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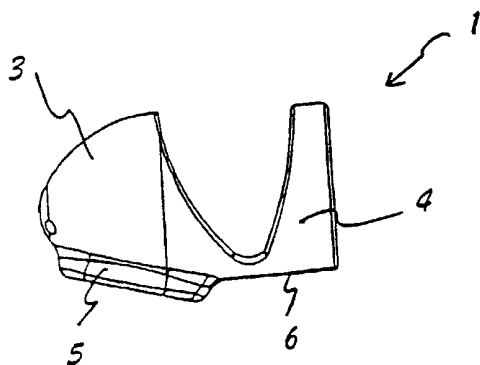
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(54) Title: FINGER APPARATUS



(57) Abstract: There is disclosed a finger apparatus adapted to be carried by a finger for obtaining a more directable and precise handling apparatus by using the finger as the natural handle of an implement. The elastomeric finger apparatus proposed by the present invention is configured to be in a normally pre-pressed form for such precise control operation. The finger apparatus is formed comprising a holder means (1) that includes a cap member (3) and a tubular member (4). An implement (2) is advantageously provided on the holder means (1) through, preferably, a modular snap-fitted pad (8) mounted to a groove (7) on its inclining section (5). A grasping means (13) is also provided for assisting the user during use and for fitting. There is also disclosed a finger apparatus having a cap member (30) with an implement attached on its inclining section (50). The implement may also be integrally molded with the finger apparatus.

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FINGER APPARATUS

1. TECHNICAL FIELD OF THE INVENTION

The present invention relates generally to a finger apparatus and more particularly to an elastomeric finger apparatus that offers a particularly precise control feature. The present invention also relates to an elastomeric finger apparatus which is formed having a grasping means for assisting the user during mounting and dismounting of the same.

2. BACKGROUND OF THE INVENTION

The fingers are one of the most important and interesting human features. If we were to loose any of our fingers, then performing even the smallest task such as holding a pen or picking up and object would be a very difficult task. It also through the fingers that we are able to feel the warm, cold and anything that can be associated with the "feels" because of the sensitiveness of our fingers. Work done using the finger may have certain "preciseness" as the finger offer more precise control. For example, the use of a finger mounted toothbrush offers a generally better performance including effectiveness and efficiency compared to the conventional and commonly known toothbrushes.

In general, many other applications may utilize the advantages offered from the use of the fingers, or in particular the forefinger. For example, a personal care device or apparatus such as dental floss, gum massager or

even miniature shaver may be attached to a cap mounted over the finger. Writing devices such as pen, pencil or the like may also be attached to the finger cap and as well as artistic device such as paintbrush. The challenge would be to devise a finger apparatus having a unique feature that can be used for a variety of applications and at the same time utilizes the advantages offered by the precise and natural action of the human fingers. Besides, an elastomeric cap offers best protection for fingertips at work.

The present invention seeks to offer a solution for the above challenge. It is proposed that the finger apparatus to be constructed having a normally pre-pressed form and made from an elastomeric material, as well as to be designed having a modular or alternatively, an integral configuration. Such elastomeric finger apparatus may be incorporated having tuft of bristles to form finger mounted toothbrush, thus enjoying the advantages of more precise, directable and flexible toothbrush which eliminates tendency of injuring the gums and also capable of efficiently brushing the surfaces of the teeth. In some other instances, the bristle may be replaced with other implements to form device, tool or apparatus as desired. Further, the elastomeric finger apparatus is also proposed to have a grasping means for assisting the user during mounting and dismounting of the apparatus onto or off the fingertip.

3. SUMMARY OF THE INVENTION

Accordingly, it is the primary object of the present invention to provide a finger apparatus adapted to be mountable over a finger which is capable of offering a multiplicity of applications.

It is another object of the present invention to provide a finger apparatus that in use, utilizes the advantages offered by the natural action of the finger to render a more directable, flexible and controllable device and also capable of efficiently performing its intended task.

It is another object of the present invention to provide a finger apparatus that is set in a normally pre-pressed form to provide such directable, flexible and controllable advantages.

It is yet another object of the present invention to provide a finger apparatus having a grasping means for assisting the user.

It is yet another object of the present invention to provide a modular finger apparatus to offer such multiplicity of applications.

These and other objects of the present invention are accomplished by providing,

An apparatus of the type carry by a finger comprising;

a holder means (1) for engaging a finger, said holder means (1) includes a cap member (3) and a tubular member (4);

wherein said holder means (1) is formed having an inclining section (5) and an implement (2) is provided on said inclining section (5).

