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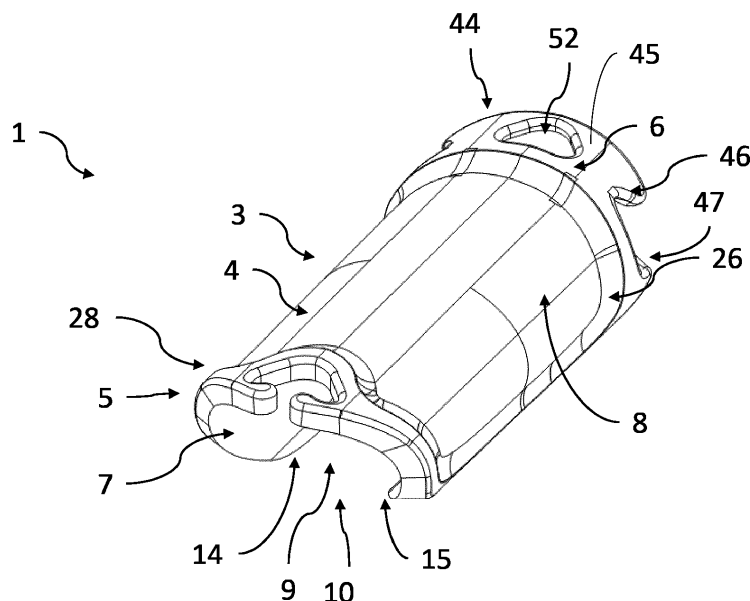
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(54) **PORTABLE HANDHELD HYGIENE DEVICE**

(57) The present invention relates to a portable handheld device for reducing, in particular preventing, direct hand contact with an external object, the device comprising a main body comprising an elongate hollow member, the hollow member comprising a first end, an opposite, second end, an inner surface, an outer surface, wherein a longitudinal gap is provided in the hollow member, wherein the longitudinal gap extends from the first end to the second end, and from the inner surface to the outer

surface, the longitudinal gap being configured as an insert opening for an elongate external object, wherein the inner surface of the hollow member defines an internal volume for accommodating the elongate external object, wherein the inner surface of the hollow member is configured to contact an external surface of the elongate external object, and wherein the outer surface of the hollow member is configured to be contacted by the hand of the user.

Fig. 1



Description

FIELD OF THE INVENTION

[0001] The invention relates to the field of hygienic devices, in particular to portable handheld devices. 5

BACKGROUND OF THE INVENTION

[0002] Hand hygiene is important for preventing illness. With the emergence of COVID-19 the importance of hand hygiene has become even greater. Measures to improve hand hygiene include washing hands and not shaking hands. 10

[0003] Another way to improve hand hygiene is to avoid contact with external surfaces. Tools exist which allow a user to for example open a door without having to touch the door. There are other tools that allow a user to press a button without having to touch said button directly. 15

[0004] A drawback of known tools is that they are useful for one purpose, i.e. only for opening a door or only for touching a button. There is a need for a device which has more than one purpose, or function. 20

[0005] It was recognized in the present invention that in order to improve hand hygiene, there is a need to increase the use of such a tool. 25

OBJECT OF THE INVENTION

[0006] It is an object of the invention to provide a device which reduces direct hand contact with an external object. 30

[0007] It is another object of the invention to provide a hygienic device which has multiple purposes, or functions. 35

[0008] It is yet another object of the invention to provide a hygienic device which is easy to use when needed and will therefore be used more often. 40

SUMMARY OF THE INVENTION

[0009] In order to achieve at least one object, a portable handheld device is provided for reducing, in particular preventing, direct hand contact with an external object, the device comprising: 45

- a main body comprising an elongate hollow member, the hollow member comprising
 - a first end,
 - an opposite, second end,
 - an inner surface,
 - an outer surface,
 wherein a longitudinal gap is provided in the hollow member, wherein the longitudinal gap extends from the first end to the second end, and from the inner surface to the outer surface, the

longitudinal gap being configured as an insert opening for an elongate external object, wherein the inner surface of the hollow member defines an internal volume for accommodating the elongate external object, wherein the inner surface of the hollow member is configured to contact an external surface of the elongate external object, and wherein the outer surface of the hollow member is configured to be contacted by the hand of the user.

[0010] In an embodiment of the device, the hollow member is resilient, wherein a first side of the hollow member adjacent the longitudinal gap and an opposite, second side of the hollow member adjacent the longitudinal gap are movable towards and away from each other by deformation of the hollow member. 15

[0011] The resilience provides a multi-functional device. The device can be used for at least pushing, pulling, gripping, and pressing. 20

[0012] In an embodiment of the device, the hollow member has a length, a width and a height, wherein the length is at least twice the width and/or at least twice the height. 25

[0013] In an embodiment of the device, in front view, a circumferential length of the longitudinal gap is between 0.15 and 0.3 times a circumferential length of the hollow member. 30

[0014] In an embodiment of the device, in front view, the longitudinal gap has a gap width which is between 0.25 and 0.5 times the width of the hollow member. 35

[0015] In an embodiment of the device, a gap width of the longitudinal gap varies along the length of the hollow member, wherein the longitudinal gap is narrowest at a central part of the device, and wherein the longitudinal gap tapers outwardly when travelling from the central part towards the first end and end second end. 40

[0016] In an embodiment of the device, the hollow member has a wall thickness between 1-3mm. 45

[0017] In an embodiment of the device, an edge extends around the outer circumference of the hollow member, wherein the edge has an edge thickness which is greater than the wall thickness of the tubular member. 50

[0018] In an embodiment of the device, the main body comprises a first coupling member for coupling the device to a retaining unit. 55

[0019] In an embodiment of the device, the first coupling member is provided at the first end of the hollow member and extends away from the tubular member in a longitudinal direction thereof. 60

[0020] In an embodiment of the device, the first coupling member comprises a left hook part and an opposite, right hook part, wherein a first end of the left hook part and a first end of the right hook part are connected to the hollow member, and wherein a free, second end of the left hook part and a free, second end of the right hook part extend away from the hollow member and towards each other. 65

[0021] In an embodiment of the device, the first end of the hollow member, the left hook part and the right hook part define a coupling gap for accommodating a corresponding second coupling member of the retaining unit.

[0022] In an embodiment of the device, a first gap is provided between the free, second ends of the left hook and the right hook, the first gap having a first gap width.

[0023] In an embodiment of the device, the left hook part and the right hook part are resilient, wherein the free, second end of the left hook part and/or the free, second end of the right hook part are movable towards and away from one another for decreasing or increasing the first gap width.

[0024] In an embodiment of the device, the free, second ends of the left hook part and the right hook parts are rounded at an inner side thereof facing the hollow member and an outer side thereof facing away from the hollow member.

[0025] In an embodiment of the device, the main body comprises a first protrusion provided at the first or second end of the hollow member, the first protrusion being configured to be pushed against an external surface.

[0026] In an embodiment of the device, the first protrusion comprises a curved plate that is connected at the first or second end of the hollow member, wherein the curved plate extends parallel to the hollow member.

[0027] In an embodiment of the device, the first protrusion comprises a hook part configured for pulling on an object.

[0028] In an embodiment of the device, the main body comprises a second protrusion extending from the hollow member at the first or second end thereof, wherein the second protrusion is provided at a distance from the first protrusion and extends parallel to said first protrusion.

