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(54) **Method for producing a hygienic device for sanitary fixtures**

Verfahren zur Herstellung einer hygienischen Vorrichtung für Sanitäreinrichtungen

Procédé pour la fabrication d'un dispositif hygiénique pour équipements sanitaires

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WO-A1-2009/037431 **WO-A1-2011/141720**

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Description

[0001] The present invention refers to a method for producing a hygienic device for sanitary fixtures of the type that is suitable for being hung, by means of a suitable hook, to the perimetrical edge of a sanitary fixture, such as for example a WC, according to the preamble of claim 1. Known hygienic devices can be divided into so-called "solid tablets", comprising a detergent and/or deodorant means in the solid state, and so-called "liquid tablets", comprising WC detergent and/or deodorant means in the liquid state dispensed through a container.

[0002] In particular, the first type of hygienic devices for WCs generally comprises a perforated dispensing element, called "cage", which is provided with a hook for being engaged to the edge of the WC, and inside which detergent and/or deodorant means in the form of a solid block, also called "soap", are contained.

[0003] The detergent and/or deodorant means in the solid state is currently manufactured, generally, through an extrusion process.

[0004] With every flush of discharge water, the water which directly immerses the cage dispensing element dissolves and washes away a small quantity of the detergent and/or deodorant product from the solid block contained inside the cage.

[0005] One drawback of such cage devices is that they have a high impact on the environment. Indeed, once they have been used, when the detergent and/or deodorant means has run out, the entire dispensing element, comprising the hook and the cage, is thrown away.

[0006] Furthermore, when cage devices are applied inside the WC, they are bulky and have an appearance that can be considered unattractive.

[0007] Also other hygienic devices for WCs have been developed in which the solid detergent and/or deodorant means is suspended to the perimetrical edge through a less bulky cage structure. For example, document WO 2007/107750 A1 shows a solid detergent means, which has substantially the entire outer surface that is exposed to the discharge water, inside which the plate-shaped end of the hook, for being suspended to the perimetrical edge of the WC, is directly embedded. According to the teachings of WO 2007/107750 A1, the plate is inserted in a cut made in the solid detergent block that, through a compressing step, is enclosed around it.

[0008] Also document EP 1891197 A1 describes a process for making a solid detergent block that is suitable for being suspended to an edge of a WC, in which one part of the hook is inserted in the solid block and such a solid block can undergo compression so as to encapsulate the part of the hook.

[0009] The main drawback of such devices that are made by inserting a part of the hook in the solid block and by exerting a compression so as to close the solid block around the hook consists of the hold of the coupling between the hook and the solid block during the consumption of the solid block. In particular, the area of contact between the hook and solid block is subject to the phenomenon of delamination, due to repeated flushing of discharge water, and to the progressive consumption of the solid block. This phenomenon could cause the solid block to become detached from the hook and therefore a premature falling of the solid block before it has been substantially used up.

[0010] A further drawback consists of carrying out the production process that requires the insertion and the correct positioning of many separate elements, in particular the solid block and the hook, into a mould in which they are fixedly attached to one another through compression.

[0011] Another example of a hygienic device for a WC comprising a solid detergent and/or deodorant means is given by document WO 2011/141720 A1, which teaches to pierce through a solid detergent block on a plate placed either at the front or at the back thereof.

[0012] Also in this type of device the size of the structure is smaller with respect to cage devices, but it still has a support structure that is external with respect to the solid block, which is visible in use, especially if of the front type, and that affects the circulation of the discharge water around the solid block, and consequently the uniformity of its consumption negatively.

[0013] Document WO 2007/107755 representing the closest prior art shows a method for producing a hygienic device. The purpose of the present invention is that of providing a method for producing a hygienic device for sanitary fixtures that makes it possible to optimise the circulation of discharge water around the solid detergent block so as to achieve the most homogeneous and even consumption possible with respect to the different types of WCs.

[0014] Another purpose of the present invention is that of providing a method for producing a hygienic device for sanitary fixtures minimising the risk of premature detachment of the solid block from the hooking means during its use.

[0015] A further purpose is that of providing a method for producing a hygienic device for sanitary fixtures that optimise the result in terms of its appearance.

[0016] Another purpose of the present invention is that of providing a method for producing a hygienic device for sanitary fixtures that is particularly simple and functional, and have low cost.

[0017] These purposes according to the present invention are achieved by the method for producing a hygienic device for sanitary fixtures as outlined in the independent claim.

[0018] Further characteristics are provided with in the dependent claims.

[0019] The characteristics and the advantages of a method for producing a hygienic device for sanitary fixtures according to the present invention shall become clearer from the following description, given as an example and not for limiting purposes, with reference to the attached schematic drawings, in which:

figure 1 is a schematic view showing the production method of a hygienic device for sanitary fixtures;
figures 2 and 3 are section views according to the lines II-II and III-III shown in figure 5 of a first embodiment of a hygienic device for sanitary fixtures produced according to the method of the invention;
figure 4 shows the hooking means of the device of figures 2 and 3;
figure 5 is a perspective view of the device of figure 2;
figures 6-10 are exploded views of further embodiments of a hygienic device for sanitary fixtures produced according to the invention showing the hooking means and the relative detergent bodies with cylindrical geometry;
figures 11-15 show further embodiments of the hooking means of the hygienic devices for sanitary fixtures produced according to the invention;
figure 16 shows a last embodiment of the hooking means of the hygienic devices for sanitary fixtures produced according to the invention in an intermediate storing configuration as raw materials;
figure 17 shows a hygienic device for sanitary fixtures produced according to the invention showing the hooking means of figure 16, in a second moulding configuration, and the relative detergent body having a cylindrical geometry.

[0020] With reference to the figures, a hygienic device for sanitary fixtures is shown, wholly indicated with 10, comprising a detergent and/or deodorant means in the form of solid block 20, made of a malleable extruded paste, and means 30 for hooking to a perimetrical edge of a WC.

[0021] The hooking means 30 comprise a first engaging portion 31 for engaging to the WC, in the example shaped as a flexible hook that can have variable shapes and sizes.

[0022] The hooking means 30 also comprise a second portion for engaging the solid block 20, which, when the product is finished, is embedded in the solid block 20 and that, according to the invention, consists of a perforated element 32.

[0023] The perforated element 32 comprises a through hole 33, or possibly many through holes 33 (figure 9) that are separated by a sect 34 and that are surrounded by a perimetrical wall 35.

[0024] Each hole 33 can have, in general, any shape.

[0025] According to particular embodiments shown as an example in figures 8 and 17, the hole 33 can have, on the outline wall, at least one guiding or engaging projection 36, 36' that can be shaped in various ways and protruding towards the inside of the hole for coupling with an extruded body of detergent and/or deodorant material having a cylindrical geometry 4 during the moulding of the device 10 according to the invention.

[0026] Figure 8 shows, for example, two guiding projections 36 that face one another in opposite points of the hole 33, which are suitable for engaging corresponding recesses 6 matching the body having cylindrical geometry 4.

[0027] Figure 17 shows a plurality of engagement projections 36', that are made in the form of wedges projecting, for some millimetres, towards the inside of the hole 33, equally radially spaced apart along the wall 35 of the perforated element 32, suitable for engraving the surface of the body having cylindrical geometry 4.

[0028] Such engagement projections 36', alternatively to the guiding projections 36 shown in figure 8, could be provided in each of the other embodiments that have been shown and described.

[0029] The perimetrical wall 35 of the perforated element 32 can have an external outline surface of any shape and, in the examples, it is shown as an example in the shape of a petal or circular. Preferably, the perforated element 32 is ring-shaped. The flat dimensions of the perforated element 32 are, in general, smaller or, at the most, the same as those of the solid block 20, so as to be completely embedded in the block itself and thus hidden from sight.

[0030] However, according to the invention, the perforated element 32 could also have greater dimensions with respect to the solid block and project from it even when the product is new, according to an embodiment that has not been shown. Also in this case it will be considered a perforated element 32 embedded in the solid block, since the portion of perforated element embedded in the solid block is responsible for holding the solid block on the hooking means.

