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⑤④ **A dishwasher having a removable, vertically adjustable basket.**

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**WO-A-83/01892**  
**DE-A- 2 732 540**  
**DE-A- 2 732 665**  
**DE-A- 3 125 853**  
**DE-A- 3 732 453**  
**GB-A- 1 514 652**

**EP 0 401 767 B1**

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## Description

The present invention relates to a domestic dishwasher equipped with removable baskets for supporting the dishes to be washed, at least one of said baskets being selectively adjustable in height.

WO 83/01892 discloses a dishwasher of this type comprising a washing tank housing a lower and an upper basket each having rotating spray arms disposed therebelow. Both baskets are removable and the upper one is selectively adjustable in height, that is, it can be disposed on a first or a second level depending on the dimensions of the dishes disposed in the baskets. The arm associated with the basket is supported by the basket and may be removed together with it.

The upper arm is equipped with a connecting pipe extending horizontally, between the arm and the basket, toward the back wall of the washing tank and adapted to join up in detachable fashion with a water supply pipe extending vertically in correspondence with the back wall of the tank.

To supply the upper arm in each of the two vertically adjustable positions, the connecting pipe is designed at one end with a box collector extending upward and equipped with two vertically spaced holes adapted to be selectively coupled with a discharge opening of the supply pipe when the basket is disposed in each adjustable position.

In particular, flexible bellows extend from each hole of the box collector toward the supply pipe. Depending on the adjustable position of the basket that is selected by the user, one of the bellows connects the outlet of the supply pipe with the connecting pipe of the upper arm, while the other tightly closes the other hole of the collector, resting against the back wall of the tank.

A dishwasher of this type is quieter and easier to dimension than the solutions in which, as described for example in British patent no. 1 514 652, the upper arm is supplied from above via an interruption in the air that causes undesirable noise and necessitates a hydraulic circuit with critical dimensioning for restoring the water pressure.

On the other hand, a dishwasher of the above-mentioned type has the disadvantage that when the upper basket is in the lower adjustable position - which is the one normally employed by the user - the supply water to the upper arm follows a devious path, which results in undesirable hydraulic noise and substantial head losses that limit the performance of the machine. In particular, the path of the water includes three successive 90° bends in the passage from the supply pipe to the upper hole of the collector, downward within the collector and then toward the connecting pipe of the upper arm.

This disadvantage is overcome in a dishwasher equipped with a supply device of the type described in DE-A-3 125 853 in which the vertical supply pipe associated with the upper arm is equipped with two discharge holes disposed at different heights and adapted to be selectively coupled with the end of the connecting pipe which in this case comprises only one feed opening.

Each discharge hole of the supply pipe is equipped with a valve comprising a disk obstructor equipped with a compression spring adapted to maintain it normally in a position closing the hole. Each obstructor is adapted to slide axially along a guide retainer, overcoming the force of the spring, when the end of the connecting pipe is inserted into the respective hole, which is therefore open.

The solutions described in WO 83/01892 and DE-A-3 125 853 both have the disadvantage that the washing effect is impaired by the fact that the length of the upper arm must be limited to permit the arm to rotate freely without being blocked by the supply pipe extending vertically within the washing tank in correspondence with the back wall thereof.

The main object of the present invention is to provide a dishwasher having a removable, vertically adjustable basket wherein the arm has the maximum length permitted by the geometrical features of the washing tank.

Another object of the invention is to provide a dishwasher of the aforesaid type wherein the hydraulic circuit for supplying the arm has low hydraulic noise and reduced head losses, requires a minimal number of components and is reliable in operation.

According to the invention, these objects are achieved in a dishwasher having a removable, vertically adjustable basket with the features described in the adjoining claims.

The features and advantages of the invention will become clearer from the following description, intended solely as a nonrestrictive example, with reference to the adjoining drawings in which:

Fig. 1 shows schematically a transparent, perspective view of the dishwasher according to the invention, in which only the most important components are indicated;

Fig. 2 shows a longitudinal section on a vertical plane of a preferred embodiment of an enlarged detail of the dishwasher of Fig. 1, in a first operating position;

Fig. 3 shows the detail of Fig. 2 in a second operating position;

Fig. 4 shows the section according to line IV-IV of the detail of Fig. 2;

Fig. 5 shows a longitudinal section on a vertical plane of a variant of the detail of Fig. 2;

Fig. 6 shows the section according to line VI-VI of the detail of Fig. 5.