[0029] In an embodiment of the device, the second protrusion is provided at an opposite end of the hollow member as the first protrusion.

[0030] In an embodiment of the device, the first protrusion is located on a first side of the longitudinal axis, when seen in top view.

[0031] In an embodiment of the device, the second protrusion is located on a second side of the longitudinal axis, when seen in top view.

[0032] In an embodiment of the device, the device comprises a conductive unit for pressing and operating a touch screen, wherein the conductive unit is made from a material comprising electrically conductive properties.

[0033] In an embodiment of the device, the conductive unit is located at the same end as the second protrusion, and wherein in top view the conductive unit extends beyond the second protrusion.

[0034] In an embodiment of the device, the main body comprises a through hole for connecting a connector or a retaining unit thereto.

[0035] In an embodiment of the device, the device comprises the connector, and wherein the connector comprises the conductive unit for pressing and operating the touch screen.

[0036] In an embodiment of the device, the through hole is provided at the first or second end of the hollow member, or wherein the through hole is provided in the first protrusion.

5 **[0037]** In an embodiment of the device, the device is substantially symmetric, in particular symmetric, in top view and/or in bottom view about a plane defined by the longitudinal axis. This makes the device more suited for both left handed as right handed users.

10 **[0038]** In an embodiment the device, in front view, has a C-shape.

[0039] In an embodiment of the device, the hollow member, in front view, has a circular, oval or polygonal shape with a side opening.

15 **[0040]** In an embodiment of the device, the outer surface of the hollow member is textured.

[0041] In an embodiment of the device, an inner diameter of the hollow member is between 15 and 55 mm, in particular between 25 and 45 mm.

20 **[0042]** In an embodiment the device is a single body. A single body has the benefit of no interconnected parts. Interconnected parts are prone to accumulation of dirt at their connection areas. Hence, a single body is easier to keep clean.

25 **[0043]** In an embodiment the device is made from a low-density polyethylene material. Such a material provides a durable, resilient device which does not damage external surfaces of external objects.

30 **[0044]** In an embodiment the device is made from a material comprising an anti-microbial additive. The anti-microbial additive prevents multiplication of microbes on the surface of the device.

35 **[0045]** In an embodiment the device is made from a material comprising metal particles. This embodiment is for example useful for the food industry, wherein the device may for example be accidentally dropped in a container of food. The metal particles allow the device to be detected by a metal detector.

40 **[0046]** In an embodiment the device comprises a readable medium provided inside the main body. The readable medium can for example be an RFID-chip or a tag for unlocking doors or doing payments. The readable medium may be provided inside the main body during injection moulding.

45 **[0047]** The present invention further relates to an assembly comprising a device according to the invention and a retaining unit, wherein the retaining unit is coupled to the device via the first coupling member or the through hole, wherein the device is removable from the retaining unit by pulling the device away from the retaining unit, and wherein the device is connectable with the retaining unit by pushing the first coupling member or the through hole of the device through or over a second coupling member of the retaining unit.

55 **[0048]** In an embodiment of the assembly, the retaining unit comprises a second coupling member configured to be coupled to the first coupling member or the through hole of the device.

[0049] In an embodiment of the assembly, the second coupling member defines a through hole configured to be coupled to the first coupling member of the device.

[0050] In an embodiment of the assembly, a thickness of the second coupling member is greater than the first gap width.

[0051] In an embodiment of the assembly, the retaining unit comprises a hook at a second end thereof.

[0052] These and other aspects of the invention will be more readily appreciated as the same becomes better understood by reference to the following detailed description and considered in connection with the accompanying drawings in which like reference symbols designate like parts.

BRIEF DESCRIPTION OF THE FIGURES

[0053]

Figure 1 schematically shows a perspective view of an embodiment of a portable handheld device according to the invention.

Figure 2 schematically shows a top view of the embodiment of figure 1.

Figure 3 schematically shows a perspective view of an embodiment of a device according to the invention provided over an elongate external object.

Figure 4 schematically shows the embodiment of figure 3 with a hand of a user.

Figure 5 schematically shows a front view of the embodiment of figure 1.

Figure 6 schematically shows a side view of the embodiment of figure 1.

Figure 7A schematically shows a bottom view of the embodiment of figure 1.

Figure 7B schematically shows a cross-sectional view of the bottom view of figure 7A at section B-B in figure 5.

Figure 8 schematically shows a perspective view of an embodiment of the device according to the invention comprising an electrically conductive unit.

Figure 9 schematically shows an embodiment of an assembly according the invention comprising an embodiment of a portable handheld device according to the invention and a retaining unit, wherein the device and the retaining unit are coupled.

Figure 10 schematically shows the assembly of figure 9, wherein the device and the retaining unit are uncoupled.

Figure 11 schematically shows a front view of an embodiment of a retaining unit.

Figure 12 schematically shows a side view of the retaining unit of figure 11.

DETAILED DESCRIPTION OF THE FIGURES

[0054] Turning to figures 1 to 7, an embodiment of a portable handheld device 1 is shown. The device 1 is

intended and configured for reducing, in particular preventing, direct hand 13 contact with an external object 2. The device 1 comprises a main body 3 comprising an elongate hollow member 4.

[0055] The device may have rounded corners. Rounded corners allow the device to be cleaned effectively. Rounded corners also allow for less accumulation of dirt and bacteria.

[0056] The device may have rounded edges. Rounded edges are comfortable for a user his or hers hand.

[0057] The device 1 can be used with a single hand.

[0058] The hollow member 4 comprises a first end 5, an opposite, second end 6, an inner surface 7, and an outer surface 8. A longitudinal gap 9 is provided in the hollow member 4. The longitudinal gap 9 extends from the first end 5 to the second end 6, and from the inner surface 7 to the outer surface 8.

[0059] The longitudinal gap 9 is configured as an insert opening 10 for an elongate external object 2, as shown in for example figures 3 and 4 wherein the elongate external object 2, as an example, is a door handle 71.

[0060] The inner surface 7 of the hollow member 4 defines an internal volume 11 for accommodating the elongate external object 2. The inner surface 7 of the hollow member 4 is configured to contact an external surface 12 of the elongate external object 2. The outer surface 8 of the hollow member 4 is configured to be contacted by the hand 13 of the user, in particular the palm of the hand, as shown in figure 4. The shape of the hollow member 4 provides a large outer surface 8 for the user to contact. A large outer surface 8 is desired, because it provides protection and comfort in many situations.

[0061] The hollow member 4 is resilient, or flexible. A first side 14 of the hollow member 4 adjacent the longitudinal gap 9 and an opposite, second side 15 of the hollow member 4 adjacent the longitudinal gap 9 are movable towards and away from each other by deformation of the hollow member 4.

[0062] Having the first and second side 14, 15 move away from each other allows the insert opening 10 of the device 1 to be moved over an elongate external object 2 having a greater diameter than the initial gap width 23 of the longitudinal gap 9.

[0063] Having the first and second side move towards each other allows the device 1 to enclose an elongate external object 2 having a smaller diameter than the initial gap width 23 of the longitudinal gap 9. The first and second side may also slide over each other, thereby further decreasing the internal volume 11.

[0064] The first and second side 14, 15, may also be used to grip an object between said sides 14, 15 by moving them towards each other.

[0065] The hollow member 4 has a length 18, a width 19 and a height 20, wherein the length 18 is at least twice the width 19 and/or at least twice the height 20.

