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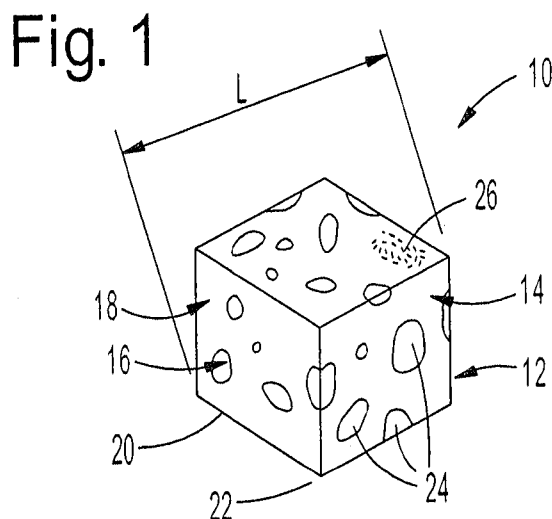
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(57) **Abstract:** A single use flexible disposable oral device, which is operated either by the tongue or by a chewing action, for cleaning the entire mouth cavity. The oral device contains a dentifrice and is made of a spongy material. It is formed as a cube having faces and is provided with voids at its external envelope. The edges and vertexes of the external envelope may be harder than the faces and an internal core of the cube. The oral device is contained within a package that may be flat and may contain flushing liquid.



## MOUTH CLEANER

5

### FIELD OF THE INVENTION

The present invention relates to the field of mouth and dental hygiene,  
10 and more particularly to the field of disposable devices that may be put in the  
mouth for cleaning the teeth and entire mouth cavity.

### BACKGROUND OF THE INVENTION

Devices for handling mouth and dental hygiene are known. Typically, a  
15 toothbrush is used in conjunction with some kind of a dentifrice. The  
toothbrushes vary in size, shape and function. Some of the toothbrushes are  
designed such that the bristles are formed with a concave shape in order to  
increase the contact surface with the teeth being brushed.

Since it is also important to reach the space between the teeth, whether  
20 between the incisors, the canines, or the premolars, some toothbrushes provide  
a group of bristles that are somewhat longer in order to enable better  
accessibility to the hard-to-reach spaces between the teeth. In other cases, a  
dental floss is used in order to remove food residuals from the spaces between  
the teeth.

25 These days it is widely accepted that most of the bacteria that are  
affecting the health of the teeth and cause bad smell of the oral cavity are  
accumulating not only on the teeth and therebetween but also on the tongue.  
For that reason, many toothbrush manufacturers provide the toothbrush head  
with projecting ribs, located opposite the bristles, which help to rub and clean  
30 the tongue.

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In order to brush the teeth, one has to get a toothbrush, open a toothpaste tube, apply a certain amount of toothpaste on the bristles of the toothbrush, close the toothpaste tube, and then brush the teeth for several minutes, including the internal and external sides of the superior dental arch and of the inferior dental arch. Upon completing the rubbing, including the tongue as previously mentioned, the toothpaste, being in a foam form by now, is spatting away from the mouth and then the mouth has to be thoroughly washed by means of water that are separately taken by the user.

Since this task is sometimes difficult to accomplish and since sometimes water is not available at the end of the tooth brushing, several appliances were developed in order to ease the task of tooth brushing.

Such an appliance is shown in US2008/0280251 A1 to Gallagher. The appliance disclosed in '251 is an oral appliance designed similarly to a mouth guard, in that it has two inverted channels in which the teeth are positioned when it is placed into the mouth. In its completed design it provides the user with the ability to brush all three exposed surfaces of the teeth of the upper and lower bite, the gingival margin, and the surface of the tongue.

The appliance of '251 suffers from several disadvantages: (a) it may not fit properly into some different mouth and teeth shapes. (b) it may not fit to every mouth and teeth size. (c) in some cases, the shape and size of the dental arches may cause a considerable friction between the teeth and the appliance, a fact that may cause discomfort when using the appliance, or even cancellation of use in extreme cases when the dental arches are locked within the appliance. (d) the appliance is too large therefore causing an unease feeling during use. (e) the appliance is too complex and therefore too expensive for a single use purpose. (f) the appliance is too large to be comfortably carried within a pocket of a shirt or of pants.

It is the object of the present invention to provide a dental device that significantly reduces or overcomes the aforementioned disadvantages.

It is a further object of the present invention to provide a dental device

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that will fit to different mouth and teeth shapes.

It is still a further object of the present invention to provide a dental device that will fit to different mouth and teeth sizes.

It is still yet a further object of the present invention to provide a dental  
5 device that has small volume and can be easily carried.

It is also a further object of the present invention to provide a dental device that is disposable and cheap.

It is another object of the present invention to provide a disposable dental kit that may be used to clean the teeth and to freshen up the breath  
10 without necessity of a toothbrush or availability of water source.

