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SODO

(54) **MULTIPLE DRAINING SYSTEM FOR SINKS OR BASINS**

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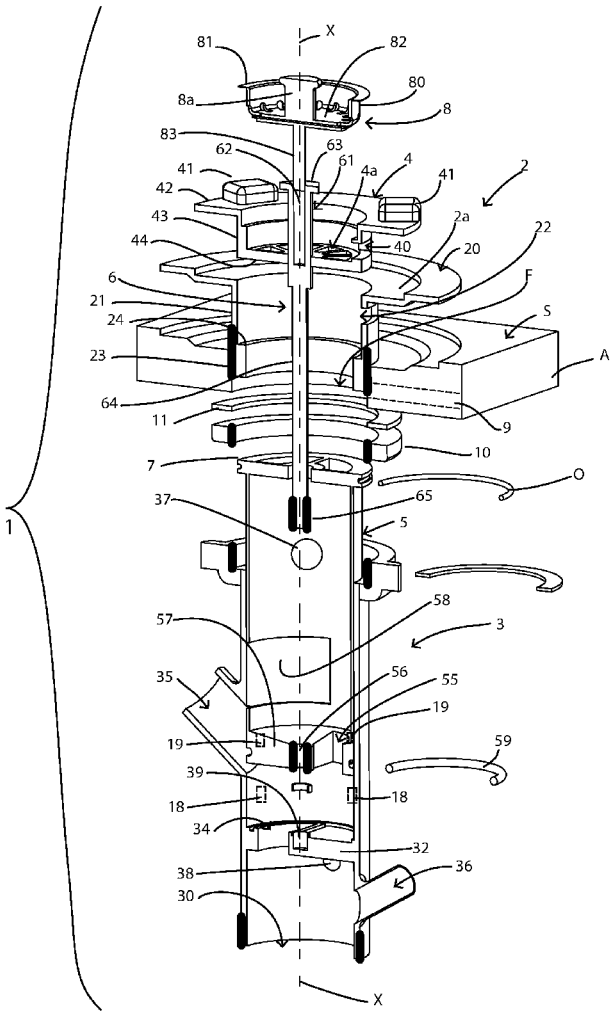
CPC ***E03B 1/042*** (2013.01); *E03B 2001/045* (2013.01); ***E03B 1/044*** (2013.01); ***E03C 1/2306*** (2013.01)

(57) **ABSTRACT**

A multiple draining system for sinks or wash-basins mainly for domestic use. In particular, a draining system provided with a simple and reliable construction which allows to recover wastewater from sinks or basins when it is desired to use it for further processing or other direct uses. The system includes means for diverting wastewater flow alternatively to a sewage system and to a recovery system, by including a control positioned above the level of the bottom of the basin for collecting water.



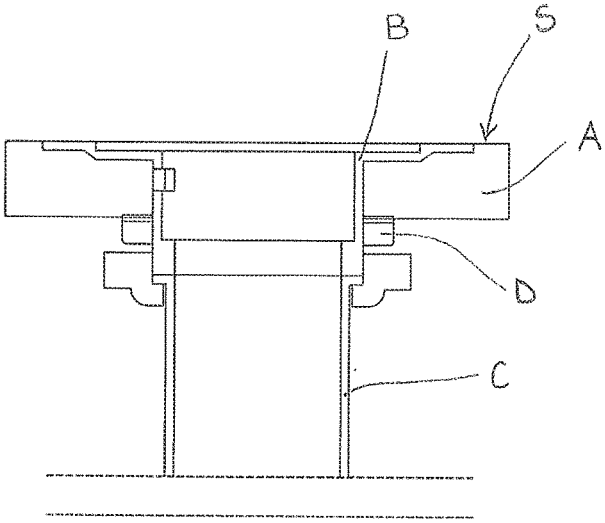


Fig. 1

(Prior Art 1)

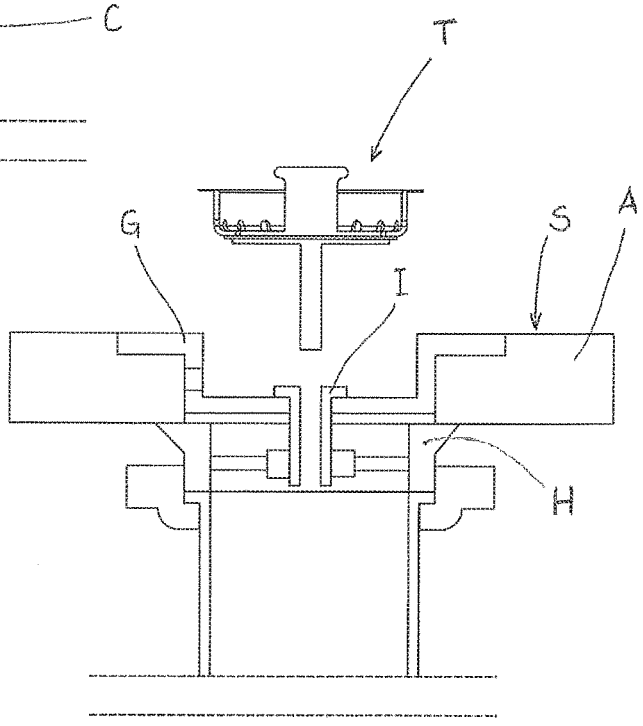
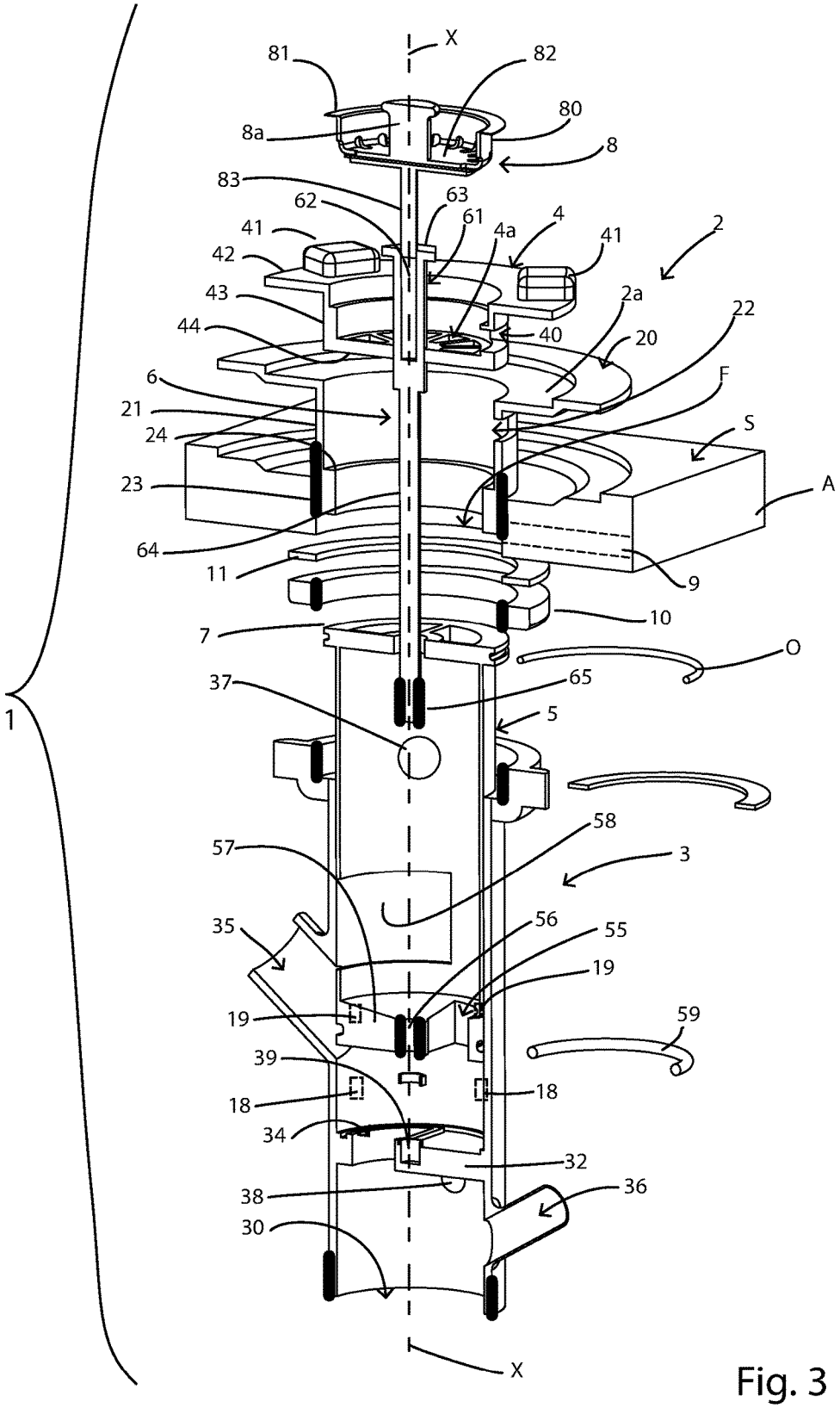


Fig. 2

(Prior Art 2)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36
30
X
1

Fig. 3

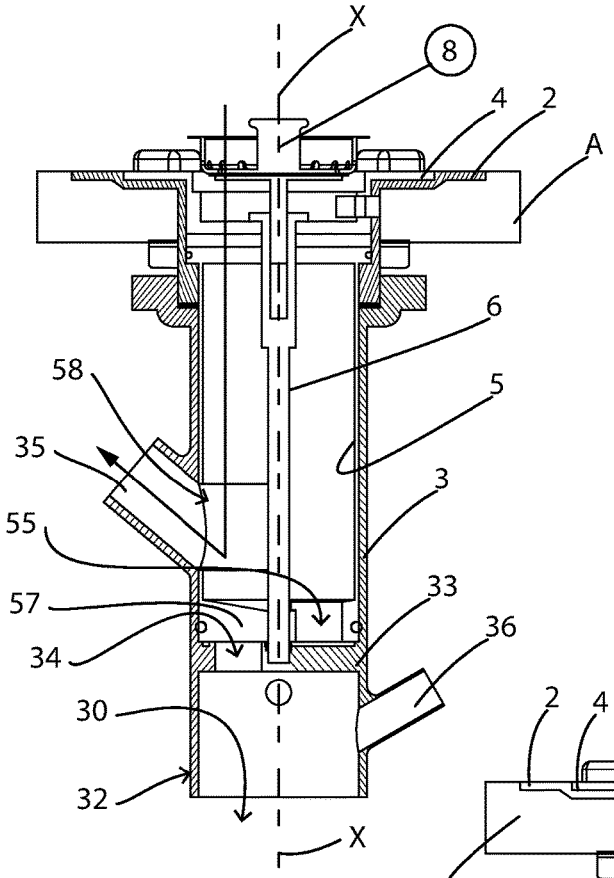
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Fig. 4

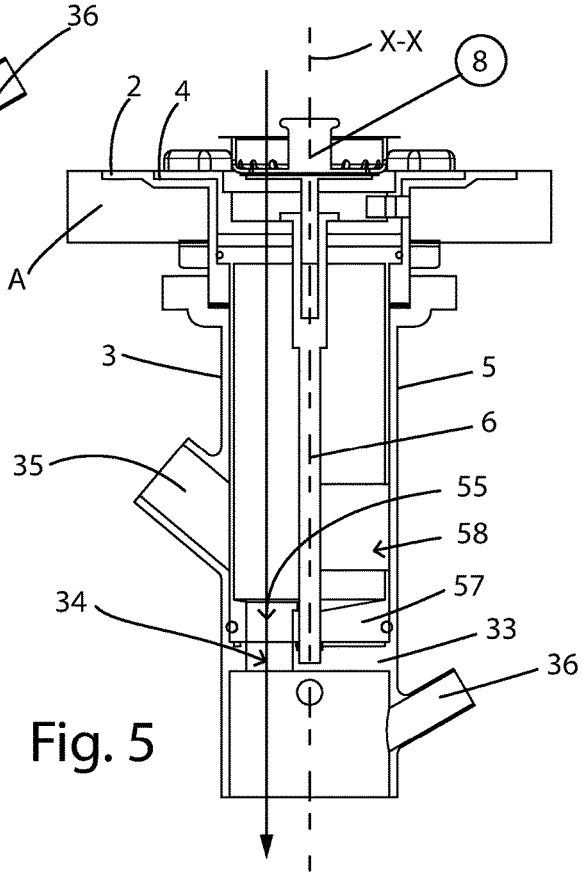
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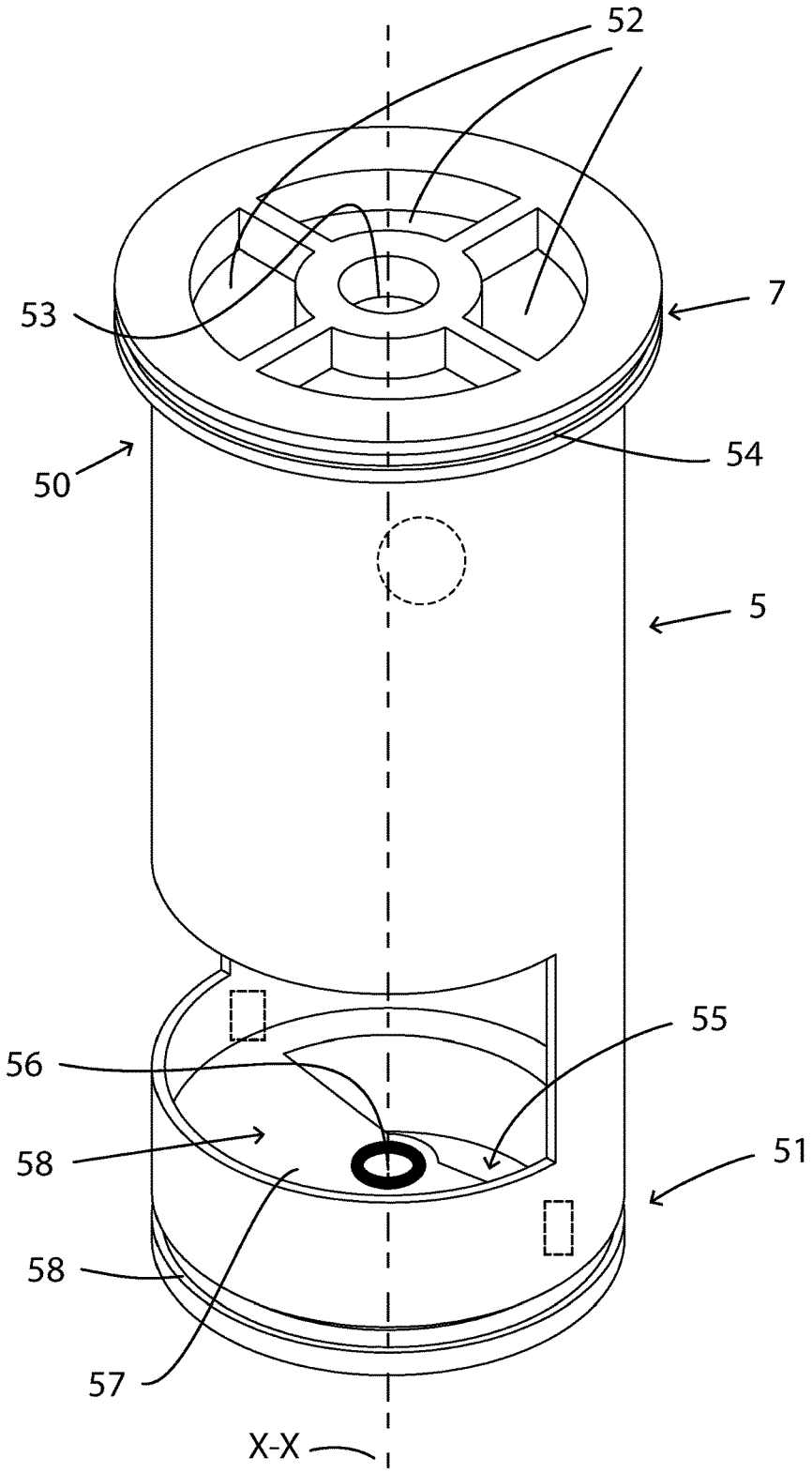
Fig. 5



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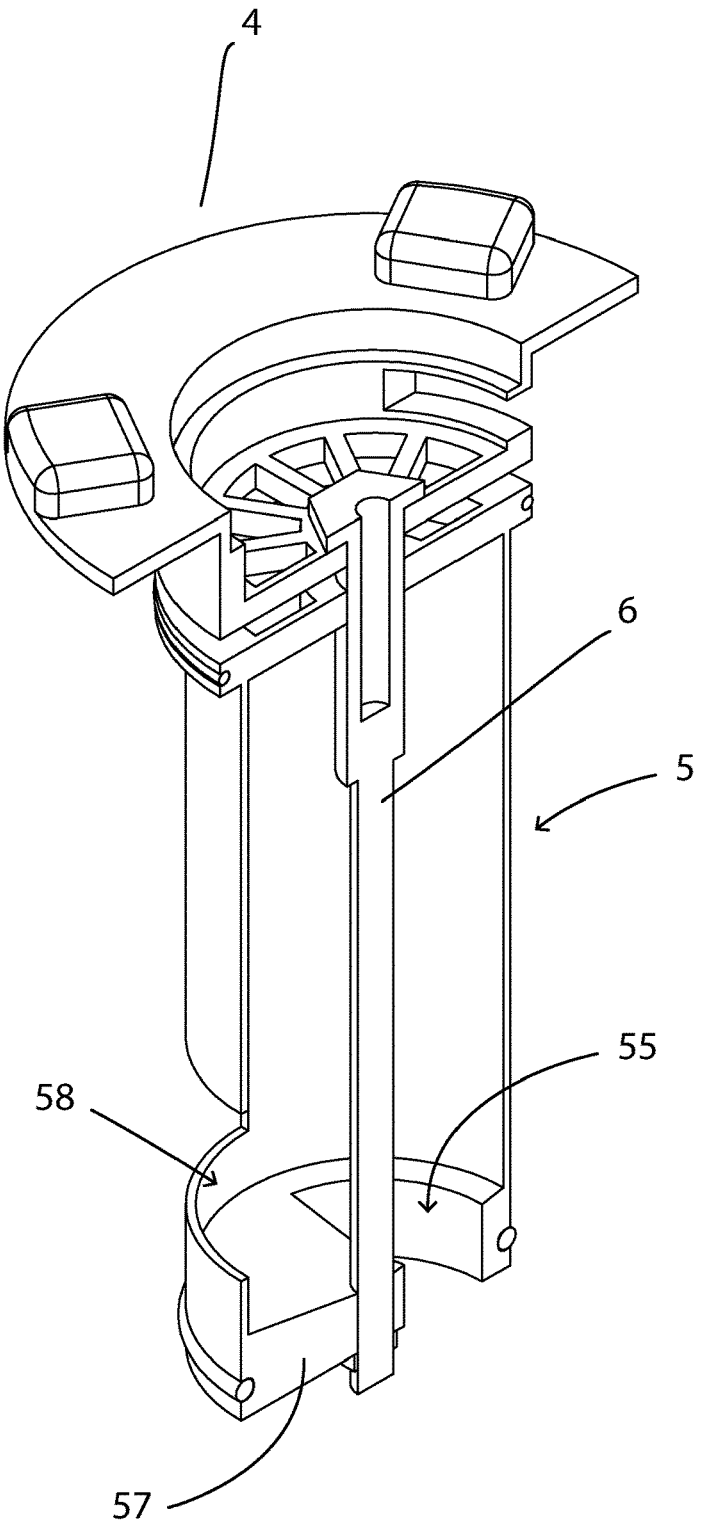

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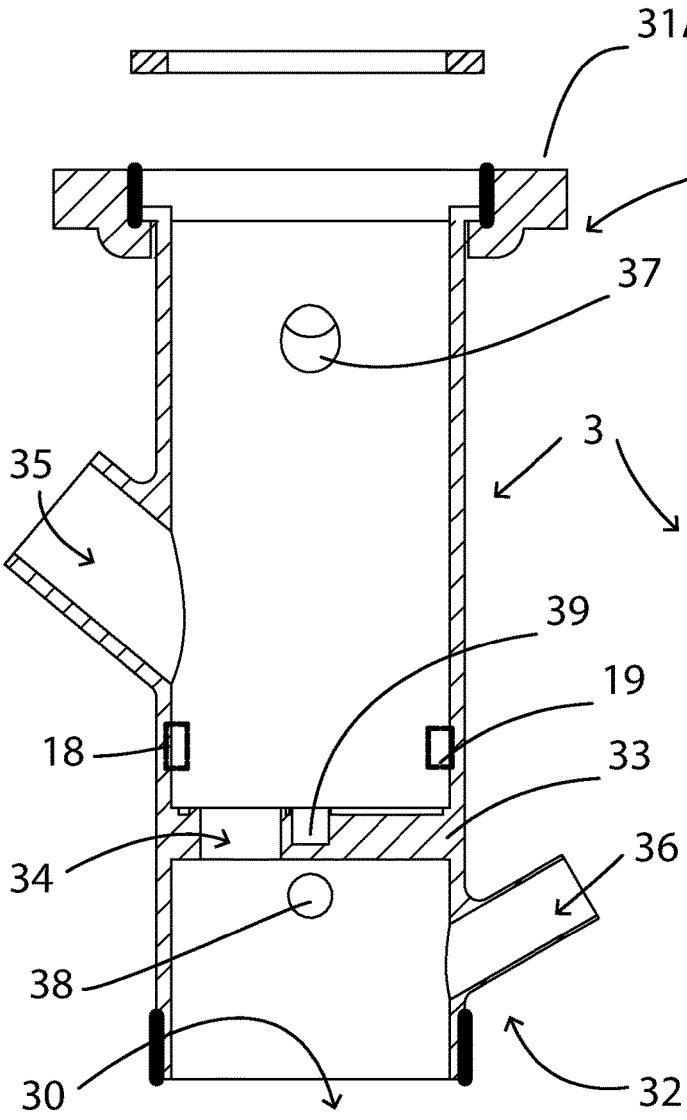

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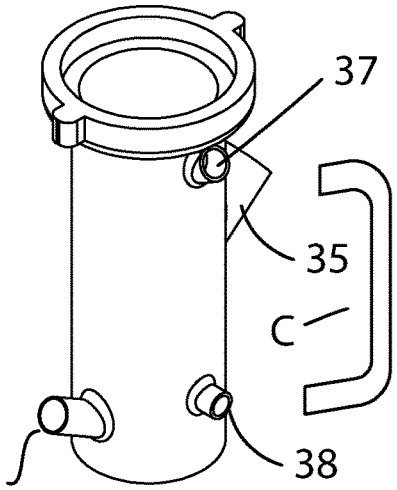

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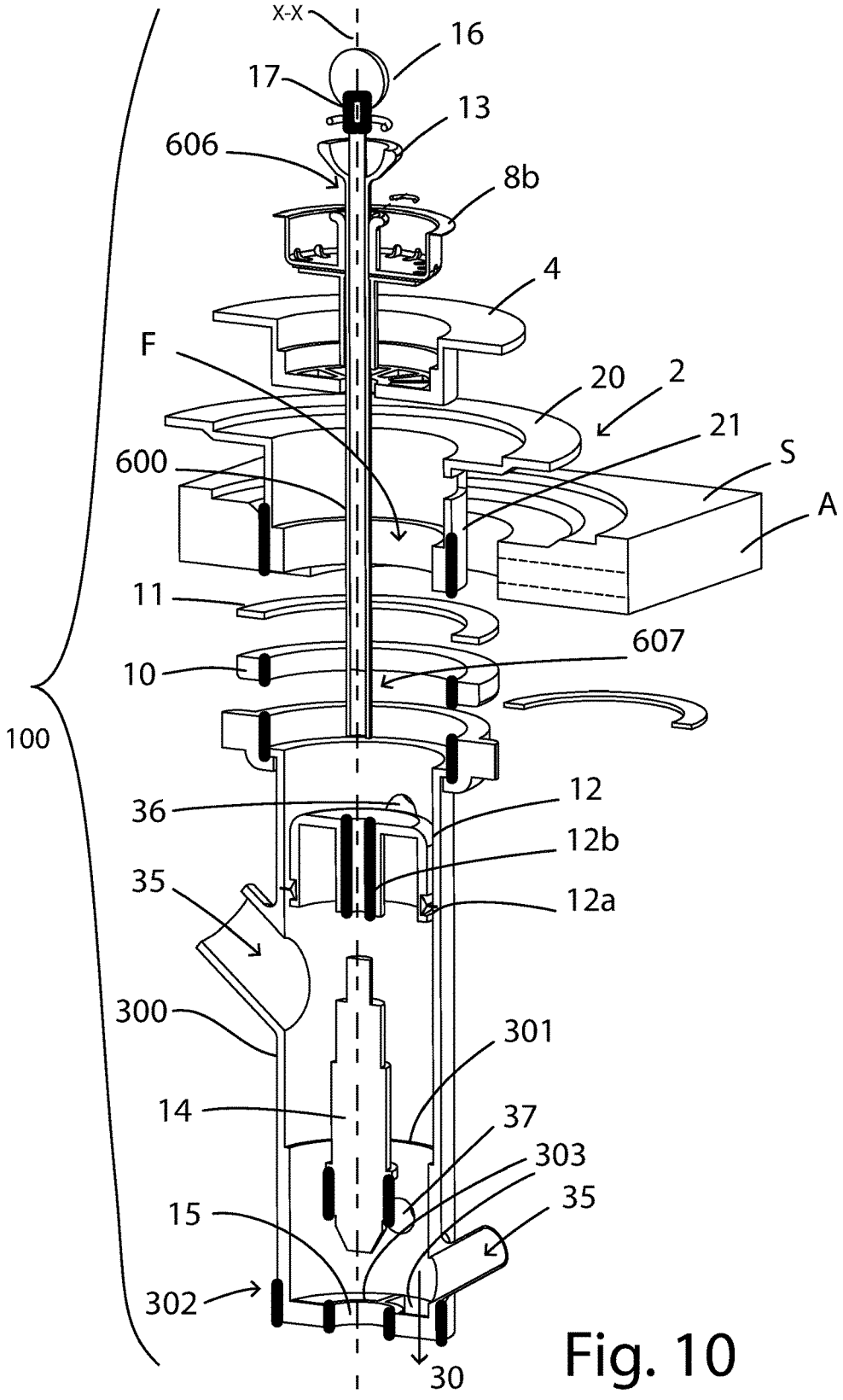
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Fig. 10

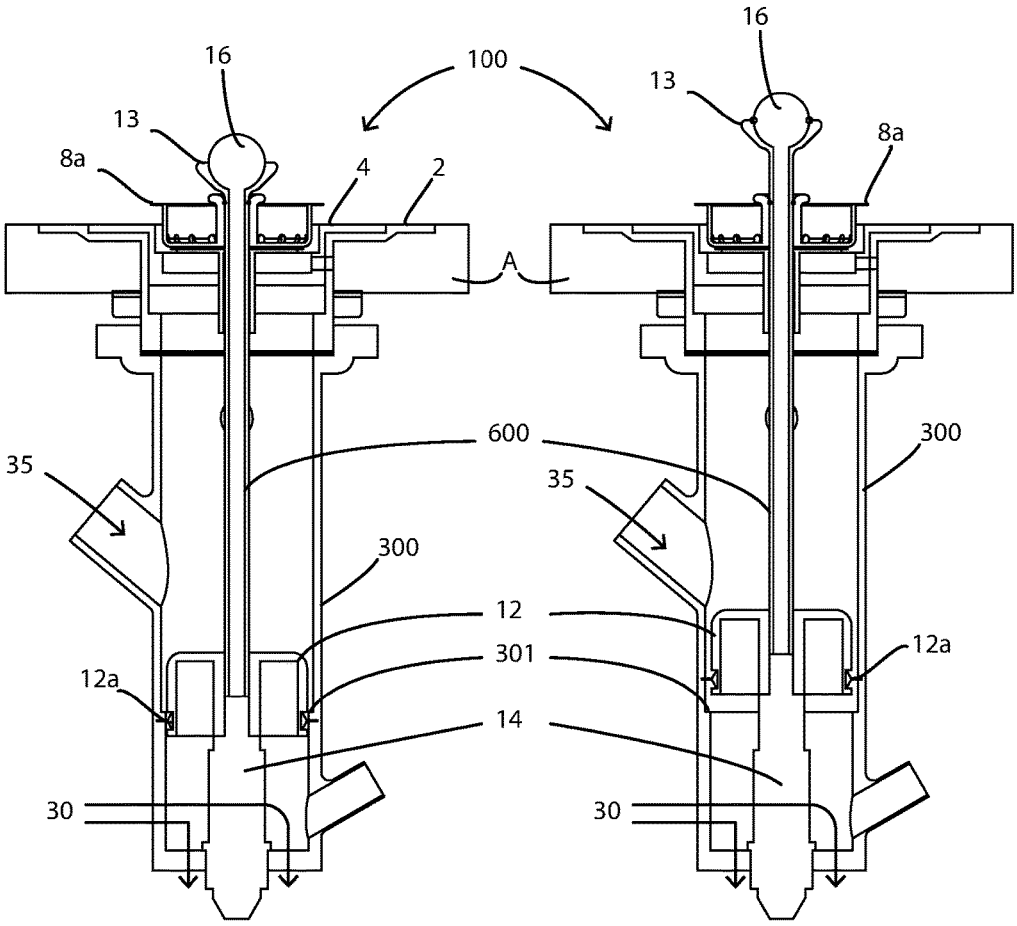
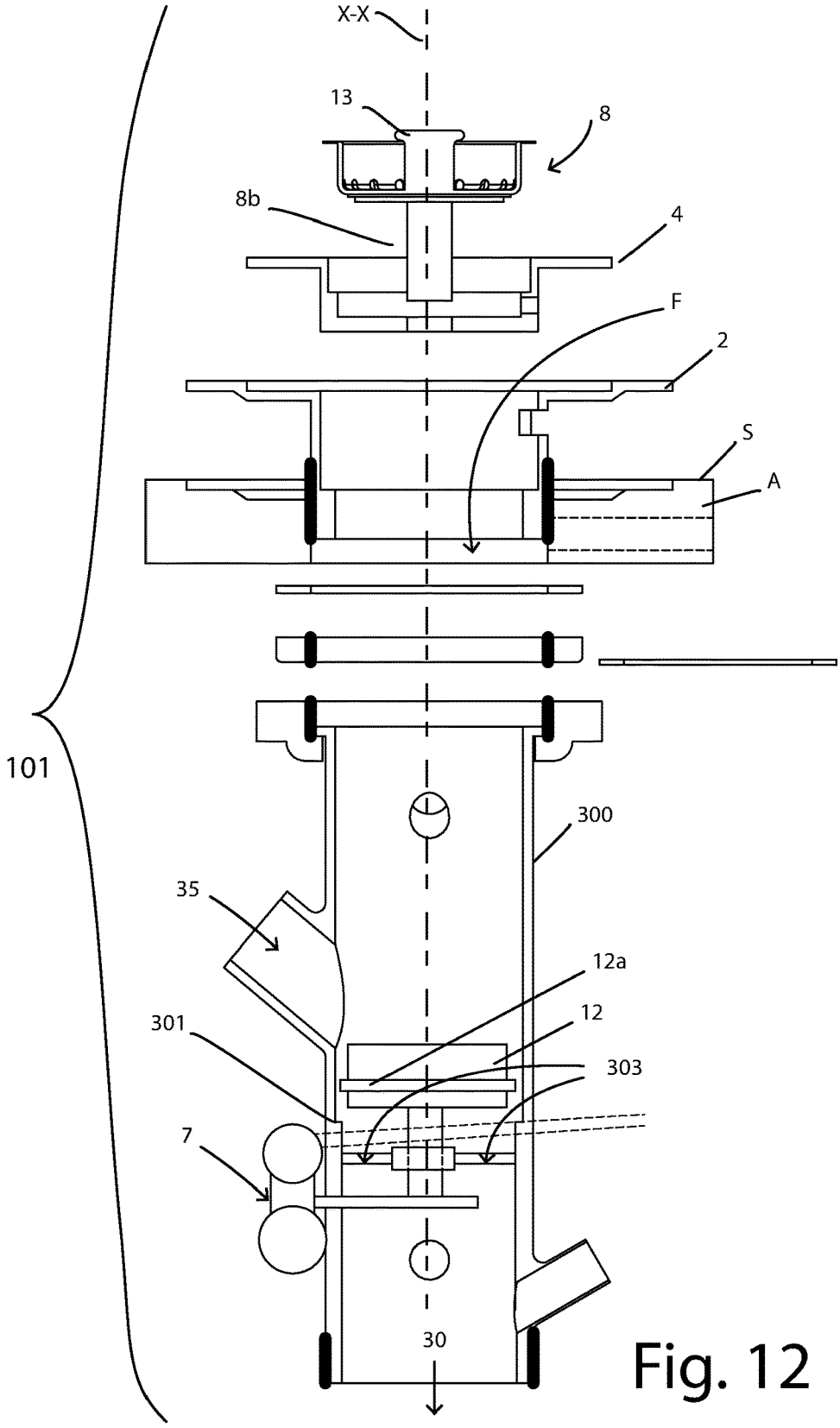