[0066] As shown in the front view of figure 5 a circumferential length 21 of the longitudinal gap 9 is between 0.15 and 0.3 times a circumferential length 22 of the hol-

low member 4.

[0067] In said front view of figure 5 the longitudinal gap 9 has a gap width 23 which is between 0.25 and 0.5 times the width 19 of the hollow member 4.

[0068] In front view the device 1 has a C-shape 55. The hollow member 4 has a C-shape 55.

[0069] In the shown embodiment the hollow member 4 has an, in front view, oval shape 56 with a side opening 57. Other shapes are also possible, like for example a circular or polygonal shape with a side opening 57.

[0070] An inner diameter 58 of the hollow member 4 is between 15 and 55 mm, in particular between 25 and 45 mm.

[0071] As shown in the side view of figure 6 the bottom end 73 is curved. The bottom end 73 gradually curves upwards from a central part 24 towards the first end 5 and second end 6. The curved bottom end 73 helps in moving the insert opening 10 of the hollow member 4 over an elongate external object having a larger diameter than the insert opening.

[0072] As shown in figure 7A a gap width 23 of the longitudinal gap 9 varies along the length 18 of the hollow member 4. The longitudinal gap 9 is narrowest at a central part 24 of the device 1. The longitudinal gap 9 tapers outwardly when travelling from the central part 24 towards the first end 5 and end second end 6. This arrangement has as an advantage that the device 1 is easier to slide over the elongate external object 2.

[0073] Figure 7B schematically shows a wall thickness 25 of the hollow member 4. The wall thickness 25 is between 1-3mm.

[0074] An edge 26 extends around the outer circumference of the hollow member 4. The edge 26 has an edge thickness 27 which is greater than the wall thickness 25 of the tubular member. The thicker edge 26 improves grip for the user. The thicker edge 26 also enables the user to feel when he or she has reached the end of the outer surface 8 of the device 1.

[0075] The main body 3 comprises a first coupling member 28 for coupling the device 1 to a retaining unit 29.

[0076] The first coupling member 28 is provided at the first end 5 of the hollow member 4 and extends away from the tubular member in a longitudinal direction 30 thereof.

[0077] The first coupling member 28 comprises a left hook part 31 and an opposite, right hook part 32. A first end 33 of the left hook part 31 and a first end 34 of the right hook part 32 are connected to the hollow member 4. A free, second end 35 of the left hook part 31 and a free, second end 36 of the right hook part 32 extend away from the hollow member 4 and towards each other.

[0078] The first end 5 of the hollow member 4, the left hook part 31 and the right hook part 32 define a coupling gap 37 for accommodating a corresponding second coupling member 38 of the retaining unit 29, as shown in an assembly 100 according to the invention in figure 9.

[0079] A first gap 39 is provided between the free, second ends 35, 36 of the left hook and the right hook. The

first gap 39 has a first gap width 40, see figure 7B.

[0080] The first gap width 40 is smaller than a thickness of a second coupling member 38 of the retaining unit 29. This way, once coupled, the device 1 can only be uncoupled from the retaining unit 29 upon the exertion of an external force. The device 1 will not simply fall out of the retaining unit 29.

[0081] The left hook part 31 and the right hook part 32 are resilient. The free, second end 35 of the left hook part 31 and/or the free, second end 36 of the right hook part 32 are movable towards and away from one another for decreasing or increasing the first gap width 40.

[0082] The free, second ends 35, 36 of the left hook part 31 and the right hook parts 31, 32 are rounded at an inner side 42 thereof facing the hollow member 4 and at an outer side 43 thereof facing away from the hollow member 4. The rounded ends help guide the second coupling member 38 of the retaining unit 29.

[0083] The first coupling member 28 comprising the hook parts allows the user to uncouple the device 1 from the retaining unit 29 quickly. A quick uncoupling is beneficial, because when the user experiences the quick use the user will use the device 1 more often. When the use of the device 1 increases, the chance of contamination decreases.

[0084] The main body 3 comprises a first protrusion 44 provided at the first or second end 6 of the hollow member 4. In the shown embodiment the first protrusion 44 is provided at the second end 6. The first protrusion 44 is intended and configured to be pushed against an external surface 12. External surfaces can for example be buttons of an elevator, a train door or a traffic stopping light, buttons of an ATM, or simply a doorbell.

[0085] The first protrusion 44 comprises a curved plate 45 that is connected at the first or second end 6 of the hollow member 4. The curved plate 45 extends parallel to the hollow member 4. In the shown embodiment the curved plate 45 is a continuation of a top surface 72 of the hollow member 4.

[0086] The first protrusion 44 comprises a hook part 46 configured for pulling on an object. The hook part 46 is provided at a lateral side of the first protrusion 44. In the shown embodiment the first protrusion 44 comprises two hook parts 46, one at each lateral side. The hook allows for a pulling action. Examples where the first protrusion 44 is useful are lifting a toilet seat or opening the lid of a refrigerator.

[0087] The main body 3 comprises a second protrusion 47 extending from the hollow member 4 at the first or second end 6 thereof, wherein the second protrusion 47 is provided at a distance 48 from the first protrusion 44 and extends parallel to said first protrusion 44.

[0088] The second protrusion 47 is provided at an opposite end of the hollow member 4 as the first protrusion 44.

[0089] The first protrusion 44 is located on a first side 49 of a longitudinal axis 30 of the hollow member 4, when seen in top view.

[0090] The second protrusion 47 is located on a second side 50 of the longitudinal axis 30, when seen in top view.

[0091] The main body 3 comprises a through hole 52 for connecting a connector 53 or a retaining unit 29 thereto.

[0092] The through hole 52 in the shown embodiment is provided in the first protrusion 44. The through hole 52 may also be provided at the first or second end 6 of the hollow member 4, or partly at the first or second end 6 of the hollow member 4 and partly in the first protrusion 44.

[0093] Turning to figure 8 the device 1 is shown comprising an electrically conductive unit 51 for pressing and operating a touch screen. The conductive unit 51 is made from a material comprising electrically conductive properties. In an embodiment the material is a thermoplastic elastomer comprising electrically conductive carbon.

[0094] The conductive unit 51 is located at the same end of the hollow member as the second protrusion 47. In top view the conductive unit 51 extends beyond the second protrusion 47.

[0095] The electrically conductive unit 51 may be provided as a connector 53. The device 1 as shown figure 8 comprises the connector 53, and the connector 53 comprises the electrically conductive unit 51 for pressing and operating the touch screen.

[0096] The device 1 is substantially symmetric, in particular symmetric, in top view and/or in bottom view about a plane 54 defined by the longitudinal axis 30. The symmetry allows the device 1 to be used easily by both a right hand 13 and a left hand.

[0097] The outer surface 8 of the hollow member 4 is textured. The texture improves the grip of the user.

[0098] The device 1 is a single body. A single body simplifies the manufacturing process, as for example a single mould can be used when the device 1 is made by injection moulding.

[0099] The device 1 is made from a low-density polyethylene material. This material is durable and provides both strength and resilience.

[0100] The material of the device comprises an anti-microbial additive. The anti-microbial additive has as an advantage that the time microbes remain on the surface of the device 1 is drastically reduced. The multiplication of contagious microbes is prevented by the additive. The amount of anti-microbial additives may be 1-5 wt%.

[0101] Turning to figures 9 and 10 an assembly according to the invention is shown. The assembly comprises the device 1 and a retaining unit 29. The retaining unit 29 is coupled to the device 1 via the first coupling member 28.