It is still yet another object of the present invention to provide a disposable dental kit that is efficient, easy to use, cheap, disposable, water soluble and bio-degradable.

It is still further another object of the present invention to provide a  
15 dental device that may first clean the mouth cavity and then can be eaten.

### **SUMMARY OF THE INVENTION**

In accordance with the present invention there is provided a single use flexible disposable oral device, which is operated either by the tongue or by a  
20 chewing action, for cleaning the entire mouth cavity.

If desired, the oral device comprises an external envelope and an internal core,

the external envelope comprises faces having edges and vertexes, and  
the oral device being non-homogenous, and the vertexes are  
25 harder than the faces and the internal core.

Further if desired, the edges are harder than the faces and the internal core.

Advantageously, the oral device contains a dentifrice.

Typically, the oral device is made of a spongy material.

30 If desired, the oral device is made of algae.

Further if desired, the oral device is water soluble.

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Still further if desired, the oral device is bio degradable.

In some embodiments, the oral device is in a form of a cube.

Advantageously, an external envelope of the oral device is provided with voids.

5 Typically, the oral device is contained within a package.

According to some embodiments, the package is flat.

If desired, the oral device is contained within an all-inclusive package.

In some embodiments, the all-inclusive package is provided with at least two package portions;

10 a first package portion contains therein the oral device, and  
a second package portion contains therein flushing liquid.

If desired, the all-inclusive package comprises at least two rigid compartments;

at least a first compartment comprises therein the oral device, and

15 at least a second compartment comprises therein flushing liquid.

Generally, the oral device forms a convex body.

Typically, in an un-squeezed form of the oral device, a maximal external dimension of the oral device is in the range of 5 mm to 50 mm.

20 In some cases, in an un-squeezed form of the oral device, a maximal  
external dimension of the oral device is in the range of 10 mm to 30 mm.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

For a better understanding of the present invention and to show how the same may be carried out in practice, reference will now be made to the  
25 accompanying drawings, in which:

**Fig. 1** is a perspective view of a first embodiment of an oral device according to the present invention;

**Fig. 2** is a perspective view of a package of the oral device of Fig. 1 wrapped in a bulky form;

30 **Fig. 3** is a plan view of the package of Fig. 2;

**Fig. 4** is a side view of the package of Fig. 2;

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**Fig. 5** is a perspective view of a package of the oral device of Fig. 1 wrapped in a flat form;

**Fig. 6** is a plan view of the package of Fig. 5;

**Fig. 7** is a side view of the package of Fig. 5;

5 **Fig. 8** is a perspective view of an all-inclusive package according to the present invention;

**Fig. 9** is a plan view of the all-inclusive package of Fig. 8;

**Fig. 10** is a side view of the all-inclusive package of Fig. 8; and

10 **Fig. 11** is a perspective view of a rigid all-inclusive package according to the present invention.

## DESCRIPTION OF PREFERRED EMBODIMENTS

Attention is first drawn to Fig. 1 that shows an oral device **10** according to the present invention. As shown, the oral device **10** comprises a sponge or a gauze in a form of a cube **12**. In some embodiments, the cube **12** is homogenous in structure (however, in some embodiments as explained below, the cube is non-homogenous) and comprises an external envelope **14** and an internal core **16**. The envelope **14** comprises six faces **18** that are perpendicular to each other. Each two faces **18** meet at an edge **20**. Each end of an edge **20** forms a vertex **22** of the cube **12**.

In the shown embodiment, the oral device **10** forms a perfect convex body. In other embodiments (not shown), when the external surface of the oral device is formed with protruding bulges or deep grooves or slots, it is still remains a generally convex body. In still other embodiments (not shown), when the external surface of the oral device is formed with relatively large protruding arms, in order to enable better penetration into hard-to-reach spaces, then, in those cases, the external surface is not considered as a convex body.

Typically, a maximal external dimension **L** of the cube **12** in an unsqueezed position is between 5 mm to 50 mm. In most common embodiments, 30 the maximal external dimension **L** is between 10 mm to 30 mm.

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The cube **12** is airy by means of voids **24** formed within the internal core **16** of the cube **12**. Some of the voids **24** open into the external envelope **14**. In most of the embodiments, the cube **12** is fluffy, however, it may also be compressed to a desired degree.

5 The cube **12** is impregnated with a given quantity of a dentifrice **26** (shown as dots in Fig. 1). The dentifrice **26** may be evenly spread all along the cube **12**, or, it may be applied only to given portions of the cube **12**. The dentifrice **26** is typically in the form of toothpaste or mouthwash. The dentifrice **26** may have various properties as known in the art, for example,  
10 anti-bacterial, anti-inflammatory, antiseptic, cleanser, whitener, shiner, deodorizer and the like.