The object may also be accomplished by providing,

An apparatus of the type carry by a finger comprising;

a cap member (30), said cap member is formed having an inclining section (50) disposed along its lower portion; and

an implement (2) is provided on said inclining section (50).

Preferably, the finger apparatus is configured in normally pre-pressed form through the inclining section of the holder means and also from the reinforcement of the cap member's wall.

Preferably, the implement includes a brushing device mounted on a modular snap-fitting pad that is attached to the inclining section.

It is also preferable that such implement is over-molded onto the inclining section. The implement may also be attached onto the inclining section using chemical attaching means such as adhesive glue.

Also preferable, the implement includes writing device, artistic device, personal hygiene device, massager or the like which is attached to the inclining section.

Also preferable, the modular snap-fitting pad is configured as a coupling mechanism for the devices.

Also preferable, the finger apparatus is made from an elastomeric material.

It is also preferable that the grasping means is formed as flap that extends from the tubular member and from the cap member.

Yet, it is also preferable that the finger cap apparatus including the implement is integrally molded and made from such elastomeric material.

4. BRIEF DESCRIPTION OF THE DRAWINGS

The embodiments of the invention will now be described, by way of example only with reference to the accompanying figures in which:

Figure 1 : Perspective views of a finger apparatus configured in accordance to the first preferred embodiment of present invention.

Figure 2 : Perspective views of the alternate configuration to the finger apparatus configured in accordance to the first preferred embodiment.

Figure 3 : Perspective views of the finger apparatus configured in accordance to the second preferred embodiment.

Figure 4 : Perspective views of the alternate configuration in accordance to the second preferred embodiment.

Figure 5 : Another alternative configuration to the finger apparatus according to the present invention.

Figure 6 : Perspective views of the implements adapted for use in conjunction with the present invention.

Figure 7 : Another alternative configurations of the implement attached to the finger apparatus of the present invention.

Figure 8 : A magnified cross-sectional view of the finger apparatus being used as a finger mounted toothbrush in accordance to the first preferred embodiment.

Figure 9 : A magnified cross-sectional view of an alternate finger apparatus configuration according to the first preferred embodiment being used as a finger mounted grip pad.

5. DETAILED DESCRIPTION OF THE DRAWINGS

Figures 1(a) to 1(f) show the perspective views of the finger apparatus configured according to the first preferred embodiment of the present invention. The finger apparatus is adapted to come in a tight contact with the forefinger and the length of the finger cap is configured in such a way that it encloses only up to the first inter-

joint after the finger tip, or only covers the ungual phalanx of the phalanges. The finger apparatus is shown generally comprises of a holder means (1), and the holder means consists of a cap member (3) and a tubular member (4). It shall be noted here that as the holder means are intended to cover only up to the ungual phalanx, less raw material is needed in the manufacturing process. Such advantageous feature allows reduction of material usage, thus the manufacturing cost. An opening is also provided along the upper portion of the holder means (1), generally to allow more freedom of movement of the finger due to the exposed finger's inter-joint. This feature including the other feature, which will be described later, offers particularly precise control operation of the finger cap. The tubular member (4) is also provided having an inclining section (5) and a flat planar section (6), as generally shown by Figure 1(a). The inclining section (5) is formed extending from the lower portion of the cap member (3) to meet with the flat planar section (6), thereby extending to just over some section of the flat planar section. On the inclining section (5), there is formed a groove (7, Figure 1(d) and 1(e)) for which the function of the groove will be described later. The groove may be covered or left open depending on the preference. As also depicted by the first embodiment, implement (2, Figure 6) may be attached to the holder means.

The tubular member (4) is particularly adapted to fit to any finger sizes through the various available sizes made. It may also be formed as an open-ended flaps (not shown) such that the flaps may be secured together to form the tubular member and to the exact size of the user's finger.

A retaining means (also not shown) in a form of resilient ring for preventing slippage may also be provided at the distal open-end of the tubular member (4). The holder means (1) will tightly engaging the finger through the tubular member (4) of which the planar sections (5,6) providing means to force the finger to be in such normally pressed position. As the finger is already in a pre-pressed position, the precise control feature desired for such finger-mounted apparatus is further expected.

