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R. JOHN

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DEVICE FOR TESTING ACIDITY IN ORAL SECRETIONS

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Fig. 1.

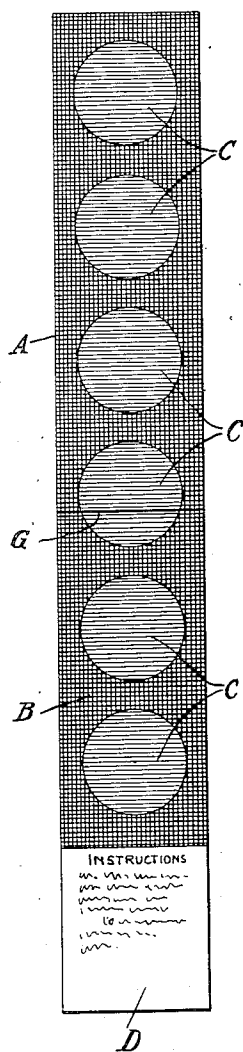


Fig. 2.

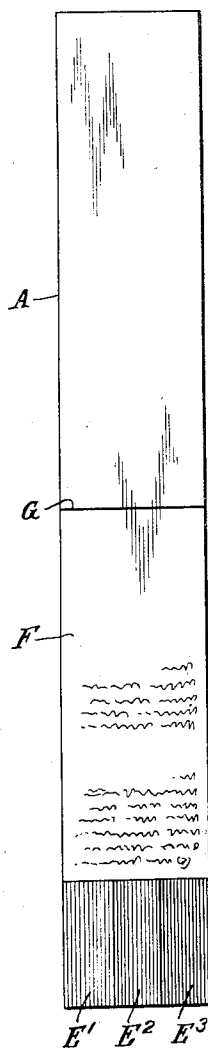


Fig. 3.

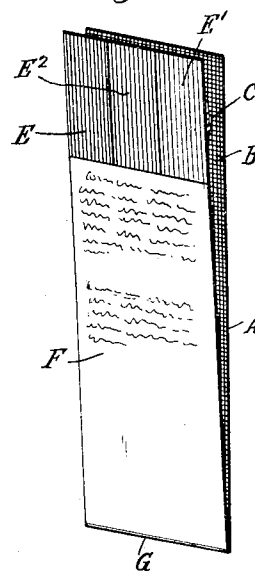
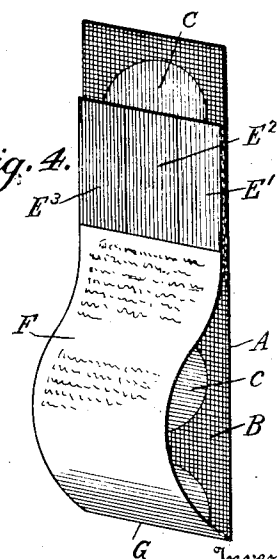


Fig. 4.



Inventor

Robert John

By

Bacon & Thomas

Attorneys

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DEVICE FOR TESTING ACIDITY IN ORAL
SECRETIONS

Robert John, New York, N. Y.

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4 Claims. (Cl. 88-14)

This invention relates to improvements in means for making quantitative determinations of acids present in the human mouth at different times and under varying conditions, which may serve as useful indications in the practice of oral and dental hygiene.

One of the objects of the present invention is to provide a means so simple, quick and reliable that any user, although wholly unskilled in the medical or dental professions, may quickly determine the degree of acidity, if any, in his saliva and may be advised, without recourse to outside consultation, of the probable significance of such condition.

A further object of my invention resides in the provision of a simple and inexpensive device for effecting the above purpose and which is adaptable as an advertisement to be dispensed in packages of dentrifices and the like.

It has long been a practice of physicians, dentists and even laymen, to test saliva for acidity by means of blue litmus test paper, relying upon the well known fact that such paper assumes a pinkish or reddish color when certain acids are applied to it. Such procedure, however, is limited in value because of the fact that only one highly skilled in the art can make even a rough estimate of the degree of acidity present from the color to which the test paper is changed; and due to the further fact that at certain times, notably after eating, the saliva may normally be expected to be slightly acid.

The present invention provides a means for determining quantitatively, the relative percentage of acid present and, by means of accompanying explanation, indicates whether or not such degree of acidity at the time of the test is normally to be expected; and, if not, the probable physiological significance of the condition.

In a simple embodiment of the invention, chosen for the purpose of illustration, the following steps are taken:

1. A litmus test solution is first prepared by any standard procedure, or particularly, as described in paragraph 129 page 1715 of the Dispensatory of the United States of America, 19th edition, J. B. Lippincott Company, Philadelphia, Pennsylvania.

2. A suitable paper is selected, its suitability consisting of freedom from wood pulp, acids, alkalis, and sizing; and its porosity being such that an aqueous coating may be applied to one side without penetrating to the other. Such paper, cut into sheets of a size which may be conveniently and economically handled on existing

printing or lithographic presses, because of subsequent operations to be performed, is then coated on one side with the litmus test solution above described. This may be done by hand as with a brush or pledget of cotton or by floating it on the surface of the liquid; but the preferable operation is to perform the coating mechanically as on existing apparatus of the varnishing-machine or sheet-coating type, in which the liquid is picked up by rollers and applied to one side of the paper under pressure, the travel of the paper and the amount of liquid deposited being mechanically regulated.