[0031] According to a preferred embodiment, the perforated element 32 has an uneven thickness in the direction that is perpendicular to the plane on which it lies, since at least one element 37 is provided protruding from at least one side of the perforated element 32, which forms a discontinuity in the surface of the perimetrical wall 35.

[0032] Figures 4 and from 11 to 15 show example embodiments of elements projecting 37 with respect to the thickness of the perforated element 32, for example consisting of spikes or pins that are distributed radially according to various configurations on the perimetrical wall 35. The projecting elements 37 can have a height that is equal to the thickness of the perforated element 32, but that in any case is lower with respect to the thickness of the solid block 20, so as to not project from the finished product before being used.

[0033] The projecting elements 37 have the main function of helping to place the hooking means into the mould correctly during the production of the device 10 according to the invention and of preventing it from rotating during the moulding step.

[0034] The projecting elements 37 have the further function of ensuring a greater hold of the moulded solid block on the perforated element, by increasing the surface of contact and introducing surfaces of contact having different inclinations.

[0035] According to what is shown in figures 16 and

17, the discontinuity of the upper and/or lower surfaces of the wall 35 can also be made through recesses, that identify a plurality of knurlings 37', substantially extending for the entire upper and/or lower surface of the perforated element 32, except for a flat section on each of the upper and/or lower surfaces placed in a position that is diametrically opposite with respect to the engaging portion 31 for engaging to the WC.

[0036] The knurlings 37', which could be indifferently made also in the form of projections, are arranged radially on the wall 35 and help better convey the paste of the solid block so as to be distributed in a radial manner from the inside outwards during moulding.

[0037] The flat section, that in the illustrated example has a thickness equal to the maximum distance between the spikes of the knurlings 37' present on the opposite faces of the perforated element 32, has the function of strengthening it in the point of greatest tensile stress during the moulding step derived from the pressure exerted by squashing the body having cylindrical geometry 4.

[0038] In the embodiment shown in figures 16 and 17 a collar 38 is moreover shown, arranged in the portion of transition between the first engaging portion 31 for engaging to the WC and the second engaging portion to the solid block 20, which could be present in any of the further embodiments shown and described. The collar 38, in addition to being an aid for the manipulation of the hooking means on the production line, helps to place the hooking means correctly inside the mould so as to keep them in position during the compression of the body having cylindrical geometry 4.

[0039] As shown in the sections of figures 2 and 3, the solid block 20 of the device 10 according to the invention comprises, at the hole 33 of the perforated element 32, an internal portion 21, which is inside the hole 33, made from the outset in a unique cohesive piece. This means that at the hole 33, along the entire thickness of the solid block 20, there are no joining surfaces between different parts of the solid block 20.

[0040] The solid block 20 comprises, moreover, an intermediate portion 22, that is adjacent to the internal portion 21 passing in the hole 33 and facing the perimetrical wall 35, in which facing surfaces of the solid block are in contact with the perimetrical wall 35 of the perforated element 32 on opposite sides.

[0041] In the case in which the perforated element 32 is entirely embedded inside the solid block 20, the solid block 20 comprises an external perimetrical portion 23 that is obtained by joining two distinct layers of the solid block 20 that have come into contact with one another during moulding. Figures 2 and 3 show an embodiment in which it is possible to identify two distinct layers of the solid block 20 in contact with one another along a joining surface 24, shown only as an example at about half the thickness of the solid block 20. Depending on the moulding parameters, the joining surface 24 can be emphasised to a greater or lesser extent and thus possible to identify in the section of the finished solid block rather than on the side wall thereof.

[0042] According to one more general embodiment of the invention, the external perimetrical portion 23 of the solid block 20 may not have a distribution that is symmetrical with respect to the perforated element 32, but rather have a greater volume on one side of the perforated element 32, in figure 2 on the side opposite the hook 31, depending on the shape of the mould.

[0043] In the variant embodiments comprising many holes 33, the solid block 20 comprises, at each hole 33, an internal portion passing in the hole 33 and made in a unique cohesive piece. The intermediate portion 22, in this case, faces both the perimetrical wall 35, and the sects 34. The considerations described above, concerning the presence of the external perimetrical portion 23 also apply if the perforated element 32 is entirely embedded in the solid block 20 according to a preferred embodiment.

[0044] In particular, in the embodiment of the hygienic device according to the invention having a single hole 33, with greater dimensions with respect to the cross-section of the portion 31 in the shape of a flexible hook, it has been seen that in storing conditions of the hooking means 30 stacked one on top of the other, waiting to be used in the moulding, these could get stuck together. This can lead to considerable problems in the automatic step of picking up single hooking means for being assembled with the body having cylindrical geometry 4 and of positioning them into the mould 5 and consequent stop of the production plant.

[0045] In order to avoid this problem a cross 40, or other element that has been moulded transversally with respect to the hole 33 has been provided, which possibly in combination with the embodiment of an enlarged portion 39 at the end of the engaging portion 31 in the shape of a flexible hook, as shown in figure 16, prevents the hooking means 30 from becoming stuck together. Indeed the cross 40 generates a series of openings with dimensions that are smaller with respect to the hook-shaped portion. The cross 40 is present in the hooking means only as an intermediate configuration for storing raw material and is then immediately removed, after picking up the hooking means and before the coupling thereof with the body having cylindrical geometry 4, as shown in figure 17, which shows the moulding configuration.

[0046] Such structural provisions that are suitable for preventing the hooking means 30 from becoming stuck together in storing conditions, according to the invention, are applied to all the embodiments illustrated and described.

[0047] The hygienic device for sanitary fixtures according to the invention is preferably made through the succession of the following steps schematically shown in figure 1:

- forming through an extruder 1 of an extrusion 2 of the detergent and/or deodorant material in the form of a malleable paste,

- cutting, through means 3 for cutting the extrusion 2 in pieces of the desired length so as to form a body, having cylindrical geometry 4, of detergent and/or deodorant material,
- positioning in a mould 5 of at least one body having cylindrical geometry 4 and of the hooking means 30, in particular of the perforated element 32, so as to arrange each body having cylindrical geometry 4 in engagement inside a hole 33 of the perforated element 32,
- compressing the body having cylindrical geometry 4 so as to form the solid block 20 around the perforated element 32.

[0048] It should be understood, according to the present invention, that the body having cylindrical geometry 4 of detergent and/or deodorant material could be made also according to a process other than extrusion.

[0049] By body having cylindrical geometry 4 we mean, according to the invention, a body that is identified by a curve, called a directrix curve, intersected by lines that are parallel to one another, called generatrix lines, which are parallel to a predetermined direction X. The body with cylindrical geometry 4 is limited at the ends by two transversal flat sections, or bases, which are parallel to the plane comprising the directrix curve.

[0050] The directrix, which is always a closed line, can be for example a circle, an ellipse, a polygon, i.e. it can generally have any shape. Some examples are shown in figures 7 to 10.

[0051] In the device 10 according to the invention, preferably, the hole 33 of the perforated element 32 substantially has the same shape and size as the base of the body having cylindrical geometry 4 so as to be suitable for being engaged with it.

[0052] According to the production method object of the present invention, the body having cylindrical geometry 4 is arranged in the perforated element 32 coaxially with respect to it, that is to say with the axis X, corresponding to the extrusion axis, arranged perpendicularly to the plane containing the perforated element 32.

[0053] The arrangement of the group consisting of the body with cylindrical geometry 4 and the perforated element 32 inside the mould 5, is carried out so as to place the element with cylindrical geometry with the axis X parallel to the moulding direction, that is to say the direction in which there is the compression.

[0054] According to a further preferred aspect, the body having cylindrical geometry 4 is kept in position inside the hole 33 in the step of positioning into the mould 5 through mechanical interference with the relative hole 33, that is, it is introduced into the mould 5 in a pre-assembled condition.

[0055] The presence of one or more guiding projections 36 projecting from the outline wall of the hole 33 towards the inside of the hole also requires the body having cylindrical geometry 4 to have matching recesses 6, the coupling of which with the projections 36 contributes keeping the body having cylindrical geometry 4 in position inside the hole 33 in the step of positioning into the mould during moulding.