Figures 2(a) and 2(b) show cross-sectional views showing the alternate configuration to the first embodiment. Generally, the finger apparatus also constructed having cap member (3) and tubular member (4). The inclining section (5) is formed essentially along the lower portion of the cap member (3) and the tubular means (4) is formed substantially shorter in length compared to the previous configuration. A grasping means (13) in the shape of protruding flap is formed at the open-end of the tubular member. This grasping means is generally utilize to assist the user during mounting and dismounting of the finger cap to the finger. Retaining of the apparatus to the finger is also aided through a gripping rib (14) provided within the internal circumference wall of the tubular member. Also preferable, the internal wall of the tubular member and the cap member are provided with reinforcing ribs (15) for an added strength. The groove (7) on the inclining section may be covered, as depicted in Figure 2(b) or left open as desired. Implement, such as tuft of bristle for toothbrush, massaging pad and others devices could be mounted thereto.

Figures 3(a) to 3(e) show the second preferred embodiment of the invention. As discussed earlier, the finger apparatus comes in a tight contact to the finger, however, the length of the apparatus is set in such a way that it will only encloses about one-half of the fingertip. The finger apparatus is shown generally comprises of a cap member (30) and the cap member is provided with an inclining section (50). The inclining section extends from the lower portion of the cap member (30) and almost meeting with the distal open-end of the cap member. On the inclining section (50), there is also formed a groove (70, Figure 3(b)). As shown by the figures, the finger apparatus is preferably formed in a particularly smooth, streamlined fashion, thus offering an aesthetic characteristic and ease of manufacturing but most importantly, effective tool for utilizing the accurate ability of the finger. Along the internal wall of the cap member (30), there is preferably formed a ribbed portion (not shown) adapted for reducing the tendency of slippage or twisting of the apparatus during use. Implement (2, Figure 6) may be attached to the inclining section (50) through means which will be discussed later. This implement may include personal hygiene device, such as brushes for the teeth, toothpick, gum massager pad, dental floss or the like as discussed earlier. Generally, such implement is preferably formed as a multipurpose attachment to the finger apparatus, although it may also envisioned as having permanently attached to the finger apparatus using adhesive or other means. The implement and the cap member may also be formed integrally during manufacturing process using insert-molding process. Elastomeric material, such as silicone rubber, thermoplastic elastomer, thermoplastic urethane and others

may be used for the cap member and its related attachments. The holder means is also preferably formed through molding or injection process, the process of which is generally known in the art.

Referring now to Figure 4, there are shown the alternate configuration to the second preferred embodiment. The cap member (30) is shown having a grasping means (31) in the form of a slightly extending protrusion or flap located at the open end of the cap member (30). Such grasping means is particularly provided to assist the user during mounting or dismounting the finger apparatus on or off the finger respectively. The grasping means also helps to ensure tight contact of the finger apparatus to the finger. User may

easily pull the grasping means to dislodge the finger apparatus from his finger or use it during mounting of the apparatus to his finger.

Figure 5 show the perspective view of yet another alternate configuration to the embodiments. The figures show a more streamlined and refined version of the finger apparatus. The groove (70) is disposed generally at a certain section on the incline section (50). In general, the cap member (30) is constructed flat at its lower portion and preferably provided with the grasping means (31) on the upper portion.

Now referring to Figure 6, there are shown a plurality of demountable implements that may be, either permanently or interchangeably attached to the finger apparatus. The implements are adapted to be attached to the finger

apparatus through the groove (7, 70, Figure 1, Figure 3) where the groove is suitably formed at the inclining section (5, 50). Figure 6(a) shows the implement in the form of a pad having plurality of tufts of bristles where such finger cap is intended to be used as a finger mounted toothbrush. In general, the pad (8) is of a modular snap-fitting type and the pad may also be permanently fixed with the bristle, or may be formed as coupling mechanism so that it may receive any type of implement as generally illustrated in Figure 6 and Figure 7. Along the upper portion of the pad, there is disposed a serration (11) for the purpose of preventing slippage during use. As described earlier, the pad is advantageously snap-fitted into position through the groove (7, 70) from within the internal cavity of holder means. It may be appreciated here that as the pad is formed having different surfaces that match with the surfaces and dimension of the groove (7, 70), there is advantageously created firm mounting of the pad to the finger apparatus. Further mounting is provided via the slightly "spread-away" or slightly larger head section (10) and a neck section (9) which provide latch locking of the snap-fitting pad. During use of the finger apparatus, the finger will push onto the pad and such action also assists pad retaining. As indicated earlier, the implement may be envisaged as a snap-fitting pad having an artistic device, such as paintbrush (not shown) or any writing device (also not shown). A vertically or horizontally arranged dimple (not shown) may also be formed on the modular snap-fitting pad that matches with nib (also not shown) arranged on the holder means along the internal surfaces of the groove (7, 70).