Fig. 11a Fig. 11b



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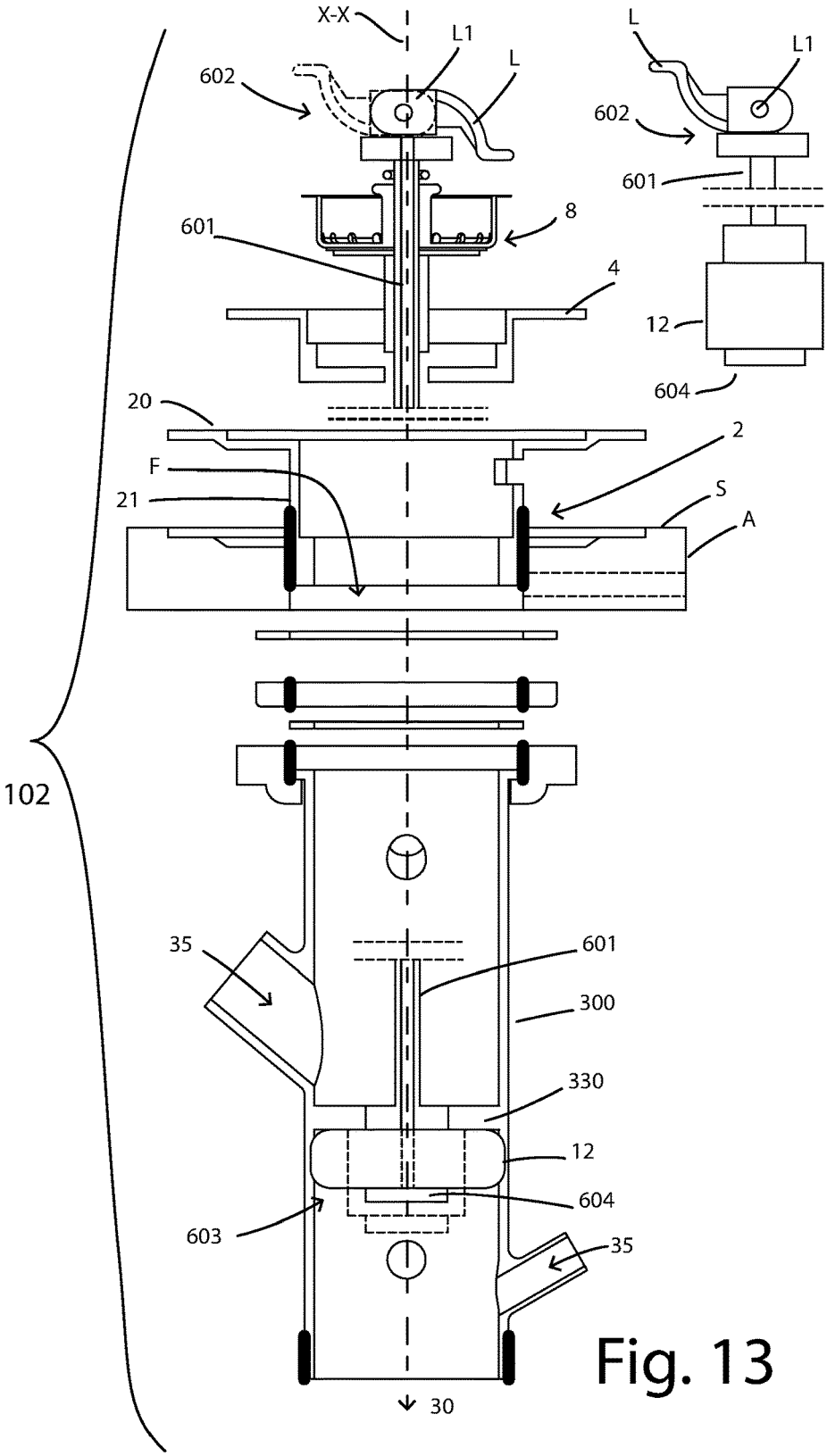
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L
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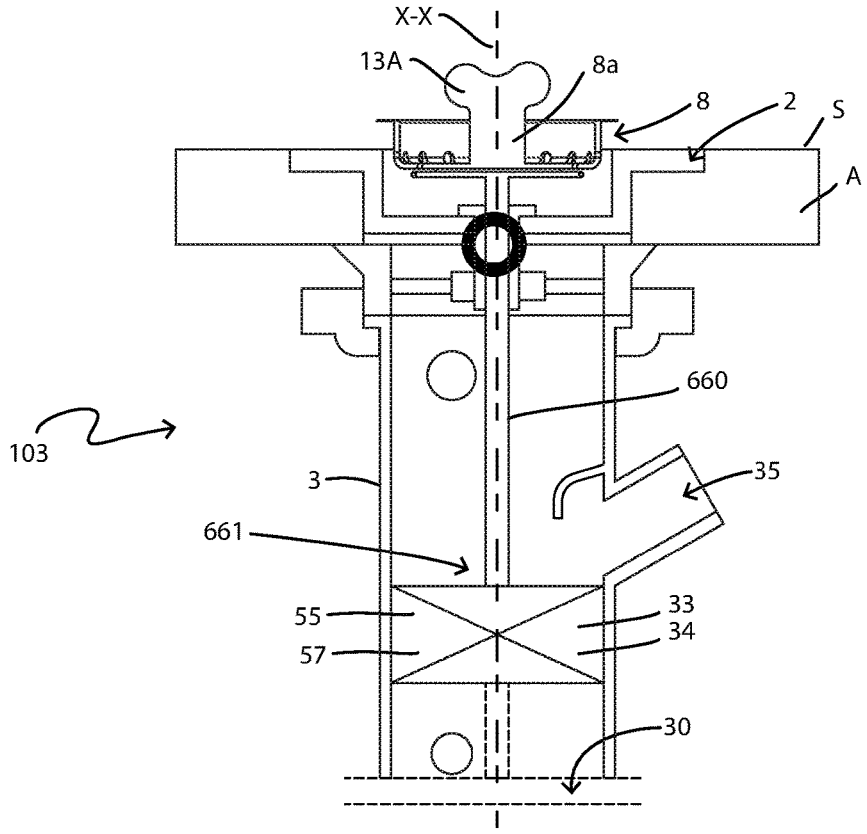
601
12
604

Fig. 13



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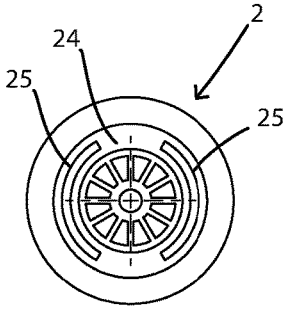

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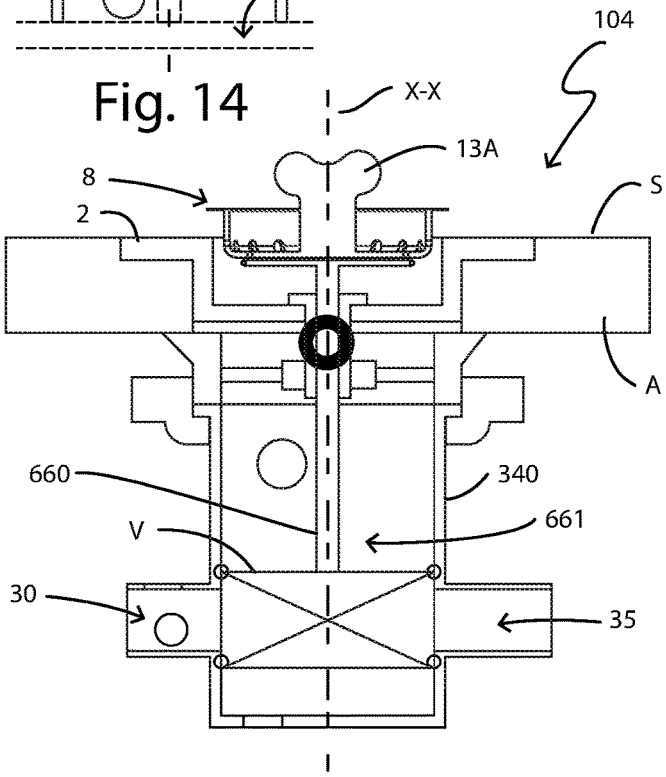

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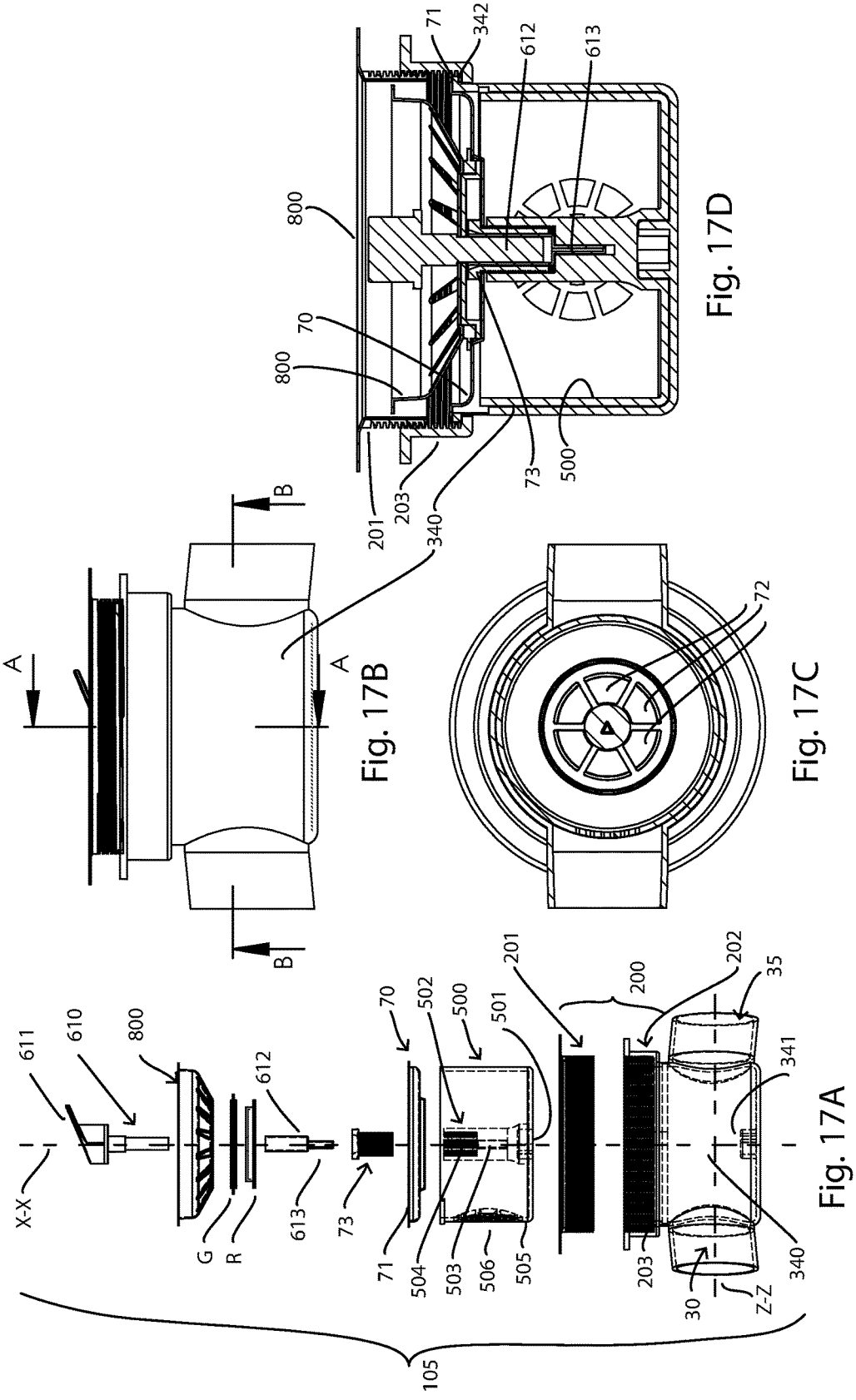
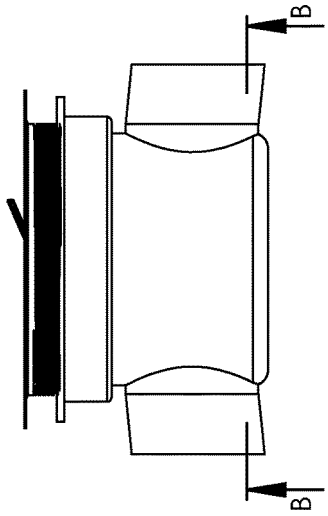


Fig. 17A

Fig. 17B

Fig. 17C

Fig. 17D



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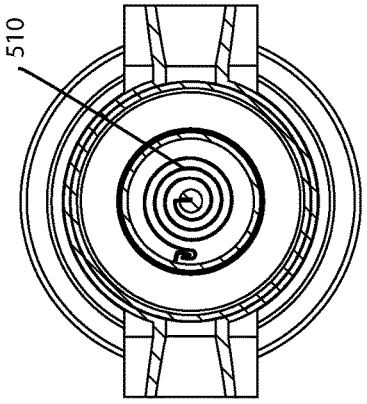

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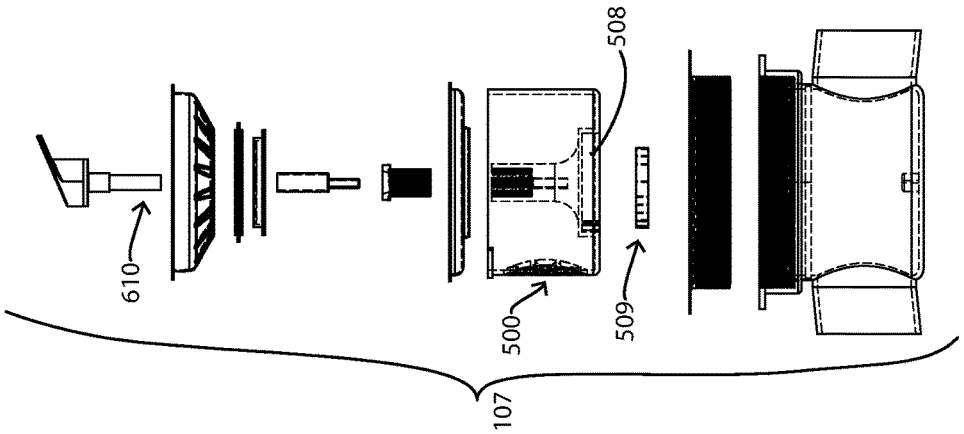

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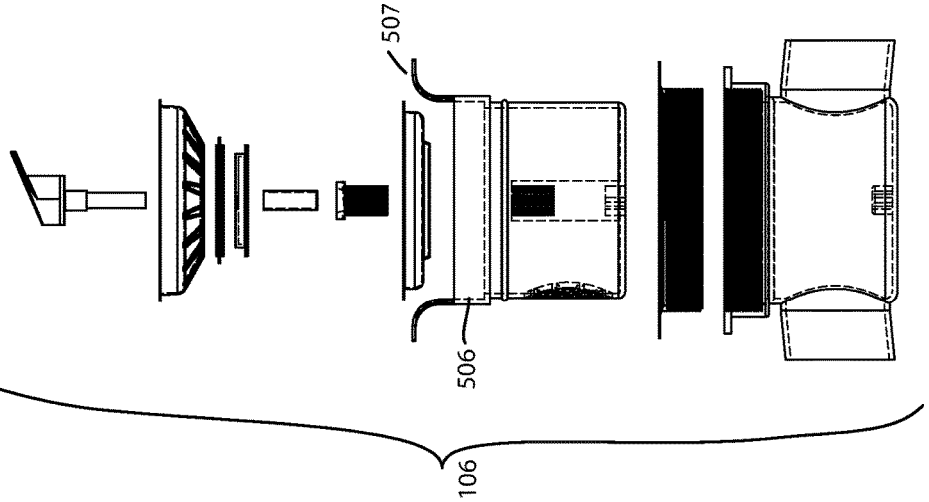

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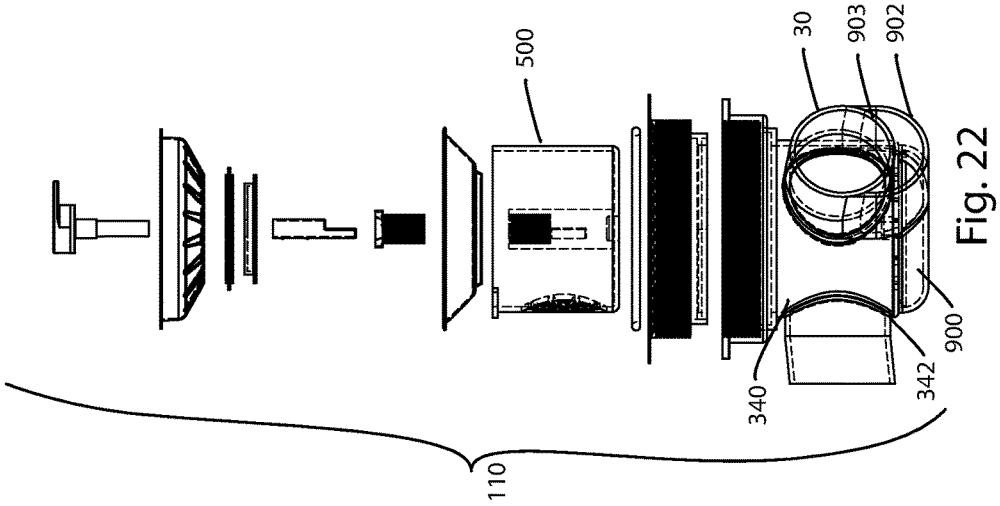

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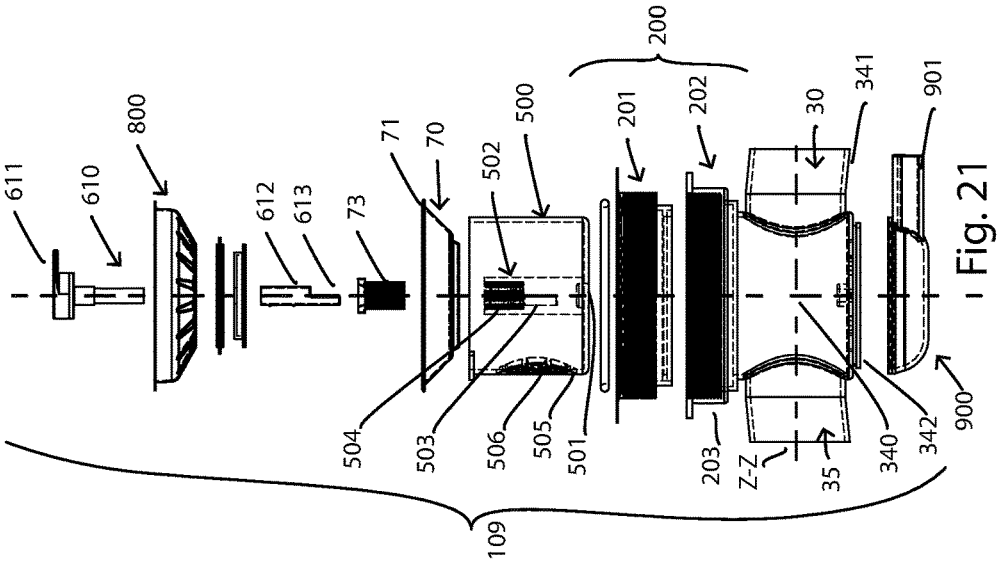

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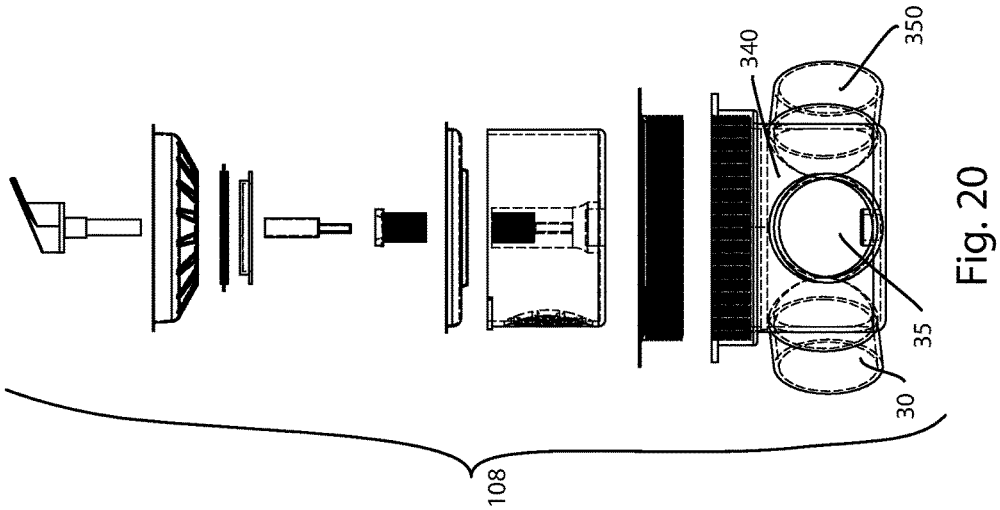

Fig. 20

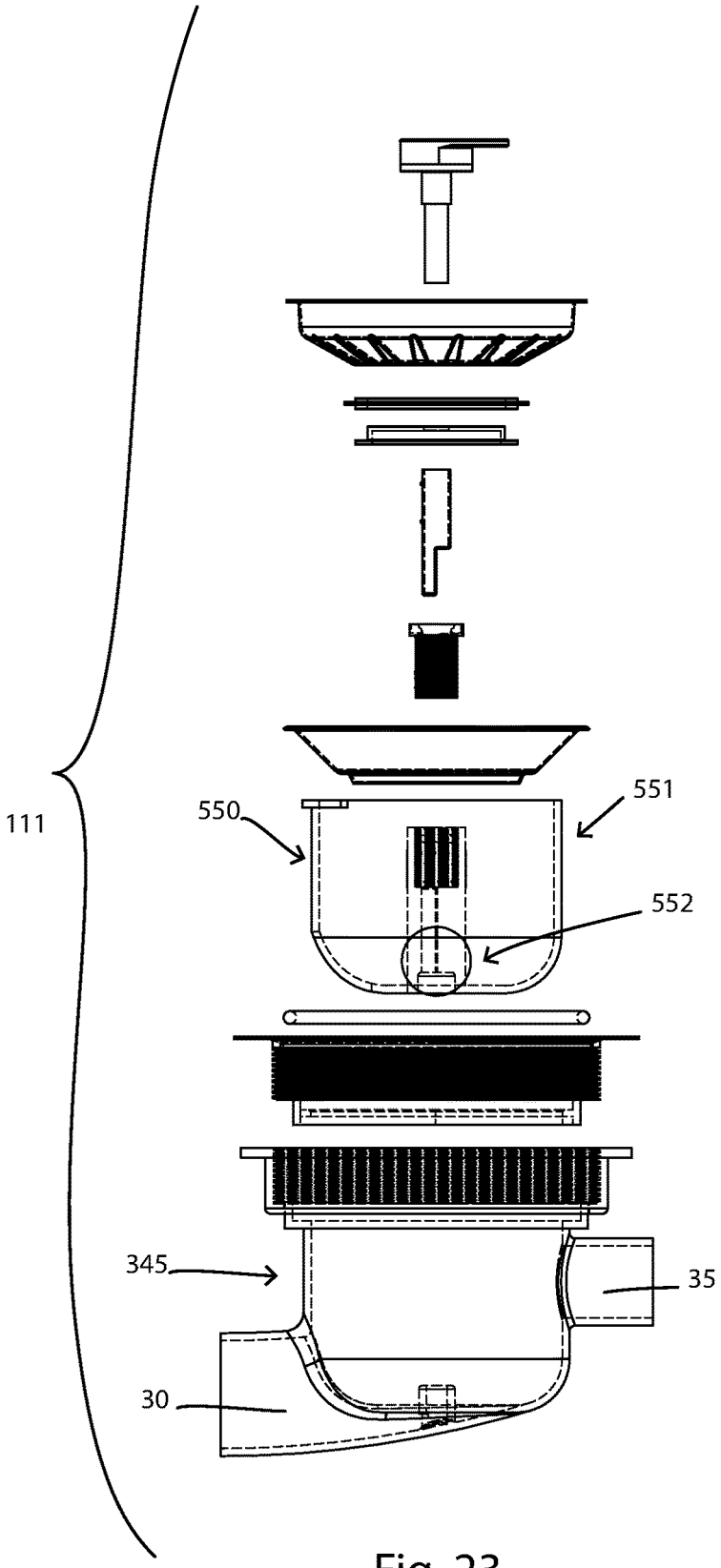

Fig. 23

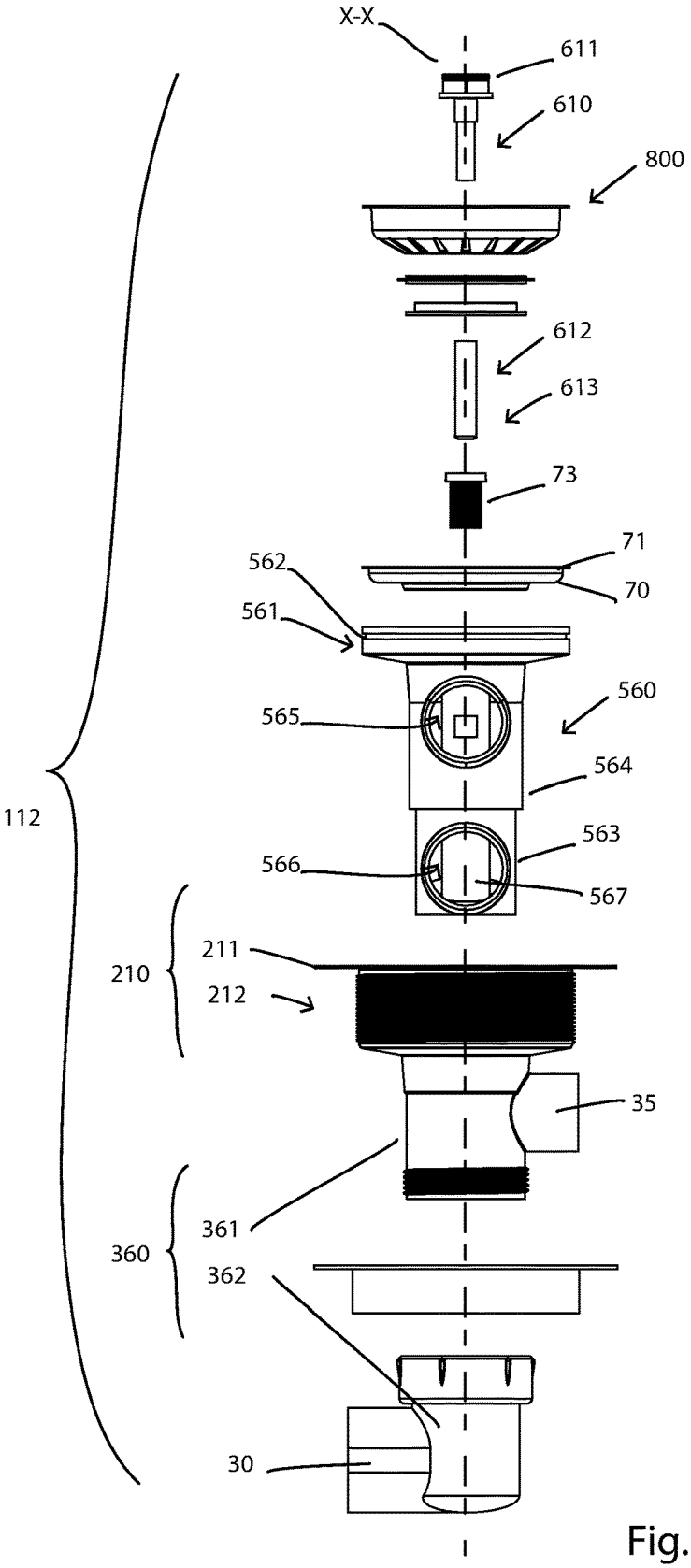
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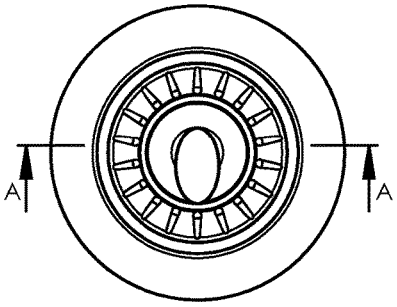
Fig. 24A



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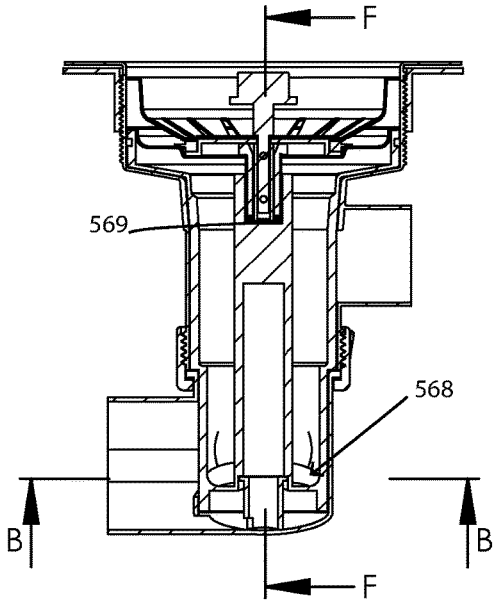

Fig. 24C

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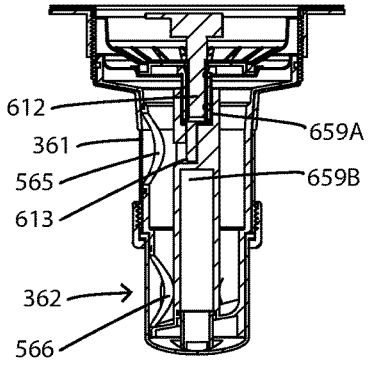


Fig. 24E

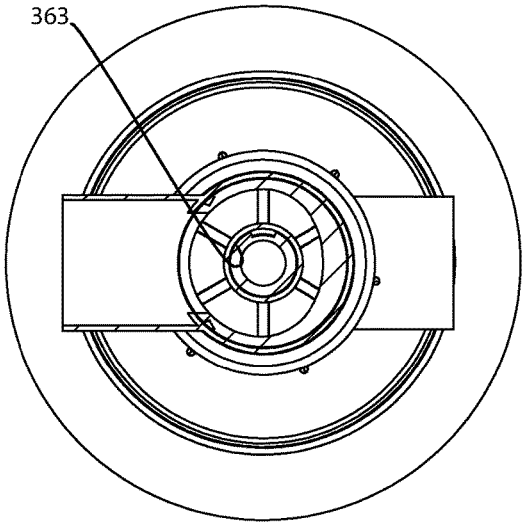
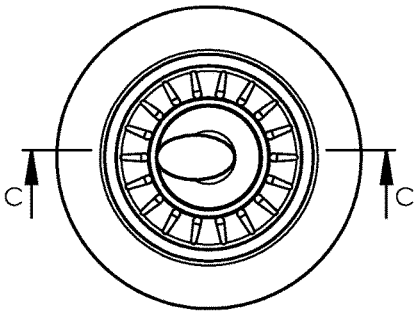


Fig. 24D



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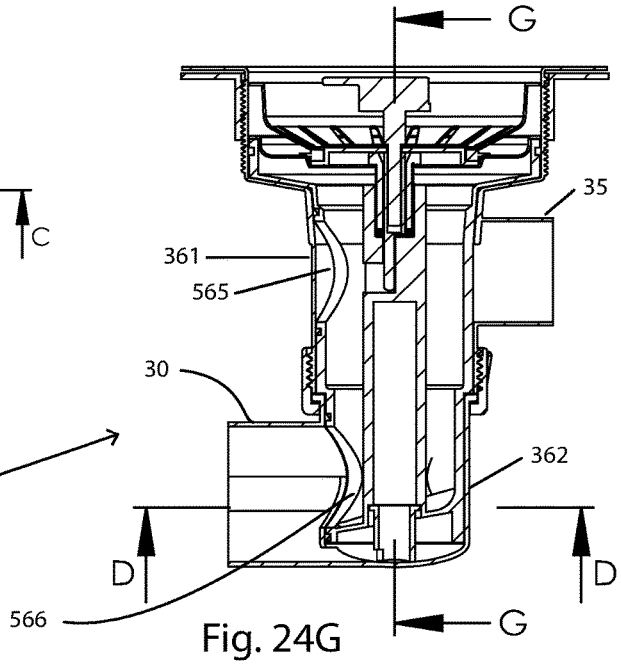

Fig. 24G

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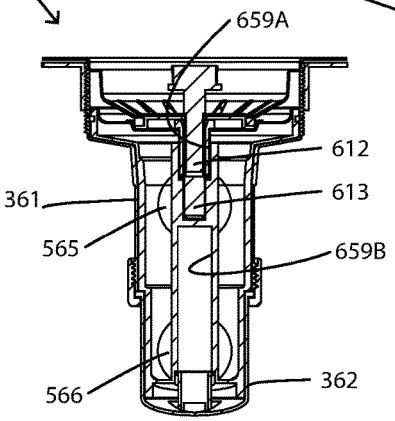
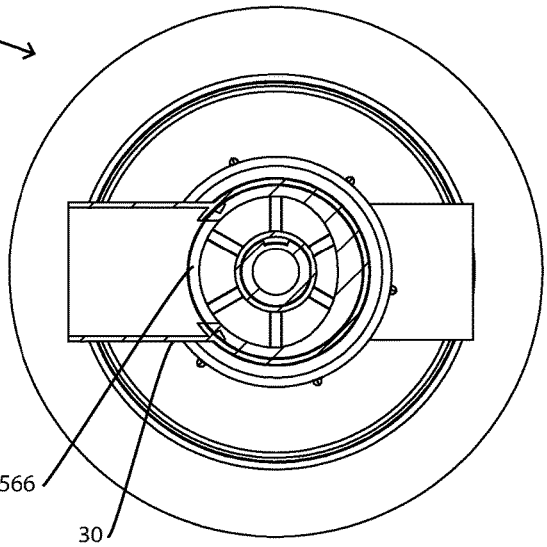


Fig. 24I



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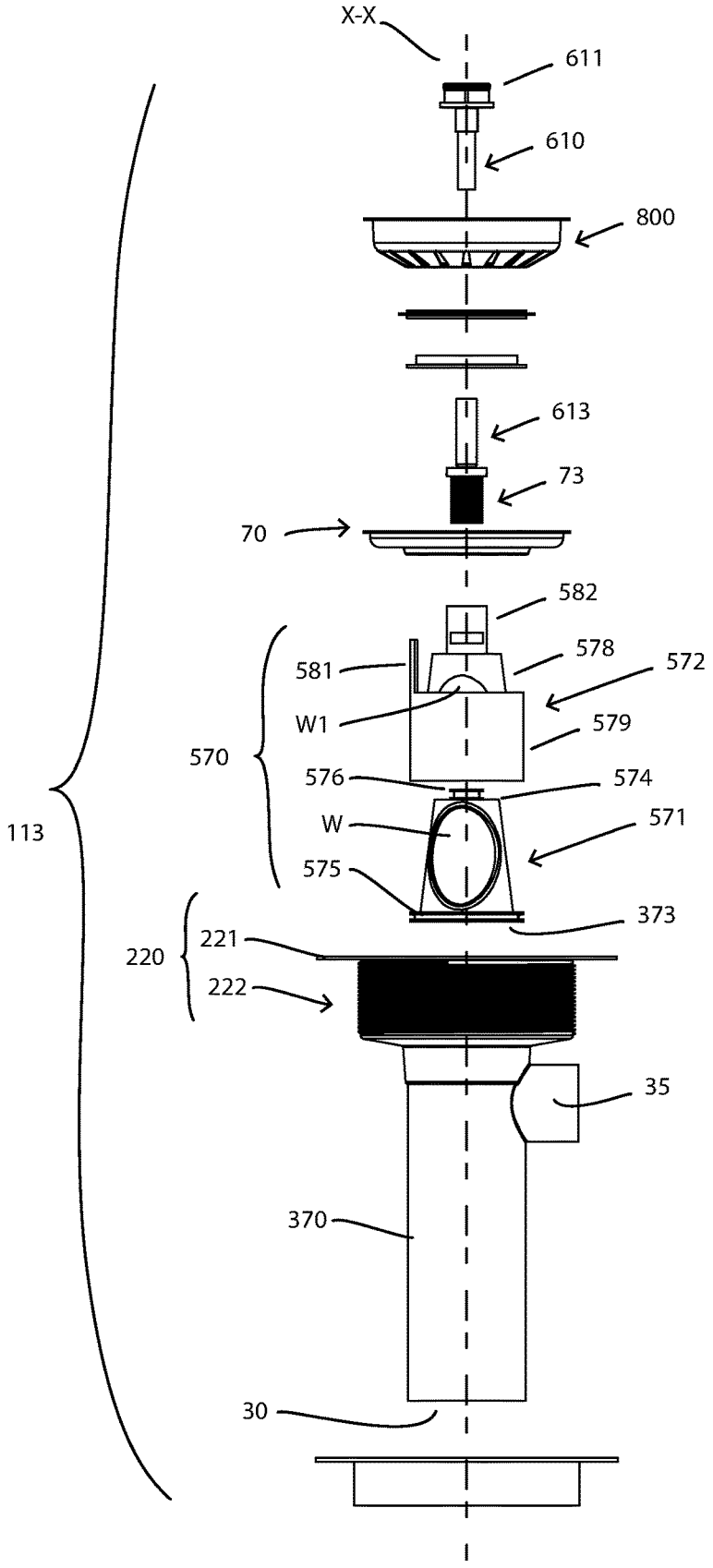
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Fig. 25A

