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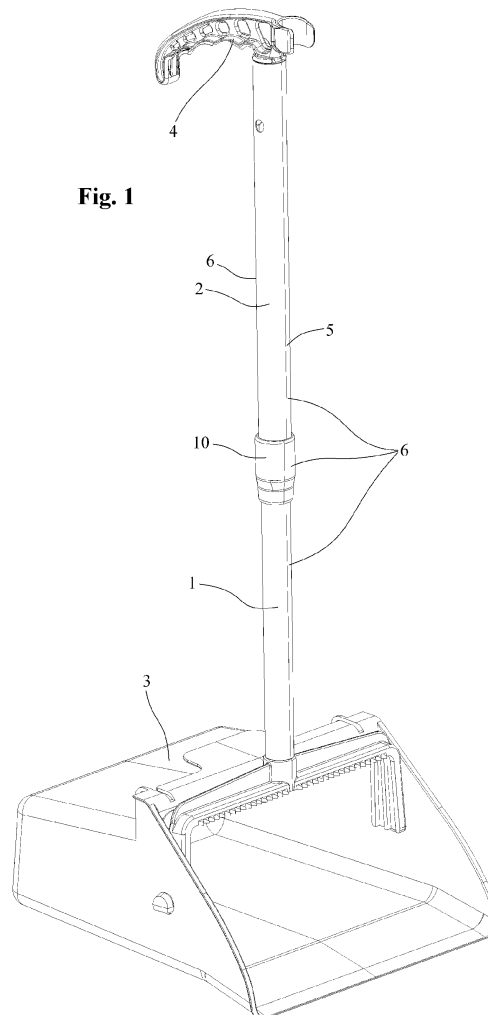
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(54) **TELESCOPIC HANDLE WITH ANTI-SLIP DEVICE**

(57) This is a cleaning tool, and in particular the handle of a telescopic cleaning tool, equipped with a simple and reliable anti-slip device.

Fig. 1



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Description

Description

[0001] The field of the invention relates to a cleaning tool, and in particular the handle of a telescopic cleaning tool.

State of the art

[0002] It is known that in the field of cleaning tools the handle plays a fundamental role. Depending on the intended use of the tool placed on the end of the handle, the handle itself must meet predetermined requirements of strength, lightness, flexibility, etc. One of the essential characteristics for some types of tools is the length. This characteristic is crucial for the tool to be used comfortably since the distance between the handle and the tool needs to take into account the height of the operator. A length that is too long or shorter than expected can make the various cleaning operations particularly uncomfortable for the operator. Considering that the operator is a professional, this aspect, namely that the handle is the right length, it is very important.

[0003] The telescopic handle has been used for some time to meet the above-mentioned requirements, which makes it possible to obtain a handle of the desired length by fixing two tubes together, one inside the other.

[0004] Sometimes, however, because the cleaning tools in a cleaning company are used by several operators, each with their own needs, the handles need to be adjusted to the desired length. This is not particularly difficult to achieve, since all you have to do is release the relative fastening device between the two handles, extend or shorten the relative connection between the two tubular sections, and then fix them together again.

[0005] Very often, in the desire to extend this connection too much, the inner tube is extracted from the outer tube, achieving a relative decoupling of the two tubular sections. This situation, although seemingly very trivial, is extremely inconvenient for the operator, because they need to stop their cleaning operations in order to reestablish the connection, which sometimes can be quite difficult because some elements could get lost during the separation of the two tubes.

[0006] In fact, the connection element that allows the two tubular sections to be fixed to each other to obtain the desired length of the handle, is composed of several parts that can be detached if the inner tube is completely removed from the outer tube.

[0007] To avoid this inconvenience, some tubes also have an additional part to prevent the two tubes from being able to slide off each other, though this adds additional complexity to the whole. Moreover, these parts over time tend to become less efficient, prone to breaking or stick to the walls of the tubes, or else failing to function correctly. In the aforementioned situations, the handle is unusable and must be replaced.

[0008] In fact, since the various parts of the connection are made of plastic, they tend to deteriorate over time and with exposure to the elements.

