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**A coupler for plumbing fixtures**

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ABSTRACT

A coupler 10 for coupling a drain outlet assembly to a drainage pipe is disclosed. The coupler 10 comprises a body 14 defining a collection chamber including an elongated blank wall 16 through which a drain outlet 80 of a bath tub can be passed. This is done by cutting a suitable hole in the blank sidewall 16. The body 14 further includes a base wall 20 opposing the blank sidewall 16 and spaced apart parallel to the blank sidewall 16. A minor side wall 22 extends around the periphery of the blank wall 16 between the base wall 20 and the blank wall 16 and the collection chamber is defined between these walls. The coupler 10 includes one body outlet opening defined in the base wall and a further body outlet opening defined in the minor side wall 22. In use one of the outlet openings is opened to the collection chamber and the other one is closed off. The coupler 10 also includes two other inlet openings defined in the minor side wall 22 for connecting another drain opening thereto. The two other inlet openings have pipe extensions 24, 28 associated therewith for coupling them to an adjacent pipe and may be blanked off when manufactured.

FIG 4 FOR PUBLICATION

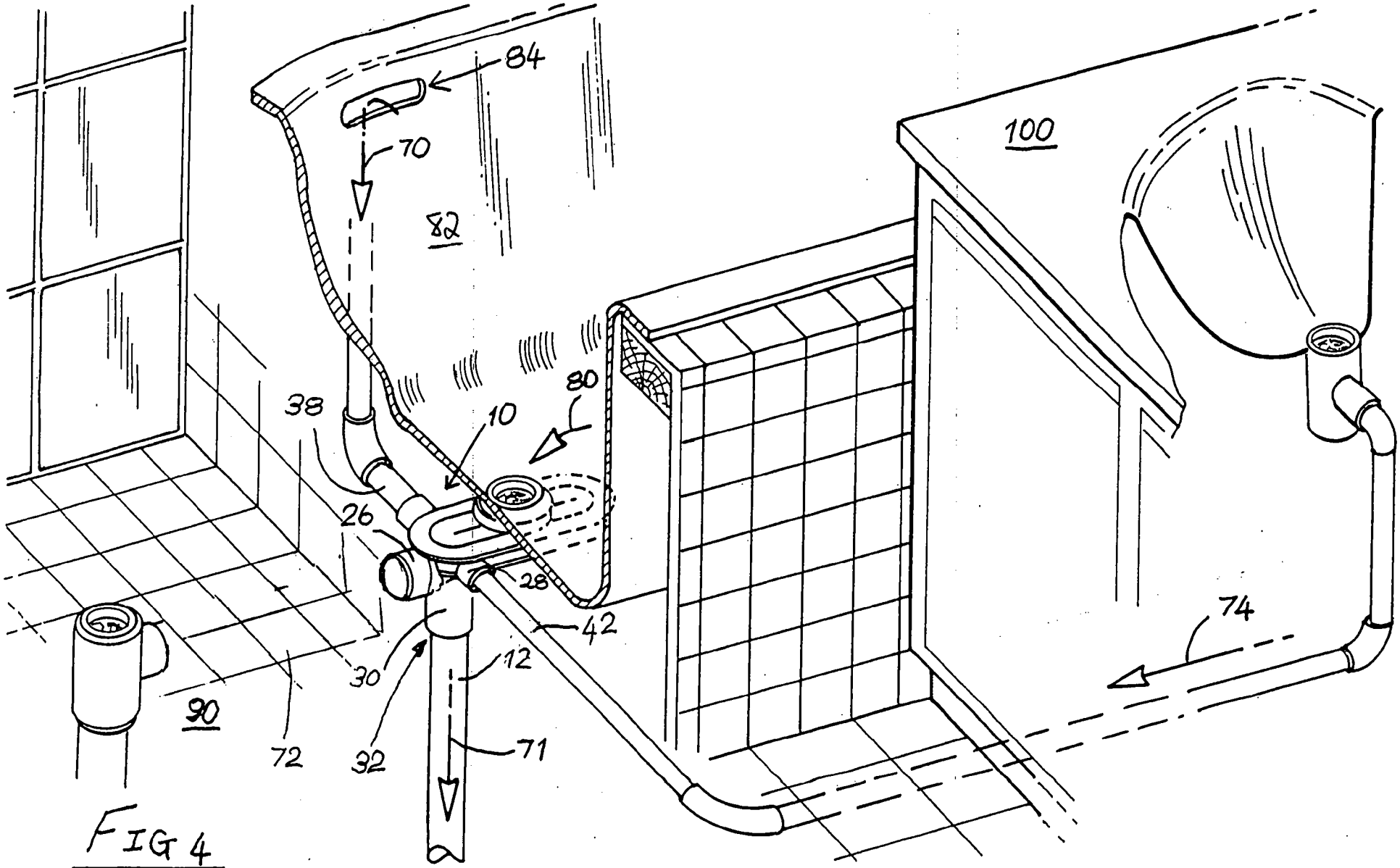


FIG 4

# A COUPLER FOR PLUMBING FIXTURES

## FIELD OF THE INVENTION

This invention relates broadly to plumbing installations. In particular, the invention relates to a coupler for coupling drain openings of domestic plumbing fixtures, such as a bath, a shower, a wash-basin, and the like, to a waste-water drainage system. The invention extends to a pipe assembly which includes the coupler. The invention also provides a method of coupling plumbing fixtures to a waste-water drainage system.

## BACKGROUND TO THE INVENTION

Many buildings are constructed to have a room in which plumbing fixtures are to be installed, for example a house having a bathroom. In the usual slab on ground construction a concrete slab is cast early on in the construction process. In particular the drain pipes leading to a drainage main of the water drainage system are placed in position before the slab is cast, and the slab is then formed around these pipes which are effectively cast into the slab. Thereafter the timber frame forming the walls is built on top of the slab and extends upwardly therefrom.

After the walls have been built the plumbing fixtures, in other words the bath, shower, and wash-basin, and the like, are mounted in position in the bathroom and then operatively connected to the plumbing system. For aesthetic reasons it is desirable to arrange the plumbing fixtures symmetrically in the bathroom.

In other instances the drainage pipes pass over the support surface of the structure, e.g. along the surface of the slab. However as with the previous scenario they are installed before the plumbing fixtures are placed in position in an individual room of a house.

It will be appreciated that when a bath or the like, is positioned in a symmetrical and most desired position within the room, its waste-water outlet or drain opening may often not align with the pre-installed drainage pipe that has been cast into the concrete slab. The off-set or misalignment can be in a longitudinal direction and also in a lateral direction. Moreover, it could be expected that the amount of misalignment between the outlet opening of the bath and the inlet opening of the pre-installed drainage pipe can vary for each new bathroom installation. This therefore creates additional complications when connecting the outlet opening of the fixture to the drainage pipe passing through the slab using pipe couplers of fixed dimensions. It is not simply a case of coupling the fixture to the pipe and often this job would require make-up pipe pieces and coupler combinations. Further it could be time consuming for the plumber to connect the fixture to the drain pipe entailing additional cost. Further with more pipe pieces the chances of leakage is greater.

Clearly it would be advantageous if a contrivance could be devised that could accommodate the offset and permit the outlet openings of plumbing fixtures to be coupled to the drainage pipe when there is some misalignment. It would also be advantageous if the contrivance or coupler permitted connection of multiple outlet openings, for example outlet openings from the bath, the overflow outlet of the bath, and a wash basin to a single pre-installed drainage pipe forming part of the waste-water pipe-system.

## SUMMARY OF THE INVENTION

Accordingly, the invention provides a coupler for coupling a drain opening of a plumbing fixture to a drainage pipe forming part of a waste water system, and for coupling at least one other outlet opening of a plumbing fixture in flow communication with the drainage pipe, which coupler includes:

a body defining a collection chamber and having a body outlet opening for connection to the drainage pipe of the waste water system, the body

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including at least one blank wall into which an eventual inlet opening is to be cut at a position corresponding with the drain opening of the plumbing fixture to accommodate the offset between the drain opening and the drainage pipe;

the body further having at least one other inlet opening for connecting another drain opening thereto such that the other drain opening is also placed in flow communication with the drainage pipe.

