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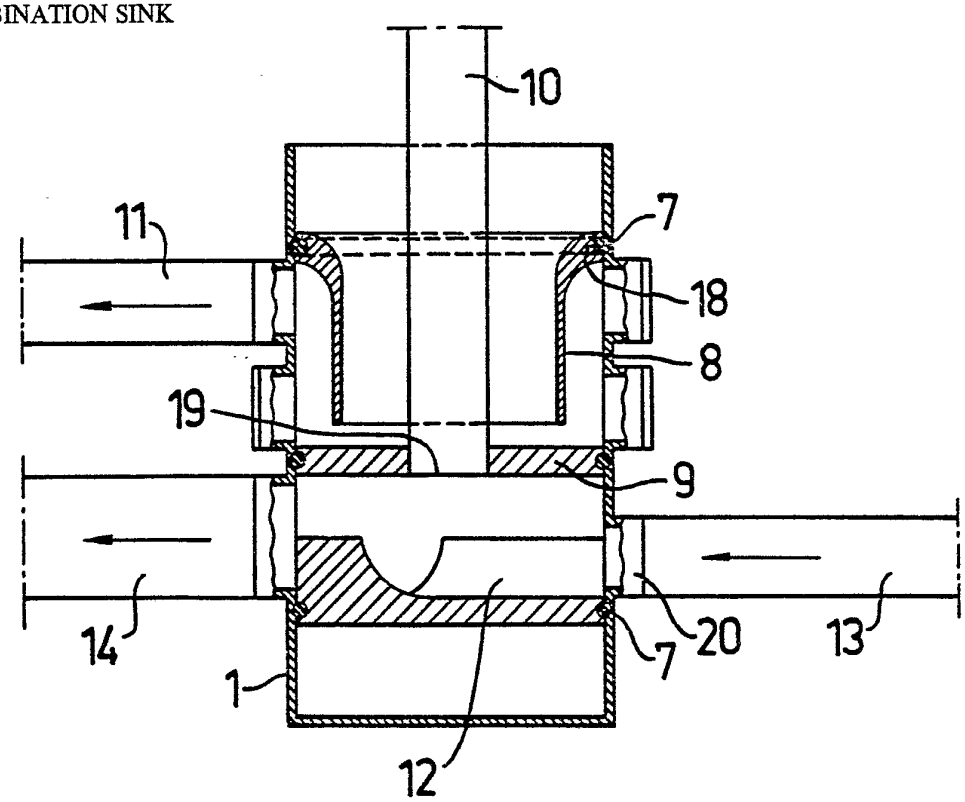
(54) Title: COMBINATION SINK



(57) Abstract

A combination sink comprising a sink shaft (1), a water seal insert (8), a sewage basin insert (12) and a partition wall insert (9) with purification conduit connection (10), which inserts can be inserted on different levels in the sink shaft (1) between possible connections (12) therein and be sealingly fixed on these levels (6).

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Combination sink

This invention relates to a combination sink, which comprises a sink shaft with different connection possibilities and different inserts to be positioned in the sink shaft.

The object of the invention is to produce a combination sink, which owing to its applicability to many purposes substantially simplifies the installation and maintenance of sewers. The invention subject matter particularly shall render possible its combination with a surface water sink with different connection levels and different sizes of the grit chamber. The sink also shall permit its use as infiltration sink and as a cleaning sink for a main sewer.

This object is achieved by a sink of the kind referred to above, in that the sink shaft includes connections on different levels, between which sealing and holding means for the different inserts are provided. The said sealing and holding means may be grooves extending all about in the sink shaft wall for receiving an O-ring snapping into the corresponding groove in the respective insert.

The inserts intended to be placed in the sink shaft preferably comprise a water seal insert, which consists of a cylinder with a diameter smaller than that of the sink shaft, and of a flange, which projects from the upper end of the cylindric portion and at the periphery of which a groove extending all about is provided to receive a fixed O-ring. A further suitable insert portion is a sewage basin insert so adapted relative to the grooves, in which it can be fixed, that a fully smooth transition between the connections and the basis is obtained. A further insert consists of a tight-fitting cover with a central hole for the connection of a pipe constituting a screening opening, for example for a main sewer.

