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Transport and storage container for liquids

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(56) Related Art
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US6668735

Abstract

Transport and storage container for liquids

The subject matter of the invention is the fluid-tight detachable connection of the discharge socket of a flexible inner casing (14) with a discharge fitting (13) inserted into the inner container (2) of a transport and storage container (1).

(Fig.1)

Fig. 1

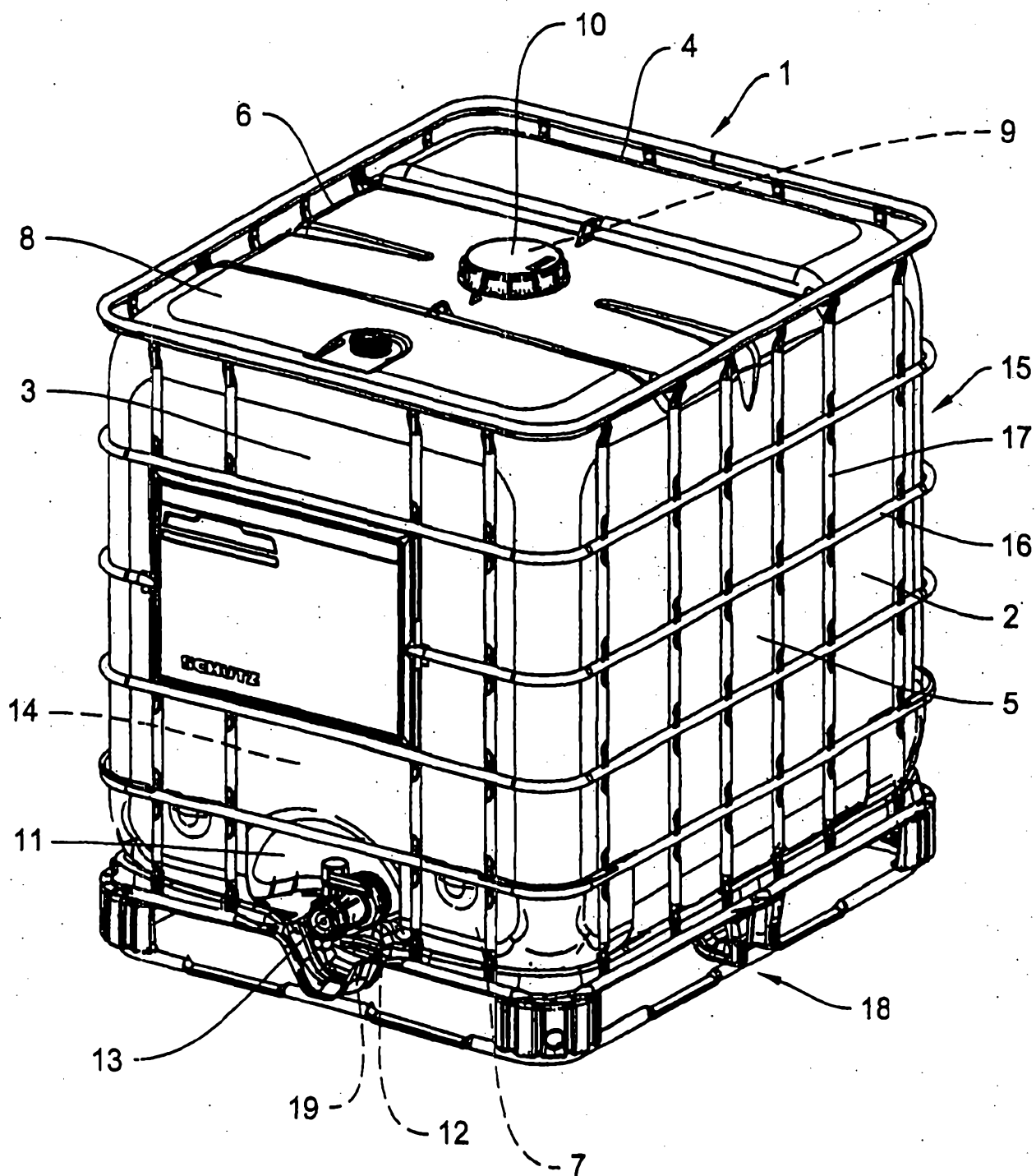
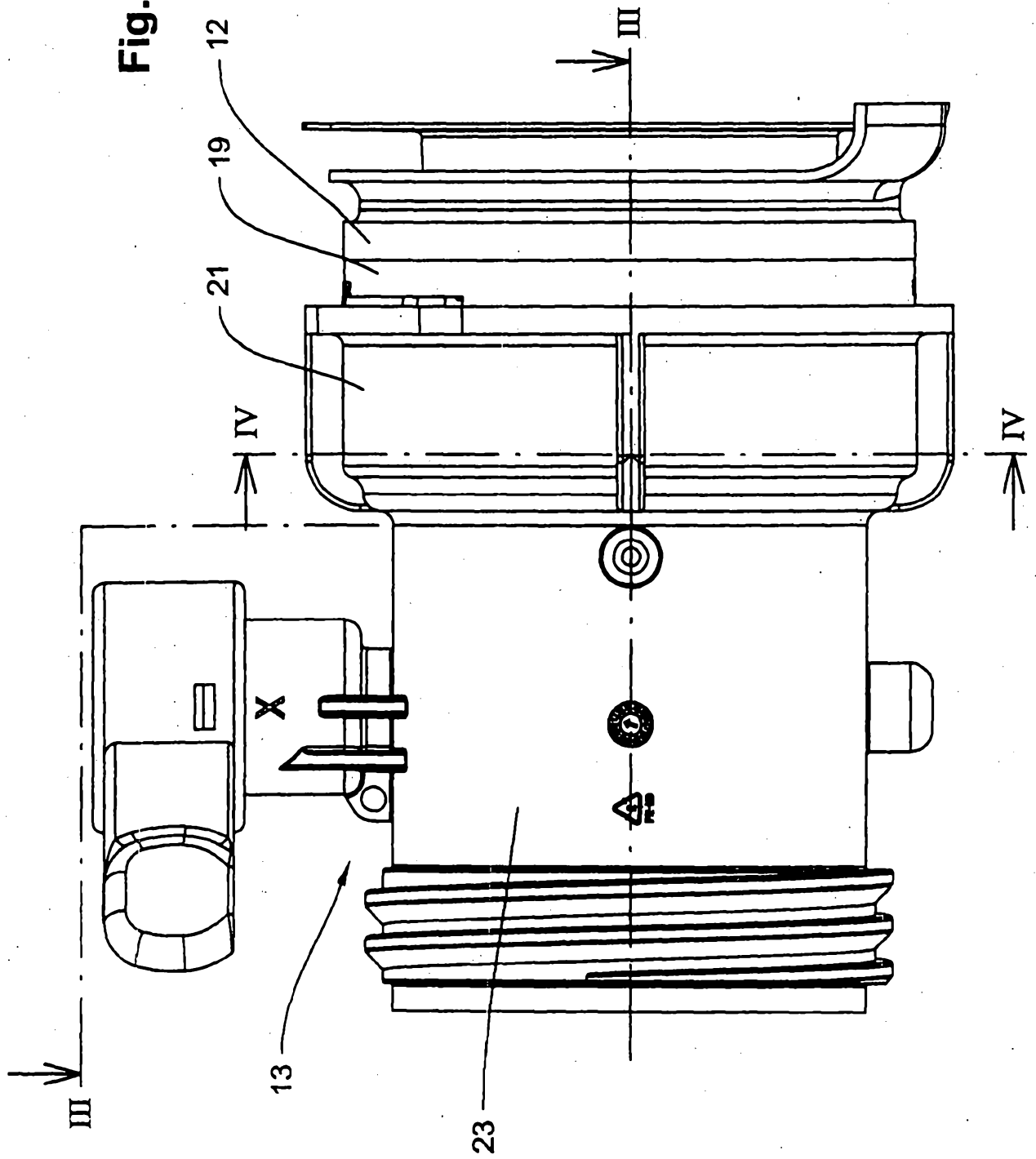


