

No. 677,633.

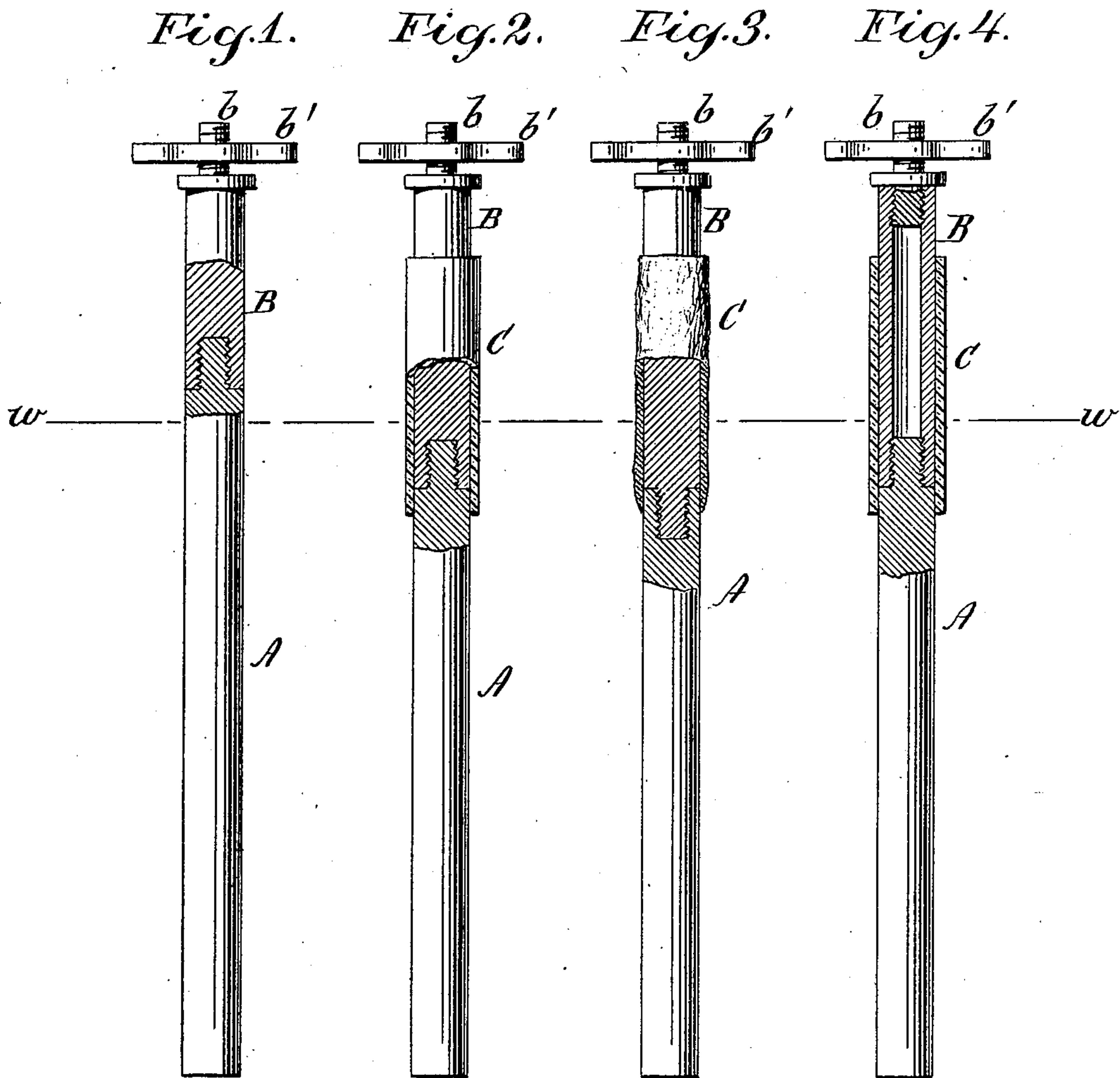
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H. J. BREWER.

ZINC ELEMENT FOR GALVANIC BATTERIES.

(Application filed Mar. 25, 1901.)

(No Model.)



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ZINC ELEMENT FOR GALVANIC BATTERIES.

