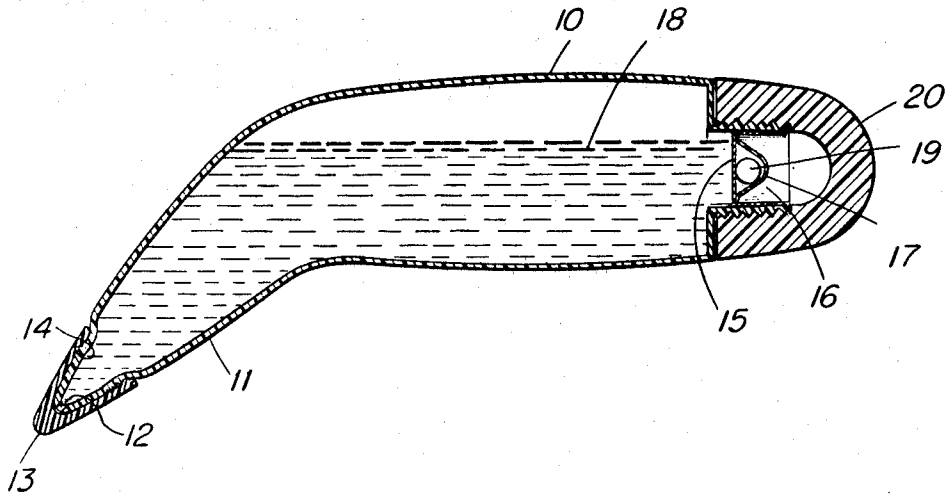
May 21, 1968 A. F. ACCETTA 3,384,542

COMPOSITION FOR ORAL INFLAMMATORY DISEASES COMPRISING HYDROGEN PEROXIDE AND CHROMIUM TRIOXIDE

Filed May 9, 1966

FIG. 1



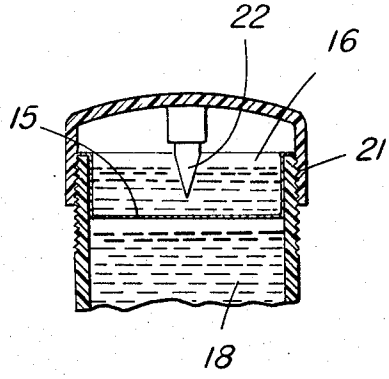


FIG. 2

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United States Patent Office 3,384,542 Patented May 21, 1968

3,384,542

COMPOSITION FOR ORAL INFLAMMATORY DISEASES COMPRISING HYDROGEN PEROXIDE AND CHROMIUM TRIOXIDE

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Filed May 9, 1966, Ser. No. 548,562
2 Claims. (Cl. 167—60)

ABSTRACT OF THE DISCLOSURE

Oral inflammatory diseases, such as gingivitis and pyorrhea, are treated by the oral application of a mixture of 3–10 weight percent hydrogen peroxide in aqueous solution and chromic acid in an amount, per fluid ounce of hydrogen peroxide solution, of 0.0025–0.1 g. of chromic acid on the dry basis.

This invention relates to the treatment of oral inflammations. It is more particularly concerned with oral treatments of inflamed tissues and a method for dispensing them.

As is well known in the art, gum inflammations, such as gingivitis and its more manifest forms, e.g., pyorrhea, are characterized by the presence of anaerobic bacteria in the gum pockets. Various proposals have been made to combat such inflammations. In the main, such proposed treatments require professional administration and leave little room for intermediate private, personal continuation of treatment. This occurs because, in general, the treating material should be freshly prepared and such treatment is not generally available to the average patient, even on a supplementary basis, outside of professional treatment. As will be readily recognized, supplementary treatment, complementing professional treatment, is a highly desired objective.

In accordance with the present invention there have been discovered freshly-prepared mixtures for the treatment of inflamed tissues, particularly in the gums, and a convenient means for non-professional administration thereof.