The drainage pipe may be mounted in a fixed position. In particular the drainage pipe may be pre-installed, e.g. by being placed in the formwork of a slab and having the slab cast around it.

The blank wall may be elongated and may define a longitudinal axis and may have a length in the direction of the longitudinal axis that is greater than the dimension across the drain opening of the fixture, e.g. the diameter of the drain opening. The blank wall may also have a width that is transverse to the direction of the longitudinal axis that is greater than the dimension, e.g. the diameter, across the drain opening of the fixture.

The body may include a base wall opposing the blank wall and spaced apart more-or-less parallel to the blank wall, and a minor side wall extending around the periphery of the blank wall between the base wall and the blank wall, and the collection chamber may be defined between these walls.

The elongated blank side wall may be generally planar and shaped and sized so that the eventual inlet opening may be cut out selectively anywhere between its ends to provide an inlet opening to the collection chamber which can be substantially aligned with the drain opening of the plumbing fixture.

The body may include a flange extending circumferentially outward away from the blank wall around the periphery thereof. The flange may be substantially in the plane of the blank wall to extend or increase the major surface of the blank

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wall, which major surface may serve as an abutment surface against a wall of a plumbing fixture after installation thereof, for example for abutment against a reverse, or ordinarily concealed, surface area around the drain opening of the bathtub.

The blank wall may define a conceptual zone having a conceptual centerline, e.g. coinciding with a longitudinal centerline of the blank wall, along which conceptual line a user may infinitesimally adjust and select a position at which the eventual inlet opening is to be cut. The conceptual centerline may be indicated with a marking on the blank wall for guiding the user to mark and cut the eventual inlet opening. For example the centerline may be used to assist the user with working out the positions for a hole-saw with which the eventual inlet opening is cut out.

The body outlet opening may be defined in the base wall. This way it faces out away from the body in an opposite direction to the drain opening for the fixture, e.g. the body outlet opening is on the bottom of the body and the drain opening is positioned above the body.

The at least one other inlet opening on the body may face transverse to said one body outlet opening. The body may include at least two other inlet openings that each face transverse to the outlet opening.

The body may have two other inlet openings defined in the minor side wall for connecting up to two other drain openings in flow communication with the collection chamber, and thus with the pre-installed drainage pipe. For example the two other inlet openings may be defined in transverse sides of the minor side wall and may be located laterally or transversely opposite each other.

The body may also include a conduit or pipe extension piece for each one of the other inlet openings or associated with each of the other inlet openings. An end of each pipe extension piece may define each said other inlet opening.

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Each pipe extension piece may project from the body coaxially with the inlet opening and the pipe extension piece may have substantially the same diameter as the inlet opening. Each pipe extension piece may have a free end for connection to a pipe leading from one of the other outlet openings.

Each further inlet opening may be blanked off such that it needs to be cut open prior to use to place it in fluid communication with the collection chamber. The further inlet openings may be blanked off by the minor side wall. For example, each pipe extension may be blanked off by the minor side wall so that a user has to drill or cut out the minor side wall within the associated pipe extension to open up the further inlet.

Instead, each pipe extension may be manufactured with an integral plug inside an end portion of the pipe extension, so that a user may cut or saw off the plugged end of the pipe extension to open it for use.

Further instead, the coupler may be manufactured with one or more of the further inlet openings in an open condition and the coupler may include one or more plugs or stop members for closing off said further inlet openings that are not coupled to a fixture outlet and which need to be closed off for use. The plug may comprise a plug body which is shaped to fit tightly and sealingly inside a pipe extension of the associated further inlet opening.

It would be appreciated that the body may have any number of other inlet openings defined on any one of the base wall, or the minor side wall or both.

One or more of the other inlet openings may be coupled to the same plumbing fixture as said one inlet to the body, or they may be coupled to a different plumbing fixture. Conveniently, an overflow opening of one of the plumbing fixtures that is connected to the coupler may be connected to one of the other inlet openings, for example an overflow opening of the bath tub may be connected to the other inlet openings of the coupler.

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The body may include a further pipe extension piece which projects coaxially from the body outlet opening for connection to the pre-installed drainage pipe. The body outlet opening may be manufactured such that it is always open and is not blanked off like the further inlet openings may be.

The coupler may include a plug or stop member for closing off the body outlet opening when it is not coupled to a fixture outlet and needs to be closed off in use. Each plug may comprise a plug body which is shaped to fit tightly and sealingly inside a pipe extension of the associated outlet opening.

Instead the body outlet opening may be blanked off like the other inlet openings.

The body may include a further body outlet opening. The further body outlet opening may face away from the body transverse to said one body outlet opening. The further body outlet opening may be defined in the minor wall of the body, e.g. at an end of the body.

The body may include a yet further pipe extension piece which projects coaxially from the further body outlet opening for connection to a drain pipe, e.g. a pre-installed drainage pipe.

The further body outlet opening may be manufactured such that it is always open and is not blanked off like further inlet openings may be.

The coupler may include a plug or stop member for closing off the further body outlet opening when it is not coupled to a fixture outlet and needs to be closed off in use. Each plug may comprise a plug body which is shaped to fit tightly and sealingly inside a pipe extension of the associated outlet opening.

Instead the body outlet opening may be blanked off when manufactured, e.g. in one of the ways described above for the other inlet openings, and may need to be cut open when required for use like the further inlet openings.

The coupler may include a pipe adapter which is adapted to connect a pipe extension to its associated drain pipe, each pipe adapter being configured for cooperation with the pipe extension at its one end and with the drain pipe at its other end, as the case may be. The pipe adapter may include any connection configuration conventionally available. The pipe adapter may also include a sealing arrangement, such as a groove-and-O-ring configuration for sealingly connecting the pipe extension to its associated drain pipe.

The coupler may also include a strainer member or a grate. The strainer member may be a bucket strainer, in which case the coupler may include a conforming removable stopper or plug can be removably fitted inside the bucket or recess defined by the strainer.

The coupler may also include a mounting arrangement for mounting the strainer snugly into the drain opening of the plumbing fixture, for example into the drain outlet opening of the bathtub.

The mounting arrangement may include a seal member for sealingly mounting the strainer onto the body of the coupler. The seal member may be in the form of a generally toroidal seal body and formed from a resilient material for nesting the bucket strainer. The mounting arrangement may also include a flat-walled mounting ring which fits snugly around the seal member.

Further, the mounting arrangement may include a clamping member for fitment inside the collection chamber of the body and for abutment against an inner surface of the blank wall at a region around the eventual outlet opening. The clamping member may also define a central screw threaded bore for receiving a screw passing through a central opening of the bucket strainer, thereby to

clamp the blank wall and bath tub wall firmly and sealingly between the bucket strainer and clamping member at a position over the eventual inlet opening.

According to another aspect of this invention there is provided a coupler for coupling a drain outlet assembly of a plumbing fixture to a drainage pipe of a waste water system, the coupler comprising:

a body defining a collection chamber including at least one elongated blank wall through which the drain outlet assembly of the plumbing fixture is passed by cutting an appropriately sized and positioned hole in the blank wall to operatively couple the outlet assembly of the plumbing fitting to the body, the body defining at least one body outlet opening for connection to the drainage pipe of the waste water system, and the body also defining at least two other inlet openings for operatively connecting plumbing fitting outlets other than the outlet passed through the blank wall to the body.

The body may include a base wall opposing the blank sidewall and spaced apart more-or-less parallel to the blank sidewall, and a minor side wall extending around the periphery of the blank wall between the base wall and the blank wall, and the collection chamber may be defined between these walls.

The at least one other inlet opening may be defined in the minor side wall and may face outward in a direction transverse to the direction of elongation of the blank wall.

The coupler may include one body outlet opening defined in the base wall and a further body outlet opening defined in the minor side wall that faces outward transverse to said one body outlet opening, and in use one of said one and further outlet openings may be placed in fluid communication with the collection chamber and the other body outlet opening may be closed off to the collection chamber whereby to only have said body outlet in operative use.

