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(54) **Multi-sink waste fitting.**

(57) The invention provides a universal multi-sink waste fitting (10) comprising a one-piece elongate unit having on its underside a common sump outlet (17) communicating with four inlets (13-16) on its top side, three (13,15,16) of which are aligned on a longitudinal axis of the unit (10) and one (14) of which is offset transversely from this axis.

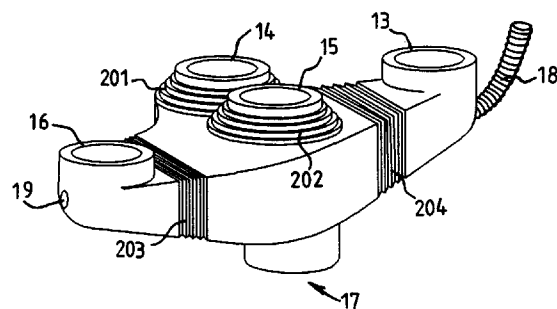


FIG. 2b

This invention relates to a multi-sink waste fitting, that is to a fitting adapted for connection to the drain outlet of each basin of a multiple sink assembly, for example standard 1.5 bowl or 2 bowl assemblies for kitchens.

It is existing practice, as illustrated for example in Figure 1 of the accompanying drawings, to connect each sink basin outlet by separate piping to a common outlet which is then plumbed to a waste outlet. This is an expensive and time consuming process. Moreover; each different type of multi-sink assembly, and each size within that type, requires a different set of pipes and joints, requiring a fitter to carry a wide range of such components and to select from that range using his judgement and experience. The purpose of the invention is to mitigate these problems and to reduce the overall fitting cost.

The invention provides a universal multi-sink waste fitting comprising a one-piece elongate unit having on its underside a common sump outlet communicating with four inlets on its top side, three of which are aligned on a longitudinal axis of the unit and one of which is offset transversely from this axis.

The unit fits beneath the multi-sink assembly with an inlet aligned with each sink drain outlet, avoiding the need for extra plumbing.

Preferably, the transversely offset inlet is adjacent the middle one of the other three inlets on the top side. Conveniently, two of the inlets are at respective ends of the top side of the unit, and preferably are equally spaced from the middle one; in this case, it is preferred that the transversely-offset inlet is rather nearer one end inlet than the other end inlet.

In order to make provision for fine adjustment of the positions of the inlets, at least one inlet, and preferably at least the middle inlet and/or the transversely-offset inlet, is annular and is mounted eccentrically for rotational adjustment about a vertical axis in a respective sealed trap of larger diameter in the top side of the unit, so that the precise horizontal position of its centre is correspondingly adjustable.

The elongate unit preferably has a floor which slopes downwardly towards the common sump, which conveniently is positioned in a central portion of the unit. The unit is preferably broader in the middle than at each end, to accommodate the transversely-offset inlet; preferably, the inlets lie in a common horizontal plane, allowing the top side to be generally flat, but this is not essential.

A major advantage of the invention, other than its universal usage for multiple sink combinations, is its ease of manufacture, preferably from plastics material. The one-piece unit may be formed integrally as a blow moulding, or it may be moulded or cast in two halves, for example. Although in some cases all four inlets would be used, it is usual to use only two or three, corresponding to the number of sinks. Thus a plug or plugs would normally be provided for the inlet

or inlets which are to be blanked off. The waste fitting could be provided with such plugs and other fittings such as seals as a kit of parts, with instructions on which combination of inlets to use for each type of multi-sink assembly likely to be encountered.

An example of the invention will now be described and compared with existing fittings, with reference to the accompanying diagrammatic drawings, in which:-

Figure 1 is an exploded side view of the waste fitting for a standard 1.5 bowl assembly;

Figure 2a is a top plan view of a first universal multi-sink waste fitting embodying the present invention;

Figure 2b is a perspective view of the waste fitting of Figure 2a;

Figure 3a is an axial section through an eccentrically rotatable inlet with its corresponding trap in the top side of the waste fitting of Figures 2a and 2b;

Figure 3b is a top plan view of the inlet of Figure 3a;

Figures 4a to 4h illustrate the universal applicability of the multi-sink waste fitting of Figures 2a and 2b, in the form of plan views and corresponding elevations of several different multi-sink assemblies;

Figure 5 is a top plan view, corresponding to Figure 2a of a second embodiment of the invention;

Figure 6 is a side view of the waste fitting of Figure 5, showing the outlet in section;

Figure 7 is a side elevation corresponding to Figure 6 and;

Figure 8 is a section taken along the line A-A of Figure 5, drawn to an enlarged scale, and omitting parts of the outlet shown in figures 6 and 7.