[0102] It is also possible that the retaining unit 29 comprises the first coupling member 28. In that case the device 1 can also be coupled to the retaining unit 29 via the through hole 52.

[0103] The device 1 is removable from the retaining unit 29 by pulling the device 1 away from the retaining

unit 29, as shown in figure 10.

[0104] The device 1 can be coupled to the retaining unit 29 by pushing the first coupling member 28 or the through hole 52 of the device 1 through or over a second coupling member 38 of the retaining unit 29.

[0105] In the shown embodiment the retaining unit 29 comprises a second coupling member 38 configured to be coupled to the first coupling member 28 or the through hole 52 of the device 1.

[0106] The second coupling member 38 is defined by a through hole 59.

[0107] As mentioned above, the retaining unit 29 may have a second coupling member 38 which is similar to the first coupling member 28 comprising the left and right hook parts 31, 32. In that case the second coupling member 38 of the retaining unit 29 can be coupled to either the first coupling member 28 or the through hole 52 of the device 1.

[0108] Turning to figures 11 and 12, an embodiment of a retaining unit 29 is shown. A thickness 67 of the second coupling member 38 is greater than the first gap width 40.

[0109] The retaining unit 29 comprises a hook 70 at an opposite end thereof. The hook can for example be attached to a belt holder of a user his trousers, or to a bag. This way the device 1, when coupled to the retaining unit, is in close range for the user to uncouple it from the retaining unit 29 and to quickly use the device 1.

[0110] It is to be understood that the disclosed embodiments are merely exemplary of the invention, which can be embodied in various forms. Therefore, specific structural and functional details disclosed herein are not to be interpreted as limiting, but merely as a basis for the claims and as a representative basis for teaching one skilled in the art to variously employ the present invention. Further, the terms and phrases used herein are not intended to be limiting, but rather, to provide an understandable description of the invention.

[0111] The terms "a"/"an", as used herein, are defined as one or more than one. The term plurality, as used herein, is defined as two or more than two. The term another, as used herein, is defined as at least a second or more. The terms including and/or having, as used herein, are defined as comprising (i.e., open language, not excluding other element 84s or steps). Any reference signs in the claims should not be construed as limiting the scope of the claims or the invention.

[0112] The mere fact that certain measures are recited in mutually different dependent claims does not indicate that a combination of these measures cannot be used to advantage.

[0113] The present invention further relates to the following numbered clauses:

1. Portable handheld device for reducing, in particular preventing, direct hand contact with an external object, the device comprising:

- a main body comprising an elongate hollow member, the hollow member comprising

- a first end,
- an opposite, second end,
- an inner surface,
- an outer surface,

wherein a longitudinal gap is provided in the hollow member, wherein the longitudinal gap extends from the first end to the second end, and from the inner surface to the outer surface, the longitudinal gap being configured as an insert opening for an elongate external object, wherein the inner surface of the hollow member defines an internal volume for accommodating the elongate external object, wherein the inner surface of the hollow member is configured to contact an external surface of the elongate external object, and wherein the outer surface of the hollow member is configured to be contacted by the hand of the user.

2. Device according to clause 1, wherein the hollow member is resilient, wherein a first side of the hollow member adjacent the longitudinal gap and an opposite, second side of the hollow member adjacent the longitudinal gap are movable towards and away from each other by deformation of the hollow member.

3. Device according to clause 1 or 2, wherein the hollow member has a length, a width and a height, wherein the length is at least twice the width and/or at least twice the height.

4. Device according to any one of the preceding clauses, wherein, in front view, a circumferential length of the longitudinal gap is between 0.15 and 0.3 times a circumferential length of the hollow member.

5. Device according to any one of the preceding clauses, wherein, in front view, the longitudinal gap has a gap width which is between 0.25 and 0.5 times the width of the hollow member.

6. Device according to any one of the preceding clauses, wherein a gap width of the longitudinal gap varies along the length of the hollow member, wherein the longitudinal gap is narrowest at a central part of the device, and wherein the longitudinal gap tapers outwardly when travelling from the central part towards the first end and end second end.

7. Device according to any one of the preceding clauses, wherein the hollow member has a wall thickness between 1-3 mm.

8. Device according to clause 7, wherein an edge extends around the outer circumference of the hollow member, wherein the edge has an edge thickness which is greater than the wall thickness of the tubular member.

9. Device according to any one of the preceding clauses, wherein the main body comprises a first coupling member for coupling the device to a retaining unit.

10. Device according to the preceding clause, wherein the first coupling member is provided at the first end of the hollow member and extends away from the tubular member in a longitudinal direction thereof.

11. Device according to clause 10 or 11, wherein the first coupling member comprises a left hook part and an opposite, right hook part, wherein a first end of the left hook part and a first end of the right hook part are connected to the hollow member, and wherein a free, second end of the left hook part and a free, second end of the right hook part extend away from the hollow member and towards each other.

12. Device according to the preceding clause, wherein the first end of the hollow member, the left hook part and the right hook part define a coupling gap for accommodating a corresponding second coupling member of the retaining unit.

13. Device according to clause 11 or 12, wherein a first gap is provided between the free, second ends of the left hook and the right hook, the first gap having a first gap width.

14. Device according to the preceding clause, wherein the left hook part and the right hook part are resilient, wherein the free, second end of the left hook part and/or the free, second end of the right hook part are movable towards and away from one another for decreasing or increasing the first gap width.

15. Device according to any one of the preceding clauses 11-14, wherein the free, second ends of the left hook part and the right hook parts are rounded at an inner side thereof facing the hollow member and an outer side thereof facing away from the hollow member.

16. Device according to any one of the preceding clauses, wherein the main body comprises a first protrusion provided at the first or second end of the hollow member, the first protrusion being configured to be pushed against an external surface.

17. Device according to the preceding clause,

wherein the first protrusion comprises a curved plate that is connected at the first or second end of the hollow member, wherein the curved plate extends parallel to the hollow member.

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18. Device according to clause 16 or 17, wherein the first protrusion comprises a hook part configured for pulling on an object.

19. Device according to any one of the preceding clauses 16-18, wherein the main body comprises a second protrusion extending from the hollow member at the first or second end thereof, wherein the second protrusion is provided at a distance from the first protrusion and extends parallel to said first protrusion.

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20. Device according to the preceding clause, wherein the second protrusion is provided at an opposite end of the hollow member as the first protrusion.

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21. Device according to any one of the preceding clauses 16-20, wherein the first protrusion is located on a first side of the longitudinal axis, when seen in top view.

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22. Device according to any one of the preceding clauses 19-21, wherein the second protrusion is located on a second side of the longitudinal axis, when seen in top view.

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23. Device according to any one of the preceding clauses, wherein the device comprises a conductive unit for pressing and operating a touch screen, wherein the conductive unit is made from a material comprising electrically conductive properties.

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24. Device according to the preceding clause, wherein the conductive unit is located at the same end as the second protrusion, and wherein in top view the conductive unit extends beyond the second protrusion.

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25. Device according to any one of the preceding clauses, wherein the main body comprises a through hole for connecting a connector or a retaining unit thereto.

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26. Device according to the preceding clause, wherein the device comprises the connector, and wherein the connector comprises the conductive unit for pressing and operating the touch screen.

