

# United States Patent

[11] 3,600,807

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[45] Patented **Aug. 24, 1971**  
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[56]

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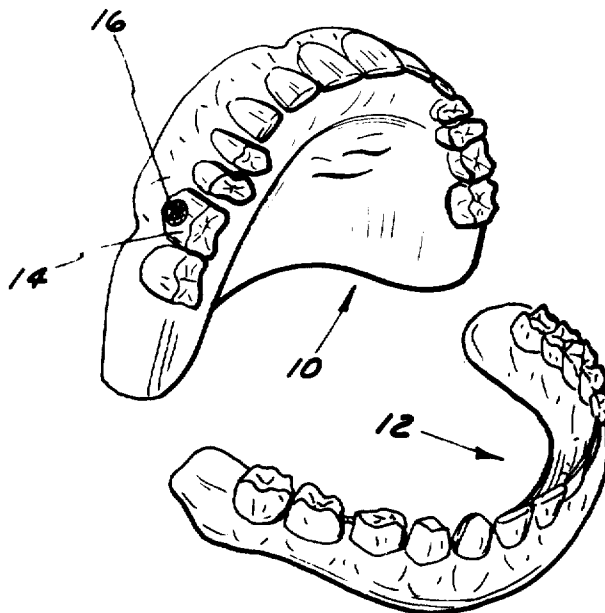
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[54] **ODORIFEROUS DENTAL APPARATUS**  
9 Claims, 11 Drawing Figs.

[52] U.S. Cl. .... 32/2  
[51] Int. Cl. .... A61c 13/00  
[50] Field of Search .... 128/260;  
32/1, 2, 239/76

**ABSTRACT:** An oral apparatus for making the mouth pleasantly tasteful and exhaled air aromatically pleasant. The apparatus is adapted to be provided in an artificial tooth or other dental appliance and includes an opening therein filled with either absorbent fibrous material saturated with an air-refreshant fluid or a removable insert for containing such fluid.