Figures 7(a) to 7(d) show other alternative configurations to the finger apparatus that is provided with implement. Figure 7(a) show the apparatus being used as a gripping device having a grip pad (32) mounted thereto. Figure 7(b) shows a massager pad (33) being mounted the apparatus to form a massaging apparatus. Other forms of implement may be envisaged being attached to the finger apparatus to provide a highly practical finger mounted apparatus proposed by the present invention. For example, ripper pad (34, Figure 7(c)) having sharp edges for cutting and nail pad (35, Figure 7(d)) having abrasive edges for nail polishing are just some of the few example. The implement may also be integrally manufactured with the cap member. It may also be formed separately and attached later through technique known in the art. A plurality of apertures (16, Figure 1) may also be provided along the surfaces of the cap member (3, 30), such that a person accidentally swallowing the toothbrush will not succumb to suffocation. The toothbrush may also be provided with an elongated planar body (not shown) forming a flap and this flap is adapted to be grasped between the thumb and forefinger for more gripping action.

Figure 8 shows a magnified cross-sectional view of the finger apparatus being used as a finger mounted toothbrush as discussed by Figure 1 and Figure 6. The slightly larger head section (10) on the pad compared to the neck section (9) advantageously provides firm mounting of the demountable pad to the groove (7). The head section (10) and neck section (9) rest within the internal surfaces of the groove thus providing latch locking of the modular snap-fitting pad. Vertical or horizontal dimple (not shown)

provided along the surfaces of the demountable pad to match with vertical or horizontal arranged nib (also not shown) on the periphery of the groove (7).

Figure 9 show the alternative configuration to the first embodiment being used as a gripping apparatus. The gripping base is shown integrally molded with the cap member, preferably through process which is known as over-mold or insert molding in the art. The apparatus may conveniently be used to pick up objects, for use, as an example in the electronic devices production and service.

While the preferred embodiments of the present invention have been described, it should be understood that various changes, adaptations and modifications may be made thereto. It should be understood, therefore, that the invention is not limited to details of the illustrated invention shown in the figures and that variations in such minor details will be apparent to one skilled in the art.

WHAT IS CLAIMED IS:

1. An apparatus of the type carry by a finger comprising;

a holder means (1) for engaging a finger, said holder means (1) includes a cap member (3) and a tubular member (4);

wherein said holder means (1) is formed having an inclining section (5) and an implement (2) is provided on said inclining section (5).

2. An apparatus as claimed in claim 1, wherein said inclining section (5) is disposed extending from the lower portion of said cap member (3) to a certain section of said tubular member's (4) lower portion, and a flat planar section (6) is formed on the remaining lower portion of said tubular member.
3. An apparatus as claimed in claim 1, wherein said inclining section (5) is disposed substantially along the lower portion of said cap member (3).
4. An apparatus as claimed in any of claims 1, 2 or 3, wherein said tubular member (4) having a grasping means (13) disposed at the peripheral end of said tubular member (4).
5. An apparatus as claimed in claim 4, wherein said members (3, 4) having internal reinforcing ribs (15).

6. An apparatus as claimed in claim 5, wherein said cap member (3) having a gripping rib (14).
7. An apparatus of the type carry by a finger comprising;

a cap member (30), said cap member is formed having an inclining section (50) disposed along its lower portion; and

an implement (2) is provided on said inclining section (50).
8. An apparatus as claimed claim 7, wherein a grasping means (31) is formed at the peripheral open-end of said cap member (30).
9. An apparatus as claimed in any of claims 1 to 8, wherein said implement (2) includes a personal hygiene device.
10. An apparatus as claimed in any of claims 1 to 8, wherein said implement (2) includes a writing device.
11. An apparatus as claimed in any of claim 1 to 8, wherein said implement (2) includes an artistic device.
12. An apparatus as claimed in any of claim 1 to 8, wherein said implement is integrally assembled including a grip pad.
13. An apparatus as claimed in any of claim 1 to 8, wherein said implement (2) includes a massaging device.