The coupler may include pipe extension pieces extending away from the minor side wall of the body associated with each of the other inlet openings. The other inlet openings may be blanked off or the coupler may include plugs for closing off the further inlet openings when they are not required for use.

The coupler may include any one or more of the optional features defined in any one of the preceding aspect of the invention.

According to yet another aspect of this invention there is provided a coupler for coupling a drain outlet assembly of a plumbing fixture to a drainage pipe of a waste water system, the coupler comprising:

a body defining a collection chamber including at least one elongated blank wall through which the drain outlet assembly of the plumbing fixture can be passed by cutting an appropriately sized and positioned hole in the blank wall to operatively couple the outlet assembly of the plumbing fitting to the body, the body including a base wall opposing the blank sidewall and spaced apart more-or-less parallel to the blank sidewall, and a minor side wall extending around the periphery of the blank wall between the base wall and the blank wall, with the collection chamber being defined between these walls, the coupler including one body outlet opening defined in the base wall and a further body outlet opening defined in the minor side wall that faces outward transverse to said one body outlet opening, wherein in use one of said one and further outlet openings is placed in fluid communication with the collection chamber and the other body outlet opening is closed off to the collection chamber whereby to only have said body outlet in operative use, and including two other inlet openings defined in the minor side wall for connecting another outlet opening/s thereto such that the other outlet opening is also placed in flow communication with the drainage pipe.

The coupler may include any one or more of the optional features defined in any one of the preceding aspect of the invention.

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The invention also extends to a method of coupling one or more plumbing fixtures to a waste-water drainage system, one of the plumbing fixtures having a drain opening which is proximate to a pre-installed drain pipe but misaligned with an inlet opening of the pre-installed drain pipe, which method includes:

providing a coupler as defined in any one of the preceding aspect of the invention described above;

connecting an open and operative body outlet opening of the coupler to the pre-installed drain pipe;

marking on the blank wall a position at which an eventual inlet opening is to be cut to compensate for the misalignment between the drain opening of the plumbing fixture and the drainage pipe,

cutting the eventual inlet opening into the blank wall according to the marking; and

fitting or connecting the coupler sealingly to the plumbing fixture and the drain pipe.

The method may also include connecting at least one other plumbing fixture to the other inlet openings of the body of the coupler.

The step of connecting the other plumbing fixtures may include connecting one, or two other plumbing fixtures to the body of the coupler in flow communication with the collection chamber.

The body may also include a pipe extension for each of the other inlet openings, each pipe extension projecting from the body coaxially with an inlet opening, in

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which case, the drain pipes from the other plumbing fixture may be connected thereto by way of an pipe adapter appropriately adapted.

An inlet opening of a pipe extension may be blanked off, and the method may include cutting open the blanked off pipe extension to place the pipe extension in flow communication with the chamber within the body.

Instead a pipe extension of an inlet opening that is not coupled to an operative water outlet may be open, and the method may include closing off said pipe extension, e.g. with a plug, to resist the passage of water there through.

The method may include providing a coupler including one body outlet opening defined in the base wall and a further body outlet opening defined in the minor side wall that faces outward transverse to said one body outlet opening, and selecting one of said one and further outlet openings for being placed in fluid communication with the collection chamber, and causing said one outlet opening to be operatively open and closing off the other body outlet opening to the collection chamber, whereby to only have said body outlet in operative use.

The method may include positioning a strainer snugly inside the drain opening of the plumbing fixture and sealing it off with a sealing member. The strainer may be installed by clamping the strainer with clamping members firmly against the blank wall over the eventual inlet opening and a bathtub wall which defines the drain opening of the bathtub.

The strainer may be clamped by passing a screw through a central opening of the bucket strainer to engage a screw-threaded bore defined by the clamping member inside the collection chamber, thereby to clamp the bucket strainer and the seal member firmly against the blank wall over the eventual inlet opening and a bathtub wall which defines the drain opening of the bathtub.

The invention extends to a pipeline assembly which includes a coupler as defined above in the first aspect of the invention and at least two conduits operatively coupled thereto.

The coupler may include any one or more of the optional features as defined and described above.

The invention extends to a bathroom which includes a waste-water drainage system having a coupler as defined above.

The coupler may include any one or more of the optional features as defined and described above.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A coupler for coupling respective outlet or drain openings of a group of plumbing fixtures to a waste-water drainage pipe, in accordance with the invention, may manifest itself in a variety of forms. It will be convenient to hereinafter describe in detail several preferred embodiments of the invention with reference to accompanying drawings. The purpose of providing this detailed description is to instruct persons having an interest in the subject matter of the invention how to carry the invention into practical effect. However it is to be clearly understood that the specific nature of this detailed description does not supersede the generality of the preceding broad description.

In the accompanying diagrammatic drawings:

Figure 1 shows a three-dimensional view of a coupler, in accordance with the invention;

Figure 2 shows a three-dimensional exploded view of the coupler shown in Figure 1;

Figure 3 is an end view of the coupler of Figure 1 showing two other inlet openings for connection to other plumbing fitting outlets;

Figure 4 shows the coupler of Figure 1, in use, forming part of a waste-water drainage system, in accordance with the invention;

Fig 5 is a three dimensional view of the coupler of Fig 1 coupled to a waste water drainage system and being used in a different way to the coupler in Fig 4;

Fig 6 is a three dimensional view of a coupler in accordance with a second embodiment of the invention; and

Fig 7 is an end of the coupler shown in Fig 6.

In the drawings, reference numeral 10 generally refers to a coupler for coupling respective outlet openings of a group of plumbing fixtures to a pre-installed waste-water drain pipe 12 forming part of a waste-water drainage system, in accordance with the invention.

In this embodiment, the coupler 10 is used to connect two plumbing fixtures in flow communication with the drain pipe 12 namely (see Figure 4) a bathtub 82, and a wash-basin 100 to a common drainage pipe which is the drain pipe 12.

The drain pipe 12 is installed during construction of the bathroom and terminates at a position in which its inlet opening is vertically misaligned with the drain opening, at 80, of the bathtub 82.

The coupler 10 includes a body 14 defining a collection chamber inside the body 14. The body 14 comprises a blank wall 16 into which an eventual inlet opening is to be cut out for connection in fluid communication to the drain opening, at 80, of the bathtub 82.

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The body 14 also defines a body outlet opening for connection in fluid communication to the drain pipe 12. The body outlet opening is manufactured in an open condition and can be closed off with a plug if this is required during operation.

The body also defines a further body outlet opening extending horizontally away from the body. The further body outlet opening is manufactured in a closed or blanked off condition and can be opened up by drilling out or cutting out the blank wall if this is required during operation.

The body outlet opening and the further body outlet opening provide two different options for connecting to a drain pipe. The body outlet opening is used to connect to a drain pipe projecting vertically up through a floor slab. The further body outlet opening is used to connect to a pipe passing horizontally along a floor surface.

In the illustrated embodiment the body 14 has two other inlet openings, e.g. for connection to respective outlet drain openings of the wash-basin 100, and an overflow outlet opening 84 of the bathtub 82.

The elongated blank side wall 16 is generally planar and shaped and sized so that the eventual inlet opening is cut out selectively anywhere between its longitudinal ends. The inlet opening is cut at a position where the eventual inlet opening aligns more-or-less with the drain opening of the bathtub 82 when the coupler is installed and connected to the drain pipe 12.

The body 14 also includes a flange 19 extending circumferentially and projecting in substantially planar fashion from the blank wall 16 to extend or increase the major surface of the blank wall 16. The increased major surface facilitates installation of the coupler 10 as it increases an area thereof for

abutment against an area around the drain opening of the bathtub 82 defined on a reverse, or ordinarily concealed, surface of a bathtub 82, in use.

The blank wall 16 defines a conceptual zone 21 having a conceptual centerline 18 coinciding with a longitudinal centerline of the blank wall 16. Along this conceptual line 18 a user can infinitesimally adjust and select a position at which the eventual inlet opening is to be cut. Conveniently, a marking 18 in the form of a conspicuous line is provided on the blank wall 16 for assisting the user with the marking of the position at which the eventual inlet opening is to be cut out, and to assist with for example aiming to position a hole-saw bit for cutting out the eventual inlet opening.