Referring to Fig. 1, the inventive dishwasher basically comprises a washing tank 6 having a parallelepiped shape with a square or rectangular plan, and housing a lower basket 7 and an upper basket 8 adapted to be pulled out to be loaded with the dishes. An associated rotating spray arm 9, 10 is disposed below each basket.

In particular, upper basket 8 is selectively adjustable in height, in a way known as such and not shown, between at least a first position (shown in Fig. 1) and one second upper position. The distance between the first and second positions is preferably in the range of a few centimeters.

Arm 10 associated with upper basket 8 is supported rotatively by the basket in a way that is known and not shown.

Preferably, arm 10 rotates about a substantially vertical axis and has the maximum length permitted by the geometrical features of tank 6 in such a way as to occupy the maximum possible area during its rotation, thereby producing an optimal washing effect. In a way known as such, arm 10 is adapted to be supplied with washing water via a connecting pipe 11 disposed substantially horizontally between the arm and corresponding basket 8 and extending toward back wall 12 of tank 6, where it is adapted to join up in detachable fashion with a box collector 13 that will be described in the following and is disposed in correspondence with back wall 12 of the tank.

According to an aspect of the invention, a water supply pipe extends within tank 6 from the bottom thereof, having a first inclined or substantially vertical portion 14 adjacent one corner 15 of the tank, and a second substantially horizontal portion 16 adjacent back wall 12 of tank 6 that joins up laterally with collector 13.

As will become more evident in the following, the shape and position of the supply pipe are such that it does not impede the rotation of arm 10, although the latter is fairly long, when basket 8 is in any of the vertically adjustable positions mentioned above.

Referring to Fig. 2, collector 13 has a substantially C-shaped longitudinal section and comprises a flat central portion 17 having valve portions 18 and 19 branching off from its lower and upper ends. Central portion 17 is preferably housed in a corresponding recess formed on back wall 12 of the washing tank, while valve portions 18 and 19 extend within tank 6 on a downward slant and end in respective cylindrical portions 20, 21 of reduced section that constitute valve seats. Depending on the vertically adjustable position in which upper basket 8 is disposed, one of cylindrical portions 20, 21 is adapted to connect tightly in detachable fashion with the free end of connecting pipe 11. For this purpose, this free end is provided with an elastic, preferably flared sleeve 22 adapted to permit the aforesaid detachable connection when basket 8 is inserted in its operating position within tank 6.

Furthermore, the free end of connecting pipe 11 is equipped with a rigid tapered pressure element 23 protruding outside sleeve 22.

This pressure element has, for example, a cruciform transverse section in such a way that it does not substantially obstruct the section of passage of pipe 11.

Valve portions 18, 19 house freely sliding ball obstructors 24, 25 which by gravity are normally adapted to be placed in correspondence with cylindrical portions 20, 21, which are therefore blocked when they are disconnected from connecting pipe 11.

However, when connecting pipe 11 is connected by means of sleeve 22 with one of cylindrical portions 20, 21, pressure element 23 moves associated obstructor 24, 25 from the aforesaid closed position into an open position that permits a tight hydraulic connection between supply pipe 14, 16 and connecting pipe 11 via collector 13.

In Fig. 2, for example, obstructor 25 is situated due to gravity in the closed position of respective valve portion 19 while valve portion 18 is coupled with connecting pipe 11, so that obstructor 24 is moved by pressure element 23 into the open position. For this purpose, box collector 13 is shaped in correspondence with each valve portion 18, 19 as illustrated in Fig. 4.

Fig. 4, in particular, shows valve portion 18 shaped in its back and upper part with a lateral recess 26 adapted to contain ball obstructor 24 when the latter is moved into the open position by pressure element 23. The positioning of ball 24 in the lateral recess is ensured by an inside projection 27 preferably shaped on an inclined plane and formed integrally on the back wall of valve seat 18. When pressure element 23 moves the ball toward back wall 12 of the tank (and upward), projection 27 induces the ball to move laterally as well, being placed in lateral recess 26.

Upper valve portion 19 is identical to lower valve portion 18 illustrated in Fig. 4, the sole difference being that valve portion 18 is also provided laterally, as already mentioned, with a feed hole 28 coupled tightly with horizontal portion 16 of the water supply pipe and disposed upstream of obstructor 24 when the latter is in the aforesaid closed position.