Fig. 2



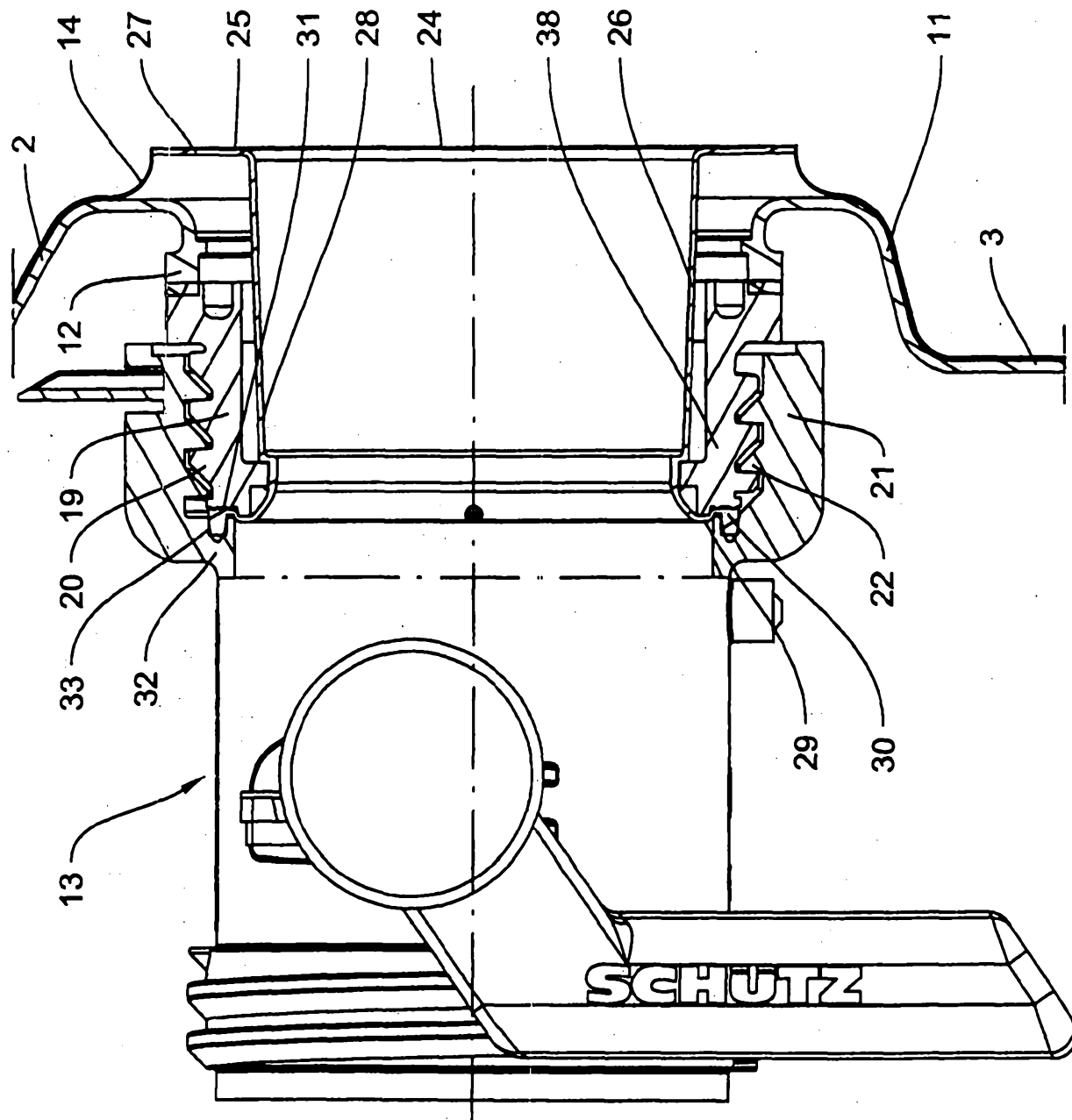


Fig. 3

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**COMPLETE SPECIFICATION
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Invention Title:

