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(54) **SLEEVE FOR JOINING A TUBE TO ANOTHER TUBE, WITH A HANDLE OR WITH AN ACCESSORY FOR A VACUUM CLEANER OR THE LIKE**

HÜLSE ZUM VERBINDEN EINES ROHRES MIT EINEM ANDEREN ROHR, MIT EINEM HANDGRIFF ODER MIT EINEM ZUBEHÖR FÜR EINEN STAUBSAUGER ODER DERGLEICHEN

MANCHON POUR RELIER UN TUBE À UN AUTRE TUBE, AVEC UNE POIGNÉE OU AVEC UN ACCESSOIRE POUR ASPIRATEUR OU SIMILAIRE

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Description

BACKGROUND

[0001] The present invention relates to the sector of electric household appliances for performing cleaning by means of suction, such as a vacuum cleaner, a vacuum cleaner drum, an electric broom, a carpet beater, a cyclone vacuum cleaner or a similar apparatus. In particular it relates to the sector of tubes and telescopic extensions for such electric household appliances. The present invention relates, even more particularly, to a sleeve which can be associated with a telescopic extension, or with a non-telescopic tube or with an accessory or a handle. The present invention relates also to an assembly consisting of tubes and sleeve and an assembly method.

BACKGROUND ART

[0002] Telescopic extensions for electric household appliances in which an inner tube and an outer tube are configured to slide in a sealed manner one inside the other and assume a plurality of positions between a completely closed configuration and a completely extended configuration are known.

[0003] EP 1,092,383 and WO 02/38026 A1 describe telescopic extensions for an electric household appliance.

[0004] DE 20 2010 010211 U1 describes a suction tube for a vacuum cleaner.

[0005] Based on the suction direction in a telescopic extension an input end and an output end are identified. The input end is typically removably fixed to a suction tool such as a so-called vacuum cleaner brush or vacuum cleaner nozzle (or head). The brush slides over the surface to be cleaned and sucks up solids or liquids such as dust, debris, crumbs or water. The material sucked up from the ground enters into the telescopic extension through the input end and exits the telescopic extension through the output end. Downstream of the telescopic extension the material sucked up from the ground is stored, passing optionally through another tube, for example a rigid or flexible tube of the spiralled type.

[0006] Similarly, depending on the suction direction, an input end and an output end are also identified for the inner tube and outer tube. In fact, the input end of the inner tube corresponds to the input end of the telescopic extension and the output end of the outer tube coincides with the output end of the telescopic extension.

[0007] In order to fix in a removable manner a vacuum cleaner brush to a telescopic extension a sleeve is mounted on that end of the telescopic extension to which the brush is to be fixed. The sleeve comprises a locking tooth which is pushed by means of a spring diametrically towards the inside of the sleeve (and the extension). A pushbutton allows the elastic pressure exerted on the locking tooth to be opposed so as to obtain an unlocked configuration in which it is possible to insert/remove the brush into/from the telescopic tube.

[0008] Similarly, a sleeve is mounted in order to mount a handle on a vacuum cleaner tube or in order to connect the inner tube to the outer tube in a telescopic extension.

SUMMARY OF THE INVENTION

[0009] The inventor has noticed that the steps of assembling a sleeve together with a tube (for example a telescopic extension) are relatively complex and may not be easily automated. Moreover, assembly of the various components of the sleeve may not be performed before mounting the sleeve on the tube of an electric household appliance and must be carried out when the telescopic extension is formed.

[0010] Manual assembly in turn results in a relatively high cost, with the result that assembly is uneconomical in those countries where the cost of labour is relatively high.

[0011] The inventor has realized that a major drawback of non-automated manual assembly and pre-assembly is the fact that a window for the pushbutton is formed in the tube. In practice the assembly of a known sleeve involves inserting the main body of the sleeve inside the tube and then inserting a spring and the pushbutton from the outside into the window and finally engaged a cover-piece with the pushbutton in order to keep it in position.

[0012] The inventor has realized that the assembly of a sleeve on a tube (preferably of a tubular extension for an electric household appliance) may be facilitated by forming a slit in the tube and not a window.

[0013] For the purposes of the present description and the claims, the term "slit" is understood as meaning an opening formed in any known manner in the wall of a tube in such a way as to be bounded by the tube wall on three sides. A slit is therefore open along the edge of the tube, but is closed by the wall of the tube along the two sides which extend in the longitudinal direction of the tube and the side which joins together the two longitudinal sides.

[0014] For the purposes of the present description and the claims, the term "window" is understood as meaning an opening formed in any known manner in the wall of a tube in such a way as to be bounded by the tube wall on four sides. The sides are preferably curved lines or segments.

[0015] Owing to the slit, the sleeve may be preassembled and may be mounted on the tube with a translation movement, thus resulting in simple and low-cost assembly.

[0016] DE 20 2010 010211 U1 describes an actuating button with a locking lever 18 and a latch-type extension 23. The support portion 22 is located at the end of the lever 18. DE 20 2010 010211 U1 comprises a separate element for locking the inner tube to the sleeve. The insertion of this separate element in the through-hole of the sleeve and the inner tube represents an additional operation which must be carried out carefully in order to

avoid losing the separate element. The description of DE 20 2010 010211 U1 is insufficient in that it does not describe the operation of the lever 18 against a spring (not shown and described) and the separate element. Moreover, the system of the prior art German document results in undesirable air leakages since a through-hole is provided for the separate element and the extension 23 of the latch.

[0017] Merely for the purposes of simpler illustration the present description and claims will refer mainly to a sleeve for a telescopic extension. However, the present invention is equally well applicable also to a non-telescopic extension and also, more generally, to a pair of tubes (qualified as "inner" and "outer" in relation to the sleeve). Therefore, for the purposes of the present invention, the expression "telescopic extension" must be understood in a wider sense so as to include also a non-telescopic extension and also an (outer) tube and an inner tube of a handle or an accessory (for example a vacuum cleaner brush).

[0018] According to one aspect of the present invention a sleeve for connecting together an outer tube and an inner tube of an electric household appliance is provided, the sleeve comprising:

a main body having a head end, an opposite sealing end and a side wall,
an actuating button and a cover-piece;
a seat for the actuating button and a latch for the cover-piece on the side wall of the main body;
at the head end, a circular ring connected to the front edge of the main body, wherein the diameter of the circular ring is greater than the diameter of the side wall so that between the outer surface of the side wall of the main body and the inner surface of the circular ring there is a gap substantially equal to the thickness of the outer tube, said gap being configured to accommodate the rim of the outer tube, which outer tube in turn comprises a slit,
wherein said actuating button comprises:

a pressing zone on which a user may exert an unlocking pressure,
a tooth configured to penetrate into a cavity (with closed bottom) of the inner tube passing through a window in the sleeve,
a pivot arranged between the pressing zone and the tooth, and
an elastic member configured to push elastically the actuating button with respect to the cover-piece while keeping the sleeve locked to the inner tube, wherein an unlocking pressure on the pressing zone has the effect of causing the tooth to come out of the cavity of the inner tube.

[0019] The sleeve according to the present invention may advantageously be pre-assembled or mounted on the extension by fitting the outer tube onto it. While the sleeve is fitted onto the inner tube, the tooth of the push-button is inclined slightly in the unlocked position and then returns into the locking position once it is located in the end-of-travel position.

[0020] Advantageously the inner tube has a cavity (with a closed bottom) for the tooth. This prevents air leakages and therefore loss of power.

[0021] Preferably the tooth comprises a chamfered leading edge. This is advantageous at the moment when the sleeve is fitted onto the inner tube.

[0022] Preferably the tooth is integral with the actuating button. Therefore, according to the present invention, locking components separate from the actuating button are not provided.

[0023] Preferably the elastic member is a cylindrical spring seated inside a housing opposite said tooth and open towards the cover-piece. The cylindrical spring is kept in position by means of a pin and the cover-piece is easily positioned so as to retain the actuating button. In the locking position the axis of the cylindrical spring is substantially perpendicular to the tooth (to the bottom of the housing) and to the inner surface of the cover-piece. The fact that the spring works in an axial direction is advantageous and prevents any jamming.

[0024] Preferably the window is inside the seat delimited by a retaining wall. The window is not outside the housing, but is protected by it.

[0025] Preferably, the end of the main body opposite to the head end comprises a sealing lip, formed as one piece with the sleeve and configured to engage with the inner surface of the outer tube. The sleeve according to the present invention has a sealing lip integral with the rest of the sleeve. This ensures a better sealing performance and facilitates assembly.

[0026] According to embodiments, the main body also comprises a platform which is raised with respect to the surface of the side wall, the shape of said platform being substantially complementary to the shape of said slit. This compensates for the absence of material in the region of the slit.

[0027] According to embodiments, the platform is raised with respect to the rest of the side wall by a height substantially equal to the thickness of the wall of the outer tube.

[0028] According to embodiments, the circular ring comprises a closed-ring annular strip. The closed-ring annular strip may comprises a zone with a smaller width.

[0029] According to embodiments, the sleeve also comprises a retaining molding projecting radially outwards from the surface of the side wall, the molding being configured to engage inside a slot in the outer tube.

[0030] According to another aspect, the present invention relates to an assembly comprising a sleeve of the aforementioned type, an inner tube and an outer tube, wherein the inner tube comprises a cavity having a closed bottom configured to receive the tooth of the actuating button and wherein the outer tube comprises a slit. The inner tube and the outer tube may form part of a telescopic

extension for a vacuum cleaner or the like. Alternatively, the inner tube forms part of an accessory or a handle.

[0031] According to another aspect of the present invention a method for mounting a sleeve between an inner tube and an outer tube is provided, the method comprising:

providing an outer tube with a slit extending in the longitudinal direction of the tube,
providing a sleeve of the aforementioned type, and fitting the sleeve inside the outer tube so that the rim of the outer tube is retained inside the gap between the circular ring and the side surface of the main body of the sleeve.

[0032] According to preferred embodiments, the sleeve is inserted inside the outer tube in an assembled configuration in which the pushbutton and the cover-piece are associated with the main body in an operating configuration.

BRIEF DESCRIPTION OF THE DRAWINGS

[0033] The present invention will become clear from the following detailed description of examples of embodiment, to be read with reference to the attached figures, in which:

- Fig. 1 and Fig. 2 are two axonometric views of the main body of the sleeve according to the present invention;
- Fig. 3 is a top plan view of the main body according to Figs. 1 and 2;
- Fig. 4 is a cross-section along the line indicated by A-A in Fig. 3;
- Figs. 5 and 6 are two plan views from the two ends of the main body according to Figs. 1 and 2;
- Fig. 7 and Fig. 8 are two axonometric views of the sleeve assembled according to the present invention;
- Fig. 9 is a top plan view of the assembled sleeve;
- Fig. 10 is a plan view from one end of the assembled sleeve;
- Fig. 11 is a lateral plan view of the assembled sleeve;
- Fig. 12 is an exploded view which shows the assembly of the sleeve on a tube of a telescopic extension;
- Fig. 13 is a cross-sectional view of the sleeve with the pushbutton in the locking position;
- Fig. 14 is a cross-sectional view of the sleeve with the pushbutton in the unlocked position; and
- Figure 15 is an axonometric view which shows the sleeve assembled and mounted on the tube of the telescopic extension.