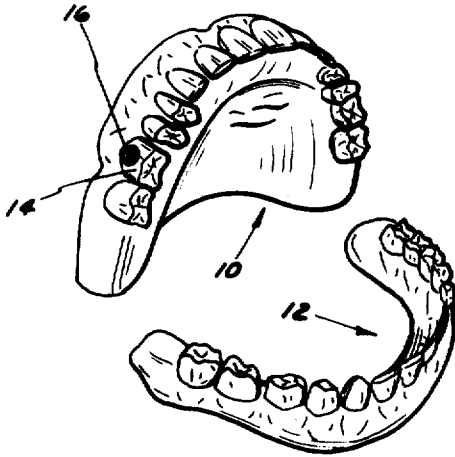


FIG-1

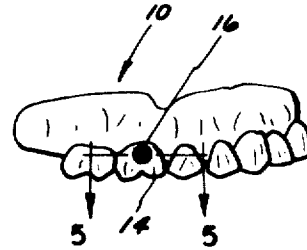


FIG-2

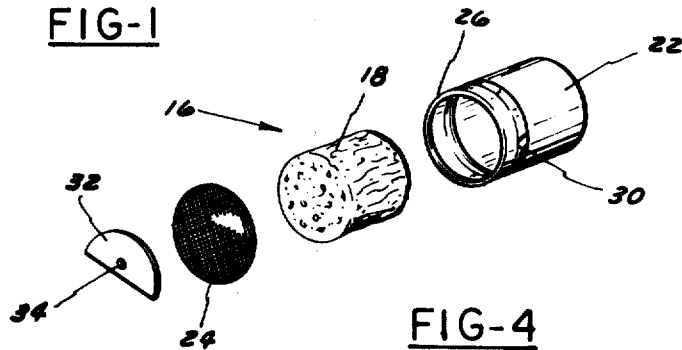


FIG-4

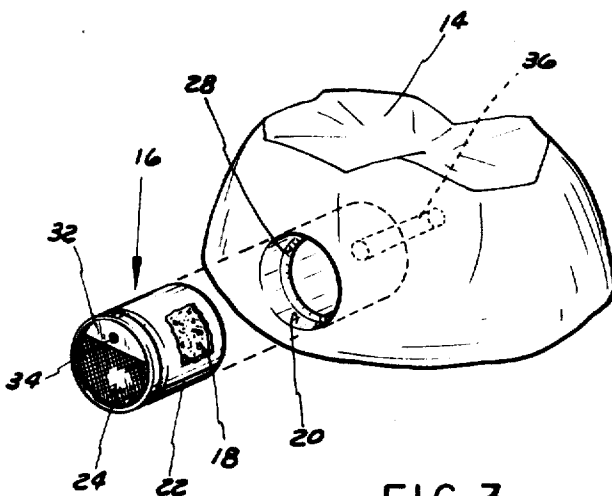


FIG-3

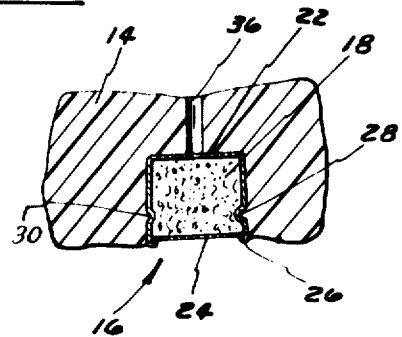


FIG-5

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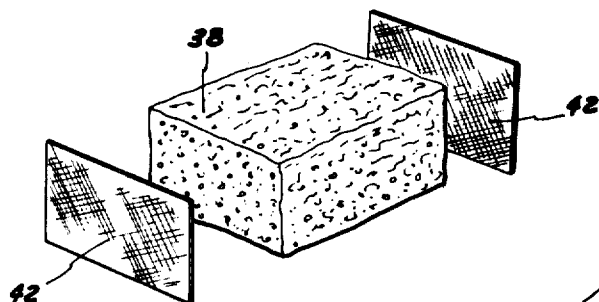


FIG-6

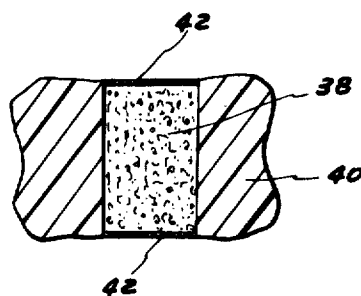


FIG-7

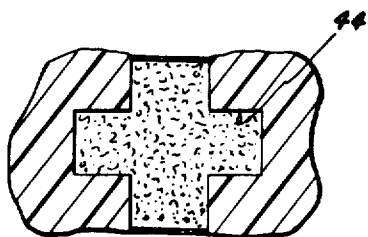


FIG-8

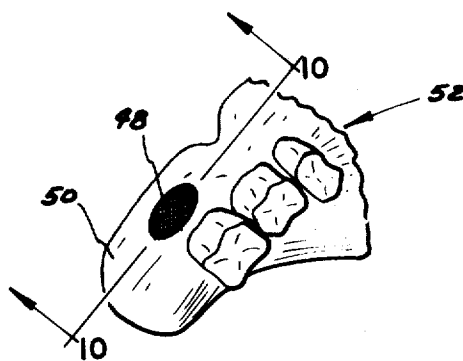


FIG-9

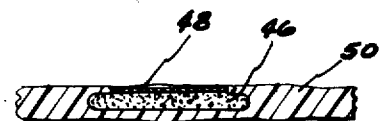


FIG-10

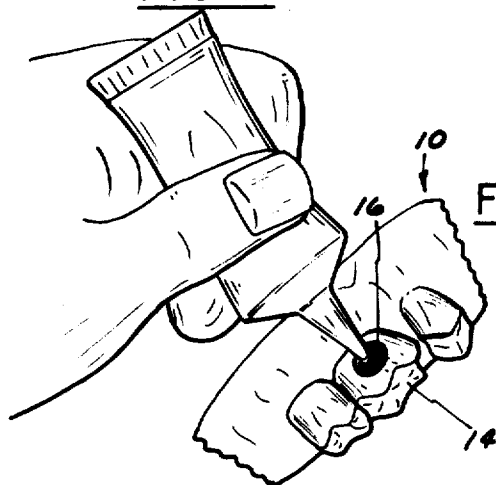


FIG-11

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## ODORIFEROUS DENTAL APPARATUS

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

This invention relates to an oral apparatus for making the air breathed by a person aromatically pleasant when exhaled and, in particular, to a false tooth having a chamber filled with fibrous material saturated with fluids for producing pleasant aromas.