It is also imaginable within the scope of the invention, that the different levels for fixing the aforesaid inserts consist of joints between different parts in a sink shaft. The fixing of the inserts on their respective levels can hereby be simplified substantially, in that the inserts are held in place by a ring or a disc positioned between the sink portions in such a manner, that their locking and sealing relative to each other is not affected. This can be brought about, for example, by means of a recess made in the joint proper in both sink shaft portions and extending all about the same, but also a toothed joint edge for one of the sink shaft portions can be imagined, between which teeth corresponding teeth in the disc or ring can engage.

Suitable embodiments and certain applications thereof are described in greater detail in the following, with reference to the accompanying drawings, in which

Fig. 1	is a cross-section through the sink shaft proper according to the invention,
Fig. 2	shows a combination variant of the sink according to the invention,
Fig. 3	shows a further combination variant,
Fig. 4	shows a further combination possibility,
Fig. 5,6 and 7	are views of a combination sink insert seen from above and, respectively, from the side and by way of a section,
Fig. 8	is a detail view of the fixing,
Fig. 9	is an exploded view of a water trap in accordance with the invention showing the different parts of the water trap, and
Fig. 10	shows the inter locking of the parts shown in fig. 9, somewhat enlarged.

The sink shaft for the combination sink, as appears from Fig. 1 has several connection possibilities on different levels, in different directions and possibly also with different dimensions. The recesses 2 in the wall 1 of the sink shaft preferably can be closed on the inside by a thin membrane 3, which is

manufactured in one piece with the sink shaft wall and, when the connection is to be put into use, is broken or cut off as shown to the left in Fig. 1. In order to facilitate this operation, the membrane possibly is provided with one or more fracture indications in the form of grooves 5. The sink shaft further includes grooves 6 made in and extending all about the walls between the different connection levels. Upwardly the sink is prepared to be connected, for example, to a sink shaft of the kind disclosed in Swedish patent application 7712565-6. It is, however, also imaginable that the sink shaft upwardly is extended by a sink shaft according to the invention without bottom.

In Fig. 2 is shown by way of a section how a water seal insert 8 has been fixed by means of an O-ring 7 in the uppermost groove 6 extending all about the sink shaft, which seal consists of a central cylindric portion, from which at its upper end a flange projects radially outward, and in which flange an outward directed groove 18 is provided for receiving an O-ring 7. This water seal insert terminates immediately above a plate 9, which is located beneath the water seal portion and provided on its outside with a groove for receiving an O-ring 7 at the sealing end of the plate in a corresponding groove 6 in the sink shaft 1. Beneath the lower edge of the water seal insert a connection has been opened as an outlet, to which an outlet conduit 11 is connected. The shaft 1, water seal insert 8, plate 9 and surface water conduit outlet form a water seal with a grit chamber. When desired, of course, the sink can also be connected to infiltration conduits for bringing about a so-called dealer or receiver.

Below the plate 9, farthest down in the sink shaft 1, a sewage basin insert 12 has been attached by means of an O-ring 7, to which basin an ingoing 13 and an outgoing 14 sewage conduit, for example from a villa, are connected. It is, of course, also imaginable within the scope of the invention to connect additional sewage conduits to the sink shaft and the sewage basin insert located therein, which insert may have the form shown in Figs. 5-7 for the connection of a further sewage cond-

uit to a common conduit.