According to a first embodiment of the present invention, the oral device **10** is packed within a sealed package **28**. In some cases, the package **28** is wrapped around the oral device **10** such that the cube **12** remains substantially  
15 unsqueezed. In that case, the package **28** may have a "bulky" look and be a bulky package **30**, as seen in Figs. 2 to 4. In other cases, the package **28** is wrapped around the oral device **10** such that the package **28** remains substantially flat, as seen in Figs. 5 to 7. In which case, the cube **12** within the  
20 package **28** becomes somewhat flattened or even completely flat and the package **28** being a flat package **32**.

As seen in Figs. 2 to 7, the package **28** comprises an upper surface **34**, a lower surface **36**, and sealing line **38** therebetween. The sealing line **38** is formed from a right sealing line **40** and a left sealing line **42** bounded between  
25 a front sealing line **44** and a rear sealing line **46**.

As best seen in Figs. 2, 3, 5 and 6, the package **28** comprises, adjacent the front sealing line **44**, a tearing line **48**, extending between the right sealing line **40** and the left sealing line **42**. The tearing line **48** is provided, at one or two ends thereof, with a notch **50** for easing the beginning of the tearing action  
30 when required. The package **28** comprises two package portions, namely, a

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front package portion **52**, forward to the tearing line **48**, and a rear package portion **54**, rearward to the tearing line **48**.

It should be noted that directional terms appearing throughout the specification and claims, e.g. "forward", "rear", "upper", "lower" etc., are used  
5 as terms of convenience to distinguish the location of various surfaces relative to each other. These terms are defined with reference to the figures, however, they are used for illustrative purposes only, and are not intended to limit the scope of the appended claims.

The intersection between the right sealing line **40** and left sealing line **42**  
10 to the front sealing line **44** and the rear sealing line **46** may be through sharp edges **56**, as shown in Figs. 2 and 3, or through rounded edges **58** as shown in Figs. 5 and 6.

Typically, at least one side surface, being the upper surface **34** or the lower surface **36**, is formed with an inscription **60**. The inscription **60** may  
15 contain various data, e.g., the name of the product, instructions for use of the product, relevant information about the product, and picture or drawing of the product. Furthermore, at some cases, a whole side surface, being the upper surface **34** or the lower surface **36**, or a portion thereof, is used as a general advertising area.

20

The oral device **10** may be sold as an individual unit, as a package of several separate units within a box, bag or the like, or, as a continuous ribbon when the rear sealing line **46** of a given oral device **10** serves as the front sealing line **44** of the consecutive oral device **10**.

25 In order to use the oral device **10** by a person, a single package **28** is held in hand. Then, one hand of the person holds the front package portion **52** and the other hand of the person holds the rear package portion **54**. Then, by applying force in contrary directions, starting adjacent one of the notches **50**, the tearing line **48** is torn apart and the cube **12** may be taken out of the  
30 package **28**.



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Now, the cube **12** is put in the mouth and starts to be moved by the person's tongue. The cube **12** is moved gently along all parts of the mouth cavity; above and under the tongue, between the teeth; the incisors, the canines and the premolars, between the internal and external sides of the superior dental arch and of the inferior dental arch, and along the internal and external gums.

Since the cube **12** is soft and fluffy, it can be easily squeezed to fit into the hard-to-reach spaces. When the cube **12** is squeezed, it enables more dentifrice to reach the external envelope **14** of the cube **12**, thus improving the cleaning process. During the movement of the cube **12** within the mouth cavity, whether in a squeezed or an unsqueezed form, each vertex **22** of the cube **12** may easily enter between the teeth and help with the cleaning process.

During its movement, the cube **12** further collects all kinds of food residuals left in the mouth. These residuals, being crumbs, fruit and vegetable residuals and the like, are gathered into the voids **24** that open into the external envelope **14** of the cube **12** for being disposed away from the mouth cavity.

Thus, by means of a single action, various advantages are met; brushing the teeth, gums and tongue, disposal of food residuals from the mouth cavity, and applying pleasant odor coming out from the mouth.

Since the cleaning action of the mouth by means of the cube **12** involves no additional action by the hands, the hands remain free and the brushing/cleaning action may extend as long as it is required. Thus, the brushing action may take place while standing in a rest room, may take place while sitting in a meeting, in front of a computer, during a cinema show, during driving and the like.

When the user has ceased use of the cube **12**, whether it is after a few seconds or a few minutes, it takes the cube **12** out of his mouth and disposes it properly, into an ashtray, garbage can, or the like. In some cases, the cube **12** is made of a water soluble and bio degradable material, in which case it may be freely disposed also in nature without any risk of environmental contamination.