14. An apparatus as claimed in any of claim 1 to 6, wherein said implement (2) includes any other devices.
15. An apparatus as claimed in any of preceding claims, wherein said device is demountably attached to a modular snap-fitting pad (8).
16. An apparatus as claimed in claim 15, wherein said modular snap-fitting pad (8) is integrally formed having a neck section (9) and a slightly larger head section (10) to provide a latch locking to said inclining section (5, 50).
17. An apparatus as claimed in claim 16, wherein said snap-fitting pad (8) having a serration (11) disposed along its top surface and a ribbed section provided along the internal wall of said tubular member (4).
18. An apparatus as claimed in claim 17, wherein said inclining section (5, 50) having a groove (7, 70) for receiving said modular snap-fitting pad for said implement (2).
19. An apparatus as claimed in claim 9, wherein said personal hygiene device includes tufts of bristles for a toothbrush.
20. An apparatus as claimed in any of the preceding claims, wherein said apparatus is in a normally pre-pressed form.

21. An apparatus as claimed in claim 20, wherein said tubular member (4) having a retaining means provided at its distal open-end.
22. An apparatus as claimed in any of the preceding claims, wherein said cap member (3, 30), said tubular member (4) and said implement are integrally formed during manufacturing process.
23. An apparatus as claimed in claim 2, wherein said apparatus is adapted to be mounted on a toe.

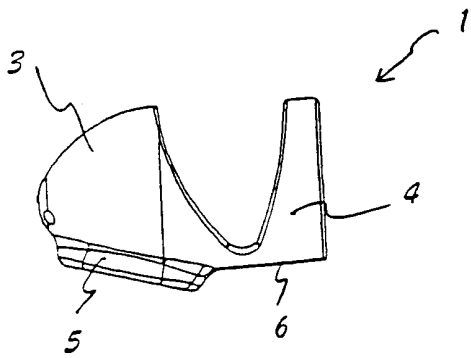


FIGURE 1(a)

FIGURE 1

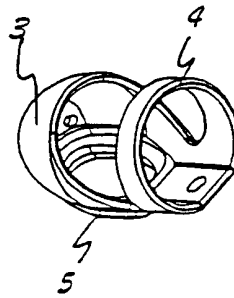


FIGURE 1(b)

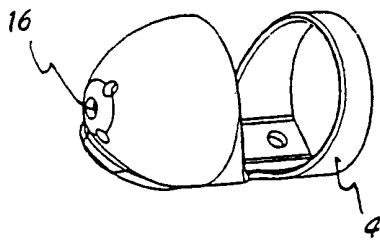


FIGURE 1(c)

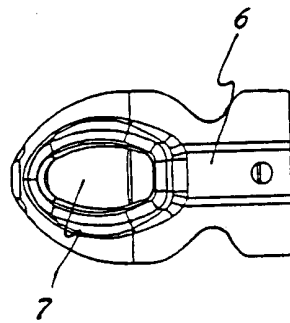


FIGURE 1(d)

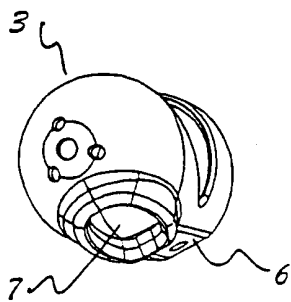


FIGURE 1(e)

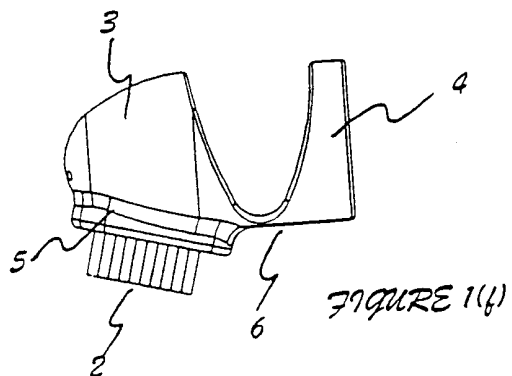


FIGURE 1(f)

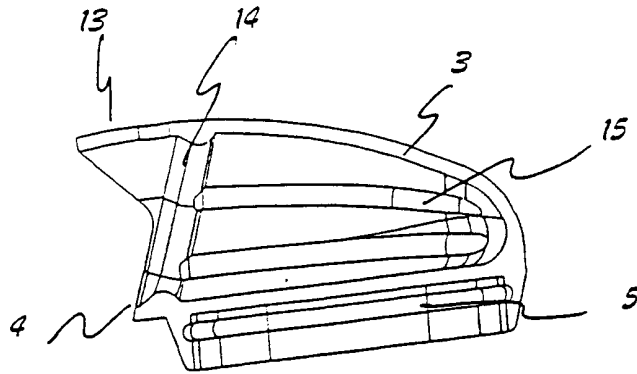


FIGURE 2(a)

