

UNITED STATES PATENT OFFICE.

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CLEANING STORAGE BATTERIES.

No. 837,773.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JONAS W. AYLSWORTH, a citizen of the United States, residing at East Orange, county of Essex, State of New Jersey, have invented a certain new and useful Process of Cleaning Alkaline Storage Batteries, of which the following is a specification.

In the commercial manufacture of the improved Edison iron-nickel storage battery it was discovered that in most cases excessive foaming took place during the charging operation and often in sufficient quantities to froth up past the gas-separator and result in a loss of solution with danger of short-circuiting, &c. It was discovered that this foaming of the solution was caused by the presence in the battery of grease and animal oils due to the handling of the metal parts by the operator. The extremely minute film of perspiration left on a metal surface by mere contact with the hand was in fact sufficient to cause an excessive foaming of the solution.

The object of my invention is to provide a process by which the entire interior of the battery may be cleaned of any greasy or oily deposits so as to greatly reduce the foaming referred to.

To this end the invention consists in introducing within the cell, after it has been entirely assembled, a weak alkaline solution (about two per cent.) maintained slightly below the boiling temperature for about three hours. The solution is then poured out, and the operation is repeated with fresh hot solutions two or three times until the entire cell is cleaned. Apparently the effect of the weak alkaline solution is to saponify any grease or animal oils present, the resulting soaps dissolving in the solution and being removed therewith. I find in practice that this cleaning of the solution cannot be effected by the employment of water nor by the employment of very strong or caustic alkaline solution, but that a very weak alkaline solution must be employed, in which the soap is very much more soluble than a strong solution. While I prefer to effect the cleaning of the battery after all the parts have been assembled, it will of course be under-

stood that the constituent elements thereof may be subjected to the treatment described for the purpose of cleaning them and afterward assembled, although in the latter case care will have to be observed in assembling the battery to prevent contamination of the cleaned surfaces.

I am aware that it has been heretofore proposed to remove grease from metallic surfaces previous to electroplating by immersion in a ten-per-cent. solution of hot caustic potash; but such a solution would be ineffective for the purpose of sufficiently removing microscopic and practically invisible films as contemplated by my present invention and whose presence results in the objectionable foaming before pointed out. To effectively remove these films, it is important that the hot alkaline solution should be very weak (about two per cent.) and that the treatment should continue far beyond the period of a mere immersion.

Having now described my invention, what I claim as new therein, and desire to secure by Letters Patent, is as follows:

1. The process of cleaning the metallic surfaces of an alkaline storage battery, which consists in subjecting the surfaces to the action of a hot, weak alkaline solution, substantially as and for the purposes set forth.

2. The process of cleaning the metallic surfaces of an alkaline storage battery, which consists in subjecting the surfaces to the effect of a plurality of treatments with hot, weak alkaline solutions, substantially as and for the purposes set forth.

3. The process of cleaning the metallic surfaces of an alkaline storage battery, which consists in completely assembling the battery and then introducing within the receptacle thereof a hot, weak alkaline solution, which is allowed to remain in contact with the surfaces to be cleaned for a number of hours before being removed, substantially as and for the purposes set forth.

4. The process of cleaning the metallic surfaces of an alkaline storage battery, which consists in completely assembling the battery, and then introducing within the re-

ceptacle thereof, a hot, weak alkaline solution, which is allowed to remain in contact with the surfaces to be cleaned for a number of hours before being removed, and in repeating the treatment described with a fresh, hot, weak alkaline solution, substantially as and for the purposes set forth.

This specification signed and witnessed this 6th day of September, 1904.

JONAS W. AYLSWORTH.

Witnesses:

MINA C. MACARTHUR,
FRANK L. DYER.