[0009] Although they are explicitly intended to be used in environments to be cleaned, the relative connection elements do not tolerate dirt, humidity, water and/or detergents, and in such conditions they could possibly seize up or not work at all.

[0010] Related to one or more of the above-mentioned drawbacks, there is a further difficulty: that of maintaining a handle correctly oriented with respect to the tool; in fact, it is very often useful for an operator that the gripping handle is always correctly oriented with respect to the relative tool fixed to the opposite end of the handle, but, in the event that the aforementioned fixing and locking device is not maintained, the operator will be forced to intervene by interrupting the cleaning operations.

Objects of the invention

[0011] The object of the present invention is to make available a telescopic handle with an extremely simplified anti-slip device, which prevents its decoupling.

[0012] A further object of the present invention is to make available a telescopic handle with a durable, efficient and reliable anti-slip device.

[0013] A different object of the present invention is to make available a telescopic handle with an anti-slip device that is easy to make.

[0014] An important object of the present invention is to make available a telescopic handle with an anti-slip device that is affordable and inexpensive.

[0015] An important object of the present invention is to make available a telescopic handle with an anti-slip device that does not have parts that could break, get worn or get lost.

[0016] An equally important object of this invention is to make available a telescopic handle with an anti-slip device that maintains the correct orientation of the tool with respect to the handle.

[0017] Another object of the present invention is to make available a telescopic handle with an anti-slip device that requires no maintenance.

Explanation of the invention

[0018] The aforesaid purposes are achieved by a telescopic handle with an anti-slip device that is composed of two tubular segments with an ϕ_{ext1} outer diameter of a first segment that is smaller ϕ than the ϕ_{int2} inner diameter of a second tubular segment, so the first can slide within the tubular cavity of the second, including a spaced series of two or more holes distributed along the longitudinal extension of the second segment and also with an elastic device for engaging said holes near the end of the first segment and which slides entirely to the second segment, where there is at least one circumferential expansion of the end section of the first $\phi_{ext1} < \phi_{int2}$ segment.

ment, and where there is a collar insert or a taper of the tubular segment near the end section of the second segment, whose internal dimensions $\phi_{int} > \phi_{ext1}$ are greater than the diameter of the first tubular segment but interfere $\phi_{int} < \phi_{ext1}$ with said expansion preventing from crossing and subsequently disconnecting, by the detachment of the telescopic connection between the first and second segments.

Advantageous characteristics of the invention

[0019] Advantageously, the handle is placed at a top end of a tubular segment in a fixed manner.

[0020] Advantageously, the series of holes extends along the longitudinal extension on two quadrature that are perpendicular to one another. Advantageously, said collar is made of Teflon or a similar wear-resistant material.

[0021] Advantageously, said collar has a profile that goes around the entire circumference of the segment of internal telescoped tube. Advantageously, a second expansion of the inner tube similar to that of the end that prevents the collar from being surpassed, and spaced apart from the first expansion, prevents or limits an oscillation or pitching of the free end of the first tube inserted in the second tube.

Brief description of the drawings

[0022] The technical characteristics of the invention, according to the aforesaid objects, can clearly be seen in the claims below, and its advantages will become more readily apparent in the detailed description that follows, made with reference to the accompanying drawings, which illustrate a preferred embodiment, which is purely exemplary and not limiting, in which:

Fig. 1 shows a perspective view of a cleaning tool equipped with a telescopic handle with a cleaning tool attached to the lower end of the handle and a grip attached to the upper end of the handle.

Fig. 2 shows a front plan view of the cleaning tool of fig. 1 highlighting the device for fixing and adjusting the length of the telescopic handle.

Fig. 3 shows a perspective view of the cleaning tool in a shortened configuration of the telescopic handle.

Fig. 4 shows a sectional view along a vertical plane passing through the main axis of the telescopic handle and an enlarged view of the anti-slip device.

Fig. 5 shows a further improved version of the telescopic handle of fig. 4 regarding the anti-slip device.

Detailed description of an example of a preferred embodiment

[0023] With reference to the drawings, the cleaning tool 5 includes a telescopic handle 6. A cleaning accessory 3 is joined to the lower end of said telescopic handle 6.

A grip 4 is connected to the upper end of said telescopic handle 6.