In some cases, the cube is made of on-land grown algae, especially for this purpose. The use of the algae presents several advantages. First, the use of

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seaweed is avoided since it may be polluted with PCB and other pollutants and heavy metals found in the seas. Second, the depletion of seaweed in the oceans is avoided, thus helping to preserve nature and avoiding destruction of food source for a large number of sea creatures. Third, growing the algae  
5 contributes oxygen to the planet. Fourth, the algae, being a natural plant, are bio degradable and therefore may be freely disposed off in nature without causing any contamination. Fifth, the algae may be eaten by the user after being used for cleaning the mouth and teeth. Sixth, the algae may contain omega 3 fatty acid which is essential for proper functioning of human brain and  
10 body.

The need to wash the mouth after use of the cube **12** depends on various factors, the majors being the amount of dentifrice applied and its kind. Thus, if it is required, the user may wash his mouth by means of water after the cleaning action. In that case, a near source of water should be available to the  
15 user, being a nearby rest room, drinking faucet, or a small bottle of water carried by him.

According to another embodiment of the present invention, the oral device may be used also when a source of water is not available to the user, or  
20 if the user wants to keep in private the fact that he has used an oral device to clean its teeth and mouth.

For this reason, reference is now being made to figures 8 to 10 which show another embodiment of the present invention. For the ease of identification of the various components, like parts will be numbered with like  
25 reference numerals with added 100.

As shown, an all-inclusive package **128** comprises an upper surface **134**, a lower surface **136**, and a sealing line **138** therebetween. The sealing line **138** is formed from a right sealing line **140** and a left sealing line **142** bounded between a front sealing line **144** and a rear sealing line **146**.

30 The all-inclusive package **128** comprises, adjacent the front sealing line **144**, a first tearing line **148**, extending between the right sealing line **140** and

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the left sealing line **142**. The first tearing line **148** is provided, typically at one end thereof, with a first notch **150** for easing the beginning of the tearing action when required. The all-inclusive package **128** comprises three package portions, namely, a front package portion **152**, forward to the first tearing line **148**, a central package portion **162**, rearward to the first tearing line **148**, and a rear package portion **154** rearward to the central package portion **162**. The rear package portion **154** is separated from the central package portion **162** by a second tearing line **164**. The second tearing line **164** is provided, typically at one end thereof, with a second notch **166**.

According to some embodiments, the first notch **150** and the second notch **166** are located at opposite sides of the upper surface **134**. For example, if the first notch **150** is located at the right sealing line **140**, as seen in figures 8 and 9, then, the second notch **166** is located at the left sealing line **142**. This construction is beneficial when using the all-inclusive package **128** since it easily enables to differentiate between the first tearing line **148** and the second tearing line **164** before tearing off each one of them.

The central package portion **162** of the all-inclusive package **128** contains therein a cube **12** as described above with respect to the rear package portion **54** of the package **28**. The rear package portion **154** of the all-inclusive package **128** contains therein flushing liquid which is, typically, water.

Thus, upon finishing using the cube **12** for the cleaning process of the mouth cavity, and upon taking the cube **12** out of the mouth and disposing it in an appropriate manner, the second tearing line **164** is torn away in a similar manner as explained above with respect to the tearing line **48**, and the flushing liquid may be poured into the mouth. Now, the flushing liquid is flushed within the mouth cavity for a few seconds and then it is spitted away.

According to another embodiment of the present invention, shown in Fig. 11, a relatively rigid all-inclusive package **228** is used. The rigid all-inclusive package **228** comprises a container **62** having an upper compartment **64** that is separated from a lower compartment **66** by means of a partition **68**.

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The lower compartment **66** contains therein the cube **12** (shown in dashed lines in Fig. 11) and is sealed by means of a lower cover **70** having a lower gripping tongue **72**. The lower cover **70** is sealed against a lower lip **74** of lower compartment **66**. The lower lip **74** conforms in size and shape with the lower cover **70** except for the lower gripping tongue **72** that remains free.

The upper compartment **64** contains therein flushing liquid **76** (shown in dotted marking in Fig. 11) and is sealed by means of an upper cover **78** having an upper gripping tongue **80**. The upper cover **78** is sealed against an upper lip **82** of the upper compartment **64** that conforms in size and shape with the upper cover **78**. The upper lip **82** comprises a lip tongue **84** that conforms in size and shape with the upper gripping tongue **80**.

Typically, in order to ease the gripping of the upper gripping tongue **80**, the upper gripping tongue **80** is not sealed against the lip tongue **84** so that the upper gripping tongue **80** can be easily gripped by two fingers in order to tear off the upper cover **78** from the upper lip **82**.

When using the rigid all-inclusive package **228**, first the lower gripping tongue **72** of the lower cover **70** is held by the user. Then, the lower cover **70** is torn away thus exposing the cube **12**. Now, the cube **12** is taken by the user and used as explained above.

After the cube **12** is disposed away, the user opens the upper compartment **64** by holding the upper gripping tongue **80** and tearing off the upper cover **78**. The lip tongue **84** of the upper lip **82** functions as an extra safety device for preventing unintentional opening of the upper cover **78**.