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27. Device according to clause 25 or 26, wherein the through hole is provided at the first or second end of the hollow member, or wherein the through hole is provided in the first protrusion.

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28. Device according to any one of the preceding clauses, wherein the device is substantially symmetric, in particular symmetric, in top view and/or in bottom view about a plane defined by the longitudinal axis.

29. Device according to any one of the preceding clauses, wherein the device, in front view, has a C-shape.

30. Device according to any one of the preceding clauses, wherein the hollow member, in front view, has a circular, oval or polygonal shape with a side opening.

31. Device according to any one of the preceding clauses, wherein the outer surface of the hollow member is textured.

32. Device according to any one of the preceding clauses, wherein an inner diameter of the hollow member is between 15 and 55 mm, in particular between 25 and 45 mm.

33. Device according to any one of the preceding clauses, wherein the device is a single body.

34. Device according to any one of the preceding clauses, wherein the device is made from a low-density polyethylene material.

35. Device according to any one of the preceding clauses, wherein the material of the device comprises an anti-microbial additive.

36. Device according to any one of the preceding clauses, wherein the device comprises a readable medium provided inside the main body.

37. Assembly comprising a device according to any one of the preceding clauses and a retaining unit, wherein the retaining unit is coupled to the device via the first coupling member or the through hole, wherein the device is removable from the retaining unit by pulling the device away from the retaining unit, and wherein the device is connectable with the retaining unit by pushing the first coupling member or the through hole of the device through or over a second coupling member of the retaining unit.

38. Assembly according to clause 37, wherein the retaining unit comprises a second coupling member configured to be coupled to the first coupling member or the through hole of the device.

39. Assembly according to clause 38, wherein the second coupling member defines a through hole configured to be coupled to the first coupling member

of the device.

40. Assembly according to clause 38 or 39, wherein a thickness of the first or second coupling member is greater than the first gap width.

41. Assembly according to any one of the preceding clauses 37-40, wherein the retaining unit comprises a hook at a second end thereof.

Claims

1. Portable handheld device (1) for reducing, in particular preventing, direct hand contact with an external object (2), the device comprising:

- a main body (3) comprising an elongate hollow member (4), wherein the hollow member has a length (18), a width (19) and a height (20), the hollow member comprising

- a first end (5),
- an opposite, second end (6),
- an inner surface (7),
- an outer surface (8),

wherein a longitudinal gap (9) is provided in the hollow member, wherein the longitudinal gap extends from the first end to the second end, and from the inner surface to the outer surface, the longitudinal gap being configured as an insert opening (10) for an elongate external object, wherein the inner surface of the hollow member defines an internal volume (11) for accommodating the elongate external object, wherein the inner surface of the hollow member is configured to contact an external surface (12) of the elongate external object, and wherein the outer surface of the hollow member is configured to be contacted by a hand of the user (13).

2. Device according to claim 1, wherein the hollow member is resilient, wherein a first side (14) of the hollow member adjacent the longitudinal gap and an opposite, second side (15) of the hollow member adjacent the longitudinal gap are movable towards and away from each other by deformation of the hollow member.
3. Device according to claim 1 or 2, wherein the length is at least twice the width and/or at least twice the height.
4. Device according to any one of the preceding claims, wherein, in front view, the longitudinal gap has a gap width (23) which is between 0.25 and 0.5 times the

width of the hollow member.

5. Device according to any one of the preceding claims, wherein a gap width (23) of the longitudinal gap varies along the length of the hollow member, wherein the longitudinal gap is narrowest at a central part (24) of the device, and wherein the longitudinal gap tapers outwardly when travelling from the central part towards the first end and end second end.
6. Device according to any one of the preceding claims, wherein the main body comprises a first coupling member (28) for coupling the device to a retaining unit (29), wherein the first coupling member comprises a left hook part (31) and an opposite, right hook part (32), wherein a first end (33) of the left hook part and a first end (34) of the right hook part are connected to the hollow member, and wherein a free, second end (35) of the left hook part and a free, second end (36) of the right hook part extend away from the hollow member and towards each other.
7. Device according to the preceding claim, wherein the left hook part and the right hook part are resilient, wherein the free, second end of the left hook part and/or the free, second end of the right hook part are movable towards and away from one another for decreasing or increasing a first gap width between the free, second end of the left hook part and the free, second end of the right hook part.
8. Device according to any one of the preceding claims, wherein the main body comprises a first protrusion (44) provided at the first or second end of the hollow member, the first protrusion being configured to be pushed against an external surface.
9. Device according to the preceding claim, wherein the first protrusion comprises a hook part (46) configured for pulling on an object.
10. Device according to any one of the preceding claims, wherein the device comprises a conductive unit (51) for pressing and operating a touch screen, wherein the conductive unit is made from a material comprising electrically conductive properties.
11. Device according to any one of the preceding claims, wherein the main body comprises a through hole (52) for connecting a connector (53) or a retaining unit (29) thereto.
12. Device according to any one of the preceding claims, wherein the material of the device comprises an anti-microbial additive.
13. Device according to any one of the preceding claims, wherein the device comprises a readable medium

provided inside the main body.

14. Assembly (100) comprising a device (1) according to any one of the preceding claims and a retaining unit (29), wherein the retaining unit is coupled to the device via the first coupling member or the through hole, wherein the device is removable from the retaining unit by pulling the device away from the retaining unit, and wherein the device is connectable with the retaining unit by pushing the first coupling member or the through hole of the device through or over a second coupling member of the retaining unit.
15. Assembly according to claim 14, wherein a thickness (67) of the second coupling member is greater than the first gap width.

