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(54) **DISPENSER**

(57) A dispenser for the manual unwinding of a film in reel comprises a tubular body which extends around a dispenser axis and two rotation bushings suitable for engaging the ends of the tubular body with possibility of rotation around said dispenser axis. Each rotation bushing comprises an insertion portion suitable for being in-

serted into the respective end portion of the tubular body, and a coupling portion which extends from the insertion portion and which is configured to frontally overlap a head flange of the end portion and to externally engage the end side wall of the flange.

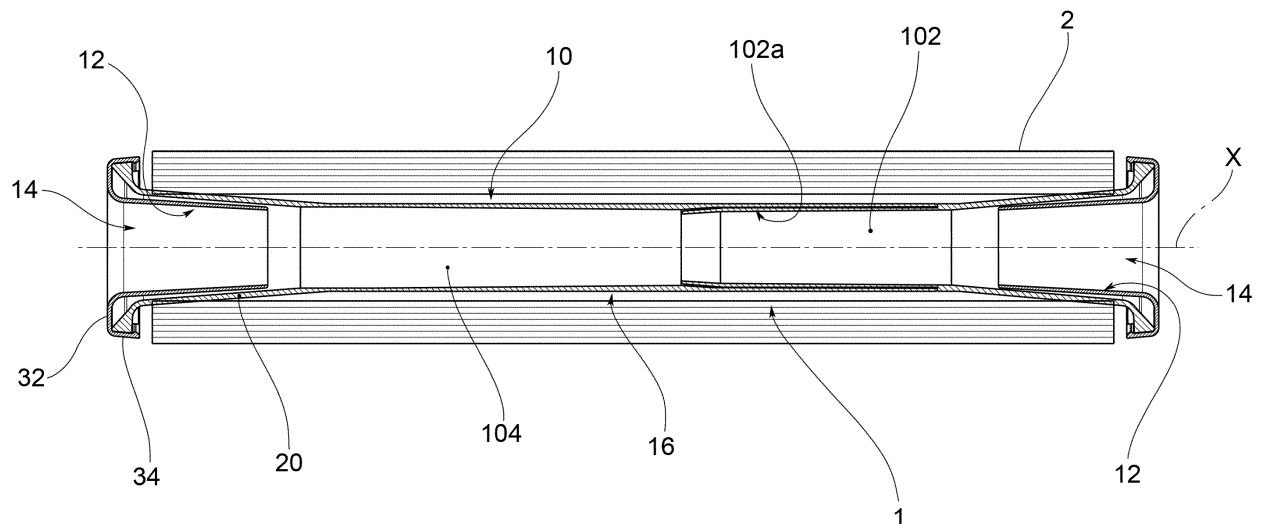


FIG.8

Description

[0001] The present invention relates to a dispenser for the manual unwinding of a film in reel, in particular, an extensible film for manual use.

[0002] Reels of extensible film for manual use wound on a cardboard core are known. In order to avoid the inconveniences due to the use of the cardboard core, reels have been proposed without such cardboard core and usable, for the manual unwinding of the film, with a recyclable plastic dispenser.

[0003] In a known embodiment, the dispenser is substantially a cylindrical tubular body which is inserted into the axial hole of the reel and which, for the rotation thereof, is provided with interlocking bushings at the ends. The film reel is therefore integral with the dispenser while this rotates with respect to the two end bushings held manually by the operator. However, it was found that a dispenser having a diameter corresponding to that of the cardboard core does not fit into the reels with a hole which is not perfectly cylindrical due to irregularities in the inner wall of the reel; on the other hand, when reducing the diameter of the tubular body to make it adaptable even to irregular holes in the reel, there is a risk that the film reel will not unwind up to the end due to the lack of a support. Furthermore, there is often the risk of breaking the dispenser at the end portions which, in order to accommodate the reels and the fingers of the operator, have a reduced thickness with respect to the central portion of the tubular body and a construction geometry which is critical for impact resistance.

[0004] Another drawback of these dispensers is connected to the rubbing of the ends of the film reel against the respective ends of the tubular body. These ends of the tubular body, in fact, are in the form of flanges to allow the coupling with the rotation bushings and to protect the reel when it is placed vertically on a plane. The rubbing of the ends of the reel against these flanged ends may damage the edges of the film.

[0005] Furthermore, the flanged ends do not protect the lower end of the reel, and therefore the edge of the film when the reel is placed in an inclined position against a support.

[0006] It is the object of the present invention to propose a dispenser capable of obviating the drawbacks mentioned above with reference to the dispensers according to the prior art.

[0007] Such an object is achieved by a dispenser according to claim 1. The dependent claims describe preferred or advantageous embodiments of the dispenser.