The mode of operation of the hydraulic circuit of the inventive dishwasher is evident.

When upper basket 8 is disposed in the lower position of Fig. 1, connecting pipe 11 is coupled with valve portion 18 of box collector 13, whose obstructor 24 is moved by pressure element 23 into the open position shown in Figs. 2 and 4.

Therefore, upper arm 10 can be supplied with water via supply pipe 14, 16, open valve portion 18 of box collector 13 and connecting pipe 11.

Valve portion 19 is closed by gravity by corresponding obstructor 25 and maintained in this position by the pressure of the water within collector 13 when the dishwasher is in operation. One can see that when upper basket 8 is in this position, which is the one most commonly employed by the user, arm 10 rotates on a plane passing below box collector 13, which thus does not interfere with arm 10 although the latter has the maximum length permitted by the dimensions of tank 6. Furthermore, the hydraulic circuit supplying arm 10 advantageously has low head losses and low noise, since the path of the water conducted from portion 16 of the supply pipe axially to connecting pipe 11 undergoes only one deviation of approximately 90° in correspondence with box collector 13.

When basket 8 is disposed in the upper position (Fig. 3), obstructor 24 closes by gravity valve portion 18, while connecting pipe 11 is coupled with valve portion 19 of collector 13.

Therefore, pressure element 23 moves obstructor 25 into the open position in the analogous way to that described above. Arm 10 can therefore be supplied with water via supply pipe 14, 16, closed valve portion 18, central portion 17 of collector 13, open valve portion 19 and connecting pipe 11.

Obviously, in this case the head losses of the hydraulic circuit are greater, but the problem is negligible since basket 8 is disposed in the upper position only in special cases.

Nonetheless, one can see that, in these operating states as well, arm 10 of large dimensions is not obstructed in its rotation, which takes place on a plane passing between valve portions 18 and 19 of box collector 13.

The dishwasher described may obviously undergo numerous modifications without going beyond the scope of the invention. For example, baskets 7, 8 and/or corresponding arms 9, 10 may be inclined instead of horizontal.

Furthermore, upper basket 8 may be adjustable in more than two different vertical positions; in this case collector 13 may be provided with a corresponding number of valve portions analogous to those 18 and 19 already described.

The hydraulic circuit of the inventive dishwasher may be further simplified in accordance with the variant shown in Figs. 5 and 6.

In this variant, upper portion 19 of collector 13 does not house any obstructor 25 and may also extend horizontally as in Fig. 5.

On the other hand, lower valve portion 18 of collector 13 comprises in its interior a valve seat 29 against which ball obstructor 24 is adapted to hit, as it hits against cylindrical portion 20 in the opposite position, correspondingly closing valve portion 18.

Valve seat 29 is expediently disposed at the back in valve portion 18 adjacent central portion 17, while feed hole 28 of collector 13 is formed in the same valve portion 18 between cylindrical portion 20 and valve seat 29, that is, in a zone situated between the two operating positions of ball 24. Departing from the solution illustrated in Figs. 2, 3 and 4, valve seat 29 is preferably cylindrical.

In operation, ball obstructor 24 is normally disposed by gravity in a position (shown by the broken lines in Figs. 5 and 6) closing cylindrical portion 20 of collector 13. When connecting pipe 11 is coupled with cylindrical portion 20, pressure element 23 (of expedient dimensions) moves ball 24 toward valve seat 29, against which it is pressed by hydraulic pressure when the machine is in operation; this position of obstructor 24 is shown by continuous lines in Figs. 5 and 6.

The passage of the water from lower portion 18 of collector 13 to upper portion 19 is therefore blocked, while the flow of water is directed by feed hole 28 to connecting pipe 11 and therefore to arm 10.

On the other hand, when connecting pipe 11 is coupled with upper portion 19 of collector 13, pressure element 23 is inoperative but the pressure of the water maintains ball 24 in the position closing cylindrical portion 20.

The flow of water is therefore directed by feed hole 28 along central portion 17 of collector 13, via upper portion 19 and therefore into connecting pipe 11 toward arm 10.

In short, the operation of the machine is identical to that described with reference to Figs. 2, 3 and 4, the difference being that only one obstructor 24 is provided to close selectively one of valve portions 18, 19.

In any case, when basket 8 is disposed in its upper position, associated arm 10 may rotate on a plane passing between protruding valve portions 18 and 19 which, in this case as well, do not interfere with arm 10 although the latter has the maximum length permitted by the dimensions of tank 6.