TRANSPORT AND STORAGE CONTAINER FOR LIQUIDS

Our Ref : 847317
POF Code: 20412/106282

The following statement is a full description of this invention, including the best method of performing it known to applicant(s):

Transport and storage container for liquids

This application claims priority from German Application No. 10 2008 009 586.9 filed on 16 February 2008, the contents of which are to be taken as incorporated herein by this reference.

A reference herein to a patent document or other matter which is given as prior art is not to be taken as an admission that that document or matter was, in Australia, known or that the information it contains was part of the common general knowledge as at the priority date of any of the claims.

The invention concerns a transport and storage container for liquids with a parallelepiped- or cubic-shaped plastic inner container with a closable filler socket provided on the top end and with a connecting socket for a discharge fitting with a plastic housing provided in the bottom section of the front wall in the region of the bottom end, a flexible plastic inner casing with a filler socket and a discharge socket that can be placed into the inner container, an outer jacket from metal grate or sheet metal and a pallet-like base to support the inner container.

The inner container of transport and storage containers of this generic type, described in DE 202 17 856.0 U1, for the transport and storage of liquids of various kinds in the chemical, pharmaceutical, mineral oil and food industry is fitted with a replaceable flexible plastic inner casing.

The strict legal environmental regulations require the move from single-use containers, like pallet containers and drums used for the transport and storage of liquids of various kinds to multi-use containers, the switching over to containers with larger capacities with the aim of reducing the amounts of residues and the development of new multi-use containers which, with regard to the relieving the environment from hazardous materials, can be reconditioned and whose plastic components contaminated by the transported and stored liquid goods can be reduced to a replaceable flexible inner casing from a thin film material. The contaminated inner casing can be optimally disposed of by a low hazard or even hazard-free destruction, e.g. by combustion.

It would be desirable to further develop the generic type transport and storage container for liquids with regard to a simple assembly of the discharge fitting, in particular a gate valve or a ball valve.

According to the present invention, there is provided transport and storage container for liquids with a parallelepiped- or cubic-shaped plastic inner container with a closable filler socket provided on the top end and with a connecting socket for a discharge fitting with a plastic housing provided in the bottom section of the front wall in the region of the bottom end, a flexible plastic inner casing with a filler socket and a discharge socket that can be placed into the inner container, an outer jacket from metal grate or sheet metal and a pallet-like base to support the inner container,

wherein a plastic threaded sleeve is welded to the connecting socket of the inner container with an outer thread for the purpose of screwing on the housing of the discharge fitting with an inlet socket of the housing with corresponding inner thread, while the flexible discharge socket that can be pulled through the connecting socket of the inner container and through the threaded sleeve welded to the connecting socket of the inner casing inserted from above into the inner container through the filler socket of the inner container has a sealing flange on its discharge end, said sealing flange becoming clamped in the housing of the discharge fitting during the screwing of the inlet socket of the housing of the fitting on the threaded sleeve welded to the connecting socket of the inner container between the free front end of said threaded sleeve and an inner shoulder of the inlet socket of the housing of the fitting to seal the discharge socket of the inner casing pulled through the connecting socket of the inner container and the threaded sleeve welded to it.

In some embodiments, a rotation prevention of the discharge socket of the inner casing in the threaded sleeve welded to the connecting socket of the inner container.

In some embodiments, protuberances circumferentially moulded on the outer jacket of the discharge socket of the inner casing behind the sealing flange, said protuberances during the pulling of the discharge socket of the inner casing through the connecting socket of the inner container and the threaded sleeve welded onto it engage the corresponding grooves circumferentially provided in the inner jacket of the threaded sleeve at its front end.

In some embodiments, chamfering the protuberances and both longitudinal sides of the grooves facing the direction of screwing on of the housing of the fitting.

In some embodiments, the sealing flange moulded on the discharge socket of the inner casing has an annular sealing lip, said sealing lip during screwing of the housing of the fitting on the threaded sleeve on the connecting socket of the inner container is pressed into an annular groove in the inner shoulder of the inlet socket so that to seal the discharge socket of the inner casing in the inlet socket of the discharge fitting.

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In some embodiments, a visual aid for orientation moulded on the sealing flange of the discharge socket of the inner casing to align the discharge socket of the inner casing for a predetermined assembly position after having pulled the discharge socket through the connecting socket of the inner container and the threaded sleeve welded onto it after the insertion of the inner casing into the inner container.

In some embodiments, a protuberance is moulded on the sealing flange of the discharge socket of the inner casing as aid for orientation.

In some embodiments, the plastic threaded sleeve welded to the connecting socket of the inner container is produced by injection moulding.