As also is apparent from Fig. 2, a pipe 10 is provided in the centre of the aforementioned plate 9, which downwardly terminates the water seal, and extends upward from the plate and opens in the lower surface of the plate 9. Said pipe can extend upward to close to the ground level within the sink shaft where the pipe is closed by a cover. It is hereby possible to clean the sewage conduits collected beneath the surface water sink proper simply by lifting first the lock of the surface water sink and then that of the pipe. At this combination variant, thus, a surface water sink is combined with a purification sink for the normal sewage, and it further includes the possibility of connecting infiltration conduits. It should also be observed, that the sink due to its design easily can be modified, when for example several outlets are to be connected to the same mains, which can be carried out without appreciable interference or material destruction.

In Fig. 3 is shown how the sink shaft according to the invention can be used as a sink for service valve or water meter, which are indicated schematically and designated by 15 and, respectively, 16, at the same time as the sink below or above can be given some of the functions described with reference to Fig. 2. In the same way also fire doors, for example with gutter sewer can be imagined.

In Fig. 4 is shown how, for example, a sewage basin insert 17 can be positioned higher up in the sink shaft 1, when it is desired because of settings or for other reasons to displace the level for the sewage conduits and their connections. It is well imaginable within the scope of the invention, also in this case to attach upwardly on the sink an additional sink shaft, which different from the sink shaft shown in Fig. 1 has no bottom.

It can also be imagined within the scope of the invention to collect sewers by means of sewage basin inserts on several different levels.

In Fig. 8 is shown in detail by way of a cross-section how the inserts in the sink shaft are locked and, respectively, sealed.

Fig. 9 is an exploded view of a sink according to the invention, which comprises an upper sink portion 31 and a lower sink portion 32. Between these sink portions a disc 33 is to be placed for holding a water seal portion 34 constituting a water seal. The upper sink portion 31 is provided at its lower edge with a toothing 35, by which the upper sink portion 31 rests against a shelf 36 formed inwardly in the lower sink portion 32. In the space between the teeth the external toothing of the disc 33 can engage, whereby the position of the disc 33 is fixed. As appears in greater detail from Fig. 10, which is a section through the joint between the sink shaft portions, the sealing thereof is obtained by means of an O-ring 38 inserted between an upper edge 39 for the lower sink portion and a cantilevering 37 for the upper sink portion. Said cantilevering 37 and, respectively, edge 39 have projections directed toward each other and locking the sink portions against being separated unintentionally. In order to ensure sealing by the O-ring 38 and to prevent the portions from being compacted unpermissively much, the toothing is necessary for the case when the ring 33 for holding an insert shall not be mounted. In this case the upper portion of the sink would be pressed down additionally, which is not desirable. The manner described, however, permits the ring 33 to be mounted or not to be mounted, without having any effect whatsoever on the assemblage of the sink portions 31 and 32.

The water seal portion 34 shown uppermost, finally, can be lowered into the ring 33 while at the same time sealing against

the wall of the sink shaft by means of an O-ring 40 laid into a groove at its upper end. It is, of course, also imaginable within the scope of the invention to design the aforesaid fixing ring as a radially slotted ring, so that this ring by being compressed can be caused to disengage from the toothing, and be removed from the sink shaft in the event, that its function shall be changed without digging up the sink. Even when the ring is not slotted, there is always the possibility of simply drawing up the water seal portion for cleaning.

A great number of other application possibilities and designs of the sink according to the invention can be imagined within the scope of the invention. It is imaginable, for example, to abandon the toothing for said fixing ring 33 by forming the sink joint in a different way.

Claims

1. A combination sink, c h a r a c t e r i z e d i n that it comprises a sink shaft (1) and different inserts (18,7,12) adapted to be inserted on different levels in the sink shaft (1) for establishing different functions for the sink, that the sink shaft includes prepared conduit connections (2) between the levels for the fixing of the inserts, and that the inserts can be held in the shaft (1) sealed against the same on the different levels.

2. A sink as defined in claim 1, c h a r a c t e r i z e d i n that the inserts (8,9,12) are locked by means of grooves (6,18), which facing toward each other are located in the sink shaft (1) and, respectively, in the inserts, in which grooves an O-ring can snappingly engage for simultaneoulsy sealing and fixing the insert.

