened to the shank 4, the latter extending into the center of the improvement termed a "socket" 7, provided at the time the said casting 6 is formed in a manner which will now be set forth. In applying the casting 6 a mold is used that is formed in halves and constructed of wood or metal having hollows or channels which are the exact counterpart of the said casting. The two halves of the mold are placed over the upper edge of the anode 12 and held together by clamps in a manner similar to a closed stereotype casting-box. The opening at the top of

the mold will be located adjacent to the upper end of the casting 6 at the outlet of the socket 7. The mouth of the mold has two lips to receive the metal poured thereinto, also similar to a closed stereotype-box. After the mold has been applied to the upper edge of the anode 12 the shank 4 of the hook proper is passed down centrally through the mouth of the mold and has its lower end disposed at a suitable distance above the upper edge of the anode. Molten metal of the character hereinafter set forth is then poured into the mold and runs through the openings 5 in the shank 4 and also through openings at intervals at the top edge of the anode to form rivets 8 and 11, as shown by dotted lines. The molten metal flows around the shank 4 and fully incases the same and produces the socket 7. The casting 6 firmly adheres to the shank 4, and a practical homogeneous suspending means for the anode is provided which overcomes the disadvantages heretofore set forth and encountered in the means ordinarily employed in connection with anodes as well as cathodes. It will be observed that the plate can be suspended fully within the solution by partially submerging the inclosure or casing formed by the casting 6, and thus all of the plates will be evenly precipitated and completely used up without the least waste. After the plate 12 is fully precipitated the casting 6 is melted off from the hook by being submerged in a melting-pot to dissolve or melt the casting, and afterward a new casting is reset or applied to a new plate and then to the hook-shank. This form of the device has been described particularly as applied to an anode; but it can be as readily used in connection with a cathode.

In Fig. 2, however, a modified form of the hook is shown which is particularly adapted for use with a cathode and comprises a shank 14, with an upper hooked extremity 15, having a projection 16 rising from the center thereof, by means of which the entire device may be lifted. In the body of the projection 16 a dial 17, bearing numerals, is fastened and has hands or indicators 18 movable thereover and controlled by a stem 19, depending through the center of the projection at the rear and formed with an upper milled or other head 20. The stem 19 will have a suitable gear on its lower end in mesh and operating with a corresponding gear on the arbor of the hands or indicators 18. On the face of the dial 17 are figures from "1" to "12," inclusive, and the hands designate hour and minute hands, which are actuated by means set forth. This attachment is particularly efficient in electrotyping-work, as different classes of work require variation in the thickness of the copper deposit. For instance, advertisements for newspapers, which is cheap-grade work, requires but a forty-five-minutes' shell; book and commercial work and half-tones, about one-and-one-quarter-hour shell; flour-sacks and blankwork, one and one-half hours, and bindery stamps and dies two and one-half to five hours. Now with fifteen or twenty cases submerged in the solution the operator at the battery cannot tell, under the old method as ordinarily practiced, what is molded on any of the cases, and to find out he must lift each case, inspect the class of work on it, then pick up the edge of the copper deposit, and try the thickness of the shell, and thereby waste considerable time and soil the connections. Frequently the judgment of the operator is bad and the shells are formed either too thin or too thick. Sometimes one operator puts the cases in the solution and another takes them out with even worse results than where each case has to be tried during the depositing operation. By the use of the clock attachment and the exposed dial certainty in the work to be performed as regards the necessary thickness of the shell results. If the job happens to be a case of half-tone work, the battery operator puts the case in the solution at seven o'clock, for instance, and then sets his dial at "8.30," which means that it is an hour-and-a-half shell, or the time required to give the desired result.

The shank 14 has a pair of outstanding ears 21 at opposite edges, the said ears being in transverse alinement and formed with openings therethrough. The lower terminal of the shank is in the form of a laterally-extending jaw 22, having openings 23 therethrough to receive holding-rivets 24, which are run through openings 25 in a jaw 26, having an upper intermediate fulcrum enlargement 27, with projecting apertured gears 28, that fit between the ears 21, the jaw 26 being held in pivotal relation to the jaw 22 by a pintle 28^a, which is inserted through the ears 21 and 28 and is provided with a head 29 for convenience in grasping the same in separating the jaw 26 from the jaw 22. The jaw 26 also has an upper terminal extension 30, and between the latter and the adjacent portion of the shank 14 a U-shaped spring 31 is interposed to normally hold to jaw 26 in closed relation to the jaw 22. The jaws 22 and 26 hold between them a plate 31^a, having openings 32 to receive the rivets or pins 24, the said plate constituting a cathode. It will be understood that both the hooks 2 and 15 are for the purpose of suspending the improved devices on the battery-poles and are of such shape that they may be easily applied or withdrawn from suspending position.

When the plate 12 is mounted against the base of the casting 6, the spaces between the ears 10 are fully closed by the metal or composition of metals, which is run through the openings 11 and 13 to connect the said plate to the casting.

Having thus fully described the invention, what is claimed as new is—

1. The combination with a suspending-hook formed of electrical conducting material and a device to be suspended thereby within an

electrotyping solution, of an intermediate casing greatly increasing in width toward its lower end and partially embracing the hook, the said casing being of a non-corrosive nature and impervious to the attack by the solution and having a seat in its lower extremity to receive the device to be suspended in the electrotyping solution, the lower extremity of the casing having transversely-extending rivets engaging the upper end of the suspended device, the rivets being fusible.

2. The combination with a suspending-hook and a device to be held thereby and immersed in an electrotyping solution, of holding means greatly increasing in longitudinal extent toward its lower end and having receptive means in the latter, the lower portion of the hook being embedded and secured within said holding means, and the upper end of the device to be immersed being secured in the seat at the lower extremity of the holding means, the latter having fusible rivets extending transversely through the device.

In testimony whereof we affix our signatures in presence of two witnesses.

JESSE W. CORNELIUS.
JOHN NIEMER.

Witnesses:
W. H. KAUFMANN,
GEORGE F. SPANGLER.