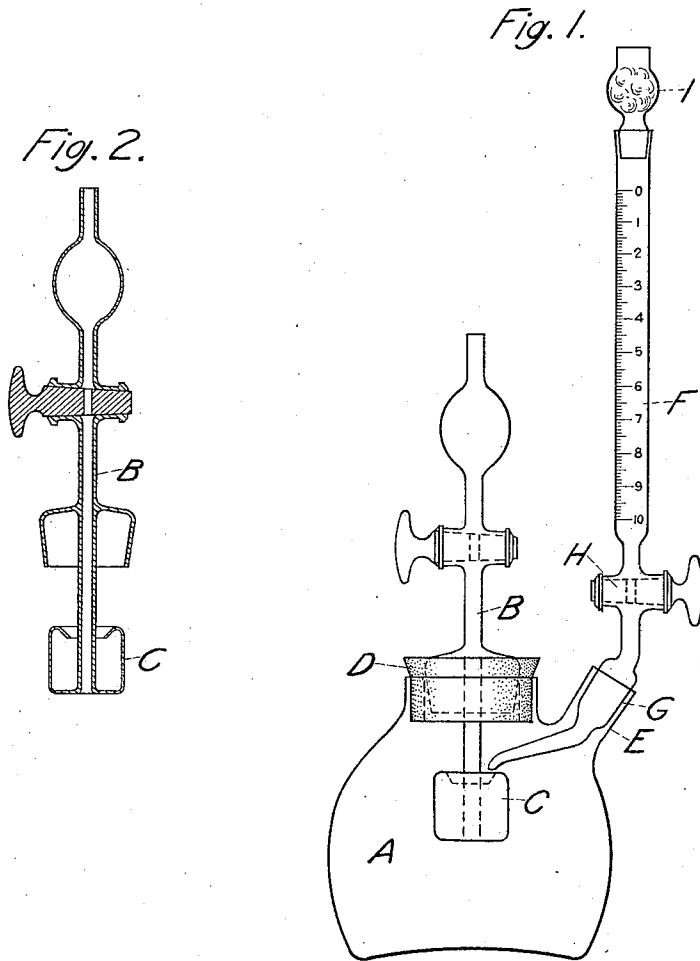


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TITRATION APPARATUS.
APPLICATION FILED MAY 27, 1912.

1,046,260.

Patented Dec. 3, 1912.



Witnesses:
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UNITED STATES PATENT OFFICE.

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TITRATION APPARATUS.

1,046,260.

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(DEDICATED TO THE PUBLIC.)

To all whom it may concern:

Be it known that I, HERBERT H. BUNZEL, an employee of the Department of Agriculture of the United States of America, residing in the city of Washington, District of Columbia, (whose post-office address is Washington, District of Columbia,) have invented a new and useful Titration Apparatus.

This application is made under the act of March 3, 1883, chapter 143 (22 Stat., 625), and the invention herein described and claimed may be used by the Government of the United States or any of its officers or employees in the prosecution of work for the Government, or any person in the United States, without payment to me of any royalty thereon.

The object of my invention is to provide a titration apparatus which will make it possible to determine approximately the carbon dioxid liberated in the course of oxidase determinations. In order to accomplish this object the alkali employed in the oxidase determinations is transferred in a glass basket from the oxidase apparatus to the apparatus herein described for titration. By means of my apparatus the alkali may be titrated in an atmosphere nearly free from carbon dioxid. This result is attained by placing sticks of caustic soda or caustic potash in the bottom of the apparatus. The material mentioned will keep the air within the flask practically free from CO_2 , which necessarily reduces the error involved in titration.

The nature, characteristic features, and scope of my invention will be more readily understood from the following description taken in connection with the accompanying drawing, wherein—

Figure 1 is a side perspective view of my apparatus; and Fig. 2 is a detail sectional view of the glass basket.

Referring to the drawings, A represents the glass flask or receptacle into which is placed the tube, B, supporting a glass basket, C, containing alkali taken from an oxidase apparatus. The tube, B, with its equipment is adjusted in said flask, A, by means of a large bore rubber stopper, D, which holds in place the joint that holds said basket, C, in a fixed position.

E represents an extension to the flask, A, for the reception of the burette, F. The burette, F, is graduated to tenths and may be rotated on the ground joint, G, so that the end of the burette will be just above the basket, C, when in place.

H designates the stopcock arranged on the burette, F, for the purpose of intercepting the flow of the solution from the burette into the basket, C, and I is a small bulb secured to the burette at its top by a ground joint. I fill bulb, I, with cotton for the purpose of keeping dust out of the solution in the burette, and I cover the bottom of the flask, A, with 30 per cent. hydroxid solution for the purpose of keeping the atmosphere within the flask as nearly free from carbon dioxid as possible.

When the alkali to be titrated is properly arranged in the apparatus, the burette, F, is filled with 0.1 normal sulfuric acid and the liquid in the basket is titrated with constant gentle agitation just to the point of disappearance of the red color. The burette is then read and three drops of Congo red solution are placed in the basket and the titration continued until the bright red color disappears. From the difference between the two end points may be calculated the quantity of carbon dioxid observed.

Having thus described my invention, I claim:

In a titration apparatus, comprising a flask, A, having an integral extension, E, for the reception of a burette, F, a ground joint, G, for adjusting said burette, F, to said flask, a tube, B, supporting a basket, C, for entering the opening in the top of said flask, a rubber stopper, D, for adjusting said tube and basket in a fixed position, said burette provided with a bulb at its top and its lower end arranged above the basket, C, a stop-cock H for intercepting the flow of liquid from said burette into said basket, which said apparatus is adapted for titrating alkali substantially as described.

In testimony whereof, I affix my signature in the presence of two subscribing witnesses.

HERBERT H. BUNZEL.

Witnesses:

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O. F. BLACK.