UNITED STATES PATENT OFFICE.

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PRIMARY BATTERY.

No Drawing. Application filed November 4, 1925, Serial No. 66,867, and in Australia February 23, 1925.

This invention relates to primary batteries approximately the following proportions: of the type described in my Letters Patent of the United States of America Number 899,823 of 1908 and Number 1,021,859 of 1912, 5 wherein are described primary batteries which give an exceptionally high electromotive force with a low internal resistance, and which possess a remarkable constancy that enables them to be employed with advantage in many cases where the ordinary primary rous sulphate or nickel sulphate or a mixture batteries are unsuitable. The object of this of ferrous and nickel sulphate in any proporinvention is the production of a primary battery not only embodying these important features but in which the hitherto uncontrollable 15 and detrimental diffusion of the excitant through the porous pot into the depolarizer is retarded and the electrical efficiency and ampere hour capacity of the battery is greatly increased under all loads. This factor also considerably lengthens its life and usefulness working over an extended period. The imwireless sending and receiving sets, sparking 25 on motor cars and boats, driving small volt- loidal substance in solution, which not only age electric motors, electric lighting, and in retards the diffusion of the excitant but thereother instances where it is desired to obtain by greatly improves the electrical efficiency 75 a high efficiency at short notice and without of the battery. The cell or battery may be having to send the battery, as in the case of fully charged within two minutes and is then 30 secondary batteries, to charging stations.

same elements as described and claimed in Patent Number 899,823 hereinbefore referred to, namely, a perforated rectangular or cylin- the proportions hereinbefore set out, as I find 35 drical carbon element placed in the depolarizer contained in an outer containing vessel made of glass, celluloid, or other suitable material, and zinc element, preferably in the form of a perforated cleft rectangular or 40 cylindrical tube (although I do not wish to and in what manner the same is to be perbind myself to any particular form or shape of such element) placed in the excitant, which element.

scribed and claimed in Patent Number 1,021,- tion being fluid, substantially in the propor-859, to which reference has been made, con- tions and for the purposes set forth. sists of the following ingredients mixed in

Hydrochloric acid_____fifteen (15) ounces. Chromic acid _____eight (8) ounces. 50 Ferrous sulphate or nickel sulphate or

a mixture of the two_____one (1) ounce. 55

The commercial hydrochloric acid is mixed with the water, and, in this mixture, the ferrous sulphate or nickel sulphate or a mixture tion is disssolved, and then commercial 60 chromic acid is subsequently added to the solution.

The excitant consists of a solution of sodium hydroxide formed of approximately eight (8) ounces of sodium hydroxide dis- 65 solved in approximately sixteen (16) ounces of water, as included in my Patent Number considerably lengthens its life and usefulness 899,823, but, instead of adding gum arabic, when the battery is used for intermittent as in Patent Number 1,021,859, for retarding the diffusion of the excitant, I add approxi- 70 proved battery is particularly useful for mately two (2) fluid ounces of sodium sili-wireless sending and receiving sets, sparking cate. The sodium silicate is used as a colimmediately ready for use, recording the ex-In carrying out my invention I use the ceptionally high electro-motive force of 2.6 to 2.7 volts per single cell.

I do not wish to bind myself down to that good results are obtainable even when a more or less wide departure is made therefrom.

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Having now particularly described and ascertained the nature of my said invention formed, I declare that what I claim is:-

1. In improvements in primary batteries of 90 is contained in a porous pot within the carbon the double fluid type, an excitant consisting of a solution of sodium hydroxide to which The depolarizer, which is the same as de- sodium silicate is added, the resulting solu-

2. In improvements in primary batteries

an excitant consisting of a fluid mixture sub- with ferrous or nickel sulphate or a mixture

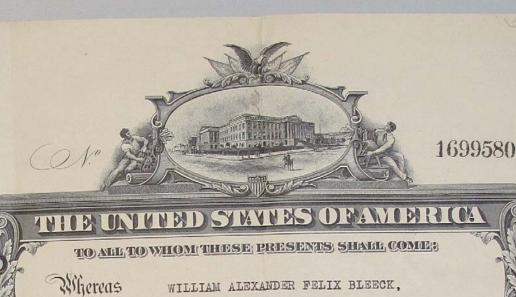
3. A primary battery of the double fluid type consisting of zinc as the positive element in an excitant consisting of a solution of so-

of the double fluid type, a depolarizer con- dium hydroxide to which sodium silicate has sisting of a mixture substantially in the proportions mentioned of chromic acid, water, and hydrochloric acid, together with ferrous polarizer consisting of a mixture of chromic acid, water, and hydrochloric acid, together acid, water, and hydrochloric acid, together stantially in the proportions set forth of so-dium hydroxide, water, and sodium silicate, as and for the purposes set forth.

thereof, the depolarizer being separated from the excitant by a porous partition as herein 20 described.

In testimony whereof I affix my signature.

WILLIAM ALEXANDER FELIX BLEECK.



of

South Brisbane.

Queensland,

Australia,

PRESENTED TO THE COmmissioner of Patents a petition praying for THE GRANT OF LETTERS PATENT FOR AN ALLEGED NEW AND USEFUL IMPROVEMENT IN

PRIMARY BATTERIES.

A DESCRIPTION OF WHICH INVENTION IS CONTAINED IN THE SPECIFICATION OF WHICH A COPY IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND COMPLIED WITH THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED, AND

Whitens upon due examination made the said Claimant 18 adjudged to be justly entitled to a patent under the Law.

Now therefore these Letters Patent are to grant unto the said

William Alexander Felix Bleeck, his heirs

OR ASSIGNS

FOR THE TERM OF SEVENTEEN YEARS FROM THE DATE OF THIS GRANT

THE EXCLUSIVE RIGHT TO MAKE, USE AND VEND THE SAID INVENTION THROUGHOUT THE UNITED STATES AND THE TERRITORIES THEREOF.

> In testimony whereof Thave hereunto set my hand and caused the seal of the Patent Office tobe affixed at the City of Washington this twenty-second day of January, in the year of our Lord one thousand nine hundred and twenty-nine, and of the Independence of the United States of America the one hundred and fifty-third.

Law Examiner.

Thomas E. Robertson