Having thus prepared a test paper, one side of which is blank, and the other side preferably evenly coated with litmus test solution and dry, the remaining operations are performed on a commercial printing or lithographic press.

For a more detailed understanding of my invention, reference will be had to the accompanying drawing wherein Fig. 1 is a view of one side of a strip of paper prepared in accordance with my invention; Fig. 2 is a view of the opposite side of the strip; and Figs. 3 and 4 are perspective views of the device respectively in closed or unused position and in a used position.

Referring more particularly to the drawing, A represents a strip of paper having the characteristics above set forth and which has already been treated with litmus on one side thereof. The litmus-treated side of the strip is shown in Fig. 1. A substantial portion of this side of the paper is preferably covered with opaque ink or the like as indicated at B in a manner to form a plurality of circles or targets C which, being exposed and coated with litmus, serve as individual test spots. A suitable portion of the strip, preferably the lower section D of the litmus side thereof, is devoted to indicia giving instructions for performing the test, for example, instructions to the effect that the user is to touch the tip of his tongue to one of the blue targets and then compare the latter with the color chart, hereinafter described, on the reverse side of the strip.

The untreated side of the strip shown in Fig. 2 is provided, preferably at the bottom thereof, with a color chart E which is divided into a plurality of sections E', E2, and E3 of different shades or color, which represent different degrees of acidity. The remainder of the untreated side of the strip is preferably devoted to printed matter F giving an explanation of the significance of the various stages of oral acidity represented by the test. The printed matter may also include

an advertisement or the like of the goods with which it is dispensed, if the device is thus distributed to the public.

In the color chart E the several colors E', E2 and E3 may consist either of actual litmus test solution as above described, acidified by measured quantities of acid; or, of ink reproductions of such colors applied as on a printing or lithographic press. In the preferred embodiment described herewith, the colors of the sections of the chart are as follows:

Section E'. Litmus test solution applied as above described, 10 cubic centimeters, to which has been added 4 cubic centimeters of 1% hydrochloric acid in water;

Section E2 consists of 10 cubic centimeters of test solution to which 8 cubic centimeters of 1% hydrochloric acid in water have been added;

Section E3 consists of 10 cubic centimeters of litmus solution, to which .2 cubic centimeter of hydrochloric acid, C. P., undiluted, has been added.

As a further feature of the device, a crease G may be provided transversely of the strip adjacent the central portion thereof whereby the treated side of the strip can be folded upon itself to protect the litmus spots or targets from exposure to strong light and fumes of acids or alkalis when the device is not in use.

In use, the person making the test touches the tip of his tongue to one of the blue litmus targets C on the inside of the strip whereby a discoloration is produced therein if acid is present in the saliva. The strip is now held between the forefinger and thumb and folded upon itself and the color chart E on the reverse side of the strip slid downward until it reaches the spot where the discoloration has been made. Then, by sliding the color chart laterally across the discoloration, a match of color can be made between the discolored target and one of the sections of the chart. The degree of acidity reflected by the test is thus determined and by reference to printed matter F', the user may ascertain its significance.

I have herein disclosed a preferred embodiment of the invention for illustrative purposes but it is to be understood that various changes and modifications can be made in the form chosen for illustration without departing from the spirit and

scope of the invention as defined in the appended claims. For example, indicators other than litmus may be employed, the color chart may consist of as many colors or shades as desired, and the formation of the test sheet may be varied considerably, all within the contemplation of my invention.

Having described my invention, I claim:

1. A device of the class described comprising a foldable strip having a delineated spot treated with a substance capable of changing color upon the application of acid thereto, and a color chart representing predetermined degrees of acidity so positioned on the strip as to be movable vertically and laterally across said spot upon folding of the strip.

2. A device of the class described comprising a foldable strip having a delineated spot treated with a substance capable of changing color upon the application of acid thereto, a color chart on the strip representing predetermined degrees of acidity, the relative positions of the spot and chart on the strip being such that the edges of the latter may be folded contiguous to the former while both are exposed to view, and indicia on the strip explaining the significance of the degrees of acidity represented by the chart.

3. A device for testing acidity which comprises an elongated flexible strip having a plurality of spaces on one side thereof treated with a substance susceptible to color change upon application of acid thereto, and a color chart representing predetermined degrees of acidity at one end of the opposite side of the strip, a transverse crease substantially centrally of the strip whereby the latter may be folded upon itself to protect the treated spaces from light, and indicia on said opposite side of the strip explaining the significance of the degrees of acidity represented by the chart.

4. A device of the class described comprising a foldable strip having a delineated spot treated with a substance capable of changing color upon the application of acid thereto, a color chart on the strip representing predetermined degrees of acidity, the relative positions of the spot and chart on the strip being such that one may be folded contiguous to the other while both are exposed to view.

ROBERT JOHN.