## Claims

1. A dishwasher having a removable basket (8) that is vertically adjustable between a first and at least one second position within a substantially parallelepiped washing tank (6), comprising a spray arm (10) supported rotatably below the basket (8) and provided with a connecting pipe (11) extending substantially horizontally between the basket (8) and the arm (10) to join up selectively with at least a first or one second outlet of a box collector (13) connected to a water supply pipe (14,16) and disposed in correspondence with the back wall (12) of the tank (6), the outlets being disposed at different heights substantially corresponding to the positions of the adjustable basket (8), the collector (13) being provided with valve means adapted to make the supply pipe (14,16) communicate only with the outlet of the collector (13) which is coupled with the connecting pipe (11),  
**characterized in that** the supply pipe comprises a first portion (14) that extends from the bottom of the tank (6) upward in correspondence with one corner (15) of the tank, and a second portion (16) that extends substantially horizontally from the corner (15) to the collector (13).
2. The dishwasher of claim 1, **characterized in that** the collector (13) comprises a central portion box (17) extending at the bottom and the top toward the inside of the tank (6) with respective valve portions (18, 19) constituting the outlets (20, 21) adapted to be selectively coupled with the connecting pipe (11), the collector (13) being provided in its interior with obstructor means (24, 25) adapted to be moved between a first and a second operating position to open only that one of the outlets (20, 21) which is coupled with the connecting pipe.
3. The dishwasher of claim 2, **characterized in that** the supply pipe (14, 16) is connected to the collector (13) in correspondence with a feed hole (28) formed on the lower valve portion (18) in a zone situated between the first and the second operating positions of the associated obstructor means (24).
4. The dishwasher of claim 2, **characterized in that** the valve portions (18, 19) are downwardly inclined and house in sliding fashion respective balls (24, 25) constituting the obstructor means, each adapted to be normally placed by gravity in the first operating position to close the associated outlet (20, 21) and adapted to be moved selectively into the second operating position in correspondence with a recess (26) formed laterally on the back part of the respective valve portion (18, 19), in order to open the respective outlet (20, 21), by a pressure element (23) that protrudes from the end of the connecting pipe (11) and is inserted into the valve portion with which the connecting pipe is coupled.
5. The dishwasher of claim 3, **characterized in that** the lower valve portion (18) is downwardly inclined and houses in sliding fashion a ball (24) constituting the obstructor means, adapted to be normally placed by gravity in the first operating position to close the associated outlet (20), and adapted to be moved axially into the second operating position, hitting against a valve seat (29) adjacent the central portion (17) of the collector (13) to close the outlet (21) of the upper valve portion (19), by a pressure element (23) that protrudes from the end of the connecting pipe (11) and is inserted into the lower valve portion (18) when the latter is coupled with the connecting pipe.
6. The dishwasher of claim 4, **characterized in that** the collector (13) comprises in its interior, in correspondence with each valve portion (18, 19), a protection (27) adapted to promote the shift of the associated ball (24, 25) into the respective lateral recess (26) when the connecting pipe (11) is selectively coupled with one of the valve portions (18, 19).
7. The dishwasher of claim 1, **characterized in that** the end of the connecting pipe (11) is provided with an elastic sleeve (22) by means of which it is adapted to be tightly coupled selectively with one of the outlets (20, 21) of the collector (13).
8. The dishwasher of claim 2, **characterized in that** the arm (10) is adapted to rotate on a plane passing between the valve portions (18, 19) when the connecting pipe (11) is coupled with the upper valve portion (19).

## Patentansprüche

1. Geschirrspüler mit einem herausnehmbaren Korb (8), der in einem im wesentlichen quaderförmigen

Waschbehälter (6) zwischen einer ersten und mindestens einer zweiten Position höhenverstellbar ist und einen Sprüharm (10) aufweist, der drehbar unter dem Korb (8) gehalten wird und mit einem Verbindungsrohr (11) versehen ist, das im wesentlichen waagrecht zwischen dem Korb (8) und dem Arm (10) verläuft, um wahlweise an mindestens einen ersten oder einen zweiten Auslaß eines Sammlerbehälters (13) angeschlossen zu werden, der mit einem Wasserversorgungsrohr (14, 16) verbunden ist und im Bereich der Rückwand (12) des Behälters (6) angeordnet ist, wobei die Auslässe in verschiedenen Höhen angeordnet sind, die im wesentlichen den Positionen des verstellbaren Korbes (8) entsprechen, wobei der Sammler (13) mit Ventilmitteln versehen ist, die geeignet sind, das Versorgungsrohr (14, 16) nur mit dem Auslaß des Sammlers (13) zu verbinden, der mit dem Verbindungsrohr (11) gekoppelt ist,