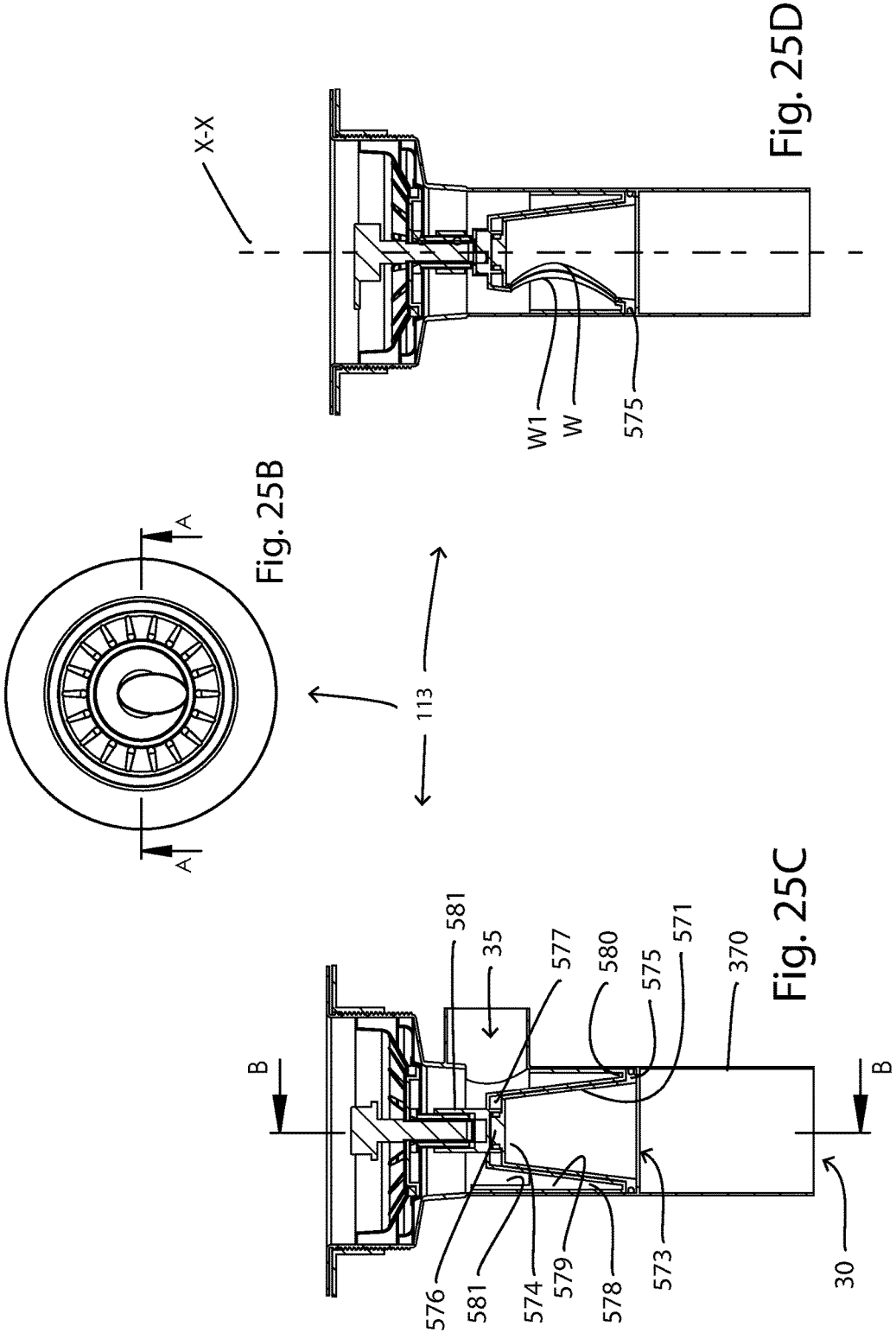
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Fig. 25D
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Fig. 25B
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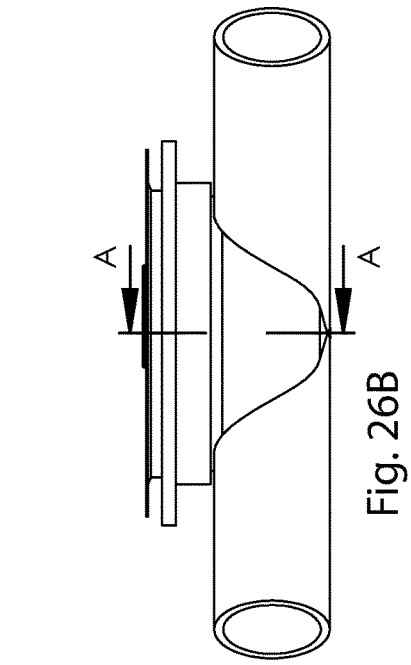
Fig. 25C



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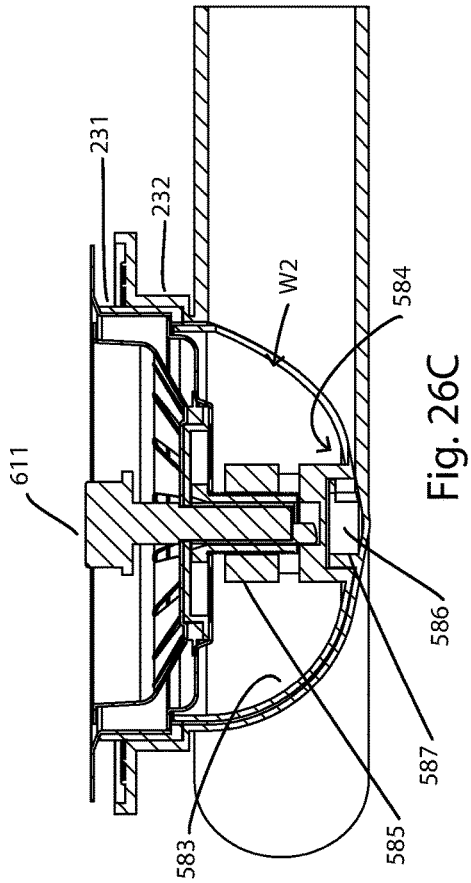

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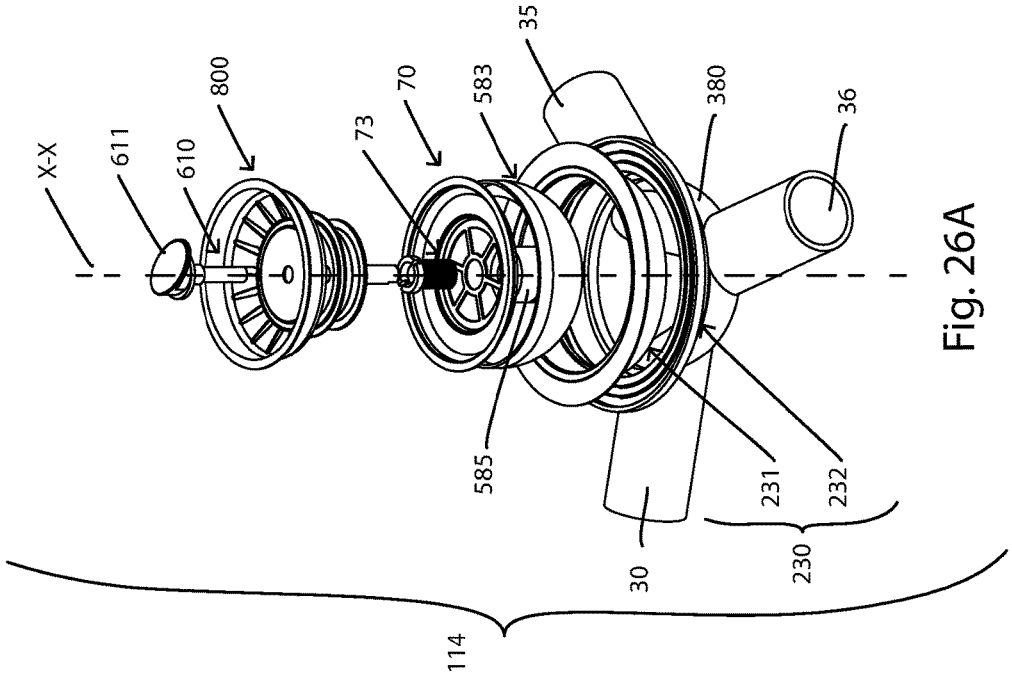

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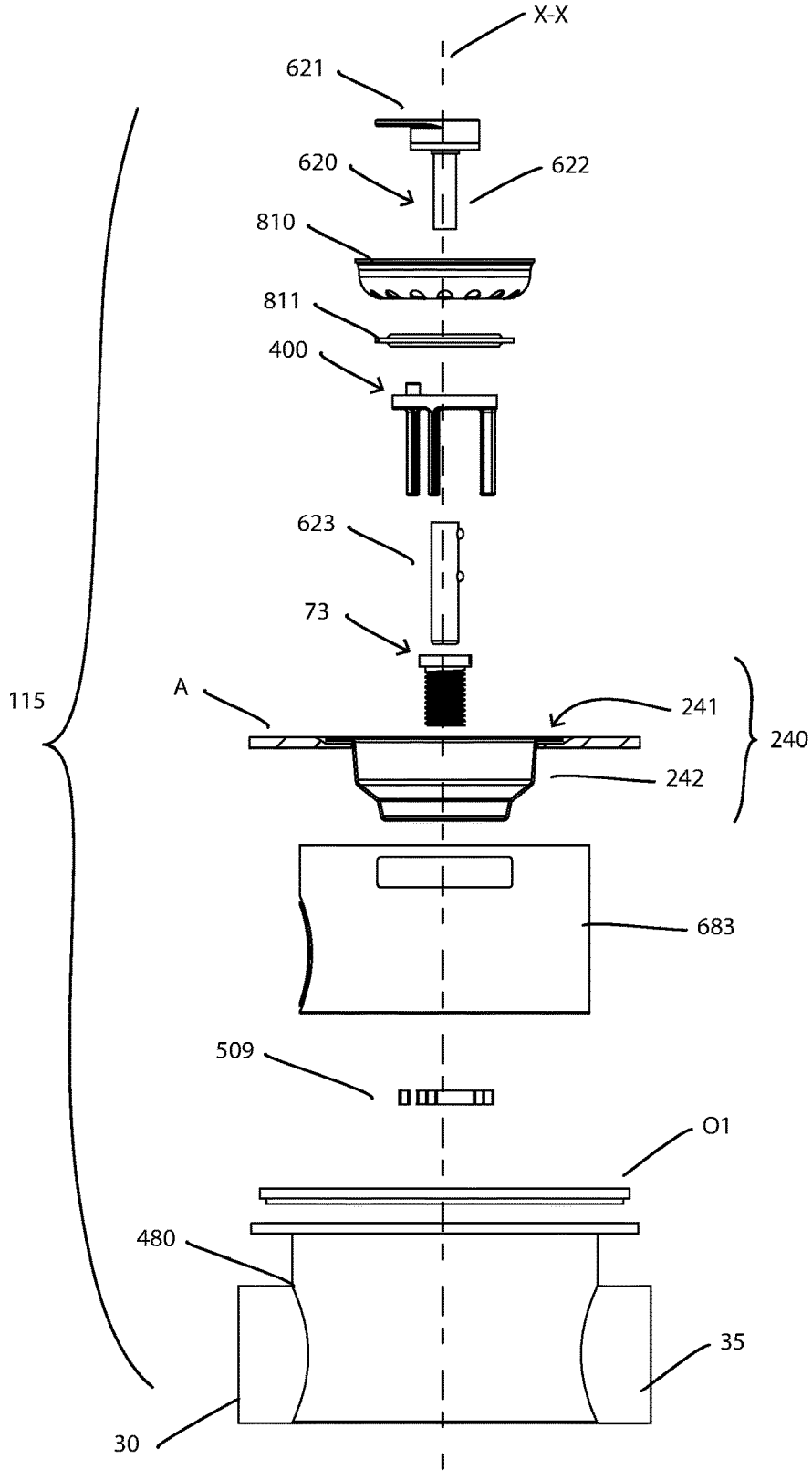
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Fig. 27

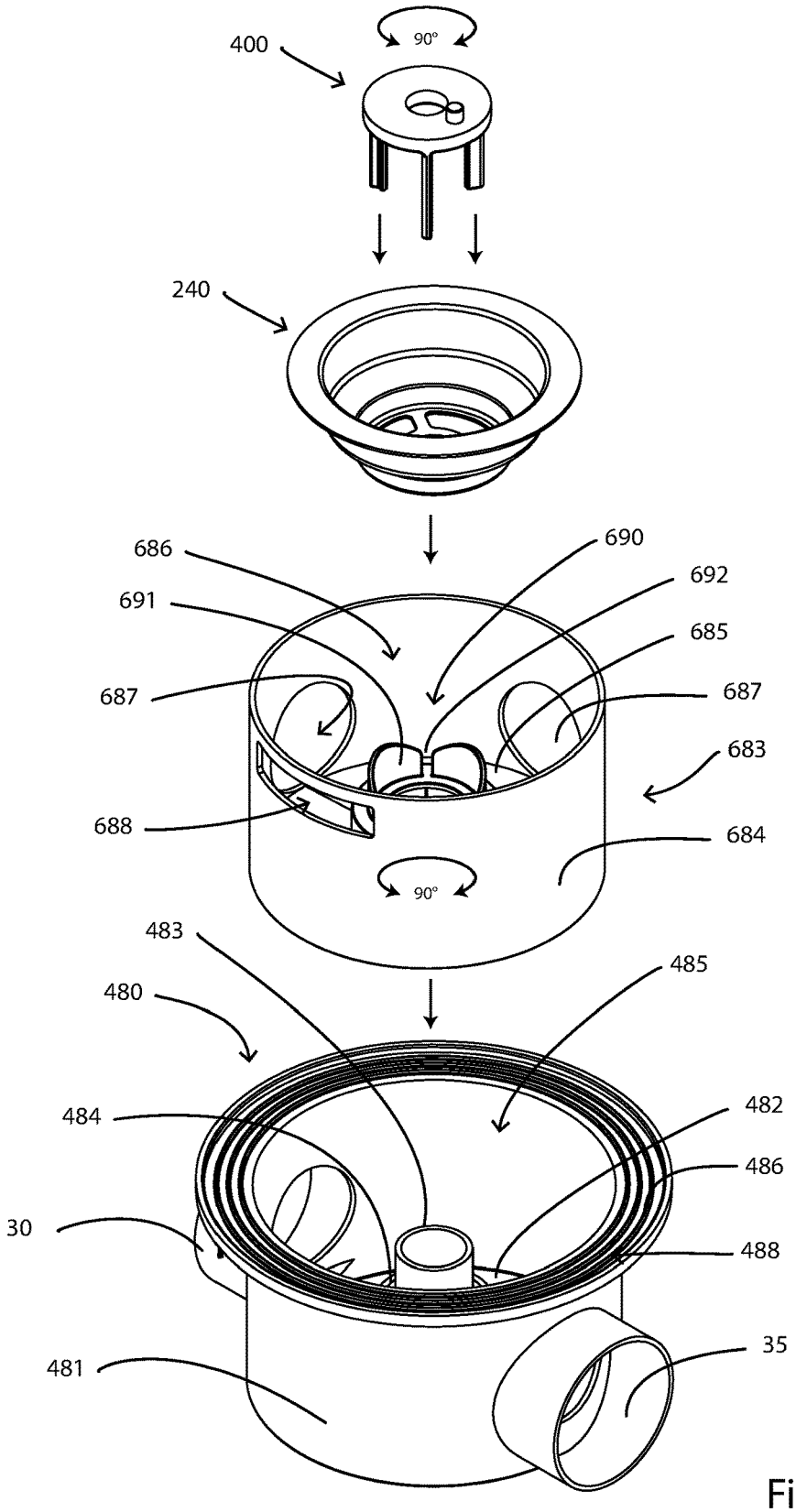
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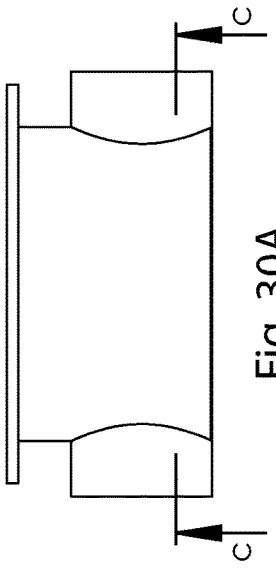
Fig. 28



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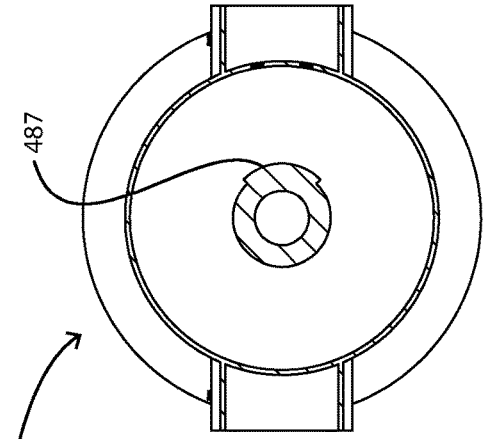

Fig. 30B

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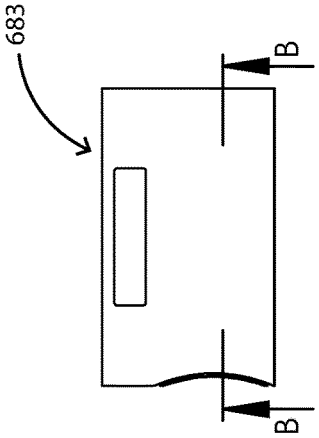

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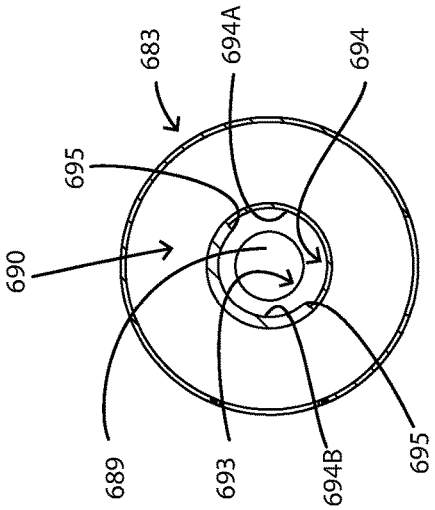

Fig. 29B

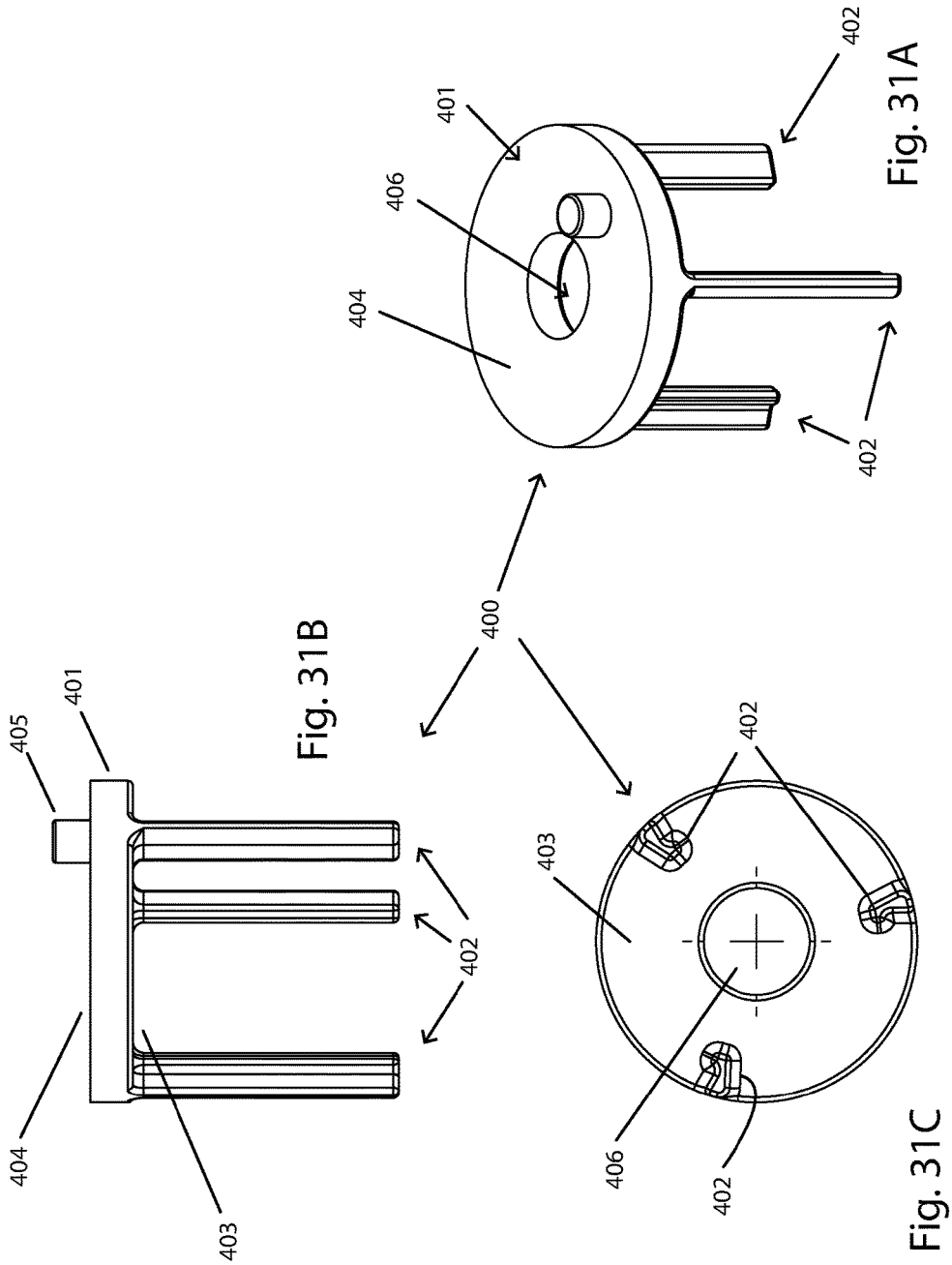

Fig. 31A

Fig. 31B

Fig. 31C

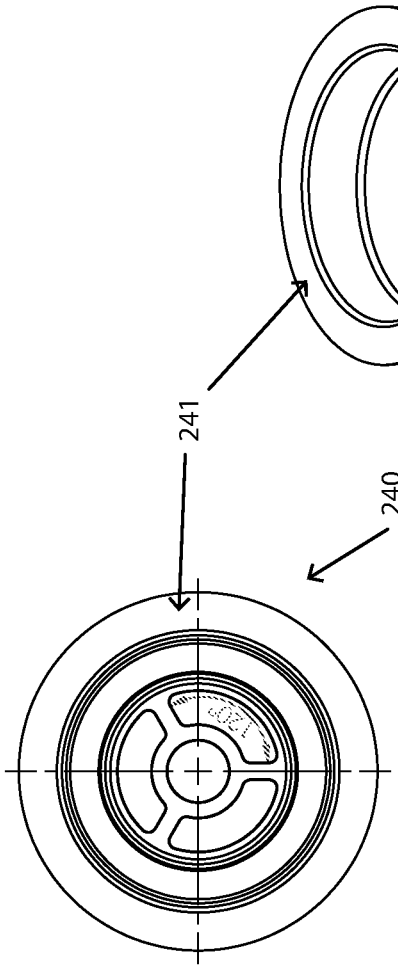

Fig. 33A

Fig. 33C

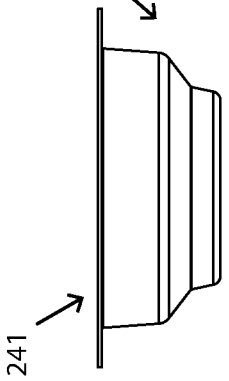

Fig. 33B

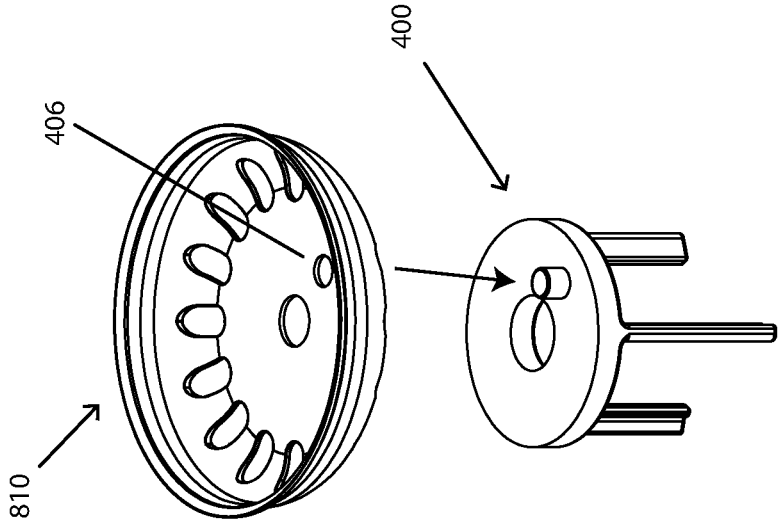

Fig. 32

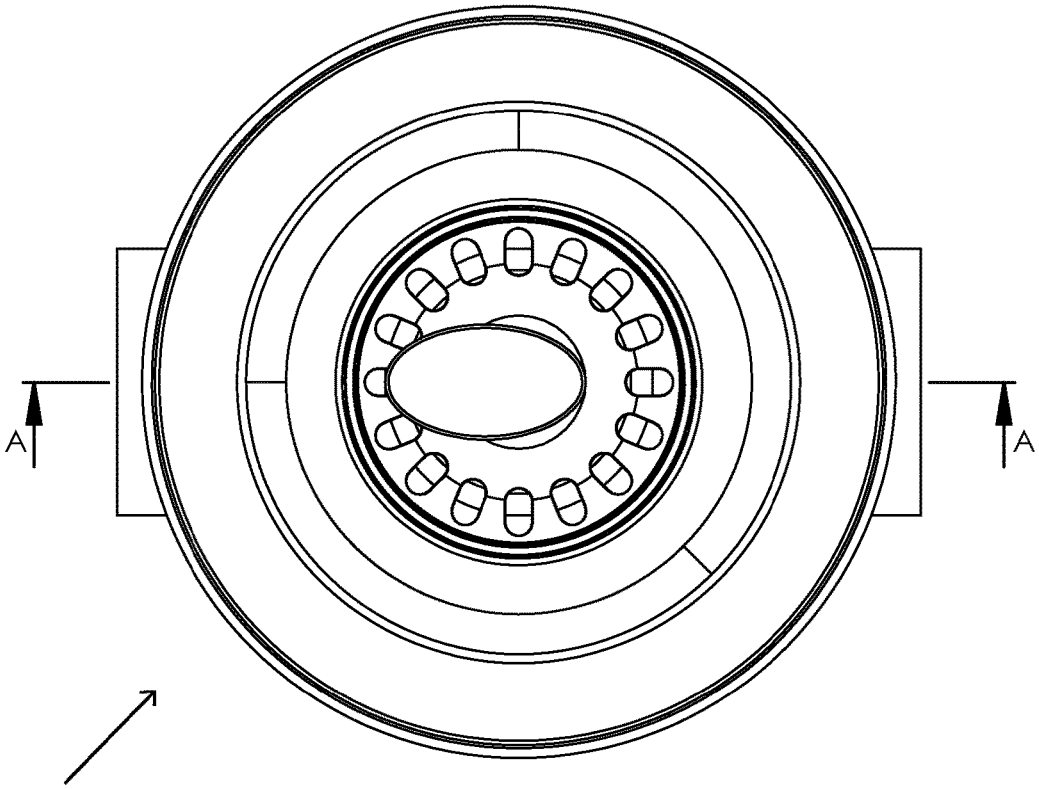

Fig. 34A

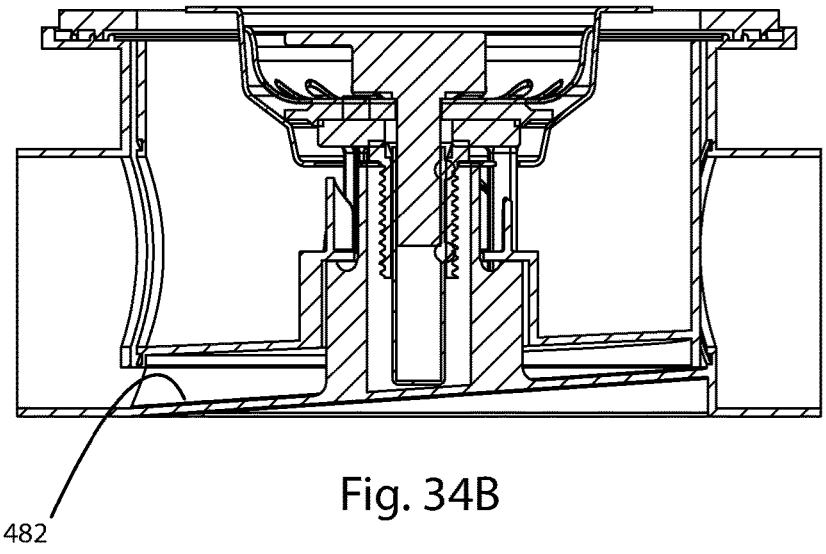

Fig. 34B

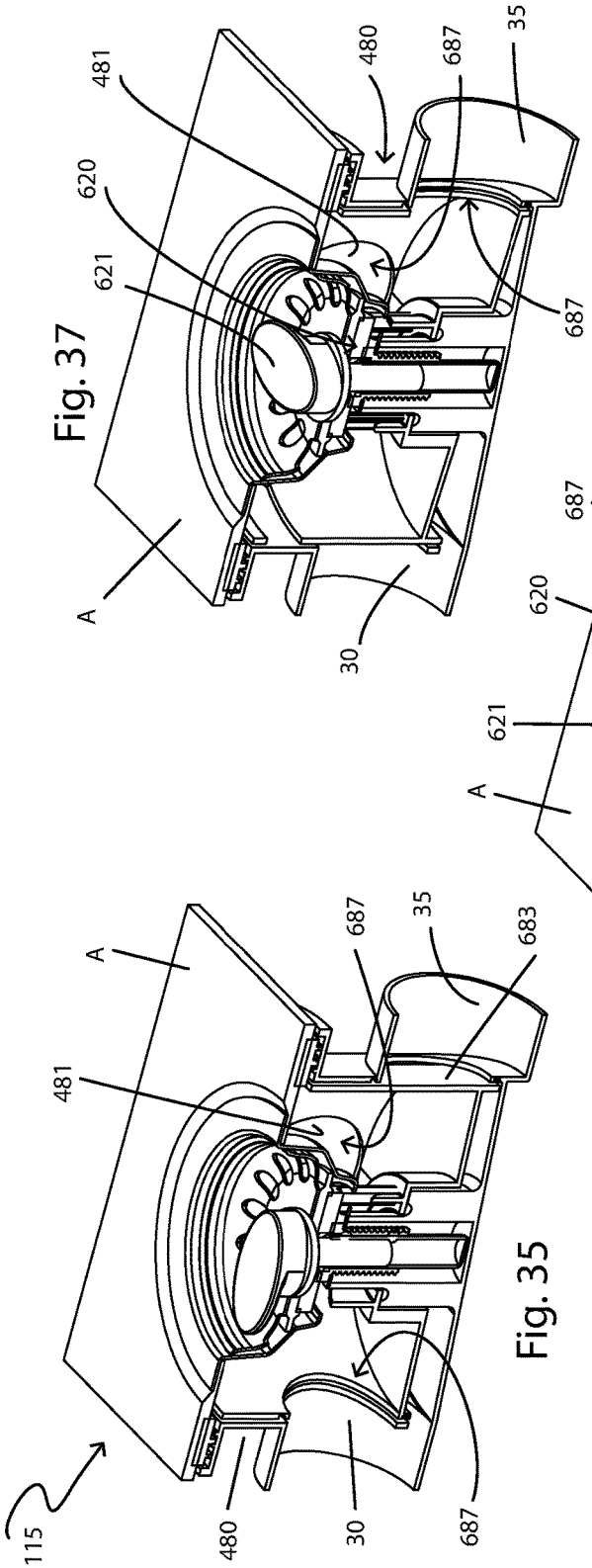

Fig. 35

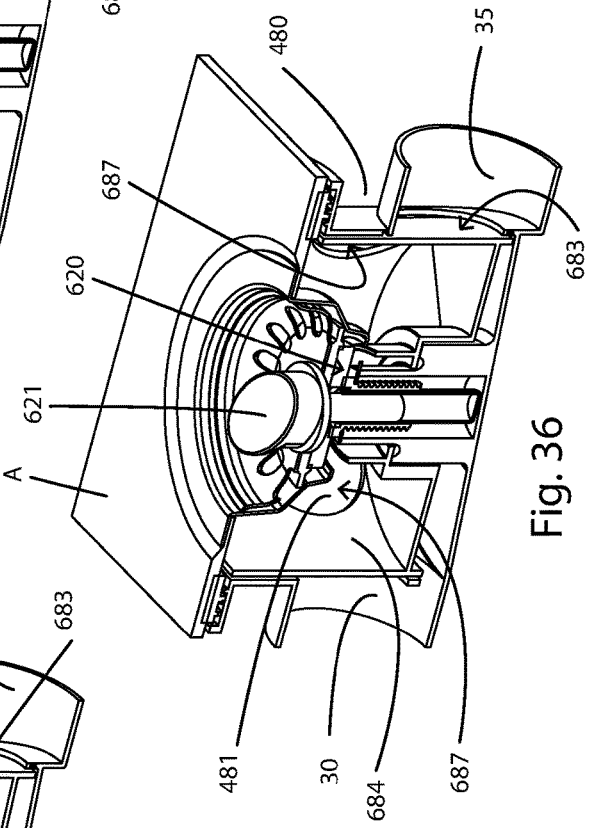

Fig. 36

Fig. 37

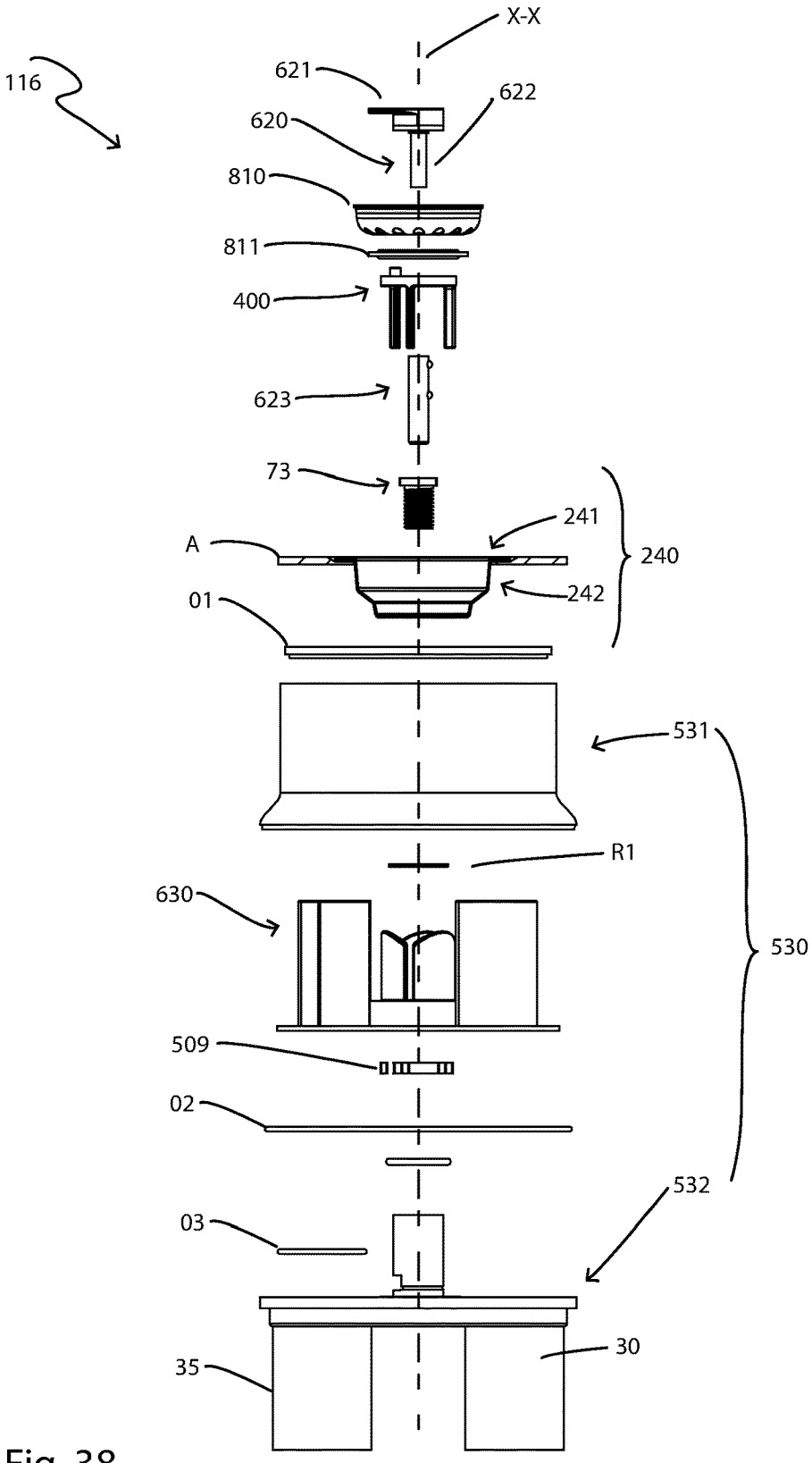
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Fig. 38

