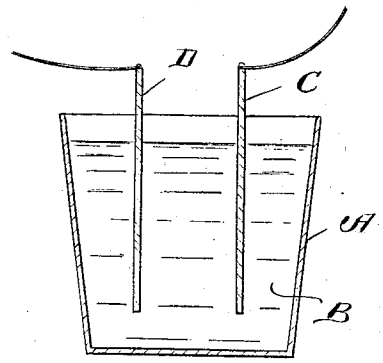
No. 774,049. PATENTED NOV. 1, 1904.

J. DIAMANT.

PROCESS OF ELECTROLYTICALLY PRODUCING LEAD PEROXID LAYERS UPON POSITIVE ACCUMULATOR PLATES.

APPLICATION FILED JAN. 4, 1904.

NO MODEL.



Witnesses:
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No. 774,049. Patented November 1, 1904.

UNITED STATES PATENT OFFICE.

JULIUS DIAMANT, OF RAAB, AUSTRIA-HUNGARY.

PROCESS OF ELECTROLYTICALLY PRODUCING LEAD-PEROXID LAYERS UPON POSITIVE ACCUMULATOR-PLATES.

SPECIFICATION forming part of Letters Patent No. 774,049, dated November 1, 1904.

Application filed January 4, 1904. Serial No. 187,755. (No model.)

To all whom it may concern:

Be it known that I, JULIUS DIAMANT, a subject of the Emperor of Austria-Hungary, residing at Raab, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Processes for the Electrolytical Production of Lead-Peroxid Layers Upon Positive Accumulator-Plates, of which the following is a specification.

In the process of producing peroxid layers upon the surface of lead accumulator-plates substances the anions of which under the action of the electric current are capable of entering into combination with the lead to form salts which are either difficultly or easily soluble are added to the electrolyte. The rapidity of the formation of the layer of peroxid of lead will depend upon the solubility of these lead salts, the percentages of the same that are capable of being transformed into lead peroxid, and upon the character of the anion. The quality of this layer—that is to say, its fine-grained condition, its strong adhesion to the lead plate, &c.—depends upon the physical conditions prevailing during the execution of the process, such as the temperature of the electrolyte, the density of the current, and to a certain extent also the presence or the absence of other ions which do not participate in a direct manner in the formation of the deposit. In practice when making a selection of the substances which, as above described, are intended to render possible or to accelerate the formation of the layers of lead peroxid there is a further circumstance to be taken into consideration—viz., that after the formation of a sufficiently thick layer of lead peroxid the further action of the said substances should entirely cease, since otherwise a progressive transformation of the entire lead plate is liable to take place, which will lead to the complete disintegration of the plate.

According to the present invention for the purpose of electrolytically producing layers of lead peroxid upon lead plates there is added to the electrolyte a sulfonic or oxysulfonic acid derivative of methane and of its hydroxyl substitution products, such as methyl-sulfonic acid, methylenedisulfonic acid, methylidenetrisulfonic acid, oxymethylenesulfonic acid, oxymethylidenedisulfonic acid. The derivatives of oxysulfonic acid are derivatives of the oxymethylenesulfonic acid and of the oxymethylidenedisulfonic acid, $CH_2(OH)(HSO_3)$ and $CH(OH)(HSO_3)_2$, respectively. Sulfonic acids of this kind are obtained, usually as mixtures, by the action of sulfuric acid or sulfuric anhydrid or fuming sulfuric acid upon organic compounds having a methyl group which is easily split off—for instance, methyl alcohol, methyl-sulfuric acid, ethyl alcohol, acetic aldehyde, acetic acid, or the like. The different sulfonic acids or oxysulfonic acids may either be separated from each other by taking advantage of the different solubilities of their salts and added in a pure form to the electrolyte used for forming the plate, or the mixture may be added directly to the electrolyte.

In the drawings accompanying this application is shown a sectional elevation in which A is a vessel, B the solution contained therein, and C and D the electrodes.

During the electrolytic process the said substances, owing to their chemical constitution, will furnish only sulfuric acid and carbonic acid—that is to say, combinations of quite a neutral nature in as far as their action upon the formed accumulator-plate is concerned.

I claim as my invention—

1. A process of electrolytically producing lead-peroxid layers upon positive accumulator-plates which consists in adding to the electrolyte a sulfonic-acid derivative of methane.

2. A process of electrolytically producing lead-peroxid layers upon positive accumulator-plates which consists in adding to the electrolyte sulfonic-acid derivatives of methane.

3. A process of electrolytically producing lead-peroxid layers upon positive accumulator-plates which consists in adding to the electrolyte sulfonic-acid derivatives of methane, said derivatives admixed together before incorporating the electrolyte.

4. A process of electrolytically producing lead-peroxid layers upon positive accumulator-plates which consists in adding to the elec-

trolyte a sulfonic-acid derivative of methane admixed with an oxysulfonic-acid derivative of methane.

5. A process of electrolytically producing lead-peroxid layers upon positive accumulator-plates which consists in adding to the electrolyte a sulfonic-acid derivative of methane admixed with oxysulfonic-acid derivatives of methane.

6. A process of electrolytically producing lead-peroxid layers upon positive accumulator-plates which consists in adding to the electrolyte sulfonic derivatives of methane admixed with oxysulfonic-acid derivatives of methane.

7. A process of electrolytically producing lead-peroxid layers upon positive accumulator-plates which consists in adding to the electrolyte methyl-sulfonic acid.

8. A process of electrolytically producing lead-peroxid layers upon positive accumulator-plates which consists in adding to the electrolyte methyl-sulfonic acid admixed with an oxysulfonic acid.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JULIUS DIAMANT.

Witnesses:
JOSEF RUBRARCH,
ALVESTO S. HOGUE.