

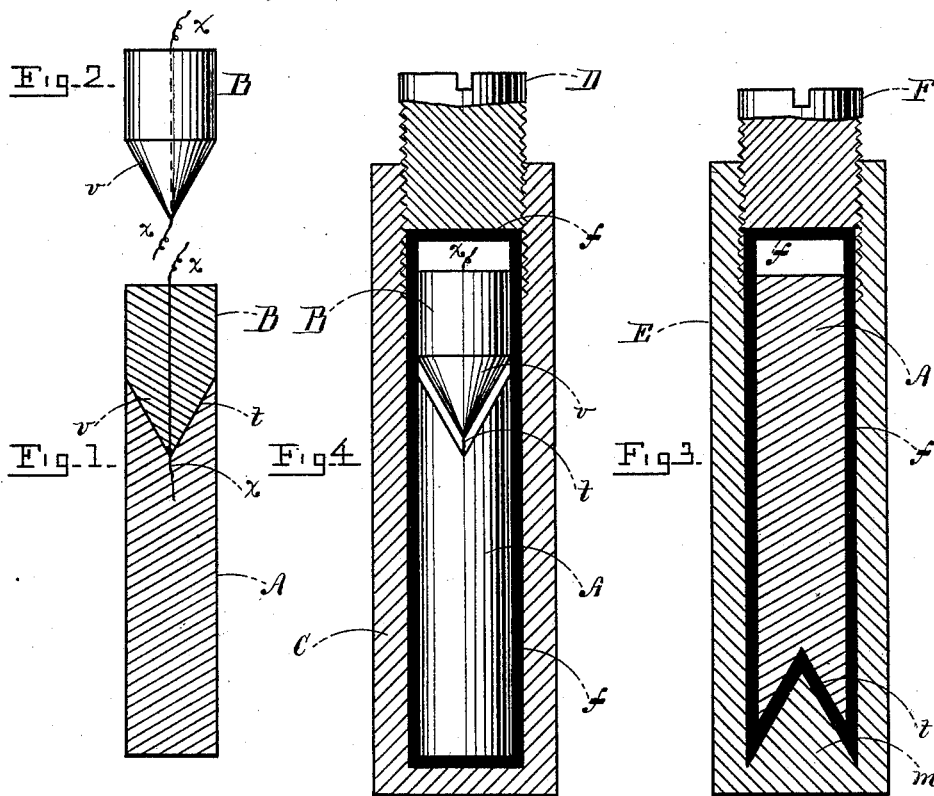
(No Model.)

R. L. CARR & P. BORDEN.

BATTERY ZINC.

No. 387,049.

Patented July 31, 1888.



WITNESSES:
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UNITED STATES PATENT OFFICE.

ROBERT L. CARR AND PARKER BORDEN, OF FALL RIVER, MASSACHUSETTS.

BATTERY-ZINC.

SPECIFICATION forming part of Letters Patent No. 387,049, dated July 31, 1888.

Application filed December 27, 1887. Serial No. 258,948. (No model.)

To all whom it may concern:

Be it known that we, ROBERT L. CARR and PARKER BORDEN, of Fall River, in the county of Bristol, State of Massachusetts, have invented a certain new and useful Improvement in Battery-Zincs, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section of our improved battery-zinc; Fig. 2, a side elevation of the cap detached; Fig. 3, a vertical longitudinal section showing the method of casting the body, and Fig. 4 a vertical longitudinal section showing the method of uniting the body and cap.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

In battery-zincs as ordinarily constructed much difficulty is experienced in preventing oxidation of the parts at the point where the conducting-wire is connected with the zinc, such oxidation reducing the conductivity of the parts and hence the electro-motive force of the battery.

Our invention is designed to obviate this difficulty or objection, and also to produce a more durable, effective, and otherwise desirable article of this character than is now in ordinary use; and to that end we employ means which will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the body of the zinc and B the cap.

The cap B, which may be cast or formed in any manner known to the arts, is composed of pure or approximately pure zinc, and provided with a conducting-wire, *x*, which extends longitudinally and centrally through the same and projects slightly from the top and bottom thereof, as best seen in Fig. 2. The lower portion, *v*, of the cap B is conical, the wire *x* being coated or tinned, before it is cast into the same, to cause it to be hermetically united therewith and thereby prevent oxidation between the cap and wire.