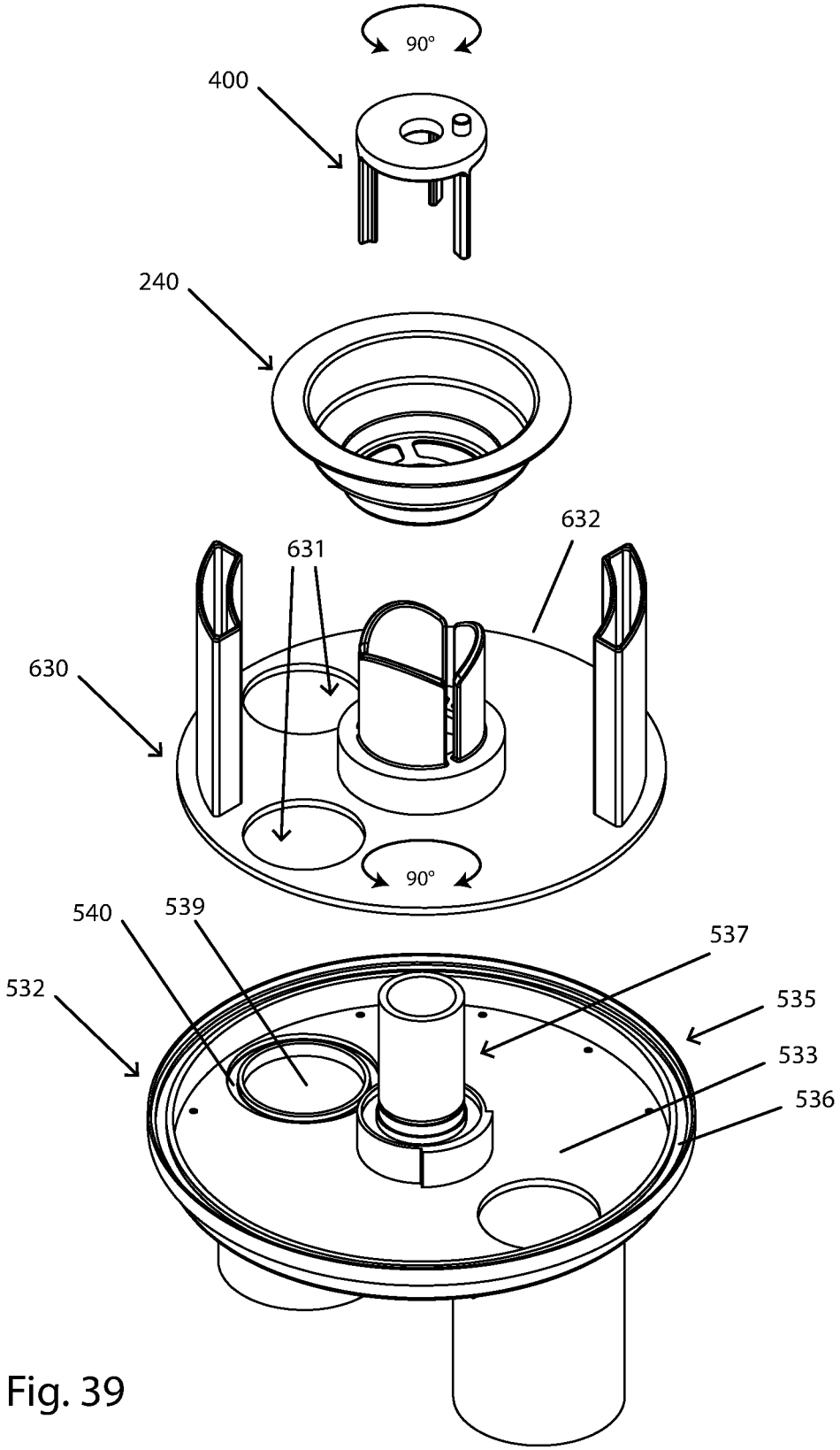

Fig. 39

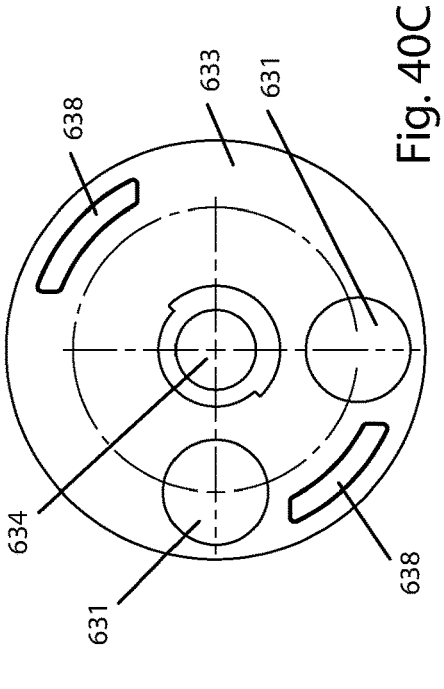

Fig. 40C

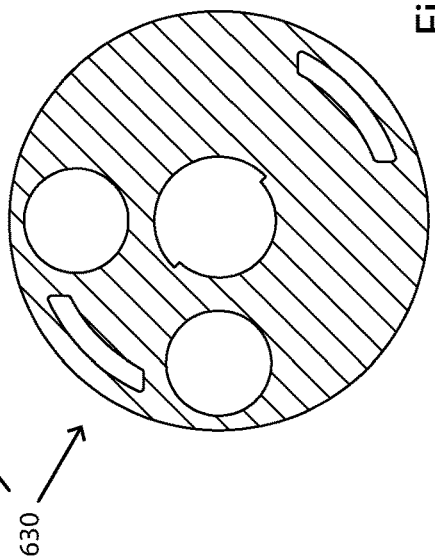

Fig. 40D

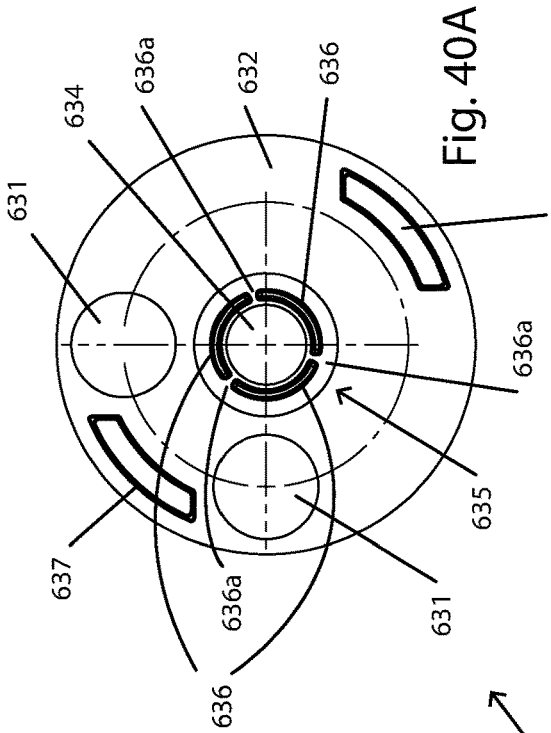

Fig. 40A

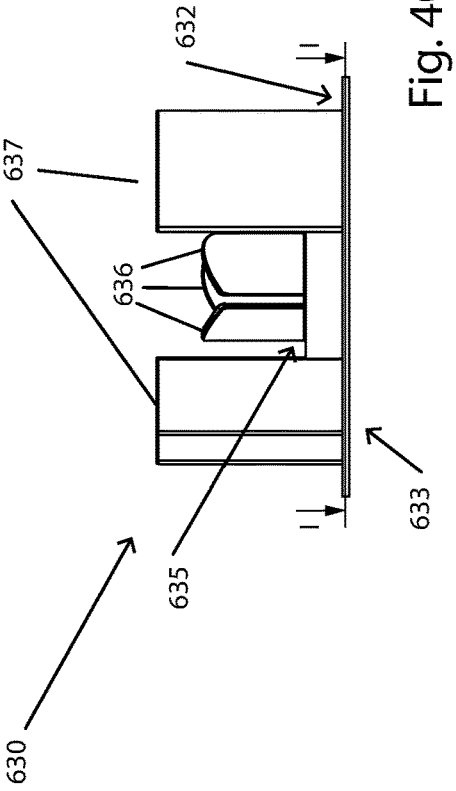

Fig. 40B

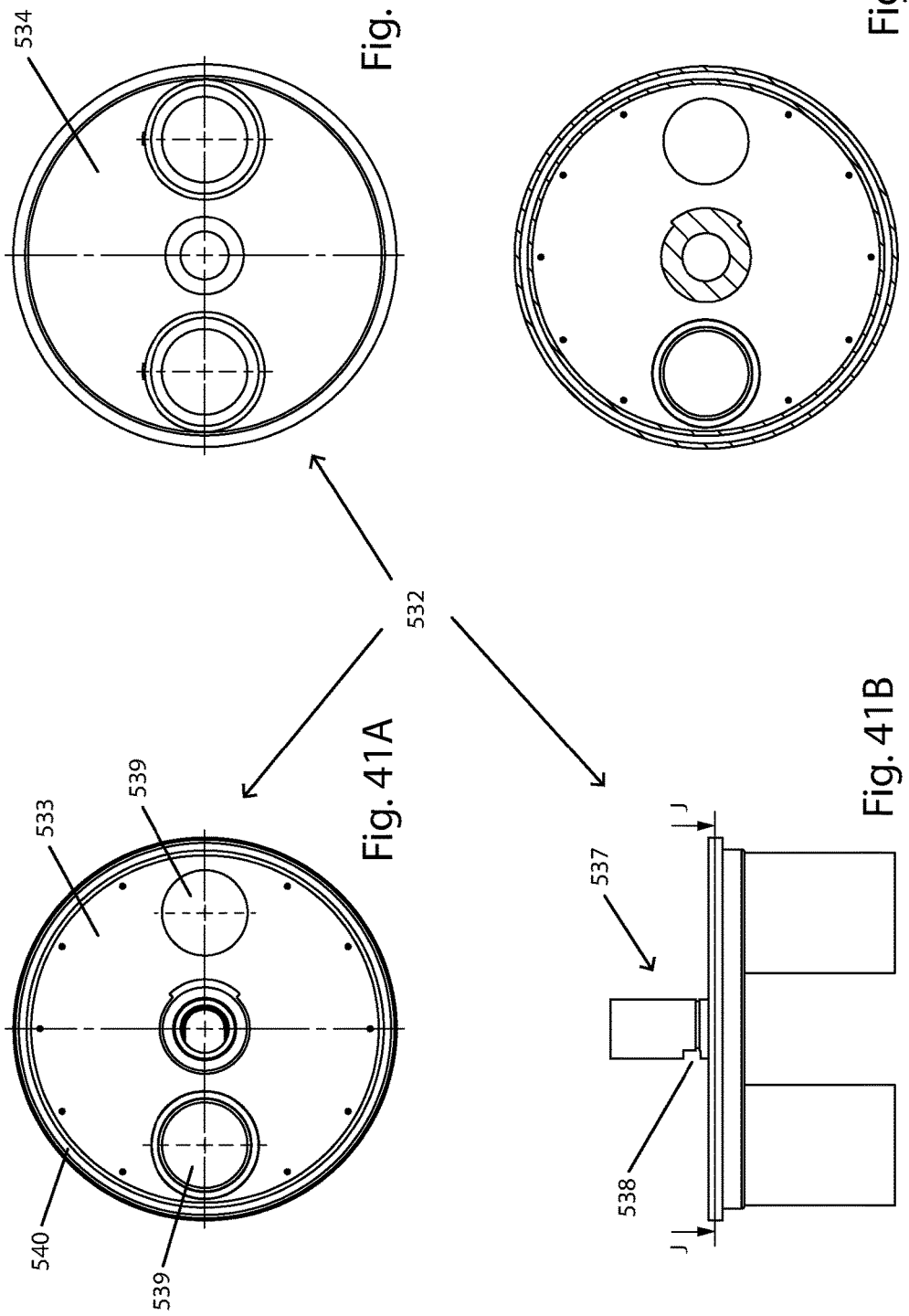

Fig. 41C

Fig. 41D

Fig. 41A

Fig. 41B

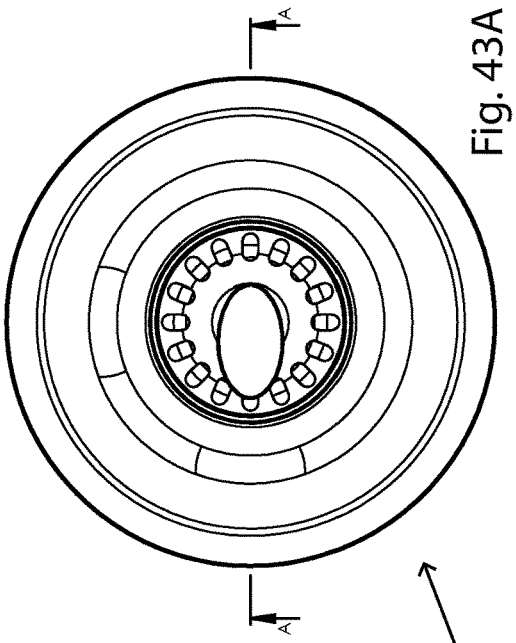

Fig. 43A

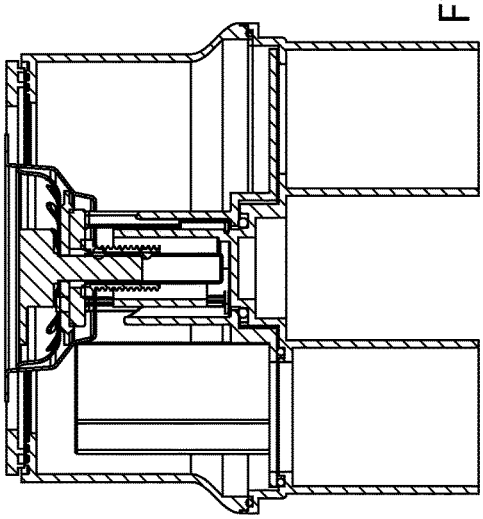

Fig. 43B

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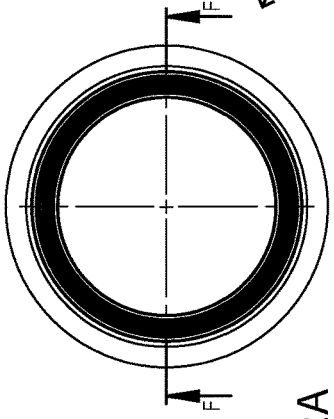

Fig. 42A

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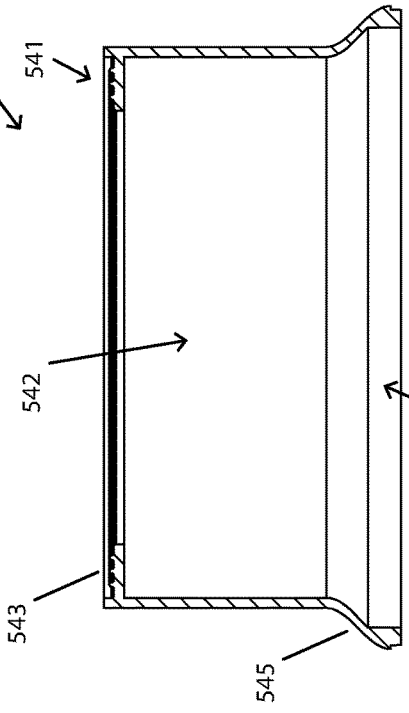

Fig. 42B

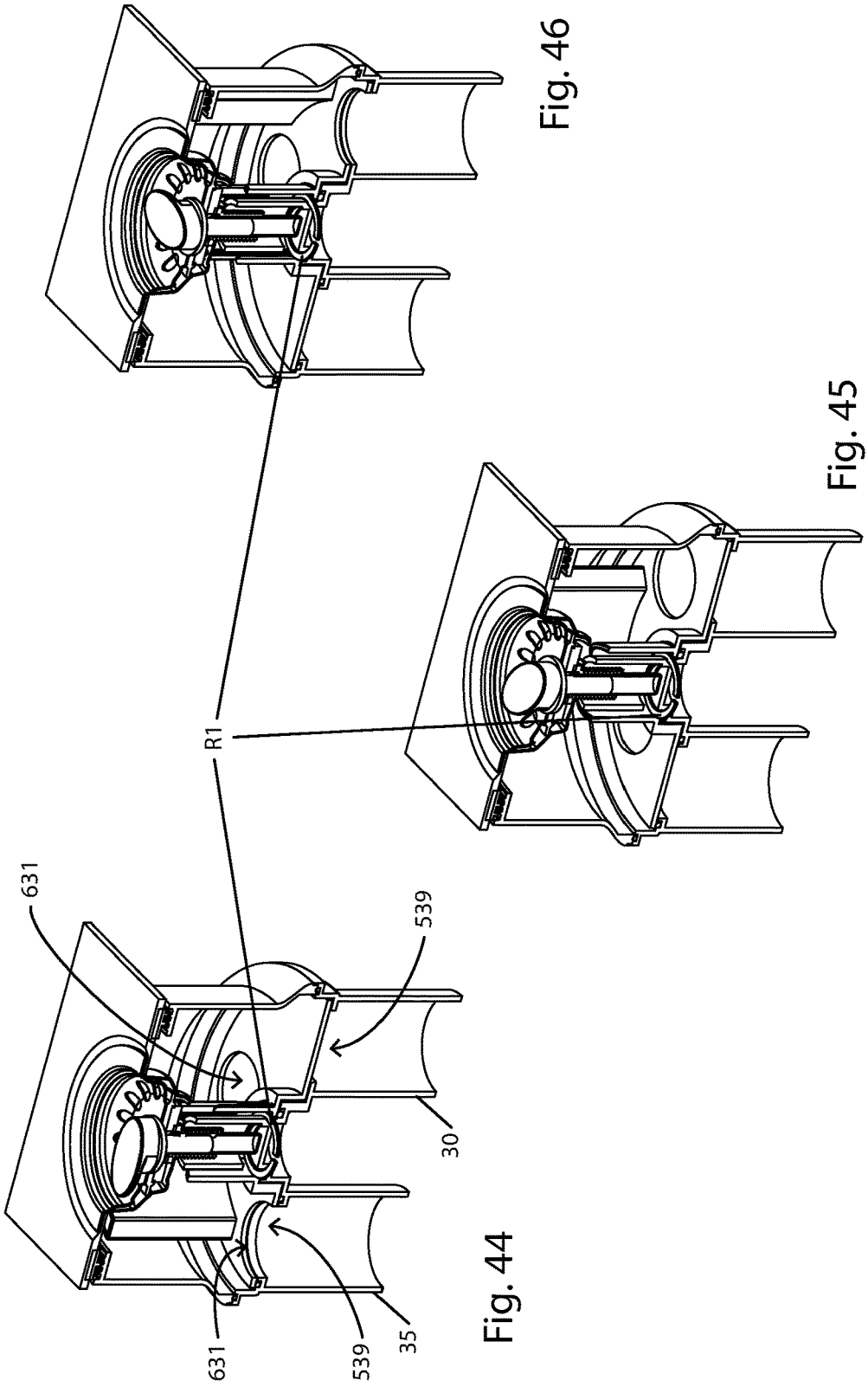

Fig. 44

Fig. 45

Fig. 46

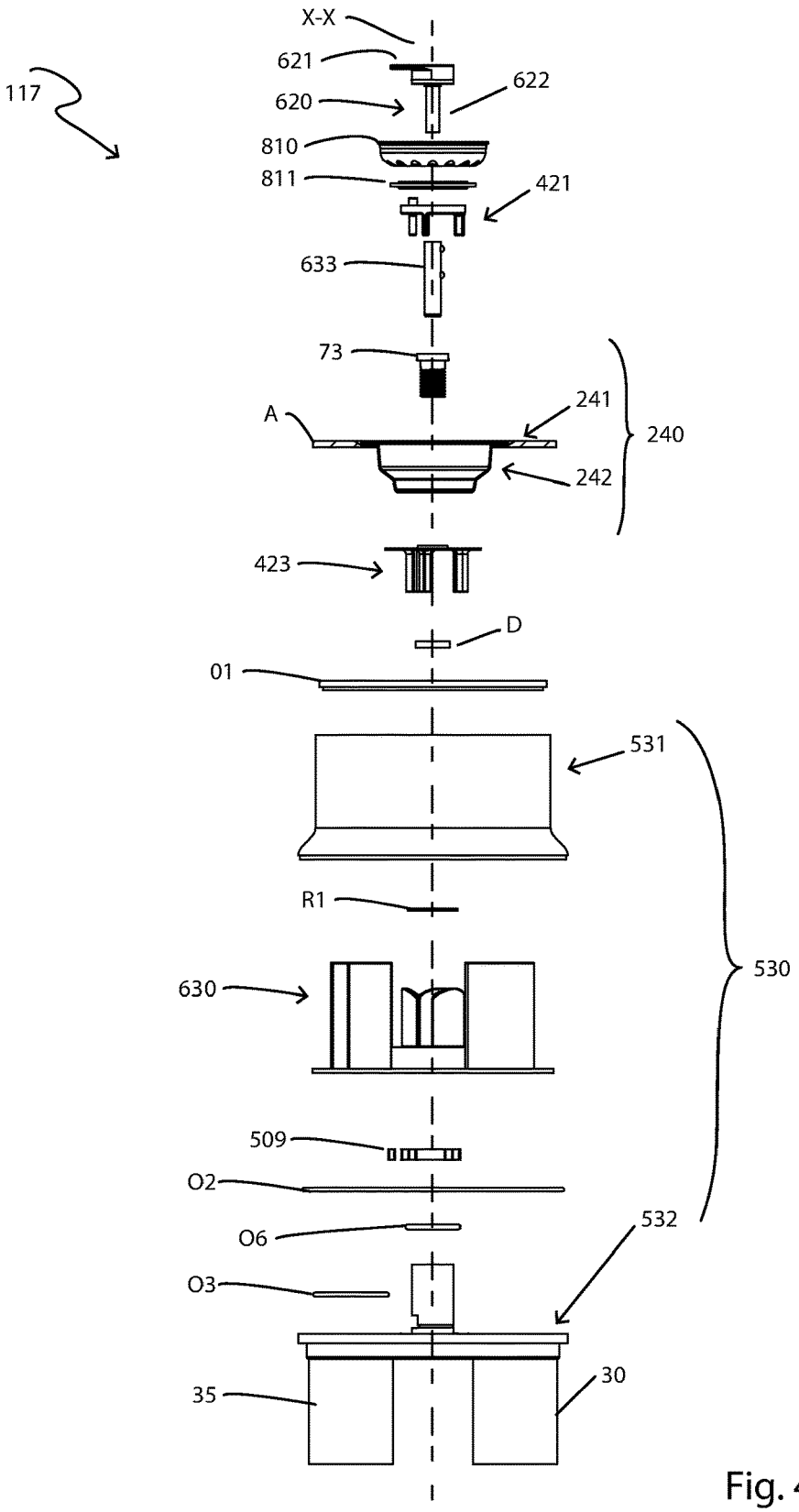
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Fig. 47

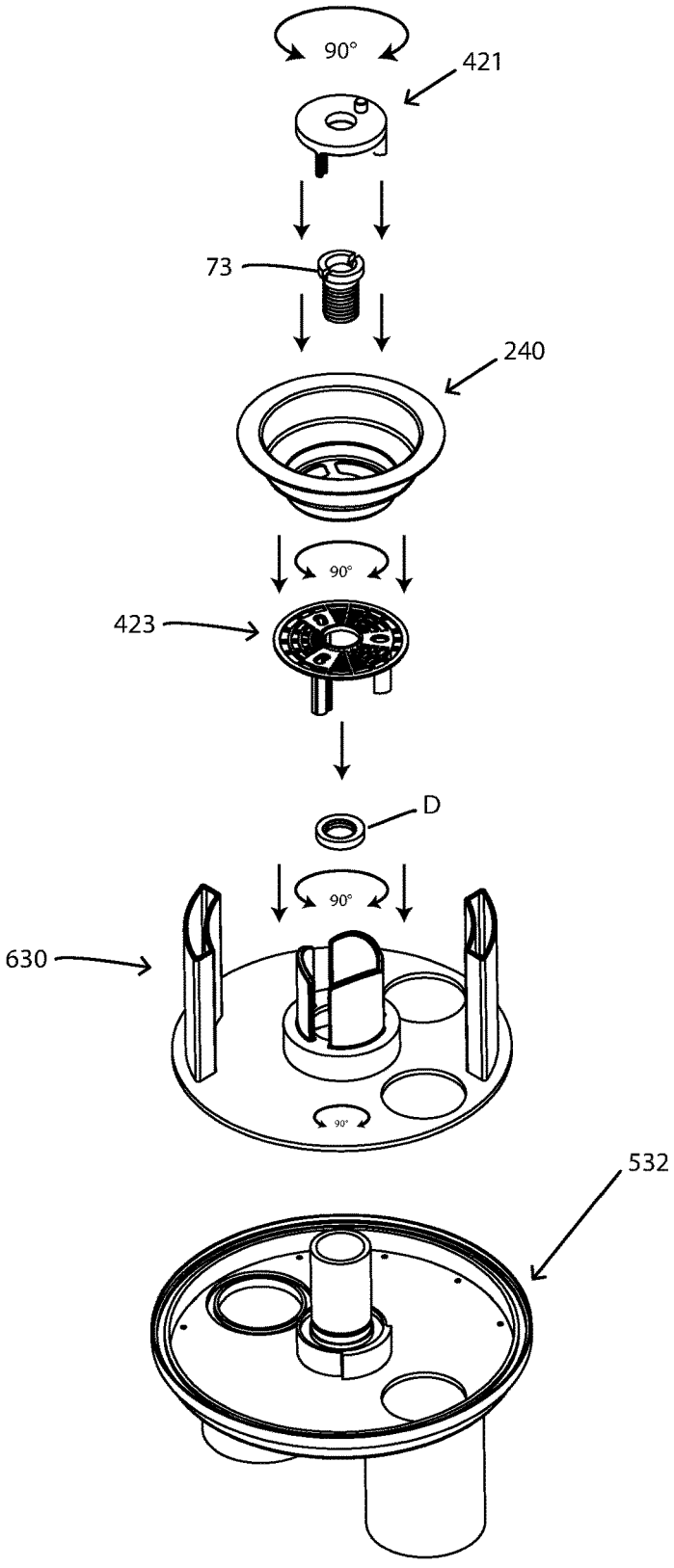

Fig. 48

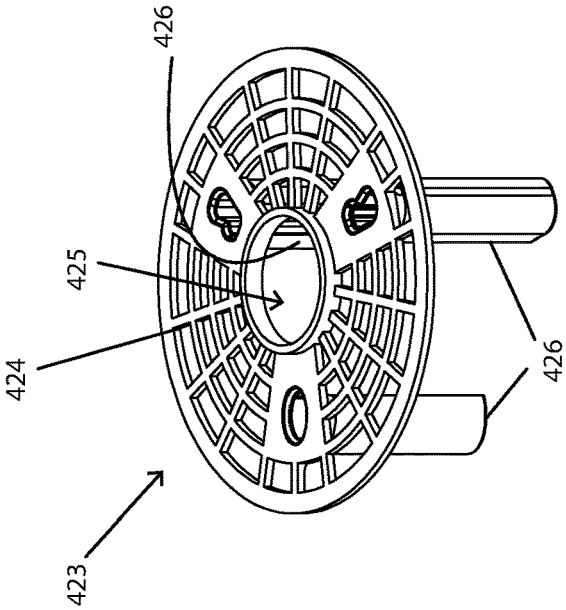

Fig. 50

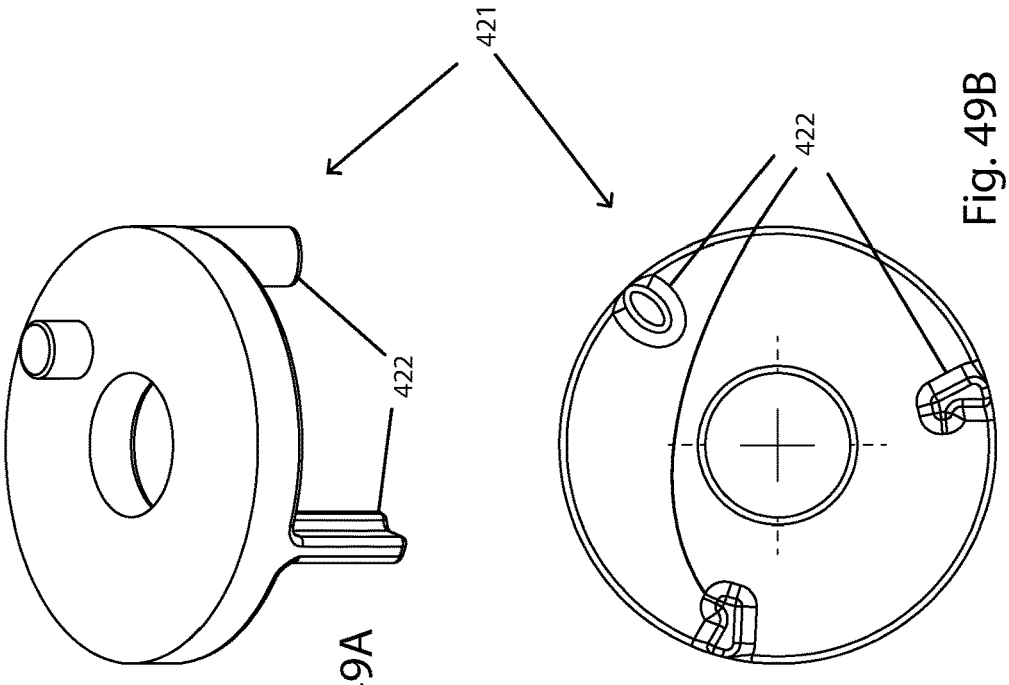

Fig. 49A

Fig. 49B

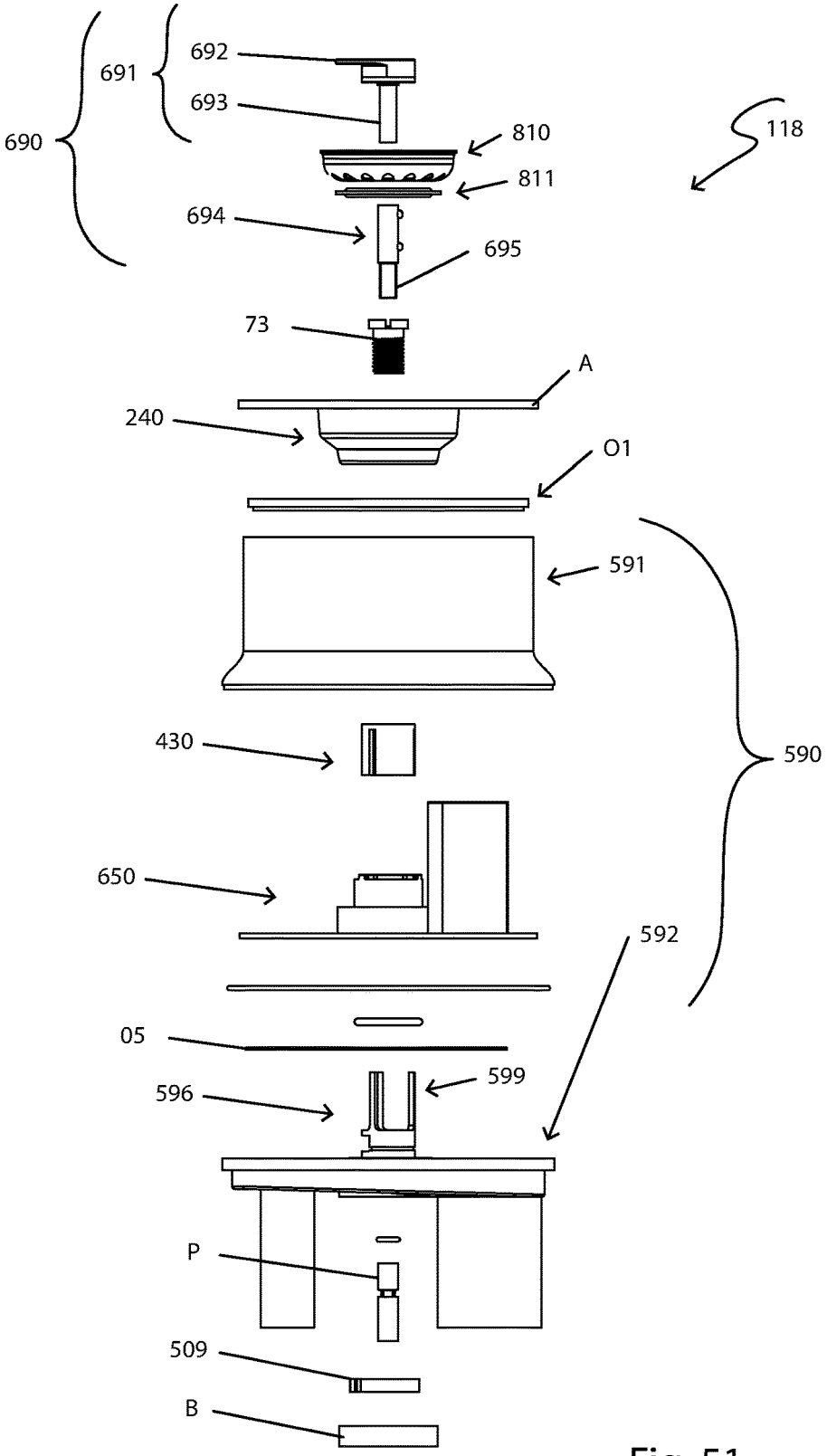
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Fig. 51