As described above with reference to Figure 1, a standard 1.5 bowl kitchen sink assembly consists of one large bowl and one small bowl, and in the example shown in Figure 1 there is also a waste disposal unit which effectively forms part of the multi-sink assembly. The three drain outlets are plumbed using conventional plastics piping and joints to unite at an outlet. This arrangement is shown schematically in plan view in Figure 4a, in which the conventional piping and joints have been replaced by a one-piece waste unit, which will now be described with reference to Figures 2a and 2b.

The universal multi-sink waste fitting 10 is an elongate unitary plastics moulding with a transverse projection 11 from a major elongate portion 12 defining a longitudinal axis. The unit 10 is hollow and watertight, with a flat upper side 20 on which are provided four inlets 13,14,15,16. Side walls of the unit 10 communicate with a part-conical shaped floor which slopes downwardly to a centrally-disposed sump outlet 17. Auxiliary connections 18 and 19 are provided at respective ends of the unit 10, as shown in Figure

2b, for example for connection to a washing machine or dishwasher.

End inlets 13 and 16 and an intermediate middle inlet 15 are aligned along the longitudinal axis, and in this example they are equally spaced from each other: the spacing of inlets 13 and 15 is l_3 , the spacing of inlets 15 and 16 is l_2 , and $l_2 = l_3$. A fourth inlet 14 is offset transversely from the longitudinal axis, and is disposed rather nearer to one end inlet 13 than to the other end inlet 16. The spacing of the offset inlet 14 from the furthest other inlet 16 is l_4 , which is different from l_2 (and l_3), and is also different from the spacing between the end inlets 13 and 16, which is l_1 . It is this variety of separations of the four inlets, together with the geometric arrangement, which provides for the universality of its fitting to the waste outlets of multi-sink assemblies, as illustrated in Figures 4a to 4h, and described in greater detail below.

The waste unit 10 is intended to be placed directly below a multi-sink assembly, so that each waste outlet of the multi-sink assembly is aligned precisely in the vertical direction with a corresponding inlet 13, 14, 15 or 16. With this vertical alignment, no pipework is required, simply an appropriate seal.

In the example shown in Figures 2a and 2b, the inlets all lie in a common horizontal plane, although inlets 14 and 15 have a bellows arrangement 201, 202 respectively, which accommodates a range of heights for the inlets. An alternative, advantageous arrangement (not shown) is one in which the end inlets 13 and 16 are also provided with bellows.

In order to provide a fine adjustment of the horizontal separation l_1 , l_2 , l_3 and/or l_4 between the various inlets, the two innermost inlets 14 and 15 are arranged as shown in greater detail in Figures 3a and 3b. An inlet 24 sits rotatably in a circular trap opening 21 formed in a raised circular portion of the top side 20 of the waste unit 10. A toroidal seal 22 allows for this rotational movement of the inlet 24 while ensuring a watertight seal. An annular extension 25 of smaller diameter is mounted eccentrically over the inlet 24, and is adapted for fitting to the sink waste outlet. By rotating the inlet 24, the axis of the extension piece 25 moves in a circular locus with a radius 23 defining the eccentric offset. In this way, the effective axis of the inlet 14 or 15 is adjustable in a horizontal plane.

In the example shown, the eccentric adjustment allows the separation l_2 or l_3 to be varied between 215mm and 222mm; and the separation l_4 to vary between 278mm and 279mm. Also in this example the inlets 14 and 15, defined by the upper annular surface of the extension piece 25, lie about 55mm above the flat top side 20 of the waste unit 10.

If it is preferred that the main body of the waste unit 10 should be rigid, but adjustability of the distances l_1 to l_4 may alternatively be provided by bellows arrangements 203, 204 shown schematically in Figs. 2a

and 2b between the end portions and the middle portion of the elongate unit.