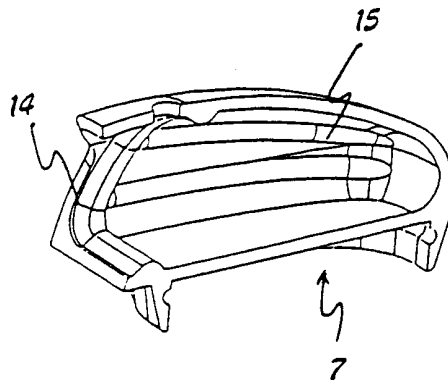


FIGURE 2(b)

FIGURE 2

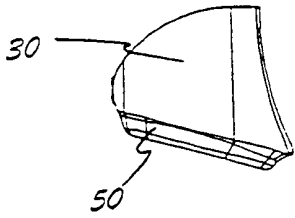


FIGURE 3(a)

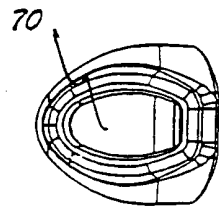


FIGURE 3(b)

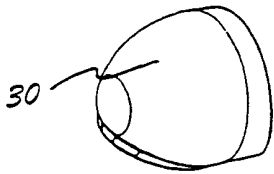


FIGURE 3(c)

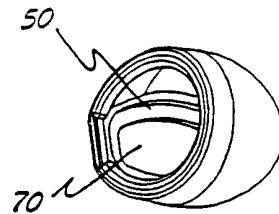


FIGURE 3(d)

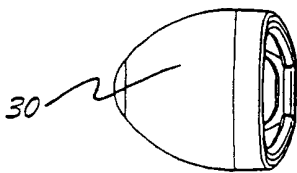


FIGURE 3(e)

FIGURE 3

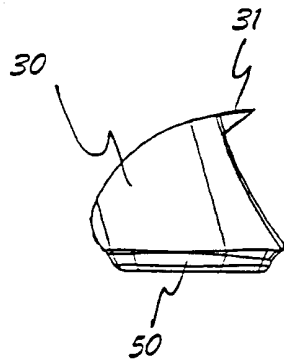


FIGURE 4(a)

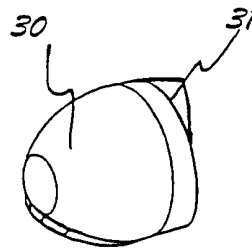


FIGURE 4(b)

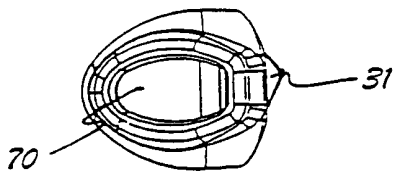


FIGURE 4(c)

FIGURE 4

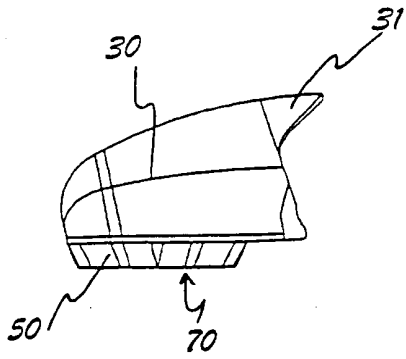


FIGURE 5(a)

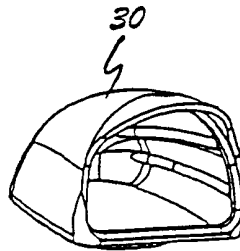


FIGURE 5(b)

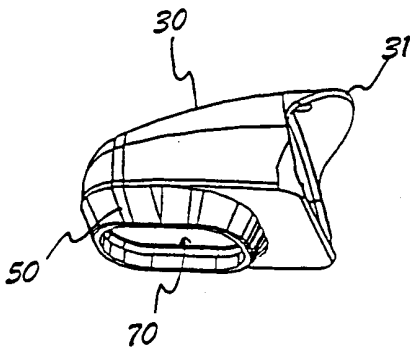


FIGURE 5(c)

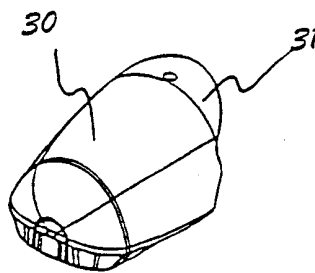


FIGURE 5(d)