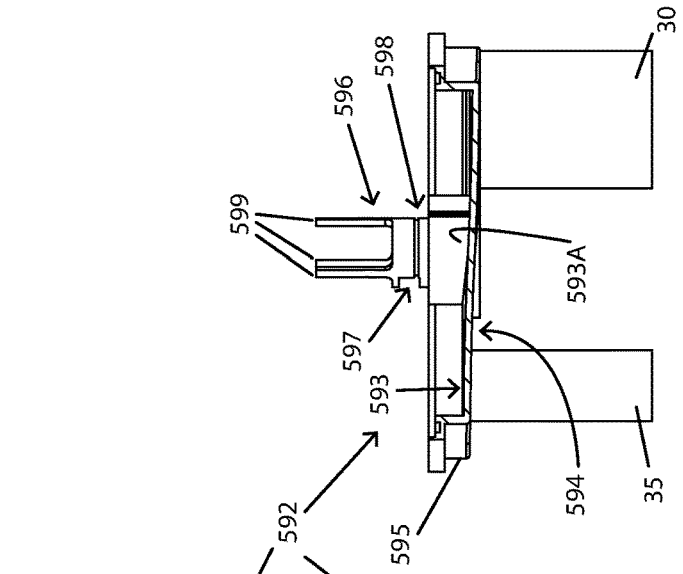

Fig. 53C

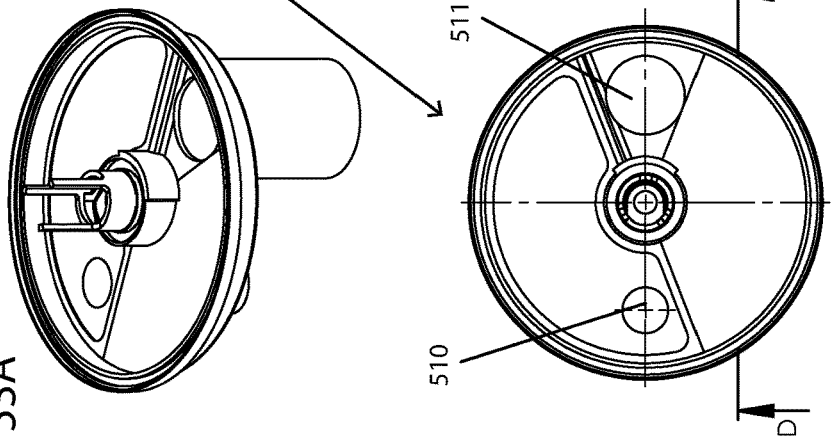

Fig. 53B

Fig. 53A

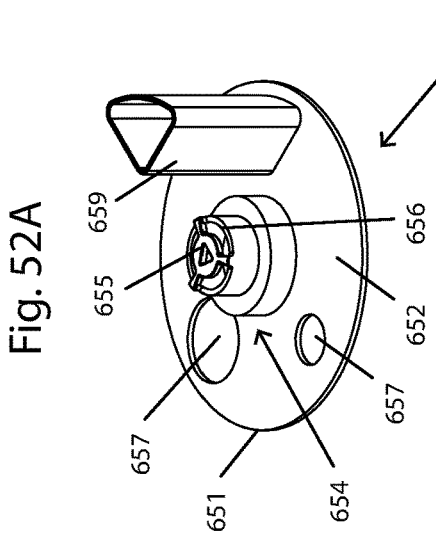

Fig. 52A

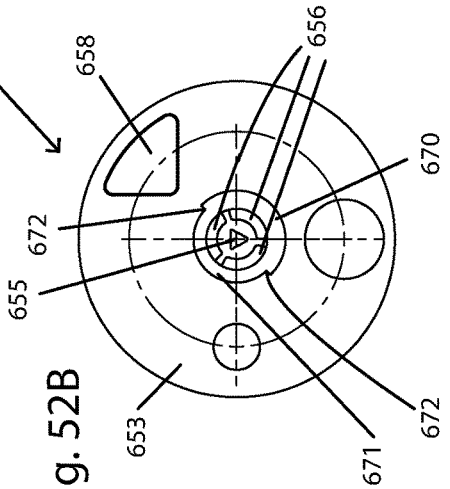

Fig. 52B

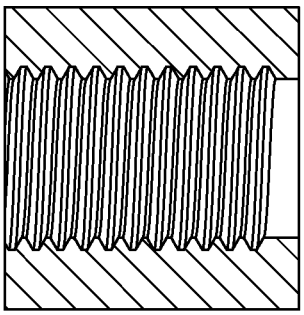

Fig. 54D

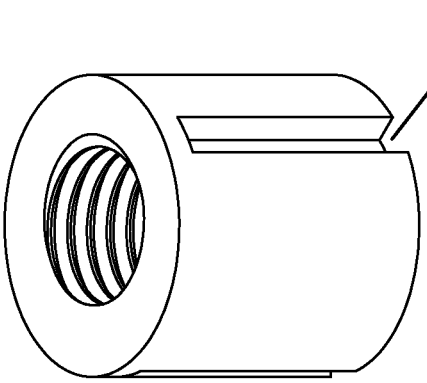

Fig. 54A

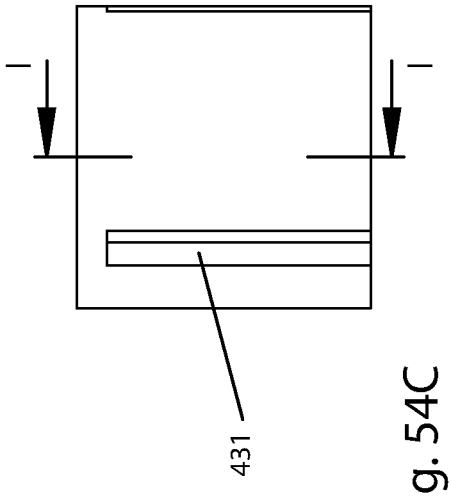

Fig. 54C

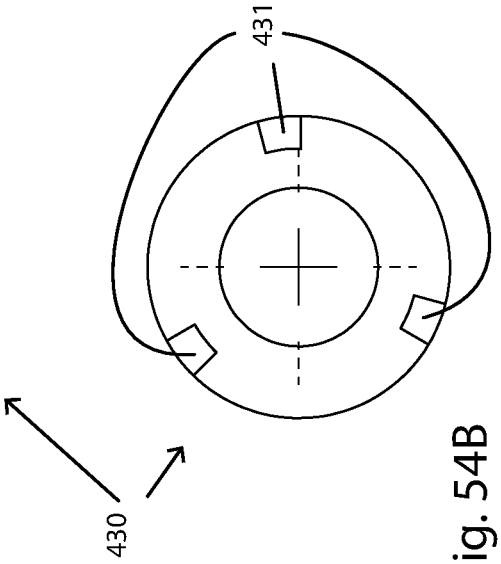

Fig. 54B

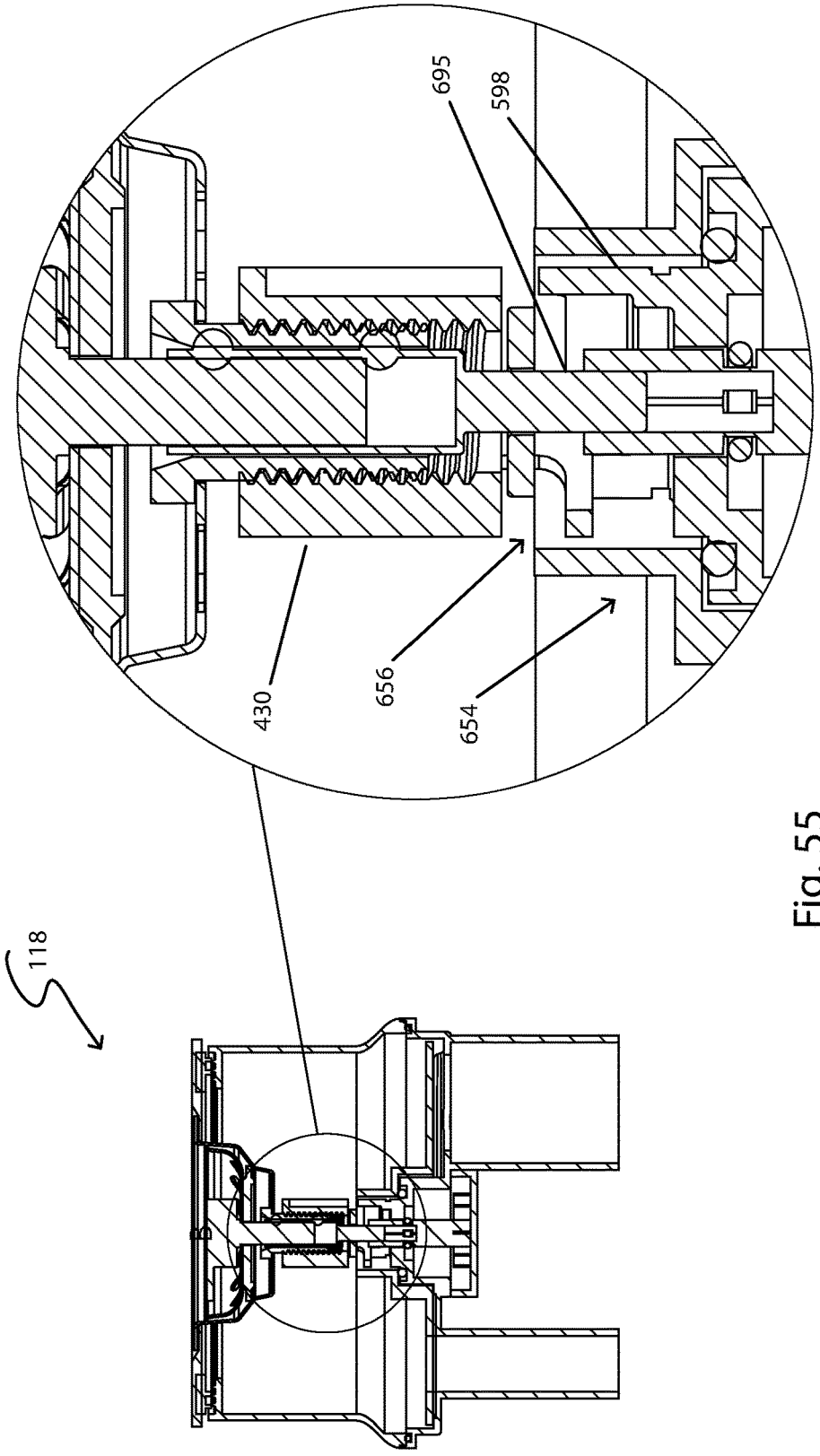

Fig. 55

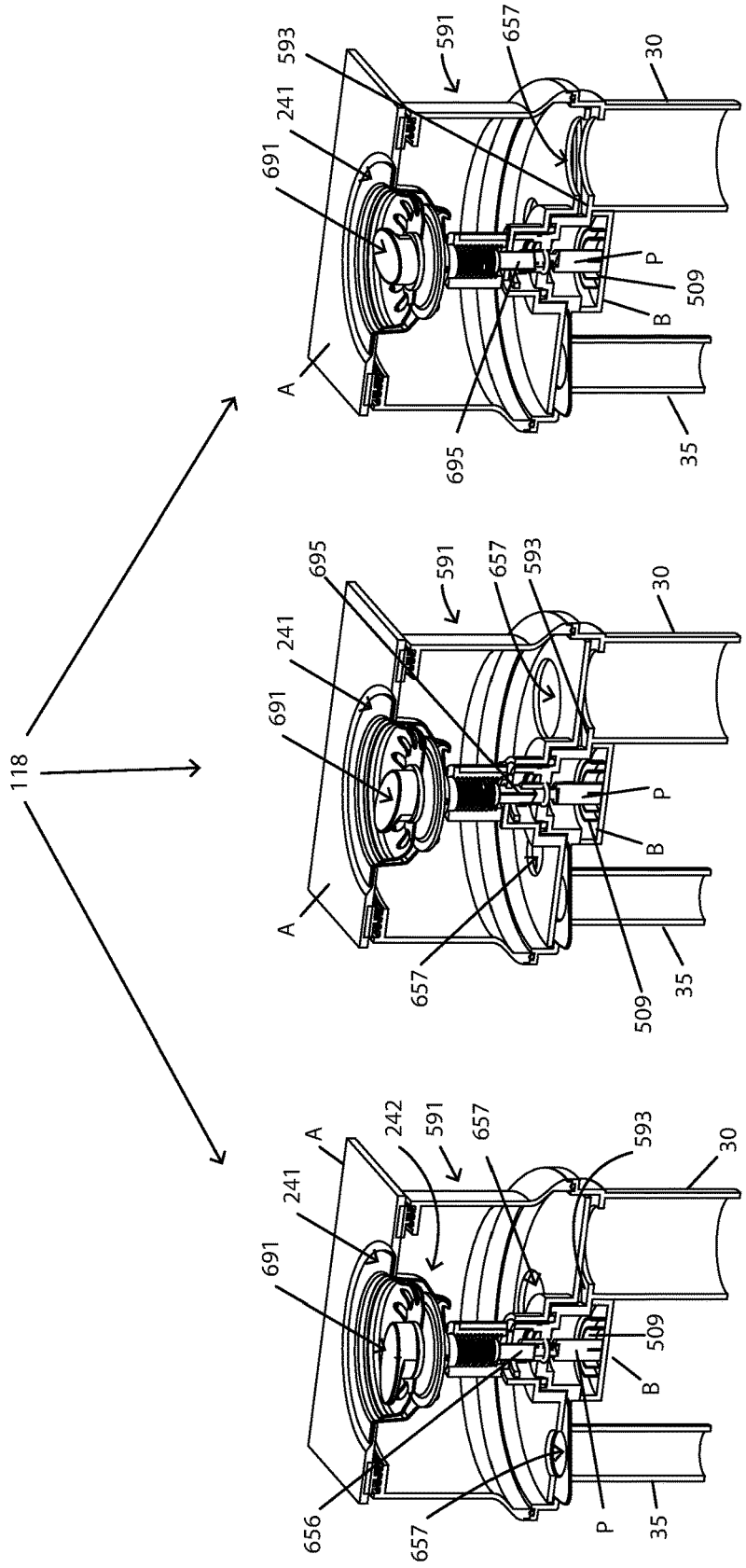

Fig. 56C

Fig. 56B

Fig. 56A

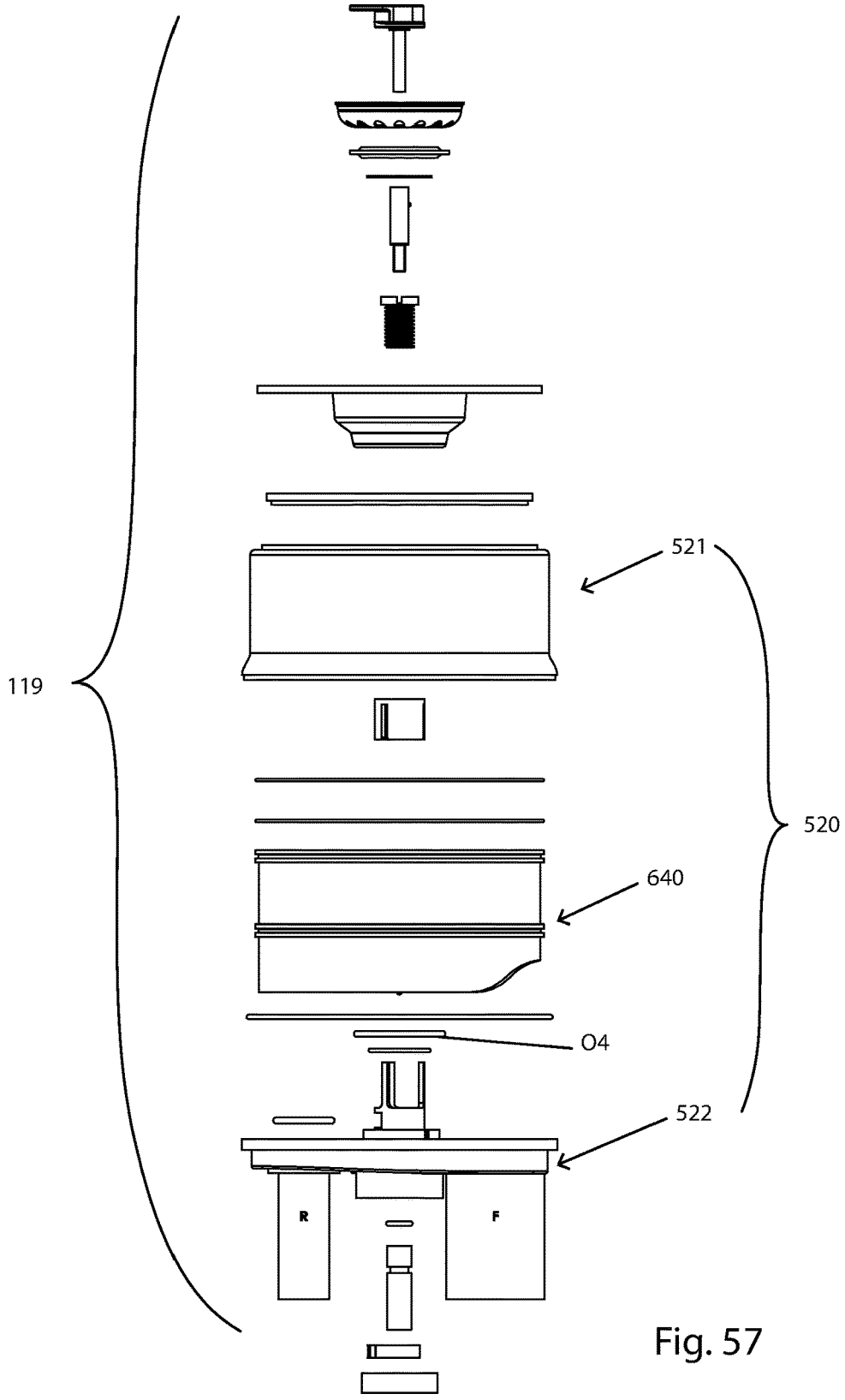

Fig. 57

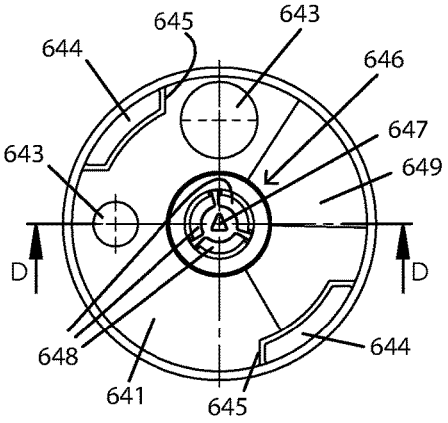

Fig. 58A

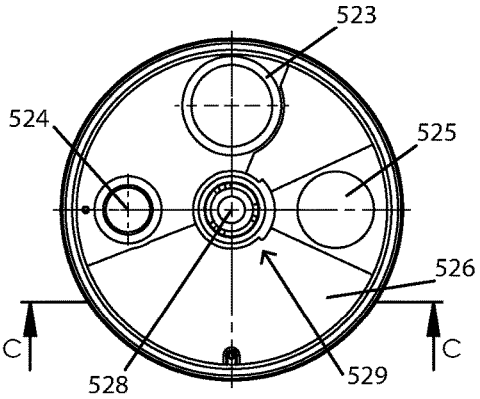

Fig. 59A

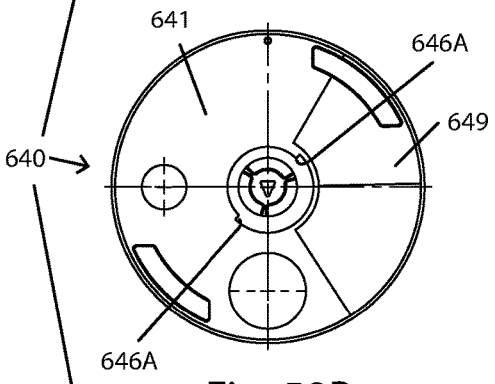

Fig. 58B

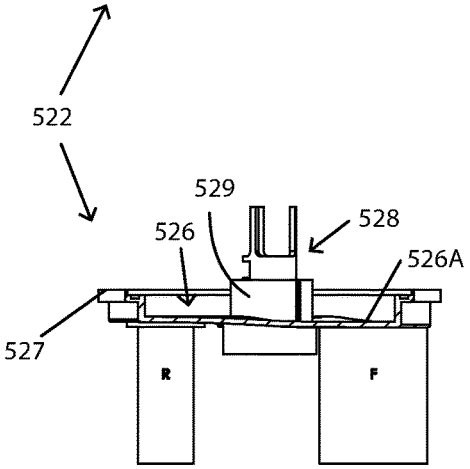

Fig. 59B

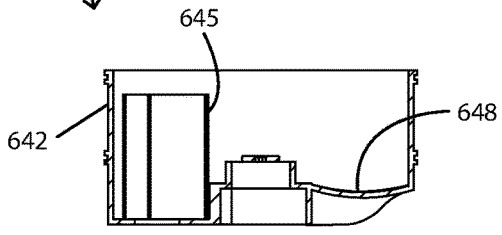

Fig. 58C

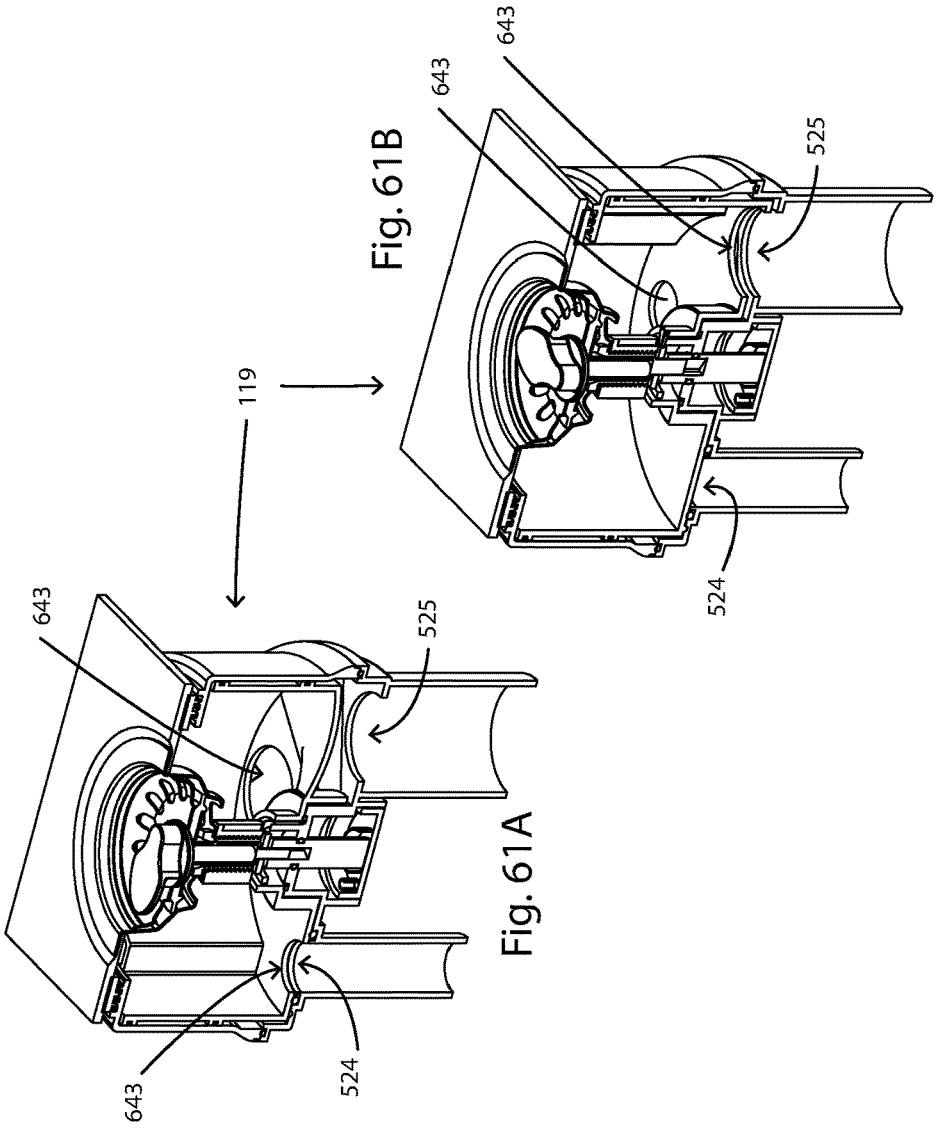

Fig. 61B

Fig. 61A

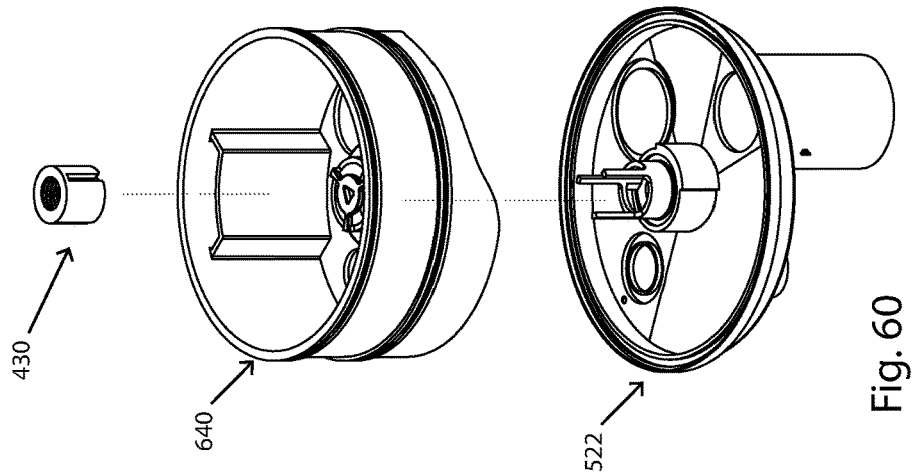

Fig. 60

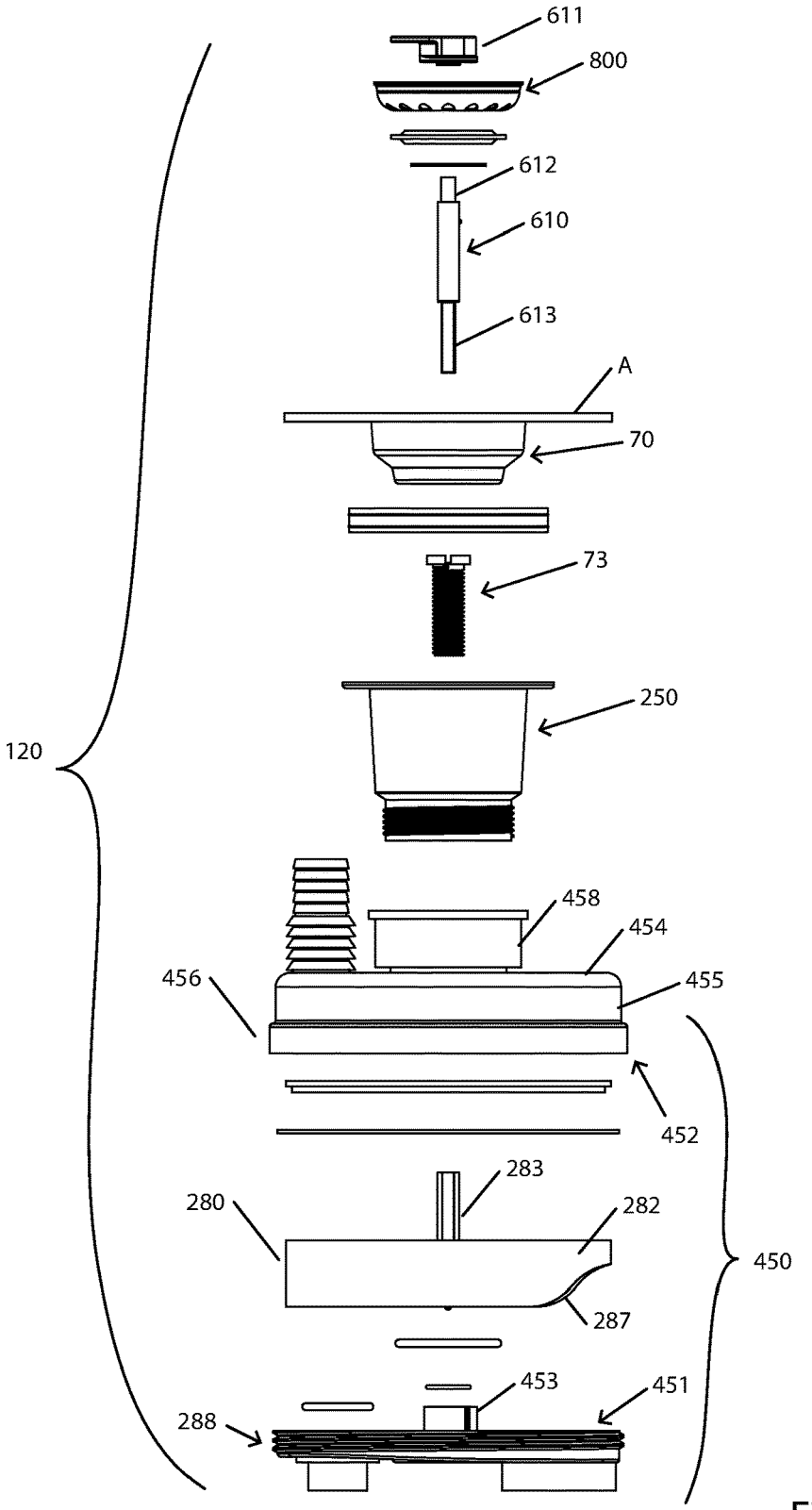
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Fig. 62

