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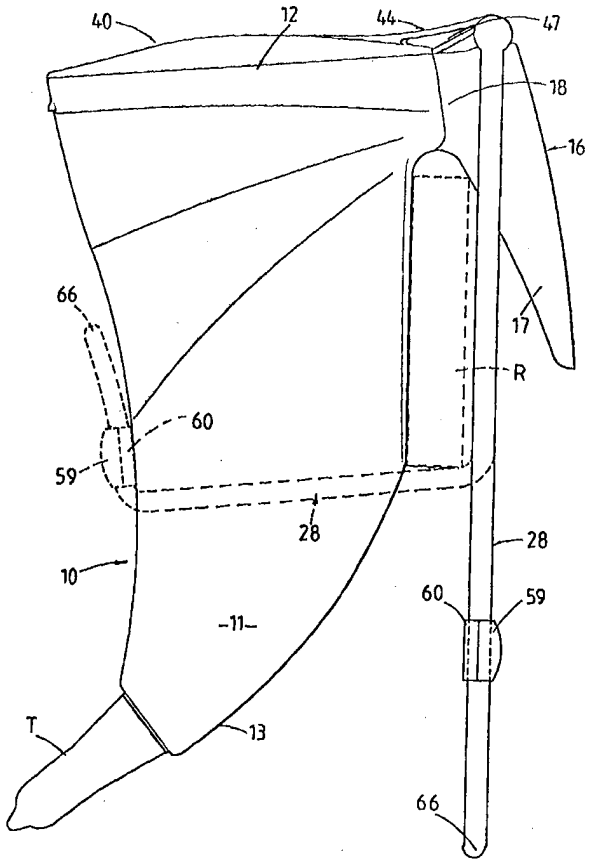
(54) Title: AN ANIMAL FEEDING DEVICE

(57) Abstract

A container (10) for the single feeding of animals including a flexible attachment element (28), and an anchor means (16) on the c ontainer (10) cooperates with the flexible attachment element (28) to facilitate mounting of the container (10) to a fixture or structure (R).



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AN ANIMAL FEEDING DEVICE

BACKGROUND OF THE INVENTION

This invention relates to animal feeding devices, more particularly an animal feeding container intended for single feeding of animals.

It is known to use a bottle with a teat or nipple for the single feeding of young animals. Such feeding bottles can be hand-held, however it is also known to provide a mounting frame or bracket whereby the bottle can be inserted into the frame or bracket. In a normal situation on a farm or the like the frame or bracket is positioned on a structure such as a fence, side of a bale, race or similar.

The provision of a bracket or frame adds to the cost of the animal feeding device. Additional costs also arise from the need to package and transport the additional frame/bracket.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a liquid feed container for the single feeding of an animal which has a mounting arrangement which is simple and effective to use

and represents a lower cost means of mounting the container to a fixture than hitherto known arrangements.

An additional disadvantage of known feeding bottles is the lack of stackability of bottles resulting in greater volume for transportation thereby representing an additional cost arising from effectively "freighting air".

It is therefore a further object of the present invention to provide a container for the single feeding of liquid feed to an animal whereby a plurality of such containers can be stacked together.

According to one broad aspect of the invention there is provided a container for the single feeding of animals, the container including a flexible attachment element and anchor means on the container to cooperate with the attachment element to facilitate mounting of the container to a fixture or structure.

According to a second broad aspect of the invention the container as aforesaid is hollow and of a tapering configuration from an open end to an end adapted for the mounting of a feeding nipple.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of the animal feeding container according to one embodiment of the present invention,

Figure 2 is an exploded view of the container as shown in Figure 1,

Figure 3 is a cross-sectional view of the container,

Figure 4 is a pictorial view of the container mounted by the attachment element according to one arrangement to a fence rail,

Figures 5 is a similar pictorial view showing the container mounted according to a further arrangement,

Figure 6 is yet a further pictorial view of a further manner in which the container can be mounted to a tubular element of a structure,

Figure 7 is a plan view of a flexible and resilient attachment element,

Figure 8 is an elevation view of a nipple or teat construction suitable for use with the container,

Figure 9 is an end view of the teat shown in Figure 8,

Figure 10 is a perspective base end view of the teat of Figures 8 and 9,

Figure 11 is an elevation view of yet a further form of teat suitable for use with the container,

Figure 12 is an elevation view of a second form of the invention,

Figure 13 is a cross-sectional view of the modified version of Figure 12,

Figure 14 is a perspective exploded view of the container shown in Figures 12 and 13, and

Figure 15 is a plan view of the container shown in Figures 12 and 13.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The container 10 comprises a hollow body 11 having a large open end 12. The body tapers in the somewhat curved manner shown in the drawings toward a narrow end 13 having an

opening 14 into which an end of a teat T can be inserted. As shown in the drawings the hollow body 11 is configured so that it curves from the large open end 12 toward the smaller end 13 such that the longitudinal axis of the teat T is inclined to the plane of the open end 12.

The hollow body 11 incorporates ribbed and/or indented portions 15 which not only add to the aesthetic appeal of the container but also provide a positive finger/hand grip on what could be a slippery container. These indented portions can also provide a degree of strengthening to the wall of the body 11.

Projecting from the wall of the body 11 is a handle/hook 16 having a long foot 17 which extends away from the open end 12. A shorter foot 19 extends in an opposite direction. The leg 18 of the handle 16 is positioned toward the open end 12 of the body 11. The configuration of the body 11 and the positioning of the leg 18 of the handle 16 enables a plurality of containers 10 to be stacked together by inserting one container end 13 first into the open end 12 of another container. The containers will be able to interfit to the point that the leg 18 of the one container engages with the rim 20 of the open end 12 of the other container.

The rim 20 not only provides strengthening for the open end 12 of the body 11 but also provides a suitably configured area to receive lid 21 (see Figure 2). In one form, the lid 21 is

a friction fit within the rim 20. The friction can be achieved from a resilient sealing ring. Preferably the positioning of the lid when it is placed on the container 10 is determined by a ledge 22 in the container 10 which engages with the end of the skirt 23 of the lid 21. A peripheral rim 24 of the lid 21 can also engage with the peripheral edge of the rim 20. A suitable hand gripping portion 25 can be provided with lid 21 to enable a user to install and remove the lid.

Other constructions of lid and mounting with the container 10 will be apparent to those skilled in the art. It is preferred that the lid 21 be of a type which not only provides a sealing fit but also can be readily installed and removed. In view of the environment in which the container will be used and the type of products to be dispensed it is preferred that the means of installing the lid on the container is such that a difficult to release wedging of the lid on the container will not arise.

In use, the container with teat T installed is filled with liquid food, eg milk or a milk mixture, and the lid installed. The container 10 is then used in a substantially conventional manner to feed an animal. The container 10 can be used in a hand-held manner to feed an individual animal in a conventional way. The user can simply grip the hollow body though the presence of the handle 16 provides one means of

ensuring that a firm grip of the container is achievable. The handle 16 provides an advantage over most conventional feeding bottles which are either difficult to grasp or due to a coating of milk fat on the outer surface can be very slippery especially in some climatic conditions, eg rain.

However, the container can also be attached to a suitable fixture such as a fence rail or tubing of a race, stall, gate or the like. This is achieved by the use of an attachment element in the form of an elastic fastener or bungy 28 (see Figure 8). In its simplest form, bungy 28 can be an elongate ring made of a natural or synthetic rubber or rubber-like plastics material. In the preferred form as shown in Figure 8 bungy 28 consists of a main elongate ring 29 from the end of which extends a secondary annular portion 30.

The bungy 28 can be used in a number of different ways to enable container 10 to be mounted to a variety of fixtures or structures. For example, in Figure 4 the container 10 is mounted to a rail R by engaging the long foot 17 of handle 16 over the rail. To ensure that the container is not knocked from the rail the bungy 28 is placed so that it extends around body 11 under the rail R and up over the short leg 19 to engage on what comprises the upper surface of leg 18. The bungy therefore firmly holds the container in position. In such an arrangement the lid 21 does not need to be installed on the container 10.

Similarly, the container 10 can be mounted with the pipe work P and P' of a race, stall or the like. In such an arrangement the bungy 28 extends about the body 11 near rim 20 and over the pipe P to engage with leg 18 behind the long foot 17. As shown in Figure 3, a small hook 31 is moulded with body 11 opposite the large handle 16 and it is beneath this hook 31 that the bungy 28 is engaged.