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Fig. 2

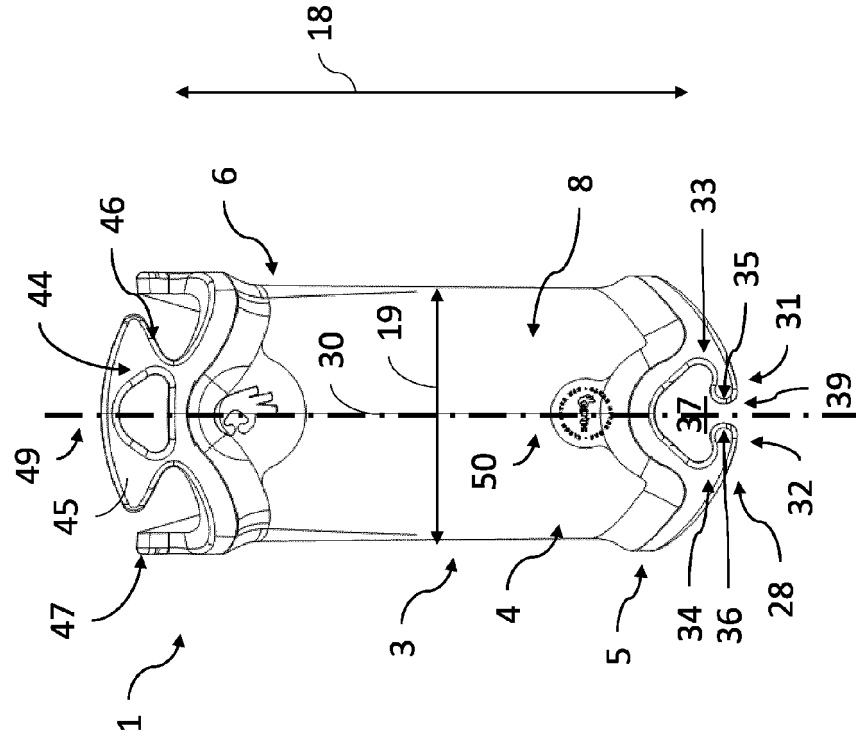


Fig. 1

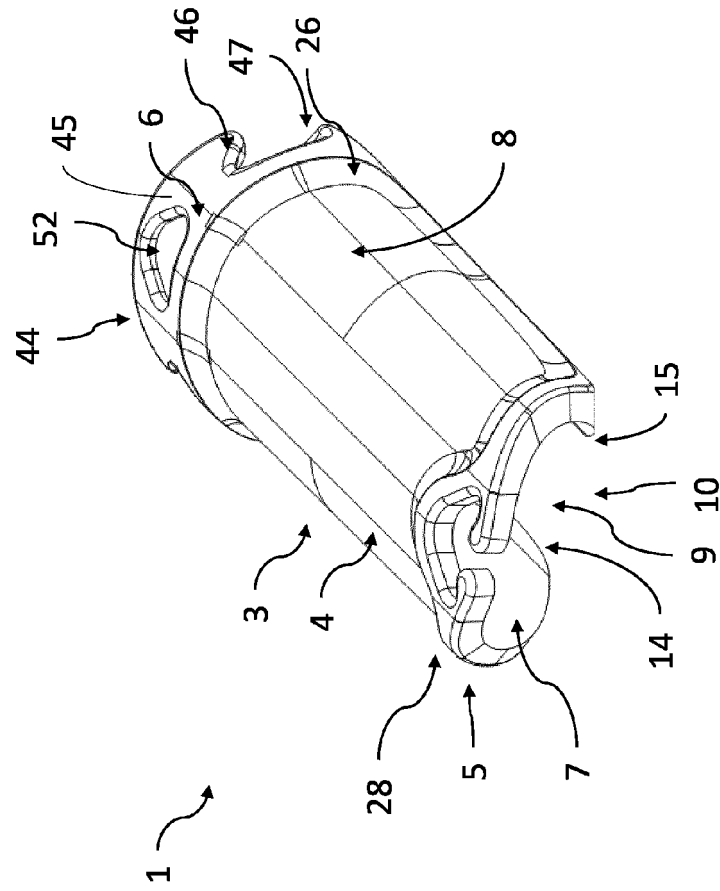


Fig. 3

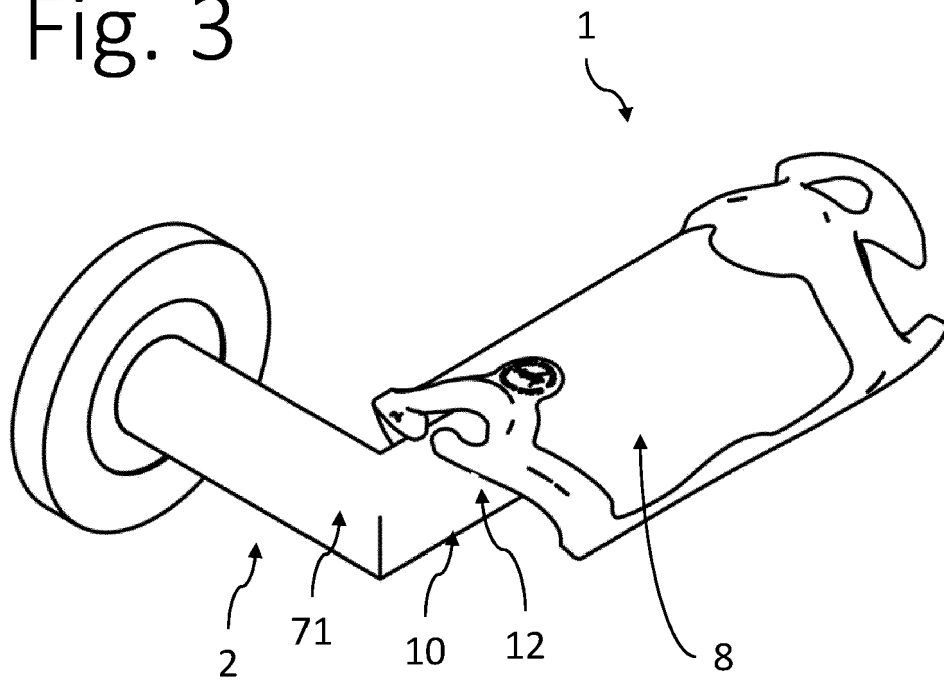


Fig. 4

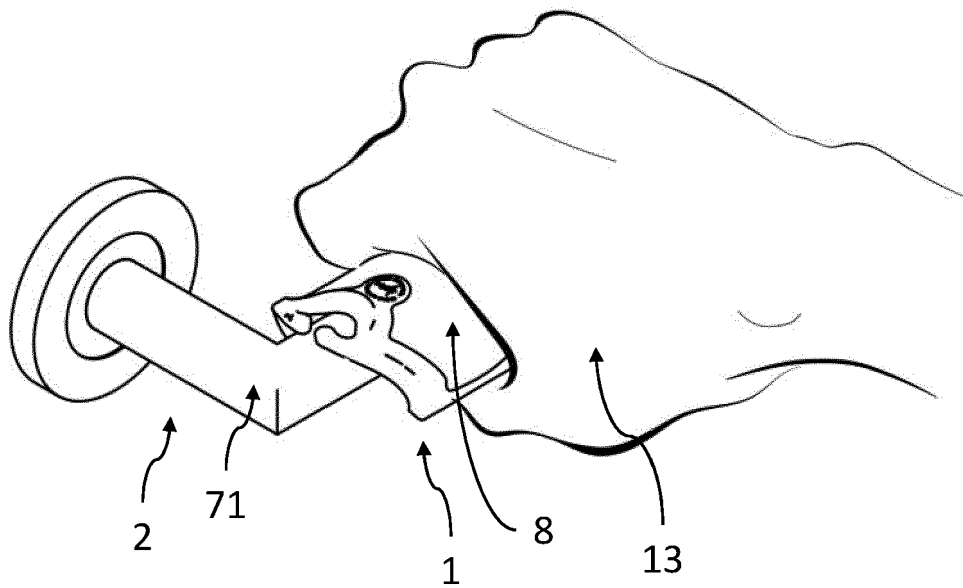


Fig. 5

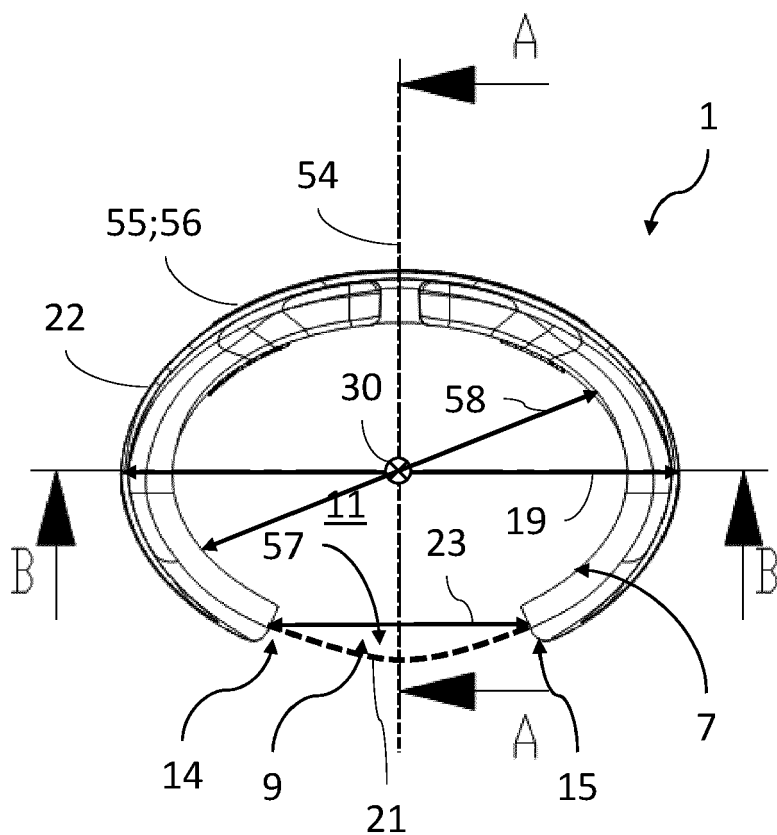