DESCRIPTION OF EXAMPLES

[0034] The sleeve 1 according to an embodiment of the present invention comprises a main body 10, a pushbutton 30, an elastic member 40 and a cover-piece 50. With reference to Figures 1-6, the main body 10 will be described initially.

[0035] The main body 10 has a more or less cylindrical shape with a more or less circular cross-section. Preferably, it is made by means of molding (for example injection molding) using a plastic or thermoplastic material.

[0036] The main body 10 comprises a head end 12, an opposite sealing end 14 and a side wall 16. The side wall 16 of the main body 10 is provided with a seat 20 for the actuating button 30 and a latch 22 for the cover-piece 30.

[0037] The head end 12 of the main body 10 comprises a circular ring 121 which is connected to the front edge of the main body 10, as shown in the cross-section of Figure 4. The diameter of the circular ring 121 is greater than the diameter of the side wall 16 so that between the outer surface of the side wall 16 of the main body 10 and the inner surface of the circular ring 121 there is a space or gap 122 substantially equal to the thickness of the outer tube 62. The outer tube 62 may be an outer tube of a telescopic extension, as shown in Figures 12-15, which also comprises an inner tube 61. The inner tube has a cavity with a closed bottom 611. The inner tube may alternatively be also the tube of a handle or an accessory.

[0038] Preferably, the circular ring 121 extends with a constant width along the whole circumference. However, it preferably forms a recess 123 facing the seat 20 for the actuating pushbutton 30. The function of this recess 123 in the circular ring 121 will become clear below. In any case, it is provided so as not to interfere with the actuating button 30.

[0039] The end 14 of the main body 10 opposite to the head end 12 comprises preferably a sealing lip 141. Preferably, the sealing lip 141 comprises a thinner strip which opens outwards slightly in the form of a cone. The sealing lip 141 is configured to engage with the inner surface of the tube 62 on which the sleeve 1 is mounted. The sealing lip 141 preferably is connected to the side surface 16 of the main body 10 of the sleeve 1 with an inclined surface 142.

[0040] The side wall 16 of the main body 10 of the sleeve 1 is generally a cylindrical surface substantially without projections or recesses. However, as shown in all of Figures 1-6, a seat 20 is provided for keeping in position the actuating button 30, together with a latch 22 for the cover-piece.

[0041] The seat 20 comprises a retaining wall 21 projecting radially outwards. The retaining wall 21 is preferably U-shaped, namely is closed on three sides and open on one side. A groove 201 which defines an axis of rotation of the actuating button is preferably provided inside said retaining wall 21, on the bottom. Preferably, the groove 201 is divided into two separate portions.

[0042] As shown in Figures 1-4, a window 24 formed in the side wall 16 of the main body 10 is also present inside the retaining wall 21. According to an embodiment

of the present invention, the window 24 has the rectangular shape shown in Figure 3. The window 24 is configured to allow a retaining tooth 34 of the pushbutton 30 to pass through. The tooth 34 has a chamfered leading edge 341.

[0043] Preferably, latch members 22 configured to engage with the cover-piece 30 are present on the two opposite sides of the retaining wall 21.

[0044] Preferably, a platform 18 raised with respect to the remainder of the surface of the side wall 16 is present between the open side of the retaining wall 21 and the head end 12. Preferably, the platform 18 is raised by a height substantially corresponding to the thickness of the wall of the tube 62. Preferably the raised platform 18 is present also along the two opposite sides of the retaining wall 21. Preferably, along the two opposite sides of the retaining wall 21, the raised platform 18 has an edge 181 inclined to form a receiving surface.

[0045] Preferably, the main body 10 of the sleeve 1 comprises a retaining molding 19 projecting radially outwards from the surface of the side wall 16. Said molding 19 preferably is situated between the retaining wall 21 and the lip 141 and follows substantially the progression of the said lip.

[0046] Hereinbelow the pushbutton 30, shown in Figures 12-15, will be described. For the purposes of the present invention, the pushbutton 30 comprises a zone 31 on which the user may exert pressure (typically with a finger), a pivot 32, a tooth 34 (already mentioned above) directed downwards and a pin 33 directed in the opposite direction for engaging with an elastic member 40 (for example a cylindrical spring). The pivot 32 is designed to engage inside the seat 201.

[0047] The cover-piece 50 is mounted so to complete the aesthetic and functional features and provide a counter-surface for the said elastic member 40. In other words, when the cover-piece 50 is mounted and retained by the latch members 22, the elastic member 20 is located between the pin 33 and the internal surface of the cover-piece 50. If no pressure is exerted on the zone 31, the elastic member 40 presses elastically the tooth 34 downwards. The tooth 34 penetrates inside the window 24 and engages with a corresponding cavity in the inner tube. In this way, the inner tube is firmly locked to the tube 62. If a pressure is exerted on the pushbutton 30, the tooth 34 is raised against the elastic force of the elastic member 40 and no longer interferes with the inner tube.

[0048] Advantageously, the sleeve 1 according to the present invention may be pre-assembled before being mounted on the tube 62.

[0049] With reference to Fig. 12 mounting of the sleeve 1 on the tube 62 will now be described. Mounting consists in fitting the main body 10 of the sleeve 1 inside the tube so that the raised platform 18 is inserted inside a slit 64 of the tube 62. The shape of the slit 64 is complementary to the shape of the raised platform 18 and, as mentioned above, the platform 18 is raised by a height corresponding to the thickness of the tube 62. In this way, the raised platform 18 occupies the slit 64 completely. The slit 64 preferably comprises two parallel facing side edges 641, 642, an edge 643 opposite to the open side of the slit and two inclined connecting sections 644.

[0050] Pushing the sleeve 1 towards the tube 62 has the effect that the edge 621 of the tube 62 penetrates into the gap 122 of the head part 12 of the main body 10 of the sleeve 1. The ring 121 of the head part 12 is continuous and closes the edge 621 of the tube 62 which is open due to the slit 64. The opening of the slit 64 is a structural weak point of the tube 62 and, owing to the ring 121, the rigidity of the tube 62 is reestablished, as though no slit were present. However, it is clear that the slit 64 is advantageous for assembly, on the production line, of the sleeve 1 with the tube 62.

[0051] Locking of the sleeve 1 to the tube 62 occurs owing to the cooperation between the molding 19 and a slot 629 in the tube 62. When the molding 19, which preferably has a slightly inclined surface 191 so as not to deform the material of the tube 62, penetrates into the slot 629, the tube 62 and the sleeve 1 are joined together integrally. In other words, the sleeve 1 can no longer be extracted from the tube 62 other than by forcing the molding 19 downwards using a tool so that it comes out of the slot 629. Typically this operation is not reversible and the tube (typically metallic) is permanently deformed and/or the sleeve 1 is deformed or breaks.

Claims

1. A sleeve (1) for connecting together an outer tube (62) and an inner tube (61) of an electric household appliance, the sleeve (1) comprising:

   a main body (10) having a head end (12), an opposite sealing end (14) and a side wall (16), an actuating button (30) and a cover-piece (50); a seat (20) for the actuating button (30), a groove (201) and a latch (22) for the cover-piece (50) on the side wall (16) of the main body (10);
   at the head end (12), a circular ring (121) connected to the front edge of the main body (10), wherein the diameter of the circular ring (121) is greater than the diameter of the side wall (16) so that between the outer surface of the side wall (16) of the main body (10) and the inner surface of the circular ring (121) there is a gap (122) substantially equal to the thickness of the outer tube (62), said gap (122) being configured to accommodate the rim (621) of the outer tube (62), which outer tube in turn comprises a slit (64),
   wherein said actuating button (30) comprises:

      a pressing zone (31) on which a user may exert an unlocking pressure,
      a tooth (34) configured to penetrate into a

cavity (611) of the inner tube (61) passing through a window (24) in the sleeve (1),
a pivot (32) arranged between said pressing zone (31) and said tooth (34), wherein the pivot (32) is designed to engage inside the groove (201), and
an elastic member (40) configured to push elastically said actuating button with respect to said cover-piece (50),
wherein an unlocking pressure on said pressing zone (31) has the effect of causing the tooth (34) to come out of the cavity of the inner tube (61).

2. The sleeve (1) according to claim 1, wherein said tooth (34) comprises a chamfered leading edge (341).

3. The sleeve (1) according to claim 1 or 2, wherein said tooth (34) is integral with said actuating button (30).

4. The sleeve (1) according to claim 1, 2 or 3, wherein said elastic member (40) is a cylindrical spring seated inside a housing (342) opposite said tooth (34) and open towards said cover-piece (50).

5. The sleeve (1) according to claim 4, wherein said window (24) is inside the seat (20) delimited by a retaining wall (21).

6. The sleeve (1) according to any one of the preceding claims, wherein the end (14) of the main body (10) opposite to the head end (12) comprises a sealing lip (141), formed as one piece with the sleeve and configured to engage with the inner surface of the outer tube (62)

7. The sleeve (1) according to any one of the preceding claims, wherein said main body also comprises a platform (18) which is raised with respect to the surface of the side wall (16), the shape of said platform (18) being substantially complementary to the shape of said slit (64).

8. The sleeve (1) according to claim 7, wherein said platform (18) is raised with respect to the rest of the side wall (16) by a height substantially equal to the thickness of the wall of the outer tube (62).

9. The sleeve (1) according to any one of the preceding claims, wherein said circular ring (121) comprises a closed-ring annular strip.

10. The sleeve (1) according to claim 9, wherein said closed-ring annular strip comprises a zone with a smaller width.

11. The sleeve (1) according to any one of the preceding claims, also comprising a retaining molding (19) projecting radially outwards from the surface of the side wall (16), said retaining molding (19) being configured to engage inside a slot (629) in the outer tube (62).

12. An assembly comprising a sleeve according to any one of the preceding claims, an inner tube (62) and an outer tube (62), wherein the inner tube comprises a cavity having a closed bottom configured to receive the tooth of the actuating button and wherein the outer tube comprises a slit.

13. The assembly according to claim 12, wherein said inner tube and said outer tube form part of a telescopic extension for a vacuum cleaner or the like.

14. A method for mounting a sleeve (1) between an inner tube (61) and an outer tube (62), the method comprising:

providing the outer tube (62) with a slit (64) extending in the longitudinal direction of the outer tube,
providing a sleeve (1) according to any one of claims 1-11, and fitting the sleeve (1) inside the outer tube so that the rim of the outer tube (62) is retained inside the gap (122) between the circular ring (121) and the side surface of the main body (10) of the sleeve (1).