Embodiments of the transport and storage container for liquids according to the invention can include the following advantages:

The new construction of the container makes a simple connection of the discharge fitting, manufactured as an injection moulded plastic part, to the discharge socket of the inner casing and to the connecting socket of the inner container of the transport and storage container possible during the manufacture of new ones and reconditioning as well as a simple unscrewing of the fitting to remove the inner casing from the inner container during the reconditioning of the transport container. With the inner casing, that can be simply replaced after use, a cleaner inner container can be offered to be used as a multi-use transport and storage container. The sealing flange, moulded on the discharge socket of the inner casing, with a sealing lip makes a special sealing ring, as it is usually used to seal the discharge socket of the inner container in the housing of the fitting, superfluous. By virtue of the direct screwing on of the discharge fitting with the inlet socket on the threaded sleeve welded on the connecting socket of the inner container the otherwise necessary sleeve nut to screw the fitting to the discharge socket of the inner container is omitted. The elimination of the sealing ring and of the sleeve nut makes the reduction of the manufacturing costs of the new transport and storage container with inner casing for liquids possible.

The transport and storage container for liquids is explained in the following based on the figures of the drawing, showing the following:

Fig. 1 – a perspective illustration of the transport and storage container,
Fig. 2 – a side view of the discharge fitting mounted on the connecting socket of the inner container

Fig.3 - a partial top view and a partial longitudinal section along line III-III of Fig.2 of the discharge fitting joined with the inner container,

Fig.4 - a cross-section along line IV-IV of Fig.2, and

Fig.5 - an enlarged perspective illustration of the discharge socket of the inner casing of the transport and storage container.

The transport and storage container 1 for liquids that can be used as a single-use and multi-use container according to Fig.1 has as main components a replaceable parallelepiped-shaped plastic inner container 2 with a front wall 3, a rear wall 4 and two lateral walls 5, 6, a bottom end 7 constructed as a draining bottom and a top end 8, a filler socket 9 that can be closed by a lid 10 moulded on the top end 8 and a connecting socket 12 moulded on a depression 11 in the bottom section of the front wall 3, said connecting socket integrally produced with the inner container 2 by blow moulding for a plastic discharge fitting 13, in particular a gate valve, produced by injection moulding, furthermore a plastic inner casing 14 that is inserted into the inner container 2 from above through the filler socket 9, an outer jacket 15 with intersecting horizontal and vertical metal grate rods 16, 17 constructed as a grate jacket to accommodate the inner container 2 as well as a pallet-like base 18 having longitudinal and lateral dimensions in accordance with European standards to support the inner container 2.

To the connecting socket 12 of the inner container 2 a threaded sleeve 19 with an outer thread 20, produced as a plastic injection moulded part, is welded for the purpose of screwing on the inlet socket 21 of the housing 23 of the discharge fitting 13 with corresponding inner thread 22.

The inner casing 14 has a bottom discharge opening 24, to the edge 25 of which a plastic flexible discharge socket 26 with a flange 27 is welded. The discharge end 28 of the discharge socket 26 of the inner casing 14 has a flexible sealing flange 29 moulded on that has an annular sealing lip 30.

The inner casing 14 is inserted into the inner container 2 from above through the filler socket 9 and the discharge socket 26, welded to the bottom of the inner casing 14, it is pulled out through the connecting socket 12 of the inner container 2 and the threaded sleeve 19 welded to the latter and the sealing flange 29 of the discharge socket 26 of the inner casing 14 is brought into contact abutting against the free end 31 of the threaded sleeve 19.

When the housing 23 of the discharge fitting 13 with the inlet socket 21 is screwed on the threaded sleeve 19 welded to the connecting socket 12 of the inner container 2, the sealing flange 29 of the discharge socket 26 of the inner casing 14 is clamped between the front end 31 of the threaded sleeve 19 and an inner shoulder 32 of the inlet socket 21 of the housing 23 of the fitting so that to seal the discharge socket 26 of the inner casing 14 in the housing 23 of the fitting. When clamping the sealing flange 29 of the discharge socket 26 of the inner casing 14 the sealing lip 30 of the sealing flange is pressed into an annular groove 33 in the inner shoulder 32 of the inlet socket 21 of the housing 23 of the fitting.

The discharge socket 26 of the inner casing 14 is fitted with a rotation prevention, that prevents the rotation of the discharge socket 26 during the screwing on of the housing 23 of the fitting with the inlet socket 21 on the threaded sleeve 19 welded to the connecting socket 12 of the inner container 2.

The rotation prevention is formed by protuberances 35 circumferentially moulded behind the sealing flange 29 on the outer jacket 34 of the discharge socket 26 of the inner casing 14, said protuberances during the pulling of the discharge socket 26 of the inner casing 14 through the connecting socket 12 of the inner container 2 and the threaded sleeve 19 welded onto it engage the corresponding grooves 36 circumferentially provided in the inner jacket 37 of the threaded sleeve 19 at its front end 38.

The protuberances 35 and both longitudinal sides 39 of the corresponding grooves 36 of the rotation prevention are chamfered facing the direction of screwing on of the housing 23 of the fitting.

On the sealing flange 29 of the discharge socket 26 of the inner casing 14 one protuberance 40 is moulded on as visual aid for orientation to align the discharge socket 26 of the inner casing 14 for a predetermined assembly position after having been pulled the discharge socket 26 through the connecting socket 12 of
5 the inner container 2 and the threaded sleeve 19 welded onto it during the insertion of the inner casing 14 into the inner container 2.

