July 5, 1938. A. N. RUSSELL 2,122,920

DENTAL STICK

Filed Jan. 28, 1936

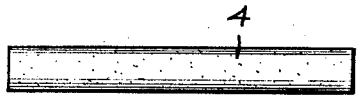


Fig. 1



Fig. 2

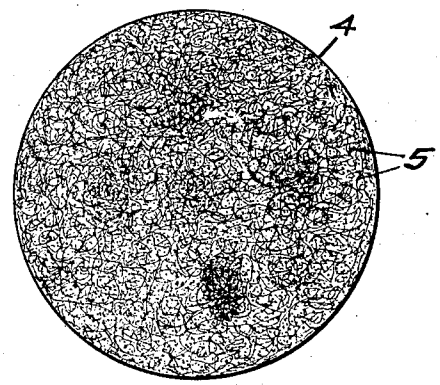


Fig. 3

INVENTOR.
Arthur N Russell
BY
G. Wright Arnold
ATTORNEY

Patented July 5, 1938

2,122,920

UNITED STATES PATENT OFFICE

2,122,920

DENTAL STICK

Arthur N. Russell, Seattle, Wash.

Application January 28, 1936, Serial No. 61,253

5 Claims. (Cl. 32—58)

My invention relates to the art of a dental polishing stick. More particularly, my invention relates to a composition of matter molded into the form of a stick or pencil to be applied to the teeth in the mouth, more particularly to front teeth. My invention relates to a composition comprising a cementitious ingredient, a polishing ingredient and comminuted fibrous buffing and binding ingredient—the buffing and binding ingredient functioning as a binder and carrier for the other ingredients and also as a buffing agent which is exposed at the active face of the stick to perform a buffing operation.

In removing the film and stains upon the natural teeth, porcelain and metal fillings, and artificial teeth, a dentist employs complex mechanical equipment which is not available to the layman for daily use.

It is a primary object of my invention to provide a polishing medium which may be employed by the layman in daily routine care of the teeth, whereby the said film or stain may be removed and the teeth polished, so that they have their natural luster, gloss and brilliance restored to even very unattractive and stained teeth.

A further primary object of my invention is to provide such polishing ingredients in a form which will not scratch or in any way injure or mar the enamel surfaces of the teeth or fillings which are to be treated and polished.

A further primary object is to provide such polishing means in a stick form which will have such degree of hardness as will enable it to maintain its stick form and at the same time such degree of softness as will not injure the teeth as above stated, and also be characterized by maintaining said degree of hardness or softness practically indefinitely, i. e., over a period of time such as a year or more as will permit its normal sale and consumption while still maintaining the substantial degree of hardness or softness.

The above mentioned general objects of my invention, together with others inherent in the same, are attained by the device illustrated in the following drawing, the same being preferred exemplary forms of embodiment of my invention, throughout which drawing like reference numerals indicate like parts:

Figure 1 is a view in elevation of a dental stick embodying my invention;

Fig. 2 is a view in end elevation of Figure 1; and

Fig. 3 is a greatly enlarged view of Fig. 2.

In the drawing a dental stick 4 is shown in Figure 1. This stick may be of any desired shape, such as cylindrical, as shown. In the enlarged fragmentary sectional view of Fig. 3, the comminuted fibrous asbestos 5, which serves as a buffer-binding ingredient, is illustrated.

In my invention I provide a dental stick characterized by having a fibrous ingredient, preferably comminuted asbestos, which will serve as a binder and carrier for the other ingredients of the stick and also as a buffing agent which is exposed at the active face of the stick to perform a buffing operation. The materials which actual experience and extensive experimentation and tests have shown and demonstrated as most reliable, efficient and practical for employment in the present invention are as follows: A cementitious material, such as magnesium oxide, plaster of Paris or the like; a polishing material, such as whiting, diatomaceous earth, zinc oxide, tin oxide, or the like; and comminuted buffing-carrier-binding material, such as comminuted asbestos, or other comminuted fibrous materials.

The function of the whiting, zinc oxide or tin oxide is primarily that of a polishing material and their use as such is well known in dentistry, and other polishing materials may be substituted therefor. The diatomaceous earth besides serving as a polishing agent serves in part as a buffing material.

The magnesium oxide functions, in my invention, primarily as a cementitious material. I preferably use this ingredient for said purpose because it may be employed to supply the necessary degree of hardness and at the same time has an alkaline or antiacid reaction in the mouth, which reaction aids in the cleaning and polishing. Other like substances having the same or similar characteristics could be substituted therefor. I have found that small quantities of plaster of Paris may be used as a cementitious material, however I preferably use magnesium oxide. Zinc oxide has the double function of acting partially as a cementitious ingredient, as well as a polishing agent.

The buffer-carrier-binding material, as asbestos, has most important functions in my invention. It functions (*a*) as a carrier or vehicle for the polishing material. The soft polishing powder must be supported, if it is to be applied efficiently to the teeth, and the asbestos serves as such carrier or vehicle; (*b*) it serves as a binder much after the character of hair in plaster, so that the stick has the necessary rigidity to maintain its form, so that the stick is, in other words, self-supporting and form retaining; and (*c*) it functions as a buffing agent. The asbestos is soft, fluffy, springy and pliant so that it not only holds

thereto the polishing material, but forms a pliant buffing medium capable of separating away from the stick, and the stick face readily conforms to depressions or irregularities in the surfaces on the teeth.