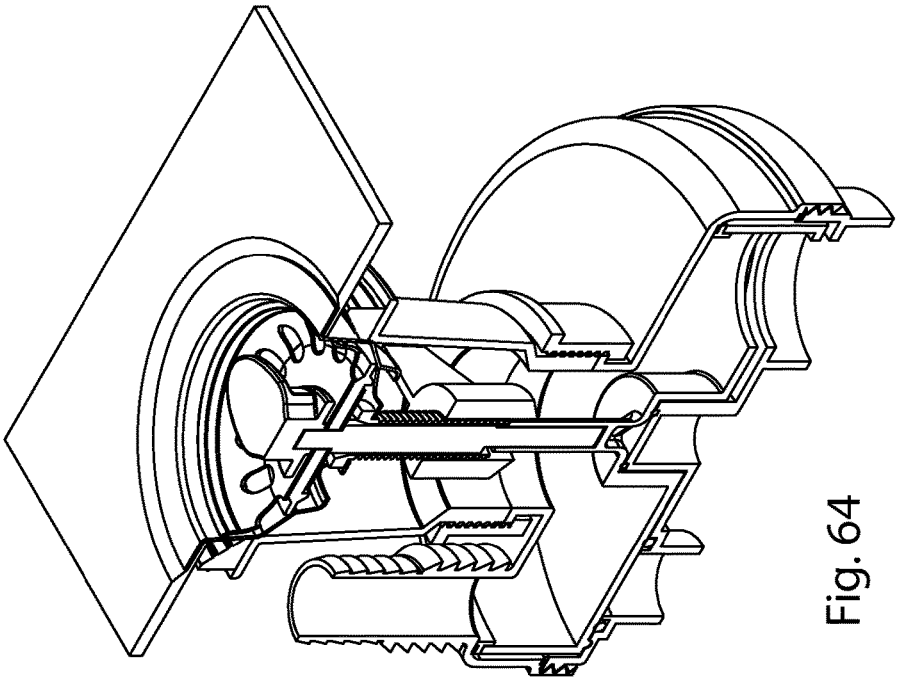

Fig. 64

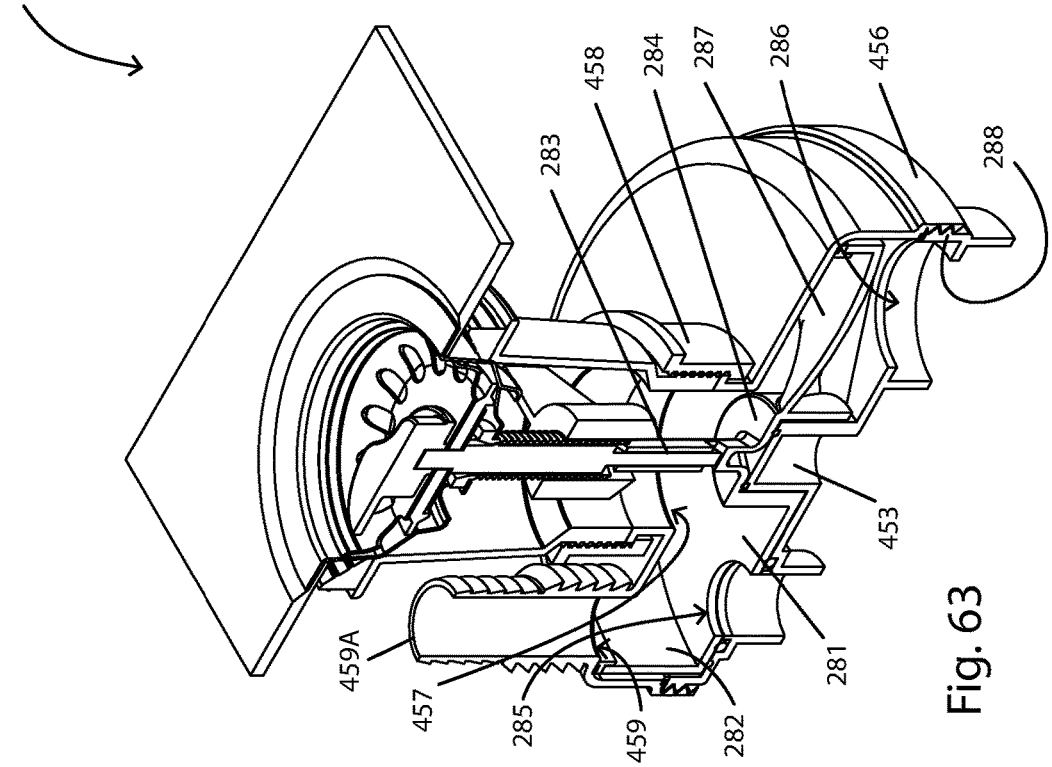

Fig. 63

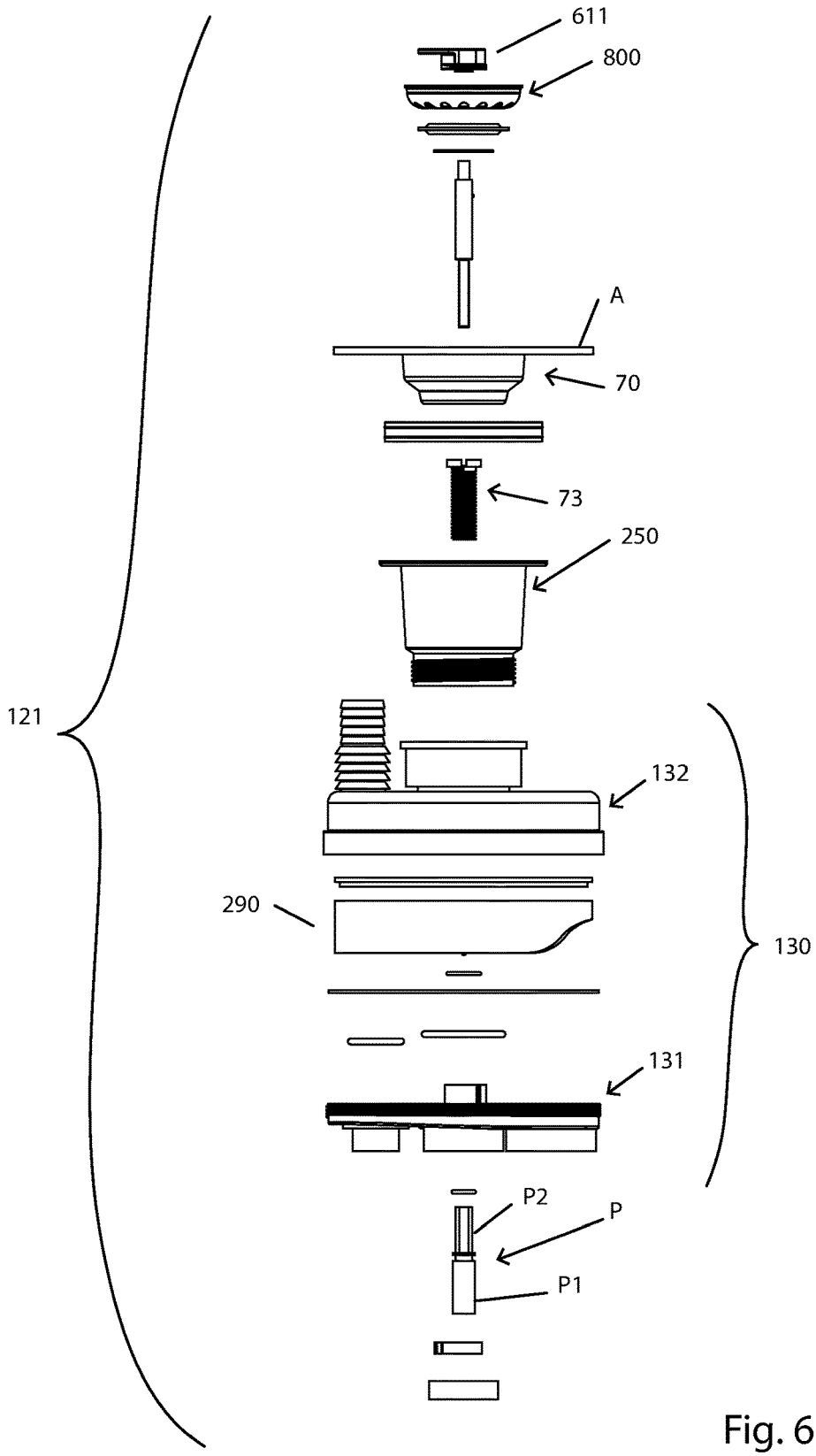

Fig. 65

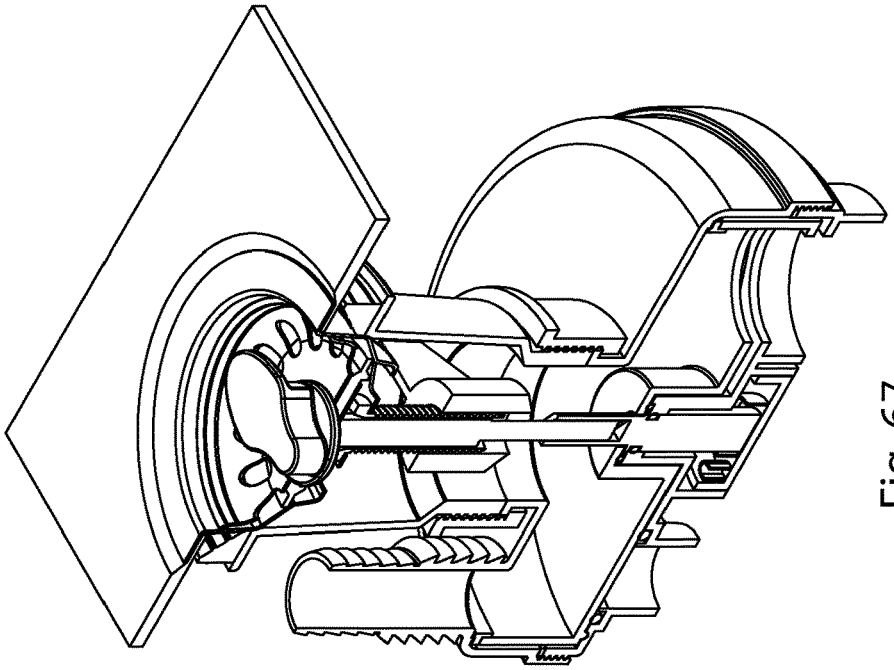

Fig. 67

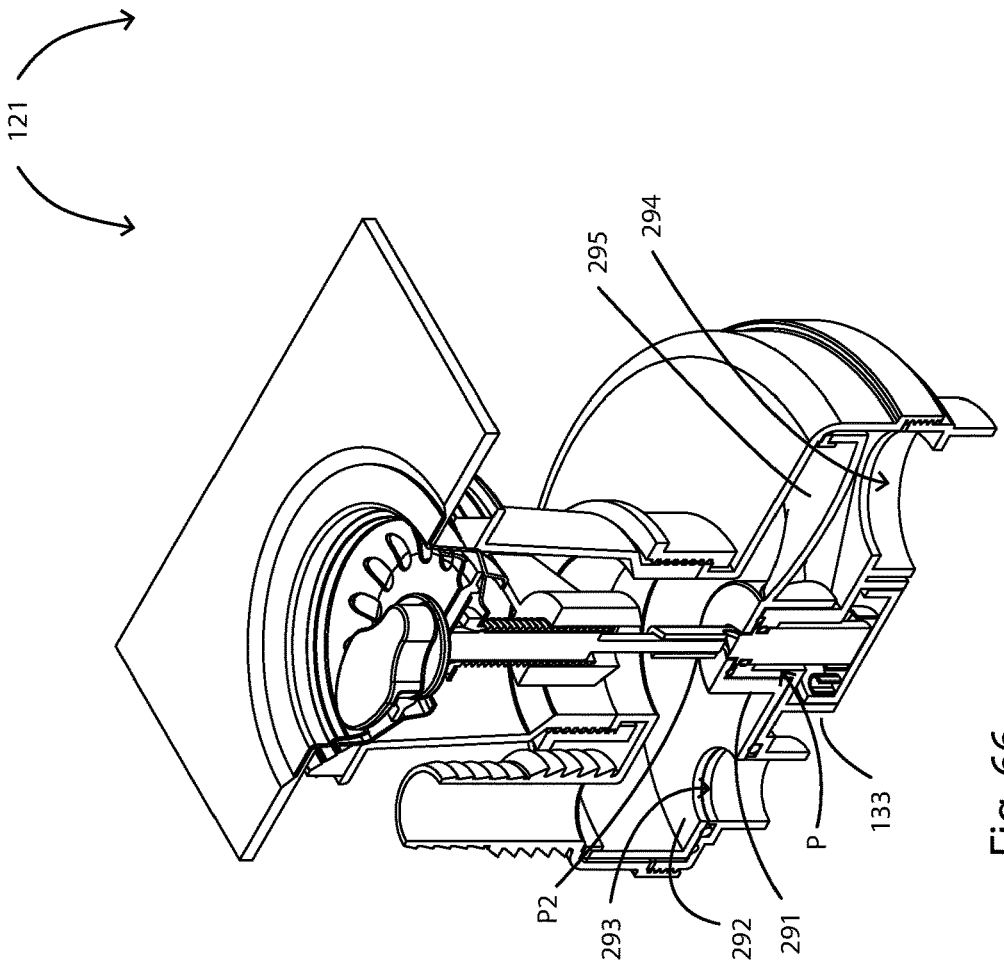

Fig. 66

MULTIPLE DRAINING SYSTEM FOR SINKS OR BASINS

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention relates to a multiple draining system for sinks or basins, mainly for sanitary domestic use. In particular the invention is relative to a draining system provided with a simple and reliable construction that allows to recover wastewater from sinks or basins when it is desired to use such water for further processing or other direct uses.

PRIOR ART TECHNIQUE

[0002] At present the discharge of water for civil use, from basins, sinks or other systems mainly for domestic use, containing food or detergents in greater or lesser amounts, takes place through a collecting drain. The drain is fixed on the bottom of a collecting basin (for example wash-basin or sink) usually by means of a ring nut, underneath the bottom, which screwed on the drain with the insertion of a gasket, making it integral to such bottom, as shown in FIG. **1**. Another very used system is that shown in FIG. **2** wherein a first upper element of the drain is fixed to the bottom of the basin by means of a central fixing pin, which being screwed to the lower element of the drain, placed under said basin bottom, joins integrally said first and said second element thus forming the drain body.

[0003] In both solutions, to the underneath end portion of the drain there are connected waste pipes, usually made of plastic, either screwed to that portion or through a pressure gaskets. The pipes may or may not be siphoned and have the task of carrying wastewater to collection and separation tanks and from these to the sewage system.

[0004] The drains are made of materials of various types: metal, plastic or both metal and plastic.

[0005] In order to shut the drain various systems are used: with time, the usual plug has been replaced by the traditional filter plug or basket which is at present the most used one in modern kitchens and which, at the same time, acts as a plug and a filter for the drain (FIG. **2**) or shutting systems having a back lever returning or by means of a rod operated by a knob.

[0006] The wise user, especially in those countries where water is very scarce and precious, realizes that a great quantity of water is discharged into the sewage system which instead could be well channeled for other uses.

[0007] To this purpose a lot of systems have been realized for recovering "grey water" from the bathroom such as that from the washbasin, from the shower or from the bathtub, as well as rainwater, mainly to be recycled in the W.C. as the W.C. flush is where water is used the most.

[0008] Alternatively, a great number of systems for recovering water have been realized through the treatment of the same W.C. wastewater or through systems for recovering grey water through degreasing or phytodepuration, that however have high costs and a set of dimensioning problems not always solvable concerning phytodepuration.

[0009] Just as much attention has not been given to recycling "clean" water from the kitchen or from the bathroom that in the everyday use all together became substantial for alternative uses. In fact, it frequently occurs that much of the water used in the domestic wastewater drainage circuit, wherefrom it is discharged into the sewage system, is not really contaminated by any element such as detergents or other pollutants or not biodegradable, in other words containing totally biodegradable detergents in use at present. Let's consider when vegetables or fruits are cleaned or washed, when you wash your hands while cooking, the pasta or vegetables cooking water, or when dusty objects are washed. Again, washing continuously kitchen tools while cooking produces "dirty" water which is not really "dirty", on the contrary it is absolutely useful for further uses and specifically for some domestic uses such as watering plants or the lawn.

[0010] In these cases, that water is therefore potentially suitable for recycling in natural ways, other than the mere W.C. flush.

[0011] Sometimes a big pot or other container is put in the sink when it is desired to collect the water used and then recycle it directly watering plants. Such system is certainly not very convenient and cannot be used immediately. Therefore, as in the above said cases, the water quantity usually used up/discharged in sinks cannot be recycled any more or at the very least not very easily.

[0012] A more practical solution, in order to achieve such recycling possibility, consists in realizing a double draining circuit controlled by a diverter under the basin. In this way, with two systems, one for the sewage and one for recovering, the recovered water is directed to the garden or to a storage container so as to be subsequently used for gardening or other suitable use. Such system is undoubtedly useful, effective to the purpose, but it certainly has some considerable drawbacks and complexities for the user.

[0013] First of all, whenever the user wants to recycle even a small quantity of water, he must bend down towards the front part of the cabinet which is usually fitted under the wash-basin, open its wings, operate the gate acting as a diverter, close the cabinet, and do the opposite to go back to the sewage system.

[0014] Such "D.I.Y." system shows a lot of inefficiencies and drawbacks: it is not immediate, it is necessary to bend twice in order to operate it in one way and then go back to the previous condition (opening/closing cycle); it does not allow the user to see if the diverter is in the sewage state or in the recovery state; it takes up precious room under the wash-basin; it is rather expensive, even for the less expensive drains, for the number of items to buy and/or to adjust. Also the possibility of using remote control systems, such as those on the market, involve a series of adjustments in order to be applied to the wash-basin. These solutions prove to be complex solutions, since anyhow, it is necessary to modify and/or to make a hole in the cabinet whereon the wash-basin rests as well as to make adjustments that many users do not like.

[0015] Furthermore, the use of the products present on the market would result in systems having considerable dimensions. In practice, it derives that recovery systems are rarely realized in sinks for all the above said reasons of usage drawbacks, of lack of immediate visualization of the sewage or recovery systems, of appearance, of costs.

[0016] For example, the patent application GB 2430444 describes a grey water draining system comprising an inlet for grey water (sink drain), first and second outlets for discharging grey water, the first outlet being connected to a draining system (to sewage) and the second outlet being connected to a recovery system, a valve for selectively directing water to the first outlet or to the second outlet, the valve being positioned between the inlet and the first outlet

or the second outlet, wherein the valve is activatable between first and second positions connecting alternatively the inlet to the first outlet and the inlet to the second outlet. It is to note that the valve comprises an en bloc sleeve and is operated by rotating the plug for closing the inlet (sink drain). Therefore, the plug and the valve are an en bloc piece which has to be completely made for that purpose, thus basically modifying the basic structure of a traditional system.

[0017] Patent application FR 3000508 describes a recuperator of domestic water comprising a three-way valve which intercepts the water waste pipe after the siphon and is composed of a cylinder activated by a remote control by means of a rod capable of causing the cylinder to rotate by 90°. Through the rotation of the cylinder, water is directed straight to the sewage system or to a storage container wherein an electric pump, when activated, makes it possible to reuse the water for further purposes. This solution appears to be rather complex and encumbering and not applicable to traditional systems.

SUMMARY OF THE INVENTION

[0018] The technical problem at the basis of the present invention is therefore that of realizing a new device that inserted in a suitable draining system, that is in draining systems on the market which do not have any chokes or interruptions, when used, allows to overcome the above said drawbacks; just the opposite, it allows to realize, in the same spaces, a substantially different system having an appearance the same as those at present on the market and which allows to operate quickly, even for small quantities of water, being able to control visually the real operation of the activated draining system and even with a full sink it is possible to choose the type of draining system before activating its opening.

[0019] Such problem is solved by means of a multiple draining system according to various embodiments, starting from only one concept for all solutions: to make the drain, from just an element of interception and connection to the draining system, become only one system of interception and diversion of the draining with immediate control, either when the draining is open or closed being able to see the active draining function.

BRIEF DESCRIPTION OF DRAWINGS

[0020] Further characteristics and advantages of the multiple draining system of the invention will become more apparent from the following description of some embodiments by way of example only but not limited to with reference to the following figures, wherein:

[0021] FIG. **1** is a schematic sectional lateral view of a drain for sinks in accordance with a first embodiment according to the prior art;

[0022] FIG. **2** is a schematic sectional lateral view of a drain for sinks in accordance with a second embodiment according to the prior art;

[0023] FIG. **3** is a schematic axonometric view in an exploded and sectional way of a double draining system for sinks according to a first embodiment of the present invention;

[0024] FIG. **4** is a sectional lateral view of the double draining system of FIG. **3** assembled in a first usage condition;

[0025] FIG. **5** is a sectional lateral view of the double draining system of FIG. **3** assembled in a second usage condition;

[0026] FIG. **6** is an axonometric view of a rotating cylinder of diverting means of the draining system of FIG. **3**;

[0027] FIG. **7** is a sectional axonometric view of the cylinder with the relative upper portion of a drain in an assembled state;

[0028] FIG. **8** is a schematic sectional lateral view of a waste pipe of the draining system of FIG. **3**;

[0029] FIG. **9** is an axonometric view of the waste pipe of FIG. **8**;

[0030] FIG. **10** is a schematic axonometric view in an exploded and sectional way of a double draining system for sinks according to a second embodiment of the present invention;

[0031] FIG. **11**A is a schematic lateral view, assembled and sectional, of the draining system of FIG. **10** in a first operating condition;

[0032] FIG. **11**B is a schematic lateral view, assembled and sectional, of the draining system of FIG. **10** in a second operating condition;

[0033] FIG. **12** is a schematic lateral view, exploded and sectional, of a double draining system for sinks in accordance with a third embodiment of the invention;

[0034] FIG. **13** is a schematic lateral view, exploded and sectional, of a double draining system for sinks in accordance with a fourth embodiment of the present invention, and of one of its particulars;

[0035] FIG. **14** is a sectional schematic lateral view of a double draining system for sinks in accordance with a fifth embodiment of the invention;

[0036] FIG. **15** is a top plan view of a drain of the system according to the invention, in accordance with an embodiment variant;

[0037] FIG. **16** is a sectional schematic lateral view of a double draining system for sinks in accordance with a sixth embodiment of the invention;

[0038] FIG. **17**A is a schematic lateral exploded view of a double draining system for sinks in accordance with a seventh embodiment of the invention;

[0039] FIG. **17**B is a lateral view of the system of FIG. **17**A in an assembled state;

[0040] FIG. **17**C is a sectional top plan view along the line B-B of the system of FIG. **17**B,

[0041] FIG. **17**D is a sectional lateral view along the line A-A of the system of FIG. **17**B;

[0042] FIG. **18** is a schematic lateral exploded view of a double draining system for sinks in accordance with an eighth embodiment of the invention,

[0043] FIG. **19**A is a schematic lateral exploded view of a double draining system for sinks in accordance with a ninth embodiment of the invention;

[0044] FIG. **19**B is a lateral view of the system of FIG. **19**A in an assembled state;

[0045] FIG. **19**C is a sectional top plan view along the line B-B of the system of FIG. **19**B;

[0046] FIG. **20** is a schematic lateral exploded view of a multiple draining system for sinks in accordance with a tenth embodiment of the invention;

[0047] FIG. **21** is a schematic lateral exploded view of a multiple draining system for sinks in accordance with an eleventh embodiment of the invention;

[0048] FIG. **22** is a schematic lateral exploded view of a multiple draining system for sinks in accordance with a twelfth embodiment of the invention;

[0049] FIG. **23** is a schematic lateral exploded view of a double draining system for sinks in accordance with a thirteenth embodiment of the invention;

[0050] FIG. **24**A is a schematic lateral exploded view of a multiple draining system for sinks in accordance with a fourteenth embodiment of the invention;

[0051] FIG. **24**B is a top view of the system of FIG. **24**A assembled in a first operating condition,

[0052] FIG. **24**C is a sectional lateral view along the line A-A of the system of FIG. **24**B;

[0053] FIG. **24**D is a sectional view along the line B-B of the system of FIG. **24**C;

[0054] FIG. **24**E is a sectional view along the line F-F of the system of FIG. **24**C;

[0055] FIG. **24**F is a top view of the system of FIG. **24**A assembled in a second operating condition;

[0056] FIG. **24**G is a sectional lateral view along the line C-C of the system of FIG. **24**F;

[0057] FIG. **24**H is a sectional view along the line D-D of the system of FIG. **24**G;

[0058] FIG. **24**I is a sectional view along the line G-G of the system of FIG. **24**G;

[0059] FIG. **25**A is a lateral exploded view of a multiple draining system for sinks in accordance with a fifteenth embodiment of the invention;

[0060] FIG. **25**B is a top view of the system of FIG. **25**A in an assembled state;

[0061] FIG. **25**C is a sectional lateral view along the line A-A of the system of FIG. **25**A in an assembled state;

[0062] FIG. **25**D is a sectional lateral view along the line B-B of the system of FIG. **25**C;

[0063] FIG. **26**A is a top axonometric exploded view of a multiple draining system for sinks in accordance with a sixteenth embodiment of the invention;

[0064] FIG. **26**B is a lateral assembled view of the system of FIG. **26**A;

[0065] FIG. **26**C is a sectional lateral view along the line A-A of the system of FIG. **26**B;

[0066] FIG. **27** is a lateral exploded view of a multiple draining system for sinks in accordance with a seventeenth embodiment of the invention,

[0067] FIG. **28** is a top exploded axonometric view of some components of the system of FIG. **27**;

[0068] FIG. **29**A-**29**B are respectively a lateral view and a sectional view along the line B-B of FIG. **29**A of a rotating cylinder of the flow diverting means of the system of FIG. **27**;

[0069] FIG. **30**A-**30**B are respectively a lateral and a sectional view along the line C-C of FIG. **30**A of a water waste pipe of the system of FIG. **27**;

[0070] FIG. **31**A-**31**C are respectively top axonometric view, a lateral view and a bottom view of the first engaging means for the rotation of the rotating cylinder of FIG. **29**;

[0071] FIG. **32** is a top axonometric view of a grid of a plug with the first engaging means of FIGS. **31**A-**31**C;

[0072] FIGS. **33**A-**33**C are respectively a top axonometric view, a lateral view and a top plan view of an element of a drain according to the system of FIG. **27**;

[0073] FIGS. **34**A and **34**B are respectively a top view of the system of FIG. **27** in an assembled state and a sectional view along the line A-A of FIG. **34**A;

[0074] FIG. **35** is a top sectional axonometric view of the assembled system of FIG. **27**, in a first operating condition;

[0075] FIG. **36** is a view as in FIG. **35**, wherein the system is in a second operating condition;

[0076] FIG. **37** is a view as in FIG. **35**, wherein the system is in a third operating condition;

[0077] FIG. **38** is a lateral exploded view of a draining system according to an eighteenth embodiment;

[0078] FIG. **39** is a top axonometric exploded view of some components of the system of FIG. **38**;

[0079] FIGS. **40**A-**40**D are respectively a top view, a lateral view, a bottom view and a sectional view along the line I-I of FIG. **40**B of means for diverting the water flow of the system of FIG. **38**;

[0080] FIGS. **41**A-**41**D are respectively a top view, a lateral view, a bottom view and a sectional view along the line J-J of FIG. **41**B of a first portion of the waste pipe of the water flow of the system of FIG. **38**;

[0081] FIGS. **42**A-**42**B are respectively a top view and a sectional view along a line F-F of FIG. **42**A of a second portion of the waste pipe of the water flow of the system of FIG. **38**;

[0082] FIGS. **43**A and **43**B are respectively a top view and a lateral sectional view along the line A-A of FIG. **43**A of the system of FIG. **38** in an assembled state;

[0083] FIG. **44** is a top sectional axonometric view of the system of FIG. **38** in an assembled state and in a first operating condition;

[0084] FIG. **45** is a top sectional axonometric view of the system of FIG. **38** in an assembled state and in a second operating condition;

[0085] FIG. **46** is a top sectional axonometric view of the system of FIG. **38** in an assembled state and in a third operating condition,

[0086] FIG. **47** is a lateral exploded view of a draining system according to a nineteenth embodiment;

[0087] FIG. **48** is an exploded axonometric view of some components of the system of FIG. **47**;

[0088] FIG. **49**A-**49**B are respectively a top axonometric view and a bottom plan view of a first part of rotating elements of the system of FIG. **47**;

[0089] FIG. **50** is a top axonometric view of a second part of rotating elements of the system of FIG. **47**;

[0090] FIG. **51** is a lateral exploded view of a draining system according to a twentieth embodiment;

[0091] FIGS. **52**A-**52**B are respectively a top axonometric view and a bottom view of means for diverting the water flow of the system of FIG. **51**;

[0092] FIGS. **53**A-**53**C are respectively a top axonometric view, a top plan view and a lateral sectional view along the line D-D of FIG. **53**B of a portion of the waste pipe of the system of FIG. **51**;

[0093] FIGS. **54**A-**54**D are respectively a top axonometric view, a bottom view, a lateral view and a lateral sectional view along the line I-I of FIG. **54**C of an element, for fixing the drain to the waste pipe;

[0094] FIG. **55** is a sectional lateral view of the system of FIG. **51** in an assembled state showing an enlarged particular;

[0095] FIGS. **56**A-**56**C are respectively an axonometric view of the section of FIG. **55** of the system in a first, second and third operating condition;

[0096] FIG. **57** is a lateral exploded view of a draining system according to a twenty-first embodiment,

[0097] FIGS. **58**A-**58**C are respectively a top plan view, a bottom view and a sectional view along the line D-D of FIG. **58**A of a rotating element of the system of FIG. **57**;

[0098] FIGS. **59**A-**59**B are respectively a top plan view and a sectional view along the line C-C of FIG. **59**A of a portion of the waste pipe of the system of FIG. **57**;

[0099] FIG. **60** is a top axonometric exploded view of the rotating element and of the portion of the pipe respectively of the FIGS. **58** and **59** having a connecting element between said element and the portion;

[0100] FIGS. **61**A and **61**B are two top sectional axonometric views of the system of FIG. **57** in an assembled state respectively in a first and in a second operating condition;

[0101] FIG. **62** is a lateral exploded view of a draining system according to a twenty-second embodiment;

[0102] FIG. **63** is a top axonometric view of the system of FIG. **62** in an assembled state and in a longitudinal section, in a first operating condition;

[0103] FIG. **64** is a top axonometric view of the system of FIG. **62** in an assembled state and in a longitudinal section, in a second operating condition;

[0104] FIG. **65** is a lateral exploded view of a draining system in accordance with a twenty-third embodiment;

[0105] FIG. **66** is a top axonometric view of the system of FIG. **65** in an assembled state and in a longitudinal section, in a first operating condition;

[0106] FIG. **67** is a top axonometric view of the system of FIG. **65** in an assembled state and in a longitudinal section, in a second operating condition.

DETAILED DESCRIPTION OF THE INVENTION

[0107] In FIG. **1** there is shown a first commercial solution having a threaded through drain B fixed on the upper surface S of a draining plane A or basin bottom by means of a ring nut D. In FIG. **2** there is shown a second commercial solution wherein a drain comprises an upper element G mounted on the upper surface S of the bottom A of the basin and a body H underneath said surface and fixed to the upper element G by means of a through pin I. A filter plug T is then provided to reversibly close the same drain.

[0108] The object of the present invention starts from the assumption of an immediate control, which is easily visualizable, cost effective and of easy maintenance, in order to select either the sewage system or the recovery system. The general principle is therefore the direct activation from the wash-basin.

[0109] In fact, as shown in figures from **3** to **67**, the present invention relates to a multiple draining system **1**, **100**-**121** for sinks or wash-basins generally for domestic use, comprising a drain **2**, **70**, **240** fixed on the inner surface S of the bottom A of a basin for collecting water in correspondence of its draining hole F, and a waste pipe **3**, **300**, **340**, **345**, **360**, **370**, **380**, **480**, **530**, **590**, **520**, **522**, **451**, **131** of the basin water.

[0110] The waste pipe is a rectilinear pipe extending along an axis X-X, mutual to the drain axis, and is provided with the primary waste pipe **30** for the sewage system and with at least a secondary waste pipe **35** for the recovery system.

[0111] In particular, the multiple draining system is characterized in that it comprises means for diverting the wastewater flow from the basin which are selectively activatable so as to discharge water through said primary waste pipe **30** or through said secondary waste pipe **35**, wherein said diverting means are accommodated inside said waste pipe and are activatable by means of a control positioned above the level of the bottom A of the basin.

[0112] The solution described in the appended figures from **3** to **6** depicts a first embodiment of the present invention.

[0113] In that solution, as shown, the perforated surface of the bottom A of the basin for collecting water, such as a wash-basin, sink or the like, accommodates a drain **2** which preferably has a circumferential groove **2***a* for bearing a flange of a command element **4**. In its turn, the drain **2** comprises a first bearing portion **20** on the inner surface S of the bottom A of said basin and a second through engaging portion **21** with said draining hole F of the basin. Further, the second portion **21** is provided with an end **23** for a sealed connection with said waste pipe **3**. The drain **2** has then a suitable outer thread (not shown) on the end **23** whereto a ring nut **10** shall be screwed for the subsequent tightening to the basin A with the insertion of a gasket **11**. Internally, the second portion **21** has an annular bearing step **24** for a rotating element **5** described later. In case, the drain **2** may also have lateral apertures **22** for collecting overflow water coming from an overflow pipe **9** of the basin A.

[0114] The command element **4** has an annular support flange **42** on said circumferential groove of the first portion **20** of the drain **2**, which flange is provided with gripping elements **41** so as to activate the rotation of a rotating element or cylinder **5**. Furthermore, from the flange **42** it extends a cylindrical wall **43** coaxial with the second portion **21** of the drain **2**. The cylindrical wall **43** has a bottom **44** provided with radial apertures **4***a* for the water flow and a perforated central axial portion. Laterally, that wall may comprise apertures **40** for draining overflow water, coming from the overflow pipe **9** of the basin A, which cooperate with the above said apertures **22** of the drain **2**. Said command element **4** is integrally connected with a rotating element or cylinder **5** underneath by means of a pin **6**, preferably perforated, for the transmission of the rotation given by said control element; the whole is contained in the water waste pipe **3** of the basin. The command element **4** is then realized in female form or basket so as to fit the usual filter plugs **8** present on the market.

[0115] The filter plug **8**, preferably as shown in FIG. **3**, comprises a cup-like portion **80** whose aperture is defined by a flange **81** and whose bottom **82** is a perforated grid (holes not shown in figure) for filtering wastewater. At the centre of the bottom **82**, raises a knob **8***a* for controlling the closing of the plug by locking together with the drain **2**. In correspondence of the knob **8***a*, but from the outer surface of the bottom **82**, it departs, in a straight way, an axis **83** for the engagement with the seat **62** of the pin **6** for the connection between the control element **4** and the rotating cylinder **5**.

[0116] In particular, the pin **6** comprises a head **61** provided with a seat **62** for engaging a plug/basket **8** and of a protruding edge **63** for resting on the bottom **44** of the rotatable element **4**. That head passes through the above said central hole of the rotatable element **4**, and continues with an elongated portion **64** ending with an end **65** for the integral engagement with the rotating cylinder **5**. In this configuration, the rotation given by the rotating element **4** by acting on the gripping elements **41** selectively activates the water flow towards either one or the other draining systems, as later described.

[0117] The above said means for diverting the flow of the water into a sewage pipe or into a recovery pipe are preferably constituted by a rotating element or cylinder **5** which is commanded by the above said command element **4**. The rotating cylinder **5** is generally made up of one or more pieces integral one with the other which together with the rotating element **4**, with or without the pin **6**, acts as a control and diverting system, easy to place in or to remove from the drain **2** for maintenance and cleaning.

[0118] In particular, as better shown in FIGS. **6** and **7**, the rotating cylinder **5** extends longitudinally along the axis X-X and has a first end **50** for the connection with the drain **2** and a second end **51** for the connection with the water waste pipe **3**. The first end **50** carries a flange **7** for the purpose of centering and improving the solidity of the assembly formed by the control element **4** and the rotating cylinder **5**. In fact, that flange rests on the step **24** of the second portion **21** of the drain **2**. Furthermore, the first end **50** is axially perforated having a plurality of radial apertures **52** and a central aperture **53** for receiving the above said pin **6**. An annular seat **54** can be formed in said flange so as to accommodate a seal O gasket (FIG. **3**). The second end **51** is axially perforated as well. In particular, an aperture **55** in the form of a circle sector extends preferably for 180°, about a central hole **56** for the engagement with said second end **65** of the pin **6**. As later described, that aperture **55** is for draining the water in the sink into the sewage system. The remaining portion **57** of the second end **51** of the rotating cylinder **5** is axially closed. Preferably, the outer circular edge of the second end **51** has a groove **58** (FIG. **6**) for accommodating a relative seal **59** (FIG. **3**). Furthermore, the lateral wall of the rotating cylinder **5** in the proximity of said second end **51** has a window **58** that preferably extends for about half the circumference of the cylinder in the position axially opposed with respect to the aperture **55**. Such window has the function of diverting the water in the sink towards the recovery pipe or secondary waste pipe, as later described.

[0119] The waste pipe **3**, wherein there is coaxially accommodated the above said rotating cylinder **5**, comprises a first end **31** provided with a flange **31**A for a sealed connection with the end of the second portion **23** of the drain **2** (FIGS. **8** and **9**). In correspondence of a second end **32**, the inner surface of the pipe **3** comprises resting elements **33** or first wall of a gate-like device, wherein said first wall has a first aperture **34** for the water flow which extends similarly to a circle sector about an axial resting seat **39** as a centering and rotation point of the pin **6**. Preferably, the first aperture **34** extends for about half a circle, more preferably for an angle less than 170°/180°. Further, such pipe **3** has laterally apertures or outlets on the lateral wall. A secondary waste pipe **35** is formed between said first wall **33** and said flange **31**A and is angled towards said flange **31**A, so as to allow the recovery draining when the system is closed. A further pipe **36** is connected to the sink overflow and it shall always be underneath said first wall **33**, that is between the free edge of the second end **32** and said first wall. In particular, said first pipe **35** and said further pipe **36** are positioned diametrically opposed. Furthermore, the lateral wall of the rotating cylinder **5** comprises two second apertures **37** and **38** joined one to the other by a channel or by-pass pipe C (shown in FIG. **9**) so as to serve as safety overflow in case the recovery system of the secondary waste pipe **35** is full or in case of a malfunctioning of the system.

[0120] Moreover, the rotation of the rotating cylinder **5** inside the waste pipe **3**, operated by means of the action of the fingers of a hand on the gripping elements **41** of the command element **4**, is controlled and limited by stop means **18** and **19**, such as protrusions respectively of the inner surface of the waste pipe **3** and of the outer surface of the rotating cylinder **5**.

[0121] Now hereinafter it will be explained how the draining system **1** previously described works.