A further mounting option is shown in Figure 5 where the lid 21 must be placed on the container 10. In this arrangement the lid is engaged against the vertical flat surface S of the rail R so that the large handle 16 is uppermost. As a consequence of the curve of the body 11 the teat T will incline downwardly at a convenient orientation for a feeding animal. In the arrangement shown in Figure 5 a modified form of the container 10 is shown where the bungy 28 extends from hook 31 around the rail R to engage with a further small hook 32 moulded with the short leg 19 of the large handle 16. With an arrangement not incorporating hook 32 the bungy is stretched to engage over the distal end of the long foot 17 so as to engage about the leg 18.

The length of bungy required for the different mounting positions can vary as a consequence of the fixtures to which the container is to be mounted as well as the manner of mounting. The different length of bungy is therefore

achieved by having the secondary annular extension 30 which can be used when the length of the stretched bungy main portion 29 is insufficient.

The feeding device is therefore versatile in use as it can be hand-held or mounted to a fixture. As no separate mounting bracket or frame is required, the overall cost of the feeding device will, as expected, be lower than known feeding devices presently available. In addition, however, the fact that a separate mounting bracket is not required enables the overall size and hence internal volume of the container to be greater than current feeding bottles. Therefore, a greater volume of feed can be dispensed to the feeding animal. Furthermore, the ability to be able to stack the containers within each other represents a saving to the manufacturer/seller as freight costs can be reduced because a greater number of containers 10 can be packed in a given volume of packaging.

The teat T to be used with the container 10 is preferably of the type disclosed in my New Zealand patent specifications 247058 and 293714. Such a teat is shown in Figures 12, 13 and 14.

The teat is in accordance with normal installation techniques located within the container with the feeding end orientated toward the opening 14 whereupon the teat is pushed/pulled

through the opening 14 until the grooved portion at the base of the teat locates with the opening 14 (see eg Figure 13).

It is, however, envisaged that a different configuration of base portion of the teat can be employed to simplify installation/removal of the teat. Such modified forms of teats are shown in Figures 8, 9 and 10.

According to the arrangement shown in Figures 8 and 9 the base 33 of the teat T has the flange portion 34 formed with an angled slot 35. This angled slot 35 in the flange 34 enables the teat to be installed base end first by simply a twist-on action. This is achieved by the angled slot 35 being of a width commensurate with the thickness of the wall section defining the opening 14. The teat T is simply installed by engaging the lead-in end of the slot 35 with a part of the wall defining the opening 14 and then twisting the teat through approximately 90° (clockwise) substantially about the longitudinal axis of the teat. The teat of this configuration when installed on the container 10 is shown in Figure 3.

In a further form of the teat shown in Figure 11 the base 33 is longer and has a tapered thread 36. The teat can thus be installed base end first with the opening 14 by simply inserting the narrow or distal end of the base 33 into the unthreaded opening 14 and then applying a screwing action to

the teat about its longitudinal axis until the base 33 is fully screwed into the opening 14. The threaded base 33 being elastomeric will seal over the thread.

The teats as shown in Figures 8-10 and 11 can be used with other feeding devices and are not intended simply for use with the container of the present invention. The teat according to this configuration is, however, easy to install and remove when compared with conventional arrangements where the feeding end of the teat needs to be pulled through the opening and considerable force applied to force the part of the teat having a greater diameter than that of the opening through the opening so that the opening engages within the grooved base end of the teat. It is therefore believed that this easier installation and removal will result in users more regularly removing a teat for cleaning purposes.

Other means of mounting the teat T can be used. For example the end 13 of the body 11 could have a screw threaded portion adjacent opening 14. The teat T fitting to a threaded ring or cap can then be screwed onto the threaded portion to attach the teat to the container.

A further form of the invention is shown in Figures 12-15 in which, for convenience, like parts carry the same reference numerals as those of the previously described embodiment.

According to this form of the invention there is provided a different form of lid and bungy 28 together with a novel means of hinging the lid to the body via the bungy 28. This form of bungy also includes an adjustment means 58 for adjusting the length of the bungy.

The lid 40 has a downwardly depending skirt 41 with a peripheral sealing web 42. The skirt 41 and web 42 are dimensioned to firmly fit within the open mouth 12 of the container as defined by rim 20. Projecting from diametrically opposite sides of the lid 40 is a catch element 43 and a hinge mount 44. The catch 43 has an inwardly projecting ledge 45 which, when the lid is in the closed position, engages in a snap-lock arrangement with a lip 46 located with the rim 20 at a position opposite that of the handle/hook 16 (see Figure 14).

The hinge mount 44 is formed by an arm 47 which in the preferred form is a continuation of a central rib 48, the latter functioning as strengthening rib for the lid 40 as well as a handle for opening and closing of the lid. As shown, the rib passes through a depression 49 in the top surface of the lid 40 thereby enabling the rib to be gripped either side to function as a handle or gripping portion. At the distal end of arm 47 is a sleeve 50 which incorporates therealong a longitudinal slit 51.

A novel means of hinging the lid 40 to the body 11 is shown in Figures 12 and 14 and uses the bungy 28. It will be observed that in this form of the bungy 28 (see Figure 13) the annular extension 30 is not provided.

One end of the bungy 28 is formed integrally with a curved axle portion 52. This shaft 52 could also, in a less preferred embodiment, be formed as a separate element insert moulded with the bungy 28. As can be seen in Figure 14, shaft 52 is forced through slit 51 to locate within sleeve 50. In the preferred form a rib 53 extending longitudinally along shaft 52 engages within slot 51 when the shaft is in position in the sleeve 50. To this end, the cross-sectional profile of rib 53 substantially matches the cross-sectional profile of the slot 51 as shown in Figure 14. Shaft 52 thus does not rotate in sleeve 50.

Shaft 52 projects either side of the extremities of sleeve 50. The surfaces of sleeves 50 which project from the sides of arm 47 form a pair of bearing surfaces which engage in respective shallow curved recesses 54 in opposed top edge surfaces of a pair of spaced apart flanges 55.

Spaced inwardly from shaft 52 and once again in the preferred form constructed integrally with bungy 28 is a pair of opposed studs or spigots 56. These engage respectively in openings 57 formed in the flanges 55 of handle 16. The shaft

52 and studs 56 thus not only function to anchor the bungy 28 to the handle 16 but also provide the hinge pin for hinging the lid 40 to the body 11. This novel hinge arrangement enables the lid 40 to be hingedly mounted in a manner such that the hinge is not prone to breakage over time. Also, the bungy 28 is anchored to the container.

As mentioned previously, the bungy 28 does not include the second annular extension 30. Nevertheless, the length of the bungy is adjustable by an adjuster 58 which is of two-piece construction each piece moulded from a suitable Polymetric material. The adjuster 58 is formed by a base 59 and a top 60, one having studs 61 which can engage in a snap-lock type arrangement in openings 62 in the other. However, in the preferred form base 59 and top 60 are coupled together by a screw S.

Each of the base 59 and top 60 include a pair of side by side openings 63 and a pair of substantially opposed openings 64. The adjuster 58 is located on the bungy so that respective long portions 65 of the bungy extend through a respective opening 64 and 63 with the opening 63 being located closer to the curved end 66 of the bungy. The arrangement is such that the adjuster can be moved away or toward curved end 66 to effectively form a loop at the end 66 and thereby alter the effective length of the bungy 28.

As shown in the dotted detail in Figure 12, the adjustor 59, 60 (when the bungy 28 is in place to hold the container to a fixture or structure) locates on the front surface of body 11. The end 66 of the bungy 28 is thus held upwardly, as shown, so as to be held away from a feeding animal.

In a preferred form of this embodiment and as shown in Figure 14 the lid 40 incorporates a vent hole 67. Disposed adjacent this vent hole 67 within the confines of the lid is a pin or projection 68. A dish shaped valve seal 69 of a suitable resilient material has a central opening 70 which can push fit onto stud 68. The dish shape of the seal 69 results in the peripheral edge 71 engaging with the underside surface of the lid 40 so as to close off vent hole 67. However, upon a pressure differential arising due to the pressure within the body 11 (the lid being in the closed position) becoming less than atmospheric pressure the seal is deformed so peripheral edge 71 disengages with the underside surface of the lid so as to open the opening 67 and vent the interior of the body to atmosphere. Once pressure equilibrium is achieved the "memory" of the seal 69 restores the seal to its sealing position.

Other modifications to the invention will be apparent to those skilled in the art and are modifications which, while not disclosed herein, nevertheless fall within the scope of the invention as defined by the following claims.

CLAIMS

1. A container for the single feeding of animals, the container (10) including a flexible attachment element (28) and anchor means (16) on the container (10) to cooperate with the attachment element (28) to facilitate mounting of the container to a fixture or structure (R).