[0056] The engagement projections 36', which are radially spaced apart along the wall 35 of the perforated element 32, are suitable for engaging with a slight interference to the body having cylindrical geometry 4 so as to keep it in position during the positioning of the group into the mould. Indeed, since the body having cylindrical geometry 4 made of detergent and/or deodorant means, is typically made up of a malleable paste, the engagement projections 36' cause light cuts on the surface thereof when the solid body 4 is forced inside the perforated element 32 and keep it in the thus predetermined position.

[0057] The placing into the mould of the solid body 4 and of the perforated element 32 in pre-assembled conditions makes it possible to use "cavity"-type moulding method, in which the group made up of the body having cylindrical geometry 4 and of the perforated element 32 in entirely placed inside a mould that compresses it and modifies its shape redistributing the mass, without creating scraps, that is to say waste material coming out from the mould, which are typical, on the other hand, in "press" moulding.

[0058] The positioning step of the hooking means 30 and of the at least one body having cylindrical geometry 4 into the mould 5 is assisted by the presence of the discontinuities of the surfaces of the wall 35, made up of the protruding or recessed elements 37, 37' with respect to the at least one side of the perforated element 32 and that are suitable for giving the perforated element a variable thickness and for engaging to corresponding recesses or projections matching the mould (not shown).

[0059] An automatic step of picking up the single hooking means 30 for their pre-assembly with the body having cylindrical geometry 4, in which the hooking means 30 are kept in an orderly configuration before the picking up step thanks to the presence of a portion 39 that is widened at the end of the engaging portion 31 of the hooking means 30.

[0060] A subsequent step of removing the cross 40 precedes the step of placing, into the mould, the at least one body, having cylindrical geometry 4 arranged in engagement inside the through hole 33 of the perforated element 32 of the hooking means 30.

[0061] By extrusion 2 we mean both a semi-finished product made in a single piece, and a semi-finished product obtained through co-extrusion of two or more detergent and/or deodorant materials, for example coaxial with respect to the axis X, as schematically shown in figure 17.

[0062] According to one preferred aspect of the method according to the present invention, the step of compressing the body having cylindrical geometry 4 does not substantially modify the density of the malleable paste forming the detergent and/or deodorant means.

[0063] The production method of a hygienic device for sanitary fixtures according to the invention has the ad-

vantage of allowing a rapid and precise placing of the solid block and of the hooking means in a mould, which can be actuated also with automatic means.

[0064] A further advantage of the method according to the invention comes from the redistribution of the malleable paste, which forms the solid block, around the hooking means during the moulding operation.

[0065] The method for producing a hygienic device for sanitary fixtures, object of the present invention, has the advantage of keeping a substantial portion of the detergent and/or deodorant material in the form of a unique cohesive piece supported by gravity in use by the lower outline of the hole of the perforated element, substantially preventing it from accidentally falling off during use.

[0066] The production method thus conceived can undergo numerous modifications and variants, all covered by the invention, moreover, all the details can be replaced by technically equivalent elements. In practice, the materials used, as well as the dimensions, can be any according to the technical requirements. The scope of protection of this patent is limited by the appended claims.

Claims

1. Method for producing a hygienic device for sanitary fixtures comprising a detergent and/or deodorant means in the form of a solid block (20) and hooking means (30) to be hung to a perimetrical edge of a WC, wherein said hooking means (30) comprise an engaging portion to the WC (31) and an engaging portion (32) to said solid block (20), said engaging portion (32) to said solid block (20) being embedded in the solid block (20),
comprising the steps of:

    - placing, into a mould (5), at least one body having cylindrical geometry (4) of detergent and/or deodorant material and said hooking means (31) comprising an engaging portion to said solid block made of a perforated element (32),
    - compressing the body having cylindrical geometry (4) so as to form a solid block (20) around said perforated element (32),

    characterised in that, in said step of placing, said body having cylindrical geometry (4) is arranged in engagement inside at least one through hole (33) of the perforated element (32), and **in that** said body is defined by a curve having any shape and laying in a plane, and parallel straight lines called generatrix lines, said lines having a given direction and passing through every single point of the curve.

2. Method according to claim 1, **characterised in that** said body having cylindrical geometry (4) is made through the steps of:

    - forming an extrusion (2) of the detergent and/or deodorant means,
    - cutting pieces of extrusion so as to form said body having cylindrical geometry (4).

3. Method according to any one of the preceding claims, **characterised in that** said at least one hole (33) of the perforated element (32) has substantially the same shape and size as the curve of the body having cylindrical geometry (4) suitable for being placed into it.

4. Method according to any one of the preceding claims, **characterised in that** said at least one body having cylindrical geometry (4) is kept in position inside the at least one hole (33) during the step of placing into the mould (5) by mechanical interference with the hole (33).

5. Method according to any one of the preceding claims, **characterised in that** said hooking means (30) are placed into the mould (5) by means of at least one protruding element or recess (37, 37') on at least one side of the perforated element (32) or on the thickness variation of said perforated element (32) through coupling with complementary recesses or projections of the mould (5).

6. Method according to any one of the preceding claims, **characterised in that** said body having cylindrical geometry and an axis (X) is placed inside said mould (5) with its axis (X) arranged parallel with respect to the moulding direction according to which the compression occurs.

7. Method according to any one of the preceding claims, **characterised by** applying a cavity-type moulding method, wherein the group consisting of said body having cylindrical geometry (4) and said perforated element (32), is entirely arranged inside said mould (5).

8. Method according to any one of the preceding claims, **characterised in that** said step of placing, into the mould, at least one body having cylindrical geometry (4) arranged in engagement inside a through hole (33) of the perforated element (32) of the hooking means (30) is preceded by a first step of picking up hooking means (30) equipped with an element moulded transversally with respect to the hole (33), such as a cross (40), using automatic means, and by a second step of removing said element moulded transversally with respect to the hole (33).

Patentansprüche

1. Verfahren zur Herstellung einer Hygienevorrichtung für Sanitäreinrichtungen, umfassend ein Reinigungs- und/oder Deodorantmittel in Gestalt eines massiven Blocks (20) und eine Einhakeinrichtung (30) zum Einhängen in einen Umfangsrand eines WC, wobei die Einhakeinrichtung (30) einen Eingriffsbereich für das WC (31) und einen Eingriffsbereich (32) für den massiven Block (20) aufweist, wobei der Eingriffsbereich (32) für den massiven Block (20) in den massiven Block (20) eingebettet ist, umfassend die Schritte:

   - Anordnen, in einer Form (5), zumindest eines Körpers mit zylindrischer Geometrie (4) aus Reinigungs- und/oder Deodorantmaterial und der Einhakeinrichtung (31) mit einem Eingriffsbereich, der aus einem perforierten Bauteil (32) besteht, für den massiven Block,
   - Komprimieren des Körpers mit zylindrischer Geometrie (4), um einen massiven Block (20) um das perforierte Bauteil (32) herum zu bilden,

   dadurch gekennzeichnet, dass, in dem Schritt des Anordnens, der Körper mit zylindrischer Geometrie (4) mit Eingriff innerhalb zumindest einer Durchgangsöffnung (33) des perforierten Bauteils (32) angeordnet wird, und dass der Körper festgelegt ist durch eine Kurve, die jegliche Form hat und in einer Ebene liegt, sowie parallele Geraden, die als Erzeugungslinien bezeichnet werden, wobei diese Linien eine vorgegebene Richtung aufweisen und durch jeden einzelnen Punkt der Kurve verlaufen.

2. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** der Körper mit zylindrischer Geometrie (4) erzeugt wird durch die Schritte:

   - Bilden eines Strangpressteils (2) aus dem Reinigungs- und/oder Deodorantmittel,
   - Abschneiden von Strangpressteilstücken, um den Körper mit zylindrischer Geometrie (4) zu bilden.