[0024] Said telescopic handle 6 includes at least two tubular segments 1, 2 which, when inserted one inside the other, can be fixed to each other for a certain portion, determining the extended length of said telescopic handle 6.

[0025] In order to prevent the telescopic handle 6 of the invention from being pulled out of its coupling, one inside the other, there is an anti-slip device 11, which is extremely simple to use, very safe to operate and has also proven to be reliable.

[0026] In particular, there is a permanent deformation, or circumferential expansion 9, of an end section of the tube 1 with a smaller diameter, which remains inserted in the larger diameter tube 2. Said deformation 9, in combination with a collar 10 or a taper of the tube near the end section of the larger diameter tube 2, prevents said smaller diameter tube 1 from slipping out of the relative coupling. In fact, said collar 10 or taper with an inner diameter smaller than the aforementioned expansion made by the permanent deformation prevent them passing one another and retains said smaller diameter tube 1 inside the larger diameter tube 2 and ensures they stay connected to each other.

[0027] Advantageously, the connection between said collar 10 and the permanent circumferential expansion 9 prevents a pitch of the tube with the smaller diameter 1 with respect to the tube with the larger diameter 2.

[0028] To further ensure that the two tubes 1, 2 stay solidly connected without any oscillations, especially when the collar 10 and the circumferential expansion 9 are close together, there is another second circumferential expansion 12 some distance from the first expansion 9 of the end of the first tube 1.

[0029] The retention of a pre-set length, how far tube 1 comes out from tube 2, is guaranteed by the elastic engagement 8 on the spaced apart holes 7 set longitudinally on the wall of tube 2 with the larger diameter.

[0030] Suitably, since the grip handle 4 is rigidly joined to the upper end of the telescopic handle 6, a second series of holes 13 is provided in quadrature with respect to the first series of holes 7 provided on the perimeter surface of the larger diameter tubular 2.

[0031] Therefore, since the elastic engagement 8 can be connected to the first 7 or the second 13 series of holes, it is possible to maintain the handle 4 for each desired length extension of the telescopic handle 6 at a first position or at a second position, in quadrature with the first, depending on the operator's preferences.

Claims

1. Telescopic handle with anti-slip device, which includes two tubular sections with ϕ_{ext1} internal diameter of a first section that is (1) less than ϕ_{int2} external diameter of a second tubular section (2), therefore

the first (1) is able to slide inside the tubular cavity of the second (2), also including a spaced apart series of two or more holes (7, 13) along the longitudinal extension of the second section (2) as well as including an elastic device (8) for engaging said holes (7, 13) near the end of the first section (1) and that slides fully to the second section (2), **characterised by** the fact that there is at least one circumferential expansion (9) of the end segment of the first section ϕ_{ext} expansion1 $< \phi_{int2}$, and where there is a collar insert (10) or a tapering of the tube near the end part of the second section (2), whose internal dimensions ϕ_{int} collar $> \phi_{ext1}$ are greater than the diameter of the first tube (1) but they interfere ϕ_{int} collar $< \phi_{ext}$ expansion1 with said expansion, preventing it crossing and consequently disconnecting due to the slippage of the telescopic connection between the first (1) and second (2) section.

2. Telescopic handle with anti-slip device according to claim 1, **characterised by** the fact that a grip (4) is positioned at an upper end of a tubular section (1, 2) in a fixed manner.
3. Telescopic handle with anti-slip device according to claim 1, **characterised by** the fact that the series of holes (7, 13) extends along the longitudinal extension on two quadrature perpendicular to each other.
4. Telescopic handle with anti-slipping device according to claim 1, **characterised by** the fact that said collar (10) is made of Teflon or another wear-resistant material.
5. Telescopic handle with anti-slipping device according to claim 1, **characterised by** the fact that said collar (10) has a profile that skims the entire circumference of the internal telescoped section of tube (1).
6. Telescopic handle with anti-slip device according to claim 1, **characterised by** the fact that a second expansion (12) of the inner tube (1), similar to the one at the end (9) that prevents the collar being overtaken, and spaced apart from the first expansion (9), it avoids or limits an oscillation or pitching of the free end of the first tube (1) inserted in the second tube (2).