List of reference numerals

1	Transport and storage container	31	Front end of 19
2	Inner container	32	Inner shoulder of 21
3	Front wall of 2	33	Annular groove in 32
4	Rear wall of 2	34	Outer jacket of 26
5	Lateral wall of 2	35	Protuberance on 34
6	Lateral wall of 2	36	Groove in 37
7	Bottom end of 2	37	Inner jacket of 19
8	Top end of 2	38	Front end of 19
9	Filler socket on 8	39	Longitudinal side of 36
10	Lid of 9	40	Protuberance on 29
11	Depression in 3		
12	Connecting socket of 2		
13	Discharge fitting		
14	Inner casing		
15	Outer jacket		
16	Horizontal grate rod		
17	Vertical grate rod		
18	Base		
19	Threaded sleeve		
20	Outer thread of 19		
21	Inlet socket of 23		
22	Inner thread of 21		
23	Housing of 13		
24	Discharge opening of 14		
25	Edge of 24		
26	Discharge socket of 14		
27	Flange on 26		
28	Discharge end of 26		
29	Sealing flange on 28		
30	Sealing lip on 29		

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. Transport and storage container for liquids with a parallelepiped- or cubic-shaped plastic inner container with a closable filler socket provided on the top end and with a connecting socket for a discharge fitting with a plastic housing provided in the bottom section of the front wall in the region of the bottom end, a flexible plastic inner casing with a filler socket and a discharge socket that can be placed into the inner container, an outer jacket from metal grate or sheet metal and a pallet-like base to support the inner container,

wherein a plastic threaded sleeve is welded to the connecting socket of the inner container with an outer thread for the purpose of screwing on the housing of the discharge fitting with an inlet socket of the housing with corresponding inner thread, while the flexible discharge socket that can be pulled through the connecting socket of the inner container and through the threaded sleeve welded to the connecting socket of the inner casing inserted from above into the inner container through the filler socket of the inner container has a sealing flange on its discharge end, said sealing flange becoming clamped in the housing of the discharge fitting during the screwing of the inlet socket of the housing of the fitting on the threaded sleeve welded to the connecting socket of the inner container between the free front end of said threaded sleeve and an inner shoulder of the inlet socket of the housing of the fitting to seal the discharge socket of the inner casing pulled through the connecting socket of the inner container and the threaded sleeve welded to it.

2. Container according to claim 1, wherein a rotation prevention of the discharge socket of the inner casing in the threaded sleeve welded to the connecting socket of the inner container.

3. Container according to claim 2, wherein protuberances circumferentially moulded on the outer jacket of the discharge socket of the inner casing behind the sealing flange, said protuberances during the pulling of the discharge socket of the inner casing through the connecting socket of the inner container and the threaded sleeve welded onto it engage the corresponding grooves circumferentially provided in the inner jacket of the threaded sleeve at its front end.

4. Container according to claim 3, wherein chamfering the protuberances and both longitudinal sides of the grooves facing the direction of screwing on of the housing of the fitting.

5. Container according to any one of claims 1 to 4, wherein the sealing flange moulded on the discharge socket of the inner casing has an annular sealing lip, said sealing lip during screwing of the housing of the fitting on the threaded sleeve on the connecting socket of the inner container is pressed into an annular groove in the inner shoulder of the inlet socket so that to seal the discharge socket of the inner casing in the inlet socket of the discharge fitting.

6. Container according to any one of claims 1 to 5, wherein a visual aid for orientation moulded on the sealing flange of the discharge socket of the inner casing to align the discharge socket of the inner casing for a predetermined assembly position after having pulled the discharge socket through the connecting socket of the inner container and the threaded sleeve welded onto it after the insertion of the inner casing into the inner container.

7. Container according to claim 6, wherein a protuberance is moulded on the sealing flange of the discharge socket of the inner casing as aid for orientation.

8. Container according to any one of claims 1 to 7, wherein the plastic threaded sleeve welded to the connecting socket of the inner container is produced by injection moulding.

9. Transport and storage container for liquids substantially as herein described with reference to the accompanying drawings.