SPECIFICATION forming part of Letters Patent No. 677,633, dated July 2, 1901.

Application filed March 25, 1901. Serial No. 52,732. (No model.)

To all whom it may concern:

Be it known that I, HORATIO J. BREWER, a citizen of the United States, residing in the city, county, and State of New York, have invented a certain new and useful Improved Zinc Element for Galvanic Batteries, of which the following is a specification sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

My improvements relate to elements employed in galvanic batteries, such as the Leclanche and others, in which a rod of zinc is used as one of the electrodes.

The object of the invention is to render a greater proportion of the zinc available for use in the battery than heretofore by means which are simple, inexpensive, and effective.

The invention consists in a zinc electrode-rod made in two parts, the adjoining ends of which are coupled together and protected by a covering of insulating material, the upper section being formed with means for the attachment of a conductor, and the lower section being renewable from time to time without detriment to the upper section. In other words, the lower section may be exposed to the action of the liquid in the battery until nearly consumed and when finally discarded will represent only a relatively small portion of its original bulk, whereas the zinc electrode-rods in common use are each made in one piece, and the amount of zinc discarded when a new rod is substituted necessarily represents a greater proportion of the original rod than the portion actually consumed in the battery, thus creating a relatively high percentage of waste.

An important feature of my invention consists in protecting the joint between the sections and the lower portion of the upper section and the upper portion of the lower section by means of a covering of insulating material, so that I am enabled to entirely submerge the lower section in the liquid of the battery and to allow it to remain therein until nearly consumed without impairing the upper section or the coupling by which they are united.

In the accompanying drawings, Figure 1 is a sectional elevation of my improved electrode in its simplest form without the joint-cover-

ing of insulating material; Fig. 2, a similar view showing the use of a covering of insulating material; Fig. 3, a view illustrating slight modifications in the structure. Fig. 4 is a view illustrating another modification of structure.

A represents the lower section of zinc, which is to be subjected to the action of the liquid in a battery, and B the upper section or head of zinc, which may be either solid or tubular in structure.

C is a covering of insulating material for protecting the upper end of the lower section A and the lower portion of the upper section B. The upper end of the lower section A and the lower end of the upper section B are coupled together by any mechanical expedient which will insure a positive electrical contact between the parts. Thus a male screw formed on one part and engaging with a female screw formed on the other part is a preferable form of coupling as being simple and inexpensive, although any equivalent of the screw-thread may be employed for the purpose of positively rendering the contact and the interlocking of the abutting ends positive. The covering C of insulating material may be applied in the form of a sleeve of hard or soft rubber or equivalent, or it may consist of a coating of suitable varnish, cement, wax, or gum applied in any convenient or well-known manner. In either case the covering C is valuable in that it enables me to submerge the whole of the lower section of zinc in the liquid of the battery, although obviously, if preferred, the upper section may be made relatively short, as shown in Fig. 1, so that its lower end will be above the level of the liquid in the battery, if preferred.

The upper extremity of the upper section B is provided with any well-known means of effecting positive connection with a wire or other conductor, as by means of the screw-thread *b* and nut *b'* in common use.

The results attendant upon the use of my upper section or head of zinc are practically and commercially valuable, since I retain all the advantages inherent in the form of solid zinc rod at present in use, while effecting greater economy in zinc, since each time a lower section is discarded and a new one substituted an amount of zinc equivalent to the

upper section is saved. Furthermore, by the use of the covering of insulating material the entire lower section of zinc may be submerged and all but a very small portion of it utilized
5 in the battery, since the coupling-joint and lower end of the upper section are protected against the corroding action of the battery liquid.

10 The small portion of the lower section protected by the insulated covering facilitates the removal of the lower section from the upper when desired, affording, as it does, a firm purchase for a suitable tool or the fingers.

15 It is to be noted that my new electrode is simple and cheap in structure and that the substitution of a fresh lower section for one

depleted by the action of the battery may be effected without the aid of skilled labor.

What I claim as my invention, and desire to secure by Letters Patent, is—

20 A zinc electrode for galvanic batteries made in two sections formed with means by which their abutting ends are positively coupled together, and a covering of insulating material protecting the lower end of the upper sec-
25 tion and the upper extremity of the lower section for the purpose set forth.

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