15. The method according to claim 14, wherein said sleeve (1) is fitted inside the outer tube (62) in an assembled configuration in which the push button (30) and the cover-piece (50) are associated with the main body in an operating configuration.

Patentansprüche

1. Muffe (1) zum Verbinden eines Außenrohrs (62) und eines Innenrohr (61) von einem elektrischen Haushaltsgerät, wobei die Muffe (1) aufweist:

einen Hauptkörper (10) mit einem Kopfende (12), einem gegenüberliegenden Dichtungsende (14) und einer Seitenwand (16),
einen Betätigungsknopf (30) und ein Abdeckteil (50);
einen Sitz (20) für den Betätigungsknopf (30), eine Nut (201) und eine Verriegelung (22) für das Abdeckteil (50) an der Seitenwand (16) des Hauptkörpers (10);
am Kopfende (12) einen kreisförmigen Ring (121), der mit der Vorderkante des Hauptkörpers (10) verbunden ist, wobei der Durchmesser des kreisförmigen Ringes (121) größer ist als

der Durchmesser der Seitenwand (16), so dass zwischen der Außenfläche der Seitenwand (16) des Hauptkörpers (10) und der Innenfläche des kreisförmigen Rings (121) ein Spalt (122) vorhanden ist, der im Wesentlichen gleich der Dicke des Außenrohrs (62) ist, wobei der Spalt (122) ausgestaltet ist, um den Rand (621) des Außenrohrs (62) aufzunehmen, wobei das Außenrohr seinerseits einen Schlitz (64) aufweist,
wobei der Betätigungsknopf (30) aufweist:

einen Druckbereich (31), auf den ein Benutzer einen Entriegelungsdruck ausüben kann,
einen Zahn (34), der ausgestaltet ist, um in einen Hohlraum (611) des Innenrohrs (61) einzudringen, wobei er ein Fenster (24) in der Muffe (1) durchläuft,
einem Drehzapfen (32), der zwischen der Druckzone (31) und dem Zahn (34) angeordnet ist, wobei der Drehzapfen (32) ausgestaltet ist, um in die Nut (201) einzugreifen, und
ein elastisches Element (40), das ausgestaltet ist, um den Betätigungsknopf in Bezug auf das Abdeckteil (50) elastisch zu drücken,
wobei ein Entriegelungsdruck auf die Druckzone (31) bewirkt, dass der Zahn (34) aus dem Hohlraum des Innenrohrs (61) herauskommt.

2. Muffe (1) nach Anspruch 1, wobei der Zahn (34) eine abgeschrägte Vorderkante (341) aufweist.

3. Muffe (1) nach Anspruch 1 oder 2, wobei der Zahn (34) mit dem Betätigungsknopf (30) verblockt ist.

4. Muffe (1) nach Anspruch 1, 2 oder 3, wobei das elastische Element (40) eine zylindrische Feder ist, die in einem Gehäuse (342) gegenüber dem Zahn (34) sitzt und in Richtung des Abdeckteils (50) offen ist.

5. Muffe (1) nach Anspruch 4, wobei sich das Fenster (24) innerhalb des Sitzes (20) befindet, der durch eine Stützwand (21) begrenzt ist.

6. Muffe (1) nach einem der vorhergehenden Ansprüche, wobei das dem Kopfende (12) gegenüberliegende Ende (14) des Hauptkörpers (10) eine Dichtlippe (141) aufweist, die als ein Stück mit der der Hülse ausgebildet und ausgestaltet ist, um mit der Innenfläche des Außenrohrs (62) in Eingriff zu kommen.

7. Die Muffe (1) nach einem der vorhergehenden Ansprüche, wobei der Hauptkörper auch eine Plattform (18) aufweist, die gegenüber der Oberfläche der Seitenwand (16) erhöht ist, wobei die Form der Plattform (18) im Wesentlichen komplementär zu der Form des Schlitzes (64) ist.

8. Muffe (1) nach Anspruch 7, wobei die Plattform (18) gegenüber dem Rest der Seitenwand (16) um eine Höhe erhöht ist, die im Wesentlichen gleich der Dicke der Wand des Außenrohrs (62) ist.

9. Hülse (1) nach einem der vorhergehenden Ansprüche, wobei der kreisförmige Ring (121) einen in sich geschlossenen, ringförmigen Streifen aufweist.

10. Muffe (1) nach Anspruch 9, wobei der in sich geschlossene, ringförmige Streifen eine Zone mit geringerer Breite aufweist.

11. Muffe (1) nach einem der vorhergehenden Ansprüche, die auch ein von der Oberfläche der Seitenwand (16) radial nach außen ragendes Halteformteil (19) aufweist, wobei das Halteformteil (19) ausgebildet ist, um in einen Schlitz (629) im Außenrohr (62) einzugreifen.

12. Baugruppe, die eine Muffe nach einem der vorhergehenden Ansprüche und ein Innenrohr (62) und ein Außenrohr (62) aufweist, wobei das Innenrohr einen Hohlraum mit einem geschlossenen Boden aufweist, der ausgebildet ist, um den Zahn des Betätigungsknopfes aufzunehmen, und wobei das Außenrohr einen Schlitz aufweist.

13. Baugruppe nach Anspruch 12, wobei das Innenrohr und das Außenrohr Teil einer Teleskopverlängerung für einen Staubsauger oder desgleichen sind.

14. Verfahren zum Montieren einer Muffe (1) zwischen einem Innenrohr (61) und einem Außenrohr (62), wobei das Verfahren beinhaltet:

Versehen des Außenrohrs (62) mit einem sich in Längsrichtung des Außenrohrs erstreckenden Schlitz (64),
Bereitstellen einer Muffe (1) nach einem der Ansprüche 1 bis 11, und Einsetzen der Muffe (1) in das Außenrohr, so dass der Rand des Außenrohres (62) innerhalb des Spaltes (122) zwischen dem kreisförmigen Ring (121) und der Seitenfläche des Hauptkörpers (10) der Muffe (1) gehalten wird.

15. Verfahren nach Anspruch 14, wobei die Muffe (1) in das Außenrohr (62) in eine zusammengebaute Bauform eingesetzt wird, in der der Druckknopf (30) und das Abdeckteil (50) mit dem Hauptkörper in einer Betriebsanordnung verbunden sind.

Revendications

1. Manchon (1) pour raccorder ensemble un tube externe (62) et un tube interne (61) d'un appareil électroménager, le manchon (1) comprenant :

un corps principal (10) ayant une extrémité de tête (12), une extrémité d'étanchéité (14) opposée et une paroi latérale (16),
un bouton d'actionnement (30) et une pièce de couvercle (50) ;
un siège (20) pour le bouton d'actionnement (30), une rainure (201) et un verrou (22) pour la pièce de couvercle (50) sur la paroi latérale (16) du corps principal (10) ;
au niveau de l'extrémité de tête (12), une bague circulaire (121) raccordée au bord avant du corps principal (10), dans lequel le diamètre de la bague circulaire (121) est supérieur au diamètre de la paroi latérale (16) de sorte qu'entre la surface externe de la paroi latérale (16) du corps principal (10) et la surface interne de la bague circulaire (121), il y a un interstice (122) sensiblement égal à l'épaisseur du tube externe (62), ledit interstice (122) étant configuré pour loger le rebord (621) du tube externe (62), lequel tube externe comprend à son tour une fente (64),
dans lequel ledit bouton d'actionnement (30) comprend :

une zone de pression (31) sur laquelle un utilisateur peut exercer une pression de déverrouillage,
une dent (34) configurée pour pénétrer dans une cavité (611) du tube interne (61) passant par une fenêtre (24) dans le manchon (1),
un pivot (32) agencé entre ladite zone de pression (31) et ladite dent (34), dans lequel le pivot (32) est conçu pour se mettre en prise à l'intérieur de la rainure (201), et
un élément élastique (40) configuré pour pousser élastiquement ledit bouton d'actionnement par rapport à ladite pièce de couvercle (50),
dans lequel une pression de déverrouillage sur ladite zone de pression (31) a l'effet de provoquer la sortie de la dent (34) hors de la cavité du tube interne (61).

2. Manchon (1) selon la revendication 1, dans lequel ladite dent (34) comprend un bord d'attaque (341) chanfreiné.

3. Manchon (1) selon la revendication 1 ou 2, dans lequel ladite dent (34) est solidaire avec ledit bouton d'actionnement (30).

4. Manchon (1) selon la revendication 1, 2 ou 3, dans lequel ledit élément élastique (40) est un ressort cylindrique installé à l'intérieur d'un boîtier (342) opposé à ladite dent (34) et ouvert vers ladite pièce de couvercle (50).

5. Manchon (1) selon la revendication 4, dans lequel ladite fenêtre (24) est à l'intérieur du siège (20) délimité par une paroi de retenue (21).

6. Manchon (1) selon l'une quelconque des revendications précédentes, dans lequel l'extrémité (14) du corps principal (10) opposée à l'extrémité de tête (12) comprend une lèvre d'étanchéité (141), formée d'un seul tenant avec le manchon et configurée pour se mettre en prise avec la surface interne du tube externe (62).

7. Manchon (1) selon l'une quelconque des revendications précédentes, dans lequel ledit corps principal comprend également une plateforme (18) qui est levée par rapport à la surface de la paroi latérale (16), la forme de ladite plateforme (18) étant sensiblement complémentaire de la forme de ladite fente (64).

8. Manchon (1) selon la revendication 7, dans lequel ladite plateforme (18) est levée par rapport au reste de la paroi latérale (16) selon une hauteur sensiblement égale à l'épaisseur de la paroi du tube externe (62).

9. Manchon (1) selon l'une quelconque des revendications précédentes, dans lequel ladite bague circulaire (121) comprend une bande annulaire à anneau fermé.

10. Manchon (1) selon la revendication 9, dans lequel ladite bande annulaire à anneau fermé comprend une zone avec une plus petite largeur.

11. Manchon (1) selon l'une quelconque des revendications précédentes, comprenant également un moulage de retenue (19) faisant saillie radialement vers l'extérieur à partir de la surface de la paroi latérale (16), ledit moulage de retenue (19) étant configuré pour se mettre en prise à l'intérieur d'une fente (629) dans le tube externe (62).

12. Ensemble comprenant un manchon selon l'une quelconque des revendications précédentes, un tube interne (62) et un tube externe (62), dans lequel le tube interne comprend une cavité ayant un fond fermé configuré pour recevoir la dent du bouton d'actionnement et dans lequel le tube externe comprend une fente.

13. Ensemble selon la revendication 12, dans lequel ledit tube interne et ledit tube externe font partie d'une

extension télescopique pour un aspirateur ou similaire.