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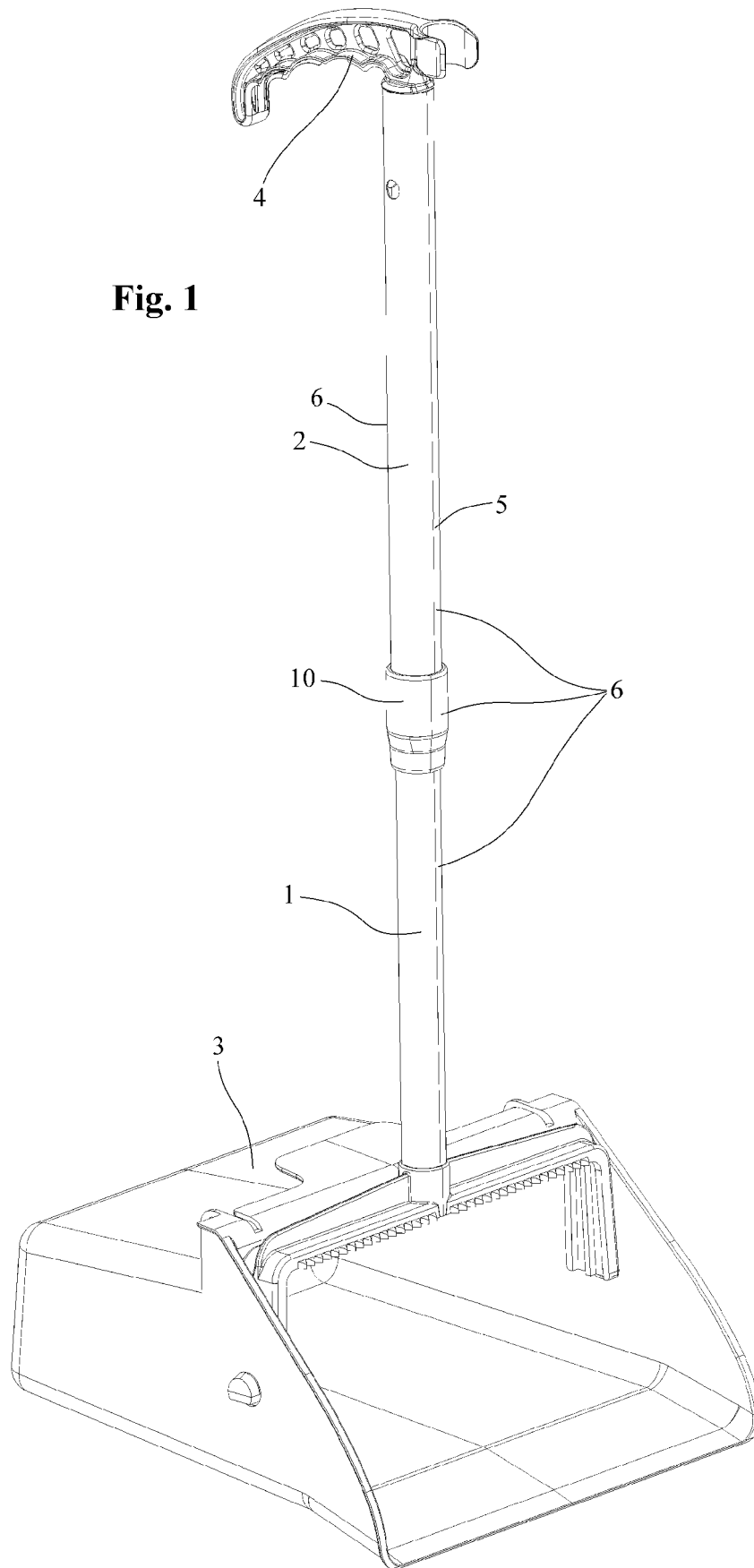