At the next step, the user pours into his mouth the flushing liquid **76** found in the upper compartment **64** and flushes his mouth for several seconds. Finally, he disposes away the rigid all-inclusive package after being used its contents.

As shown and explained above, the present invention provides an economical and efficient way to preserve the health of the teeth and gums,

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clean the mouth cavity from food residuals, and give nice breathing odor to the mouth.

The use of the oral device according to the present invention is extremely useful for people who cannot use a chewing gum after a meal, as is  
5 widely use these days, in a case they have problematic dental caps or problematic dental fillings which may be damaged or pulled away by a chewing gum.

Although the present invention has been described to a certain degree of  
10 particularity, it should be understood that various alterations and modifications could be made without departing from the spirit or scope of the invention as hereinafter claimed.

For example, the release of the cube **12** from within the package **28** does not have to be carried out by tearing apart the front package portion **52** with  
15 respect to the rear package portion **54**, and other opening methods may be equally applied. For example, the upper surface **34** of the package may be attached to the lower surface **36** of the package by sticky glue. Thereby, in order to be separated, the upper surface of the package and the lower surface of the package are pulled away in contrary directions.

20 The second tearing line does not have to extend from the right sealing line to the left sealing line. Thus, when the second tearing line is shorter, the opening of the rear package compartment containing the flushing liquid is shorter and it may be easier to sip the flushing liquid from the rear package compartment of the all-inclusive package.

25 The construction of the upper cover and lower cover of the rigid all-inclusive package does not have to be as described above and other construction techniques may be equally applied. For example, the lower lip may be provided with a lip tongue, like the lip tongue of the upper lip. The upper lip may be constructed without a lip tongue, like the construction of the  
30 lower lip.

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The package of the oral device is not limited to the number of portions described above and further package portions may be provided if required. These extra package portions may contain a candy, a chewing gum, or the like.

The oral device does not have to be homogeneous and other structures may be applied. For example, the vertexes of a cube may be produced from a relatively harder material, being a sponge or the like, and the rest of the cube may be produced from a relatively softer material. In that manner, the efficiency of the cube, or any other given shape of the oral device, may be increased. First, the relatively hard vertexes, and also the edges if desired, may do better a rubbing and pulling action when they enter into hard-to-reach spaces between the teeth. This action can be similar to the action of toothbrush bristles. Second, the relatively soft internal core may ease the application by the tongue, may hold more quantity of dentifrice, and may gather more food residuals into the voids.

In some specific embodiments, the oral device does not consist a single constituent and it may be formed from two, or more, different materials. Thus, by having the oral device formed from different materials, different properties may be applied to different parts of the oral device, according to specific needs.

The oral device does not have to be formed as a cube and other forms may be implemented. According to some embodiments, the oral device may be produced in a large variety of geometrical shapes, such as pyramid, box, ball, sea star, volumetric extended triangle, and the like. According to other embodiments, the oral device may be formed in an appealing form for children. Thus, the oral device may be formed in a large variety of animal shapes, a fact that may ease the convincing of the children to use the oral device in order to protect their mouth cavity.

The oral device may be produced in different colors for identifying different sizes, shapes, functions, construction, etc. Furthermore, each oral device may consist of various colors which may emphasize vertexes, edges and the like.

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The package, the all-inclusive package and the rigid all-inclusive package may be formed from a transparent material or from an un-transparent material.

The dentifrice may have different tastes like mint, strawberry, apple, pear and the like. Furthermore, the dentifrice may be provided with a variety  
5 of odors like strawberry, mint and the like. The odor may be provided with a variety of strengths, like mild, medium and strong.

**CLAIMS:**

1. A single use flexible disposable oral device (10), which is operated either by the tongue or by a chewing action, for cleaning the entire mouth cavity.
- 5 2. The oral device (10) according to claim 1, wherein:  
the oral device comprises an external envelope and an internal core,  
the external envelope comprises faces having edges and vertexes, and  
the oral device being non-homogenous, and the vertexes are harder than  
the faces and the internal core.
- 10 3. The oral device (10) according to claim 2, wherein:  
the edges are harder than the faces and the internal core.
4. The oral device (10) according to claim 1, wherein:  
15 the oral device contains a dentifrice.
5. The oral device (10) according to claim 1, wherein:  
the oral device is made of a spongy material.
- 20 6. The oral device (10) according to claim 1, wherein:  
the oral device is made of algae.
7. The oral device (10) according to claim 1, wherein:  
the oral device is water soluble.
- 25 8. The oral device (10) according to claim 1, wherein:  
the oral device is bio degradable.
9. The oral device (10) according to claim 1, wherein:  
30 the oral device is in a form of a cube (12).