[0122] As shown in FIG. **4**, the fluids from the drain **2** will be directed to the sewage system when, acting by rotation on the control element **4** by means of the gripping means **41**, the rotation given about the axis X-X is transferred to the rotating cylinder through the pin **6**. Thus, the rotating element **5** places itself with the aperture **55** of the second end **51** overlapping the closed portion of the first wall **33** of the waste pipe **3**. Therefore, it will axially prevented the water flow through the second end **32** of the waste pipe **3** and, consequently, the water from the drain **2** will be directed to the secondary waste pipe **35** thanks to the window **58** of the rotating cylinder **5** which is in communication with said secondary waste pipe **35**, as shown by the arrow. Thus, it is possible to recover the water contained in the sink for various uses such as watering gardens or plants in pots.

[0123] Instead, by rotating the command element **4** into the opposite direction, the above said aperture **55** of the rotating element **5** will be axially overlapped to the first aperture **34** of the first wall **33** of the waste pipe **3**, thus allowing the water flow axially through the second end **32** of the waste pipe **3** so as to reach the sewage system, as shown by the arrow of FIG. **5**. At the same time, the window **58** of the lateral wall of the rotating cylinder **5** places itself against the closed lateral wall of the waste pipe **3**, opposite the secondary waste pipe **35** for recovery the water from the sink.

[0124] It is to keep in mind that the above said rotating operations in one direction and in the opposite direction are controlled by the control element **4** and the above said stop means **18**,**19** regulates the rotation width to make either the apertures or the outlets or the window overlap or not one with the other so as to divert the water from the sink into the sewage system or into the recovery system.

[0125] In FIG. **10** there is shown an embodiment variant of the previously described solution, having, as a closing system for the sewage system, instead of the overlapping of the two apertures, a snap system **100** fixed inside the waste pipe **300**. The parts in common with the previous embodiment are referred to with the same reference number.

[0126] In this solution, the pipe **300** is generally the same as the waste pipe **3** previously described. In particular, its inner surface of the lateral wall comprises an annular thickening or narrowing **301**. Inside the pipe there is inserted a system comprising a pin **600**, completely similar to the pin **6** of the rotating mechanism previously described, which freely passes through a plug **8***b* similar to the above described plug **8** but suitably perforated. Such plug **8***b* is independently connected by means of said pin **600** with another plug **12** provided with a through thread **12***b* that allows the threaded control or the gripping element **13** to integrally connect with the commercial snap device **14** fixed on a seat **15** of the pipe **300**. On the circumference of the plug **12** there is an O-ring **12***a* which acts in correspondence of the narrowing **301** of the lateral wall of the pipe **300**

allowing alternatively the water to flow or not into the primary waste pipe **30** (FIGS. **11***a* and **11***b*).

[0127] In other words, the second end **302** of the pipe **300** defining the waste pipe **30** comprises a plurality of radial holes **303** for the draining of the water along the axis X-X of the pipe directly into the sewage system, and a central seat for engaging a snap device **14** apt at controlling the positioning of a plug **12** for closing the water flow through said plurality of holes **303**. Practically, by means of the gripping element **13** it is possible to operate on the pin **600** which in turn pushes or pulls the plug **12** on the snap device **14**. When the plug **12** is activated, the gasket **12***a* is pressed in correspondence of the narrowing **301** of the pipe **300** to prevent the water from flowing into the primary waste pipe **30** and allow the water to flow into the secondary waste pipe **35** (FIG. **11***a*), on the contrary, when the plug **12** is not activated, that is moved towards the drain **2**, the gasket moves away from the step **301** thus allowing the water to flow into the primary waste pipe **30** (FIG. **12***b*).

[0128] A position reader **16** protrudes from the gripping element **13** and is connected to the snap device by means of a return mechanism **17** (FIG. **10**).

[0129] In FIG. **12**, there is shown a system **101** where the selective closing of the primary waste pipe **30** is realized by means of a plug **12** that stops against a narrowing **301** of the waste pipe **3**. The parts in common with the previous embodiment are referred to with the same reference number. In this case, the lifting/lowering mechanism of the plug **12** comprises an articulated pin (not shown) with a first end protruding from the upper rim of the basin and a second end (shown by a dashed line in FIG. **12**) connected with said plug by means of an articulated lever mechanism **7**. In such configuration, the rotatable element **4**, though shown in FIG. **12**, is not necessary to the system, and the drain **2** can be any of those on the market. It is to note that the control pin **6**, **600**, previously described, is therefore replaced by the above said articulated pin and by the lever mechanism **7** which constitute a system completely similar to the one traditionally used for example in wash-basins of domestic bathrooms to open and close the wash-basin draining.

[0130] In FIG. **13**, there is shown another embodiment of the invention wherein the system **102** comprises a lifting/lowering mechanism, that is the activation of the plug **12** that too comprises a pin **601** having a first end **602** provided with a gripping element consisting of a lever L having cam L**1** rotatable on a plane vertical to the axis X-X of the waste pipe **3**. By acting on the lever L the plug is alternatively pressed so as to close an axially perforated inner wall **330** of the pipe **3**. Preferably, the plug **12** is a plastic disc having a central hole so as to be passed through by the second end **603** of the pin **601**. Such second end ends with a plate **604** for thrusting the plug against the above said inner wall **330** so as to close its axial hole (FIG. **13**).

[0131] In FIGS. **14** and **16** there are shown two more embodiment variants of the invention, wherein the systems **103**, **104** to intercept water in order to divert it for the recovery are operated acting directly on the filter plug **8**. In such configuration, the filter plug is directly connected with the intercepting and diverting system, that is with the means for diverting the flow of wastewater; in such solution the filter plug carries out, at the same time, the three functions of plug, of opening and of closing the gate-like diverting means. A gripping element **13**A, similar to the one previously described, is fixed to the end of an axial pin **660**, while means for diverting the water flow are connected to the second end **661** of said pin. Said diverting means can be those previously described with reference to the gate-like device **55**,**57** and **33**,**34** (FIG. **14**, system **103**) or can be a ball valve V (FIG. **16**, system **104**) adapted to direct alternatively the water flow towards the primary waste pipe **30** or towards the secondary waste pipe **31** horizontally arranged on the same line orthogonal to the axis X-X of the waste pipe **3**. It is to note that if the diverting means are of the gate-like type, the two perforated walls **33** and **57** described with reference to the first embodiment of FIG. **3** shall be inverted, that is the movable wall will face downward while the fixed wall will be above said moveable wall, that is the fixed wall towards the drain **2** and the movable wall towards the primary waste pipe **30**.

[0132] FIG. **15** is a top view of a drain body **24** connected with the underneath portion (not shown) of the drain **2** by means of two pins adapted to engage two corresponding through curved slots **25** formed diametrically opposed on said drain body.

[0133] In FIGS. **17**A-**17**D there is shown another embodiment. The draining system **105** comprises a drain **200** provided with a first portion **201** for fixing on the bottom of the sink or wash-basin and a second portion **202** adapted to protrude from the lower or outer surface of the bottom of said sink or wash-basin so as to connect itself with a watertight seal, a cylindrical water waste pipe **340**. The pipe **340** extends about a rectilinear axis X-X and is provided with a primary waste pipe **30** for the sewage system and a secondary waste pipe **35** for the recovery system. Means for diverting the wastewater flow are accommodated inside said waste pipe **340** and are selectively activatable so as to discharge water through said primary waste pipe or said secondary waste pipe. Said means are activatable by means of a control placed above the level of the basin bottom of the sink or of the wash-basin.

[0134] In particular, the first portion **201** for fixing the drain **200** consists of an externally threaded and flanged ring nut adapted to be inserted into the hole of the basin bottom (not shown) with the flange resting on a portion about said hole and with the threaded part protruding from the outer surface of the hole. The second portion **202** comprises a flanged ring nut **203** having the inner surface provided with counter threading for the screw-like engagement with the first portion **201** so that the flanges of the respective ring nuts close sandwich-like a portion about the hole of the basin. The second portion **202** is preferably en bloc with the waste pipe **340**. The primary waste pipe **30** and the secondary waste pipe **35** are arranged along a common axis Z-Z generally orthogonal to the axis X-X of the waste pipe **340** (FIG. **17**A), preferably diametrically opposed.

[0135] The bottom of the waste pipe **340** is closed and provided with a protrusion **341** whereon it is engaged a rotating cylinder as explained later.

[0136] Preferably, the second portion **202** of the drain **200**, the waste pipe **340** and the primary waste pipe **30** and the secondary waste pipe **35** are realized en bloc. Alternatively, as shown in the section of FIG. **17**D, the waste pipe **340** may be provided with an annular edge **342** radially protruding against which the threaded ring nut **203** of the second portion **202** stops when screwed on the first portion **201** of the drain **200**.

[0137] The means for diverting the water flow comprise a rotating cylinder **500** having a general cup-like configuration

that replicates the shape of the waste pipe **340** so as to be accommodated therein, preferably in a precise way. In particular, the cylinder comprises a closed bottom provided with a first seat **501** recessed open outwardly and adapted to engage rotatably with the protrusion **341** of the waste pipe **340**. Furthermore, the cylinder **500** comprises a second seat **502** open in the opposite direction with respect to its bottom, so as to accommodate a pin for controlling the diverting means, as later explained. It is to note that both the first seat **501** and the second seat **502** are arranged along the axis X-X of the drain **200** and of the pipe **340**.

[0138] Preferably, the second seat **502** comprises a first portion **503** having a closed bottom with a polygonal, preferably triangular, cross section, and a second portion **504** having a cylindrical section.

[0139] Advantageously, the lateral wall **505** of the rotating cylinder **500** comprises an aperture **506** for the flow of the wastewater from the drain **200** to the waste pipe **340**. Such aperture may be composed of a series of windows separated by a filtering grid, as shown in FIG. **17**D.

[0140] The draining system **105** comprises also a filter basket **70** or strainer provided with a perimetral rim **71** (FIG. **17**A-**17**D) for resting on the annular rim **342** of the waste pipe **340**, a central hole (not shown) and with a series of radial apertures **72** arranged about said hole (FIG. **17**C).

[0141] Preferably, a threaded bushing **73** is screwed in the second portion **504** of the second seat **502** of the cylinder **500** and so as to accommodate a portion of a control pin, as later described.

[0142] The draining system **105** further comprises a plug **800** for closing the drain **200**. The plug is completely conventional and it will not be further described. It is only to note that such plug comprises a control element **610** or pin provided with a gripping element **611** for its operation. In particular, the pin **610** comprises a first portion **612** adapted to be inserted in the bushing **73** and a second portion **613** or end portion having a polygonal section, preferably triangular, so as to basically engage perfectly the first portion **503** of the second seat **502** of the rotating cylinder **500**.

[0143] Generally, then, the draining system **105** also comprises a series of seal gaskets mounted between the various elements making it up. For example, as shown in FIGS. **17**A and **17**D, a gasket G is fixed by means of a suitable ring R on the outer surface of the bottom of the plug **800** in a completely conventional way.

[0144] The just described system **105** advantageously allows to make constructively more compact and simplify the diverting means and the control means of said diverting means thus facilitating its operation. In fact, as shown in FIG. **17**D, when the pin **610** is pressed towards the bottom of the plug **800**, it occurs the draining closing in the drain **200** thanks to the stop caused by the above said gasket G and by the relative ring R against the strainer **71** so as to close its apertures **72**. On the contrary, when lifted, the pin **610** allows the water flow in the drain **200** and, thanks to the rotation activated using the finger of one's hand on the gripping element **611** of the pin **610**, it is controlled the rotation of the rotating cylinder **500** so as to position its aperture **506** in correspondence of the primary waste pipe **30** towards the sewage system or of the secondary waste pipe **35** towards the recovery system. It is to note that however also in the lowered position, that is when the plug is closed, the rotation can be activated all the same. In fact, it might happen that the recovery position remains active and the plug closed to allow the sink to be filled with soapy water for washing dishware. In this case, the opening of the plug would cause the soapy water to flow into the recovery system which would not be suitable for uses such as watering plants. Therefore the possibility to return to the sewage system having the plug closed allows to avoid such drawback.

[0145] An indicator (not shown) may be provided on the gripping element to see which is active whether the primary waste pipe or the secondary waste pipe. Of course, since the rotating cylinder **500** is open only on one side of its lateral wall, it will not allow the water flow on the diametrically opposite wall, thus directing it only where wanted.

[0146] Moreover, there can be provided stop systems for the rotation of the rotating cylinder **500**, such as means **18** and **19** previously described which regulate the width of the rotation so as to make the aperture **506** overlap one between the primary waste pipe **30** and the secondary waste pipe **35**. The system is then provided with overflow such as one similar to the one described with reference to FIG. **9**.

[0147] In FIG. **18**, there is shown a first variant **106** of the embodiment of the just described draining system **105** and shown in FIGS. **17**A-**17**D. The reference numbers in common refer to identical elements. In particular, the rotating cylinder **500** differs from the cylinder of the system of FIG. **17**A for the presence of an annular band **506** arranged around the cylinder aperture and provided with gripping elements **507** through which it is possible to activate the rotation of the rotating cylinder **500**. Consequently, the pin **610** can be a traditional pin to activate the closing of the plug **800**. The operation of the diversion of the water flow will be the same as the one described with reference to the system **104**.

[0148] In FIGS. **19**A-**19**C, there is shown an embodiment variant **107** of the draining system **105** of FIGS. **17**A-**17**D. The reference numbers in common refer to identical elements. In particular, the first seat **508** of the closed bottom of the rotating cylinder **500** is shaped so as to accommodate a timer device **509** to re-position the rotating cylinder in the condition of the sewage system, that is that of draining water into the primary draining system. In practice, the timer device **509** comprises for example an elastic element or spring **510** (FIG. **19**C) activatable by the control pin **610** through the rotation of the cylinder **500** so as to be loaded. Moreover, said elastic element **510** is connected to said rotating cylinder **500** through a brake (not shown) that releases the elastic force on the cylinder in a continuous and regular way to make the cylinder rotate in a controlled and continuous way. Alternatively, the elastic force of the loaded spring is transferred to a snap mechanism (not shown) that at once makes the rotating cylinder **500** rotate. Independently from how it rotates, the system comprises stop elements (not shown) such as those previously described. The operation of the diversion of the water flow will be the same as the one described with reference to the system **104**.

[0149] In FIG. **20**, there is shown a third embodiment variant **108** of the system **105** of FIGS. **17**A-**17**D. In this variant besides the elements in common referred to with the same reference number, the waste pipe **340** has a primary waste pipe **30**, a secondary waste pipe **35** and a third waste pipe **350**, preferably arranged along the circumference of the pipe at 120° one from the other. The third waste pipe **350** has the purpose of collecting water from the sink or wash-basin into a storage or decantation tank, for example, when its

temperature is too high to be directly used for irrigation or when it contains food remains in suspension. It is to keep in mind that the arrangement of a plurality of waste pipes, for example more than two, can be envisaged also for the previously described systems with reference to the embodiments of FIGS. **3-19**. The operation of the diversion of the water flow will be the same as the one described with reference to the system **105**, with the possibility, as explained, to select through rotation three different waste pipes.

[0150] In FIG. **21**, there is shown another embodiment wherein a draining system **109** basically comprises the same elements previously described and the parts in common with the previous embodiments are referred to with the same reference number. In particular, the second portion **613** of the pin **610** for controlling the means for diverting the water flow has a semi-cylindrical form so as to engage the corresponding first portion **503** of the second seat **502** of the rotating cylinder **500** having a complementary section. Furthermore, the waste pipe **340** comprises a perforated bottom **342** which is connected, preferably in a reversible way, to a tank **900** for collecting the water that may potentially flow through the lateral walls of the rotating cylinder **500** and of the waste pipe **340** becoming stagnant on the bottom **342** of the same pipe, as it is neither drained in the primary waste pipe **30** nor in the secondary waste pipe **35** arranged diametrically opposed on the same plane of the axis Z-Z. The collecting tank **900** is also provided with a pipe fitting **901** to the primary waste pipe **30** to make such stagnant water drain. The operation of diverting the water flow occurs as well through the rotation of the rotating cylinder **500**, as previously described.

[0151] In FIG. **22** there is shown another embodiment variant **110** similar to the variant described with reference to the system **109** of FIG. **21**, therefore the same reference numbers refer to identical elements. In particular the tank **900** for collecting stagnant water, which may ooze between the rotating cylinder **500** and the waste pipe **340**, is made en bloc with the bottom **342** of the same pipe and the corresponding waste pipe **902** is too en bloc with the primary waste pipe **30**, possibly separated by a baffle **903** which is a portion of the wall itself of the primary waste pipe **30**.

[0152] In FIG. **23** there is shown a further embodiment **111** alternative to the systems **108-110**. In particular, the alternative consists in providing a rotating cylinder **550** provided with two apertures **551** and **552** arranged on the lateral wall on two different planes, preferably an aperture lies at least partially on the plane defined by the bottom of the same rotating cylinder. Moreover, the apertures **551** and **552** are arranged along the cylindrical lateral wall preferably at 90° one from the other. Similarly, the waste pipe **345** comprises a primary waste pipe **30** and a secondary waste pipe **35** positioned at two different heights on its lateral wall, preferably the primary waste pipe is at least partially positioned at the bottom of the pipe and more preferably having an inclined part departing with respect to the lateral wall of the same pipe. Furthermore, the primary waste pipe **30** and the secondary waste pipe **35** are preferably positioned at 180° one from the other. The operation of the diversion of the water remains the same as previously described.

[0153] In FIG. **24**A there is shown a further embodiment wherein a draining system **112** comprises a drain **210** provided with a first portion **211** for fixing on the bottom of the sink or wash-basin and a second portion **212** adapted to protrude from the lower or outer surface of the bottom of said sink or wash-basin so as to connect with a watertight seal with a cylindrical water waste pipe **360**. The pipe **360** extends about a rectilinear axis X-X and is provided with a primary waste pipe **30** for the sewage system and a secondary waste pipe **35** for the recovery system. Means **560** for diverting the flow of wastewater are accommodated inside said waste pipe **360** and are selectively activatable so as to discharge water through said primary waste pipe or said secondary waste pipe. Said means **560** are activatable through a control **611** positioned above the level of the basin bottom of the sink or of the wash-basin.

[0154] In particular, besides the element in common with the previous embodiments which have the same reference number, the diverting means **560** are preferably a hollow rotating cylinder extending rectilinearly along the axis X-X and comprising a first annular flanged end **561**, provided with a groove **562** for accommodating a gasket (not shown), a second cylindrical end **563** and an intermediate portion **564**, cylindrical as well. The intermediate portion **564** comprises in its turn a first aperture **565** axially aligned with a second aperture **566** formed in correspondence of the second end. Axially, the cylinder comprises a rectilinear shaft **567** provided with first bayonet means **568** for the reversible coupling on the bottom of the waste pipe, as later explained, and a seat **569** for the engagement of the bushing **73** (FIG. **24**C). Said seat **569** is divided into a first part **569**A for the reversible engagement with said bushing, in a completely conventional way, and into a second part **569**B for the engagement with the end portion **613** of the pin or rotating element **610**.

[0155] On the contrary, the waste pipe **360** comprises a first portion **361**, preferably en bloc with the second portion **212** of said drain **210**, and a second portion **362**, preferably separated from the first portion and connectable thereto with a watertight seal by means of rapid connections such as bayonet coupling or screwing. Furthermore, the first portion **361** of the pipe **360** comprises the secondary waste pipe **35**, while the second portion **362** comprises the primary waste pipe **30**, said primary waste pipe **30** and secondary waste pipe **35** are on two staggered planes and preferably diametrically opposed. Therefore, the rotation given to the rotating cylinder **360** by the control **611** through the pin **610** by means of the elements previously described, advantageously allows to select either the secondary waste pipe **35** or the primary waste pipe **30** alternatively thanks to the arrangement of the first aperture **565** and of the second aperture **566** axially aligned and to the corresponding pipes which on the contrary axially misaligned.

[0156] Furthermore, the second portion **362** of the waste pipe **360** comprises on its bottom second bayonet means **363** (FIG. **24**D) adapted to cooperate with said first bayonet means of the shaft **567** of the rotating cylinder **560**.

[0157] Now, the assembly of the system **112** requires the screwing of the bushing **73** in the seat **569** of the shaft **567** of the rotating cylinder **560**, then the control **610**, bearing the plug **800** as usual with its portion **612**, is inserted in the bushing **73** and with the second portion **613** precisely engages the second portion **569**B of the seat **569** of the shaft **567** of the rotating cylinder **560** (FIGS. **24**C and **24**E). At this point, the rotating cylinder thus arranged can be bayonet fitted in the second part **362** of the waste pipe **360**. Thanks to the above said engagement of the control element on the

shaft **569** of the rotating cylinder **560** it is possible to rotate the same cylinder in the above said positions.

[0158] In the closing position of the system **112**, as shown in FIGS. **24**C and **24**E, both the first aperture **565** and the second aperture **566** face towards the closed lateral wall respectively of the first portion **361** and of the second portion **362** of the waste pipe **360**. Moreover, the first **568** and second **363** bayonet means respectively of the rotating cylinder **560** and of the waste pipe **360** are disengaged so as to allow the extraction of the same rotating cylinder from the pipe for the maintenance and cleaning of the system. On the contrary, when for example the system is in the position of the sewage system, as shown in FIGS. **24**G and **24**I, or in the position of the recovery system, the bayonet coupling does not allow the extraction of the above said cylinder so as to avoid unwanted water leaks along the whole draining system.

[0159] In FIGS. **25**A-**25**D there is shown a further embodiment wherein a draining system **113** comprises a drain **220** provided with a first portion **221** for fixing on the bottom of the sink or wash-basin and a second portion **222** adapted to protrude from the lower or outer surface of the bottom of said sink or wash-basin so as to connect with a watertight seal to a cylindrical water waste pipe **370**. The pipe **370** extends about a rectilinear axis X-X and is provided with a primary waste pipe **30** for the sewage system and a secondary waste pipe **35** for the recovery system. Means **570** for diverting the wastewater flow are accommodated inside said waste pipe **370** and are selectively activatable so as to discharge water either through the primary waste pipe or through the secondary waste pipe. Said means **570** are activatable by means of a control **611** positioned above the level of the basin bottom of the sink or wash-basin.

[0160] In particular, besides the elements in common with the previous embodiments which have the same reference number, the diverting means **570** are preferably a first truncated cone-shaped element **571** and a second element **572** both hollow. The first element **571** has an open major base facing the axial primary waste pipe **30** and a closed minor base **574** facing the opposite with respect to the major base (FIGS. **25**C and **25**D). The major base is surrounded by a flange **575** for fixing on the inner wall of the waste pipe **370**. The minor base is instead provided with an axial pin **576** protruding towards the outer part of the first cone-shaped element **571**, preferably surrounded by elements **577** for rotating coupling (FIGS. **25**C and **25**D) with the second element **572**. Such elements **577** can be elements such as rotating bearings. Advantageously, the lateral wall of the first element **571** is provided with an opening W for draining water into the secondary waste pipe **35**, as later described.

[0161] The second element **572** comprises an axial truncated cone-shaped portion **578** preferably surrounded by a peripheral cylindrical portion or mantle **579**. The axial portion **578** is complementary to the first element **571** so as to substantially fit it precisely. Consequently, also the second element comprises an open major base and a closed minor base. The major base comprises a flange **580** for the connection with the cylindrical mantle **579**. Further, the mantle surrounds axially only a part of the axial portion **578** and only a wall **581** extends axially beyond the mantle towards the minor base of the same axial portion. From the minor base, then prolongs a seat **582** for accommodating the control pin **610** of the rotation and the related bushing **73**, analogous to those previously described. Furthermore, also the lateral wall of the axial portion **578** comprises an aperture W**1** (FIGS. **25**A and **25**D) coinciding with the aperture W of the first element **571**. It is to keep in mind that the aperture W**1** on the lateral wall of the axial portion **571** is radially staggered with respect to the wall **581** of the cylindrical mantle **579**, preferably staggered by about 90°.

[0162] The waste pipe **370** is basically a cylindrical pipe extending rectilinearly along the axis X-X and comprises an axial primary waste pipe **30** and a radial secondary waste pipe **35**, orthogonal to the axis X-X and formed in the proximity of the drain **220**.

[0163] Consequently, the system **113** can operate in a first mode wherein the first element **571** of the means **570** for diverting the water flow is fixed inside the waste pipe **340** with its major base downstream the secondary waste pipe **35** and the minor base basically in correspondence of said secondary waste pipe **35**. The aperture W of the first element is preferably oriented at 90° with respect to said secondary waste pipe **35**. The second element **572** of the means **570** for diverting the water flow is rotated on the first element **571** so as to have the aperture W**1** overlapped with the aperture W. In this position, the wall **581** of the cylindrical mantle **579** of the second element **572** closes the secondary waste pipe **35**, therefore causing the water to flow through said apertures W and W**1** of the first diverting means **571** and of the second diverting means **572**, which are overlapped and then in order to directly flow into the primary waste pipe **30** through the aperture **573** of the major base of the first element **571**.

[0164] Conversely, by acting on the control **611**, the pin **610** causes the second element **572** to rotate onto the first element **571** preferably by 90° so as to bring the aperture W**1** of the second element radially staggered with respect to the aperture W of the first element. At the same time, the wall **581** of the second element **572** positions itself away from the secondary waste pipe **35**. Consequently, the water from the drain **220** cannot flow through the two apertures W**1** and W, therefore it cannot flow through the aperture **573** of the first element **571** to drain into the primary waste pipe **30**. On the contrary, flows freely into the secondary waste pipe **35**.

[0165] In FIGS. **26**A-**26**C there is shown a further embodiment wherein the multiple draining system **114** comprises a drain **230** provided with a first portion **231** for fixing on the bottom of the sink or wash-basin and a second portion **232** adapted to protrude from the lower or outer surface of the bottom of said sink or wash-basin so as to connect with a watertight seal with a cylindrical water waste pipe **380**. The pipe **380** extends about a rectilinear axis X-X and is provided with a plurality of pipes **30**, **35**, **36**. Means **583** for diverting the wastewater flow are housed inside said waste pipe **380** and are selectively activatable so as to discharge the water through one of said plurality of pipes. Said means **583** are activatable through a command **610** located above the bottom level of the sink or wash-basin.

[0166] In particular, besides the elements in common with the previous embodiments which have the same reference number, the water diverting means **583** have preferably a cup-like shape comprising a closed bottom **584** and provided with a seat **585** for the engagement of the pin **610** for controlling the rotation, by the insertion of the bushing **73**, and a seat **586** for the rotating engagement with a rotation axis of the bottom of the waste pipe **380**. In particular, the lateral wall of the cup **583** comprises an aperture W**2** located

in the proximity of the bottom **584** for diverting the water flow into one of said plurality of pipes (FIG. **26**C).

[0167] The waste pipe **380** too has preferably a cup-like shape so as to be complementary to the above said water diverting means **583**. In fact, said means **583** are rotatably and substantially precisely accommodated inside said waste pipe by means of the engagement of a rotating axis **587** of the bottom of the pipe with the above said seat **586** of the diverting means, preferably a bayonet coupling as in the foregoing. Advantageously, the pipe comprises a plurality of pipes **30**, **35**, **36** radially staggered, preferably by about 120°, along the lateral wall so as to form a primary waste pipe **30** for the sewage system, a secondary waste pipe **35** for recovery water for domestic use or for irrigation and a third pipe **36** for other uses or for collecting into a tank (not shown) for storage, cooling or decantation before a subsequent domestic or irrigation use. Furthermore, similarly to what envisaged for the system **111** of FIGS. **23**A-**23**D, also in this system there may be provided the sewage pipe located starting from the bottom of the cup of the waste pipe **380** so as to let out possible remaining water.

[0168] The operation of the just described system **114** is very simple and intuitive since, as in the foregoing, through the control **611** it is possible to rotatably activate the pin **610** which transfers the motion to the cup **583** in order to select the desired one of said plurality of pipes causing the aperture W**2** of the same cup to overlap exactly the primary waste pipe **30**, the secondary waste pipe **35** or the third pipe **36**.

[0169] Furthermore, the compactness and constructive simplicity of the present solution allow an easy assembly, simple maintenance, low production costs, besides a minimum bulk in the lower part of the sink.

[0170] In FIG. **27** there is shown a different embodiment wherein the multiple draining system **115** comprises a drain **240** provided with a first portion **241** for fixing on the bottom of the sink or wash-basin A and a second portion **242** adapted at protruding from the lower or outer surface of said sink or wash-basin so as to connect with a watertight seal with cylindrical water waste pipe **480**. The pipe **480** extends about a rectilinear axis X-X and is provided with a plurality of pipes **30**, **35**. Means **683** for diverting the wastewater flow are accommodated inside said waste pipe **480** and are selectively activatable so as to discharge water through one of said plurality of pipes. Said means **683** are activatable by means of a control **610** located above the bottom level of the basin of the sink or of the wash-basin and lying on said axis X-X.

[0171] In particular, besides the elements in common with the previous embodiments which have the same reference number, the water diverting means **683** (FIG. **28**) preferably have a cylindrical shape with a lateral wall **684**, a bottom **685** and an aperture **686** axially opposed to said bottom. On the lateral wall there is at least a hole **687** for the wastewater flow formed in the proximity of the bottom **685**. Preferably, there are a first hole **687** and a second hole **687** radially staggered by 90° and located at the same level. A window **688** is then formed in the proximity of the aperture **686**. As later described, said holes have the purpose of directing wastewater either towards the sewage system or towards the recovery system, while the window **688** acts as an overflow and positions itself in correspondence of a similar window (not shown) formed on the waste pipe **480** this too connected to the conventional overflow hole (not shown) of the basin.

[0172] The bottom **685** is provided with a through hole **689** (shown in FIG. **29**B) in continuity with an inner sleeve **690** whose cavity is such that it fits on a pin for the rotation of the waste pipe, as later explained. From the free edge of the sleeve extend first elements **691** for the engagement with second engaging elements **400** (FIG. **28**), said second elements being connected to a rotation control in order to control the rotation of the water flow diverting means **683**, as described later. Preferably, the first engaging elements **691** are constituted by a plurality of walls against which the second engaging elements **400** engage themselves pushing them to rotate about the axis X-X. In particular, the walls are three and are separated one from the other by specific spaces **692** (only one shown in FIG. **28**) between which said second elements **400** engage themselves. The spaces are preferably arranged on a circumference and spaced by 120°.

[0173] In particular, as shown in FIGS. **29**A-**29**B, the cross section of the inner cavity of the sleeve **690** shows a first narrow and constant section **693** farther from the bottom **685** of the cylinder **683** and a second enlarged section **694** closer to the bottom **685**. Said second section **694** comprises a first radial extension **694**A having a radius greater with respect to a second annular extension **694**B. In this way, two circumferential steps **695** are formed on the inner wall of the sleeve that constitute two stop points of the rotation of the rotating cylinder **683** on the cylindrical pipe **480**.

[0174] The water diverting means **683** are accommodated inside the water waste pipe **480** (FIG. **28**). This pipe has preferably a cylindrical form complementary to that of said diverting means. In particular, the pipe comprises a lateral wall **481** provided with holes communicating with a plurality of water waste pipes. Preferably the pipes are two: a pipe for recovering water **35** and a pipe **30** for the sewage system. Further, the two pipes are diametrically opposed. From the bottom **482** of the cylindrical pipe raises a hollow pin **483** whose cavity constitutes the fixing seat of the bushing **73** and on whose outer wall rotatably fits the sleeve **690** of the rotating cylinder **683**. Preferably, at the base of said seat **483** there is an annular seat **484** for accommodating an elastic element **509** such as the spring described in the foregoing. Furthermore, the base of the seat **483** has in its cross section a radial tooth **487** (FIG. **30**B) adapted to engage the above said first radial extension **694**A of the second section **694** of the seat **690** of the water diverting means **683**. It is also to note that the bottom **482** is advantageously inclined with the incline towards either one of the two waste pipes of the sewage system or of the recovery system in order to avoid water stagnations (FIG. **34**B).

[0175] The aperture **485** of the pipe wherefrom the diverting means are inserted is surrounded by a flange **486** provided with a series of ribs **488** for holding an O-ring gasket O**1** (FIG. **27**).

[0176] The water diverting means **683** are made to rotate inside the pipe **480** by means of an en bloc control **620** with a gripping knob **621** (FIG. **27**). In turn, the control **620** comprises a first portion **622** extending axially from the knob and locks together with a second portion **623**, the latter being such that it reversibly locks inside said bushing **73**. Between the control **620** and the bushing **73** there are locked together a closing plug **810** with the respective gasket **811** (FIG. **27**) and the above said second elements **400** for the engagement with the first engaging elements **691** of the rotating cylinder of the water diverting means **683**.

[0177] In particular, as shown in FIGS. **31**A-**31**C, the second elements **400** preferably comprise a plurality of feet **402** which engage the first elements **691** of the rotating cylinder **683**. The feet are preferably three and extend in correspondence of the edge of a first flat face **403** of a circular base **401** and perpendicular to the latter. Furthermore, the three feet are arranged on the base at 120° one from the other. More preferably, they generally show a hooked cross section so as to engage an edge of said walls defining the above said space **692** between the same walls **691** of the rotating cylinder **683**. On the second face **404** of the circular base **401** protrudes a tooth **405** adapted to engage a corresponding hole **406** formed on the plug **810** (FIG. **32**). Centrally, the base **404** is crossed by a through hole **406** for locking together with the above said first portion **622** of the control **620**.

[0178] The second portion **242** of the drain (FIGS. **33**A-**33**C), also called strainer, comprises a perforated bottom, having preferably three circumferential holes extending for about 120° shaped as an arc of a circle so as to allow the rotation of the above said three feet **402** of the second elements **400**. Said holes then surround a central hole **811** for engaging the first portion **622** of the control **620**, in a completely conventional way.

[0179] The assembly of the just described draining system **115** envisages a first step wherein the rotating cylinder **683** is fitted inside the waste pipe **480**. When is inserted, the sleeve **690** of the rotating cylinder is fitted on the fixing seat **483** of the bushing **73** in the waste pipe **480** so as its first radial extension **694**A of the second section **694** of the sleeve **690** engages with the radial step **487** of the seat **483** of the bushing **73** of the pipe **480** thus realizing a bayonet coupling. It is to note that the length of the first annular extension is such that it allows a rotation by 90° of the radial step, and hence of the rotating cylinder between the two stop points **695** of the same extension (FIGS. **29**B-**30**B). In particular, the arrangement of the first annular extension **694**A and of the corresponding annular step **487** are such as to selectively direct one of the two apertures **687** of the rotating cylinder **683** towards either the sewage system **30** or towards the recovery system **35**, while the other one is closed by the lateral wall **481** of the waste pipe **480**.

[0180] The control element **620** is assembled by locking together in succession the plug **810** on the first portion **622**, then the gasket **811** of the plug, the second engaging elements **400** so as insert their tooth **405** into the hole **406** of the plug and finally the second portion **633** of the control element.

[0181] The fixing bushing **73** between the control element, the drain **240**, the water diverting means **683** and the waste pipe **480**, is blocked in the seat **483** of the same pipe and, finally, the control element assembled as above, is reversibly fitted in the bushing **73** with the second portion **623** by means of conventional elastic elements. The bushing blocking can be made by locking or by means of a screw-like engagement (FIG. **34**B).