In other embodiments (not shown) the body 14 can have any number of other inlet openings defined by the walls of the body 14. In the illustrated embodiment the body has two other inlet openings defined by the minor side wall 22 for connecting two other drain openings in flow communication with the collection chamber, and thus with the pre-installed drainage pipe 12.

The two other inlet openings are spaced apart along the minor side wall and specifically on transverse sides of the minor side wall 22. The other inlet openings are located laterally or transversely opposite each other near one longitudinal end of the body 14.

The body 14 includes a pipe extension, 24, and 28 for each one of the other inlet openings. Each pipe extension projects from the body 14 coaxially with its associated other inlet opening. A free end of each one of the pipe extensions 24, 28 is for connection in fluid communication to one of the other drain pipes from one of the other plumbing fixtures. Thus, the associated pipe extensions, 24, 28 projects from the body 14 coaxially with each inlet opening, so that the free ends of the pipe extensions 24, 28 define the inlet openings for connection in fluid communication to the drain pipes from the bathtub overflow 84, and the wash-basin 100.

Another pipe extension 30 projects coaxially from the body outlet opening of the body 14 defined in the base wall 20, and a free end of the pipe extension 30 is connected, at 32, to the drain pipe 12. Yet another pipe extension 26 projects co-axially from the further body outlet opening positioned at the end of the body 14. The pipe extension 26 can be coupled to a horizontally extending drain pipe in such an application.

The coupler 10 also includes pipe adapters 34 and 36 which can be used to connect the pipe extensions 24, 28 to their waste-water pipes 38, 42. It will be appreciated that the pipe-adapters 38, 42 would be shaped and sized to conform with the ends of the pipe extension 24, 28 and with its associated waste-water pipes 38, 42, forming part of the waste-water pipe-system.

In addition, the coupler 10 also includes a plug member 44 for closing off an inlet opening of a pipe extension associated with a body outlet or another body inlet which is not to be used for water flow and is required to be closed off. In the Fig 4 illustration the pipe extensions 24, 28, are in use and are arranged to be open for water flow there through.

The coupler 10 also includes a strainer member or grate 46 which is in the form of a bucket strainer. A stopper or removable plug 48 forms part of the coupler 10 and is shaped to fit snugly into the strainer 46.

The coupler 10 also includes a mounting arrangement, generally indicated by reference numeral 50 for mounting the coupler 10 sealingly in flow communication with the outlet opening of the bathtub 82.

The mounting arrangement 50 includes a seal member 52 which is generally toroidal and formed from a resilient material. The seal member 52 fits sealingly around a base portion 54 of the bucket strainer 46, in other words the sealing member 52 nests with the bucket strainer 46.

A flat-walled mounting ring 55 forms part of the mounting arrangement 50 and fits snugly around the seal member 52.

To this end, the mounting arrangement 50 includes a clamping member 56 for fitment inside the collection chamber and for abutment against an inner surface area of the blank wall 16 around the eventual inlet opening. The clamping member 56 includes a hub 58 defining a central screw threaded bore for receiving a screw 60 passing through a central opening of the bucket strainer 46. This configuration permits the bucket strainer 46 and the clamping member 56 to clamp the bucket strainer and its sealing member 16 firmly over the eventual opening aligned with the drain opening of the bathtub 82.

In use, if a user desires to install plumbing fixtures in the bathroom, say the bathtub 82, and a wash-basin 100, then the user first positions these plumbing fixtures 82, 100 inside the bathroom at their desired positions.

In this illustration, the user chooses to position the bathtub 82 nearest to the drain pipe 12, but the inlet opening of the drain pipe 12 is vertically misaligned with the drain opening, 80, of the bathtub 82.

First, the user fits the coupler 10 temporarily with its outlet pipe extension connected, at 32, to the fixed drain pipe 12. The user then marks on the blank wall 16 that position where the drain opening of the bathtub 82 overlaps the blank wall 16. The user then removes the coupler 10 and cuts the blank wall 16 to form the eventual inlet opening in a position where it will be aligned with the drain opening of the bathtub 82 when the coupler 10 is installed.

The user can now fit the coupler 10 in position and connect the pipe extension 24 to the pipe 38 leading from the bathtub overflow 84 so that any overflow water can flow into the collection chamber, see arrow 70. Similarly, the pipe 42

from the wash-basin is connected to the pipe extension 28 and waste-water can thus flow from the wash-basin 100 into the collection chamber, see arrow 74.

The user also positions the flat ring 55 around the seal 52 and places it around the eventual inlet opening. The clamping member 56 is placed inside the collection chamber through the eventual inlet opening. The screw 60 is then passed through the central hole of the bucket strainer 46 and screwed into the screw-threaded hub 58 of the clamping member to clamp the seal 52 and the blank-wall 16 there between. The drain opening of the bathtub 80, and that of the wash-basin 100 are now all connected in flow communication to the one drain pipe 12.

Fig 5 shows the coupler of Fig 1 coupled to bathroom plumbing fixtures in a different way to the coupler in Fig 4.

Specifically the second or horizontally extending outlet is operatively coupled to a drain pipe 13 that extends along the support surface, which is typically a slab on which the bathroom fittings 82, 100 are mounted. The pipe 13 then passes through a wall and then merges in to a drain pipe main. The other outlet opening is placed in fluid communication with the collection chamber to permit the passage of water there through and then into the drain pipe.

In this arrangement the first or primary outlet that extends vertically downward from the body 14 is closed off and is not coupled to a drain pipe. In the illustrated embodiment the primary outlet is closed off by a plug (not shown in Fig 5) that is inserted into the outlet pipe section 30. In other forms the outlet may be closed off by a blank wall formed by a section of the wall of the body 14.

As with the Fig 4 arrangement the further inlets are operatively coupled to the overflow outlet 84 of the bath 82 and also a hand basin outlet 100.

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In another embodiment like the Fig 1 embodiment that has not been illustrated the further body outlet opening is manufactured in an open condition like said one body outlet opening and is not blanked off, e.g. by the minor side wall when it is manufactured. The coupler 10 includes one or more plugs for closing off the one or further body outlet openings, whichever the case may be, depending on that particular installation.

Figs 6 and 7 illustrate a coupler in accordance with a second embodiment of the invention. As this coupler has similarities to the coupler shown in Figs 1 to 3 the same reference numerals will be used to refer to the same components unless otherwise illustrated.

In Figs 6 and 7 the coupler 10 is like that shown in Figs 1 to 4 with the difference that it has only one further inlet and associated inlet pipe 28 thereon projecting out from one side of the body 14.

With this embodiment this further inlet is typically coupled to the bath overflow outlet on the associated bath, although other uses are not excluded.

Further in this embodiment the second or further body outlet extending broadly horizontally outward away from the body defining the chamber has been omitted. The coupler only has a single outlet extending vertically downward for coupling to a drain pipe that passes vertically through a concrete slab. Thus this coupler would not be ideally suited to a pipe over slab application.

In use the body outlet is coupled up to the drain pipe in the same way as is shown in Fig 4. The bath overflow or further plumbing fixtures such as the outlet of a hand basin may be operatively coupled to the further inlet in the same way as in Fig 4.

An advantage of the coupler 10 described above with reference to the drawings is that it permits coupling the drain opening of a bath 80 to the waste-water

drainage system easily and quickly even where there is a relative misalignment between the drain opening of the bath 80 and the pre-installed drain pipe 12.

Moreover the coupler conveniently permits more than one drain opening of one or more fixtures, e.g. the bath 80, the bathtub overflow outlet 82, and the wash-basin 100 to be connected to a single drain pipe 12 forming part of the waste-water pipe-system. This eases and expedites the plumbing installation of these fixtures and their operative connection to the plumbing system. It also reduces the risk of plumbing leaks either immediately after installation due to faulty workmanship or over time.

It can also reduce the number of drain pipes required for each plumbing fixture and thus can save initial construction costs of the bathroom.