3. Verfahren nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die zumindest eine Öffnung (33) des perforierten Bauteils (32) im Wesentlichen dieselbe Gestalt und Größe wie die Kurve des Körpers mit zylindrischer Geometrie (4) hat, der zum Anordnen in ihr geeignet ist.

4. Verfahren nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der zumindest eine Körper mit zylindrischer Geometrie (4) während des Schritts des Anordnens in der Form (5) durch mechanischen Eingriff mit der Öffnung (33) in der zumindest einen Öffnung (33) in Position gehalten wird.

5. Verfahren nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Einhakeinrichtung (30) in der Form (5) angeordnet wird mittels zumindest einem vorspringenden Bauteil oder einem Rücksprung (37, 37') auf zumindest einer Seite des perforierten Bauteils (32) oder auf der Dickenvariation des perforierten Bauteils (32) durch Kuppeln mit komplementären Rücksprüngen oder Vorsprüngen der Form (5).

6. Verfahren nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Körper mit zylindrischer Geometrie und einer Achse (X) in der Form (5) angeordnet wird mit seiner Achse (X) parallel zu der Formrichtung, entlang der die Kompression stattfindet.

7. Verfahren nach einem der vorhergehenden Ansprüche, **gekennzeichnet durch** Anwenden eines Hohlraumformverfahrens, bei dem die Gruppe bestehend aus dem Körper mit zylindrischer Geometrie (4) und dem perforierten Bauteil (32) vollständig innerhalb der Form (5) angeordnet ist.

8. Verfahren nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** dem Schritt des Anordnens, in der Form, zumindest eines Körpers mit zylindrischer Geometrie (4), der mit Eingriff in einer Durchgangsöffnung (33) des perforierten Bauteils (32) der Einhakeinrichtung (30) angeordnet ist, ein erster Schritt des Ergreifens einer Einhakeinrichtung (30), die mit einem bezüglich der Öffnung (33) quer verlaufenden, geformten Bauteil ausgestattet ist, wie etwa einem Kreuz (40), mittels einer automatischen Einrichtung und ein zweiter Schritt des Entfernens des bezüglich der Öffnung (33) quer verlaufenden, geformten Bauteils vorangehen.

Revendications

1. Procédé de production d'un dispositif hygiénique pour des équipements sanitaires comprenant un moyen de détergent et/ou déodorant sous la forme d'un bloc solide (20) et des moyens d'accrochage (30) à suspendre, à une arête périphérique d'un WC, dans lequel lesdits moyens d'accrochage (30) comprennent une partie d'engagement au WC (31) et une partie d'engagement (32) audit bloc solide (20), ladite partie d'engagement (32) audit bloc solide (20) étant intégrée dans le bloc solide (20), comprenant les étapes de :

   - placement dans un moule (5), d'au moins un corps présentant une géométrie cylindrique (4) de matériau détergent et/ou déodorant et lesdits

moyens d'accrochage (31) comprenant une partie d'engagement audit bloc solide réalisé d'un élément perforé (32),
- compression du corps présentant une géométrie cylindrique (4) de sorte à former un bloc solide (20) autour dudit élément perforé (32),

caractérisé en ce que, dans ladite étape de placement, ledit corps présentant une géométrie cylindrique (4) est agencé en engagement dans au moins un trou débouchant (33) de l'élément perforé (32), et **en ce que** ledit corps est défini par une courbe présentant n'importe quelle forme et se situant dans un plan, et des lignes droites parallèles appelées lignes génératrices, lesdites lignes présentant une direction donnée et passant par chaque point seul de la courbe.

2. Procédé selon la revendication 1, **caractérisé en ce que** ledit corps présentant une géométrie cylindrique (4) est réalisé par les étapes de :

- formation d'une extrusion (2) du moyen de détergent et/ou déodorant,
- coupe de pièces d'extrusion de sorte à former ledit corps présentant une géométrie cylindrique (4).

3. Procédé selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit au moins un trou (33) de l'élément perforé (32) présente sensiblement la même forme et taille que la courbe du corps présentant une géométrie cylindrique (4) adaptée pour être placée en lui.

4. Procédé selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit au moins un corps présentant une géométrie cylindrique (4) est maintenu en position dans l'au moins un trou (33) pendant l'étape de placement dans le moule (5) par interférence mécanique avec le trou (33).

5. Procédé selon l'une quelconque des revendications précédentes, **caractérisé en ce que** lesdits moyens d'accrochage (30) sont placés dans le moule (5) à l'aide d'au moins un élément ou évidement en saillie (37, 37') sur au moins un côté de l'élément perforé (32) ou sur la variation d'épaisseur dudit élément perforé (32) par couplage avec des évidements ou saillies complémentaires du moule (5).

6. Procédé selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit corps présentant une géométrie cylindrique et un axe (X) est placé dans ledit moule (5) avec son axe (X) agencé parallèlement à la direction de moulage, selon laquelle la compression se produit.

7. Procédé selon l'une quelconque des revendications précédentes, **caractérisé par** l'application d'un procédé de moulage de type cavité, dans lequel le groupe composé dudit corps présentant une géométrie cylindrique (4) et dudit élément perforé (32), est entièrement agencé dans ledit moule (5).

8. Procédé selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ladite étape de placement dans le moule, d'au moins un corps présentant une géométrie cylindrique (4) agencée en engagement dans un trou débouchant (33) de l'élément perforé (32) des moyens d'accrochage (30) est précédée par une première étape de ramassage de moyens d'accrochage (30) équipés d'un élément moulé transversalement au trou (33) tel qu'une croix (40), en utilisant des moyens automatiques, et par une seconde étape de retrait dudit élément moulé transversalement au trou (33).