2. A container as claimed in claim 1 wherein the flexible attachment element (28) is an endless length (29) of elastomeric elastic material.

3. A container as claimed in claim 1 wherein the anchor means (16) is a handle (17) spaced from an external surface of the container (10).

4. A container as claimed in claim 5, the handle (17) including means (19 or 32) for the location therewith of the flexible attachment element (28).

5. A container as claimed in claim 4 wherein the location means is a projecting part (19) of the handle (17), said projecting part (19) being spaced from the body (11) of the container (10) and extending toward the open end (12) of the body (11).

6. A container as claimed in claim 4 or 5 wherein the location means further includes a hook (32) projecting outwardly from the handle (17).

7. A container as claimed in any one of claims 3 to 6 further including an anchor means (31) on a portion of the container (10) which is substantially opposite to the handle (17).

8. A container as claimed in any one of the preceding claims wherein the container is hollow and of a tapering configuration from an open end (12) to an end (13) adapted for the mounting of a feeding nipple (T).

9. A container as claimed in claim 8 wherein the open end (12) of the container is closed by a removable lid (21 or 40).

10. A container as claimed in claim 8 further including a lid (40) hingedly coupled to container (10) and adapted to close the open end (12).

11. A container as claimed in claim 10 wherein the lid (40) is at least in part hinged to the container by the attachment element (28).

12. A container as claimed in claim 11 wherein the attachment element (28) is fixed to a hinge part (44) of the lid (40), the hinge part (44) being located for pivoted movement about a pivot axis, the attachment element (28) being anchored to the container (10) at a position remote from the pivot axis.

13. A container as claimed in claim 11 or 12 wherein the lid (40) has a skirt (41) with seal (42) which locates in the closed position within the open end (12) of the container (10), there being releasable latch means (43, 46) to retain the lid in said closed position.

14. A container as claimed in any one of claims 9 to 13 wherein the lid (21, 40) includes a venting valve.

15. A container as claimed in claim 14 wherein the venting valve includes an aperture (67) in the lid (21, 40), a spigot (68) adjacent the aperture (67), a dish shaped seal (69) located on the spigot (68), said seal (69) having a flexible peripheral edge (71) engaged with a surface located about the aperture (67) to seal closed the aperture, said peripheral edge (71) being able to release from the surface upon the pressure with the container closed by the lid becoming less than the external pressure.

16. A container as claimed in any one of claims 1 and 3 to 15 wherein the flexible attachment element (28) is an endless length (29) of elastic material with a loop (30) at one end thereof.

17. A container as claimed in any one of claims 1 and 3 to 15 wherein the flexible attachment element (28) is an endless length (29) of elastic material and has located therewith adjustment means (58) for adjusting the effective length of the attachment element (28).

18. A container as claimed in any one of claims 1 to 17 further including a feeding nipple (T).

19. A container as claimed in claim 18 wherein the nipple (T) has a mounting end (33) which locates in an opening (14) in the container (10).

20. A container as claimed in claim 19 wherein the mounting end (33) of nipple (T) has an inclined slot (35) in a flanged portion (34) to permit the mounting end to be fitted by a twist-on action in the opening (14).

21. A container as claimed in claim 20 wherein the mounting end (33) of nipple (T) has a screw thread (36) for screw in mounting of the mounting end in the opening (14).

22. A container for the single feeding of animals, the container (10) including a hollow body (11) having an open end (12), the body (11) tapering toward a mounting end (13) for the mounting of a feeding nipple (T), the container further including an attachment element (28) formed of an elastic material, and anchor means (16) to cooperate with the attachment element (28) to facilitate mounting of the container to a fixture (R), a removable lid (21, 40) to close the open end (12) and handle means (17) projecting from the body (11).

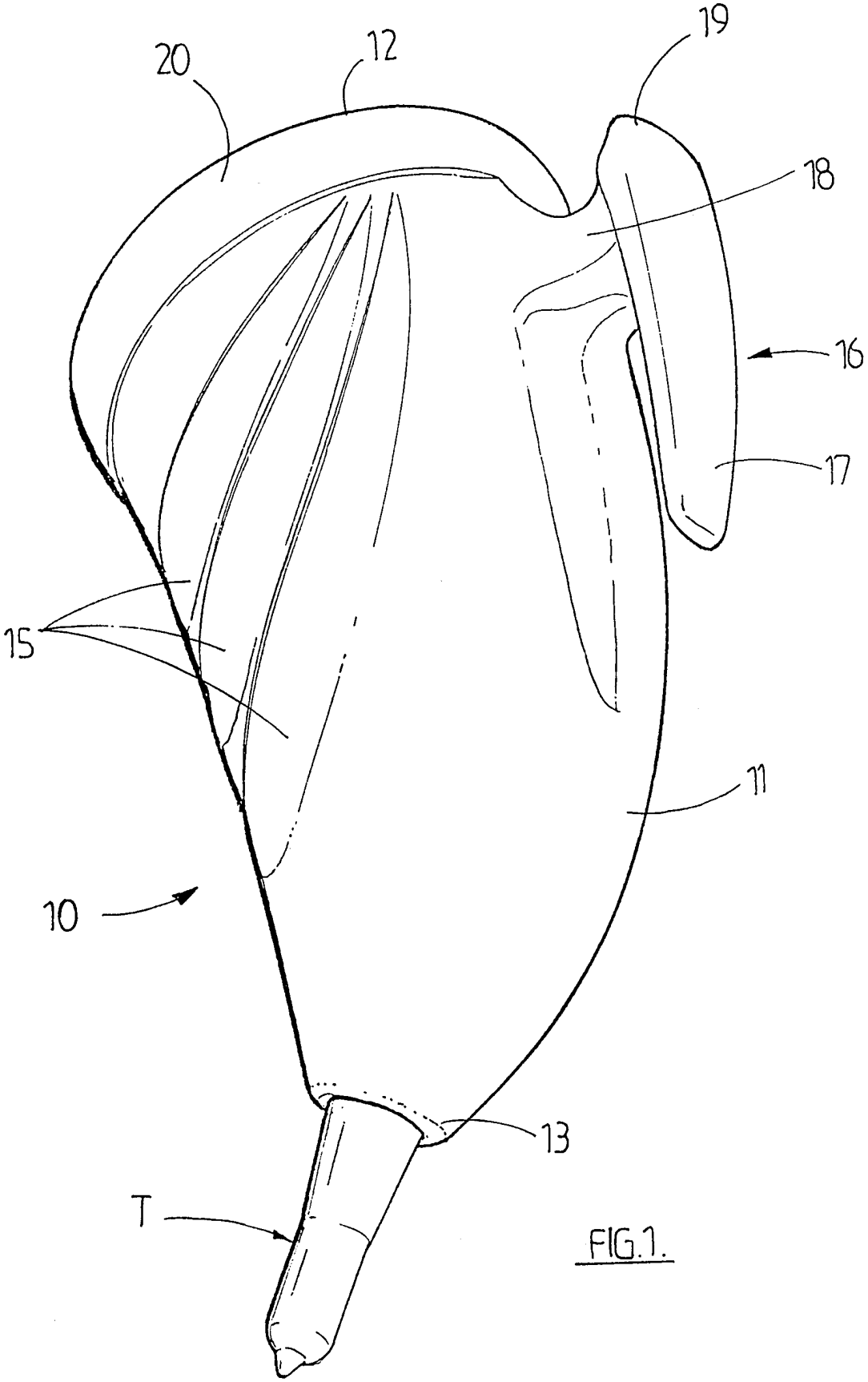


FIG.1.