[0008] The features and advantages of the dispenser according to the invention will in any case become apparent from the following description of preferred embodiments thereof, given by way of non-limiting, indicative example, with reference to the accompanying Figures, in which:

- Figure 1 shows an exploded perspective view of the

dispenser according to the invention;

- Figure 2 shows a perspective view of the assembled dispenser;
- Figure 3 shows an axial section of the dispenser;
- Figure 4 shows an enlarged view of detail A circled in Figure 3;
- Figure 5 shows an end view of the dispenser;
- Figure 6 shows an axial section of the male part only of the tubular body of the dispenser;
- Figure 7 shows an axial section of the female part only of the tubular body of the dispenser; and
- Figure 8 shows an axial section of the assembly comprising a film reel provided with the dispenser according to the invention.

[0009] In said drawings, 1 indicates a dispenser for the manual unwinding of a film reel 2 (shown in Figure 8), in particular, an extensible film of the type used, for example, to wrap pallets of goods.

[0010] In accordance with a general embodiment, the dispenser 1 comprises a tubular body 10 which extends around a dispenser axis X, and two rotation bushings 12 suitable for engaging the ends of the tubular body with possibility of rotation around the dispenser axis X.

[0011] Each rotation bushing 12 forms an inner housing 14 which is suitable to be engaged by the fingers of an operator so that, when a film reel is placed around the tubular body, the reel may rotate integral with the tubular body with respect to the rotation bushings, which are locked by the hands of the operator and thus act as rotation pins.

[0012] The tubular body 10 comprises a central portion 16 having a constant outer diameter and conical-shaped end portions 18. The central portion 16 therefore has a cylindrical shape.

[0013] Each end portion 18 has a conical side wall 20 which widens towards the respective end of the tubular body 10.

[0014] The conical side wall 20 ends with a head flange 22.

[0015] In one embodiment, the head flange 22 has a larger diameter with respect to the maximum diameter of the conical side wall 20.

[0016] The head flange 22 has an end side wall 24, for example, a cylindrical or conical wall.

[0017] In one embodiment, the end side wall 24 is a conical wall with a conicity of opposite sign with respect to that of the conical side wall 20.

[0018] In one embodiment, each head flange 22 forms a front annular wall 26, which lies substantially in a plane orthogonal to the dispenser axis X. The end side wall 24 extends from such front annular wall 26.

[0019] In one embodiment, this end side wall 24 extends in the opposite direction with respect to the side wall 20 of the end portion 18.

[0020] Each rotation bushing 12 comprises an insertion portion 28 suitable for being inserted into the respective end portion 18 of the tubular body 10, preferably with-

out contact with the inner surface of such end portion 18.

[0021] The rotation bushing 12 further comprises a coupling portion 30 which extends from the insertion portion 28 and which is configured to overlap the head flange 22 frontally and to externally engage the end side wall 24 of the head flange 22.

[0022] In other words, in one embodiment each end portion 18 of the tubular body is coupled with the respective rotation bushing 12 by means of the head flange 22. In order to facilitate the rotation of the tubular body 10 with respect to the rotation bushings 12, the insertion portion 28 of the rotation bushings 12, which is sized so as to receive the fingers of the operator, does not rub against the inner wall of the end portion 18 of the tubular body in which it is inserted.

[0023] In one embodiment, the insertion portion 28 of the rotation bushings 12 has a conical shape.

[0024] In one embodiment, the coupling portion 30 of each rotation bushing 12 comprises a front bushing wall 32, which axially overlaps the front annular wall 26 of the head flange 22, and an outer side bushing wall 34, which overlaps the end side wall 24.

[0025] In one embodiment, the front bushing wall 32 is axially spaced from the front annular wall 26 of the head flange 22, while the outer side bushing wall 34 is in contact with, or slightly touches, the end side wall 24.

[0026] For example, as it appears from the enlarged view of Figure 4, to facilitate the rotation of the tubular body on the rotation bushings, only the distal end of the end side wall 24 of the head flange 22 rests on the front bushing wall 32, for example, at a curved area of connection with the outer side bushing wall 34.

[0027] In one embodiment, the front bushing wall 32 is an annular wall which forms a supporting plane for the dispenser 1 when it is placed in a vertical position.

[0028] In one embodiment, the outer side bushing wall 34 completely overlaps the end side wall 24 of the head flange 22 and has an axial extension such as to allow the operator to grip the dispenser even by applying the thumbs thereof against the outer side bushing wall 34 without coming into contact with the head flange 22 of the rotation bushing 12, and therefore without hindering the rotation of the tubular body.

[0029] In one embodiment, the coupling portion 30 is configured to snap engage an undercut obtained in the head flange 22.