In the example of Figure 4a, the waste outlets of a standard 1.5 bowl assembly are joined to inlets 15 and 16 spaced by 215mm, and optionally a waste disposal unit is connected to the other end inlet 13. The elevation of Figure 4b shows the heights of the bowls to be 180mm and 125mm, and the difference in height is accommodated by the waste unit 10, optionally with an extension piece 40, but preferably by extending the bellows 202.

In the example of Figure 4b, a different 1.5 bowl assembly requires the larger spacing of 279mm between the waste outlets, and this is accommodated using the distance l_4 between inlets 14 and 16. The elevation shows the bowl heights to be 180mm and 150mm.

In the example of Figure 4c, which is a standard 2.5 bowl assembly, the end inlets 13 and 16 are connected directly to the waste outlets of the main bowls (180mm high) and the centrally disposed inlet 15 is connected to the intermediate half bowl waste outlet, which is only 125mm below the work surface level. The separations involved here are each 215mm, i.e. l_2 and l_3 are both 215mm.

In Figure 4d, the arrangement is the same as in Figure 4c, except that the multi-sink unit is longer.

In Figure 4e, the waste unit can be fitted in any way, since only one outlet from the basin is connected.

In Figure 4f, the waste fitting 10 is used to accommodate a larger distance between outlets, by exploiting the separation l_4 between the offset inlet 14 and the further of the two end inlets 16, adjusted by the eccentric mounting of the inlet 14 so that $l_4 = 278$ mm.

The examples shown in Figures 4g and 4h are of circular multi-sink units, and separations between waste outlets of 222mm and 434mm respectively are accommodated by the separations l_2 between inlets 15 and 16 and l_1 between the end inlets 13 and 16 respectively.

A second embodiment of the invention is shown in Figures 5 to 8, in which the primed reference numerals denote parts corresponding to those of the first embodiment denoted by the same numerals. Only the important differences will be described: the waste fitting is made and is used in much the same way.

As shown in Figures 5 and 8, the end inlets 13', 16' and the offset inlet 14' are identical, each defining a circular opening and receiving therein an inlet unit 141 (Figure 8) having a triple-limbed trap for large solids. As with the arrangement described with reference to Figures 3a and 3b, the horizontal position of the inlet unit is capable of fine adjustment by rotating it about an 'O'-ring seal 143 in the circular trap opening 142, by virtue of the eccentricity of the inlet unit 141 relative to the axis of the opening 142. The outlet

tube 171 of the integrally-moulded waste unit 20 is moulded with annular formations 176 (Figure 8) adapted to receive and sealingly retain a bottle trap waste outlet unit 17', shown in Figures 6 and 7, using an 'O' ring seal 174 held between the two lowest annular formations 176. The outlet unit 17' has an upper moulding 175 including a side outlet 173, and is a resilient push snap fit over the outlet tube 171. A removable cup-shaped base unit 172 is a screw fit on to the upper moulding 175.

preceding claim, plugs for closing the inlets, and instructions on which combination of inlets to use for each type of multi-sink assembly likely to be encountered.

Claims

1. A universal multi-sink waste fitting comprising a one-piece elongate unit having on its underside a common sump outlet communicating with four inlets on its top side, three of which are aligned on a longitudinal axis of the unit and one of which is offset transversely from this axis.
2. A fitting according to claim 1, in which the transversely offset inlet is adjacent the middle one of the other three inlets on the top side.
3. A fitting according to claim 2, in which two of the inlets are at respective ends of the top side of the unit.
4. A fitting according to claim 3, in which the said end inlets are equally spaced from the middle one.
5. A fitting according to claim 4, in which the transversely-offset inlet is rather nearer one end inlet than the other end inlet.
6. A fitting according to any of claims 1 to 5, in which at least one inlet is annular and is mounted eccentrically for rotational adjustment about a vertical axis in respective sealed traps of larger diameter in the top side of the unit, so that the precise horizontal position of its centre is correspondingly adjustable.
7. A fitting according to any of claims 1 to 6, in which the elongate unit has a floor which slopes downwardly towards the common sump.
8. A fitting according to any of claims 1 to 7, in which the inlets lie in a common horizontal plane, allowing the top side to be generally flat.
9. A fitting according to any of claims 1 to 8, in which at least one of the inlets has a bellows arrangement for vertical adjustability.
10. A kit of parts comprising a fitting according to any