Fig. 2

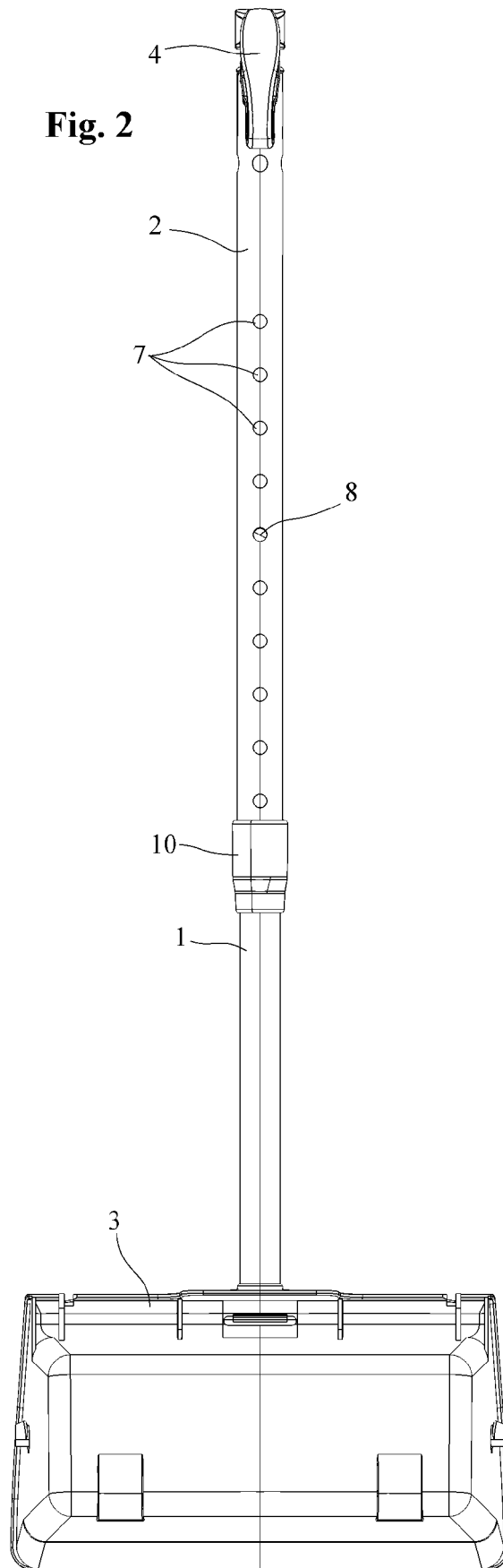


Fig. 3

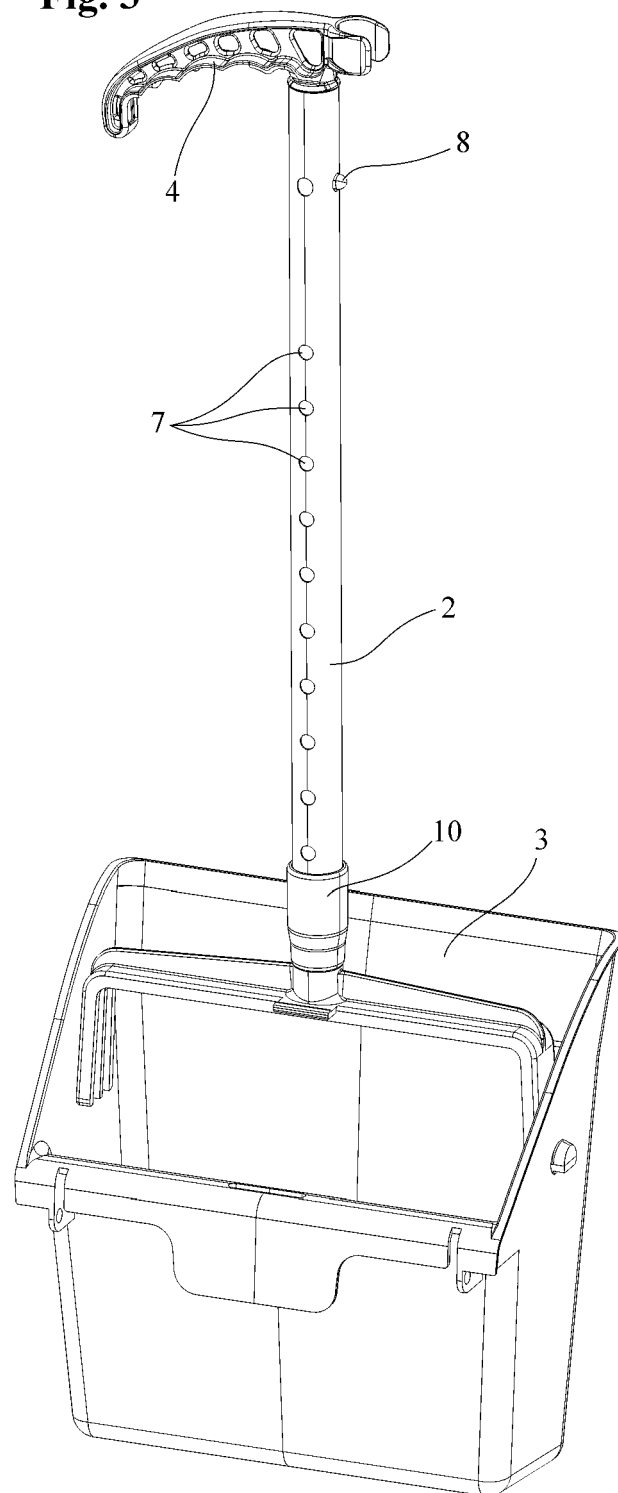


Fig. 4

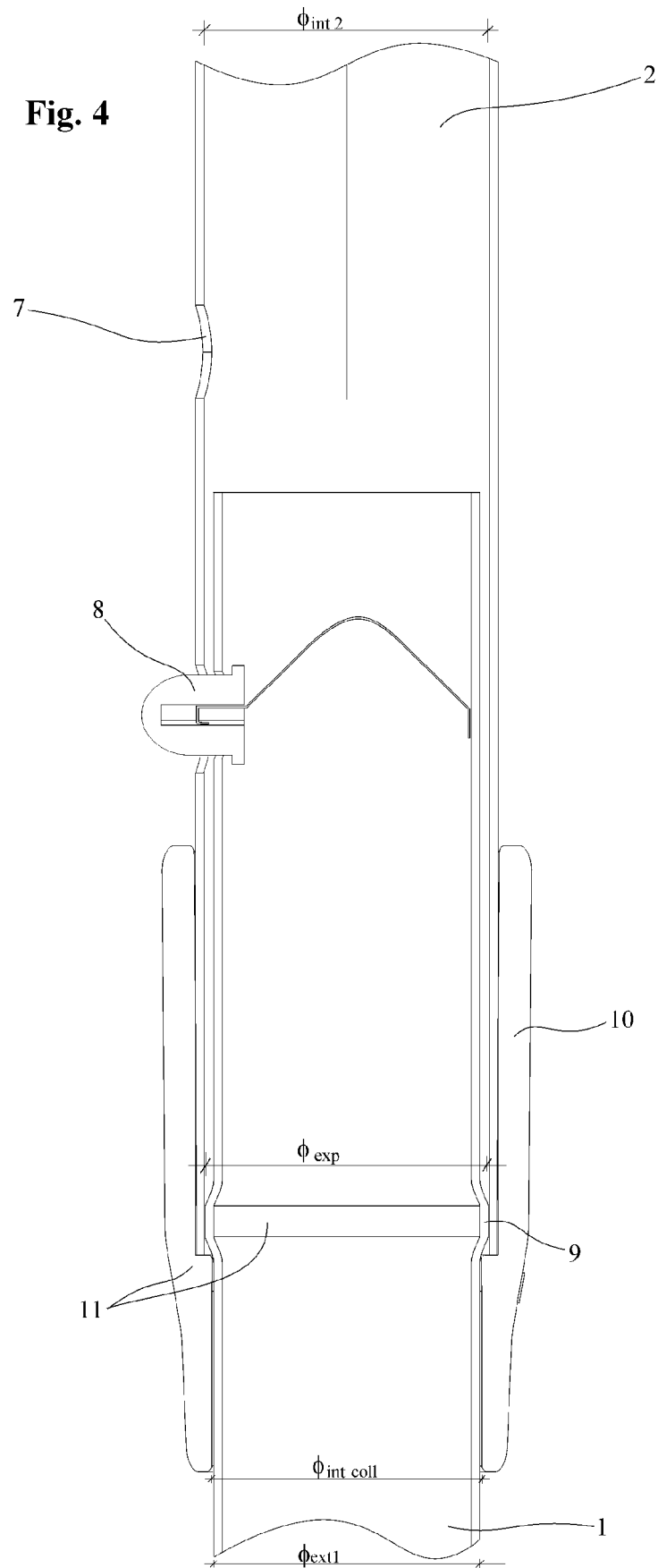
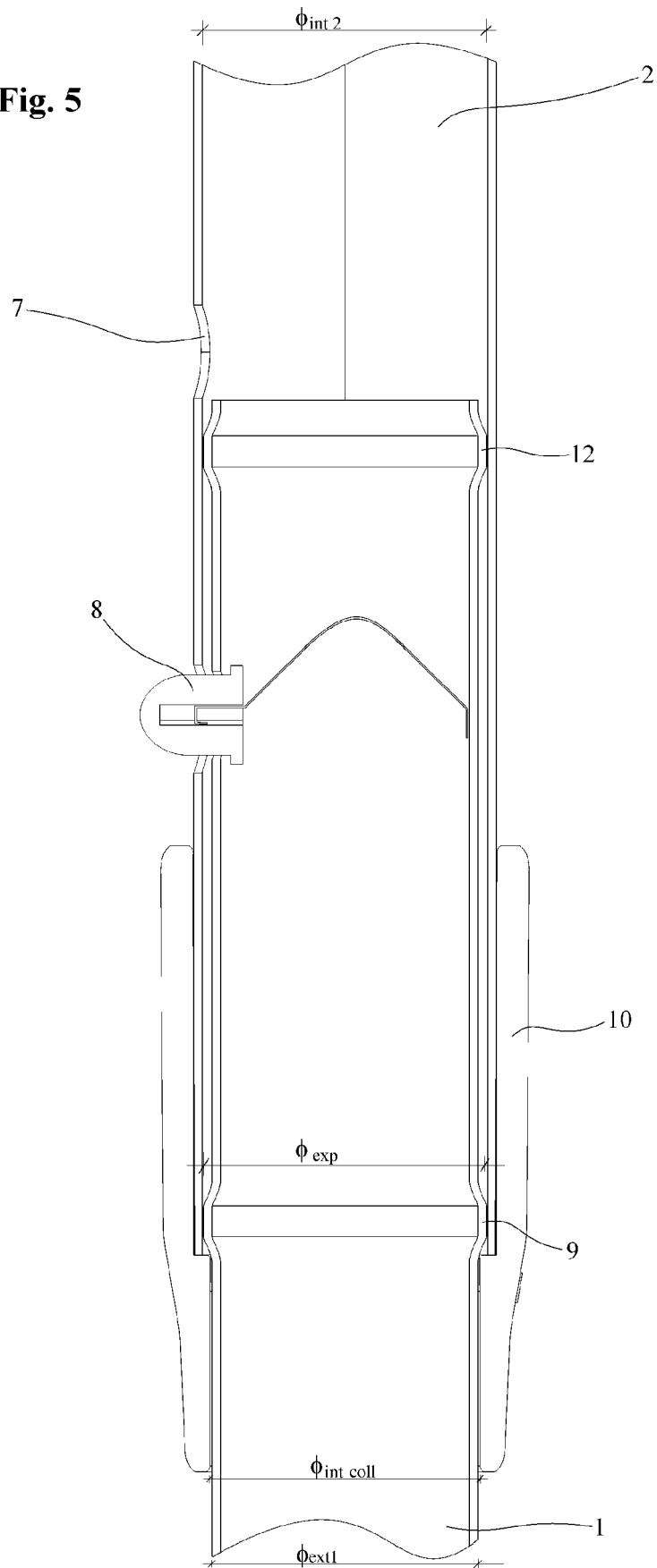


Fig. 5





EUROPEAN SEARCH REPORT

Application Number

EP 22 18 2698

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The present search report has been drawn up for all claims			

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Place of search

The Hague

Date of completion of the search

28 November 2022

Examiner

Popma, Ronald

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

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28-11-2022

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