[0030] For example, the outer side bushing wall 34 forms a hooking tooth 36 which snap engages the front annular bushing wall 26 at the rear.

[0031] Returning now to the tubular body 10, in one embodiment, such body is formed by a male part 102 and a female part 104. The male part 102 has a coupling portion 102a inserted with force coupling into the female part 104.

[0032] In one embodiment, this coupling portion 102a has a wall with a reduced thickness with respect to the wall from which it extends, for example, with respect to the wall of the frustoconical portion 18, so that the tubular

body, when assembled, has a substantially continuous outer surface, i.e., without steps.

[0033] In one embodiment, tubular bodies of different lengths may be obtained, for example, by keeping the same male part and making only the female part of different axial extensions.

[0034] In one embodiment, the central portion 16 and the conical side walls 20 of the end portions 18 have an outer surface free of radial protrusions suitable for engaging the film reel. Therefore, although the film is integral in rotation with the tubular body, above all by virtue of the contact between the ends of the inner hole of the reel and the conical end portions, the film is not damaged by the presence of radial protrusions.

[0035] In some embodiments, the outer surface of the central portion 16 and of the conical side walls 20 has a surface roughness which improves the friction with the film reel without damaging it, for example, obtained by means of photoengraving.

[0036] In some embodiments, at least the central portion 16 of the tubular body 10 is made of a polymeric material and with a thickness such as to be deformable to adapt to any irregularities of the inner surface of the film reel 2. For example, the tubular body is made of a resin based on linear low-density polyethylene ("LLDPE"). For example, the thickness of the wall of the central portion 16 may be between 2.5 mm and 3.5 mm. In case of coupling between a male part 102 and a female part 104, in the overlapping area, such total thickness is obtained with a wall thickness of the male part ranging from a minimum of 1 mm to a maximum of 1.8 mm, and with a wall thickness of the female part ranging from a minimum of 1.2 mm to a maximum of 1.8 mm.

[0037] Given a film reel of a predetermined size, the dispenser according to the invention is sized so that the inner hole of the reel has an average diameter greater than the outer diameter of the central portion 16 of the tubular body and less than the outer diameter of a circumference obtained from the intersection between the conical side wall 20 of the end portion 18 and a transverse plane spaced from the head flange 22.

[0038] Thereby, the reel 2 is integral in rotation with the tubular body 10 and the axial ends of the reel are spaced from the respective head flanges 22 of the conical end portions 18.

[0039] By virtue of this distance between the end of the reel and the head flange, the edge of the film is not damaged neither by the rubbing against the rotation bushing nor when the dispenser with the reel is placed on a plane in an inclined position with respect to the correct vertical position.

[0040] For example, the average diameter of the inner hole of the reel is about 50 mm, the outer diameter of the central portion of the tubular body is about 41 mm, and the outer diameter of the conical side wall in the proximity of the head flange is about 53 mm. In this case, the axial ends of the reel are spaced by approximately 10 mm from the respective head flanges of the dispenser.

[0041] A person skilled in the art may make changes and adaptations to the embodiments of the dispenser according to the invention or may replace elements with others which are functionally equivalent to satisfy contingent needs without departing from the scope of protection of the following claims. All of the features described as belonging to a possible embodiment can be achieved irrespective of the other embodiments described.

Claims

1. A dispenser for the manual unwinding of a film in reel, comprising a tubular body which extends around a dispenser axis, and two rotation bushings suitable for engaging the ends of the tubular body with possibility of rotation around said dispenser axis, wherein the tubular body comprises:

- a central portion having a constant outer diameter;
- conical-shaped end portions, each end portion having a conical side wall which widens towards the respective end of the tubular body and which ends with a head flange having an end side wall,

and wherein each rotation bushing comprises:

- an insertion portion suitable for being inserted into the respective end portion of the tubular body, without contact with the inner surface of said end portion,
- a coupling portion which extends from the insertion portion and which is configured to overlap the head flange frontally and to externally engage said end side wall.

2. Dispenser according to claim 1, wherein each head flange forms a front annular wall, which lies substantially in a plane orthogonal to the dispenser axis, the end side wall extending from said front annular wall.
3. Dispenser according to the preceding claim, wherein said end side wall extends in the opposite direction with respect to the side wall of the end portion.
4. Dispenser according to claim 2 or 3, wherein said coupling portion comprises a front bushing wall, which overlaps the front annular wall of the head flange, and an outer side bushing wall, which overlaps the end side wall.
5. Dispenser according to any one of the preceding claims, wherein the coupling portion is configured to snap engage an undercut obtained in the head flange.
6. Dispenser according to any one of the preceding

claims, wherein the tubular body is formed by a male part and a female part, the male part having a coupling portion inserted with force coupling in the female part, said coupling portion having a wall with reduced thickness with respect to the wall from which it extends, so that the tubular body has a substantially continuous outer surface.