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Fig. 1

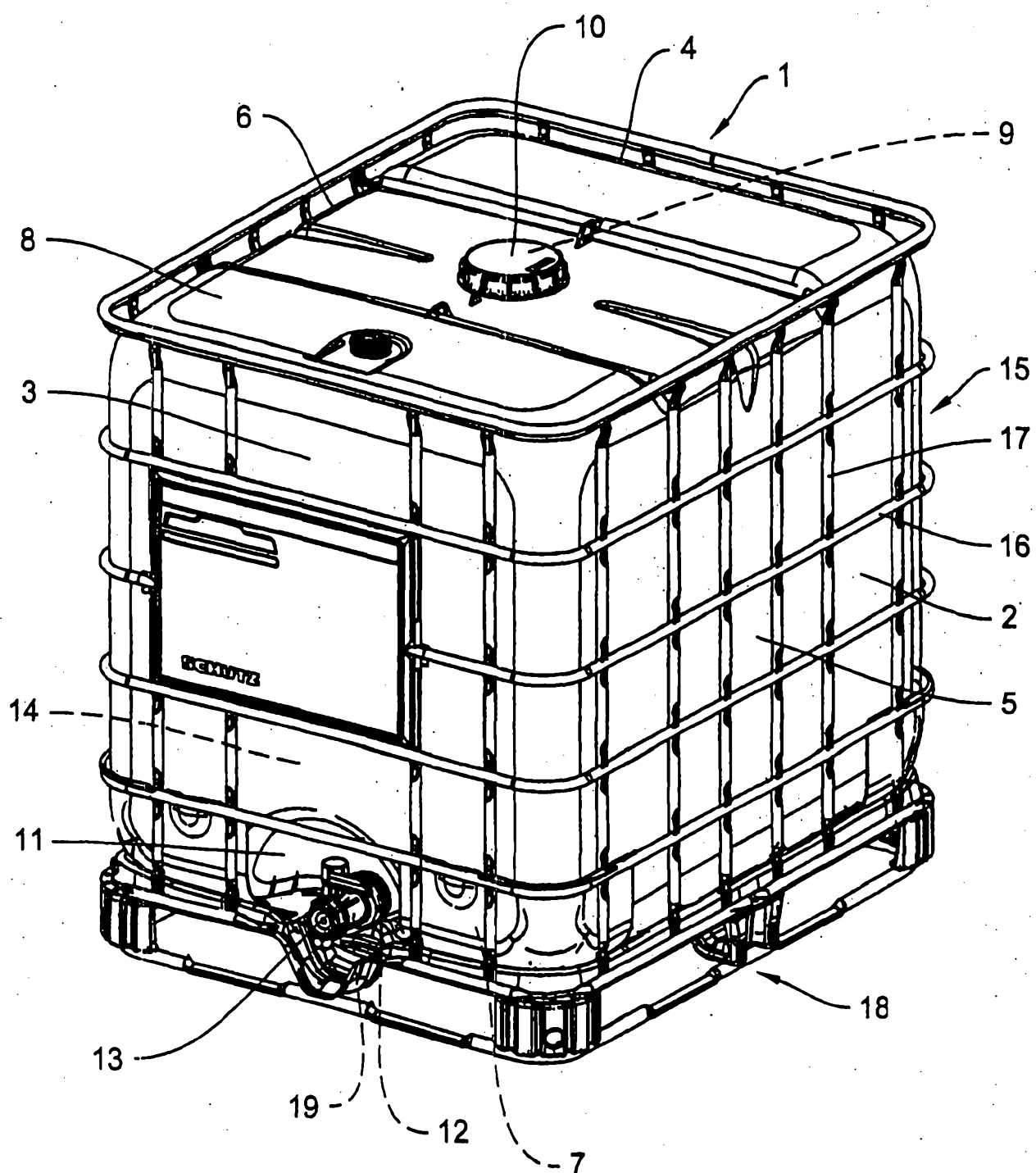
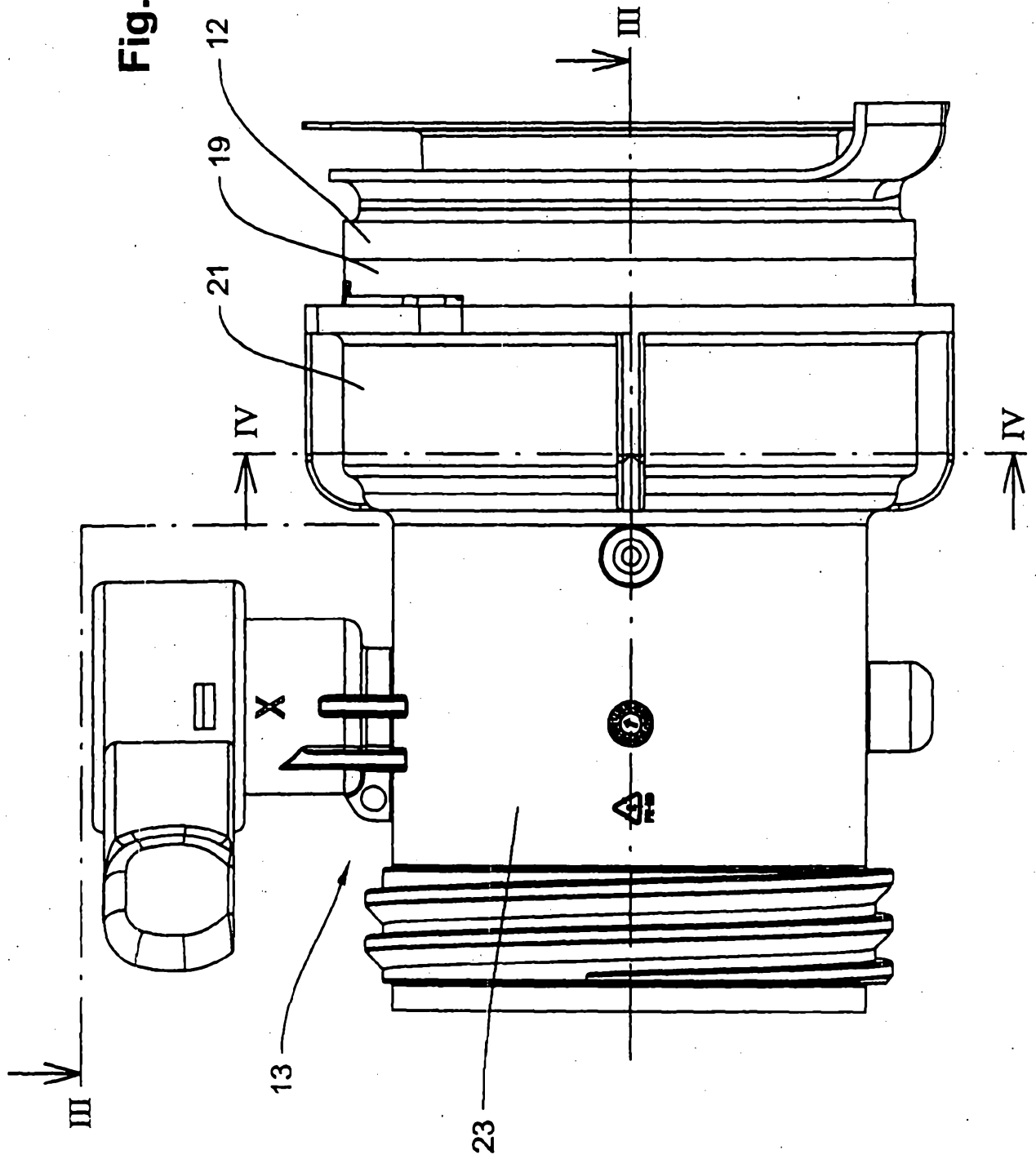