Fig. 6

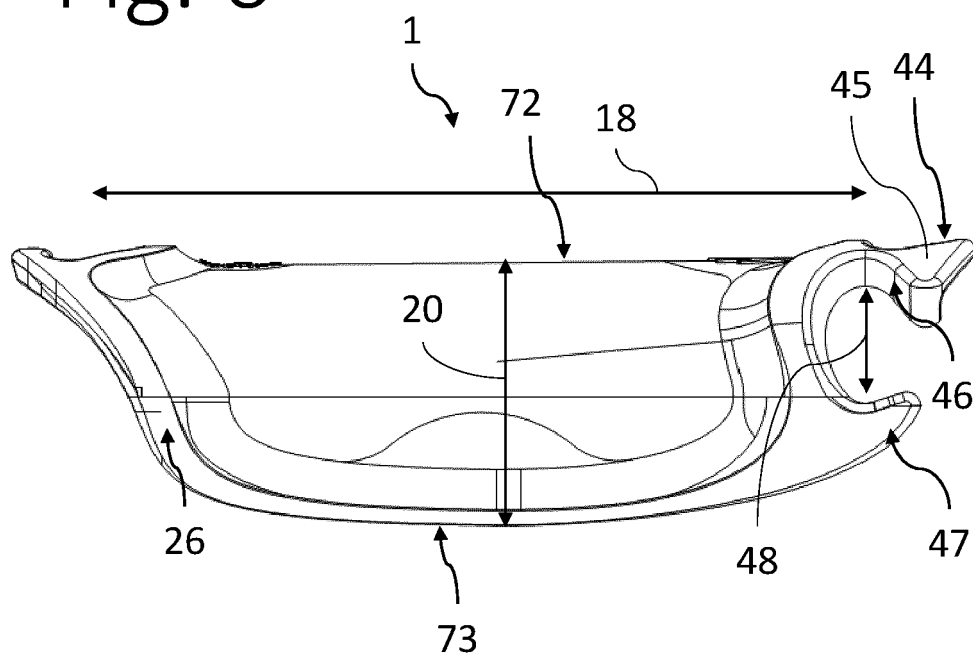


Fig. 7A

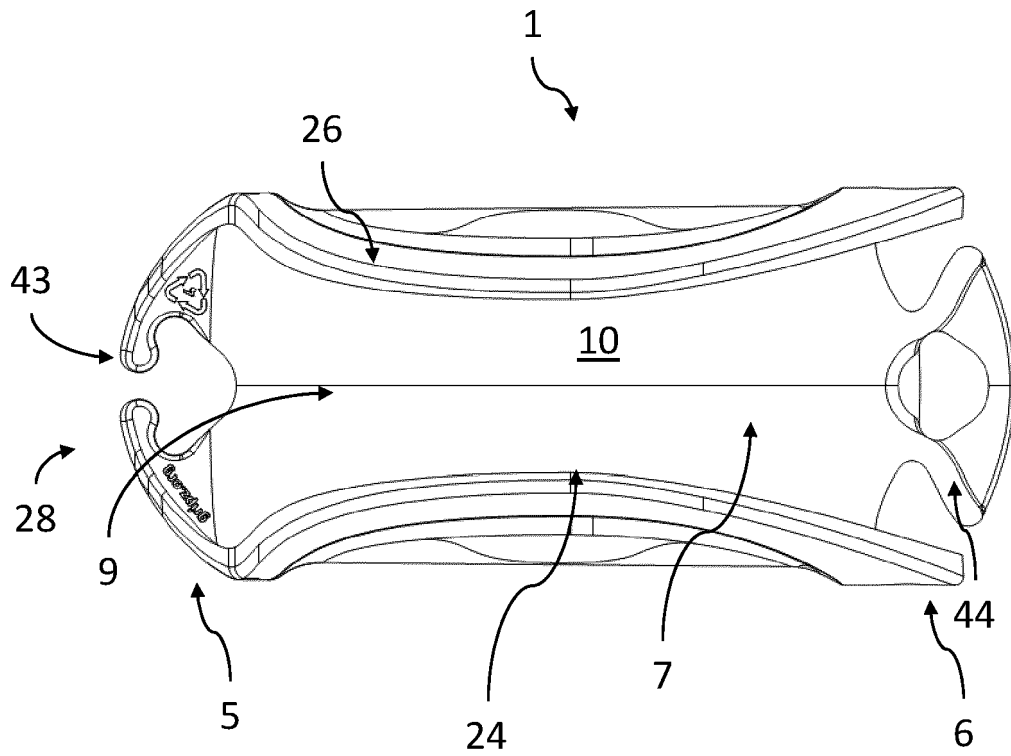


Fig. 7B

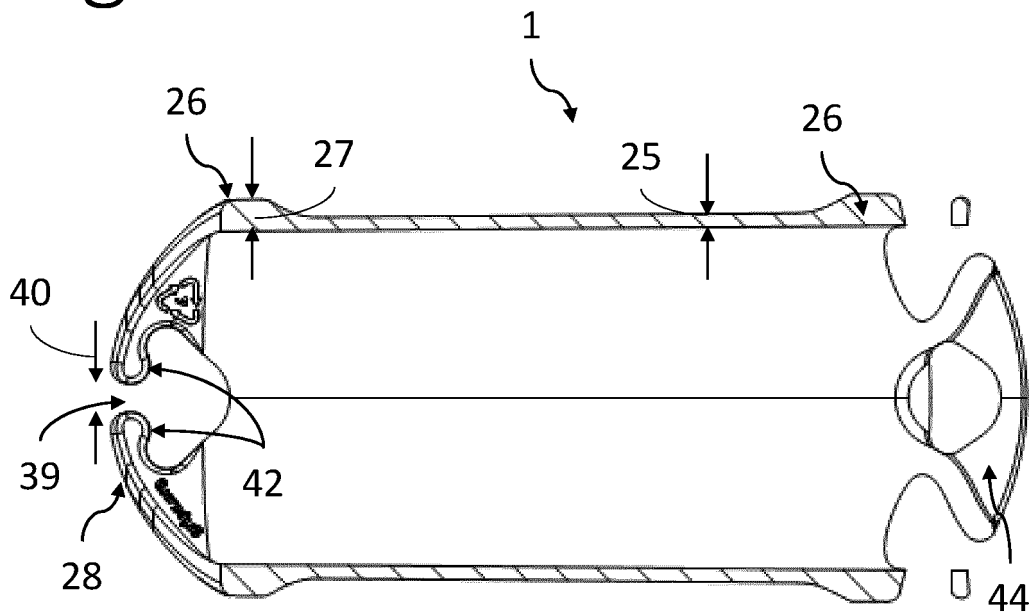


Fig. 8

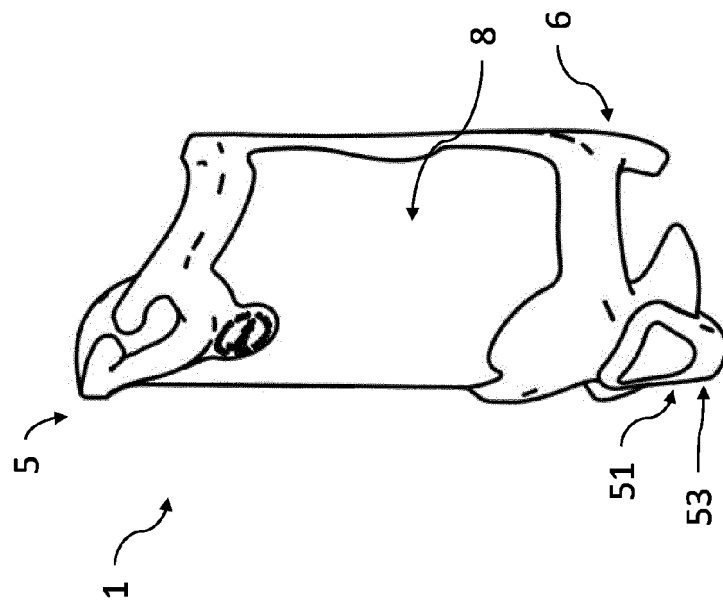


Fig. 9

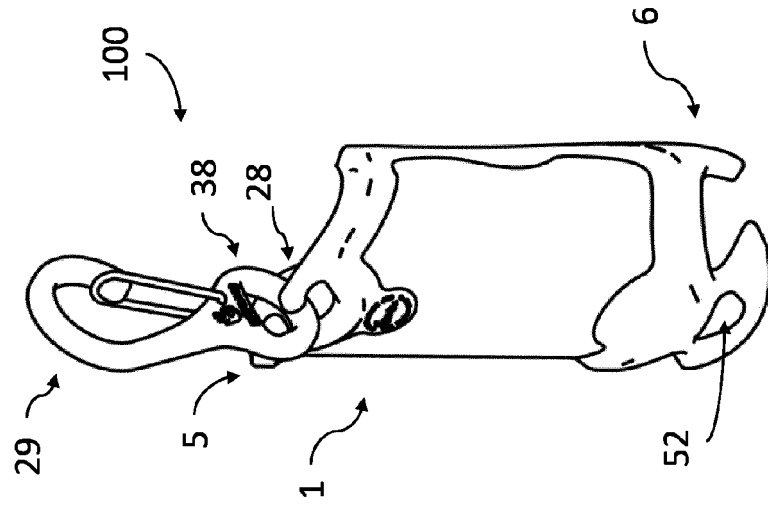


Fig. 10