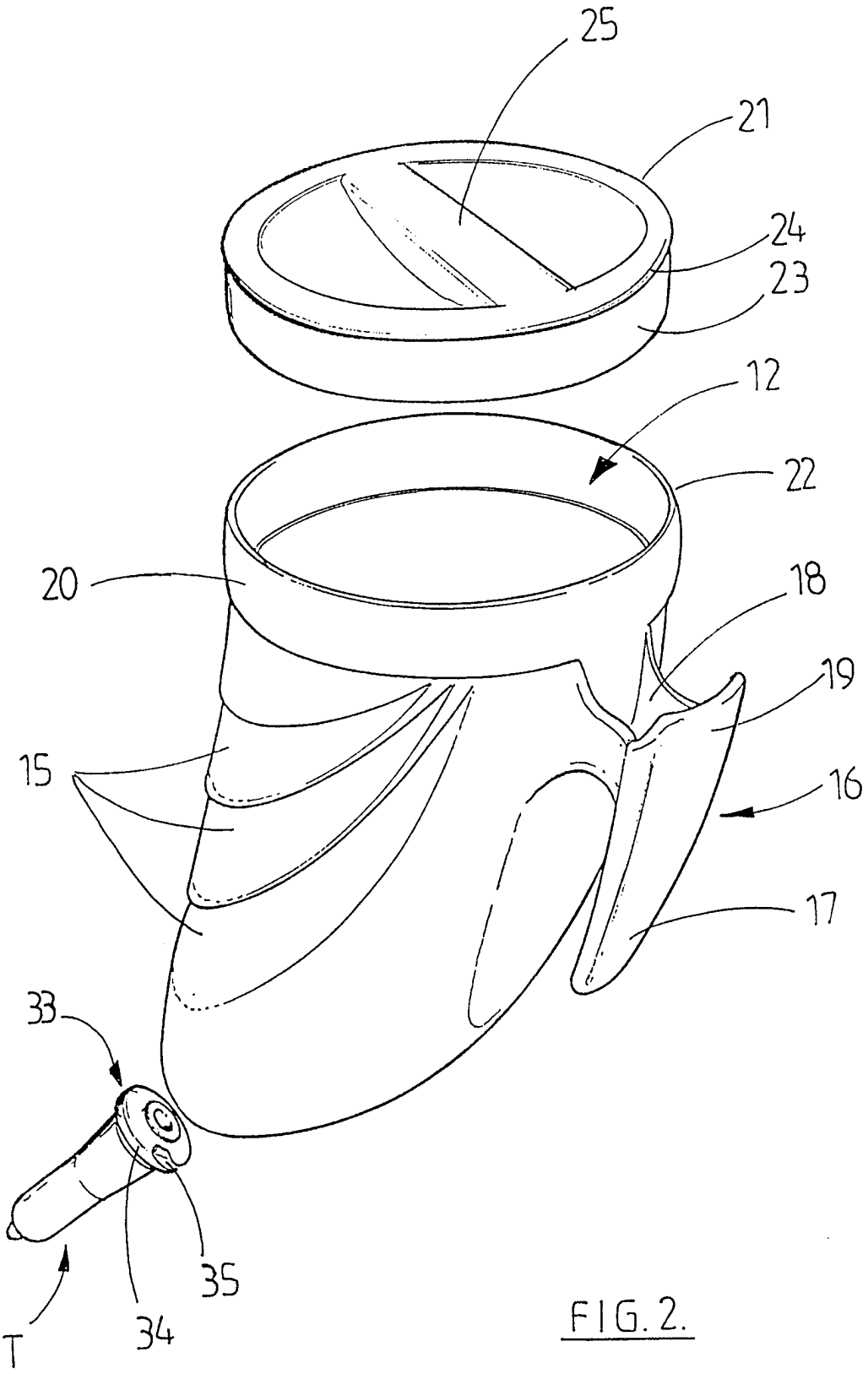


FIG. 2.

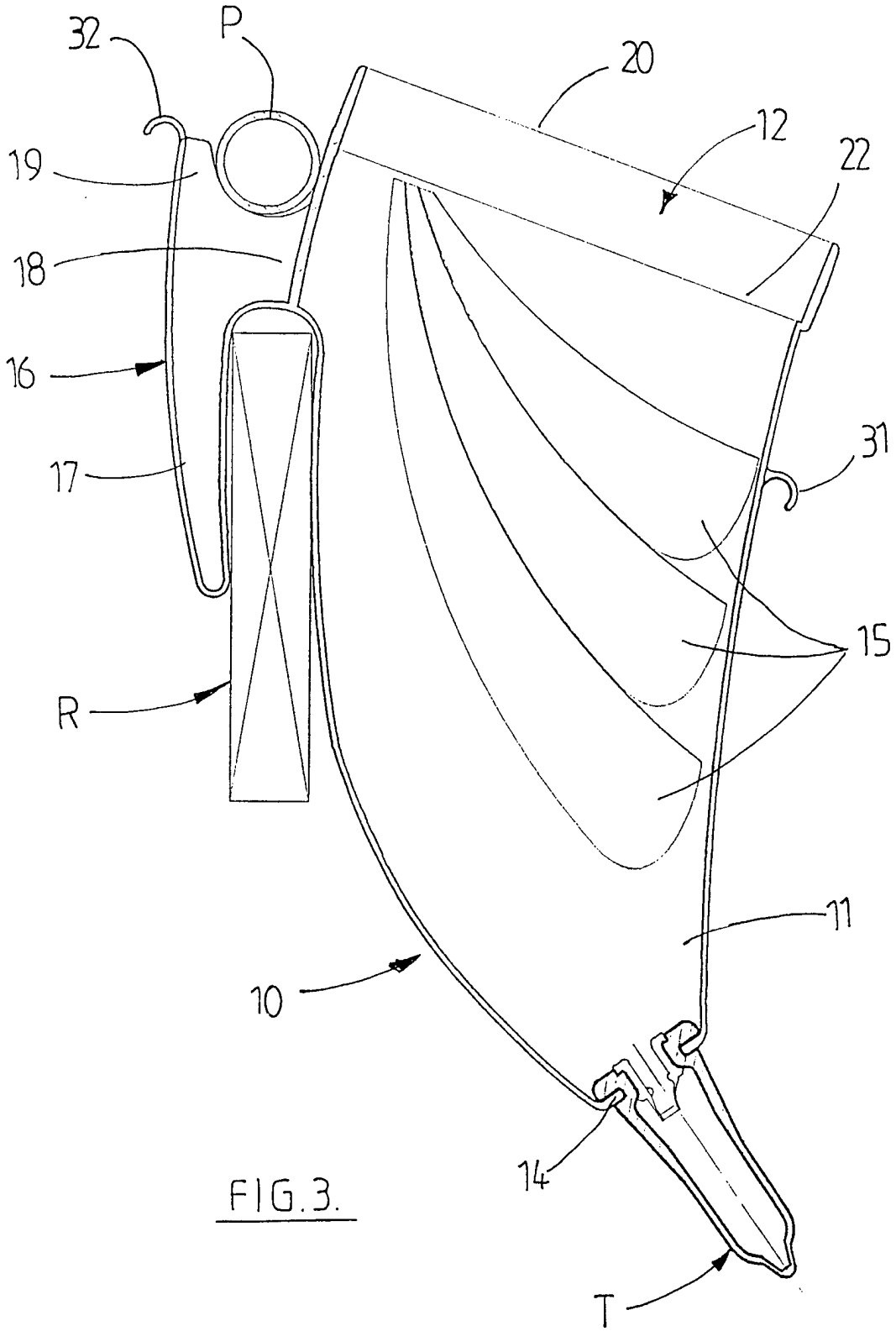


FIG.3.

