(No Model.)

G. A. GRINDLE.

ELECTRODE FOR SECONDARY VOLTAIC BATTERIES.

No. 574,322. Patented Dec. 29, 1896.

Fig. 1.

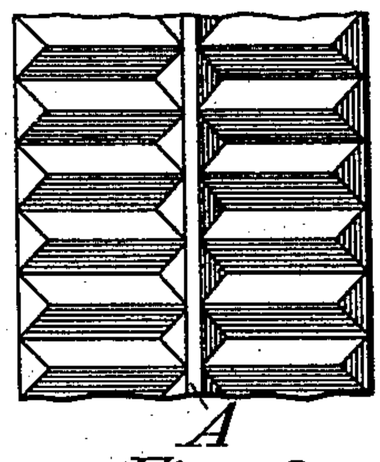


Fig. 2.

Fig. 3.

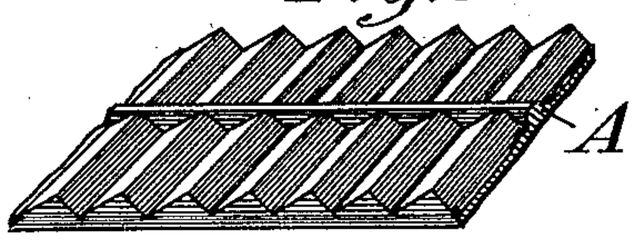
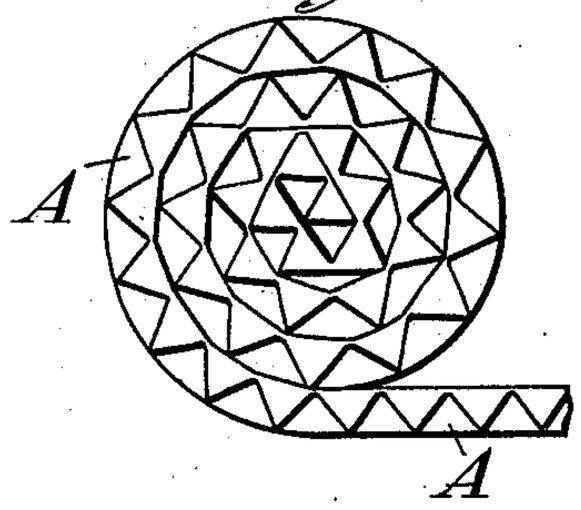


Fig. 4.



Witnesses.
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Robert Everett.

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UNITED STATES PATENT OFFICE.

GEORGE A. GRINDLE, OF PRESTWICH, ENGLAND.

ELECTRODE FOR SECONDARY VOLTAIC BATTERIES.

SPECIFICATION forming part of Letters Patent No. 574,322, dated December 29, 1896.

Application filed October 13, 1896. Serial No. 608,735. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ANNESLEY GRINDLE, a citizen of England, residing at Addiscombe, Prestwich, in the county of Lancaster, England, have invented a certain new and useful Improvement in Electrodes for Secondary Voltaic Batteries, of which the following is a specification.

In the specification of United States Patent No. 567,045 there is described a construction of electrode for secondary voltaic batteries, consisting of a plate of lead alloyed with a little antimony, having through it a number of holes which are filled with plugs, each consisting of a strip of lead, which is transversely ridged and furrowed and is rolled into the form of an approximately cylindrical roll, which is forced into a hole of the plate. The form of lead strip which is found most serviceable for this purpose is of the kind shown in Figure 5 of the drawings accompanying the said specification, that is to say, a strip flat on the one side and ridged and furrowed only on the other side. There is, however, a disadvantage attending this form, resulting from the fact that when the electrodes are in use the thin films of lead at the bottoms of the furrows soon become oxidized, so that there is an interruption of conduction from ridge to ridge, and therefore defective conduction throughout the plug.

The object of this invention is to obviate this defect, which I do by forming the strip with a central longitudinal ridge connecting all the transverse ridges.

Fig. 1 of the accompanying drawings is a plan. Fig. 2 is a transverse section, and Fig. 3 is a perspective showing part of a strip according to my present invention, Fig. 4 showing it partly rolled up. It will be seen that along the middle of the strip there is a longitudinal ridge A, dividing each transverse furrow in halves.

When the plug formed by rolling up such a strip is fixed in a hole of the electrode-plate, the electrolytic liquid has free access from each side to the middle of the plug, and although the thin lead at the bottom of each half-furrow soon becomes oxidized, ceasing to conduct from transverse ridge to ridge, the thicker metal constituting the central longitudinal ridge becoming oxidized only superficially maintains good conduction throughout the whole roll.

Although in the drawings I have shown the cross-ridges of triangular section, they might obviously be of other forms, and the longitudinal ridge might be of the same form as the transverse ridges or of a different form.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

For filling the holes of an electrode-plate for a secondary voltaic battery, plugs each consisting of a rolled-up strip of lead, having on its one side transverse ridges and furrows, all the ridges being connected by a central longitudinal ridge, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 1st day of October, A. D. 1896.

GEORGE A. GRINDLE.

Witnesses:

OLIVER IMRAY,

JNO. P. M. MILLARD.