3. A sink as defined in claim 1 or 2, c h a r a c t e r i z - e d i n that the insert consists of a portion constituting a water seal, which portion consists of a central cylindric portion, from which at the upper end a flange projects radially outward which sealingly can be fixed in the sink shaft portion.

4. A sink as defined in any one of the preceding claims, c h a r a c t e r i z e d i n that an insert consists of a plane disc.

5. A sink as defined in claim 4, c h a r a c t e r i z e d i n that the disc (9) is provided with a pipe connection (19), which renders it possible to connect the space at its lower surface with a pipe (10) extending upward from the disc.

6. A sink as defined in any one of the preceding claims, c h a r a c t e r i z e d i n that an insert consists of a disc (12,17), which is formed with sewage basins and connected to the connections (2) for the sink shaft (1) located above the

mounting level.

FIG.1

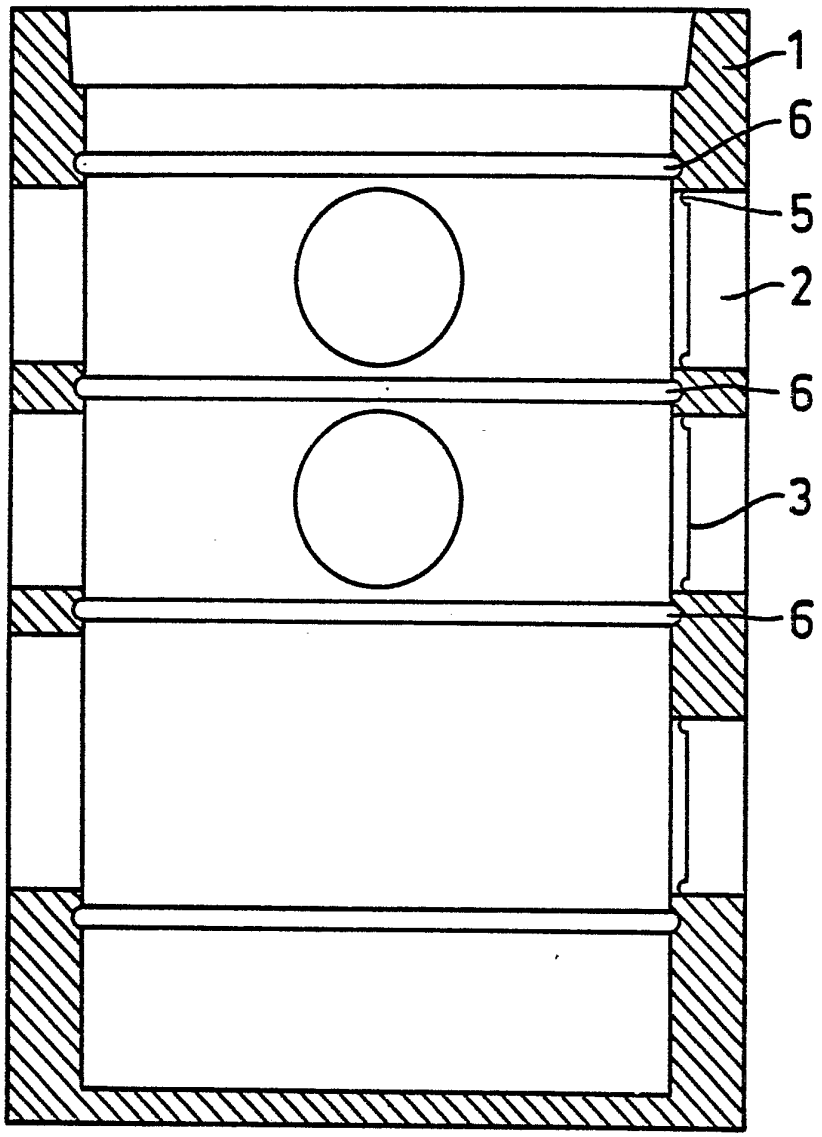


FIG. 2

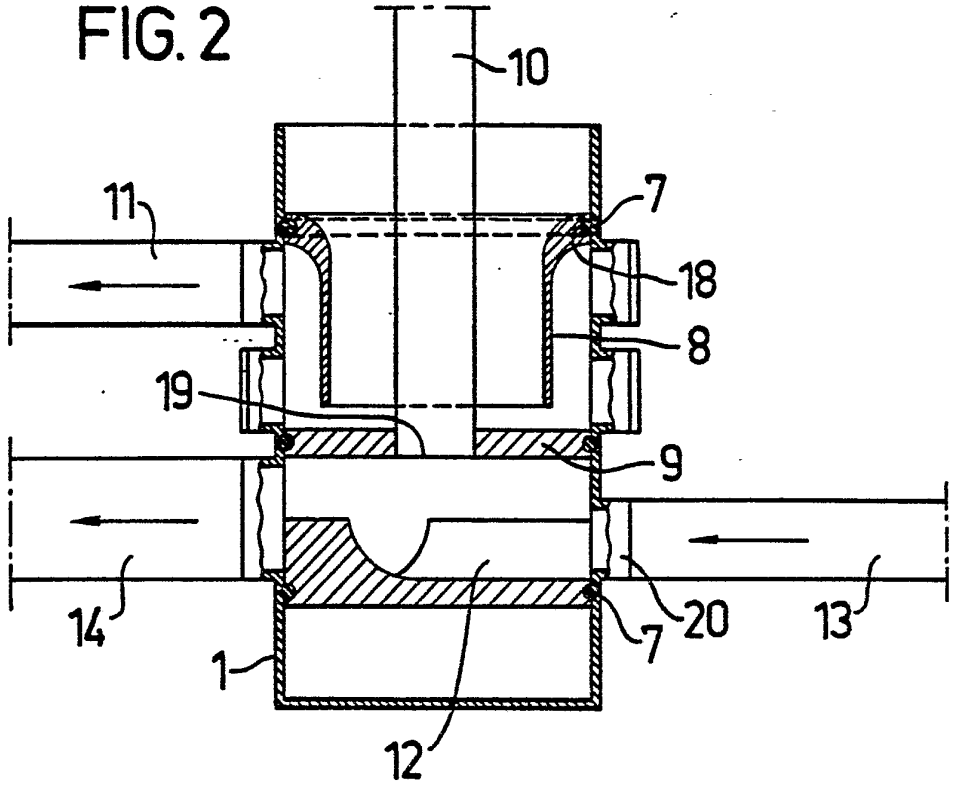


FIG.3

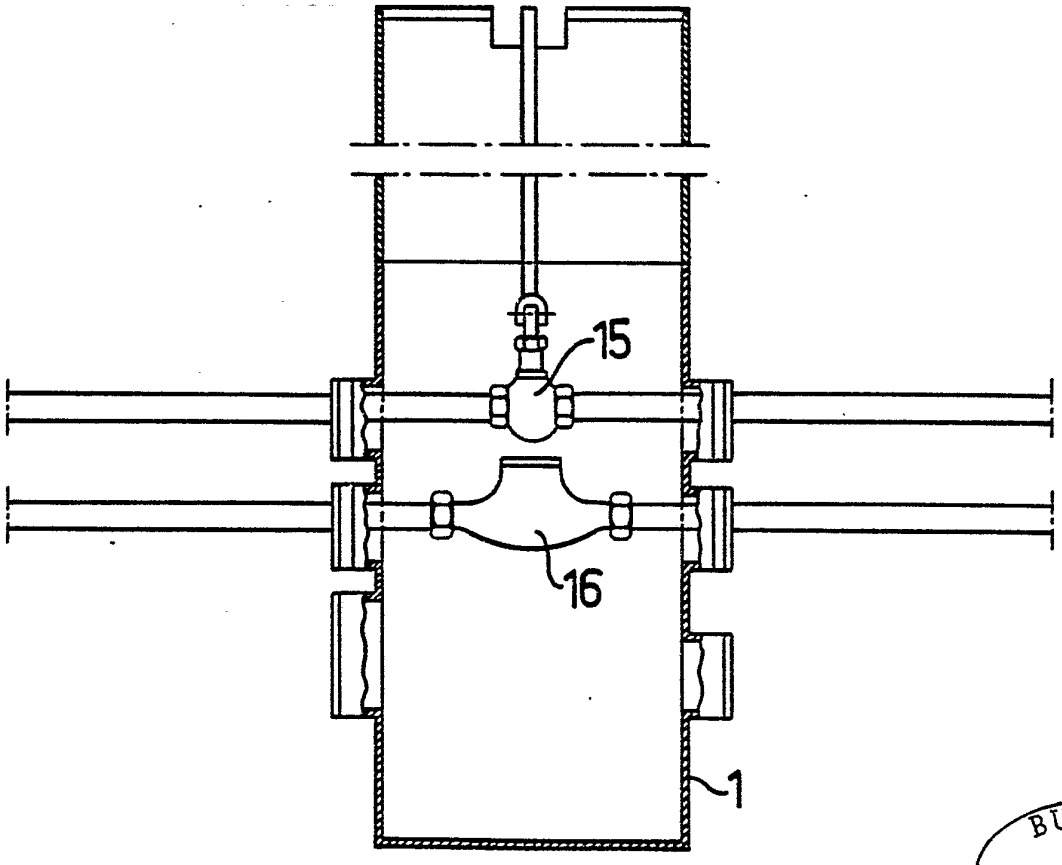


FIG.4

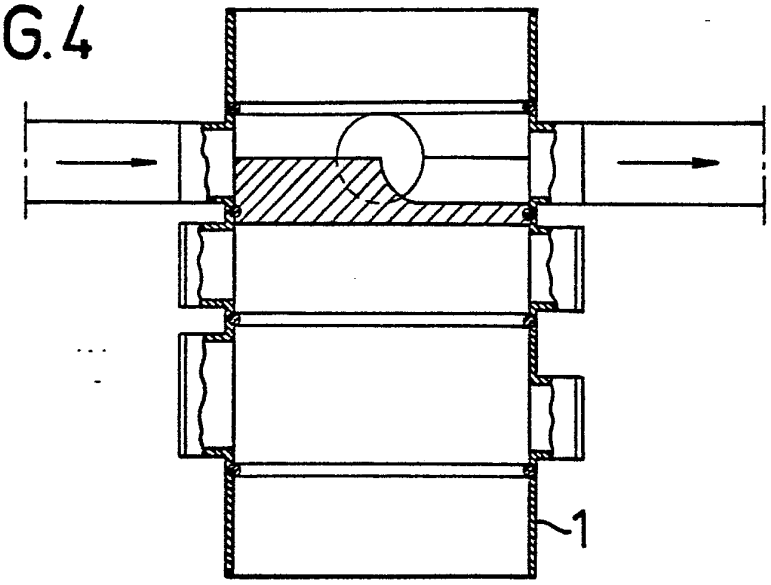


FIG.5

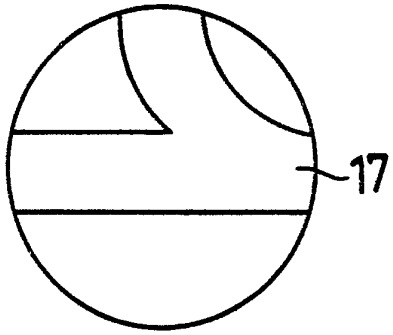


FIG.6

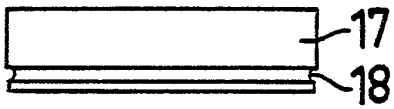


FIG.7

FIG.8

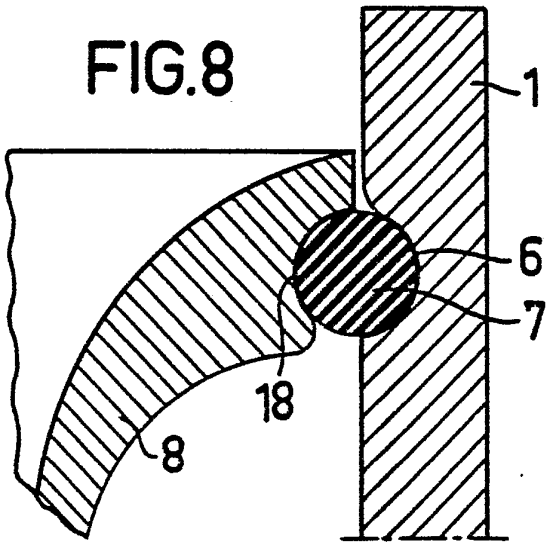


FIG.9

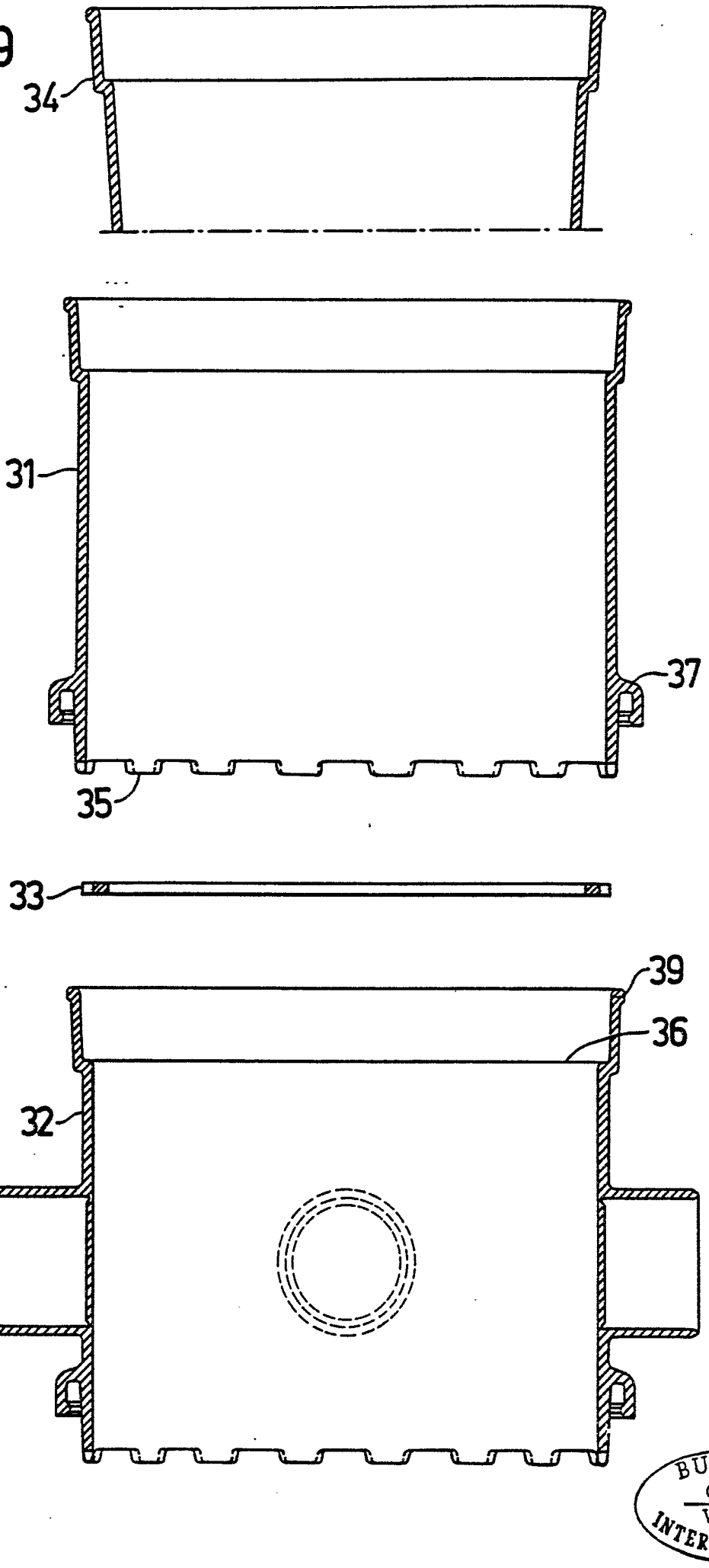
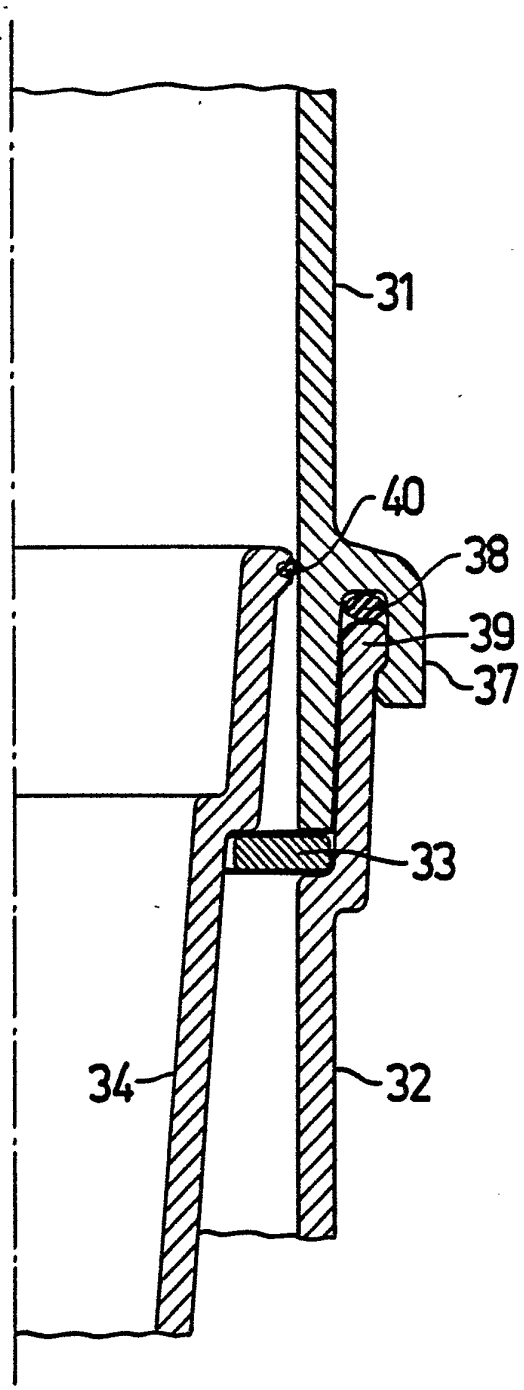


FIG. 10



INTERNATIONAL SEARCH REPORT

International Application No PCT/SE80/00036

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) [3]

According to International Patent Classification (IPC) or to both National Classification and IPC 3

E 03 F 5/02

II. FIELDS SEARCHED

Minimum Documentation Searched [4]

Classification System	Classification Symbols
IPC 3	E 03 F 5/00 - 5/26
US Cl	210:163-167

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched [5]

SE, NO, DK, FI classes as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT [14]

Category *	Citation of Document, [16] with indication, where appropriate, of the relevant passages [17]	Relevant to Claim No. [18]
A	DE, C, 692 282 published 1940, May 16, Felix Klein in Brünn	1, 3
A	DE, A1, 2 624 706 published 1977, December 15, Bernhard Kessel	1, 2
A	DE, A1, 2 343 584 published 1974, March 14, Scarfe Peter Noel Henry, Guildford	
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IV. CERTIFICATION

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