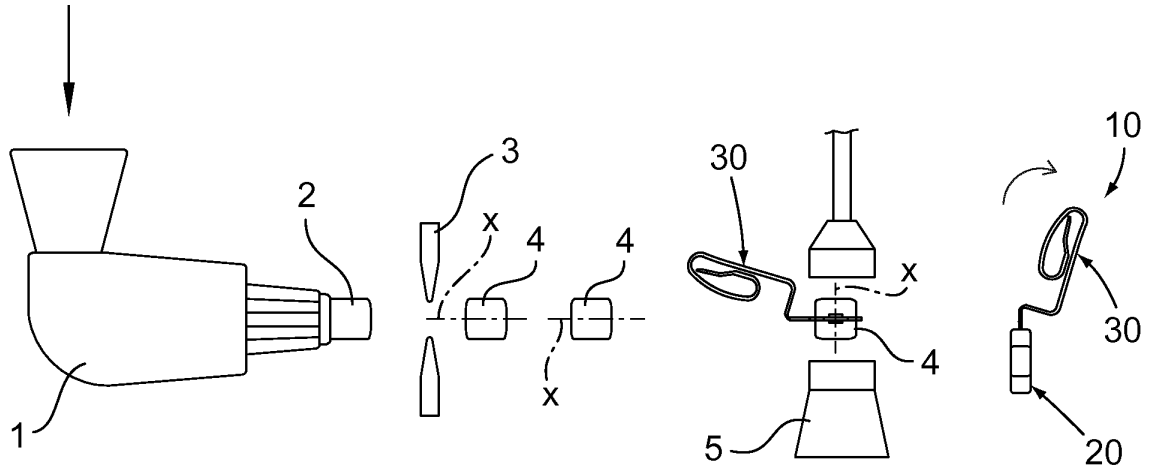


Fig. 1

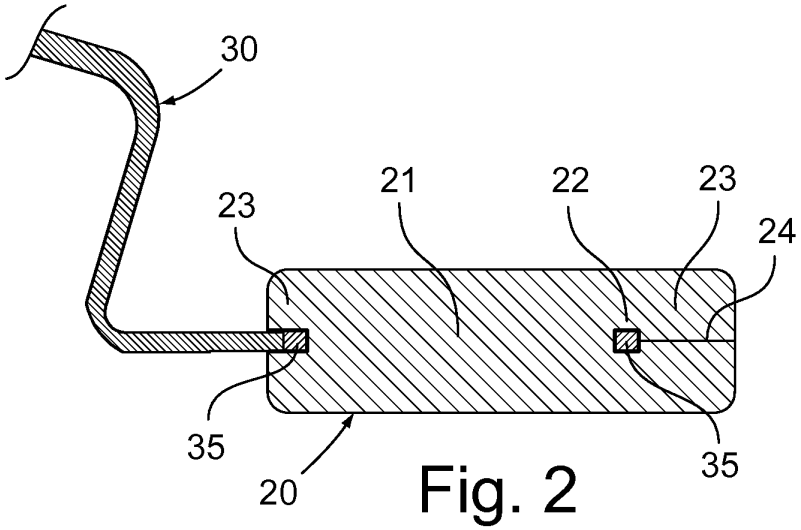


Fig. 2

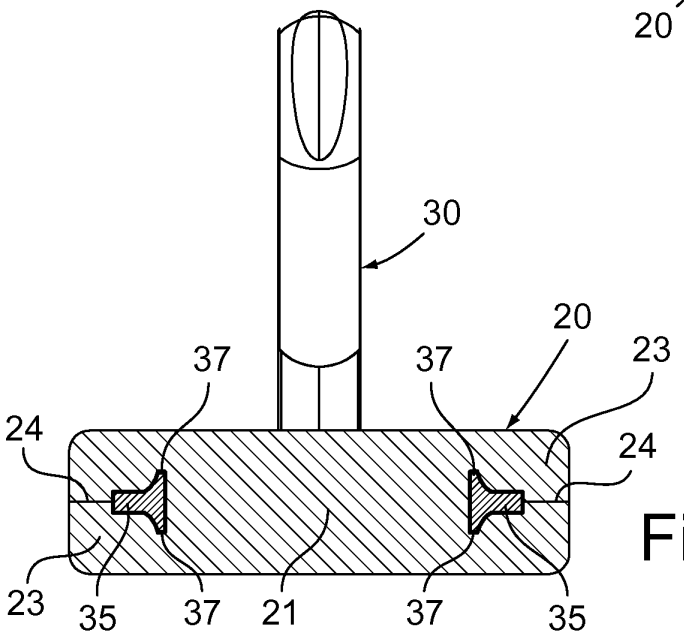


Fig. 3

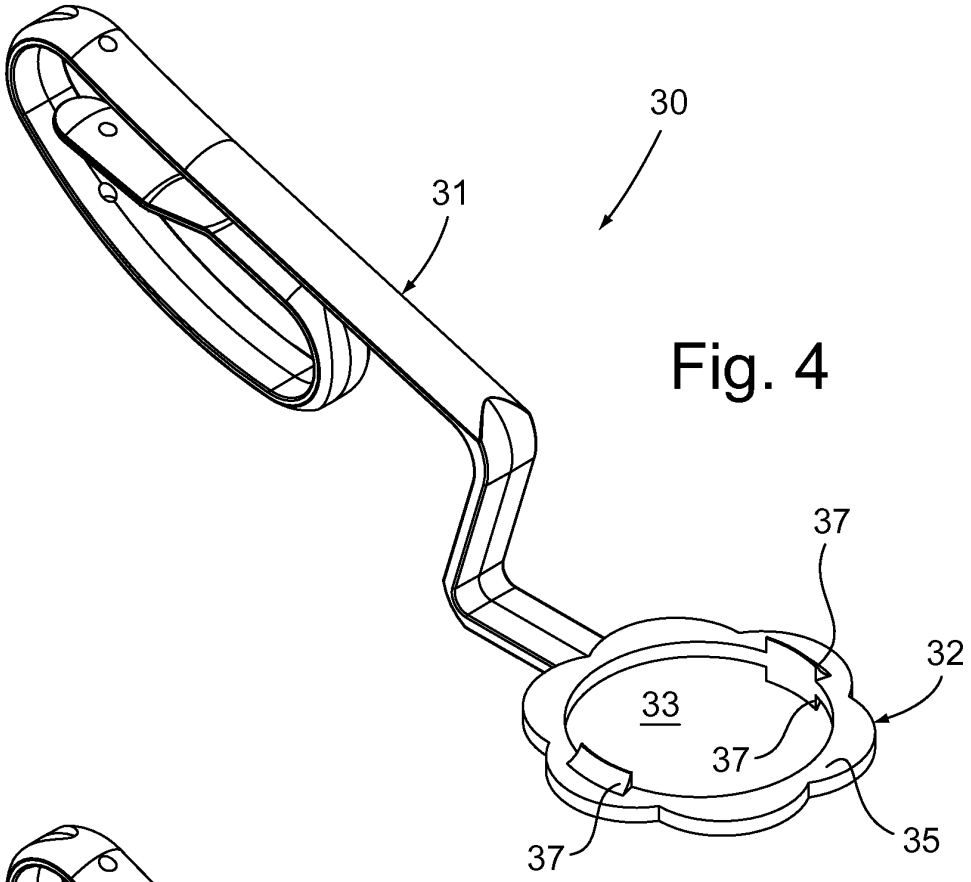


Fig. 4

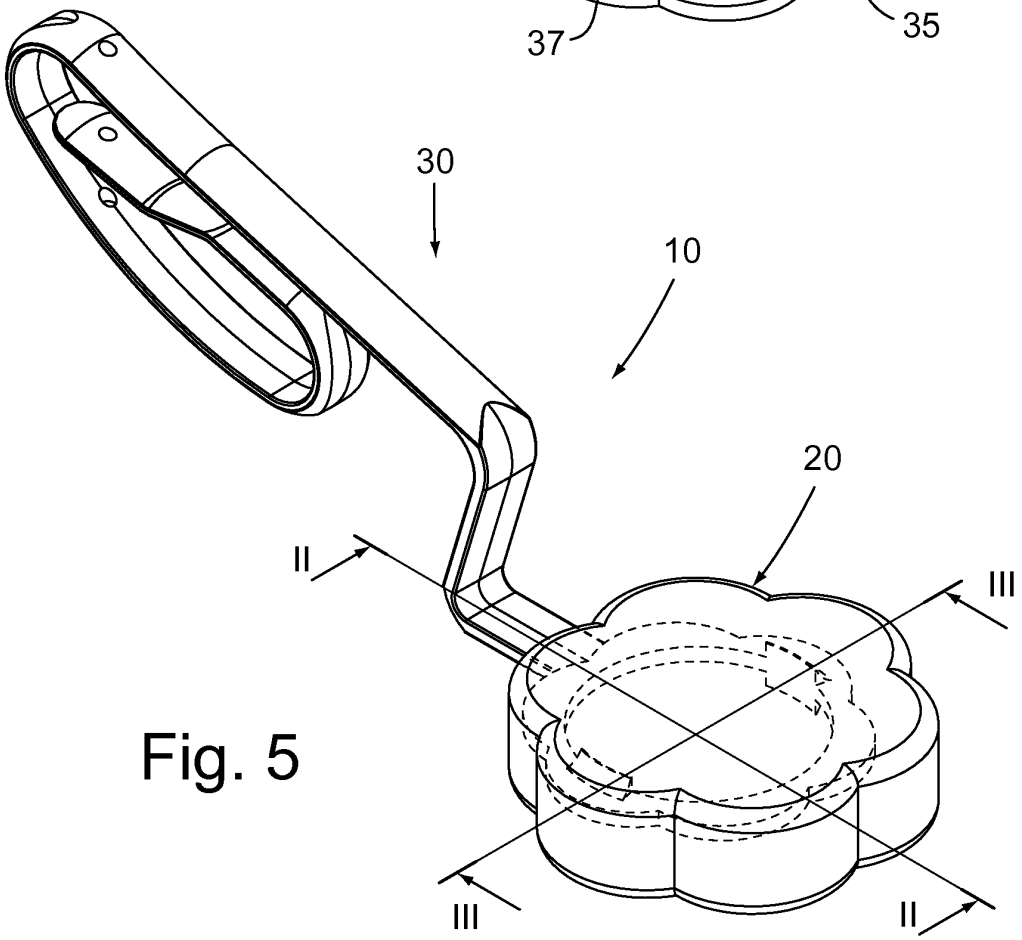