#### 2. Description Of The Prior Art

The unpleasantness of "bad breath" are all too well known by both young and old. Gargling with mouthwash and the brushing of one's teeth to produce more pleasant breath unfortunately produces a short-lived result. The carrying of special solutions and lozenges advertised to make one's breath "sweet" for on-the-go use, often proves to be ineffective since frequently people need to be reminded that they have need to use such aids. In addition, carrying such aids is often cumbersome. Over two-thirds of the population of the United States of America use dental appliances of one sort or the other. Because such appliances are difficult to keep clean their users often have a problem of maintaining pleasant breath. Most of these devices are ideally adaptable for housing and releasing fluids for producing pleasant breath on a sustained basis for an extraordinary long-lasting effect.

### SUMMARY OF THE INVENTION

Accordingly, there is need for a breath-freshening apparatus for use by people wearing temporary or permanent dental appliances. The present invention provides such an apparatus. The present apparatus is highly effective in reducing unpleasant odors emanating from the mouth and is incorporated as a part of a dental appliance, and is concealed from view when in use. In particular an example of an apparatus in accordance with the principles of the present invention is an insert cup-shaped container having an aperture covered by a porous network such as a screen or the like to retain within the container a fibrous or filamentary material or the like, highly saturated with a fluid having aromatic-producing results. The fluid, generally comprising a liquid, including clove, peppermint or a like pleasant tasting oil, either undergoes a process of vaporescence to thereby produce a sweet-smelling vapor which mixes with the air in the oral cavity or the fluid becomes mixed with the natural body fluids produced within the mouth to thereby produce sweet-smelling breath. It will be appreciated that the apparatus need not be a separate unit and that structure in accordance with the invention can be integrally included in a false tooth or any other dental appliance providing sufficient surface and depth.

### DESCRIPTION OF THE DRAWINGS

The description refers to the accompanying drawings in which like reference characters refer to like parts throughout the several views, and in which:

FIG. 1 is a perspective view of a set of dentures illustrating an example of an embodiment in accordance with the principles of the present invention;

FIG. 2 is a lateral view of the embodiment of the uppers of a set of dentures shown in FIG. 1;

FIG. 3 is a perspective cutaway view of the embodiment of FIG. 1 exploded from an artificial tooth;

FIG. 4 is an exploded perspective view of the embodiment illustrated in FIG. 3;

FIG. 5 is a cross-sectional view of the embodiment of FIG. 1 along line 5—5 of FIG. 2;

FIG. 6 is an exploded view of another example of an embodiment in accordance with the principles of the present invention;

FIG. 7 is a cross-sectional view of a tooth incorporating the example embodiment illustrated in FIG. 6;

FIG. 8 is a cross-sectional view of a tooth incorporating a modified form of the example embodiment illustrated in FIG. 6;

FIG. 9 is a view of still another example of an embodiment in accordance with the principles of the present invention;

FIG. 10 is a cross-sectional view of the embodiment of FIG. 9 along line 10—10 thereof; and

FIG. 11 is a partial perspective view of the manner of applying aromatic fluid to the embodiment illustrated in FIG. 1.