10. The oral device (10) according to claim 1, wherein:  
an external envelope (14) of the oral device is provided with voids (24).
11. The oral device (10) according to claim 1, wherein:  
5 the oral device is contained within a package (28).
12. The oral device (10) according to claim 9, wherein:  
the package (28) is flat.
- 10 13. The oral device (10) according to claim 1, wherein:  
the oral device is contained within an all-inclusive package (128).
14. The all-inclusive package (128) of claim 11, wherein:  
the all-inclusive package is provided with at least two package portions,  
15 a first package portion (162) contains therein the oral device (10), and  
a second package portion (154) contains therein flushing liquid (76).
15. The oral device (10) according to claim 11, wherein:  
the all-inclusive package comprises at least two rigid compartments,  
20 at least a first compartment (66) comprises therein the oral device, and  
at least a second compartment (64) comprises therein flushing liquid.
16. The oral device (10) according to claim 1, wherein:  
the oral device forms a convex body.  
25
17. The oral device (10) according to claim 1, wherein:  
in an un-squeezed form of the oral device, a maximal external  
dimension (L) of the oral device is in the range of 5 mm to 50 mm.
- 30 18. The oral device (10) according to claim 15, wherein:

In an un-squeezed form of the oral device, the maximal external dimension (L) of the oral device is in the range of 10 mm to 30 mm.

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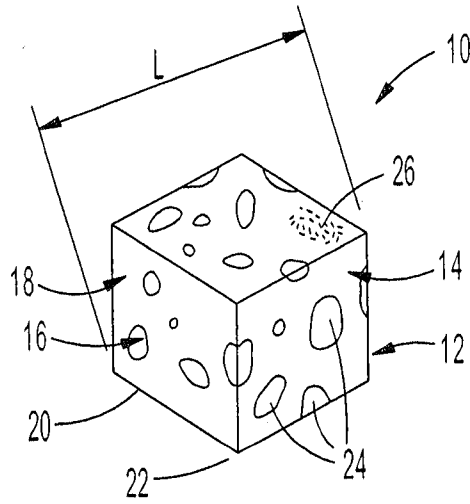