**dadurch gekennzeichnet, daß** das Versorgungsrohr einen ersten Abschnitt (14) aufweist, der vom Boden des Waschbehälters (6) aus nach oben bis in eine Ecke (15) des Behälters verläuft, und einen zweiten Abschnitt (16), der im wesentlichen waagrecht von der Ecke (15) zu den Sammler (13) verläuft.

2. Geschirrspüler nach Anspruch 1,  
**dadurch gekennzeichnet, daß** der Sammler (13) aus einem Mittelabschnitts-Behälter (17) besteht, der unten und oben mit jeweiligen Ventilabschnitten (18, 19) ins Innere des Waschbehälters (6) ragt, die die Auslässe (20, 21) bilden, die geeignet sind, wahlweise mit dem Verbindungsrohr (11) gekoppelt zu werden, wobei der Sammler (13) innen mit Verschlußmitteln (24, 25) versehen ist, die geeignet sind, zwischen einer ersten und einer zweiten Funktionsstellung verschoben zu werden, um nur denjenigen der Auslässe (20, 21) zu öffnen, der mit dem Verbindungsrohr gekoppelt ist.

3. Geschirrspüler nach Anspruch 2,  
**dadurch gekennzeichnet, daß** das Versorgungsrohr (14, 16) mit dem Sammler (13) im Bereich eines Einlaßlochs (28) verbunden ist, das an dem unteren Ventilabschnitt (18) in einem Bereich zwischen der ersten und der zweiten Funktionsstellung des zugehörigen Verschlußmittels (24) ausgeführt ist.

4. Geschirrspüler nach Anspruch 2,  
**dadurch gekennzeichnet, daß** die Ventilabschnitte (18, 19) nach unten geneigt sind und jeweilige Kugeln (24, 25) gleitend aufnehmen, die die Verschlußmittel bilden und die beide geeignet sind, normalerweise durch Schwerkraft in die erste Funktionsstellung gebracht zu werden, um den entsprechenden Auslaß (20, 21) zu verschließen, sowie geeignet sind, durch ein Druckelement (23), das aus dem Ende des Verbindungsrohrs (11) herausragt und in den Ventilabschnitt, mit dem das Verbindungsrohr gekoppelt wird, eingeführt wird, wahlweise in die zweite Funktionsstellung im Bereich einer Vertiefung (26) geschoben zu werden, die seitlich am hinteren Teil des jeweiligen Ventilabschnitts (18, 19) ausgeführt ist, um den entsprechenden Auslaß (20, 21) zu öffnen.

5. Geschirrspüler nach Anspruch 3,  
**dadurch gekennzeichnet, daß** der untere Ventilabschnitt (18) nach unten geneigt ist und eine Kugel (24) gleitend aufnimmt, die das Verschlußmittel bildet und geeignet ist, normalerweise durch Schwerkraft in die erste Funktionsstellung gebracht zu werden, um den entsprechenden Auslaß (20) zu verschließen, sowie geeignet ist, durch ein Druckelement (23), das aus dem Ende des Verbindungsrohrs (11) herausragt und in den unteren Ventilabschnitt (18) eingeführt wird, wenn dieser mit dem Verbindungsrohr gekoppelt wird, axial in die zweite Funktionsstellung geschoben zu werden, wobei sie an einem an den mittleren Abschnitt (17) des Sammlers 13 angrenzenden Ventilsitz 29 anschlägt, um den Auslaß (21) des oberen Ventilabschnitts (19) zu verschließen.

6. Geschirrspüler nach Anspruch 4,  
**dadurch gekennzeichnet, daß** der Sammler (13) in seinem Inneren im Bereich jedes Ventilabschnitts (18, 19) einen Vorsprung (27) aufweist, der geeignet ist, die entsprechende Kugel (24, 25) in die jeweilige seitlichen Vertiefung (26) gleiten zu lassen, wenn das Verbindungsrohr (11) wahlweise mit einem der Ventilabschnitte (18, 19) gekoppelt wird.