7. Dispenser according to any one of the preceding claims, wherein the central portion and the conical side walls of the end portions have an outer surface free of radial protrusions suitable for engaging the film reel.
8. Dispenser according to any one of the preceding claims, wherein at least the central portion of the tubular body is made of a polymeric material and with a thickness such as to be deformable to adapt to any irregularities of the inner surface of the film reel.
9. Assembly of a film reel and a dispenser according to any one of the preceding claims, wherein the reel has an inner hole having an average diameter greater than the outer diameter of the central portion of the tubular body and less than the outer diameter of a circumference obtained from the intersection between the conical side wall of the end portion and a transverse plane spaced from the head flange.
10. Assembly according to the preceding claim, wherein the average diameter of the inner hole of the reel is about 50 mm, the outer diameter of the central portion of the tubular body is about 41 mm, and the outer diameter of the conical side wall near in the proximity of the head flange is about 53 mm.

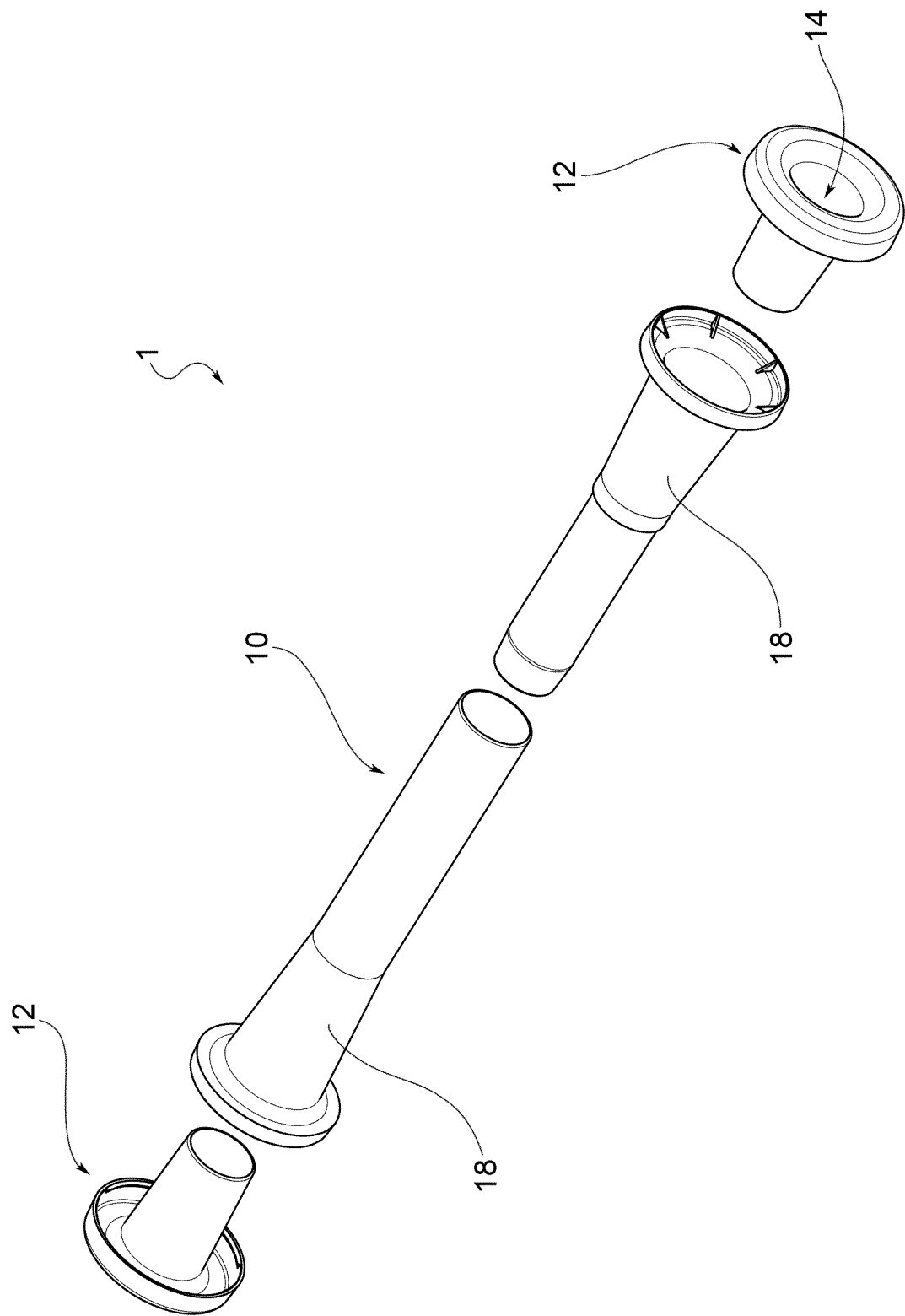


FIG.1

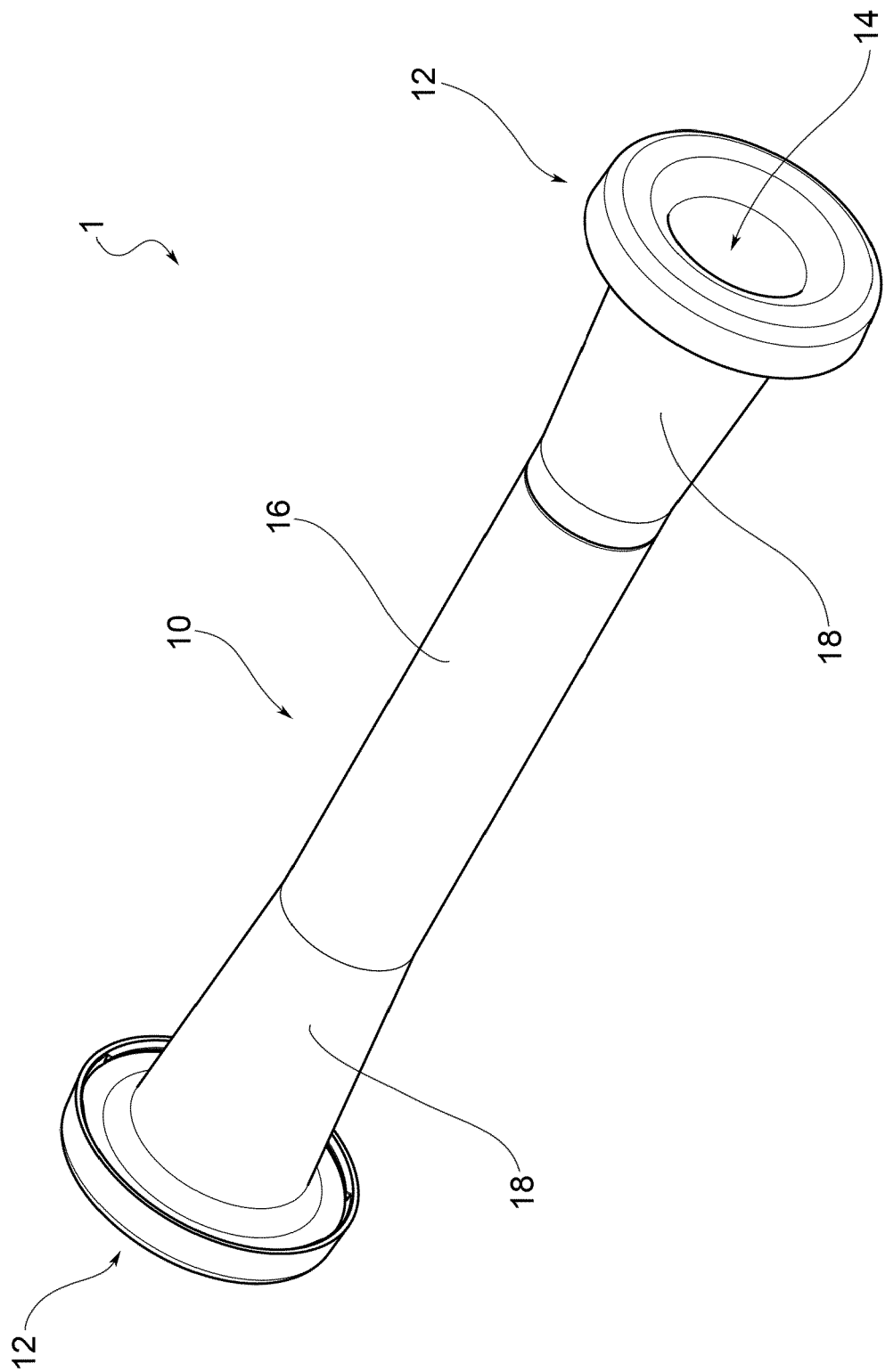


FIG.2

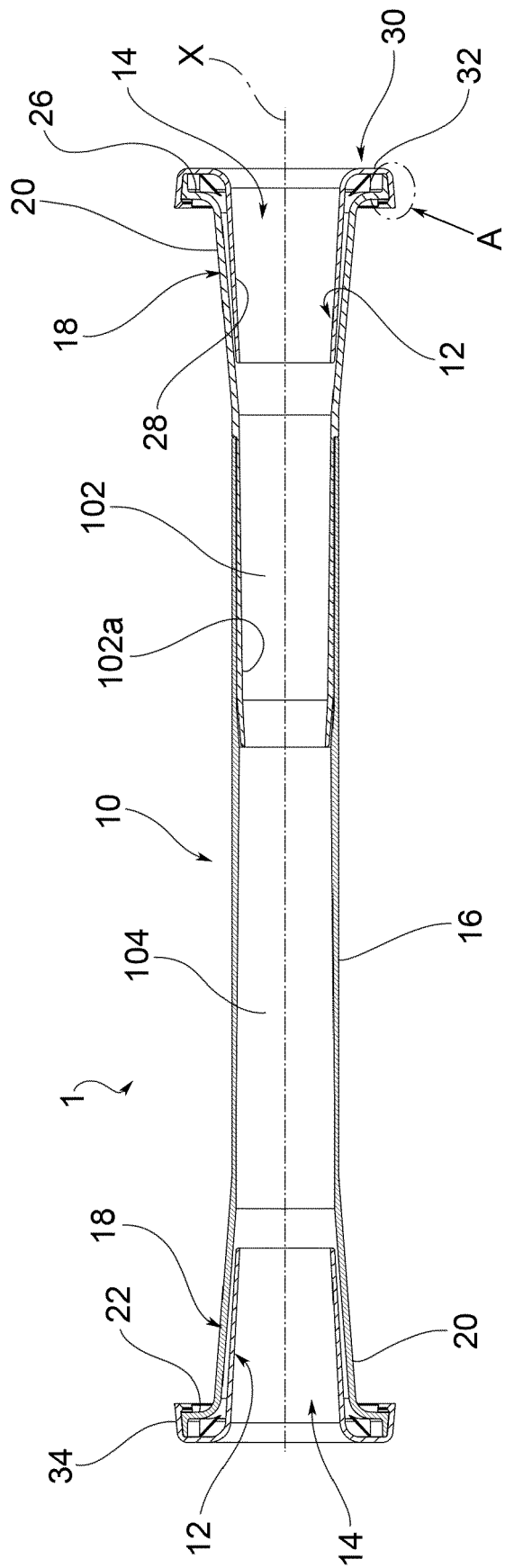


FIG. 3

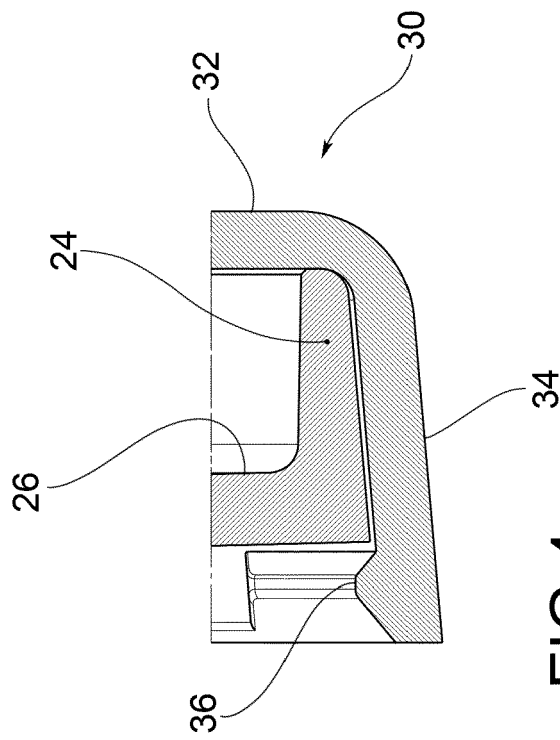


FIG. 4

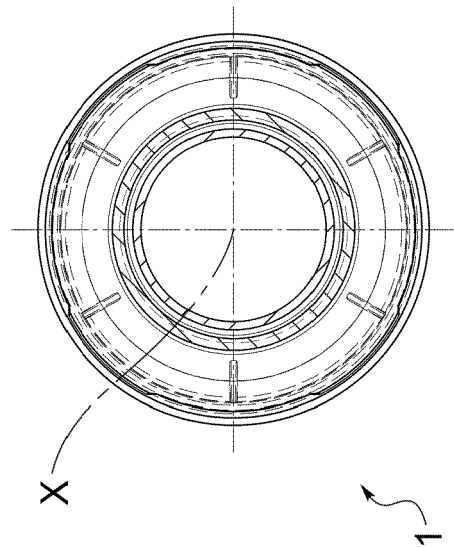
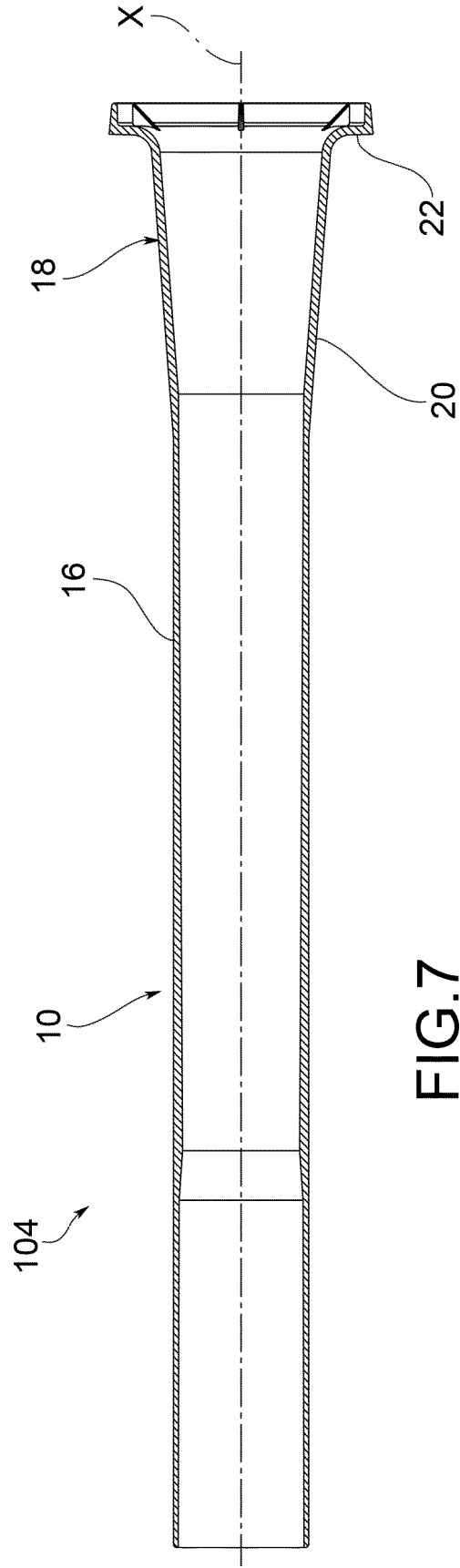
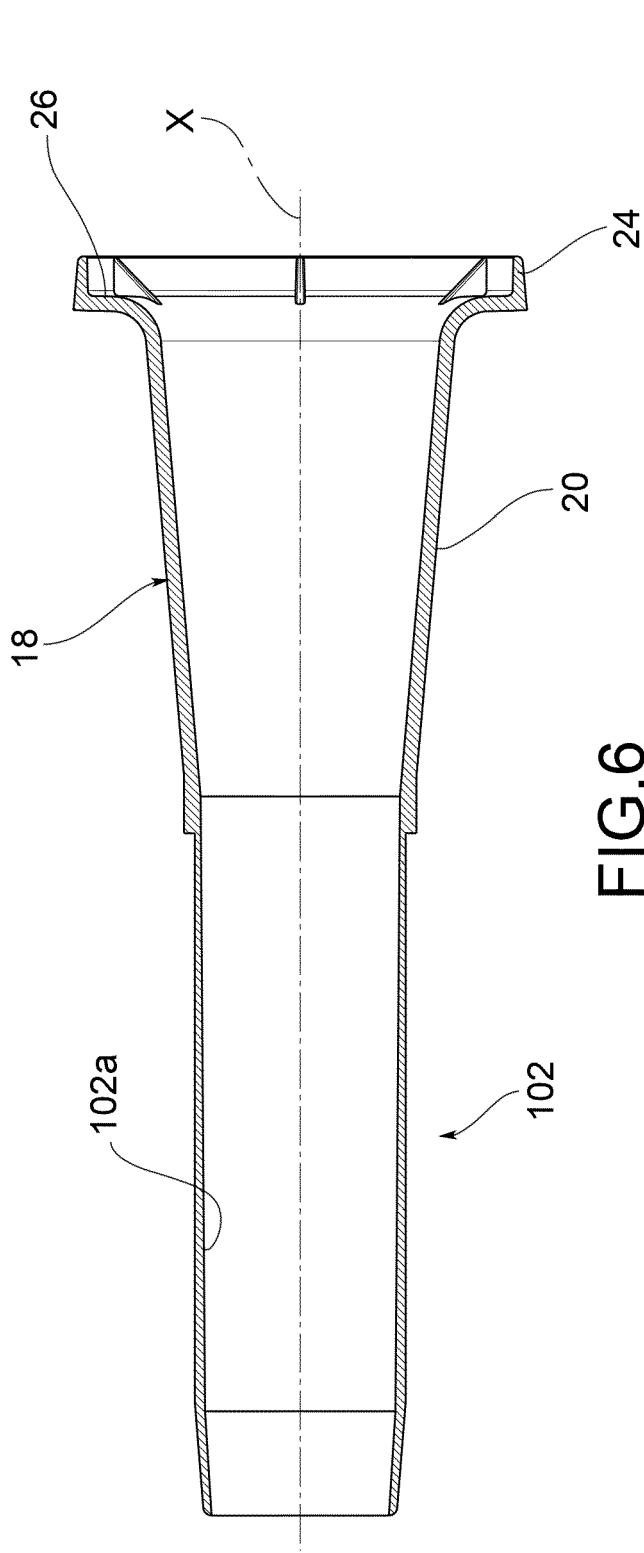