FIGURE 5

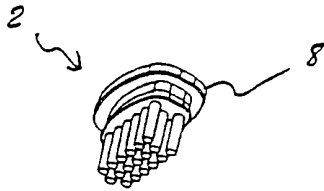


FIGURE 6(a)

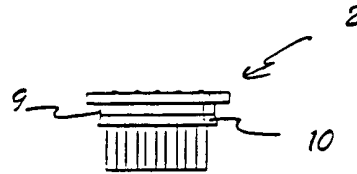


FIGURE 6(b)

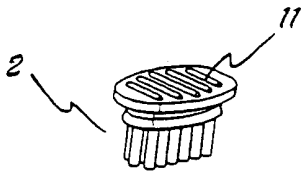


FIGURE 6(c)

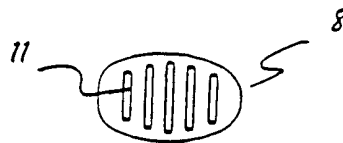


FIGURE 6(d)

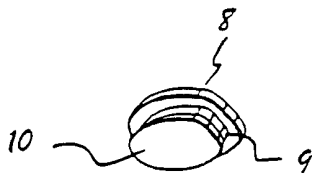


FIGURE 6(e)

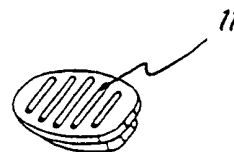


FIGURE 6(f)

FIGURE 6

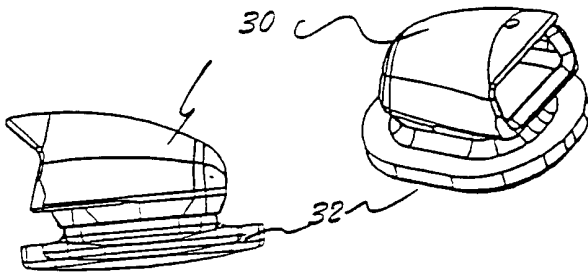


FIGURE 7(a)

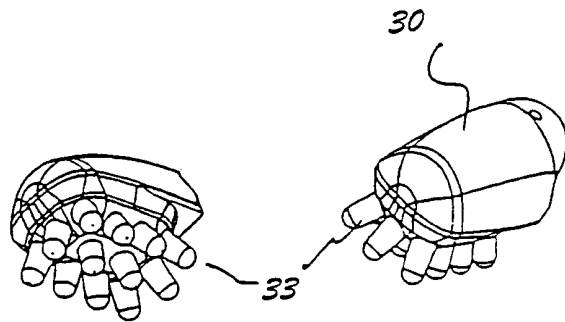


FIGURE 7(b)

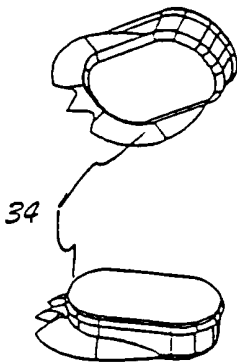
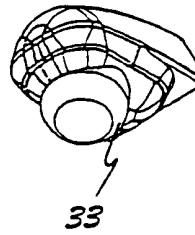


FIGURE 7(d)

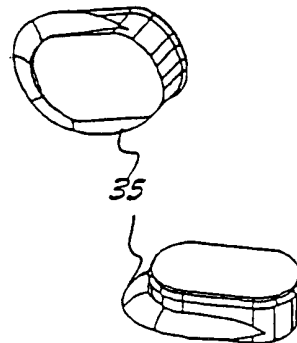


FIGURE 7(e)