Fig. 1

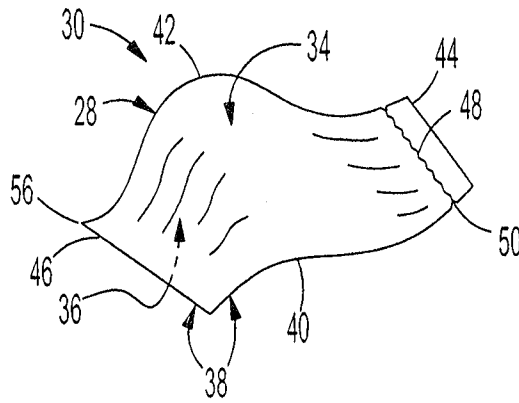


Fig. 2

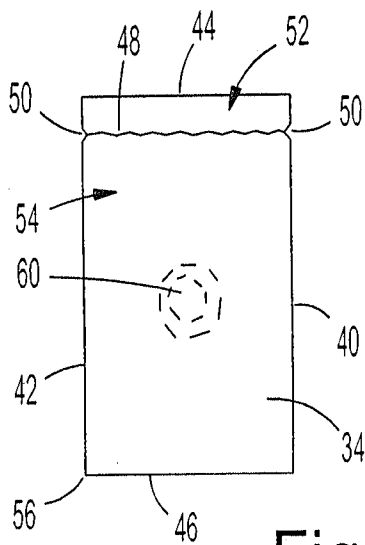


Fig. 3

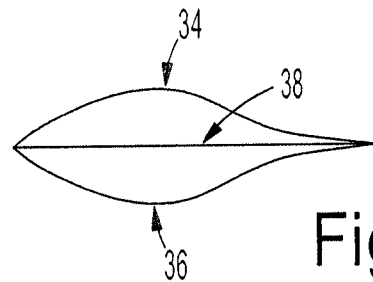


Fig. 4

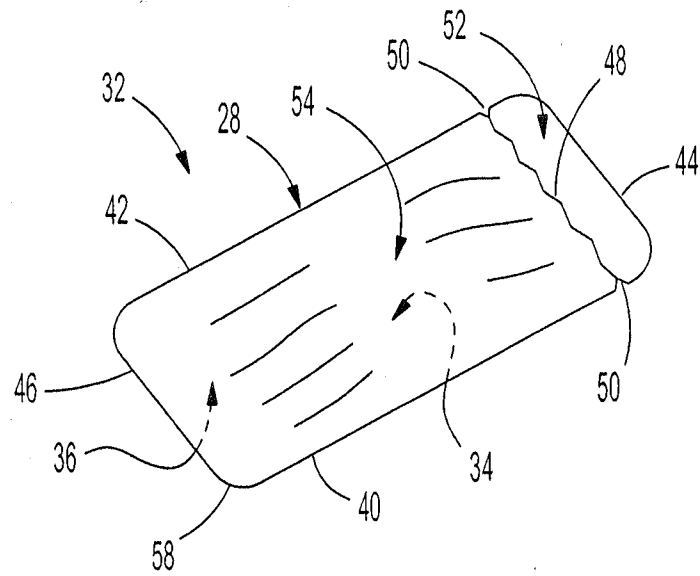


Fig. 5

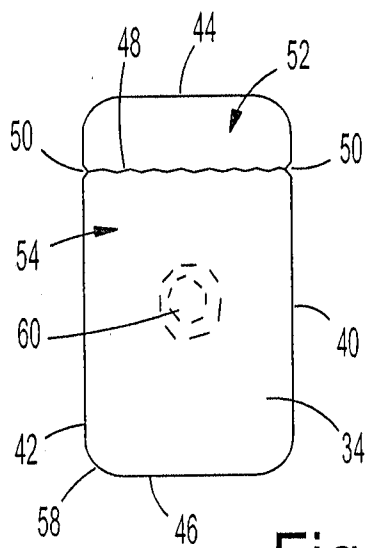


Fig. 6

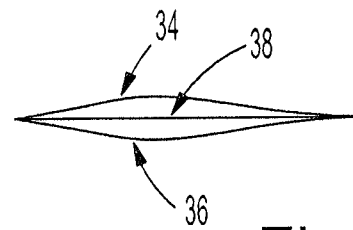


Fig. 7

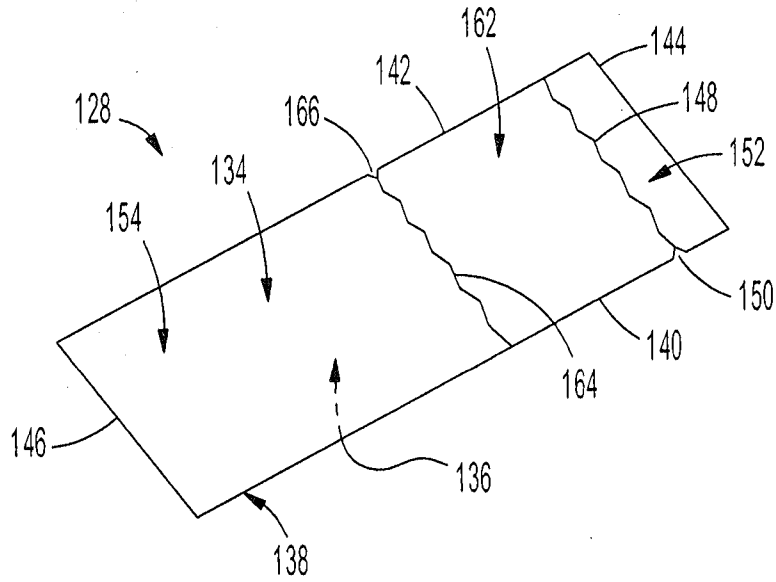


Fig. 8

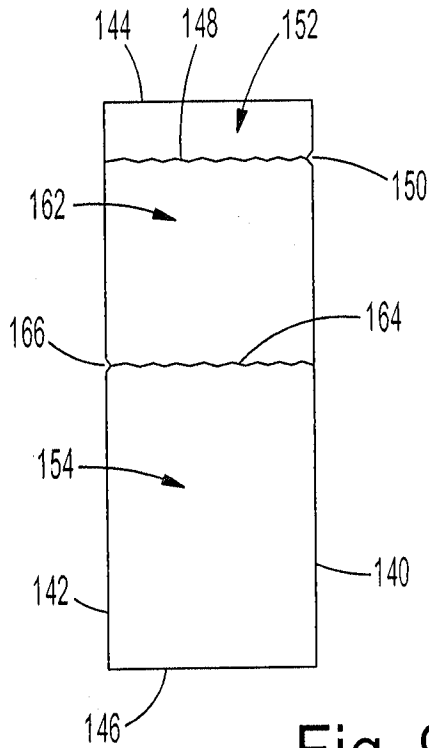


Fig. 9

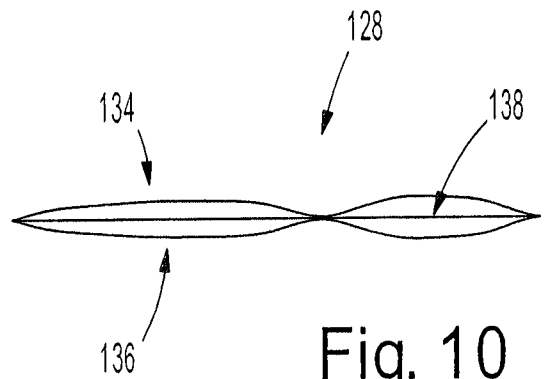


Fig. 10

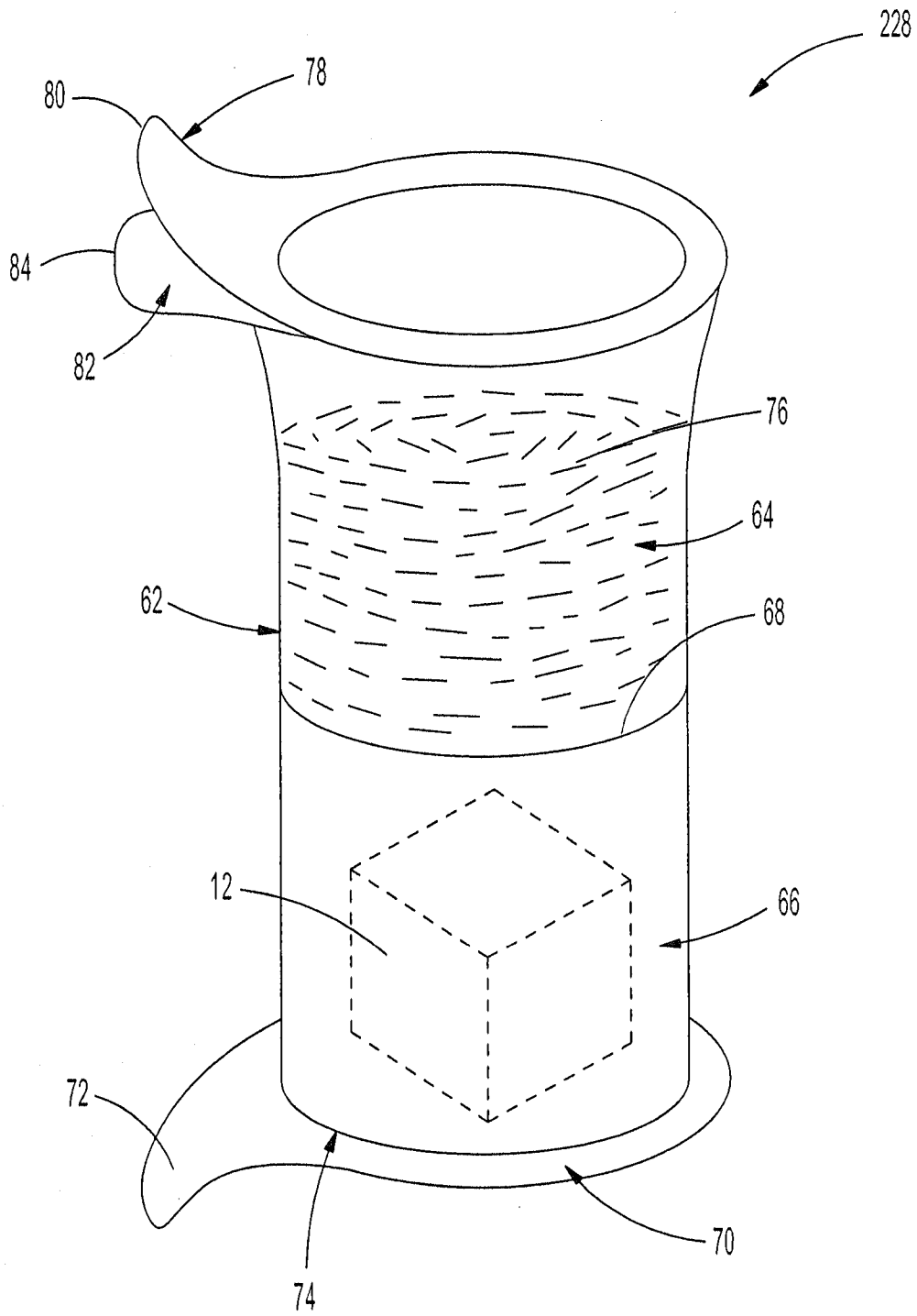


Fig. 11

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL2013/050626

A. CLASSIFICATION OF SUBJECT MATTER IPC (2013.01) A61C 15/00, A61H 13/00		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) IPC (2013.01) A61C 15/00, A61H 13/00		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Databases consulted: THOMSON INNOVATION, Esp@cenet, Google Patents		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3071476 A WERFT AUGUST R; WERFT ALLAN J 01 Jan 1963 (1963/01/01) The whole document	1-18
Y	US 5348153 A COLE WILLIAM L 20 Nov 1994 (1994/11/20) The whole document	6,8
Y	US 7850002 B2 MENICON CO., LTD 30 Oct 2008 (2008/10/30) The whole document	11,12,14,15
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 25 Nov 2013		Date of mailing of the international search report 25 Nov 2013
Name and mailing address of the ISA: Israel Patent Office Technology Park, Bldg.5, Malcha, Jerusalem, 9695101, Israel Facsimile No. 972-2-5651616		Authorized officer KATZ Itay  Telephone No. 972-2-5657814

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