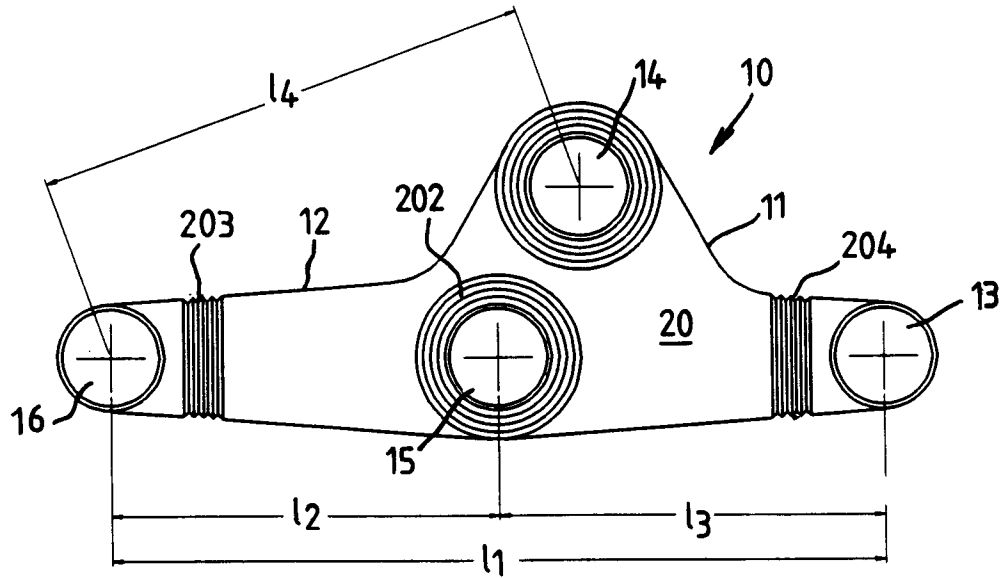


FIG. 2a

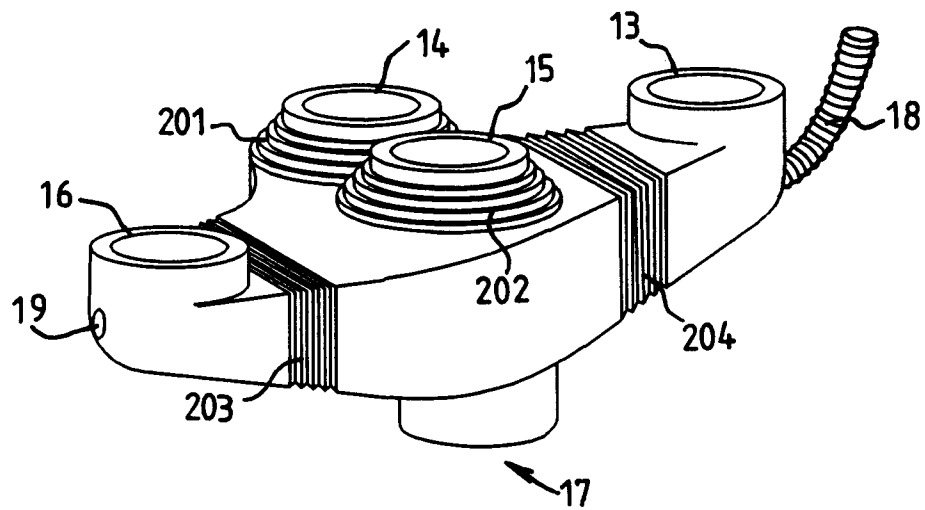
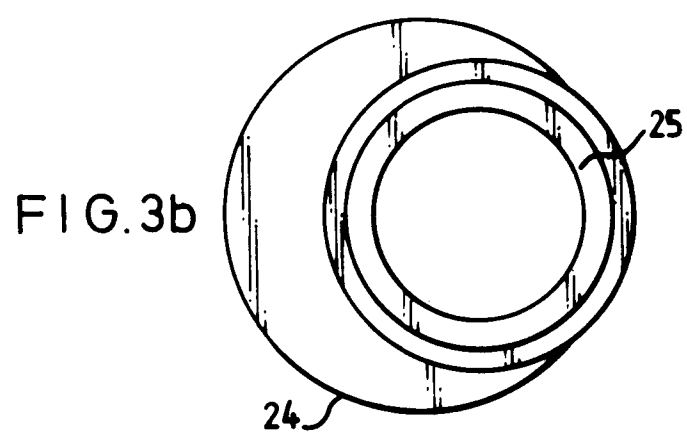
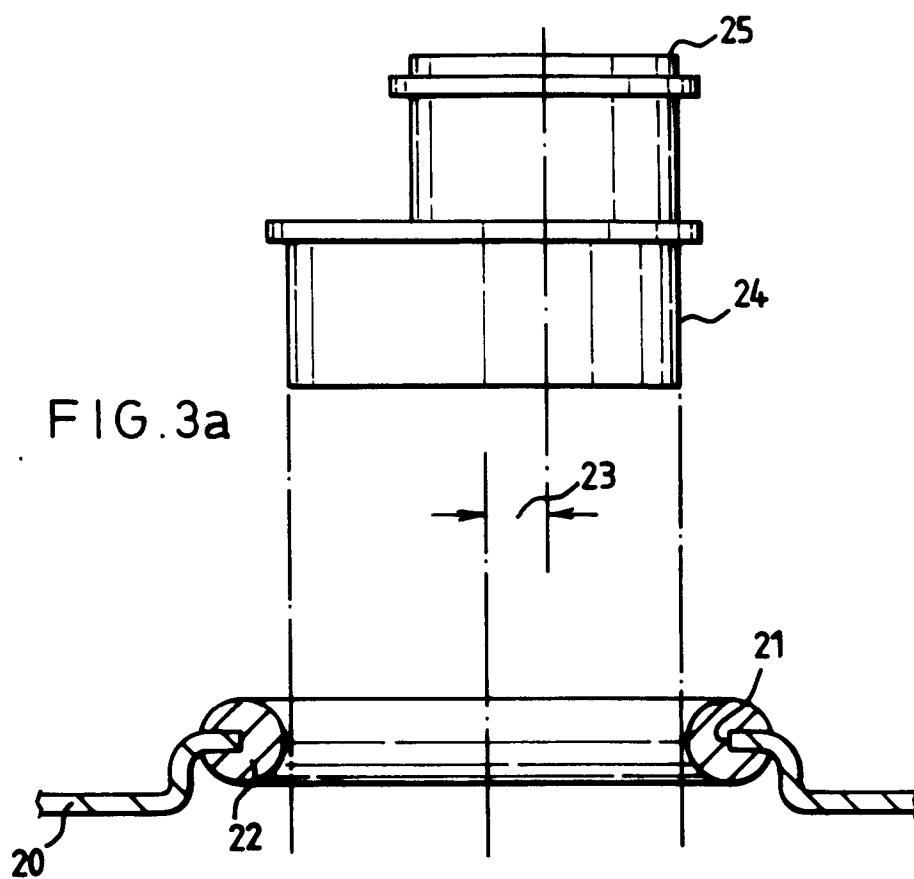


FIG. 2b



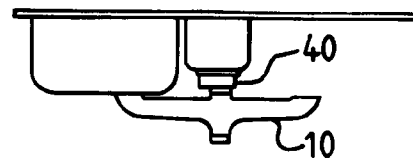
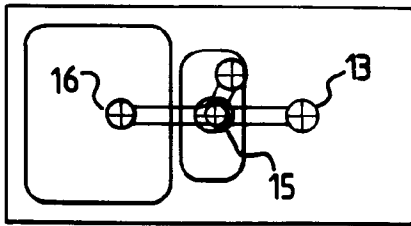


FIG. 4a

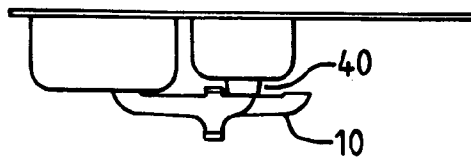
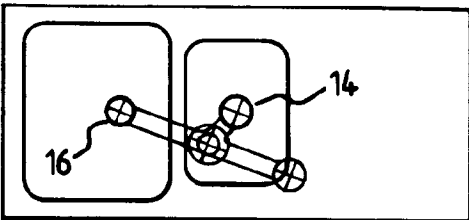