7. Geschirrspüler nach Anspruch 1,  
**dadurch gekennzeichnet, daß** das Ende des Verbindungsrohrs (11) mit einer elastischen Muffe (22) versehen ist, mittels derer es wahlweise mit einem der Auslässe (20, 21) des Sammlers (13) dicht verbunden werden kann.

8. Geschirrspüler nach Anspruch 2,  
**dadurch gekennzeichnet, daß** der Arm (10) sich in einer Ebene zwischen den Ventilabschnitten (18, 19)

dreher kann, wenn das Verbindungsrohr (11) mit dem oberen Ventilabschnitt (19) gekoppelt ist.

## Revendications

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1. Lave-vaisselle possédant un panier amovible (8), réglable verticalement entre une première et au moins une seconde position, situé à l'intérieur d'un réservoir de lavage (6) sensiblement parallélépipédique, comportant un bras d'aspersion (10) soutenu de façon rotative au-dessous du panier (8) et pourvu d'un tuyau de connexion (11) s'étendant sensiblement horizontalement entre le panier (8) et le bras (10) afin de se raccorder de façon sélective à au moins une première ou une seconde sortie d'une boîte collecteur (13) connectée à un tuyau d'alimentation en eau (14, 16) et placée en correspondance avec le panneau arrière (12) du réservoir (6), les sorties étant disposées à différentes hauteurs correspondant sensiblement aux positions du panier réglable (8), le collecteur (13) étant pourvu d'un moyen de valve adapté pour ne faire communiquer le tuyau d'alimentation (14, 16) qu'avec la sortie du collecteur (13) qui est couplée au tuyau de connexion (11),

caractérisé en ce que le tuyau d'alimentation comporte une première partie (14) qui s'étend depuis le fond du réservoir (6) vers le haut en correspondance avec un coin (15) du réservoir, et une seconde partie (16) qui s'étend sensiblement horizontalement depuis le coin (15) vers le collecteur (13).

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2. Lave-vaisselle selon la revendication 1, caractérisé en ce que le collecteur (13) comporte une boîte de partie centrale (17) s'étendant au fond et au sommet vers l'intérieur du réservoir (6) avec des parties de valves respectives (18, 19) constituant les sorties (20, 21) adaptées pour être couplées de façon sélective au tuyau de connexion (11), le collecteur (13) étant pourvu en son intérieur de moyens d'obturation (24, 25) adaptés pour être déplacés entre une première et une seconde position de fonctionnement afin de n'ouvrir que celle des sorties (20, 21) qui est couplée au tuyau de connexion.

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3. Lave-vaisselle selon la revendication 2, caractérisé en ce que le tuyau d'alimentation (14, 16) est connecté au collecteur (13) en correspondance avec un trou d'alimentation (28) formé sur la partie de valve inférieure (18) dans une zone située entre la première et la seconde position de travail du moyen d'obturation associé (24).

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4. Lave-vaisselle selon la revendication 2, caractérisé en ce que les parties de valves (18, 19) sont inclinées vers le bas et contiennent de façon glissante des billes respectives (24, 25) constituant les moyens d'obturation, chacune étant adaptée pour être placée normalement par gravité dans la première position de fonctionnement afin de fermer la sortie associée (20, 21) et étant adaptée pour être déplacée de façon sélective dans la seconde position de fonctionnement en correspondance avec un renforcement (26) formé latéralement sur la partie arrière de la partie de valve respective (18, 19), afin d'ouvrir la sortie respective (20, 21) par un élément de pression (23) qui fait saillie depuis l'extrémité du tuyau de connexion (11) et qui est inséré dans la partie de la valve avec laquelle est couplé le tuyau de connexion.

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5. Lave-vaisselle selon la revendication 3, caractérisé en ce que la partie de valve inférieure (18) est inclinée vers le bas et contient de façon glissante une bille (24) constituant le moyen d'obturation, adaptée pour être placée normalement par gravité dans la première position de fonctionnement afin de fermer la sortie associée (20) et adaptée pour être déplacée de façon axiale dans la seconde position de fonctionnement, en venant butter contre un siège de valve (29) adjacent à la partie centrale (17) du collecteur (13) afin de fermer la sortie (21) de la partie de valve supérieure (19) par un élément de pression (23) qui fait saillie depuis l'extrémité du tuyau de connexion (11) et qui est inséré dans la partie de valve inférieure (18) lorsque cette dernière est couplée au tuyau de connexion.