14. Procédé pour monter un manchon (1) entre un tube interne (61) et un tube externe (62), le procédé comprenant les étapes consistant à :

prévoir le tube externe (62) avec une fente (64) s'étendant dans la direction longitudinale du tube externe,
prévoir un manchon (1) selon l'une quelconque des revendications 1 à 11, et
monter le manchon (1) à l'intérieur du tube externe de sorte que le rebord du tube externe (62) est retenu à l'intérieur de l'interstice (122) entre la bague circulaire (121) et la surface latérale du corps principal (10) du manchon (1).

15. Procédé selon la revendication 14, dans lequel ledit manchon (1) est monté à l'intérieur du tube externe (62) dans une configuration assemblée dans laquelle le bouton poussoir (30) et la pièce de couvercle (50) sont associés au corps principal dans une configuration de fonctionnement.

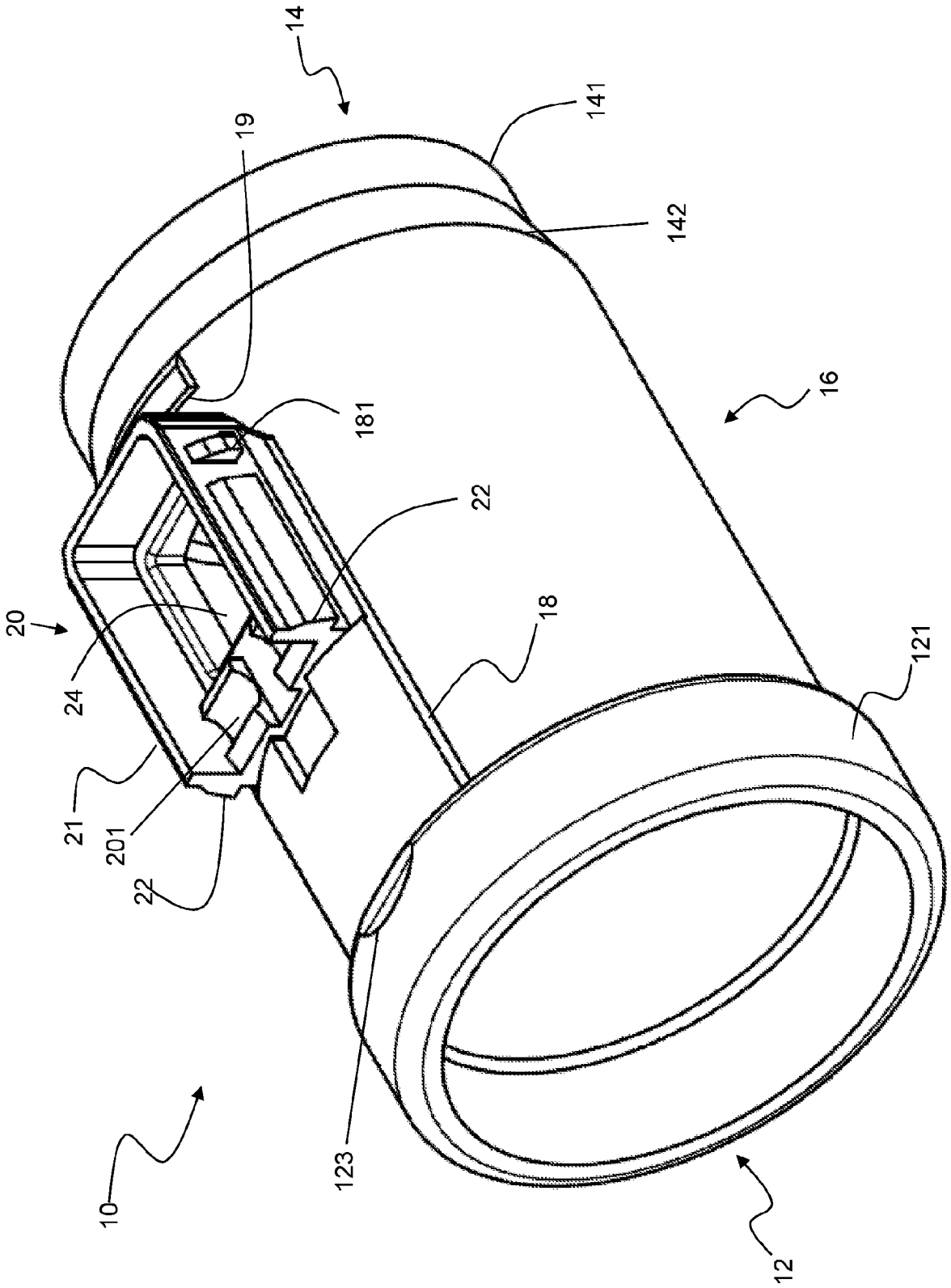

Fig. 1

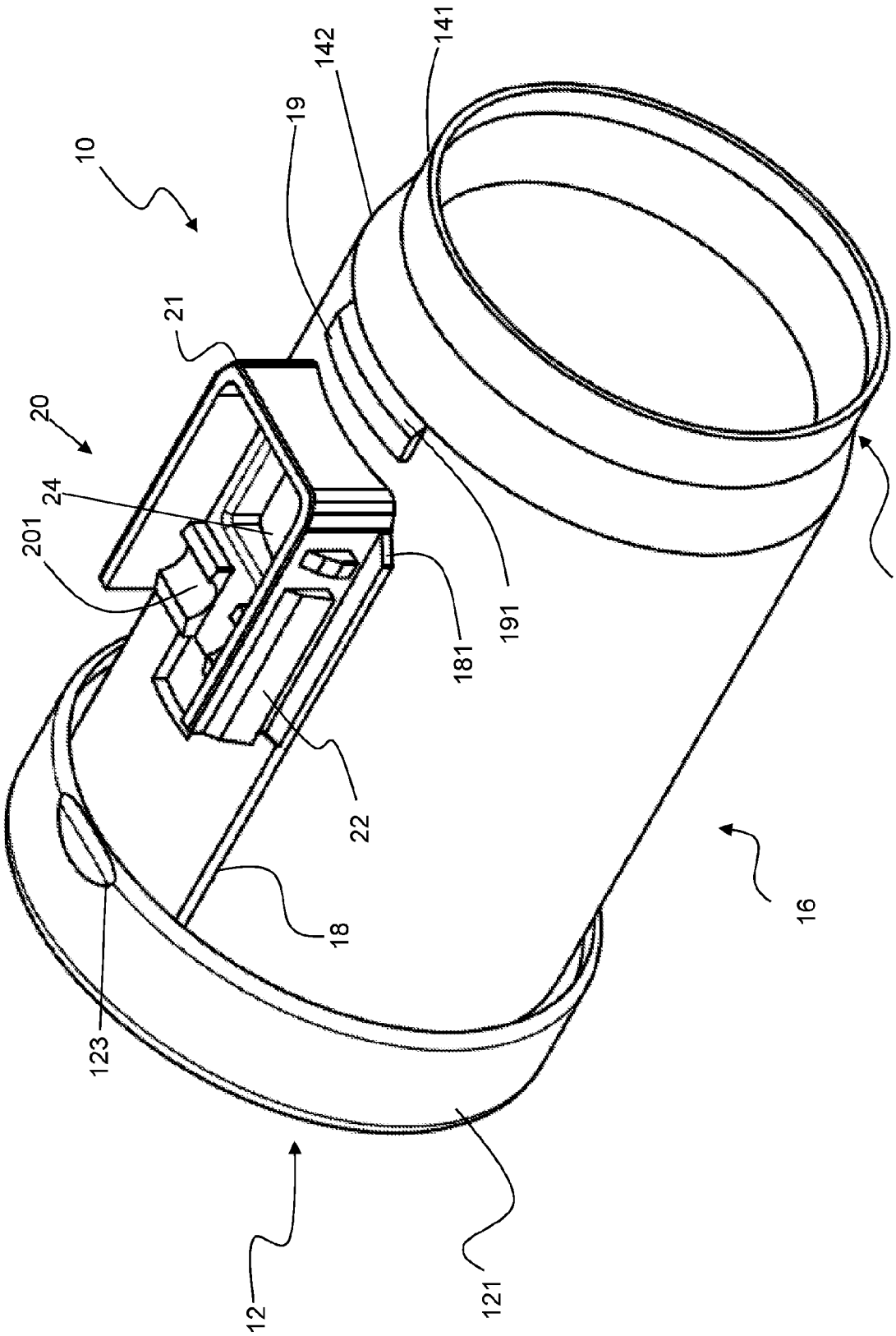

Fig. 2

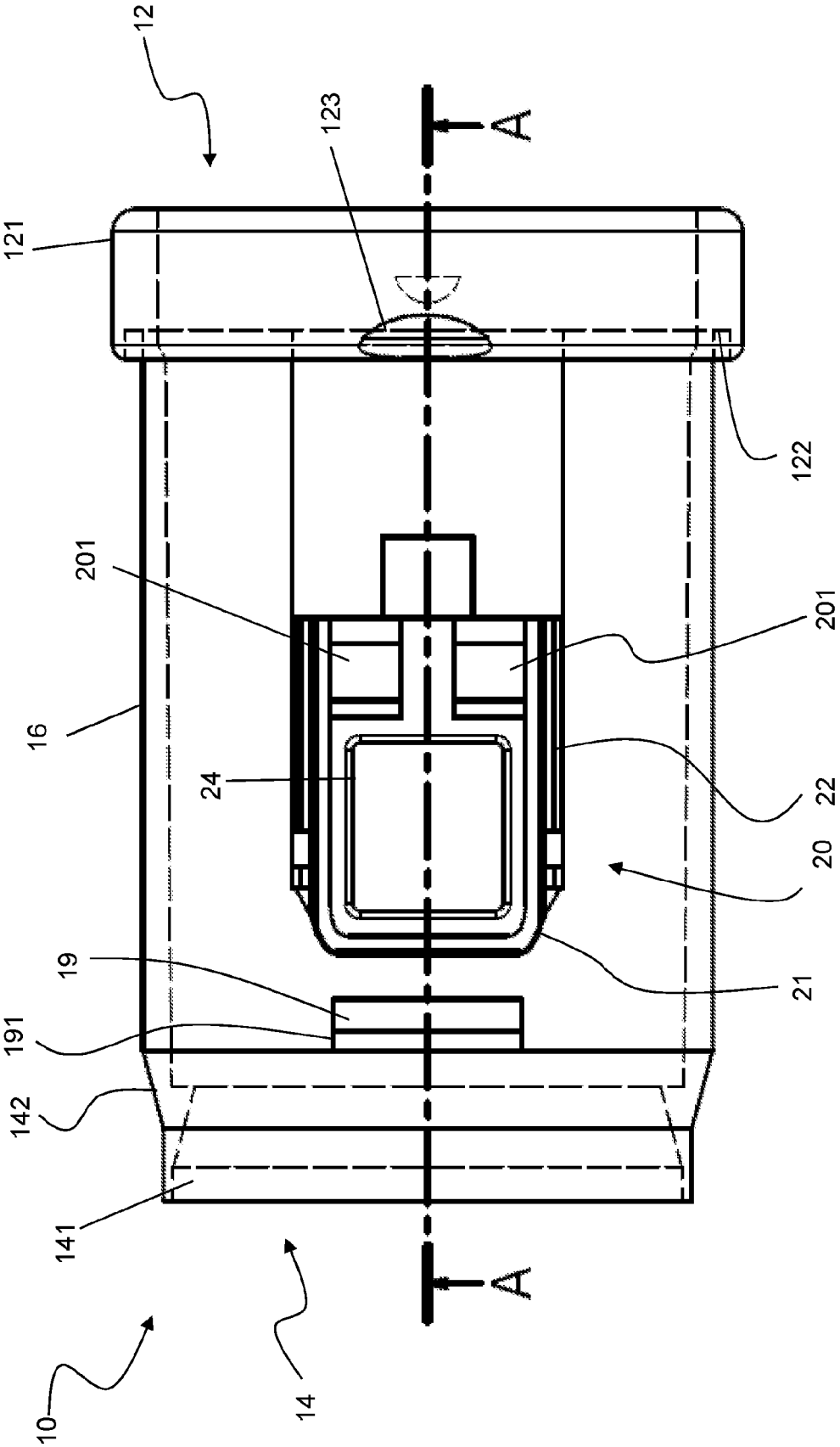

Fig. 3