FIG. 4b

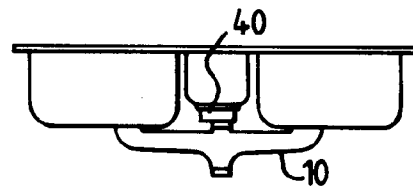
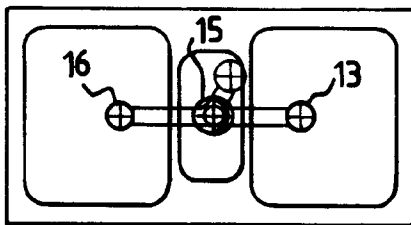


FIG. 4c

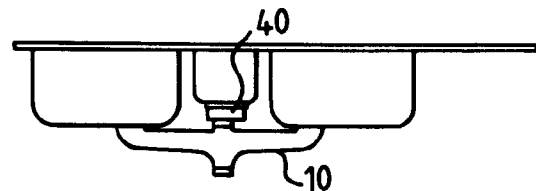
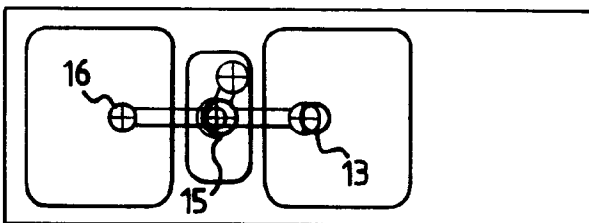


FIG. 4d

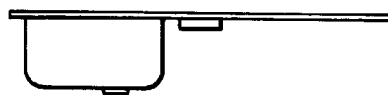
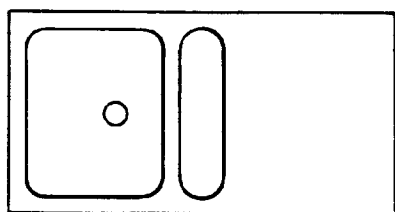


FIG. 4e

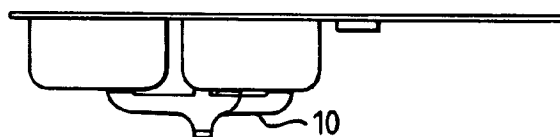
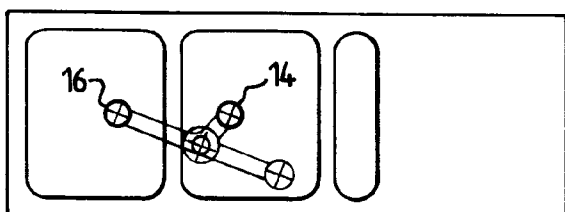


FIG. 4f

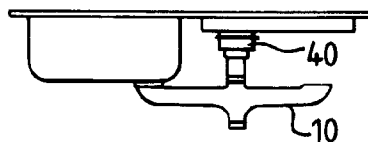
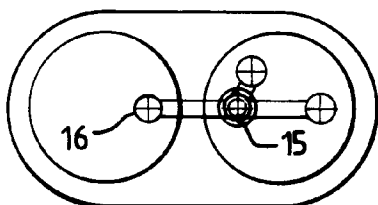