The body A is composed of a homogeneous mass or amalgam, of zinc and mercury, and may be produced by any method known to the arts. It is molded or formed with a conical socket, *t*, in its upper end, for receiving the conical lower end, *v*, of the cap B.

For connecting the cap and body of the zinc, we make use of the metallic vessel C, provided with a metallic screw-plug, D, the interior of said vessel and lower end of said plug being coated with fire-clay, *f*, to prevent any tendency of the body A or cap B to adhere thereto after being submitted to the action of heat, although this feature may be omitted, if desired. The body A is placed in the vessel C with its socket *t* uppermost, after which the conical end *v* of the cap B is immersed in a solution of chloride of zinc or other suitable flux and placed in said vessel above said body, the cone *v* and lower end of the wire *x* resting in the socket *t*. The plug D is then screwed in and the vessel submitted to the action of heat at a temperature sufficient to melt or partially melt the body and cap. As the body and cap soften by the heat, the cap drops fully into its seat in the socket *t*, and the cap, body, and wire become united or are brazed together in a manner that will be readily understood by all conversant with such matters without a more explicit description.

Care should be taken not to raise the temperature of the vessel C any higher than is actually necessary to cause the body, cap, and wire of the zinc to be brazed together properly, and also to handle said vessel in such a manner when the contents are in a liquid or partially liquid state under the action of heat as to avoid displacing the cap and wire. After the cap and wire have been brazed, as described, the vessel C is permitted to cool and the zinc removed.

The body of the vessel for brazing the cap, wire, and body of the zinc together may be made in two or more parts and the parts secured together by clamps; or a vessel of any other suitable construction for the purpose may be employed instead of the vessel C.

In Fig. 3 a metallic mold, E, provided with a metallic screw-plug, F, is shown, by means of which we cast or form the body A of the zinc, said mold being coated interiorly with

fire-clay, *f*, and having an upwardly-projecting cone, *m*, centrally disposed on its bottom for producing the socket *t* in the top of said body. The body *A* may, however, be molded
5 or formed in any other convenient and suitable manner; and it may also be composed of a pencil or piece of zinc, which is amalgamated with mercury exteriorly only, in the usual manner, instead of a homogeneous mass of
10 mercury and zinc. The socket *t* in the body *A* may also be made in any other suitable form, if desired, the lower portion of the cap *B* being of course changed accordingly, or the socket may be omitted and the top of the
15 body and bottom of the cap constructed flat and on the same plane, if preferred, without entirely departing from the spirit of our invention.

We do not confine ourselves strictly to uniting the body, cap, and wire of the zinc by submitting them to heat within a closed vessel, as heat may be applied and these parts brazed together by other means, if desired, although we deem the method described preferable to any other with which we are familiar.
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As we have made the process of constructing a battery-zinc herein described the subject-matter of another application for Letters Patent, filed December 15, 1887, Serial No. 257,979, we do not herein claim the same, broadly.
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Having thus explained our invention, what we claim is—

1. In a battery-zinc, the combination of a
35 body composed wholly or in part of an amalgam of zinc and mercury, and a cap composed of pure or approximately pure zinc, the cap and body being united by brazing or fusing, substantially as set forth.

2. In a battery-zinc, the combination of a
40 body composed wholly or in part of an amalgam of zinc and mercury, a cap composed of pure or approximately pure zinc, and a conducting-wire for said battery-zinc, the cap and body being united by brazing or fusing,
45 substantially as described.

3. In a battery-zinc, the combination of a body composed wholly or in part of an amalgam of zinc and mercury, a cap composed of pure or approximately pure zinc, and a conducting-wire for said battery-zinc, the cap
50 and body being united by brazing or fusing, and the wire connected with the cap by fusing or brazing, substantially as set forth.

4. The cap *B*, having the cone *v*, and provided with the wire *x*, said cap being composed of pure or approximately pure zinc, and said wire cast into the same and projecting beyond the ends thereof, substantially as set forth.
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5. A battery-zinc comprising the body *A*, having the socket *t*, the cap *B*, having the cone *v*, and the wire *x*, constructed, combined, and arranged to operate substantially as described.
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6. In a battery-zinc, the body *A*, composed wholly or in part of an amalgam of zinc and mercury, said body being provided with a socket for receiving a zinc cap, substantially as set forth.

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