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6. Lave-vaisselle selon la revendication 4, caractérisé en ce que le collecteur (13) comporte en son intérieur, en correspondance avec chaque partie de valve (18, 19), une projection (27) adaptée pour favoriser le glissement de la bille associée (24, 25) dans le renforcement latéral respectif (26), lorsque le tuyau de connexion (11) est couplé de façon sélective à l'une des parties de valves (18, 19).

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7. Lave-vaisselle selon la revendication 1, caractérisé en ce que l'extrémité du tuyau de connexion (11) est pourvu d'un manchon élastique (22) au moyen duquel il est adapté pour être étroitement couplé de façon sélective à l'une des sorties (20, 21) du collecteur (13).

8. Lave-vaisselle selon la revendication 2, caractérisé en ce que le bras (10) est adapté pour tourner dans

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un plan passant entre les parties de valves (18, 19) lorsque le tuyau de connexion (11) est couplé à la partie de valve supérieure (19).

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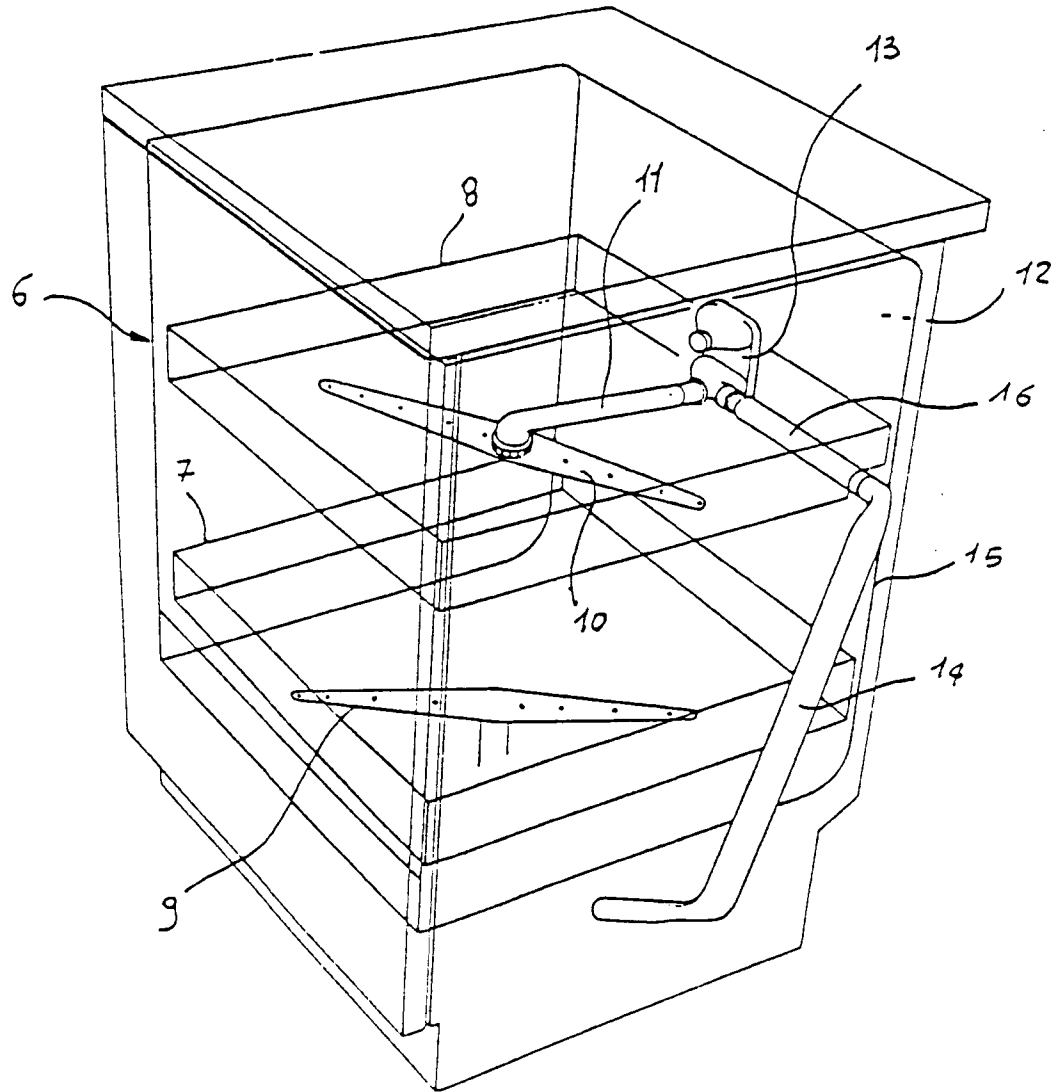