Further a user such as a plumber can advantageously stock only one type of coupler namely coupler 10 for installing plumbing fixtures, for example in bathrooms, irrespective of the amount of misalignment between a drain opening of a bathtub and a pre-installed drain pipe in the floor of the bathroom, and also irrespective of the number of fixtures in the bathroom. The coupler can be adapted for use in any given application by opening up the appropriate outlet and one or more other inlets if needed.

It will of course be realized that the above has been given only by way of illustrative example of the invention and that all such modifications and variations thereto, as would be apparent to persons skilled in the art, are deemed to fall within the broad scope and ambit of the invention as is herein defined and described.

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**THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:**

1. A coupler for coupling a drain opening of a plumbing fixture to a drainage pipe forming part of a waste water system, and for coupling at least one other drain opening in flow communication with the drainage pipe, which coupler includes:

a body defining a collection chamber and having a body outlet opening for connection to the drainage pipe of the waste water system, the body including at least one elongated blank wall into which an eventual inlet opening is to be cut at a position corresponding with the drain opening of the plumbing fixture to compensate for the misalignment between it and the drainage pipe,

the body further having at least one other inlet opening for connecting another drain opening thereto such that the other drain opening is also placed in flow communication with the drainage pipe.

2. A coupler according to claim 1, wherein the elongated blank wall defines a longitudinal axis in the direction of elongation, and the blank wall has a length in the longitudinal direction that is greater than the dimension across the drain opening of the fixture, and the blank wall may also has a width that is transverse to the direction of elongation that is greater than the dimension across the drain opening of the fixture.

3. A coupler according to claim 1, wherein the body includes a base wall opposing the blank wall and spaced apart substantially parallel to the blank wall, and a minor side wall extending around the periphery of the blank wall between the base wall and the blank wall, and wherein the collection chamber is defined between these walls.

4. A coupler according to claim 3, wherein the elongated blank side wall is generally planar and shaped and sized so that the eventual inlet opening can be cut out selectively anywhere between its ends to provide an inlet opening to the collection chamber which substantially aligns with the drain opening of the plumbing fixture.

5. A coupler according to claim 4, wherein the body includes a flange extending circumferentially outward away from the blank wall around the periphery thereof that is substantially in the plane of the blank wall to extend or increase the major surface of the blank wall.

6. A coupler according to any one of claims 3 to 5, wherein the body outlet opening is defined in the base wall and faces away from the body in an opposite direction to the drain opening for the fixture that is cut into the body.

7. A coupler according to any one of claims 3 to 6, wherein the body includes at least two other inlet openings that each face away from the body in a direction transverse to the outlet opening.

8. A coupler according to claim 7, wherein the body has two other inlet openings defined in the minor side wall for connecting up to two other drain openings in flow communication with the collection chamber.

9. A coupler according to claim 8, wherein the two other inlet openings are defined in transverse sides of the minor side wall and are located substantially laterally opposite each other.

10. A coupler according to any one of claims 3 to 9, wherein the body also includes a conduit or pipe extension piece for each one of the other inlet openings.

11. A coupler according to claim 10, wherein each pipe extension piece projects from the body coaxially with the other inlet opening, and the pipe extension piece has substantially the same diameter as the inlet opening, and wherein each pipe extension piece has a free end for connection in fluid communication to a pipe.

12. A coupler according to claim 11, wherein each other inlet opening is blanked off such that it needs to be cut open prior to use to place it in fluid communication with the collection chamber.

13. A coupler according to claim 12, wherein each other inlet opening is blanked off by the minor wall so that a user has to drill or cut out the minor side wall within the associated pipe extension to open up the further inlet.

14. A coupler according to claim 12, wherein the other inlet openings are blanked off by a plug inside an end of the pipe extension and formed integrally therewith, so that a user has to cut off the end of the pipe extension containing the plug to open it for use.

15. A coupler according to claim 11, wherein the coupler is manufactured with one or more of the other inlet openings in an open condition within the pipe extensions, and the coupler includes one or more plugs or stop members for closing off said other inlet openings that are not coupled to a fixture outlet in use and which need to be closed off.

16. A coupler according to any one of claims 10 to 15, wherein the body includes a further pipe extension piece that projects coaxially from the body outlet opening for connection to the pre-installed drainage pipe.

17. A coupler according to claim 16, wherein the body outlet opening is manufactured such that it is always open within the further pipe extension piece and is not blanked off.

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18. A coupler according to claim 17, wherein the coupler includes a plug for closing off the body outlet opening within the further pipe extension piece when it is not to be coupled to a drain pipe and needs to be closed off in use.

19. A coupler according to any one of claims 10 to 18, wherein the body includes a further body outlet opening facing away from the body transverse to said one body outlet opening.

20. A coupler according to claim 19, wherein the further body outlet opening is defined in the minor wall of the body.

21. A coupler according to claim 19, including a yet further pipe extension piece which projects coaxially from the further body outlet opening for connection to a drain pipe.

22. A coupler according to claim 21, wherein the body is manufactured such that the further body outlet opening is always open within the further pipe extension piece and is not blanked off.

23. A coupler according to claim 22, wherein the coupler includes a plug for closing off the further body outlet opening within the yet further pipe extension piece when it is not to be coupled to a drain pipe and needs to be closed off in use.

24. A coupler according to claim 21, wherein the further body outlet opening within the yet further pipe extension piece is blanked off when manufactured and needs to be cut open when required for use.

25. A coupler according to claim 1, wherein the coupler includes a strainer, and a mounting arrangement for mounting the strainer snugly into the drain opening of the plumbing fixture and then clamping it to the body.

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26. A coupler substantially as herein described in any one of the embodiments in the specific description with reference to the drawings.

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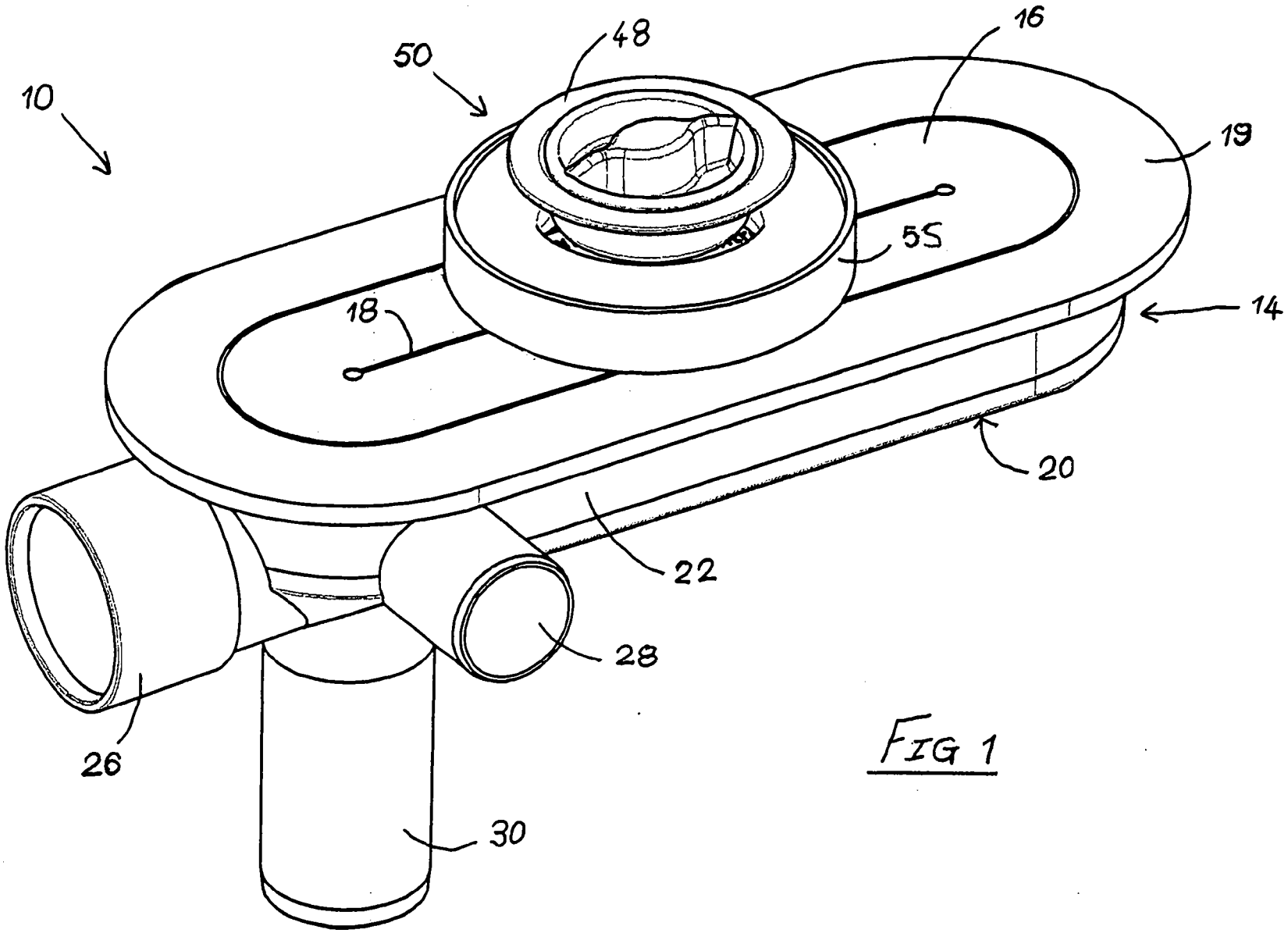