[0182] The advantage of the just described draining system **115** lies in the constructive simplicity which requires few modifications with respect to the traditional systems. Practically, the elements which make up the control and the plug are the same as the conventional ones, while the rotation means are constituted by a cylinder which accommodates therein a conventional drain and that, in turn, is accommodated inside a very compact waste pipe. Furthermore, the rotation mechanism comprises an engaging element for the rotation of the cylinder provided with a simple and efficient structure for transmitting the rotation given by the control element to the cylinder.

[0183] In fact, as shown in FIG. **35**, the system **115** is arranged in the sewage system condition wherein one of the two apertures **687** of the rotating cylinder **683** is in communication with the sewage waste pipe **30**, while the other aperture **687** is closed by the lateral wall **481** of the waste pipe **480**.

[0184] As shown in FIG. **36**, by rotating the knob **621** of the control **620** for example in the clockwise direction by 45°, both apertures **687** of the rotating cylinder **683** are closed by the lateral wall **481** of the waste pipe **480**. Therefore, in this position, advantageously, a further safety is achieved in case fluids or small object might fall in the sink as they would not flow into the waste pipe. Moreover, in this way the communication with the draining system can be closed thus preventing unwanted smells from surfacing.

[0185] As shown in FIG. **37**, a further rotation of the knob **621**, for example in the same clockwise direction by 45°, allows one of the apertures **687** to communicate with the recovery pipe **35**, while the other aperture is closed by the same wall **481** of the waste pipe **480**.

[0186] FIG. **38** is an exploded view of an embodiment similar to the previous one, therefore the identical elements have the same reference number and will not be described any further. In particular, the system **116** comprises water diverting means **630** that preferably are made up of a rotating disc having two holes **631** for alternatively draining to the sewage or to the recovery systems (FIG. **39**), preferably at 90° in the proximity of the circumference of the disc.

[0187] As also shown in FIGS. **40**A-**40**D, the disc **630** shows a first surface **632** and a second surface **633** which are opposite and generally flat crossed by said two holes **631** arranged in the proximity of the circumference and a central engaging hole **634** with a pin for rotating the waste pipe and the fixing seat of the bushing **73**. In particular, from the first surface **632** and about the central hole **634** raises a sleeve **635** similar to the sleeve **690** described with reference to the system **115**. Said sleeve has therefore first elements **636** the same as the first elements **691** previously described and separated by spaces **636**A between which engage the previously described second elements **400**.

[0188] Furthermore, from the first surface **632** stand two hollow towers **637** (FIG. **40**B), preferably having an arc of a circle section, diametrically opposed. In particular, one tower is located between two draining holes **631**. Said towers have their inner cavity in communication with corresponding holes **638** opening on the second surface **633** of the disc (FIG. **40**C).

[0189] It is to note that also the section of the sleeve **635** is the same as the one of the sleeve **690** previously described (FIG. **40**D).

[0190] The draining system **116** further comprises a waste pipe **530** provided with a first cylindrical portion **531** and a second discoid portion **532** (FIG. **38**). The second discoid portion **532** comprises a first opposed surface **533** and a second surface **534**, both generally flat (FIG. **41**A-**41**C). From the peripheral edge of the first surface **533** raises an annular band **535** provided with a groove **536** (FIG. **39**) for accommodating a gasket O**2** of the O-ring type (FIG. **38**). Furthermore, from the first surface **533** raises centrally a seat **537** for fixing a bushing **73**, identical to the seat **483**

described for the system **115**. Also the section of said seat **537** is identical to the one previously described. Preferably, the seat **537** has an aperture **538** (FIG. **41**B) that allows to discharge water in case it might ooze inside the same seat so as to be discharged either into the sewage waste pipe **30** or into the recovery waste pipe **35** according to the position of the diverting means. Further, the first discoid portion **532** has two through holes **539** diametrically opposed. Each one of these holes communicate respectively with either the sewage waste pipe **30** or with the recovery waste pipe **35**, such pipes extending from the second surface **534** of said second discoid portion **532** (FIG. **41**B).

[0191] Preferably, one of the two holes **539** and that is the one connected to the recovery waste pipe **35**, is surrounded by a groove **540** adapted to accommodate an O**3** gasket (FIG. **38**).

[0192] The first portion **531** of the waste pipe **530** has a cylindrical sleeve-like shape with a flange **541** formed in the proximity of a first axial aperture **542** radially facing inward (FIG. **42**B). Preferably, the flange comprises one or more grooves **543** for the engagement with an O**1** seal gasket. In correspondence of the second axial aperture **544**, the first portion **531** comprises a flaring **545** whose peripheral edge is such that it engages with the peripheral edge of the annular band **535** of the first portion **531** of the pipe **530** with the insertion of the above said O**2** gasket.

[0193] The assembly of the just described draining system **116** requires the preparation of the plug by means of locking together the control element **620** with the plug **810**, with the second engaging elements **400** inserting the gasket **811** and with the first portion **622** of the control element, as previously described.

[0194] The sleeve **635** of the diverting means **630** is fitted on the seat **537** of the first portion **532** of the waste pipe **530** so as to insert the second surface **633** of the diverting means into the space defined by the annular band **535** of the same second portion. As previously, to do so, the sections of the sleeve **635** and of the seat **537** must be aligned so as to realize the bayonet coupling. Once the diverting means **630** have been arranged on the first portion **532** of the waste pipe **530**, the second portion **531** of the same pipe can be mounted through the above said engagement between the peripheral edge of the flaring **545** of the first portion **531** and the peripheral edge of the annular band **535**. Preferably, a retaining ring R**1** (FIGS. **38**, **44**-**46**) is fitted in the space defined between the seat or pin **537** for the rotation of the diverting means **630** and the sleeve **635** of said means so that from one side it engages a circumferential groove (not shown in the drawings) at the base of the seat **537** and on the other side it basically rests on a flange (not shown in figures) inside said sleeve. In particular, the ring has a cut typical of the commercial rings called seeger rings.

[0195] At this point, the bushing **73** can be fixed in the seat **537** and the above said assembly made up of control element **620**/plug **810** together with gasket **811**/second engaging means **400** can be fixed inside the waste pipe **530** with the insertion of the drain **240**.

[0196] The operation of the system **116** is similar to the one previously described. In fact, rotating the knob **621** of the control element **620**, it is achieved the rotation of the means **630** for diverting the water flow thanks to the above said engagement of the second engaging elements **400** with the walls **636** of the sleeve **635** of the same diverting means.

[0197] The above said rotation involves, as shown in FIG. **44**, the positioning along the axis X-X of one of the two holes **631** in correspondence of one of the two holes **539** of the first portion **532** of the waste pipe **530**, which in turn is in communication with the recovery waste pipe **35**, while the other hole **631** will be covered by the first surface **533** of said first portion.

[0198] It is to note that in this position, should the recovery pipe be connected with a full storage tank and the water should go back inside the same pipe up to the drain **240** (dashed line of FIG. **43**B), the aperture on top of each hollow tower **637** would act as an overflow making the water flow into a space between the second surface **633** of the diverting means **630** and the first surface **533** of the first portion **532** of the waste pipe **530**. Oozing, such water would trickle into the other aperture **539** of the first portion which is in communication with the sewage waste pipe **30**.

[0199] As in the foregoing, by further rotating the knob clockwise it is achieved the closing of the waste pipe **530** (FIG. **45**) and a further rotation still clockwise would bring the system into sewage position (FIG. **46**). Such positions are completely similar to those previously described with the difference that they take place so as to make the holes coincide along the axis X-X of the system in order to make water flow from the drain to either the recovery waste pipe or to the sewage waste pipe.

[0200] With reference to FIGS. **47**-**50**, there is shown a variant of the embodiment described with reference to the system **116** of the FIGS. **38**-**46**. Equal elements have the same reference number and therefore they will not be described. In particular, the draining system **117** differs from the previous one since the second engaging means for the rotation of the means **630** for diverting wastewater flow, comprise a first portion **421** basically corresponding to the second elements **400** previously described. In fact, as shown in FIGS. **49**A-**49**B, the first portion **421** is provided with three feet **422** of which one has a sectional form different from the sectional form of the other two so as to make more immediate the orientation of the engagement with a second portion of said engaging elements. For example, as shown, two feet have a hook-like section as the feet of the previously described elements **400** while the third one has an elliptical section.

[0201] The second portion **423** of the second engaging rotating elements, as shown in particular in FIG. **50**, comprises a base **424** preferably having a perforated disc-like shape as a kind of filter. The base also comprises a central hole **425** for the passage of the control element **620** and three hollow feet **426** having a section complementary to the feet **422** of the first portion **421** so as to accommodate the same therein.

[0202] The assembly is substantially the same as the one described with reference to the previous embodiment, with the sole variant that between the drain **240** and the diverting means **630** there is inserted the second portion **423** of the second engaging rotating elements so that the base **424** acts as a filter (FIG. **48**). Furthermore, a threaded ring D is screwed on the bushing **73** to block said second portion **423** at a preset distance from the drain **240** but anyway allowing both its rotation and its function as a filter for possible dirt, without hindering the water flow.

[0203] FIG. **51** shows a system **118** wherein the reference numbers equal to those of the previous embodiments show equal elements which will not be further described. In

general the system **118** comprises, it too, just like the aforementioned systems **116** and **117**, means **650** for diverting the water flow having a rotating disc-like shape and a water waste pipe **590** comprising a first discoid portion **592** and a second sleeve-like portion **591**.

[0204] In particular, the diverting means **650**, as better shown in FIGS. **52**A-**52**B, comprise a flat and preferably disc-like base **651** having a first surface **652** and a second surface **653** opposed to the first. The first surface **652** has two concentric and axially perforated protrusions **654**. A first central hole **655** having a polygonal shape, preferably triangular, is surrounded by a series of apertures **656**, preferably three of them, shaped as an arc of a circle. Two second holes **657** are arranged in correspondence of the perimeter of the base **651** and spaced by about 90°, one for the sewage system and one for the recovery system. A third hole **658** opens on the second face **653** (FIG. **52**B) and is in connection with a hollow tower **659** which raises from the first surface **652** and it has an open top communicating with said third hole. Preferably the tower **659** is located at about 135° from both second holes **657**.

[0205] As shown in FIG. **52**B, the two concentric protrusions **654** internally comprise a first section **670** and a second section **671** in the shape of an arc of a circle having a different radius so as to form two stop points **672** for the rotation on the second portion **592** of the waste pipe **590**, as later described.

[0206] The second portion **591** of the waste pipe **590** corresponds to the second portion **531** of the waste pipe **530** previously described with reference to the system **117** (FIG. **51**).

[0207] The first portion **592** of the pipe **590** comprises a first surface **593** opposed to a second surface **594** (FIG. **53**). From the peripheral edge of the first surface **593** raises an annular band **595** identical to the one described with reference to the system **117**. Further, still from said first surface **4** raises a fixing seat **596** of the bushing **73**. Said seat preferably comprises an aperture **597** at the base for draining water should it ooze therein. Two holes **510** and **511** are located diametrically opposed in the proximity of said annular band **595**. Such holes **510** and **511** each communicates with the recovery waste pipe **35** and the sewage waste pipe **30**.

[0208] Advantageously, the first surface **593** comprises a portion **593**A inclined from the hole **510** communicating with the recovery pipe **35**, towards the hole of the sewage pipe **30** so as to make probable stagnant water fall, due to gravity, onto said first surface towards the sewage pipe.

[0209] In accordance with a particular embodiment, the seat **596** comprises a base **598**, with said aperture **597**, wherefrom it raises a plurality of feet **599** adapted to firmly engage corresponding grooves formed on a connecting element **430** between the bushing **73** and the first portion **592** of the water waste pipe **590**. In fact, as shown in FIG. **54** the connecting element **430** is preferably in the form of an internally threaded nut so as to engage the counter thread of the bushing **73** and provided with an outer surface having said grooves **431**. It is to note that anyway the base **598** of the first portion **592** of the pipe **590** has two peripheral sections having a diameter so as to receive the above said first peripheral section **670** and second peripheral section **671** of the concentric protrusions **654** of the water diverting means **650** so as to realize a bayonet coupling.

[0210] The draining system **118** further comprises a control element **690** (FIG. **51**) substantially similar to the one described for the draining system **105**. In particular, the control element **690** comprises a first portion **691** provided with a gripping knob **692** and a pin for locking in a second portion **694** for reversibly fixing inside the bushing **73**. The second portion **694** comprises an end **695** for the engagement with the polygonal hole **655** of the water diverting means **650**. Preferably, such end has a triangular section which couples with the triangular section of the polygonal hole **655**. As in the foregoing, the pin **693** and the second portion **694** of the control element **690** can be realized en bloc and have on the outer surface elastic elements for a reversible radial engagement inside the bushing **73** to allow the conventional closing of water draining by means of the drain **240** through the plug **810**. It is to note that in this embodiment the plug **810** does not comprise any supplementary hole besides the conventional radial holes, therefore it can be found on the market and it does not need any adjustments.

[0211] The assembly of the just described system **118** is similar to that of the system **117** and requires to lock together the first portion **691** of the control element, the plug **810** with gasket **811** and second portion **694** still of the control element **694**. Then, the water flow diverting means **650** are fitted on the seat **596** of the first portion **592** of the waste pipe **590** so that the respective first **670** and second **671** sections of the concentric protrusions **654** couple with the section of the base **596** of the first portion **592**. Now, the connecting element **430** is fastened to the seat **596** of the first portion **592** by fitting the feet **599** with the grooves **431**. At this point, the bushing **73** is screwed inside the connecting element **430** inserting the drain **240** with the respective O**1** gasket.

[0212] Other gaskets can be provided and placed in the same points as previously described.

[0213] Note that assembled as such, the system **118** has the connecting element **430** fixed at a certain distance from the surface of the concentric protrusions **654** to allow the free rotation of the water flow diverting means **650** (FIG. **55**).

[0214] As shown in FIG. **56**A, in a first operating condition, the control **691** is in the recovery system position. In fact, one of the two second holes **657** of the wastewater flow diverting means **650** is in communication with the recovery waste pipe **35**. On the contrary, the other one of the two holes **657** is covered by the first surface **593** of the first portion **592** of the waste pipe **590**.

[0215] By rotating the control **690** for example by 45° clockwise by means of its knob **692**, the end **695** pushes into rotation the diverting means **650** positioning both second holes **657** to close on the first surface **593** of the first portion **592** of the waste pipe **590** (FIG. **56**B).

[0216] By rotating again the control still for example by 45° clockwise, one of the two second holes **657** positions itself in communication with the sewage waste pipe **30** while the other one is closed by said first surface of the first portion of the waste pipe.

[0217] The advantage obtained with this last embodiment lies in the fact that the rotation control is essentially the same as a conventional plug. In fact, the circular portion with radial apertures does not need to be perforated in order to lock together with the tooth of the rotation means **400** described with reference to the embodiments **116** and **117**. Also these same rotation means can be avoided since their

function is carried out by the three feet **599** of the seat **596** which is part of the waste pipe. Therefore, besides the diverting means **650**, it will be sufficient to arrange the waste pipe with a second portion having a very simple shape such as that of a sleeve and a first generally discoid portion with the above said seat for the fixing bushing with the drain.

[0218] This means that the entire construction and production are simplified with resulting lower costs.

[0219] Furthermore, as schematically shown in FIGS. **51** and **56**A-**56**C, the system **118** can comprise, it too, a spring **509** or elastic element to control the slowed return of the diverting means for example from the recovery system position to the sewage system position. Such mechanism, as already explained, has the function of preventing water containing soaps or other substances, which would not be suitable for reuse such as for watering plants and/or gardens, from flowing into the recovery system. The spring **509** can be accommodated in a bottom portion B of the second portion **592** of the waste pipe **590** and associated to a pin P for the connection with the end **695** of the control **690**. Moreover, a flat gasket O**5** can be inserted between the first portion **592** of the waste pipe **590** and the diverting means **650**. Such gasket is perforated only in correspondence of the holes **510** and **511** of the second portion **592** to ensure water-tightness when one of the second holes **657** of the diverting means **650** is not aligned with the respective hole **510** and **511**.

[0220] In FIG. **57**, the system **119** for discharging water from sinks or wash-basins is similar to the previously described system **118** with reference to FIGS. **51**-**56**, therefore the same reference number will refer to equal elements and will not be described any further. In particular, the system **119** comprises means **640** for diverting wastewater flow having the shape of a cylindrical container.

[0221] As better shown in FIGS. **58**A-**58**C, the diverting means **640** have a circular bottom **641** and an annular lateral wall **642**. The bottom comprises two first holes **643** located in the vicinity of its circumference and preferably spaced by 90°. These first holes are connected, as either with the recovery waste pipe or with the sewage waste pipe as later explained. Two second holes **644** are located along said circumference and are diametrically opposed. Moreover, the second holes communicate each with a corresponding tower **645** (only one is shown in FIG. **58**D) for discharging overflow water identical to the overflow towers previously described.

[0222] Two concentric protrusions **646** axially perforated and overlapped raise from the bottom **641**. A first central hole **647** of the protrusions has a section such as to accommodate precisely the end of the control, preferably having a polygonal section and more preferably a triangular section. The central hole is then surrounded by a series of apertures **648** shaped as an arc of a circle, preferably three.

[0223] Advantageously, the inner surface of the bottom **641** comprises an inclined ramp-like portion **649** (FIG. **58**C). Preferably, said portion **649** has the higher point far from the first two holes **643** and an inclined ramp towards the same holes so as to facilitate the elimination of possible stagnant water on the same bottom (FIGS. **58**B and **58**C). Note that such ramp can be provided also for the previous embodiments whose diverting means are made up of cylinders, cup-like containers and rotating discs.

[0224] The inner section of the two concentric protrusions **646** has the same trend as the one described with reference in particular to the system **118**. Therefore, such section comprises two points **646**A of the rotation stop on the second portion of the waste pipe, as later described.

[0225] The waste pipe **520** of the system **119** comprises a second portion **521** and a first portion **522** (FIG. **57**). The second portion **521** basically corresponds to the second portion **591** of the system **118**. The first portion **522** (FIGS. **59**A-**59**B) has a general structure substantially identical to the first portion **592** of the system **118**. Preferably, this first portion comprises an annular seat **523** located between the holes **524** and **525** diametrically opposed and in communication respectively with the recovery waste pipe **35** and the sewage waste pipe **30**, as for the holes **510** and **511** of the embodiment **118**. The annular seat is such as to accommodate a corresponding seal gasket O**4** (FIG. **57**) when either one or the other of the two holes **642** of the diverting means **640** are closed by the discoid surface of the first portion **522** of the pipe **520**. Preferably, the diameter of the gasket basically coincides at least with the diameter of the hole of the sewage waste pipe **30** and more preferably, is greater than the diameter of the hole of the recovery waste pipe **35**. In other words, as shown in FIGS. **61**A and **61**B, the seal gasket O**4** is firmly positioned at 90° between the two holes **524**, **525** so as to overlap the hole **642** of the diverting means **640** for draining in the sewage waste pipe **30** or the hole **642** for draining in the recovery waste pipe **35**, this because, as explained, the gasket is located at 90° between said holes **642** diametrically opposed.

[0226] Note that said first portion **522** of the waste pipe **520**, as for the system **118**, comprises a first surface **526** provided with an inclined portion **526**A inclined from the hole **524** of the recovery waste pipe towards the hole **525** of the sewage waste pipe.

[0227] Furthermore, from the first surface **526** peripherally raises an annular band **527** the same as the annular band **595** of the system **118**, while in axial position there is a seat **528** for the firm engagement with a connecting element **430** between the bushing **73** and the first portion **522** of the waste pipe **520**. Said seat **528** and the corresponding connecting element **430** are the same as those previously described with reference to the system **118**. Therefore, the same seat has a base **529** having such peripheral sections so as to receive the inner section of the aforementioned concentric protrusions **645** of the water diverting means **640**, in completely the same way as for the system **118**.

[0228] The draining system **119** also comprises a control element **690** (FIG. **57**) identical to the control element of the system **118**.

[0229] Also the assembly and the operation of the system **119** is the same as those previously described with reference to the system **118**, therefore they will not be described any further. In FIG. **60** there is shown the interlock between the first portion **522** and the connecting element **430** with the insertion of the water diverting means **640**.

[0230] In FIG. **62**, the draining system **120** is an embodiment variant wherein the elements in common with the previous embodiments have the same reference number. The present system differs from the previous ones because it enable to simplify to the maximum the variations with respect to traditional draining systems. In fact, the plug **800** with the respective control **611** and pin **610** are completely conventional just as the drain **250**, the strainer **70** and the bushing **73** for fixing the strainer to the drain. The pin **610** comprises only one shaped end **613** as for the previous

embodiments. Therefore, the only pieces which are substantially modified are the waste pipe **440** and the diverting means **280**.

[0231] Actually, the diverting means **280** are similar to the diverting means **640** described with reference to the system **119**. In particular, they have a general cylindrical shape with a bottom **281** and a lateral wall **282**. The bottom comprises a first **283** and a second **284** protrusion facing inward, hollow and coaxial, wherein the first protrusion overlaps the second (FIGS. **63**, **64**). The first protrusion **283** has a cavity so as to precisely accommodate the section of the end **613** of the control **610**, preferably polygonal, to allow the rotation control of the same means. Furthermore, preferably, the first protrusion **283** is perforated so as to allow the draining of the water that would possibly leak therein. The second protrusion **284** has instead a seat open outward so as to accommodate the above said rotation pin through a bayonet coupling as the one previously described.

[0232] Furthermore, the diverting means **640** comprise a first through hole **285** and a second through hole **286** formed on the bottom, in the proximity of the lateral wall and spaced by 90°. These holes, as in the foregoing, are so as to be alternatively overlapped to corresponding holes of the recovery waste pipe and of the sewage waste pipe.

[0233] Also the bottom **281** comprises a ramp **287** (FIG. **63**) as the one previously described and from the bottom circumference raises an annular band **288** provided with an outer threading (FIG. **62**).

[0234] The waste pipe **450** comprises a first portion **451** and a second portion **452**. The first portion **451** is similar to the first portion for example of the systems **117**, **118** wherein the bottom is inclined to allow remaining water to be drained into the sewage waste pipe. Moreover, a pin **453** raises axially having a circumferential portion such that it engages with the seat of the second protrusion **284** of the diverting means **280** so as to realize the above said bayonet coupling and to allow the rotation of said means controlled by calibrated stop points, as already explained, so as to make the holes **285**, **286** of the diverting means coincide alternatively with the waste pipes of the sewage or recovery systems.

[0235] The second portion **452** of the waste pipe **450** has a lid-like shape with a bottom **454** and a lateral wall **455**, wherein the lateral wall ends with a flange **456** threaded internally for the engagement with the annular band **288** of the first portion **451** (FIGS. **63**, **64**). The bottom **454** has a central hole **457** surrounded by a ring nut **458** internally threaded for the engagement with the threaded end of a commercial drain **250**. In the proximity of the bottom circumference, another hole **459** is in communication with sleeve **459**A for the connection with a pipe (not shown) for draining the water which might flow from the recovery waste pipe, as previously explained.

[0236] The assembly of the just described system **120** is very simple since it requires the interlock between the pin **610** together with the relative control **611** and the plug **800** with the insertion of a gasket in a completely conventional way. The bushing **73** is fixed through screwing inside the drain **250** with the insertion of the strainer **70** and the relative seal gasket on the bottom of the sink A. At this point, the pin **610** as previously arranged can be reversibly inserted in the drain **250** so that its end portion **613** exceeds the same drain. The diverting means **280** are fitted on the first portion **451** of the waste pipe **450** with the insertion of conventional gaskets in the suitable seats according to what already explained also with reference to the previous systems. Subsequently, the second portion **452** is screwed on the first portion **451** and the drain **250** with the pin **610** and the plug **800** is screwed on the ring nut **458** of the second portion **452**.

[0237] The operation of the system **120** substantially occurs as previously described. Note that the end **613** of the pin **610** for activating the rotation of the diverting means **280** exceeds the drain **250** to insert itself, through a shape coupling in the cavity of the first protrusion **283** of the same means. In turn the means engage on the same axis of the above said activating pin but on the opposite side on the pin **453** of the first portion **451** of the waste pipe **450** in a rotatable way. In other words, the diverting means have two axial engagements facing the opposite directions such that in a simple but efficient way from one side they receive the rotation impulse transmitted by the control element **611** and on the other side they are free to rotate about the pin of the waste pipe to select either the sewage waste pipe or the recovery waste pipe (FIGS. **63**, **64**).

[0238] In FIGS. **65-67**, there is shown a system **121** similar to the one just described. In particular the present system differs from the previous one in that the diverting means **290** comprise only one hollow and axial protrusion **291** provided with a through hole (not shown in FIG. **66**, **67**). Furthermore, the cavity of such protrusions, as for the previous embodiment, is such that it can accommodate in a rotatable way a pin for the rotation of the waste pipe. Furthermore, in the foregoing, the bottom **292** of the means comprises a hole **293** for the recovery waste pipe and a hole **294** for the sewage waste pipe as well as a ramp **295** to prevent water stagnation.

[0239] The waste pipe **130** still comprises a first portion **131** and a second portion **132**. The first portion **131** is the same as the first portion **451** previously described with reference to the system **120**. Also the second portion is basically the same as the second portion of the system **120** and differs from the latter for the presence of a coaxial seat **133** with a hollow pin **134** for the rotation of the aforementioned diverting means **290**. The hollow pin corresponds to the rotation pin described with reference for example to the system **120** and differs for the presence of an axial hole (not shown in the FIGS. **66**, **67**) aligned with the hole of the protrusion **291** of the diverting means **290**. Conversely, the seat **133** opens on the opposite side with respect to the pin **134** and that is on the side facing the recovery waste pipe **35** and the sewage pipe **30**. This seat, too, has a hole (not shown in FIGS. **66** and **67**) in axis with the hole of the rotation pin. In fact, said seat has the function of accommodating an elastic element **509** such as a spring connected to a shaft P which passes through the holes respectively of the seat **133** and of the pin **291** of the second portion **132** of the waste pipe **130** as well as of the protrusion **291** of the rotation means **290**. In particular, the shaft P comprises a first end P**1** connected to said elastic element and a second end P**2** hollow and protruding from said protrusion **291** towards the cavity of the diverting means **290**. It is to note that the second end P**2** has a cross section which locks precisely together with the cross section of the protrusion **291**.

[0240] The control **610** of the diverting means **290** are the same as those described with reference to the system **120** and, therefore, have an end **613** which inserts itself with a shape coupling in the second end P**2** of the shaft P, which,

in turn, as previously said, inserts itself precisely in the protrusion **291** of the diverting means **290** so as to allow them to rotate.

[0241] From the foregoing, it is clear that both the assembly and the operation are substantially the same as for the previous system **120** with the difference that the rotation of the control **611** in order to select the recovery system activates the elastic element **509** which after a predefined period of time automatically will return the system **121** to the position of the sewage system.

[0242] The advantage of the two described last systems **120** and **121** mainly lies in the compactness of the water flow diverting means and of the respective waste pipe, as well as the simplicity of adaptability to a conventional drain with strainer and plug.

[0243] From the foregoing, it is apparent that prior art drawbacks outlined in the introduction of the present description have been overcome and at the same time important advantages have been achieved.

[0244] In fact, by means of a simple handy control located above the sink bottom it is possible to select a plurality of water waste pipes of the sink according to preferences or requirements.

[0245] Furthermore, all embodiments of the present invention make it possible to realize draining systems in a simple and functional way, thus ensuring low production costs, low maintenance and low risks of malfunctioning.

[0246] The draining systems herein described can undergo modifications and adaptations within the skilled in the art expertise, without anyway exiting from the protection field of the appended claims.

[0247] For example, the forms described and shown of each element constituting the draining systems can be modified according to specific requirements or preferences. Similarly, sizes and coupling, insertion, connection means can have a great number of solutions comprising, for example, threaded or counter threaded screwing means, quick snap or bayonet coupling. Moreover, among the elements there can be used watertight elements such as conventional gaskets for example of the O ring type or flat gaskets, such as O ring O**6** gaskets (for example FIG. **47**) at the base of the seat or rotation pin of the rotating disc so as to realize a seal in this point and reduce friction between the same components.

[0248] The control pins to activate the flow diverting means can have various forms and controls suitable for specific requirements. In particular, the pins and the corresponding diverting means described for each embodiment can be combined one with the other also in ways different from the one described and shown in the figures, but yet having in mind their function, their dimensions and possible modifications or adjustments entirely concerning the shape of the means associated to them.

[0249] Overflow systems can also be provided in those embodiments wherein they have not been shown or described.

[0250] Also materials can be of different kinds according to specific requirements or preferences. In fact, it is well known that the most used materials in the sector are plastic or metal, among plastic materials the most known are the PP, ABS and among metals stainless steel, brass and other chromed metals.

[0251] Seeger type rings can be provided in all the embodiments wherein the diverting means are constituted by a disc or rotating cylinder on a pin of the waste pipe.

1. Multiple draining system for sinks and basins, comprising a drain provided with a first portion fixed on the upper or inner surface of a bottom of a basin for collecting water in correspondence of a draining hole of said basin, and a second portion protruding from the lower or outer surface of said bottom so as to tightly connect with a cylindrical waste pipe for draining the basin water, said pipe extending about a rectilinear axis and being provided with a primary waste pipe for the sewage system and a secondary waste pipe for the recovery system, wherein means for diverting wastewater flow are accommodated inside said waste pipe and are selectively activatable so as to discharge the water by means of said primary waste pipe or of said secondary waste pipe, wherein said diverting means can be activated by means of a control positioned above the level of the bottom of the basin.

2. System according to claim **1**, wherein said control is connected to a pin lying on the axis of the pipe and provided with a first end axially fixed to said control rotatably and coaxially to said first portion of the drain or said first end is fixed on an axial pin of a closing plug of the drain, the pin comprising a second end which engages said diverting means rotatably or in a liftable/lowerable way, or said control comprises an articulated pin with a first end protruding from the upper rim of said basin and a second end connected to said diverting means by means of an articulated lever mechanism.

3. System according to claim **2**, wherein said control comprises a gripping element consisting in a knob rotatable about the axis, liftable/lowerable along or parallel to the axis or an annular flange or a lever provided with a cam rotatable on a plane vertical to said axis.

4. System according to claim **1**, wherein said diverting means comprise a gate device which in turn comprises a first fixed wall and provided with a first aperture, and a second movable wall provided with a second aperture, the second wall being rotatable so that alternatively the first and the second apertures are superimposable so as to let the water flow into the primary waste pipe or are not superimposable thus closing the water flow into the primary waste pipe, wherein said first wall is fixed on the inner wall of said waste pipe lower with respect to said secondary pipe, and said second wall radially and tightly overlaps said first wall and is rotatable by means of said rotating mechanism.

5. System according to claim **1**, wherein said means for diverting the flow of wastewater comprise a narrowing of the waste pipe positioned lower with respect to its secondary pipe, and a plug connected to the second end of the pin of said lifting/lowering mechanism so that it can be lifted or lowered to achieve a reversible and tight stop against said narrowing.

6. System according to claim **1**, wherein said waste pipe comprises a primary waste pipe and a secondary waste pipe positioned crosswise to the axis on the wall of said pipe at the same level and diametrically opposed, and wherein said diverting means comprise a ball valve to direct wastewater alternatively to the primary or secondary waste pipe.

7. System according to claim **1**, wherein said diverting means comprise a rotating element which in turn comprises a bottom provided with a seat for a rotating engagement on a pin of the waste pipe, and at least an aperture for the flow of wastewater from the drain to the waste pipe, the waste pipe comprising a plurality of holes for the sewage or recovery discharge of wastewater.

8. System according to claim **7**, wherein said rotating element is a cylinder comprising at least a hole formed on the lateral wall communicating with a sewage waste pipe or recovery waste pipe.

9. System according to claim **8**, wherein said rotating mechanism comprises a rotating cylinder provided with two apertures arranged on its lateral wall on two different crosswise planes along said axis and said waste pipe comprise a primary waste pipe and a secondary waste pipe positioned at two different points along said axis.

10. System according to claim **9**, wherein the two apertures of said rotating cylinder are positioned at 90° one from the other and said primary waste pipe and said secondary waste pipe are positioned at 90° one from the other.

11. System according to claim **9**, wherein the two apertures of said rotating cylinder are positioned axially aligned and said primary waste pipe and said secondary waste pipe are positioned on two crosswise planes axially staggered and misaligned and each having its axis orthogonal to the axis of the pipe.

12. System according to claim **1**, wherein said diverting means comprise a first truncated cone-shaped element which fits on a second truncated cone-shaped element, both hollow and provided with respective closed minor bases for rotation coupling along the axis and open major bases facing said primary waste pipe, the lateral wall of both first and second elements comprising an aperture being superimposable thanks to the rotation of said first element on said second element for draining water into said primary waste pipe.

13. System according to claim **1**, wherein said diverting means are a rotating disc having two circumferential holes for the sewage waste pipe or recovery waste pipe in an alternative way and a central hole for the engagement with a rotating pin of the waste pipe, and wherein the waste pipe comprises a first cylindrical portion and a second discoid portion, the second portion comprising a first surface wherefrom an annular band raises to guide the insertion of the rotating disc and besides comprising two holes communicating respectively with said recovery waste pipe and said sewage waste pipe and such to cooperate alternatively with the holes of the rotating disc.

14. System according to claim **7** further comprising first engaging elements integral with said seat and adapted to cooperate with second engaging elements integral with said control to rotatably activate said means for diverting water.

15. System according to claim **14**, wherein said first elements are a plurality of walls spaced by spaces for the precise insertion of said second elements formed by feet.

16. System according to claim **13**, wherein said disc of said diverting means comprises at least a further through hole connected with a corresponding tower in order to drain water into the sewage waste pipe should water from the recovery waste pipe go back towards the drain.

17. System according to claim **1**, wherein the bottom of the waste pipe comprises an inclined plane with an incline from the recovery waste pipe to the sewage waste pipe.

18. System according to claim **1**, wherein said means for diverting the water flow have the shape of a cylindrical container having a circular bottom and an annular lateral wall, the bottom inner surface having a ramp-shaped portion inclined towards two holes each connected either with the recovery waste pipe or with the sewage waste pipe.

19. System according to claim **1**, comprising stop means to stop the rotation of the means for diverting water flow with respect to the waste pipe.

20. System according to claim **19**, wherein said stop means comprise two circumferential steps formed on the inner wall of a cylindrical sleeve in continuity with the central hole of the diverting means, said steps cooperate with a radial tooth formed on the outer surface of the base of said pin of the waste pipe.

21. System according to claim **1**, wherein said waste pipe comprises a first portion connected with said sewage waste pipe and said recovery waste pipe and a second lid-shaped portion having a bottom and a lateral wall, the bottom is perforated and provided with a ring nut for fixing to a drain and provided with a sleeve for the connection with a supplementary waste pipe, while the lateral wall ends with a flange for fixing to the first portion.

22. System according to claim **1**, wherein the bottom of the rotating cylinder or the bottom of the waste pipe is provided with a timer for repositioning the rotating cylinder from the position of recovery system to the position of the primary sewage system, said timer being controlled by means of a rotation of the rotating cylinder given by said control pin.

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