FIGURE 7

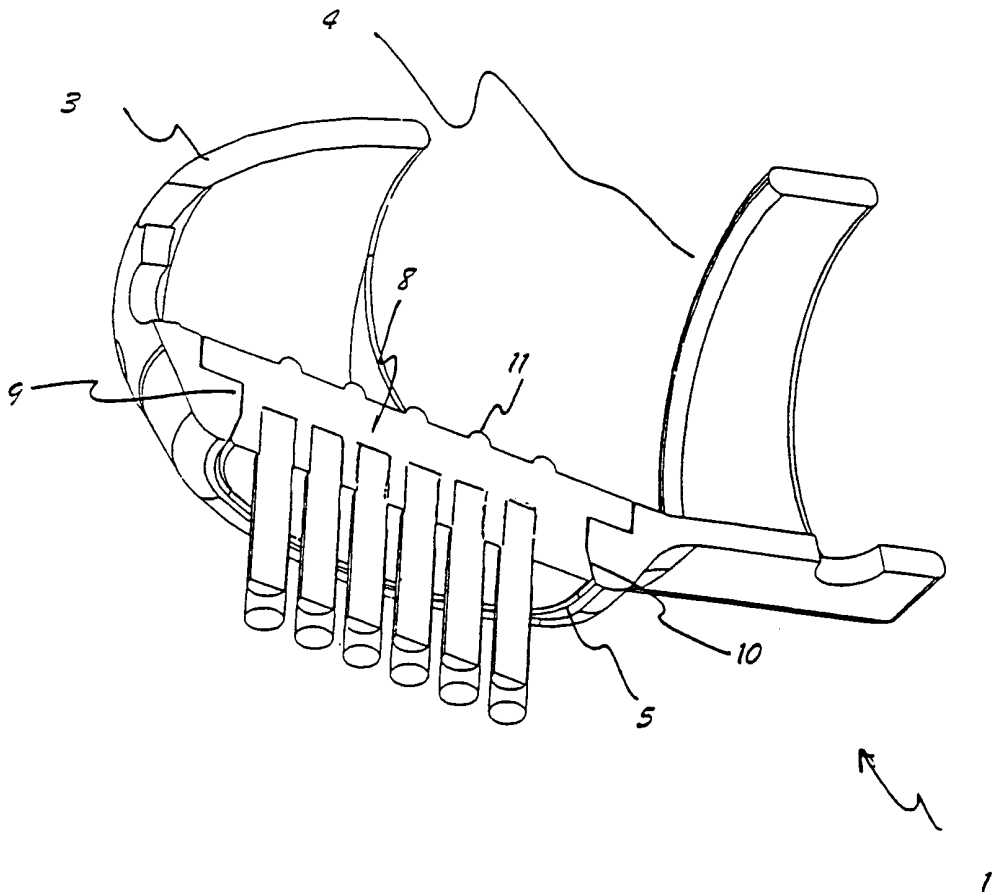


FIGURE 8

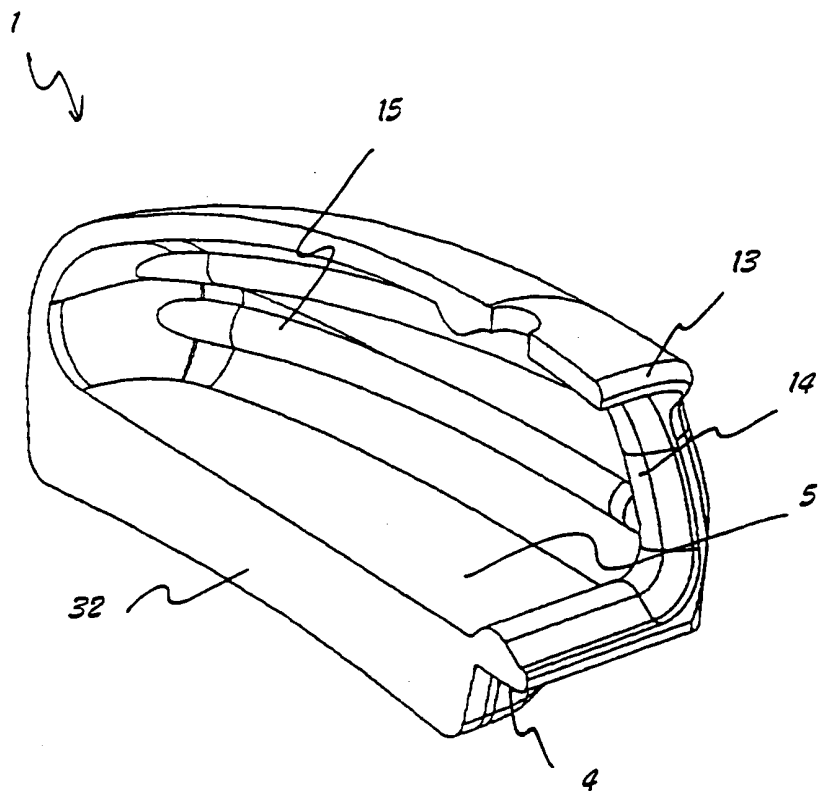


FIGURE 9