### DESCRIPTION OF THE EXAMPLE EMBODIMENTS

Now referring to the drawings, and in particular to FIG. 1, there is illustrated a full set of dentures generally shown as uppers 10 and lowers 12. In the uppers 10, in addition to other artificial teeth, there is an upper right second molar 14 housing an odoriferous dental insert 16, an example embodiment of the disclosed invention. The insert 16 extends from the buccal surface of the molar 14 inwardly to a predetermined depth. FIG. 2 best shows the buccal surface with the insert 16. The insert 16 as best seen in FIG. 3, 4 and 5, in one of its most simple forms, would comprise only a fibrous or filamentary substance 18, preferably preformed, for insertion into a chamber cavity 20 preferably in any lateral side of the artificial tooth 14. The fiber substance 18 is most convenient for handling, when it is contained within a casing 22 and held therein in any suitable manner but preferably by a porous membrane 24, such as a screen or the like. It is preferred that the casing 22 is of cylindrical shape and is formed of a noncorrosive material such as stainless steel, plastic, or the like. The fibrous substance 18 is shaped to firmly engage the inner walls of the casing 22 when placed therein during manufacture of the insert 16. Suitable materials for forming the fibrous substance are myriad and include: Sterilized cotton batting, paper, plastic and metal such as a stainless steel wool. The porous membrane or screen 24 likewise is formed of any suitable material, such as plastic, stainless steel or a gold composition.

Manufacturing the insert 16 as one complete unit involves inserting the fibrous substance 18 into the casing 22, placing the screen 24 thereover and rolling a lip edge 26, of the casing 22 over, as best seen in FIG. 5, to thereby physically capture and integrally unite the assembled elements.

A cylindrically shaped insert 16 is convenient to handle and readily insertable into the opening 20 in the artificial tooth 14. It will be appreciated that the opening 20 need not be in a tooth, and that any dental appliance which is of appropriate size and configuration to accommodate such an insert 16 or its equivalent is usable. The opening 20 wherever located, is sized to accommodate the insert 16 in a nearly press fit fashion. An optional locking arrangement to secure the insert 16 in the chamber 20 comprises a raised circumferentially extending ridge 28 molded or formed as a part of the cylindrical wall of the chamber 20, a selected distance from the chamber opening. Accordingly, the casing 22 has a receiving channel 30 circumferentially extending around the exterior of the cylindrical surface of the casing 22. The channel 30 comprises a reduced diameter portion extending inwardly from the outer surface of the cylindrical casing 22 and is spaced a distance from the lip edge 26 substantially equal to the distance the ridge 28 is from the chamber opening.

One convenience of the insert 16 lies in the fact that once its usefulness is spent, i.e. the air refreshant contained therein is expended, it can be discarded and replaced in a very simple operation. The insert 16 is easily snapped into the chamber under slight force exerted by a finger. It is well appreciated that numerous structural configurations are possible to facilitate extraction of the insert 16. The insert 16 itself can optionally include a moon-shaped disc 32 formed of stainless steel, plastic or like material having an aperture 34 extending therethrough for engagement with any acceptable extraction tool in the shape of a hook (not shown). It will be appreciated that the moon-shaped disc 32 is inserted over the screen 24 before the edge lip 26 is rolled over during the manufacturing

process and it in turn is captured as best seen in FIG. 3. If the screen 24 mesh gauge is of appropriate size, the screen itself can be engaged by an extraction tool and the moon disc 32 is not required. Equal convenience in extraction is accomplished by incorporating preferably a concentrically located port 36 in the tooth 14 extending from the bottom of the chamber 20 to the far lateral surface of the tooth 14. It is easily appreciated that any convenient rodlike probe (not shown) may be inserted into the port 36 to engage the backside of the casing 22 and that slight force applied thereto will pop the insert 16 out of the chamber 20. As a precautionary measure for inadvertent insertion of the screened end of the insert 16 into the chamber 22, a hole (not shown) punched in the backside of the casing 22 can be engaged by a hooked extraction tool to pull the insert free.

As hereinbefore mentioned, the shape and size of the apparatus can be myriad and is only limited by the dental appliance carrying the apparatus. In FIG. 6, there is illustrated a rectangular fibrous filler 38. FIG. 7 illustrates the incorporation of the fibrous filler 38 in a tooth 40. Retaining the filler 38 within the tooth 40 are screens 42 coextensive with the ends of the filler 38 and disposed at the opposite lateral generally vertical sides of the tooth 40. The structural arrangement illustrated permits, as in the case of the insert 16, the normal body fluids to traverse inwardly and the air-refreshant fluids absorbed in the fibrous filler 38 to traverse outwardly and to accomplish mixing of the saliva and of the fluids in the oral cavity. The screens 42 are affixed to the lateral surfaces of the tooth 40 by any suitable dental cement such as an acrylic mixture, a number of which are well known in the field of dentistry.