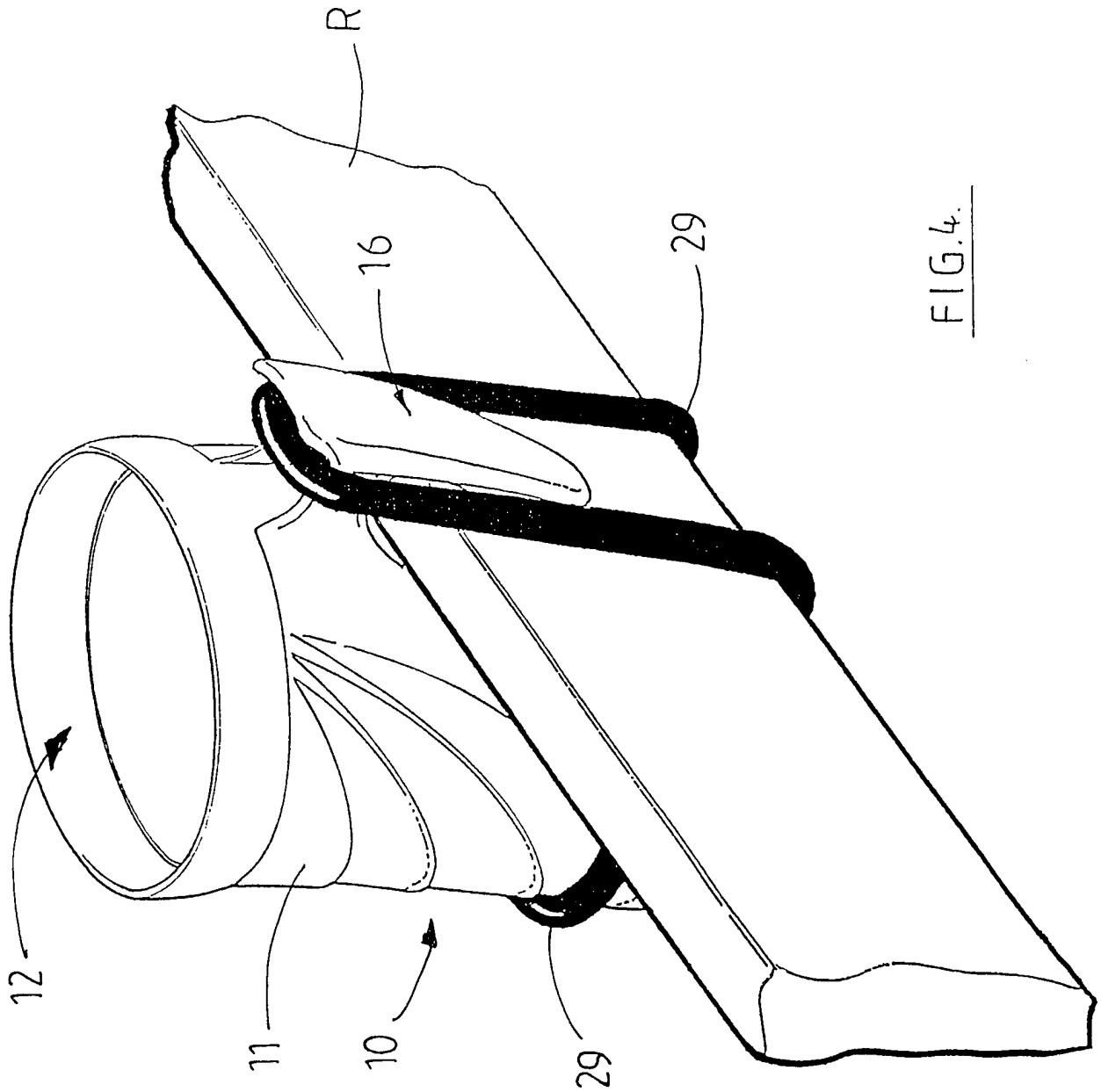
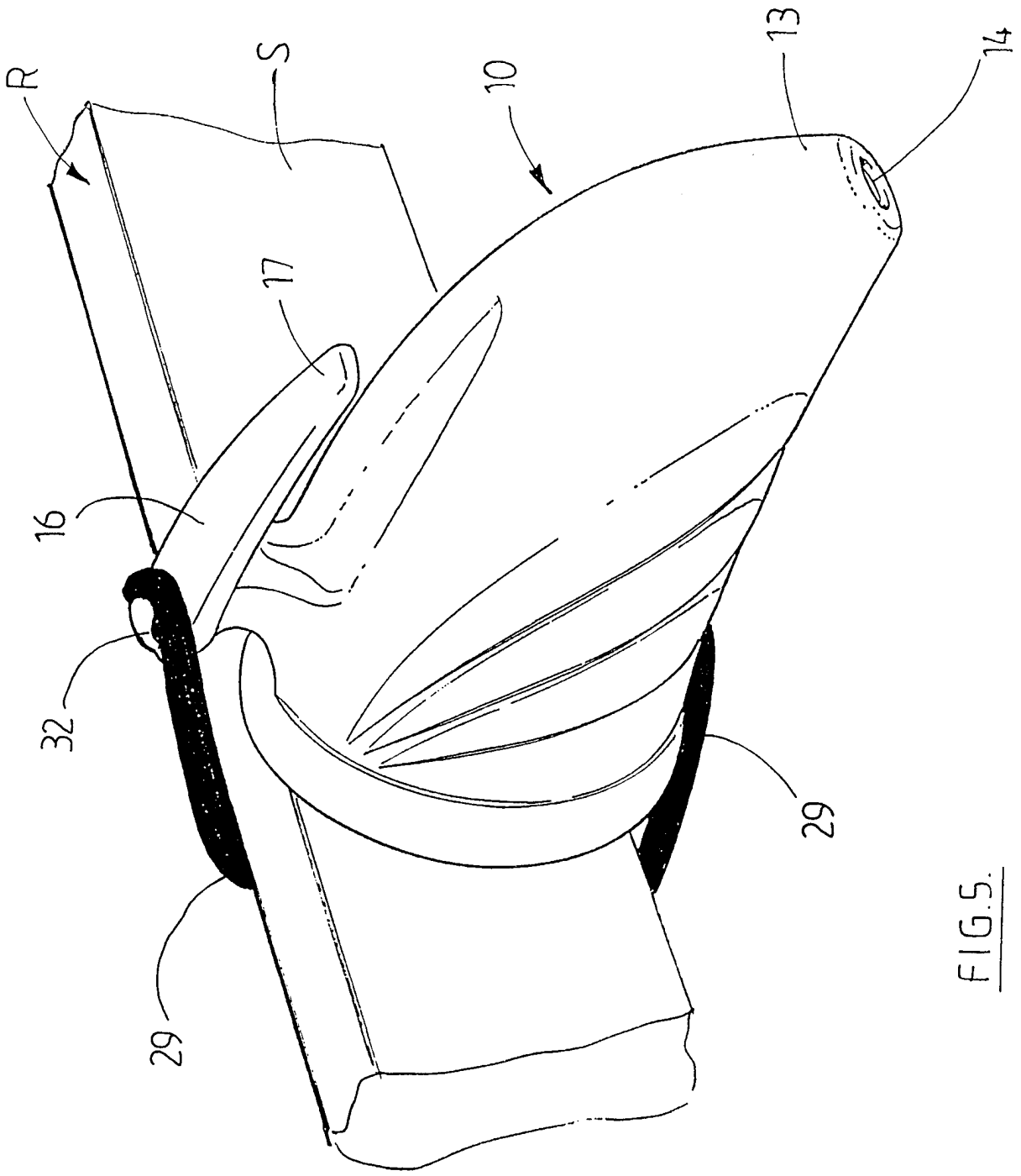


FIG.4.



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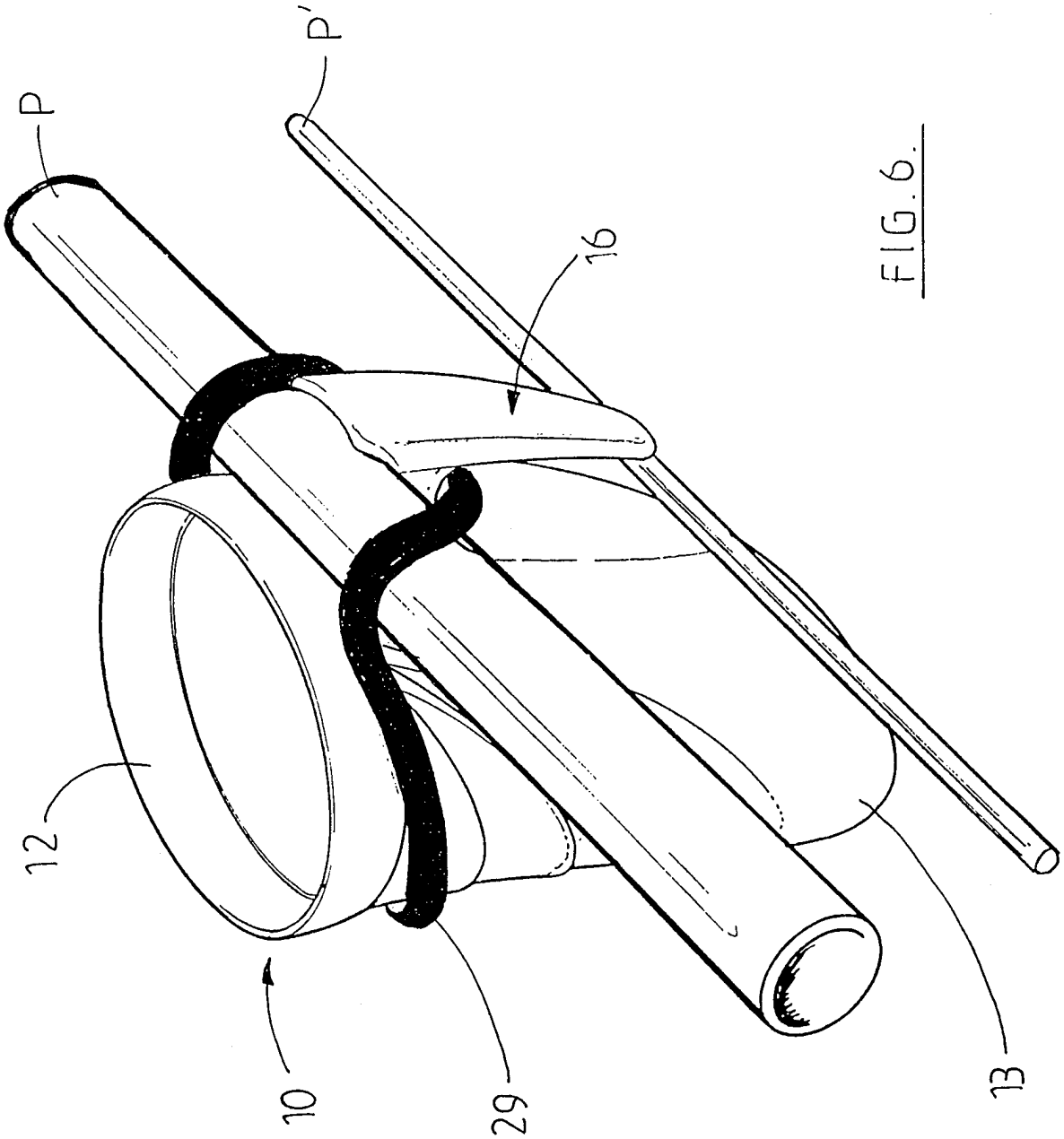

FIG.6.