Fig. 2



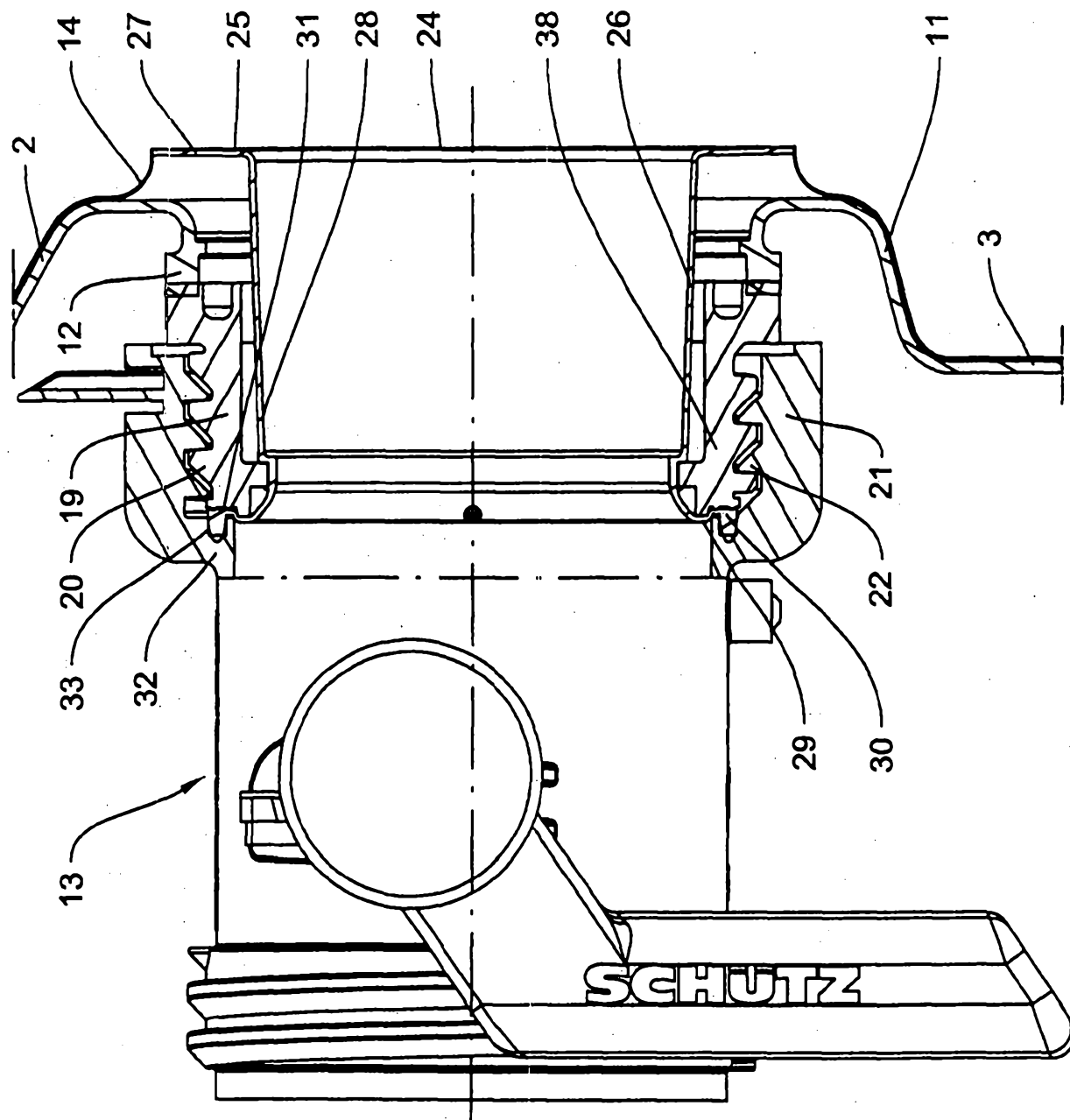


Fig. 3