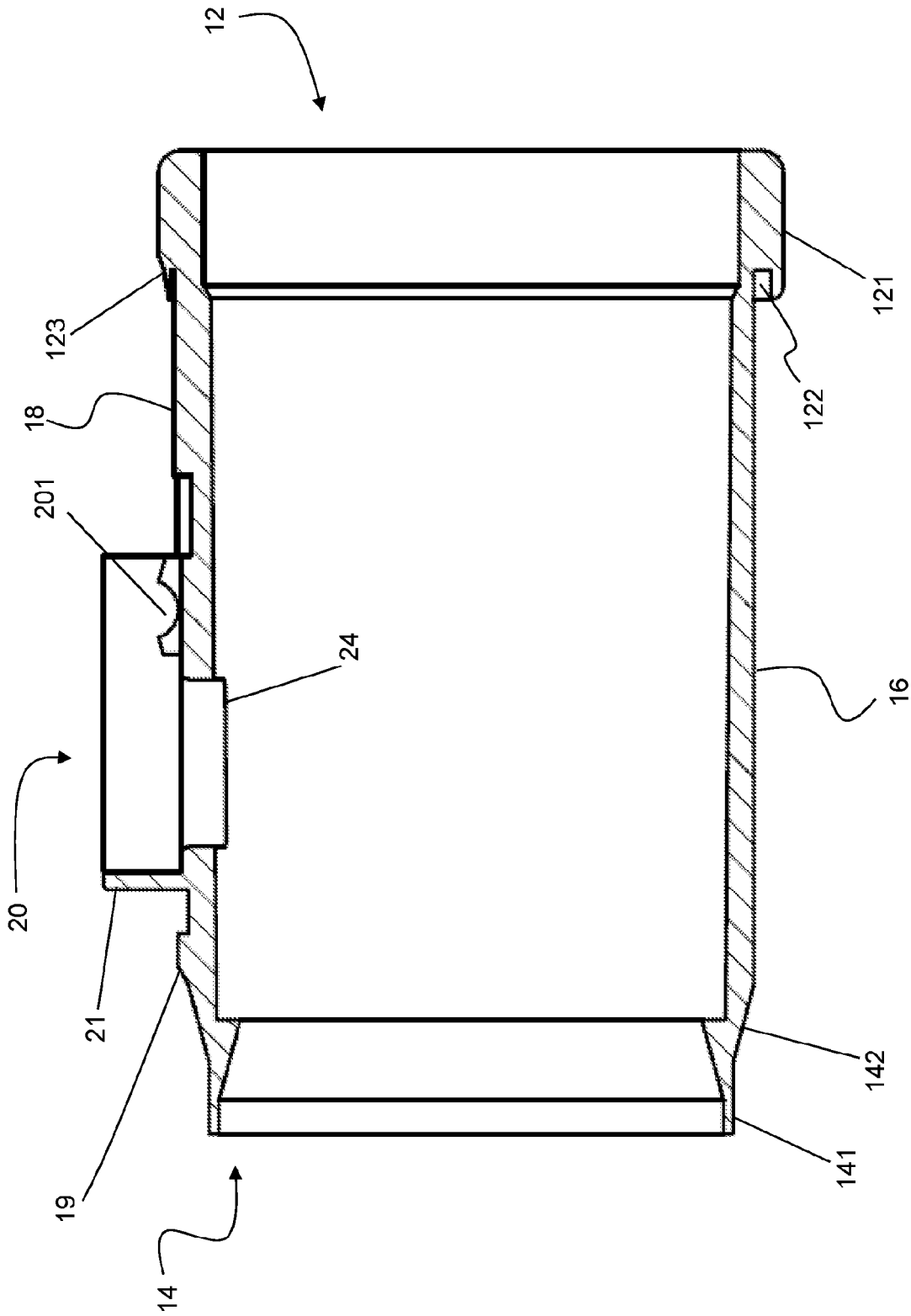

Fig. 4

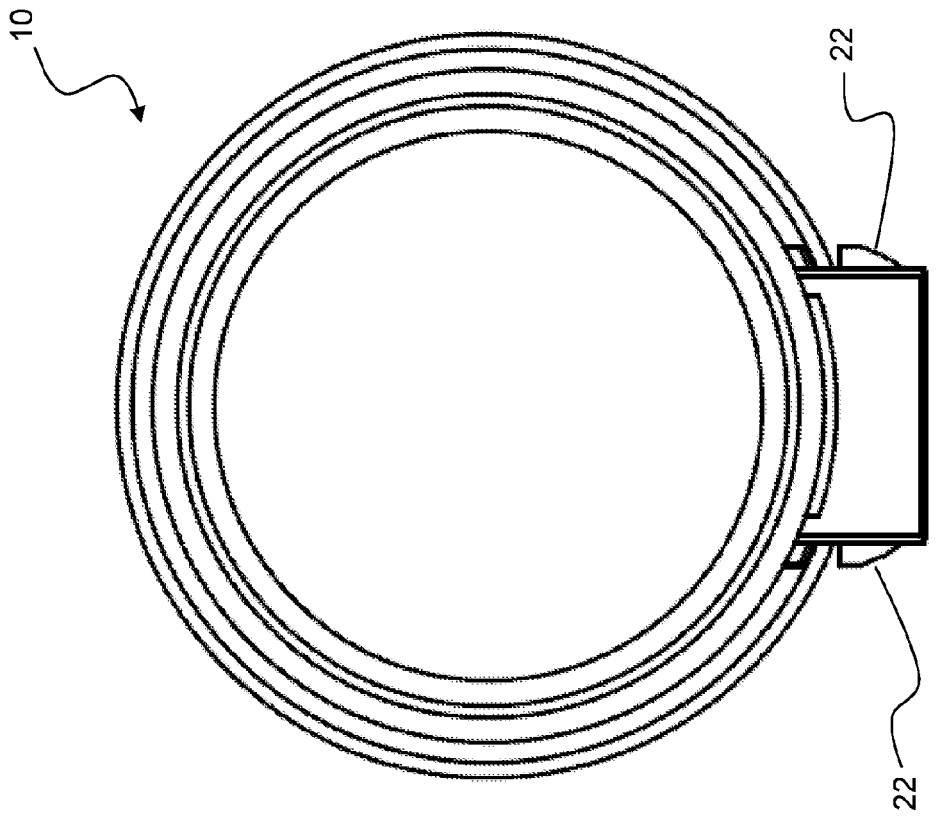

Fig. 6

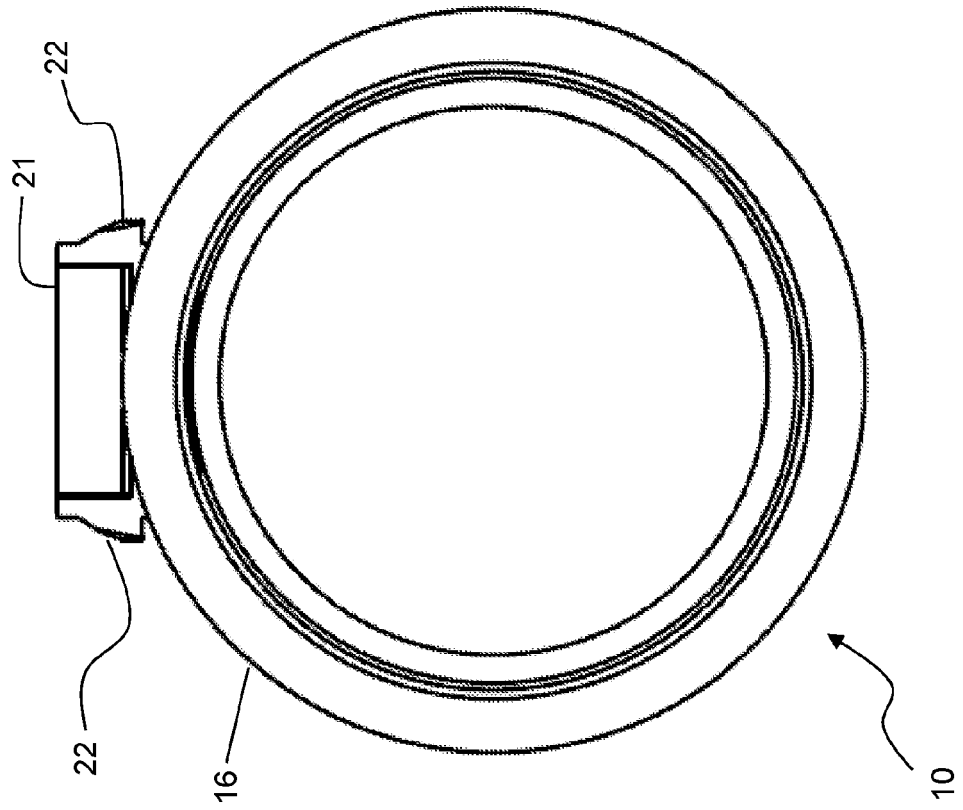

Fig. 5

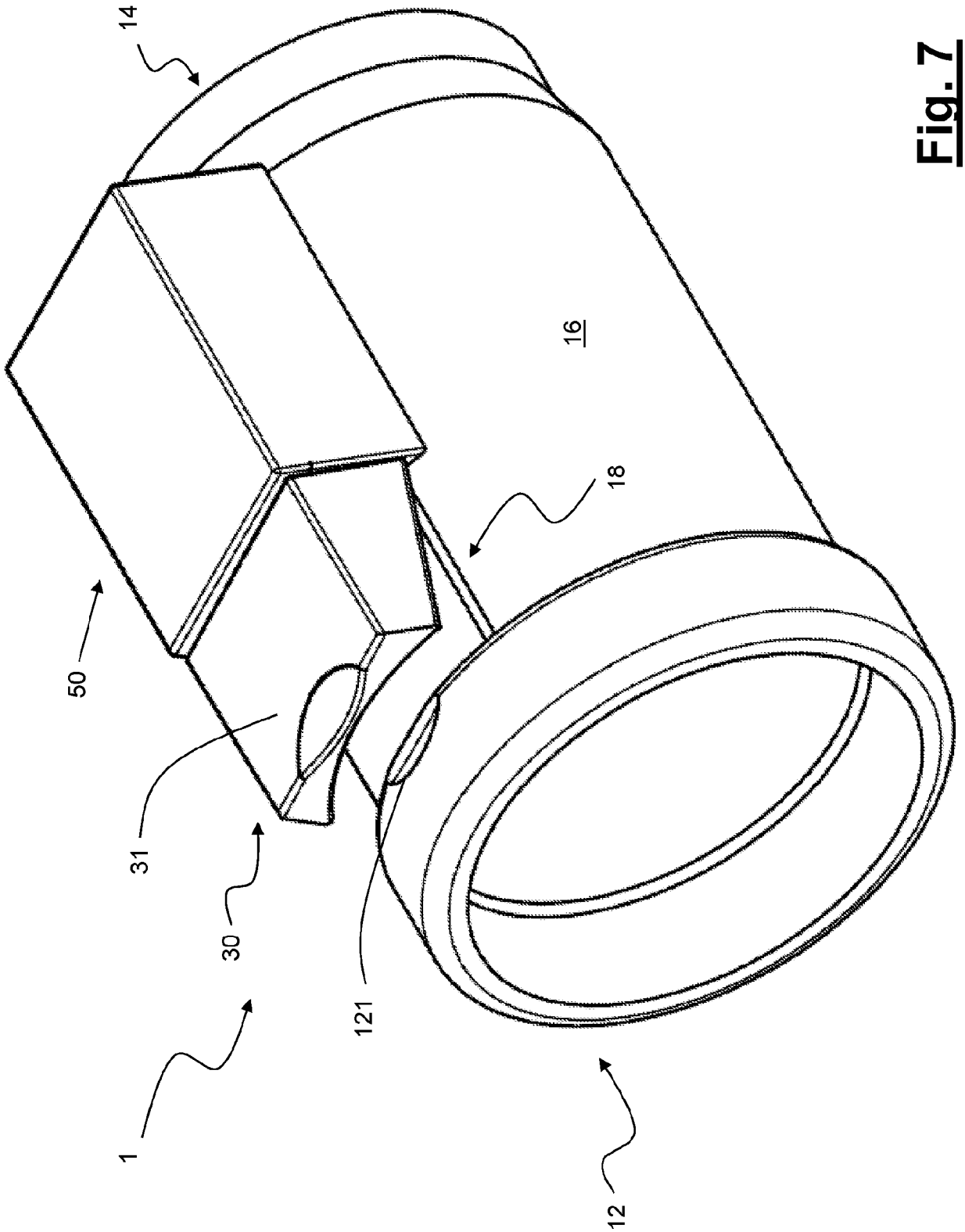

Fig. 7

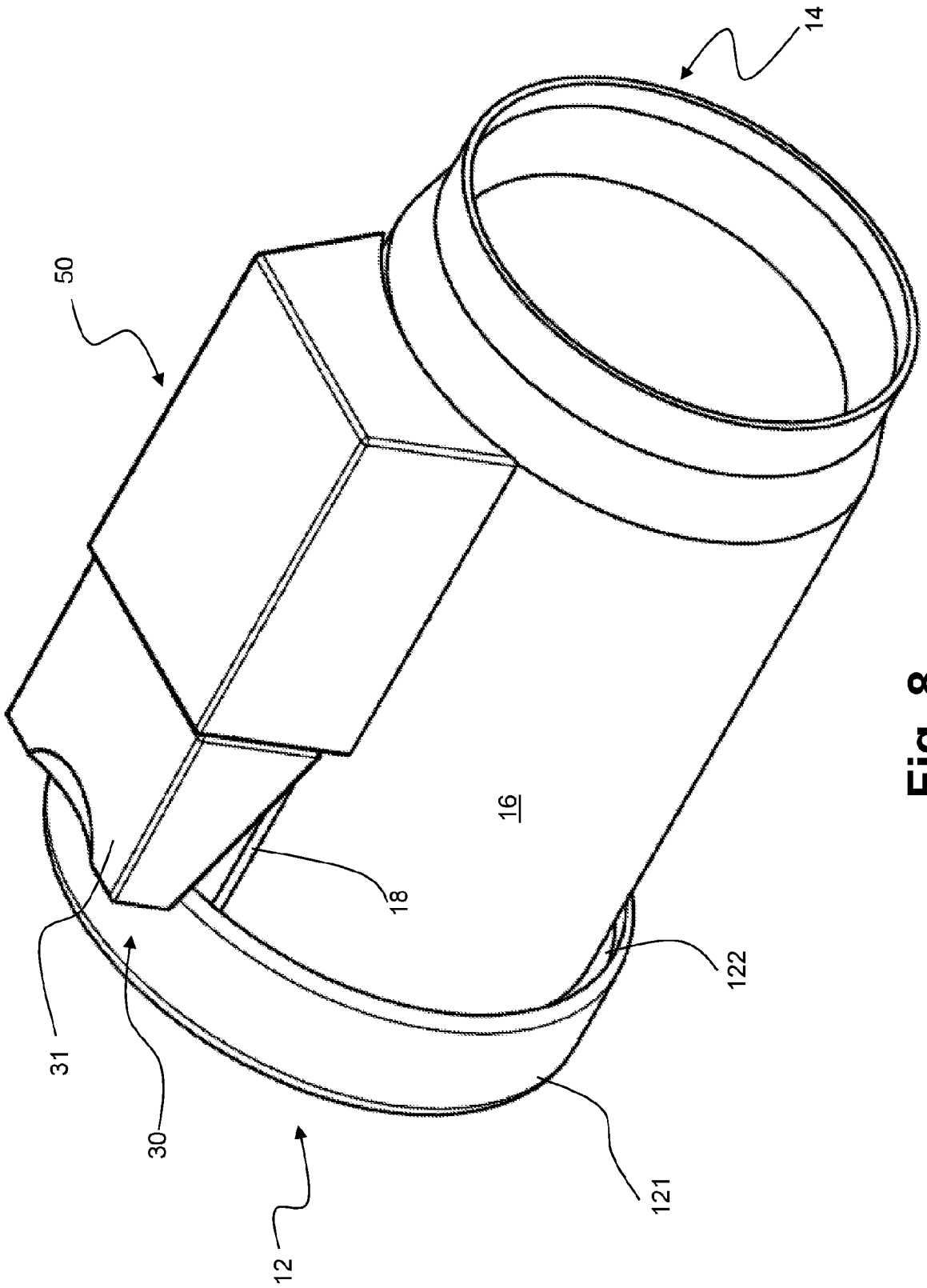

Fig. 8

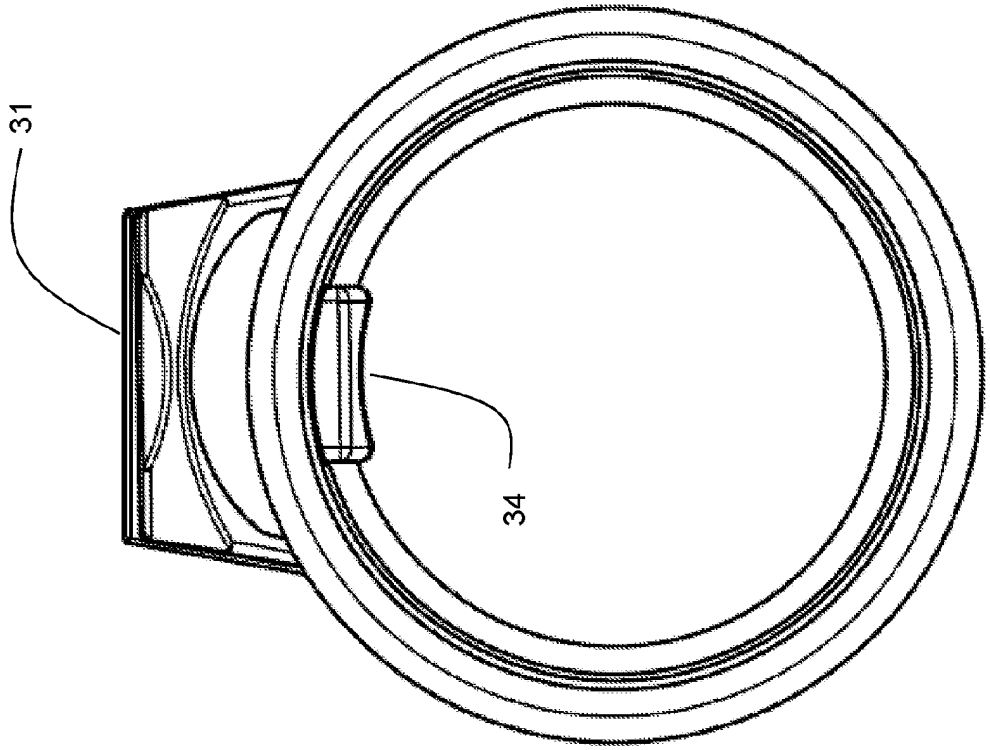

Fig. 10

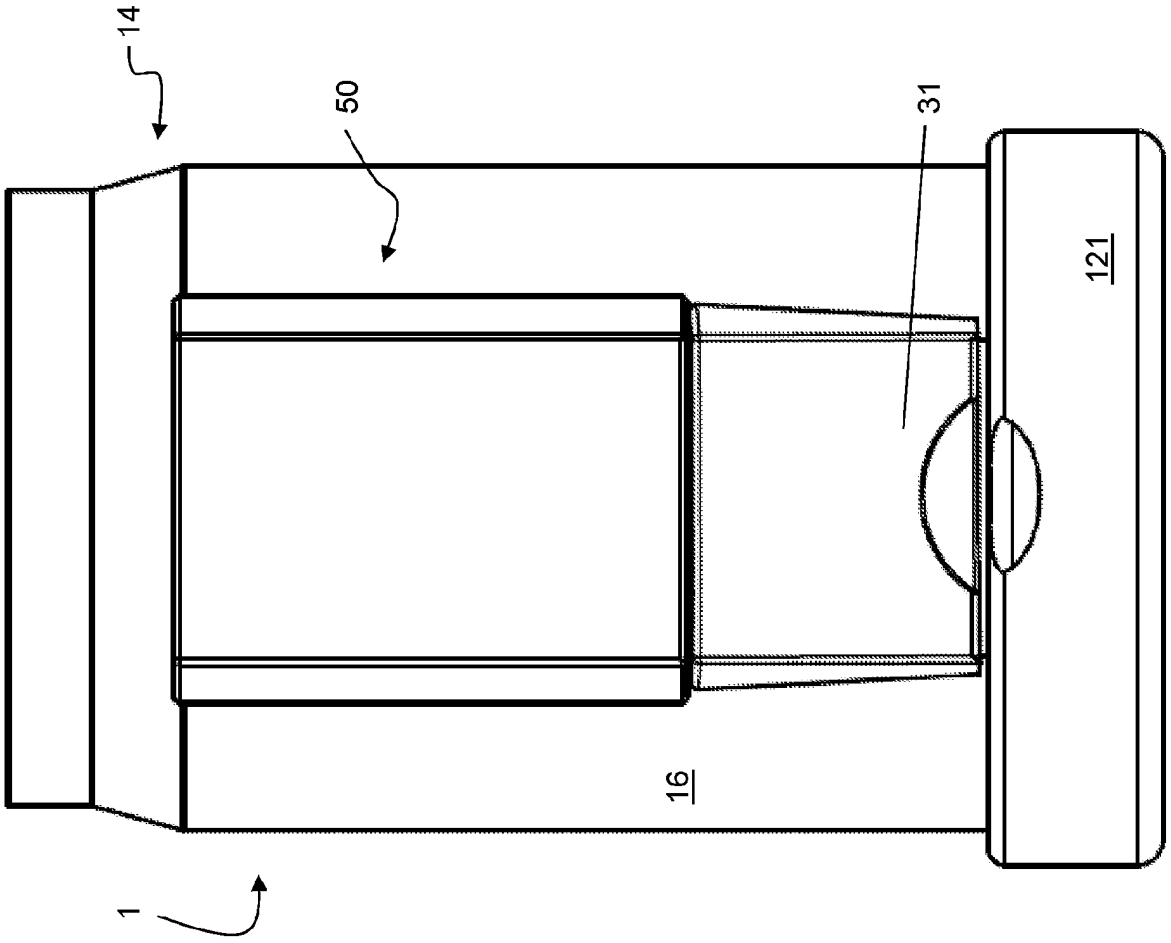

Fig. 9