FIG. 5



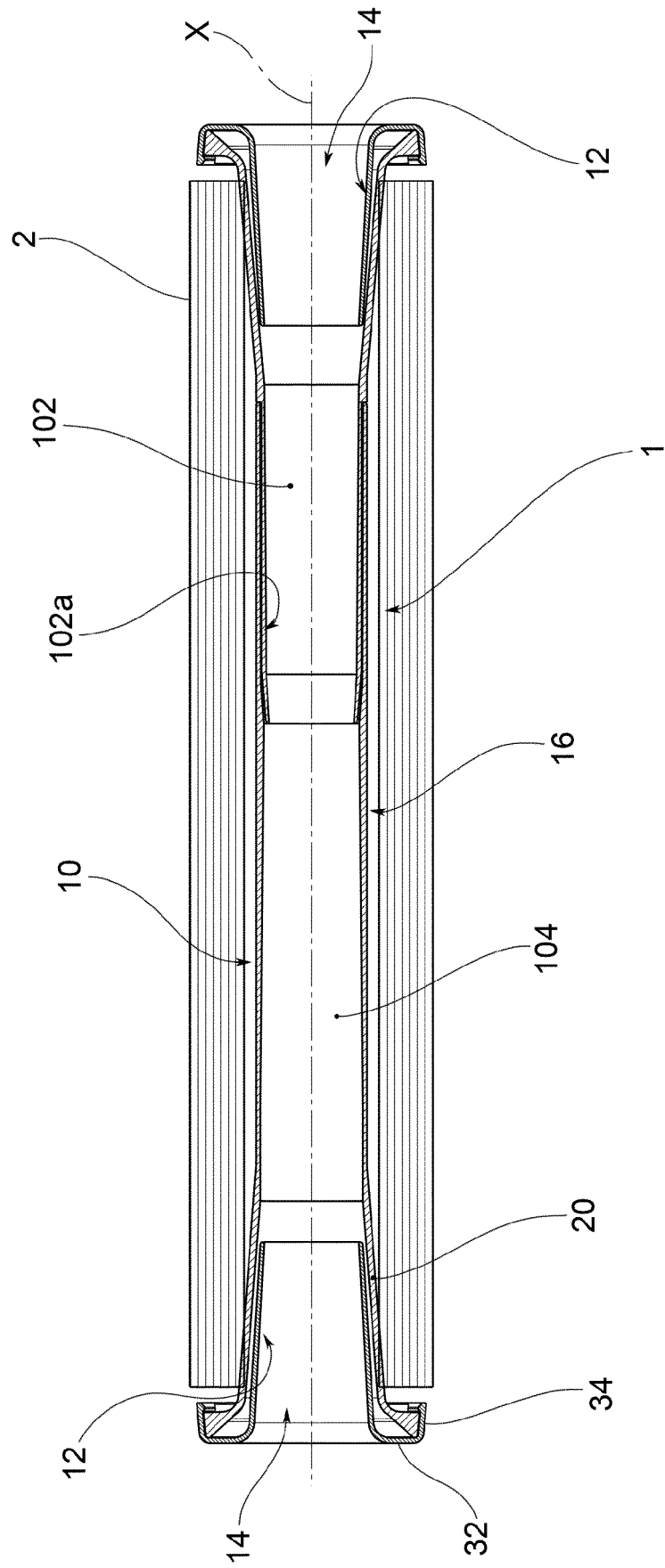


FIG. 8.



EUROPEAN SEARCH REPORT

Application Number
EP 21 15 2955

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| Place of search The Hague | | Date of completion of the search 16 June 2021 | Examiner Haaken, Willy |
| CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document | | T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document | |

**ANNEX TO THE EUROPEAN SEARCH REPORT
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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