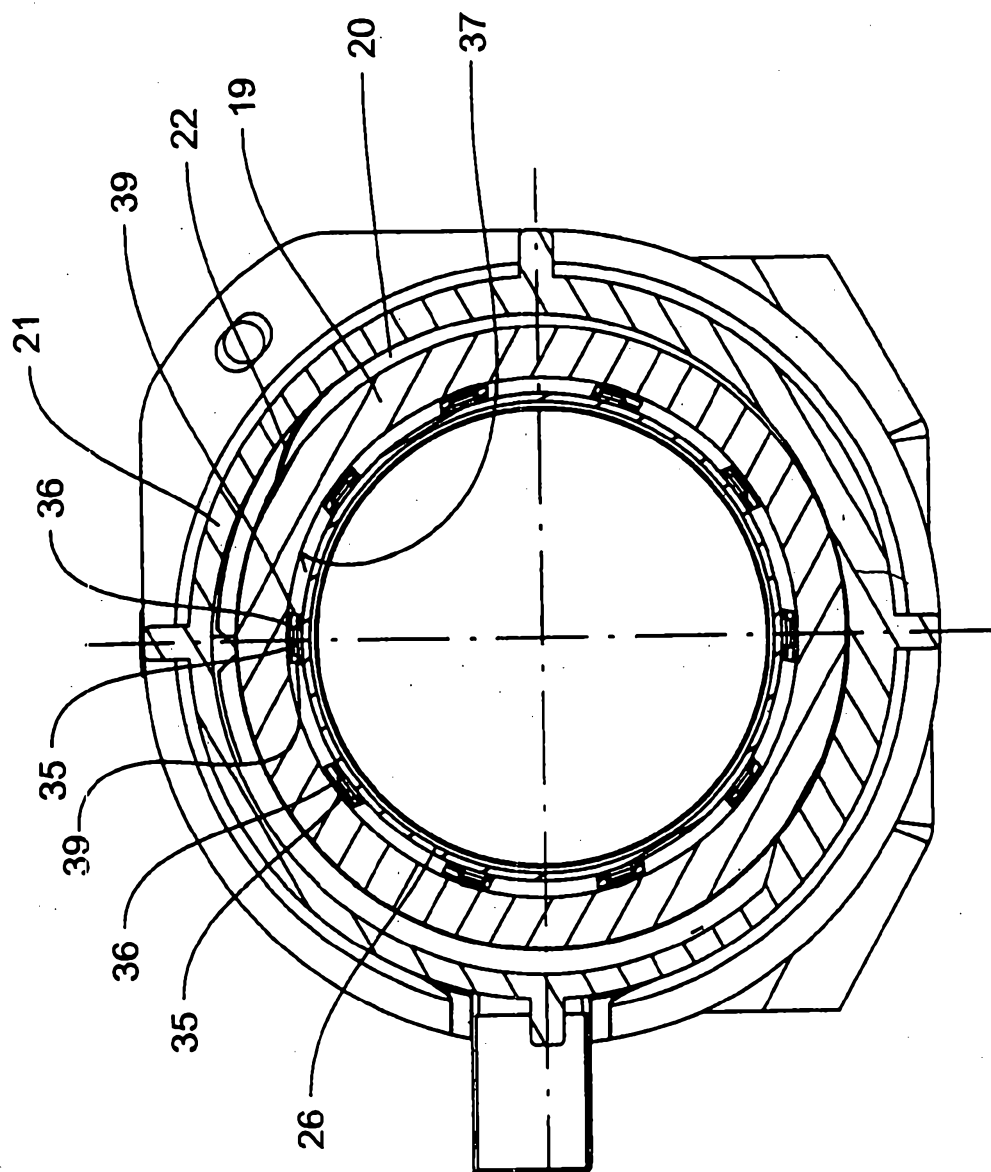


Fig. 4

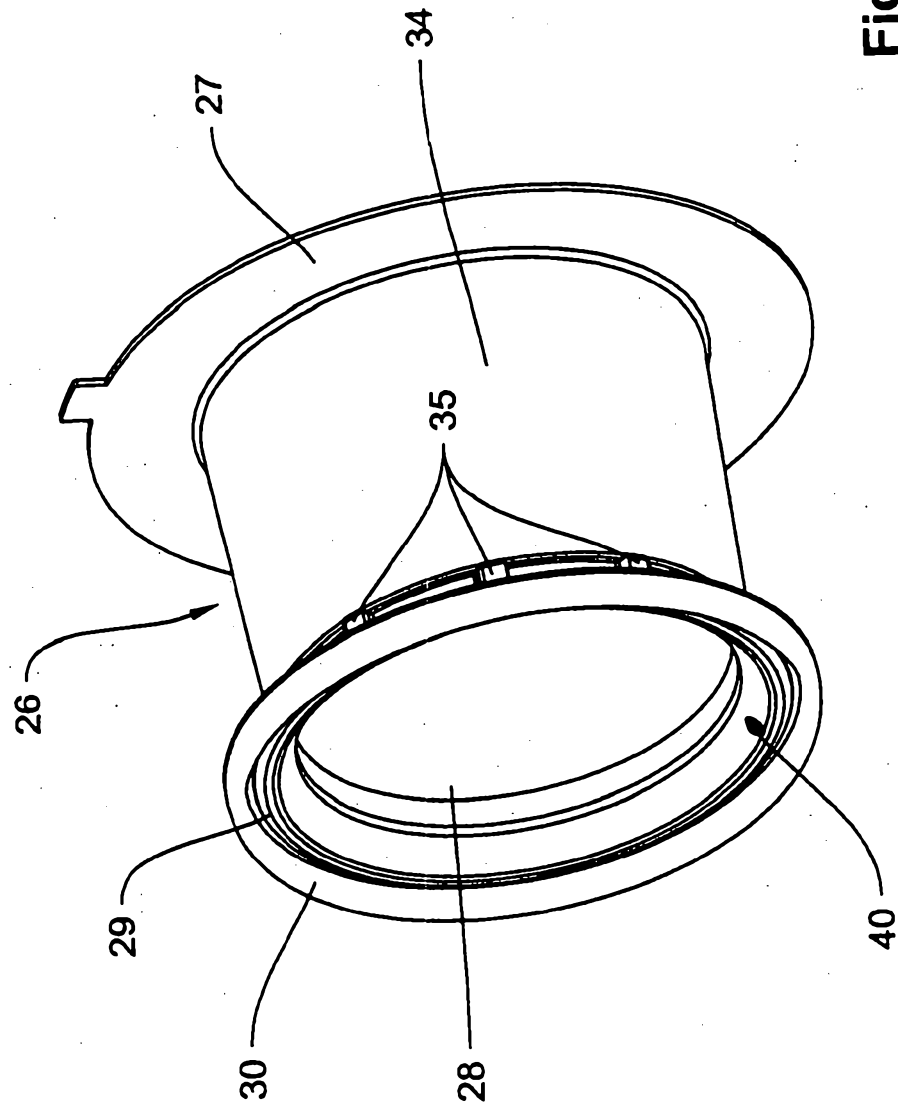


Fig. 5