FIG 1

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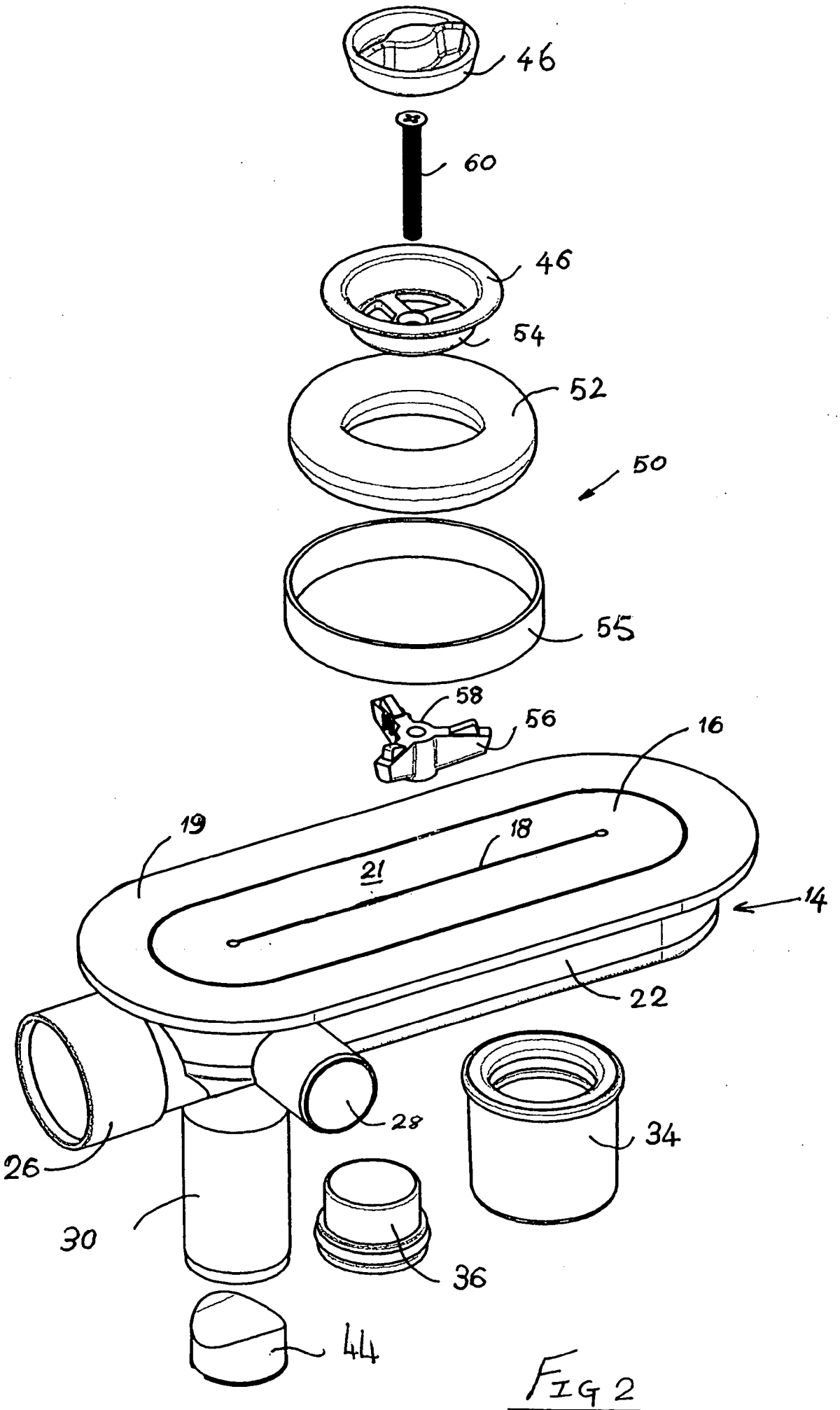