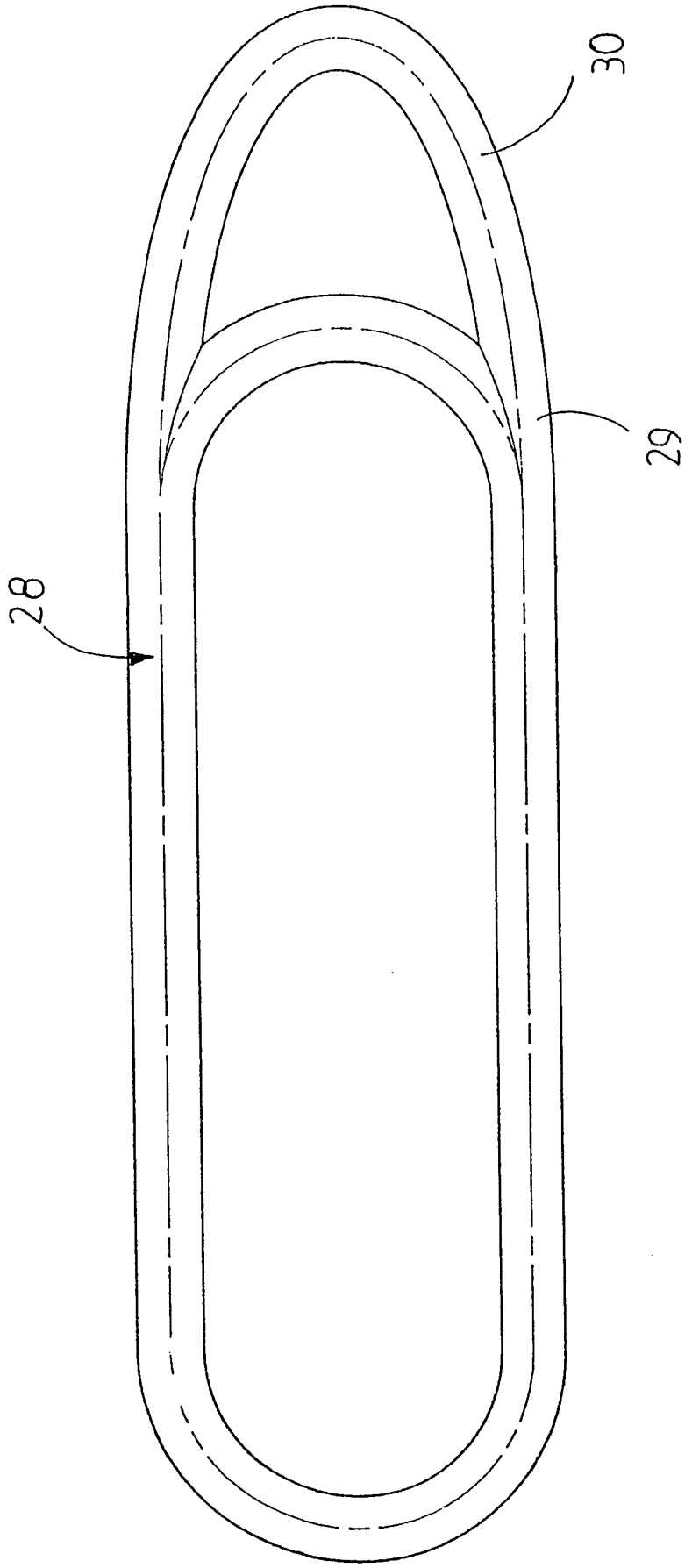

FIG.7.

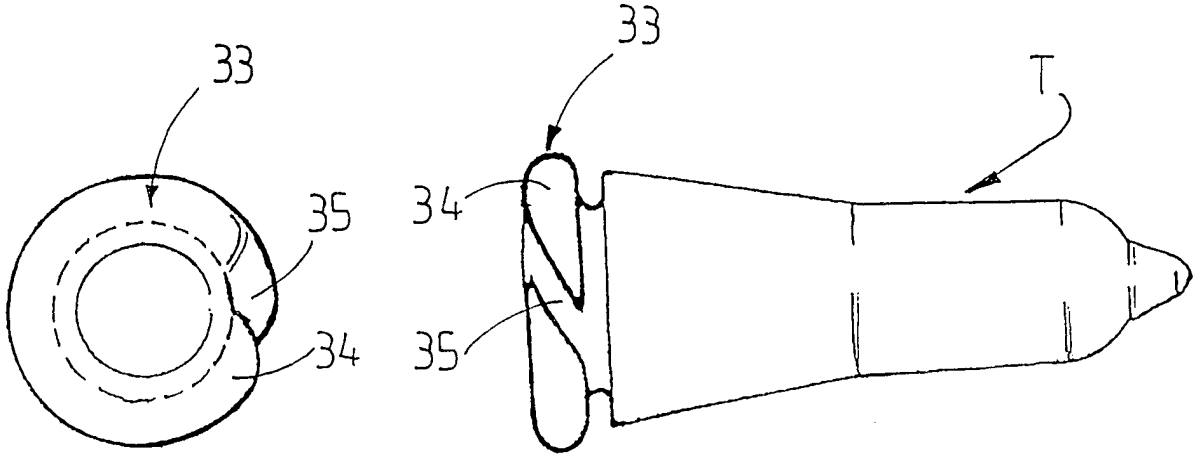

FIG.8.

FIG.9.

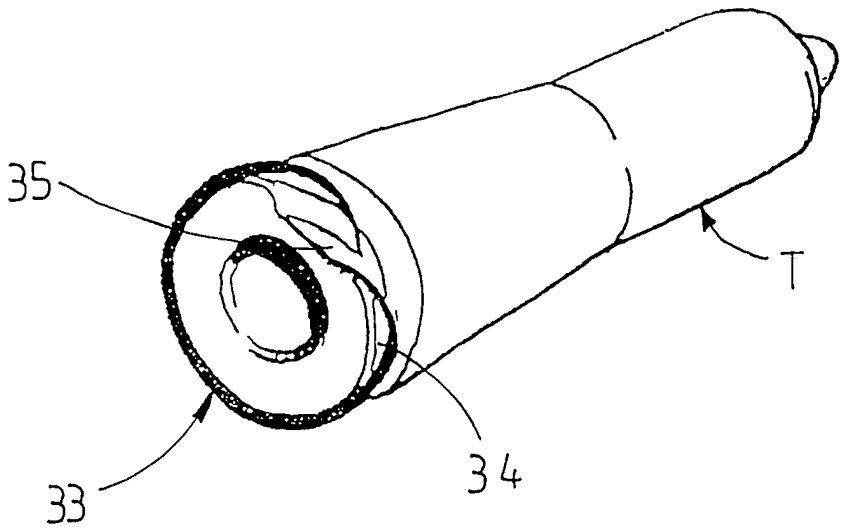

FIG.10.