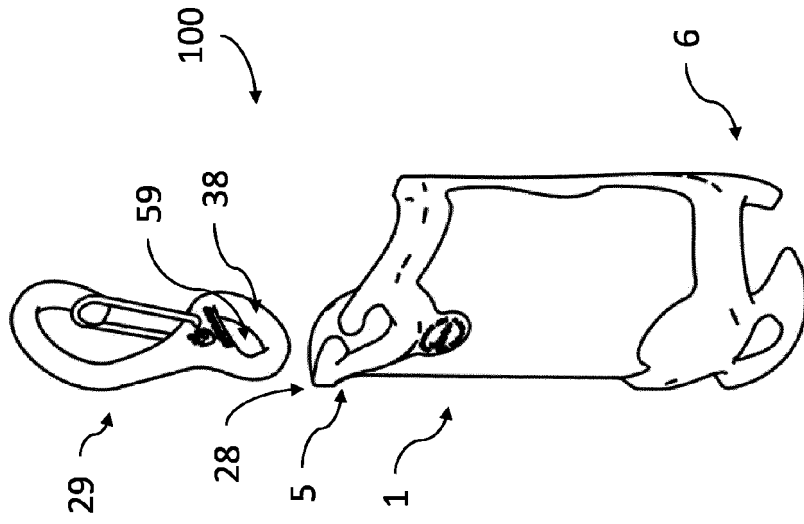


Fig. 11

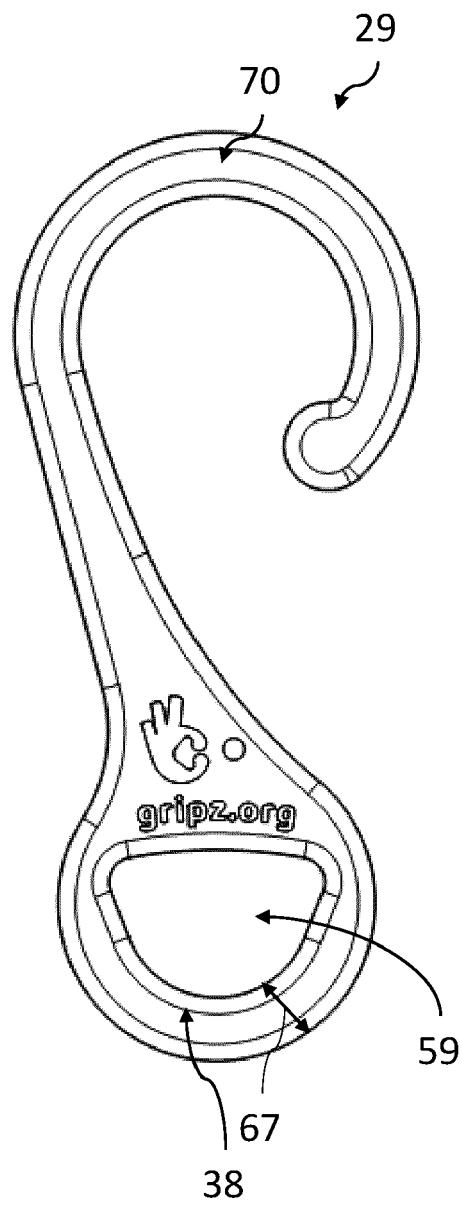
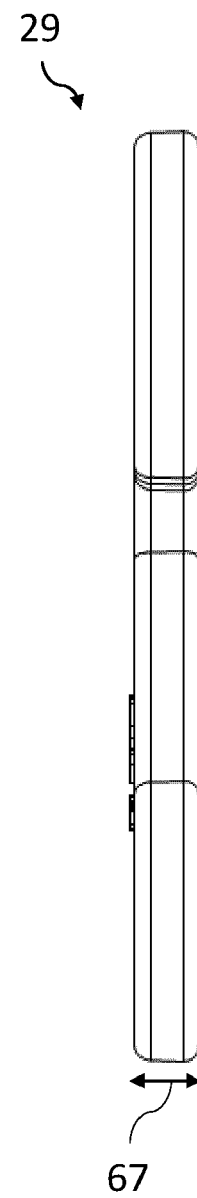


Fig. 12





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Y	* paragraph [0034] - paragraph [0068]; figures 1-5 *	10-15	
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