FIG 2

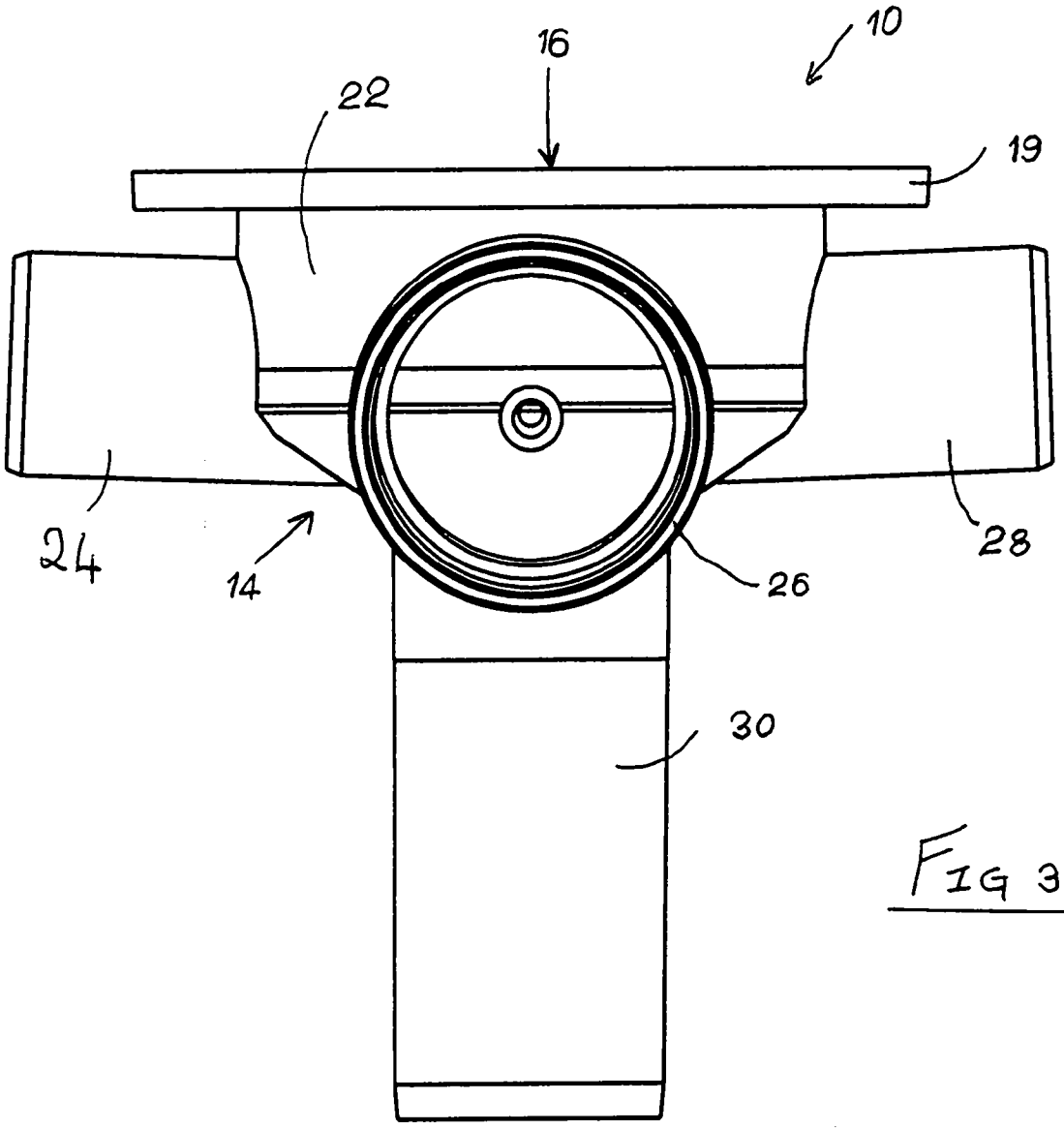


FIG 3

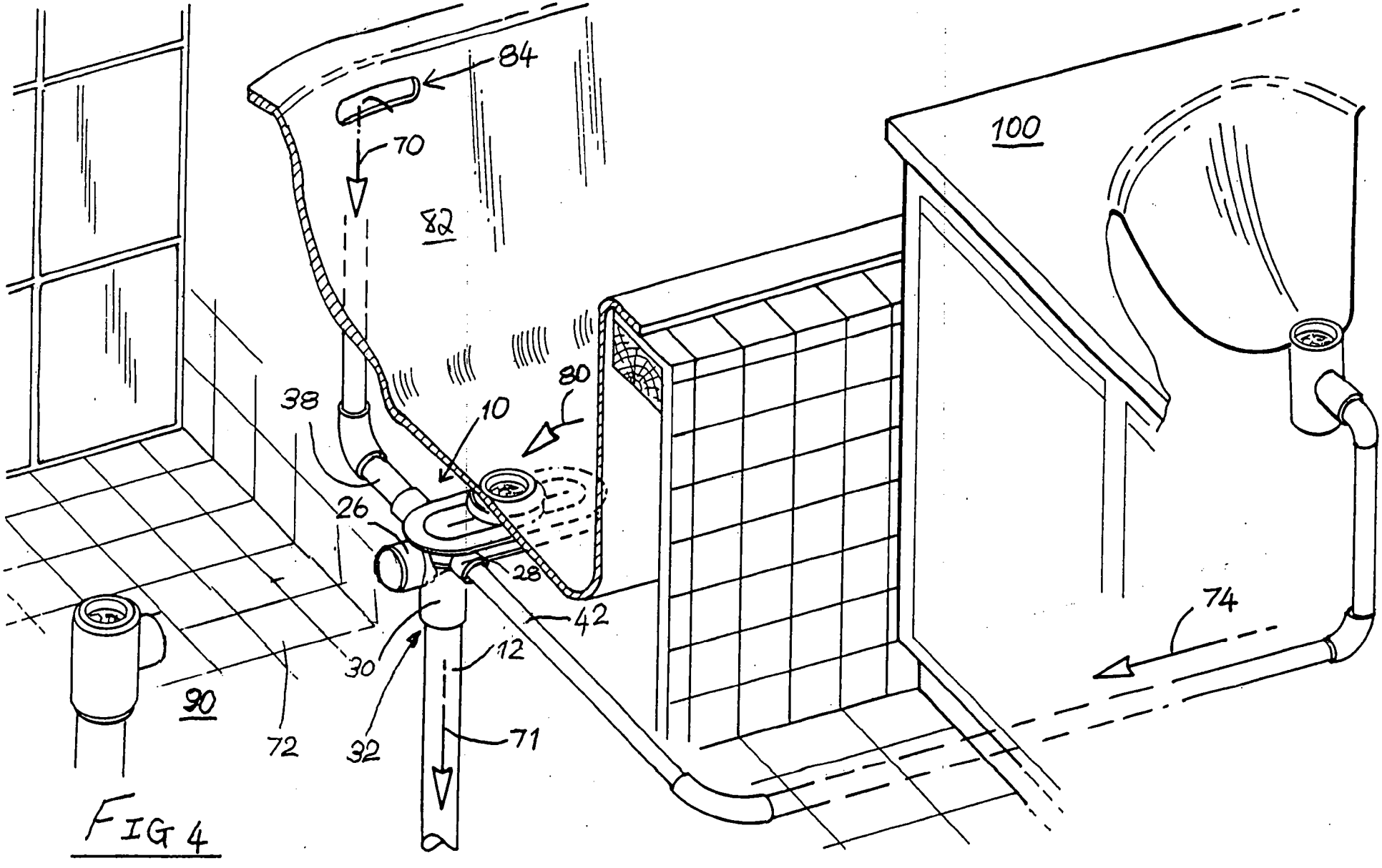


FIG 4

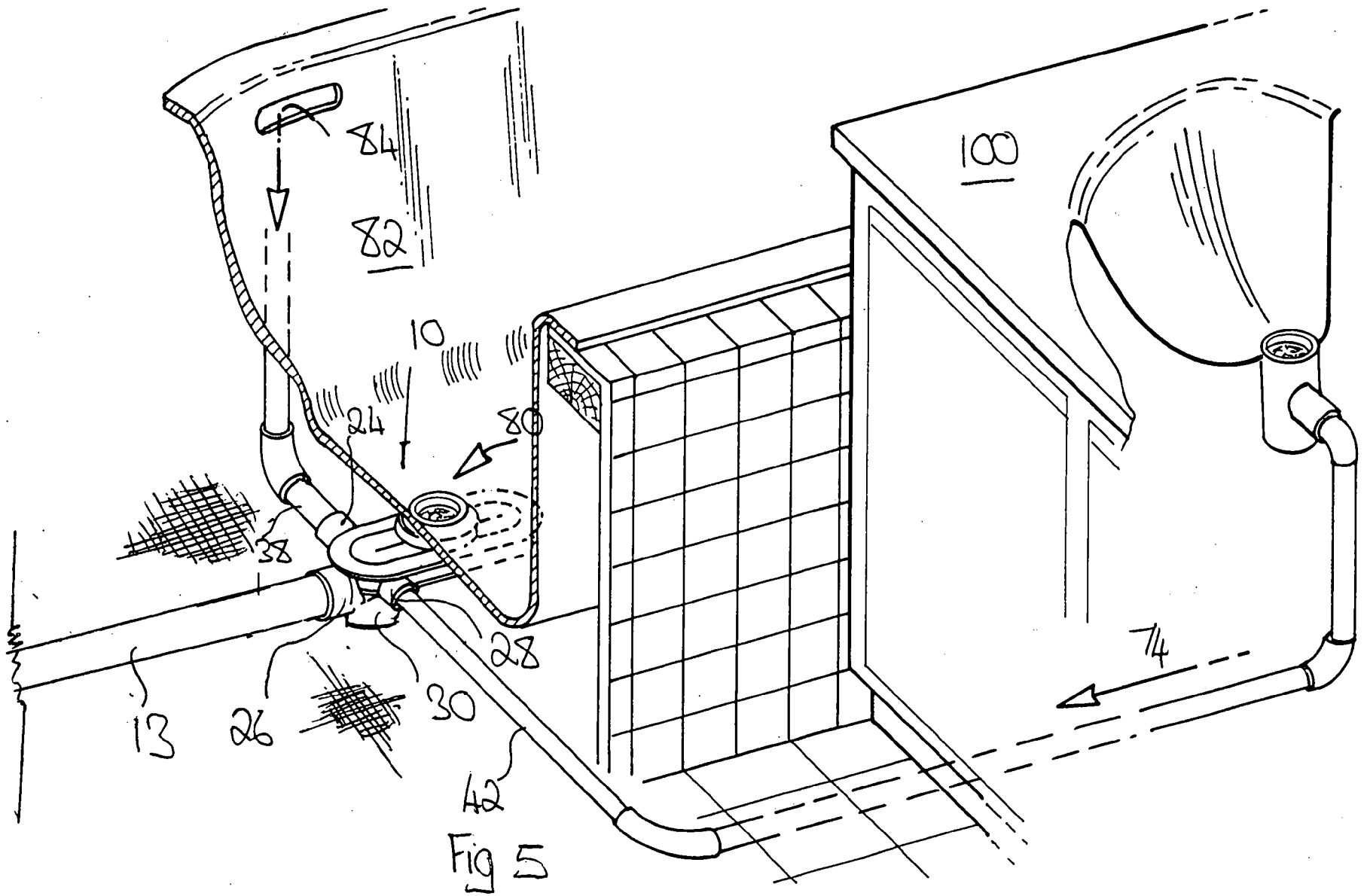