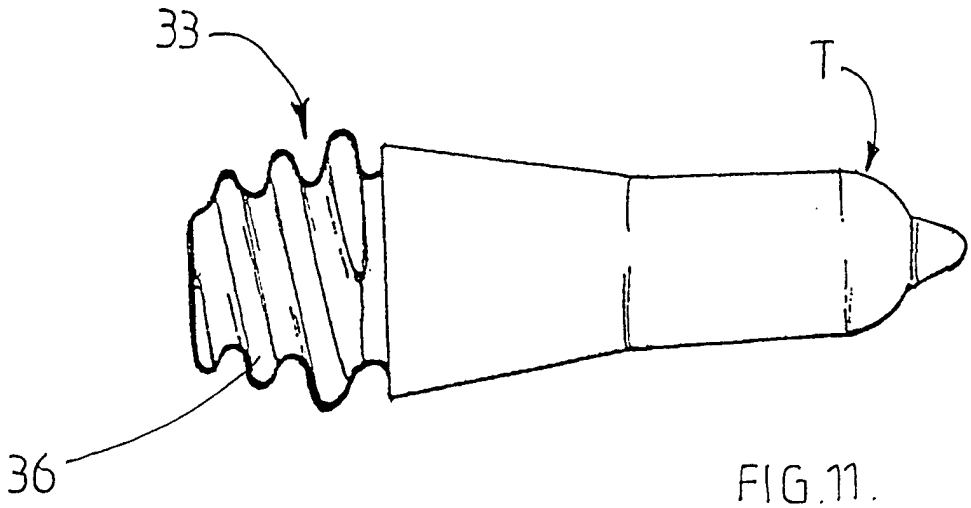

FIG.11.

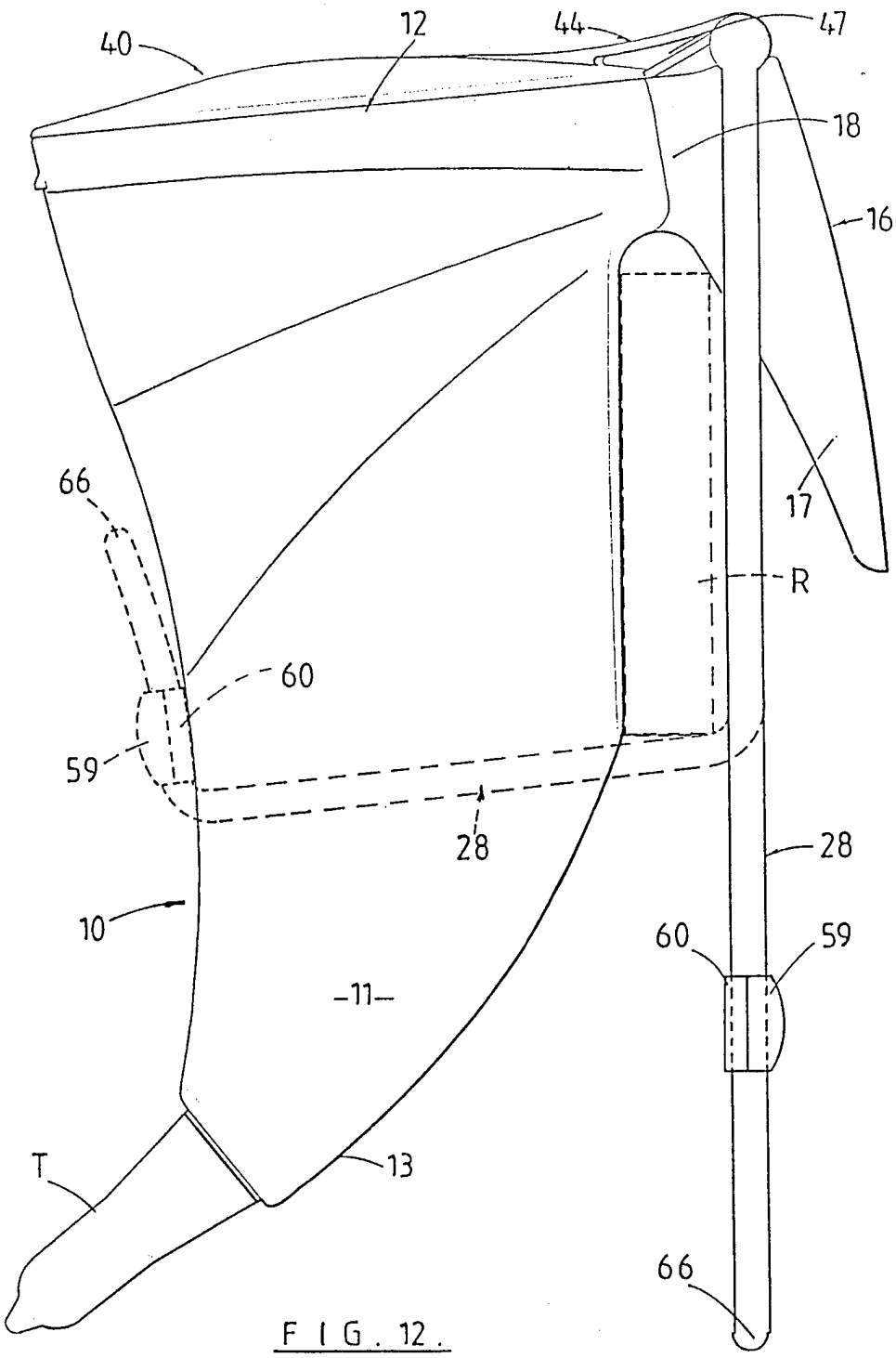

FIG. 12.

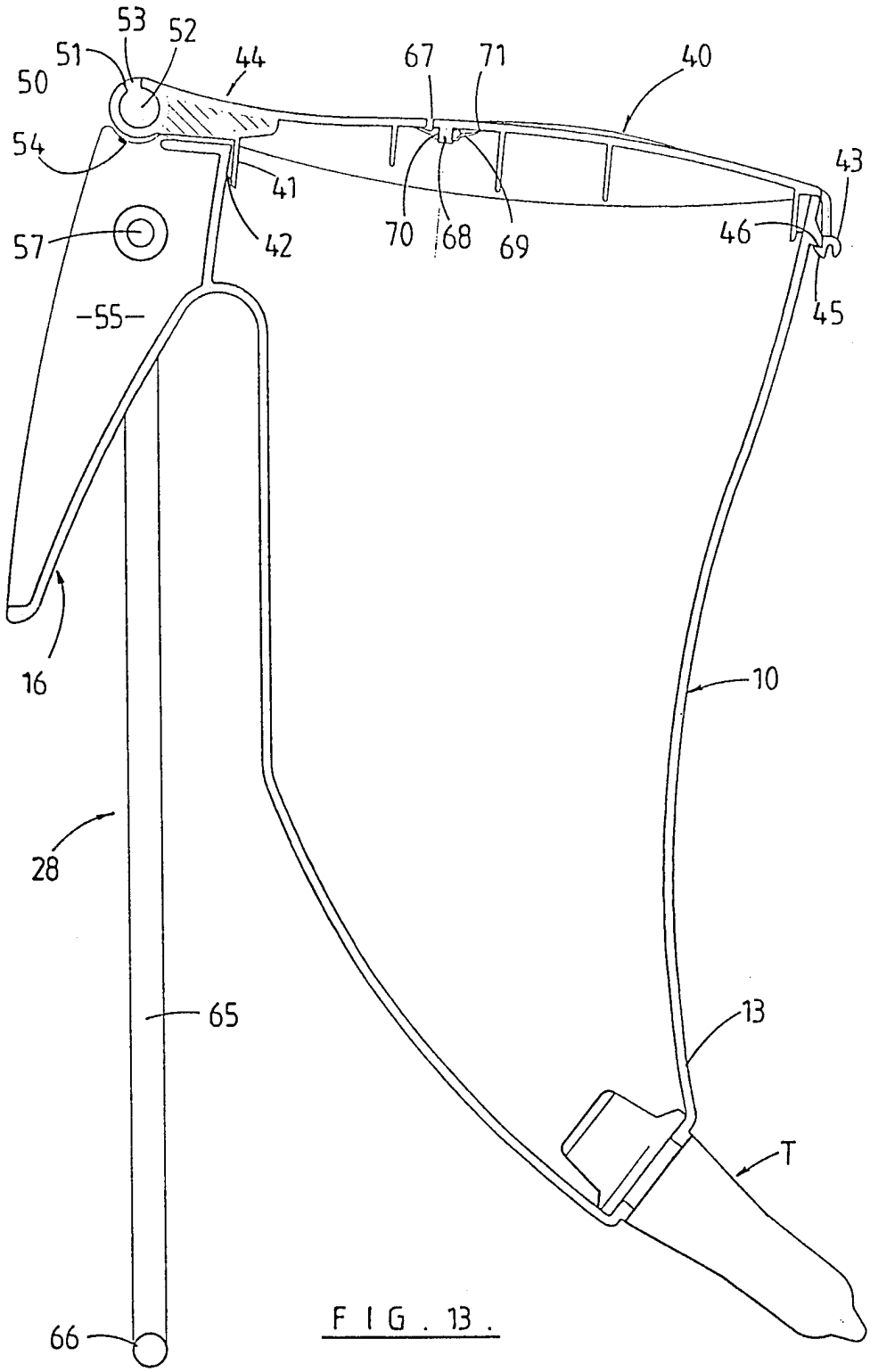
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FIG. 13.