FIG. 8 illustrates an alternate chamber 44 of cross-shape which potentially has greater capacity for absorbing air-refreshant liquids. It will be appreciated that the methods of retaining the filler in the cross-shaped chamber 44 illustrated in FIG. 8 are very similar to those hereinabove disclosed for the embodiment illustrated in FIG. 7. A chamber having two screened surfaces offers the further advantage that the user is able to periodically more readily flush out or purge the chamber since liquid flow through is possible.

FIGS. 9 and 10 further illustrate alternate constructions and emphasize the myriad locations for the apparatus. The cross-sectional view of FIG. 10 illustrates a fibrous material 46 covered by a screen 48 which are included as an integral part of a synthetic resin denture base 50 of a set of dentures 52.

The chamber into which a removable insert is disposed or in which a fibrous filler is permanently located can be formed into a new or existing prosthodontic appliances. An existing appliance can be modified to include either an insert or a fixed permanent filter simply through the use of an appropriate dental drill to hollow out or form a chamber to accommodate the selected apparatus. If the apparatus is of the permanent type, it is necessary to periodically, preferably on a daily basis, replenish the air-refreshant liquid in the filler. The user would simply remove the dental appliance, if possible, and drop or squirt into the fibrous filler through the porous screen the air-refreshant liquid until the filler is saturated, in a manner as

best seen in FIG. 11. If the dental appliance is not removable, it will be appreciated that the user can incline his head and/or gently part his lips to expose the screen of the apparatus and to squirt or drop into the filler a suitable amount of air-refreshant fluid.

The embodiments illustrated in FIG. 1—11 have been for use in the artificial teeth of the denture, preferably the molars, or in the synthetic resin denture base, where an appropriate thickness is available. It is well appreciated that any oral prosthetic appliance can be made or modified to include an embodiment according to the principles of the present invention. Included as some of the possible appliances or structures in which the apparatus may be embodied are pontics, restorations including fillings, inlays, partial dentures, bridges, crowns, of suitable size, and for that matter as a coating over any of the devices mentioned or their kind. It should be recognized that the fluids used need not be limited to the kind which produce pleasant breath or mouth taste. It is quite possible that the device can be filled with other fluids or delayed action solids, particularly those used in the medical profession, and could include such liquids as cough syrups or those having antiseptic properties.

Having thus described the invention by disclosing illustrative examples of practical embodiments, I claim:

1. For use in a dental prosthesis disposed in an oral cavity, said prosthesis being provided with a chamber having at least one opening extending to the outside; an aromatic-substance-storing device for insertion within said chamber comprising:

a filler material disposed within and substantially filling said chamber and saturated with said aromatic substance;

means disposed across said opening of said chamber to retain said filler material within said chamber;

said means being perforated to permit mixing of said aromatic substance with the body fluid present in said oral cavity.

2. The device as defined in claim 1 in which said perforated means permits evaporation of said aromatic substance in said chamber to mix with the air present in said oral cavity.

3. The device as defined in claim 1 in which said dental prosthesis comprises an artificial gum portion having a least one false tooth attached thereto, and said chamber being provided in said false tooth.

4. The device as defined in claim 1 in which said dental prosthesis comprises an artificial gum portion, said chamber being provided in said artificial gum portion.

5. The device as defined in claim 1 said aromatic substance being a fluid.

6. The device as defined in claim 1 said aromatic substance being a soluble solid.

7. The device as defined in claim 1 in which said perforated means comprises a fine mesh screen.

8. The device as defined in claim 1 and including a cylindrical insert containing said filler and means carried by said insert for retaining said insert in place.

9. The device as defined in claim 8 and in which said perforated member is clamped to one end of said insert.

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