

UNITED STATES PATENT OFFICE

2,216,816

DENTIFRICE

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No Drawing. Application June 13, 1938,
Serial No. 213,518

3 Claims. (Cl. 167-93)

The present invention relates to dentifrices and the like, and is an improvement on the invention disclosed and claimed in Patent No. 2,019,142, granted in my name October 29, 1935, and is a continuation in part of application Serial No. 142,198, filed in my name May 12, 1937.

Among the objects of the invention is to provide a novel dentifrice which contains a novel combination or composition of substances whereby the dentifrice has a high degree of polishing and cleansing action with no deleterious effect whatsoever on the enamel or cementum of the teeth; also has the property of more readily "slipping" over the surface of the teeth when applying the dentifrice thereto than heretofore; has, moreover, an unforeseen higher polishing power than the individual components would have if used separately; has, furthermore, the property of preventing syneresis ("bleeding") in the case when the dentifrice is in the form of a paste; and has the characteristic of eliminating the tendency of packing when the dentifrice is in the form of a powder.

Other objects, advantages, capabilities, properties, characteristics features and the like are comprehended by the invention as will later appear and as are inherently possessed by the invention.

More specifically, my novel dentifrice comprises a combination or composition of insoluble sodium metaphosphate and a calcium salt. The great majority of available calcium salts will perform one or all of the functions herein disclosed. As an example of a calcium compound which will fail to perform at least one of the functions disclosed, calcium oxalate may be cited. The many calcium compounds which may be used with more or less satisfaction may be divided into two classes, namely, soluble and insoluble. It is preferable to choose an insoluble calcium compound since in this way the insoluble calcium compound itself serves as a polishing agent, especially in the case of a product in the form of a paste, where a soluble calcium compound might be more or less in solution. It is to be understood, however, that solubility in water does not predetermine solubility in the liquid phase of a paste composition, and that water soluble calcium compounds may serve all of the functions outlined even though the composition be in paste form.

It is understood that some calcium compounds such as calcium oxalate cited above, may be undesirable in that they may be poisonous, may have a disagreeable taste or odor or may have color characteristics which are undesirable. The

following specific calcium compounds are illustrative of those which have been found to successfully fulfill the important functions outlined: mono, di and tri-calcium phosphates, calcium sulphate, calcium carbonate, calcium citrate, calcium lactate, calcium nitrate, calcium glycerophosphate, calcium benzoate, calcium chloride, calcium oxide, calcium hydroxide and calcium gluconate.

The selection of a specific calcium compound or of a mixture of specific calcium compounds to fulfill the functions set forth will rely more upon the inherent normal properties of these products than upon the specific functions described herein, since with such a wide variety of compounds, each of which can fulfill novel functions, the secondary characteristics will offer a basis of preference depending upon the exact type of product which is desired. I prefer to consider tri-calcium phosphate as an example of one of the most practicable calcium salts, and further recommend the choice of a calcium salt which of itself has heretofore been proven satisfactory and desirable as a dentifrice ingredient. The choice of a calcium compound to fulfill the specific purposes set forth should not, however, be limited either to a calcium compound previously used as a dentifrice ingredient, to a calcium compound in the list cited, or even to those calcium compounds at present known, since the evidence is strong that heretofore undeveloped calcium compounds may serve equally well.

When making a paste of insoluble sodium metaphosphate as a polishing agent alone a cream is produced which is translucent. The tooth paste science, however, has established that the paste should be opaquely white. By my invention I produce a dental cream in which I use, as a polishing agent, a combination or composition of insoluble sodium metaphosphate and a calcium salt, such cream having the desired opacity and color.

Ground insoluble sodium metaphosphate because of the shape and size of its particles, binds and is difficult to move, as through the ducts of the manufacturing devices and also as through the outlet of the tooth paste tube when the paste is subjected to pressure. In other words, the resistance to strain is very high. To make the dentifrice in the most sanitary way it is necessary it be not touched by nor handled with the hands of the workers. It should be mixed and manipulated by modern machinery and pumps and fed through pipes or ducts to the filling machines