Fig 5

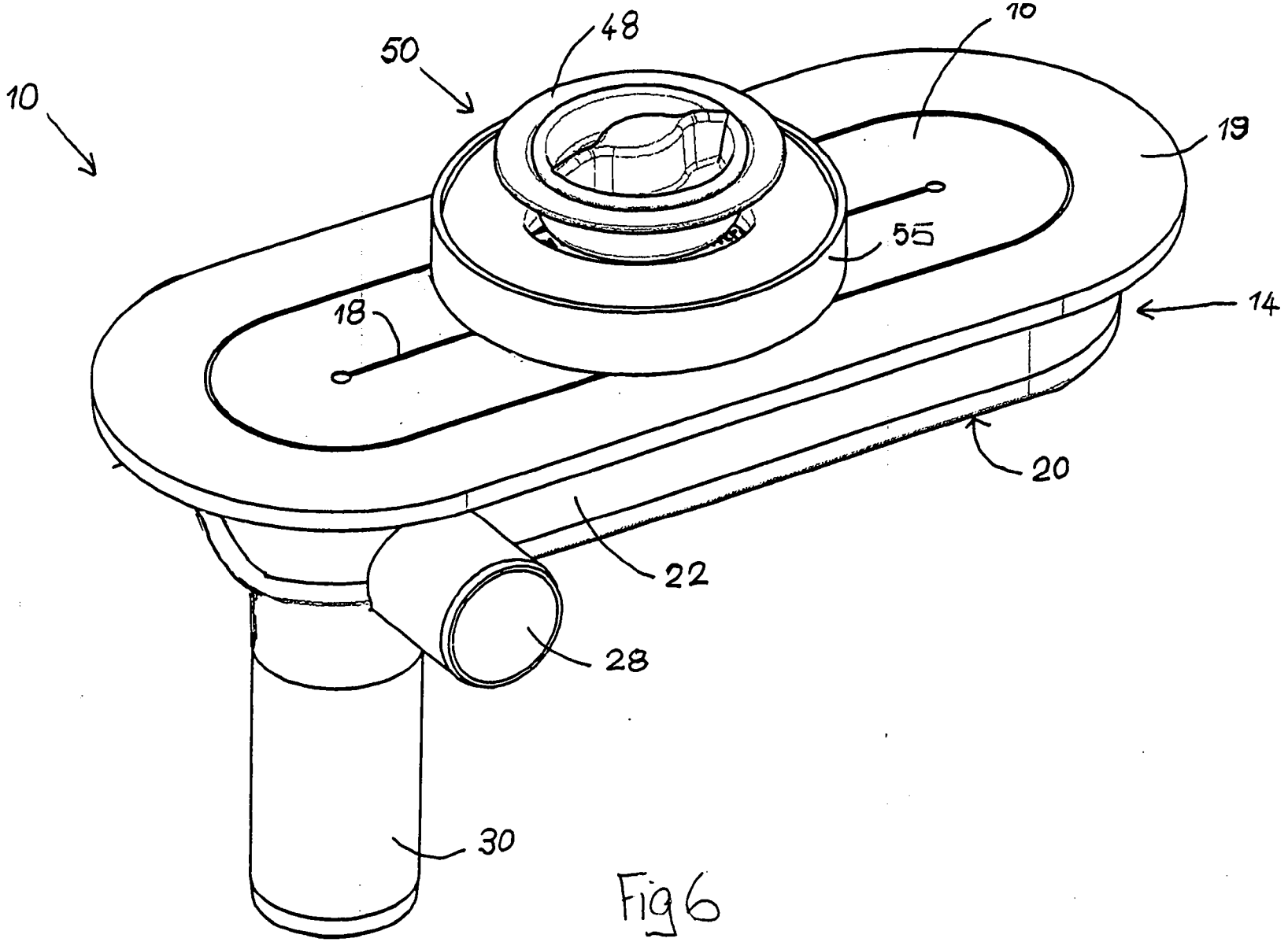


Fig 6

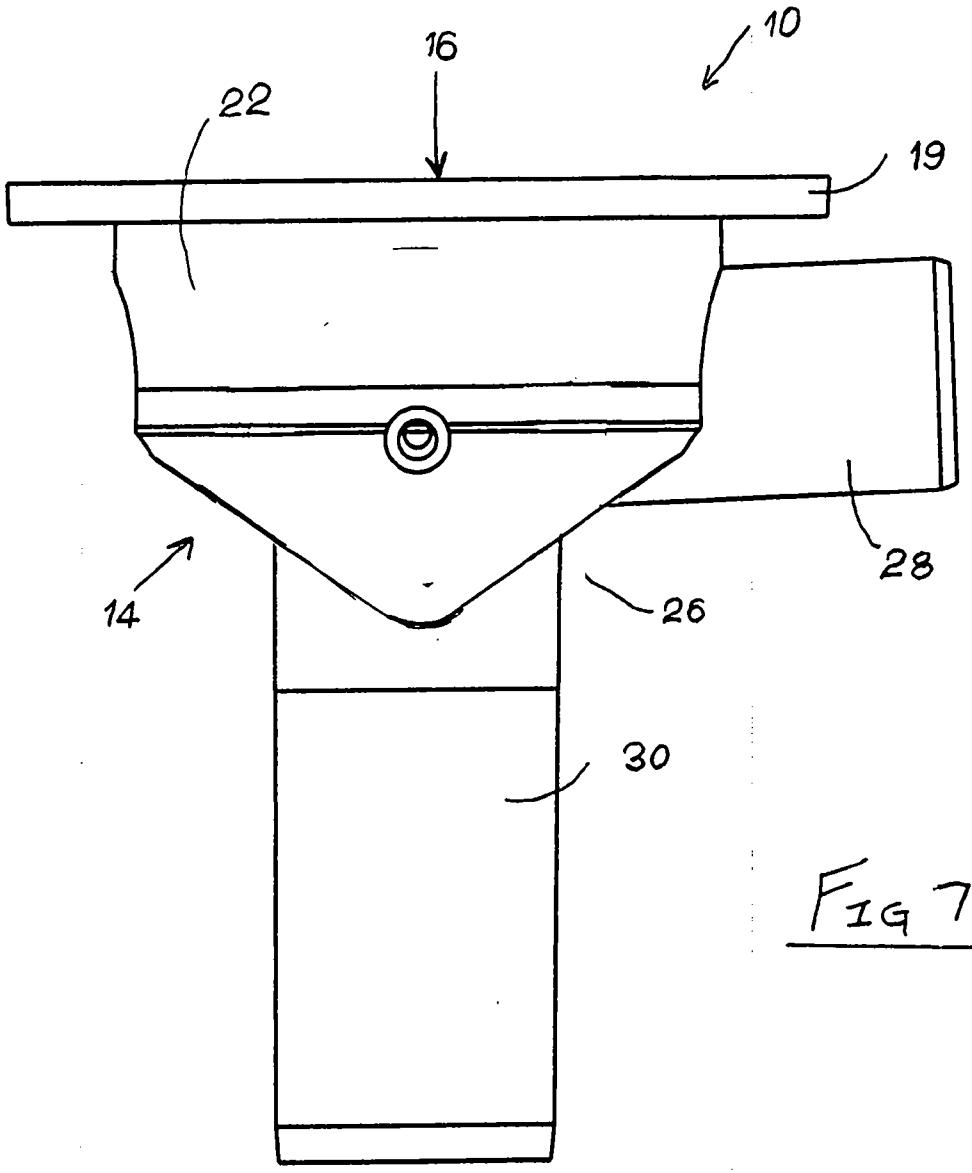


FIG 7