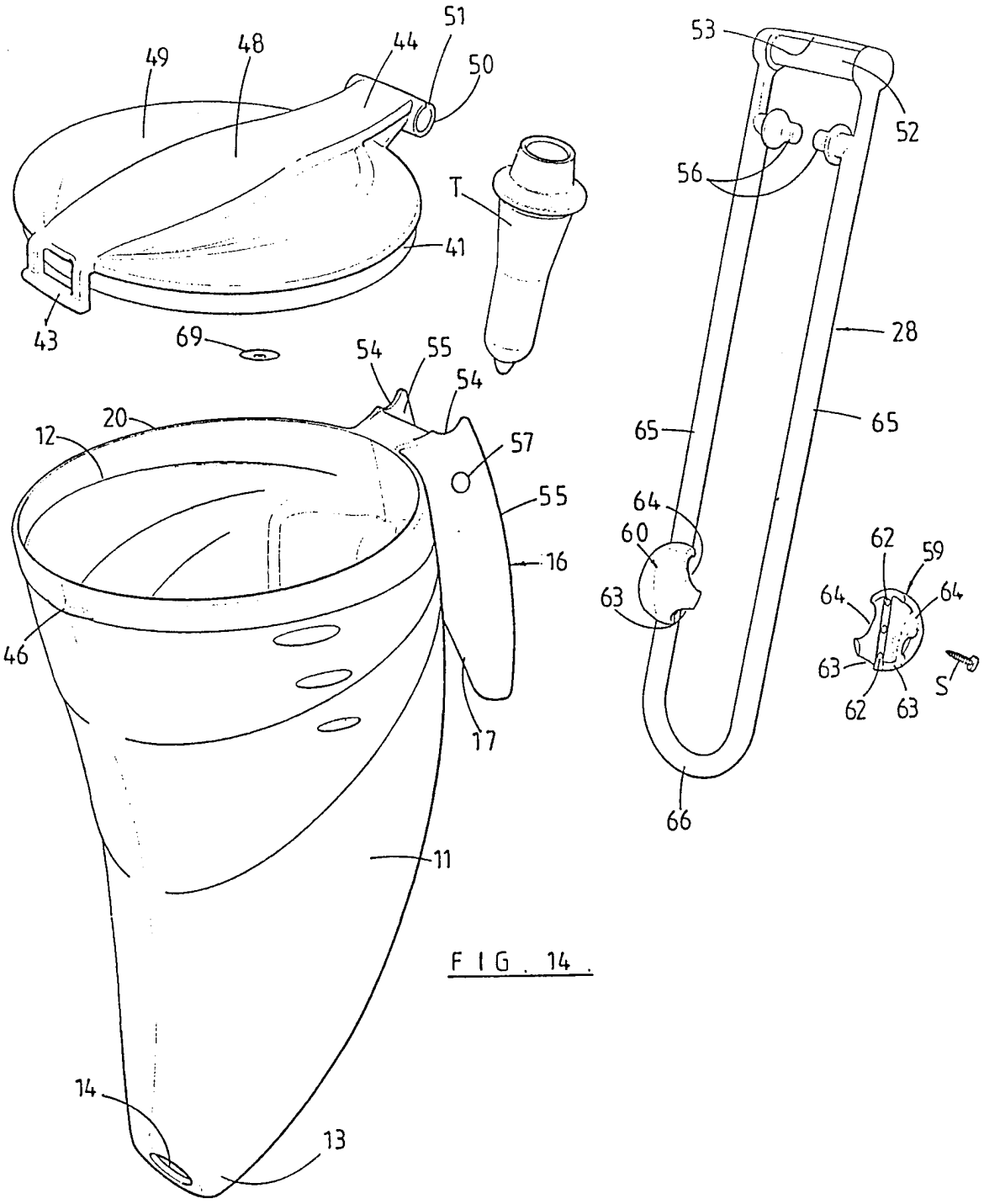
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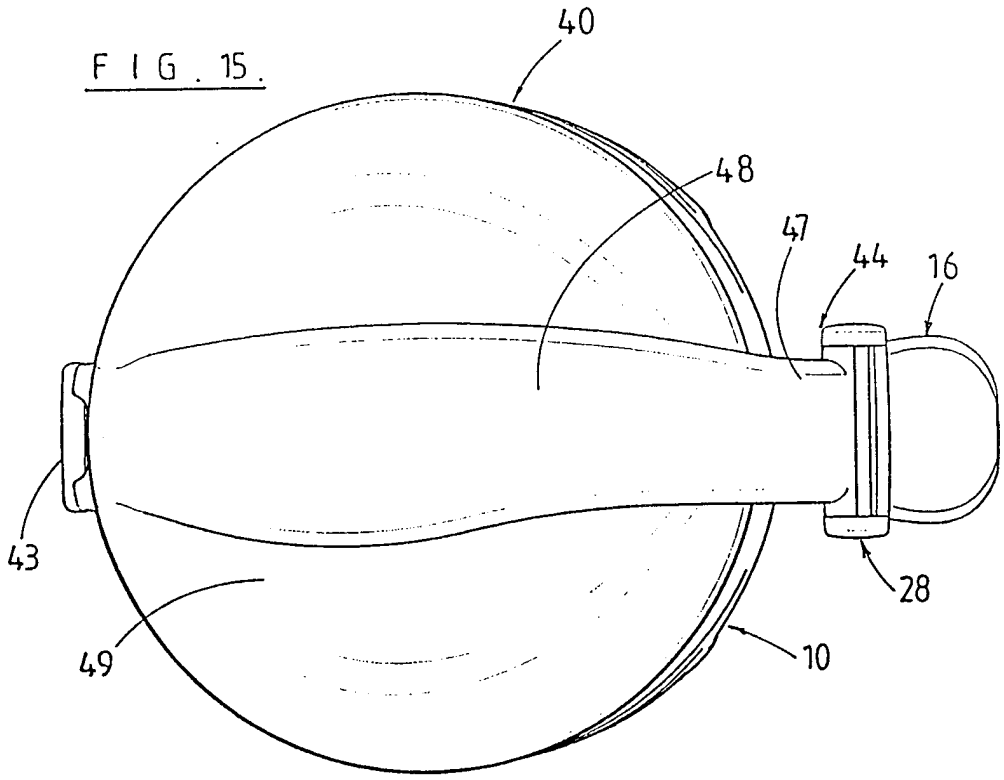
FIG. 14.

FIG. 15.



INTERNATIONAL SEARCH REPORT

International Application No.
PCT/NZ 98/00059

A. CLASSIFICATION OF SUBJECT MATTER

Int Cl[6]: A01K 9/00, 5/00, 7/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC A01K 9/00, 5/00, 7/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU-IPC: as above, CAPRI

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPAT A01K 9/-, 5/-, 7/- and Keywords

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	US 1733066 A (LYLES) 22 October 1929	
X	Whole document	1-2, 8-10, 14, 18-22
Y	See figures 1-8	15
	AU 682/36 (100351) A (McWATTERS) 4 March 1937	
X	Whole document	1-4, 8-10, 18-22
Y	See figures 1-8	14, 15
	US 2979078 A (WITZ) 11 April 1961	
Y	Figures 1-8	14 15

[X] Further documents are listed in the continuation of Box C

[X] See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
19 August 1998	27 AUG 1998

Name and mailing address of the ISA/AU	Authorized officer
AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No.: (02) 6285 3929	**R. SUBBARAYAN** Telephone No.: (02) 6283 2377

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/NZ 98/00059

C (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2708421 A (JAUCH) 17 May 1955 Figure 1	3
A	US 4214554 A (SMITH Jr.) 29 July 1980 Whole document	1-2, 8-9, 18-19, 22
A	GB 2012156 A (LAGE) 25 July 1979 Whole document	1-2, 8-9, 18-19, 22
A	GB 2064287 A (COLLINS) 17 June 1981 Whole document	1-2, 8, 18-19, 22

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No.
PCT/NZ 98/00059

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
US	4214554	FR	2435196				
GB	2012156	DE	2901402	DK	68/79	FR	2414298
		NL	7900150	US	4188914		
GB	2064287	EP	30799				

END OF ANNEX