Accordingly, it is a broad object of this invention to provide a means for treating inflamed tissues. Another object is to provide for treatment of inflamed gum areas. A specific object is to provide a dispensing device for treating inflamed tissue and means for supplying therefrom freshly prepared treating mixtures. Other objects and advantages of this invention will become apparent to those skilled in the art from the following detailed description considered in conjunction with the drawings, in which:

FIGURE 1 is a sectional view of an embodiment of the dispenser and dispensing means of this invention; and

FIG. 2 is a sectional view of another embodiment of the dispenser and dispensing means of this invention.

In general, this invention provides a mixture for treating inflamed tissue that consists essentially of freshly admixed aqueous hydrogen peroxide solution and chromium trioxide; said hydrogen peroxide solution containing between about 3 and about 10 weight percent hydrogen peroxide and the amount of chromium trioxide being, per fluid ounce of hydrogen peroxide solution, between about 0.0025 g. and about 0.1 g. on the dry basis. It also provides a method for treating inflamed tissue that comprises applying the freshly prepared mixture to said tissue.

This invention further provides a dispensing unit for treating inflamed tissue that comprises a substantially main body portion, made of resilient material, which tapers and curves to a capped discharge opening, which main body portion contains a first oxygenating component; a puncturable waterproof barrier near the bottom end of said main body portion, which forms a compartment separate from said main body portion, which compartment contains a second oxygenating component; and an end seal for said compartment.

As indicated hereinbefore, the primary purpose of this invention is to provide treating mixture that can be used, when freshly prepared, in home gum treatment; and a feasible means for mixing and applying the treating mixture. In describing this invention use is made of the terms "first oxygenating component" to designate the materials to be admixed to form the oxygen-releasing treating mixture. It is not intended to imply that one is primary to the other. In many cases, both components can release oxygen when the two are combined. The "first" component in the main body portion is used in the greater amount, volume-wise.

The preferred treating mixture of this invention is a freshly prepared mixture of chromium trioxide and aqueous hydrogen peroxide solution. It has been proposed to use chromium trioxide solution for gum treatment, but due to its relatively high acidity, this material actually attacks healthy tissue in the mouth and burns it. Surprisingly when chromium trioxide is admixed with hydrogen peroxide solution, the resultant mixture when admixed with saliva and blood in the mouth is nearly neutral. This mixture can be made completely neutral or alkaline (up to pH of 9) by adding to the hydrogen peroxide solution a few drops of a saturated aqueous solution of sodium perborate or borax ($Na_2B_4O_7 \cdot 10H_2O$). It is significant to note that either mixture will not adversely affect the delicate, normal healthy surrounding tissues covering the tongue, the cheeks, the floor of the mouth, the palate, or the throat. Thus, when admixed in proper proportions this mixture is safe and effective for home gum treatment.

The chromium trioxide can be added in the form of an aqueous solution or in the solid form, as a tablet or crystals. In general, per fluid ounce (30 cc.) of 3–10% aqueous hydrogen peroxide solution, there will be used 0.25 to 1 cc. of an aqueous solution containing 1–10 weight percent (preferably 6–8) chromium trioxide. On a dry weight basis the amount of chromium trioxide used will be between 0.0025 g. and 0.1 g. Preferably, per 30 cc. of 3% hydrogen peroxide solution there will be used 0.03–0.04 g. chromium trioxide (dry weight basis) or 0.5 cc. of 6–8% solution. Preferably, but not necessarily, the hydrogen peroxide solution will contain a very small amount of a preservative, such as urea or acetanilid, and flavoring agent.

EXAMPLE

To 30 cc. 3% aqueous hydrogen peroxide solution (containing not over 1/10 grain acetanilid per fluid ounce) in a vial were added 6 drops (0.5 cc.) of an 8 weight percent aqueous solution of chromium trioxide. Within a minute, the resulting mixture darkened and vigorous evolution of nascent oxygen was observed. After about 2 minutes, the mixture was applied to inflamed gum tissue. This mixture can be applied either in a light spray or a light stream (liquid).

There are other mixtures which, when freshly prepared will produce nascent oxygen. Examples of such mixtures of solutions of chromium trioxide and potassium permanganate; of hydrogen peroxide and sodium chloride; and of chromic trioxide and sodium perborate. The mixture of this invention, such as shown in the example, however, is outstandingly effective for treatment of inflamed tissues. More significantly, it is completely safe for use in home treatment. For best results the user should have the tartar removed periodically by the dentist, so that the mixture can reach the affected areas more readily. Between dental visits, the mixture of this invention will be

applied by the user but no more than 2–3 times a week for a period of about six weeks. The above procedure of professional and home treatment should be repeated in about six months. Although mixing proportions have been based upon one-ounce (30 cc.) quantities, about ½ ounce is usually sufficient per home treatment.