Fig. 5

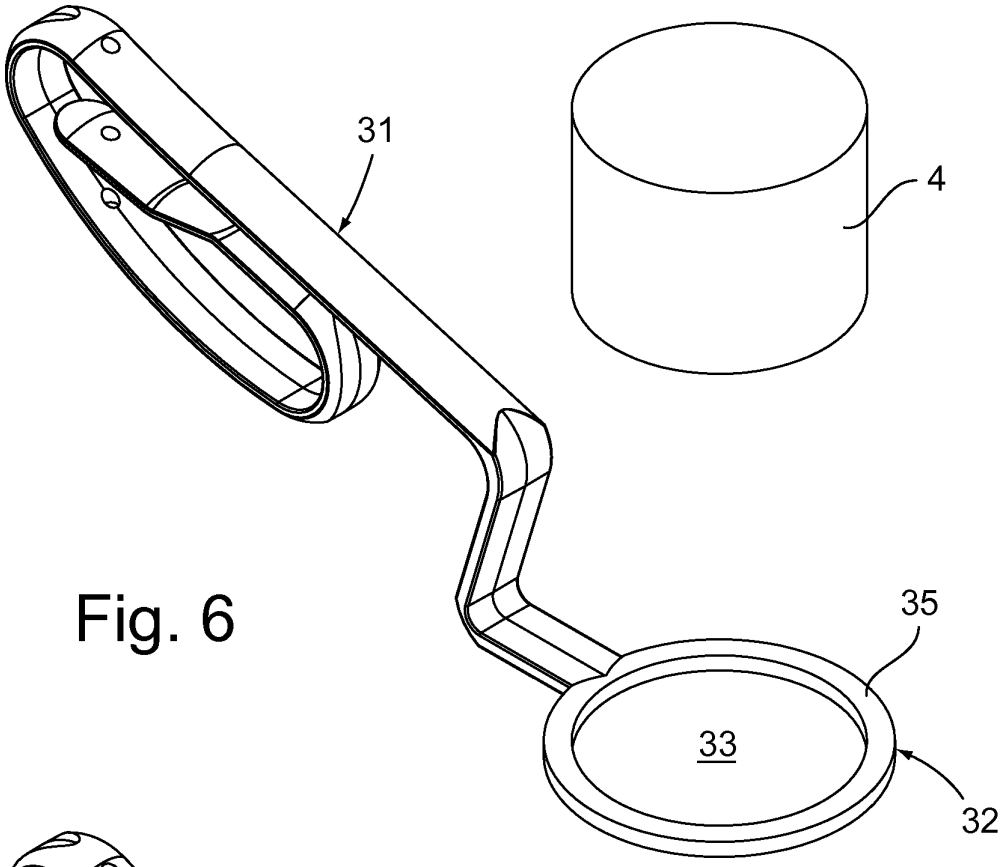


Fig. 6

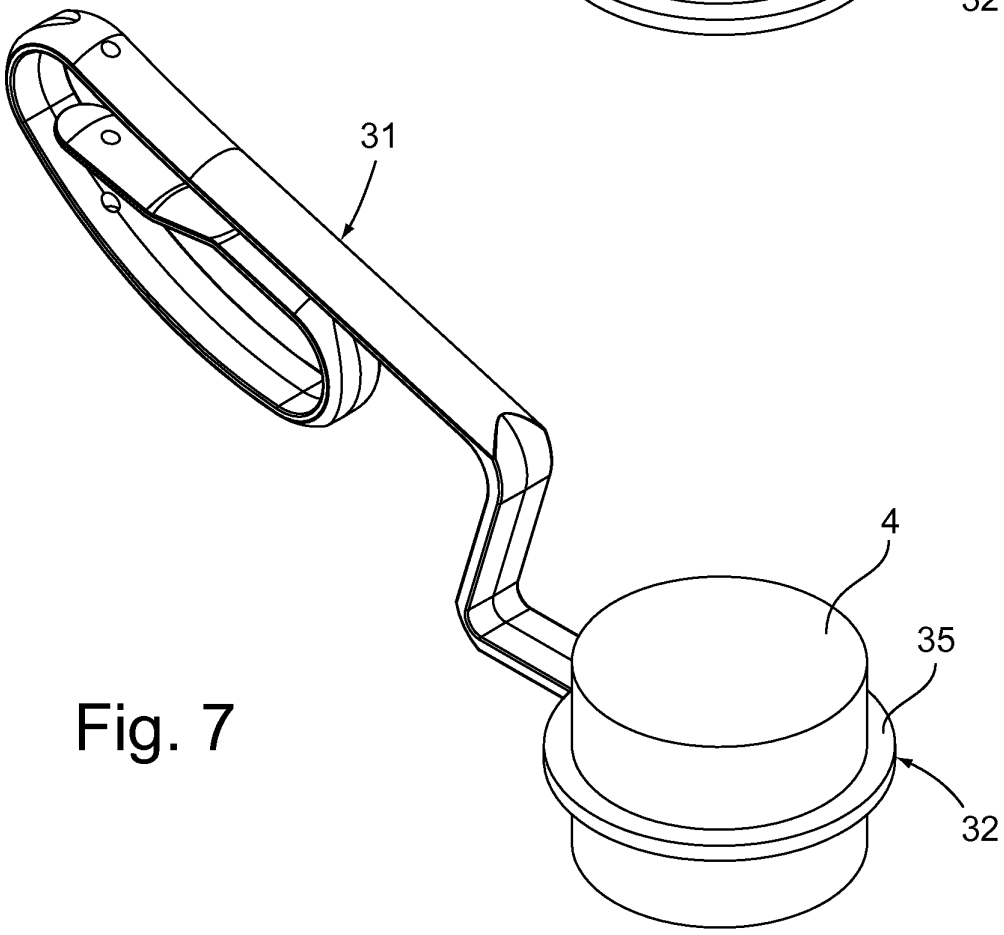


Fig. 7

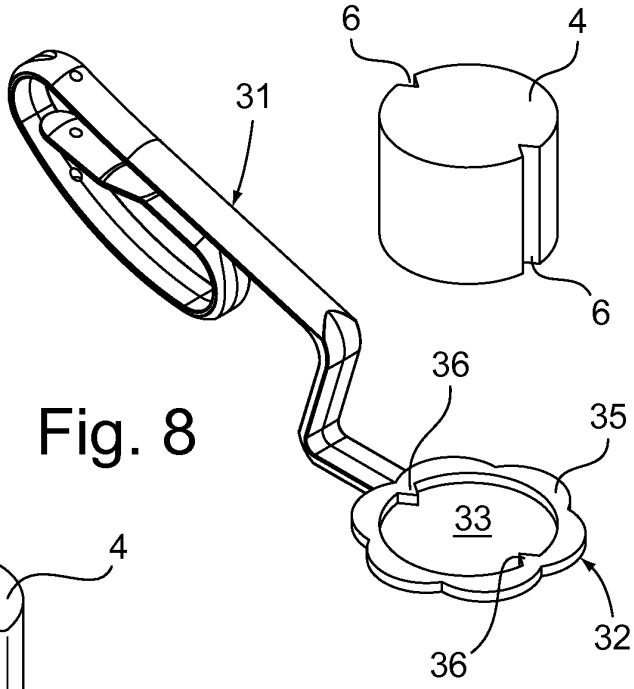


Fig. 8

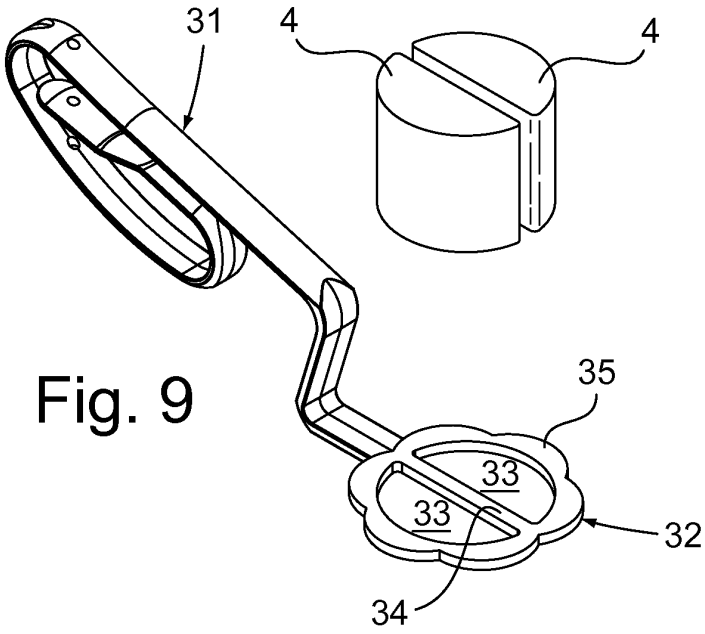


Fig. 9

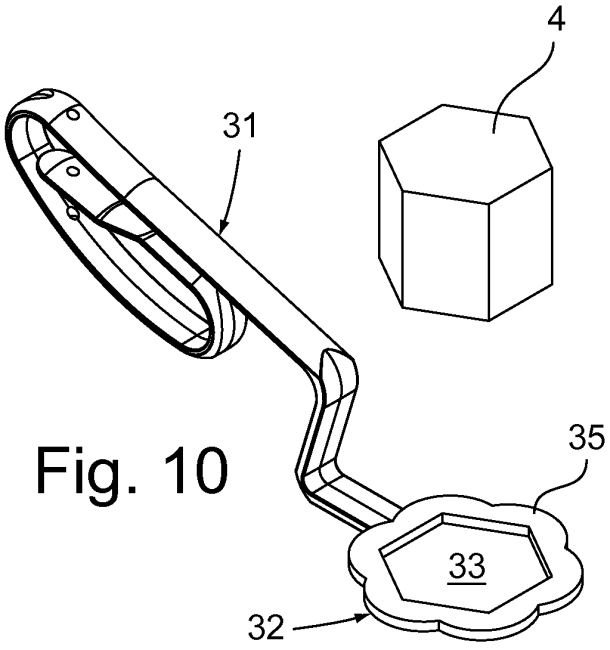