As the stick wears away, the comminuted asbestos is separated from the stick and permits new buffer means to supplant the pieces of asbestos when they become exhausted of their polishing ingredient, i. e., as the asbestos on the face of the stick gives up its polishing ingredient and wears away, new buffing means in the form of comminuted asbestos with fresh polishing ingredient is uncovered for continuing the polishing operation. The operation is somewhat that of an automatic feed, whereby fresh polishing ingredient and fresh buffing medium or agent is uncovered as the use continues. Also the wearing away and supplanting of the exhausted buffing means with fresh asbestos avoids an unsanitary condition which would otherwise develop on the stick.

Another property which should characterize said buffing agent is that of maintaining its original nature. It should not become spoiled or decomposed while in the stick and exposed to the air. Also it should be of a nature that it will be harmless when in the mouth. I find that the preferable fibrous material for use in my dental stick is comminuted asbestos.

If desired, flavoring substances such as orris, cloves, anise, wintergreen or the like, or coloring agents may be added. These of course would be non-essential ingredients.

If desired, a suitable abrasive, as flower of pumice, may be added for cleaning action. Such an abrasive is well known in the dental profession and is useful under proper circumstances. It is of course a non-essential ingredient. However, I aim primarily to provide an article which contributes the finishing operation in the treatment of the teeth. That is, primarily I assume that the teeth have been cleaned with the ordinary dentifrices previous to the treatment with the stick embodying my invention. Professional prophylaxis involves first cleaning the teeth and then polishing them. I aim primarily to provide for the patient his own polishing means. Also sodium perborate may be added so that the usual properties of said ingredient may be added to the stick, including antiseptic and bleaching properties, a slight effervescence and utility in treating the teeth and gums. Such element is of course non-essential and may be added without adversely affecting or interfering with the function of the essential ingredients of the stick. This effervescence, developed particularly when the mouth is rinsed after applying the stick to the teeth, facilitates the removal of particles from the teeth, including the stick ingredients still adhering to the teeth.

A formula for the ingredients which I have found to give satisfactory results is:

About 1.25 pounds of whiting
About .0625 to .0312 pound magnesium oxide (amount used depending on hardness desired)
About .25 pound pure asbestos fiber. The asbestos fiber may be the grade commonly known on the market as 47A. This grade is Arizona fiber, practically iron free.

The above named ingredients are all in finely or comminuted form and are first thoroughly intermixed in a dry state. Then a quantity of water is added to the mixture, sufficient to form a putty-like paste of such consistency as to permit a thorough intermixing of the ingredients. The amount of water initially used need not be accurately determined, as any excess may be readily expressed. I have found that the above mixture requires approximately 1.3 pounds of water. Then the mixture may be molded into a polishing means of the desired shape, such as a plurality of sticks, and allowed to set. After the product has set and dried, each stick may be provided with a paper shield, though the stick in itself is self supporting or form retaining. The paper shield renders the article more sanitary, as well as protecting it against shocks.

Another formula which I have found to give satisfactory results is:

About .625 pound of whiting
About .625 pound of diatomaceous earth
About .0625 to .0312 pound magnesium oxide (amount used depending on hardness desired)
About .25 pound of asbestos fiber

This formula is to be mixed and molded as in the first formula, and I find that about the same quantity of water as above set forth gives the desired consistency.

The above formulae exemplify and illustrate my invention. Considerable change may be made in the proportions of the ingredients without losing the substantial benefits of my invention. However, the above set forth the preferred formulae according to the tests which I have made to date. Obviously, a change in the proportion of the ingredients, other than the cementitious ingredient results in a relative change in the functional results of these ingredients. Change in the cementitious ingredient changes the relative hardness or softness of the resulting stick. A change in the proportion of the ingredients may require some alteration in the quantity of water to obtain the proper consistency. Any such change is well within the knowledge of one skilled in the art.

This is a continuation-in-part of my now pending application, Serial No. 681,128, Filed July 19, 1933, for "Composition of matter", and is to be substituted therefor, with the express understanding that the invention disclosed in said copending application is in nowise abandoned hereby.

I claim:

1. A dental polishing stick comprising a mixture of a cementitious ingredient, a polishing ingredient and comminuted asbestos molded into a rigid self supporting form, the asbestos being in a form sufficiently comminuted to act as a binder and carrier for the other ingredients and also as a buffing agent, which is exposed at the active face of the stick to perform a buffing operation.

2. A dental polishing stick comprising a mixture of magnesia, whiting, and comminuted asbestos molded into a rigid self-supporting form, the asbestos being in a form sufficiently comminuted to act as a binder and carrier for the other ingredients and also as a buffing agent, which is exposed at the active face of the stick to perform a buffing operation.

3. A dental polishing stick comprising a mixture of approximately .0625 to .0312 part of magnesium oxide, 1.25 parts of whiting, .25 part of comminuted asbestos molded into a rigid self-supporting form, the asbestos being in a form

sufficiently comminuted to act as a binder and carrier for the other ingredients and also as a buffing agent, which is exposed at the active face of the stick to perform a buffing operation.

4. A dental polishing stick comprising a mixture of approximately .625 part of whiting, .625 part of diatomaceous earth, .0625 to .0312 part of magnesium oxide, .25 part of comminuted asbestos molded into a rigid self-supporting form, the asbestos being in a form sufficiently comminuted to act as a binder and carrier for the other ingredients and also as a buffing agent, which is exposed at the active face of the stick to perform a buffing operation.

5. A dental polishing stick comprising a mixture of a cementitious ingredient, a polishing ingredient, comminuted fibrous material molded into a rigid self supporting form, the fibrous material being in a form sufficiently comminuted to act as a binder and carrier for the other ingredients and also as a buffing agent, which is exposed at the active face of the stick to perform a buffing operation, and sodium perborate.

ARTHUR N. RUSSELL.