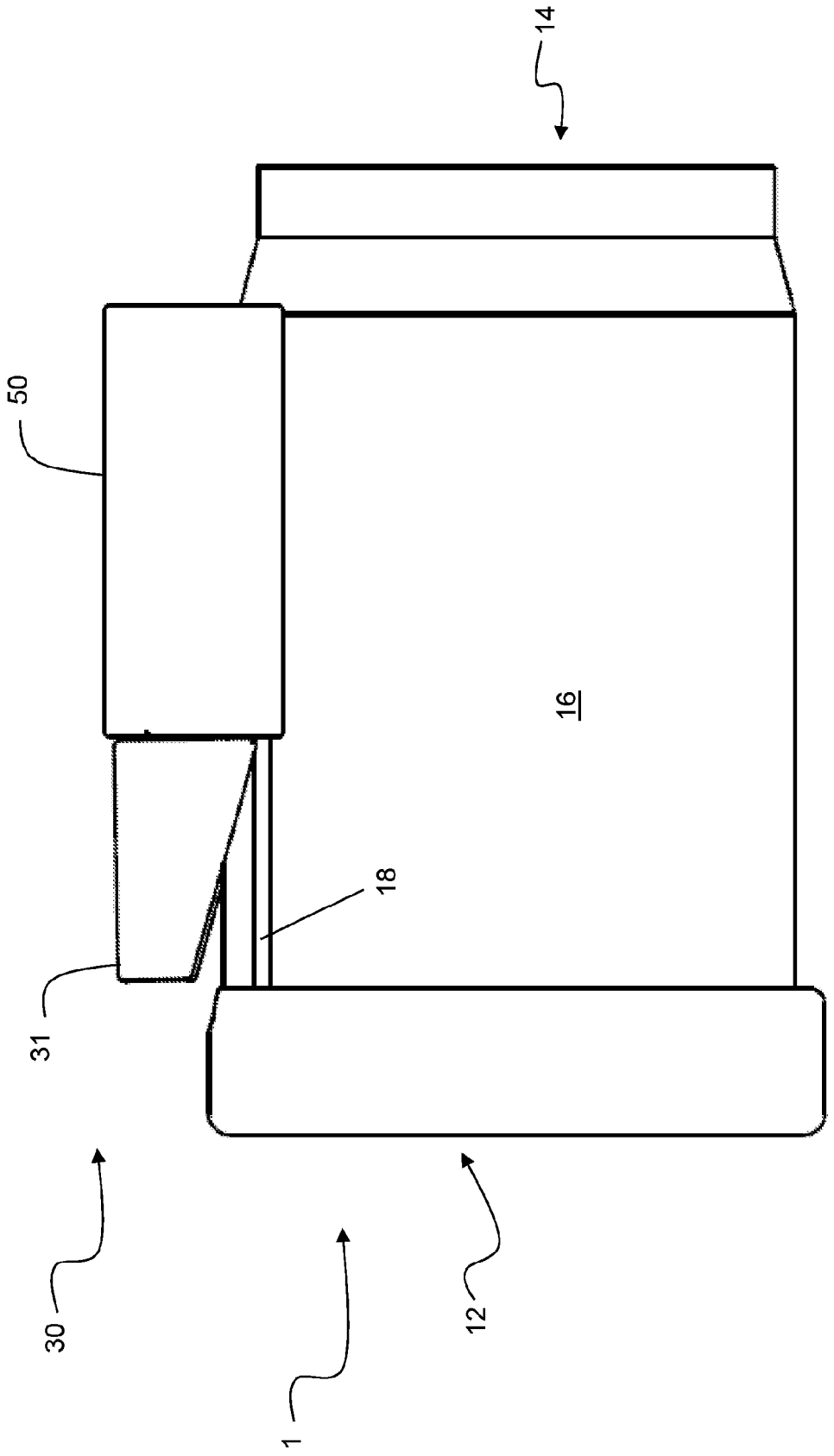

Fig. 11

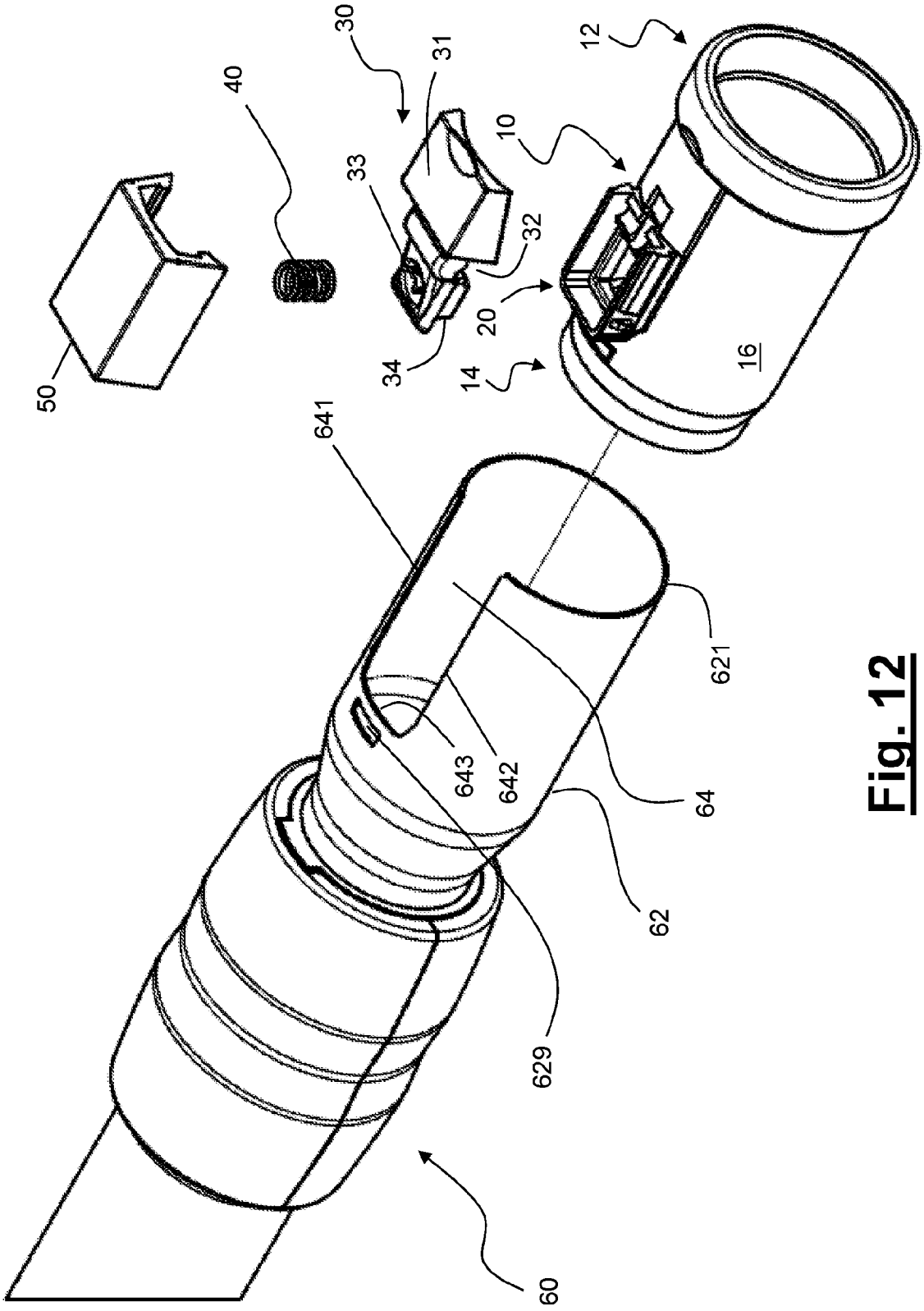

Fig. 12

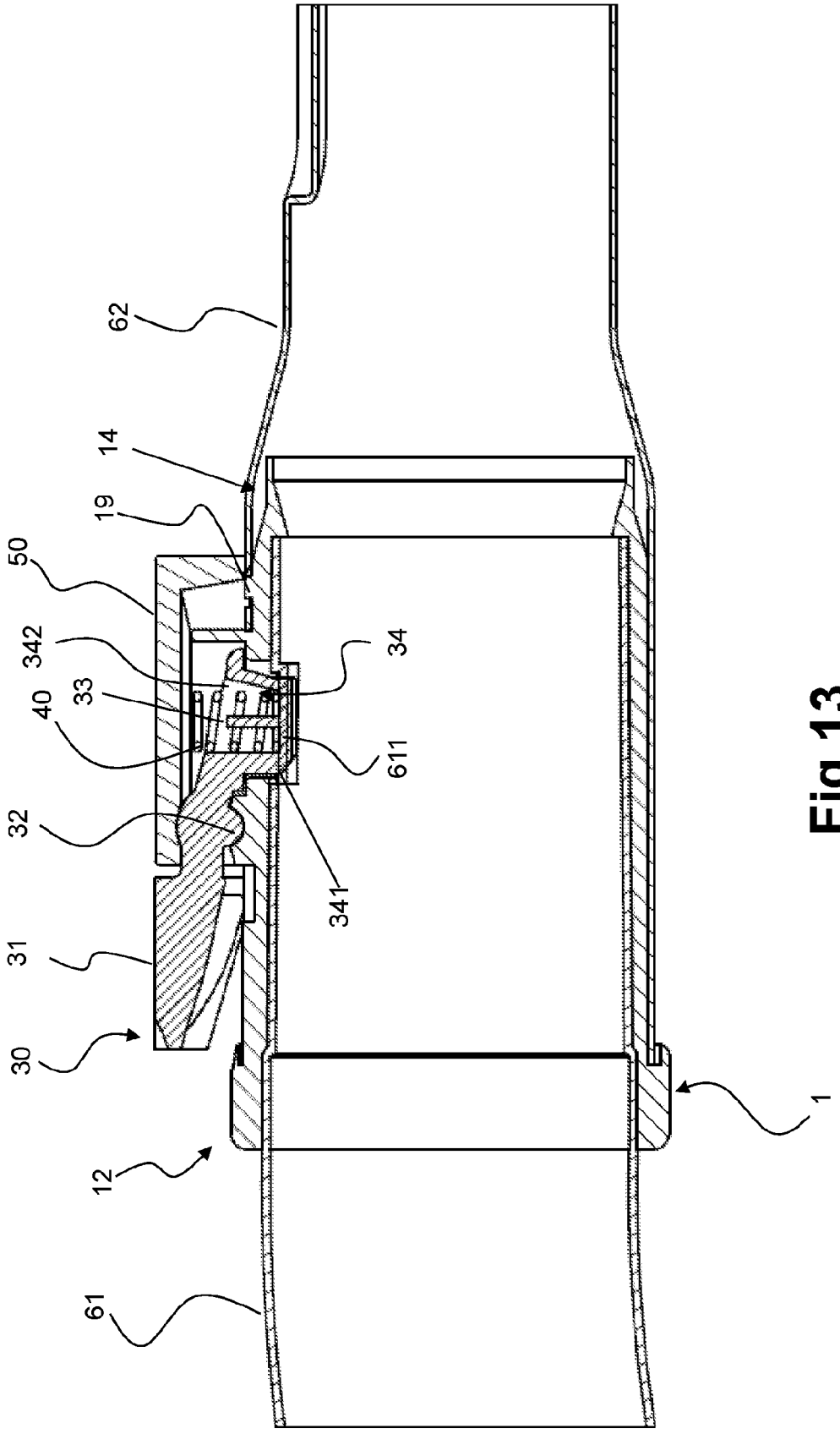

Fig.13

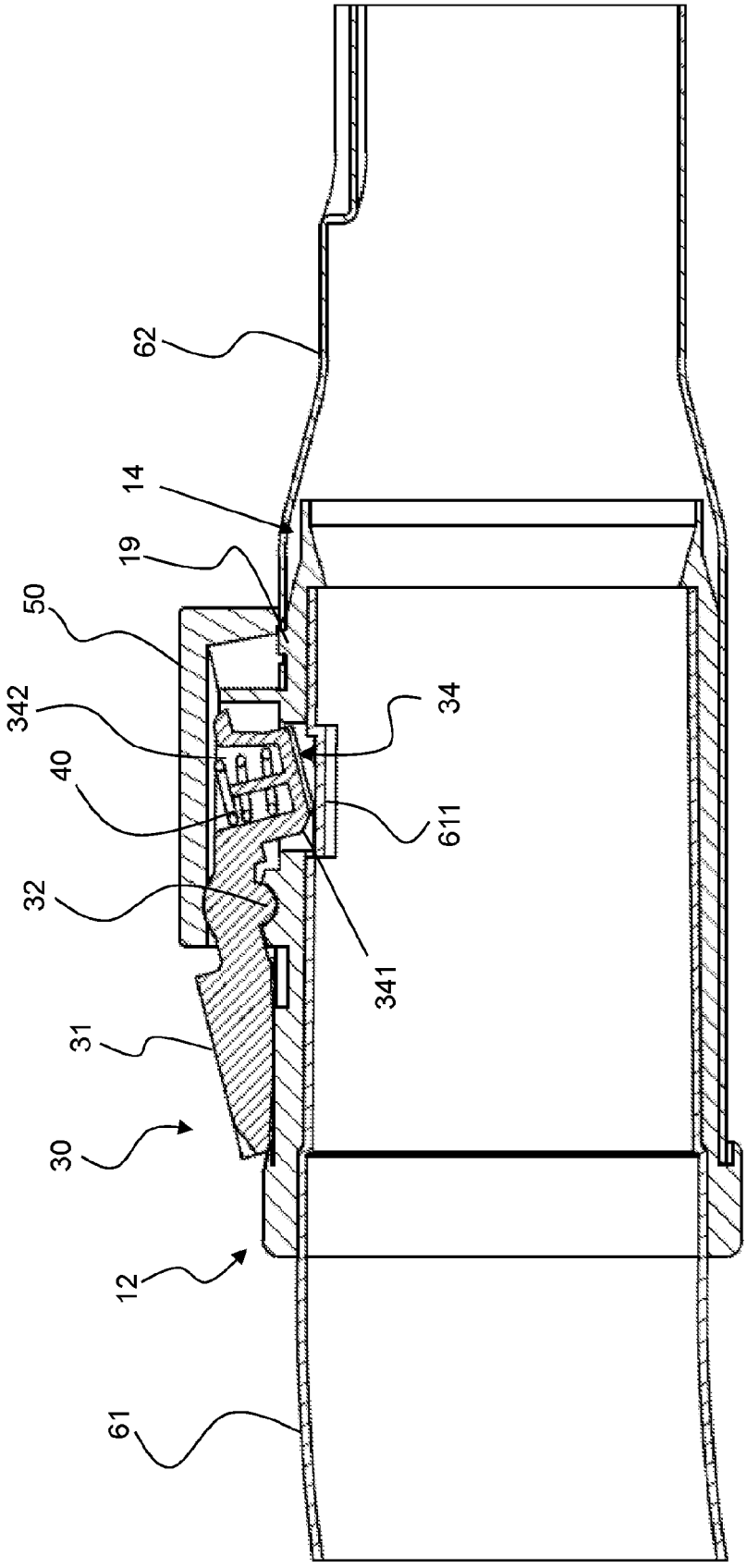

Fig.14

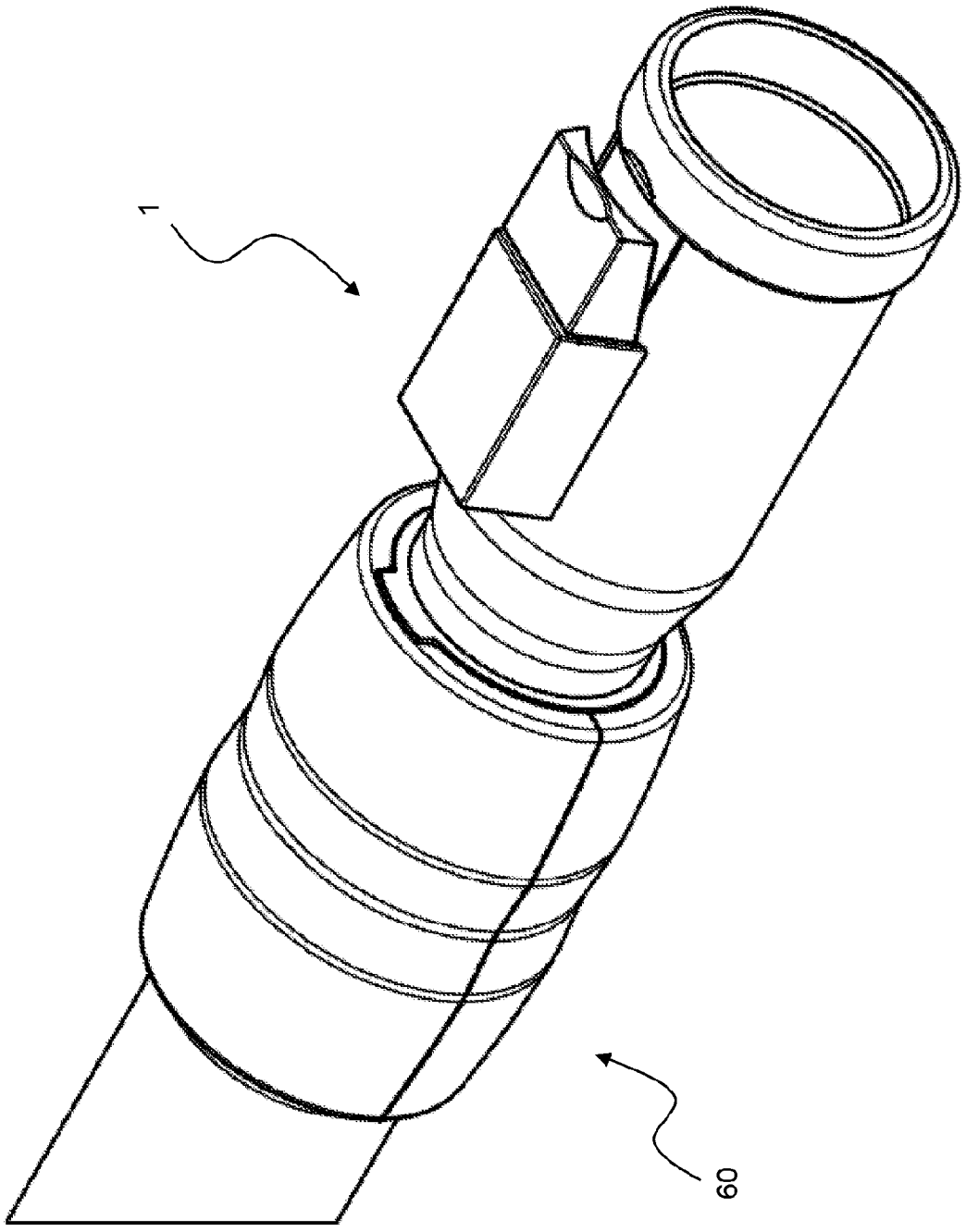

Fig.15

REFERENCES CITED IN THE DESCRIPTION

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