Fig. 10

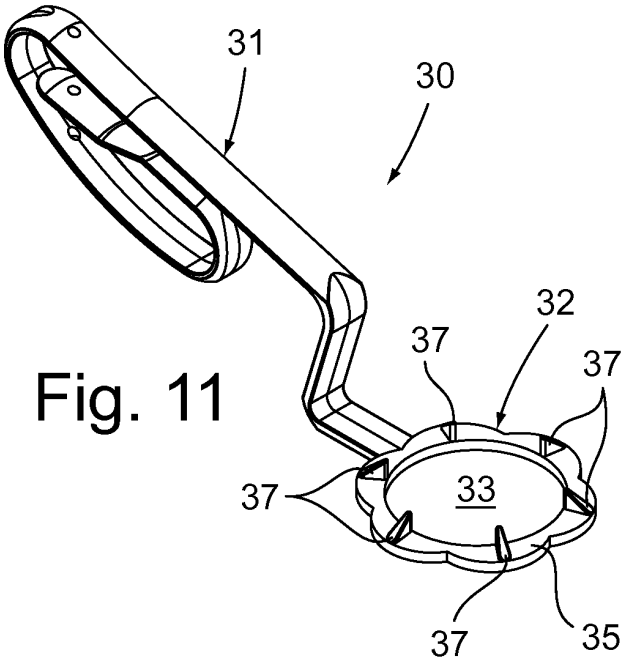


Fig. 11

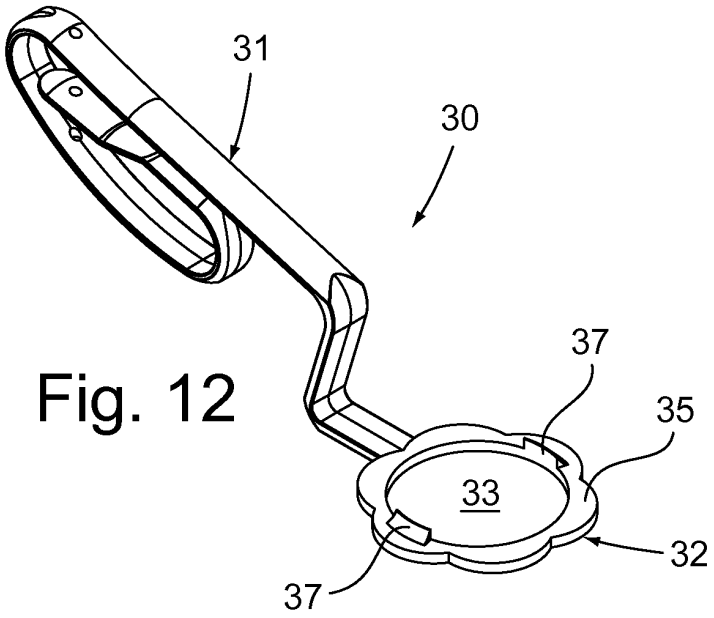


Fig. 12

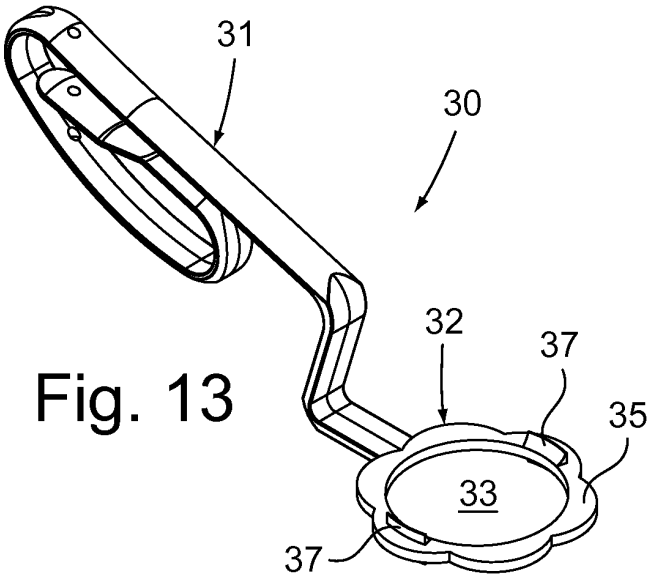


Fig. 13

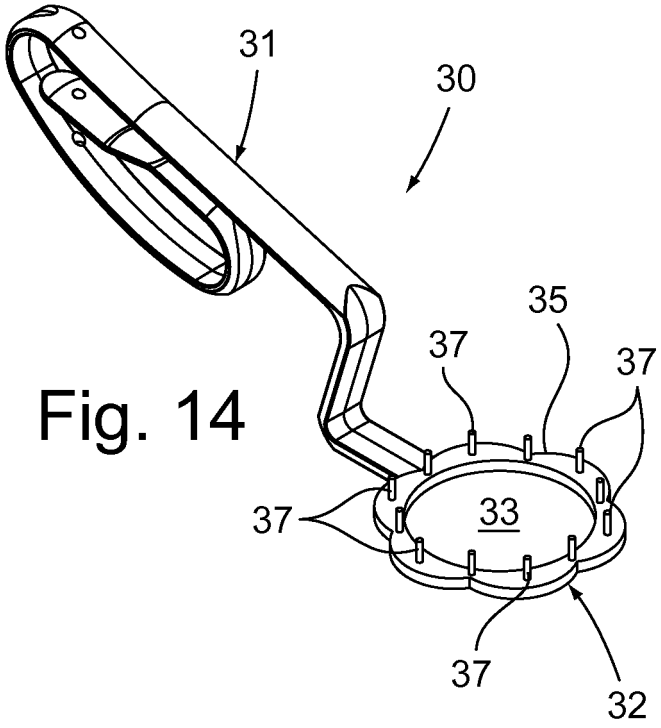


Fig. 14