When applied as aforedescribed, the mixture of this invention will relieve the inflammatory, swollen, and tender conditions found in the pericoronal areas around unerupted or partially erupted wisdom teeth. It will also relieve inflammatory, swollen, and tender areas which are the result of pressure and food accumulations found under fixed or stationary bridges or ill-fitting removable bridges or plates. Most importantly, after a few home treatments the gums and diseased tissues will begin to exhibit a more natural healthy color and bleeding will significantly decrease.

In an embodiment of this invention, as shown in FIG. 1, the dispensing unit comprises a substantially cylindrical main body **10** and a curved and tapering discharge element **11** having a discharge or dispensing opening **12**. In its assembled condition, the dispensing unit is sealed with a screw cap **13**, affixed to the unit by threads **14**.

Near the lower end, or the end removed from the discharge element **11**, the dispensing unit is provided with a waterproof barrier **15**, thus forming a compartment **16** in the lower end of the unit. This compartment **16** is sealed by means of a sealing element **17**. As shown in FIG. 1, the sealant **17** can be a compression-fitted resilient element or it can be affixed by a suitable adhesive that is adapted to re-sealing. The entire lower portion is protected by a screw cap **20**.

In operation, the unit (FIG. 1) contains, in the main body portion **18**, the first oxygenating component, such as hydrogen peroxide. In the other compartment **16** is a solid material or tablet **19** of the second oxygenating component, e.g. chromic oxide. The tablet **19** can be, if desired, encased in a protective plastic covering preferably coextensive with the waterproof carrier **15**. To administer the oral treatment, with the discharge end pointed down, screw cap **20** is removed. Then, pressure is exerted upon the tablet **19** to force it through the element **15** into the prime oxidizer in the main body portion **18** to admix therewith. The screw cap **20** is replaced and the other cap **13** is removed. When the action of the oxidizer components has taken place, usually 1–2 minutes, the freshly mixed mixture is applied to the inflamed areas via the opening **12**, by squeezing, i.e., compressing, the resilient main body **10** to force the active, freshly-prepared mixture out of the main body **18**.

In FIG. 2, there is shown a similar, but different, embodiment from that of FIG. 1. This embodiment is generally like that of FIG. 1, except for the compartment **16** and the sealant **17**. Thus only the lower end is shown in FIG. 2. In this case, the compartment contains, instead of the tablet **19**, a fluid, such as an aqueous solution of chromic trioxide. Also, as shown, the preferred form of sealant is a screw cap **20** affixed to the main body **10** by threads **21**, but which is not fully seated. The cap **20** is provided with a piercer **22**.

In the embodiment of FIG. 2, the operation is similar to that of FIG. 1. Thus, in an inverted position with discharge element **11** pointed downward, the cap **20** is completely seated, whereby the barrier **15** is pierced by the piercer **22** to permit admixture of the solution in compartment **16** with the first oxygenating component in compartment **18**. Then cap **13** is removed. After the fresh admixture is prepared, it is administered to inflamed areas via the opening **12**, by compression of the main body **10**.

Although the present invention has been described with preferred embodiments, it is to be understood that modifications and variations may be resorted to, without departing from the spirit and scope of this invention, as those skilled in the art will readily understand. Such variations and modifications are considered to be within the purview and scope of the appended claims.

What is claimed is:

1. A mixture for treating inflamed tissue that consists essentially of freshly admixed aqueous hydrogen peroxide solution and chromium trioxide; said hydrogen solution containing between about 3 and about 10 weight percent hydrogen peroxide and the amount of chromium trioxide being, per fluid ounce of hydrogen peroxide solution, between about 0.0025 g. and about 0.1 g. on the dry basis.

2. A method for treating imflamed tissue that comprises applying to said tissue a mixture described in claim **1**.

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RICHARD L. HUFF, *Primary Examiner.*