FIG. 4g

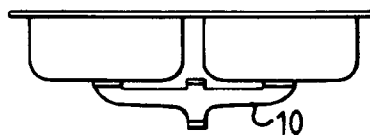
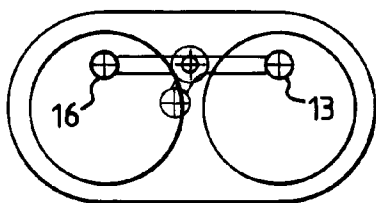
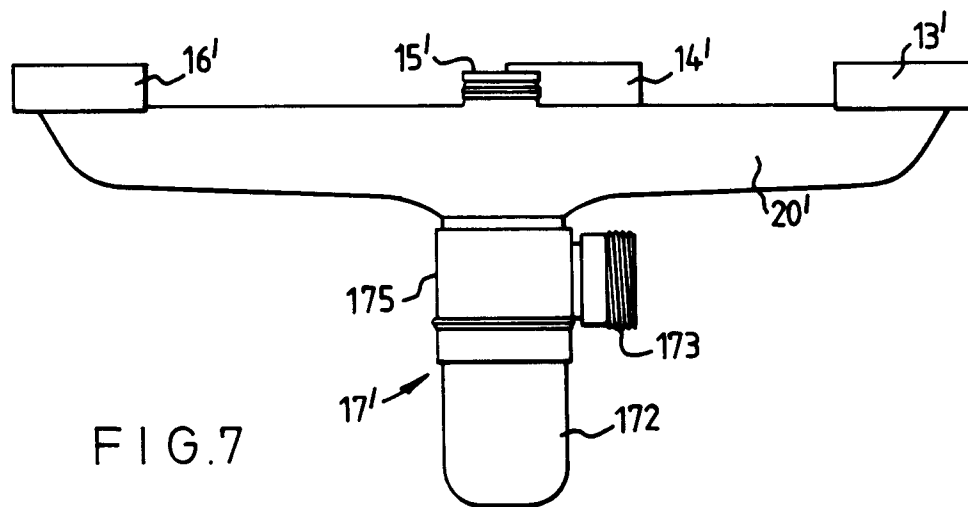
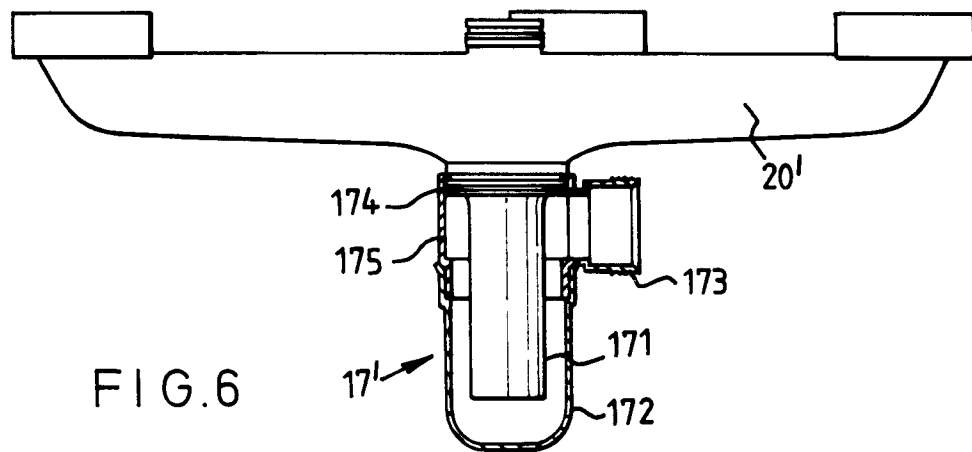
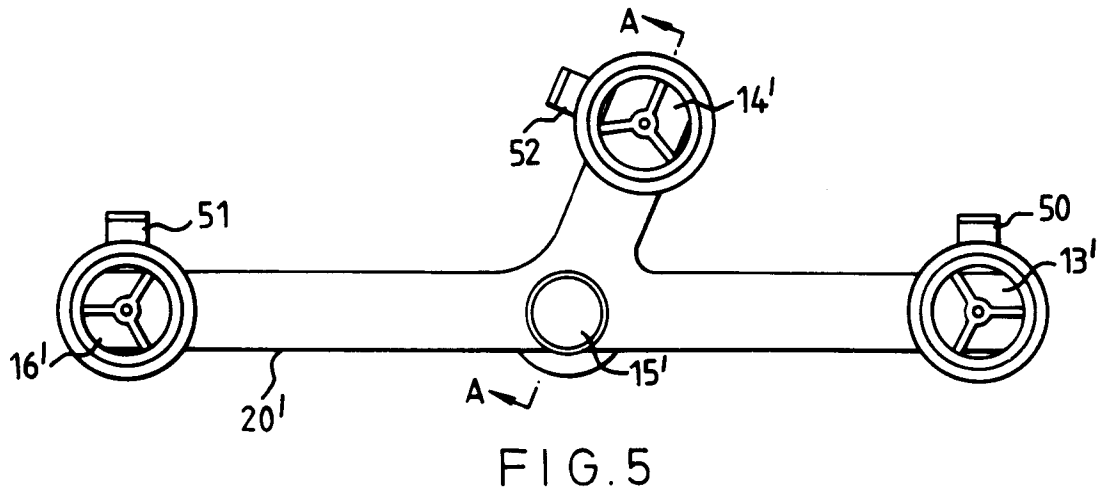
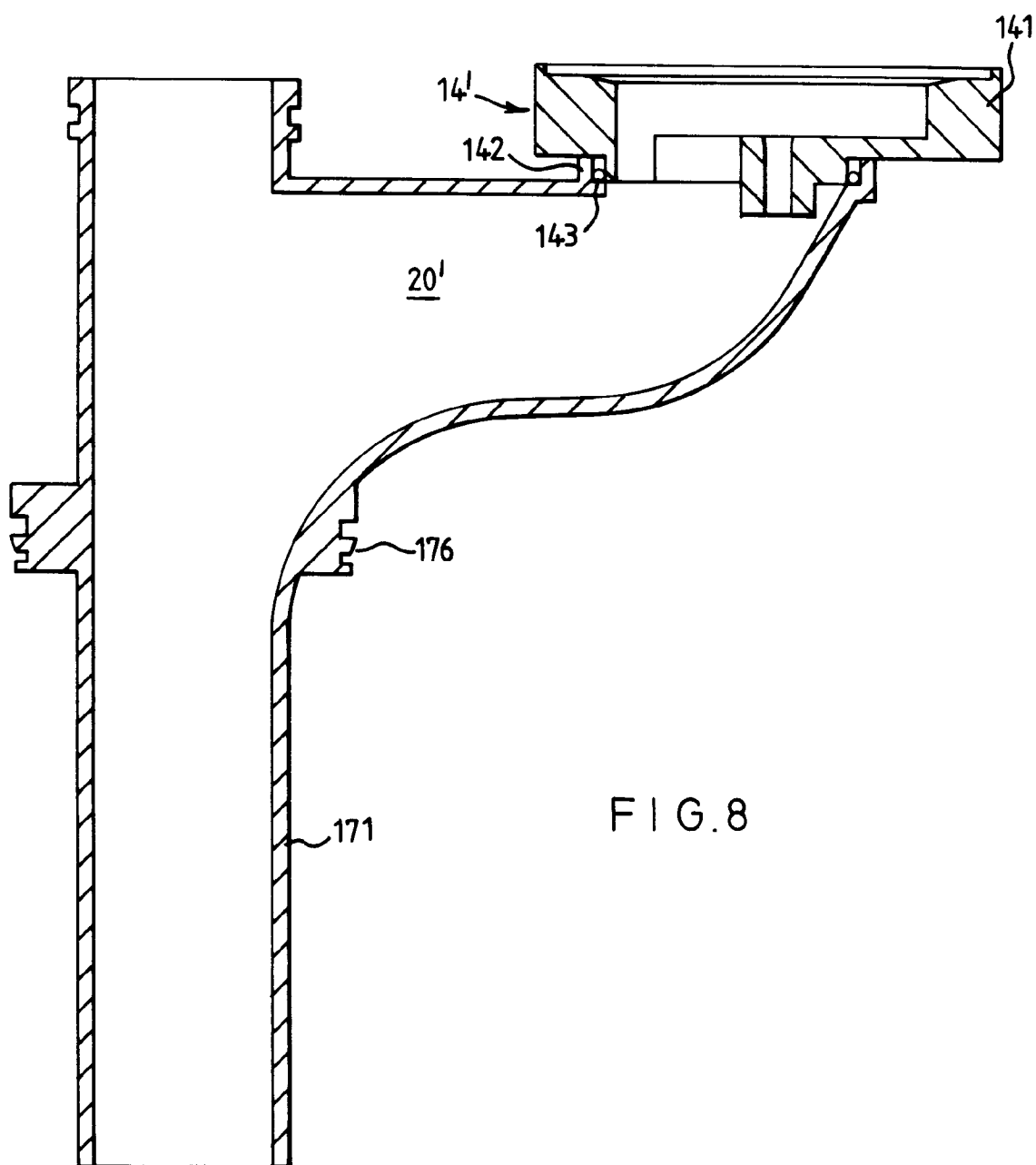


FIG. 4h







European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 92 30 8255

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	LU-A-41 679 (COMP.FRANC.THOMSON-HOUSTON) * the whole document * ---	1,7	E03C1/20
A	GB-A-1 220 876 (LEGG) * the whole document * ---	1,7	
A	DE-A-3 911 499 (SCHEFFER) * abstract; figures 1,2 * ---	1	
A	EP-A-0 146 942 (OY UPONOR) * abstract; figures * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			E03C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 02 DECEMBER 1992	Examiner DIJKSTRA G.
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			

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