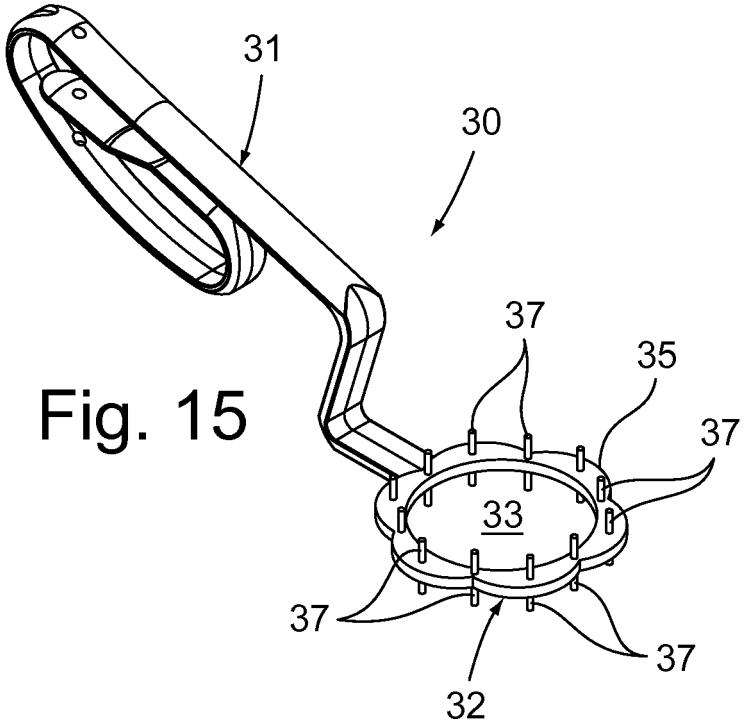


Fig. 15

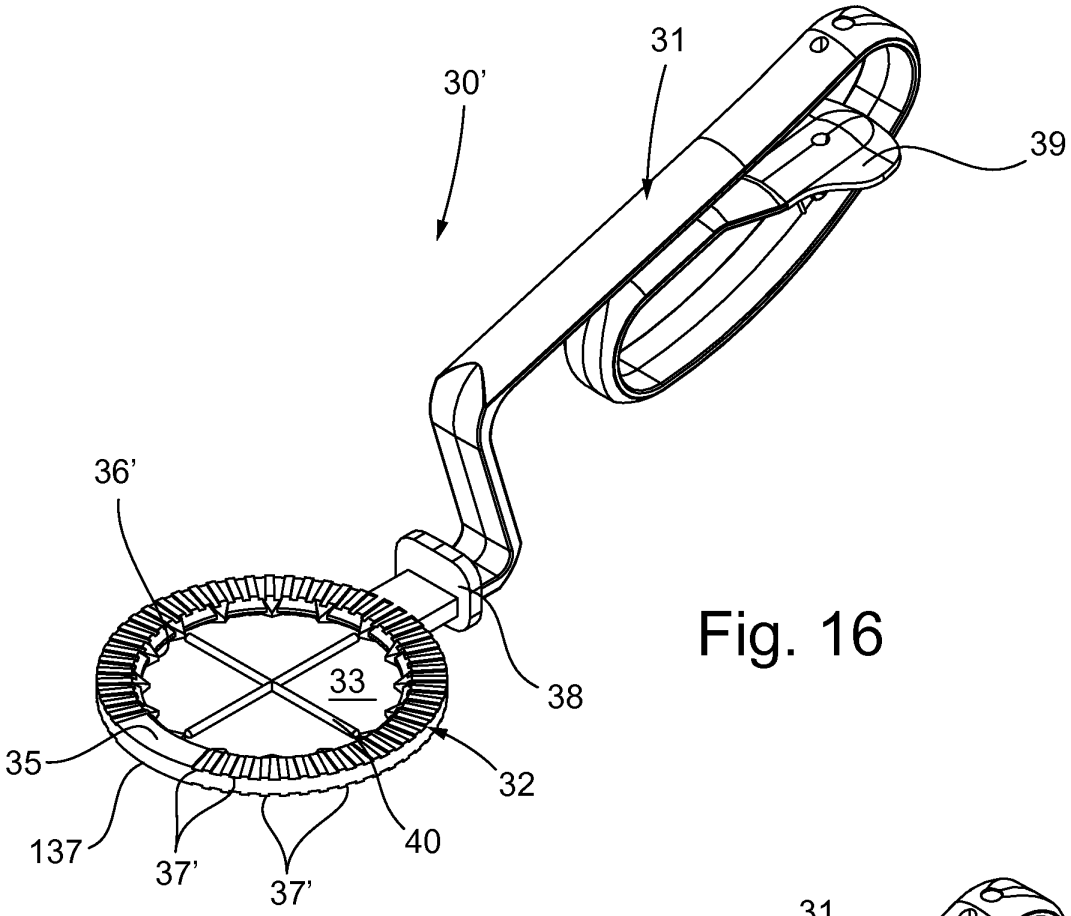


Fig. 16

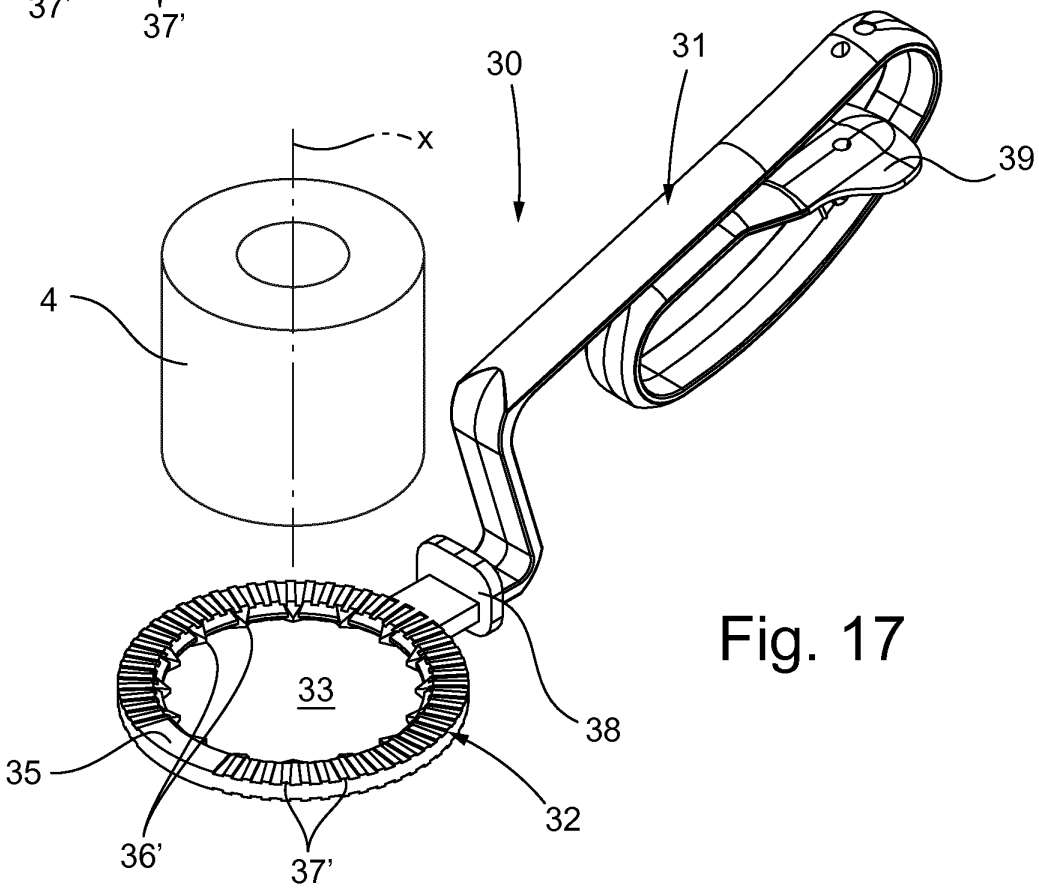


Fig. 17

REFERENCES CITED IN THE DESCRIPTION

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