Fig. 1

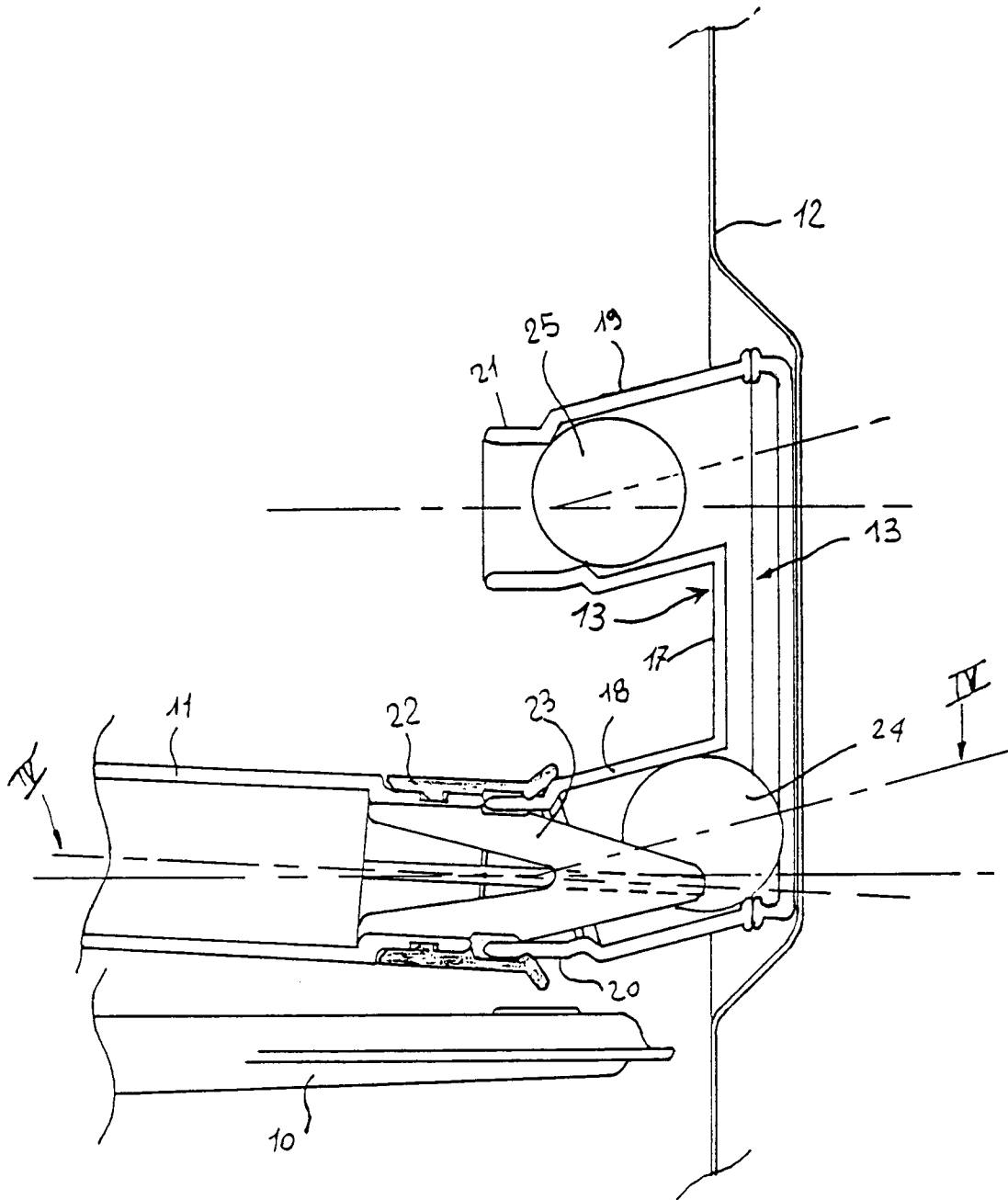


Fig 2

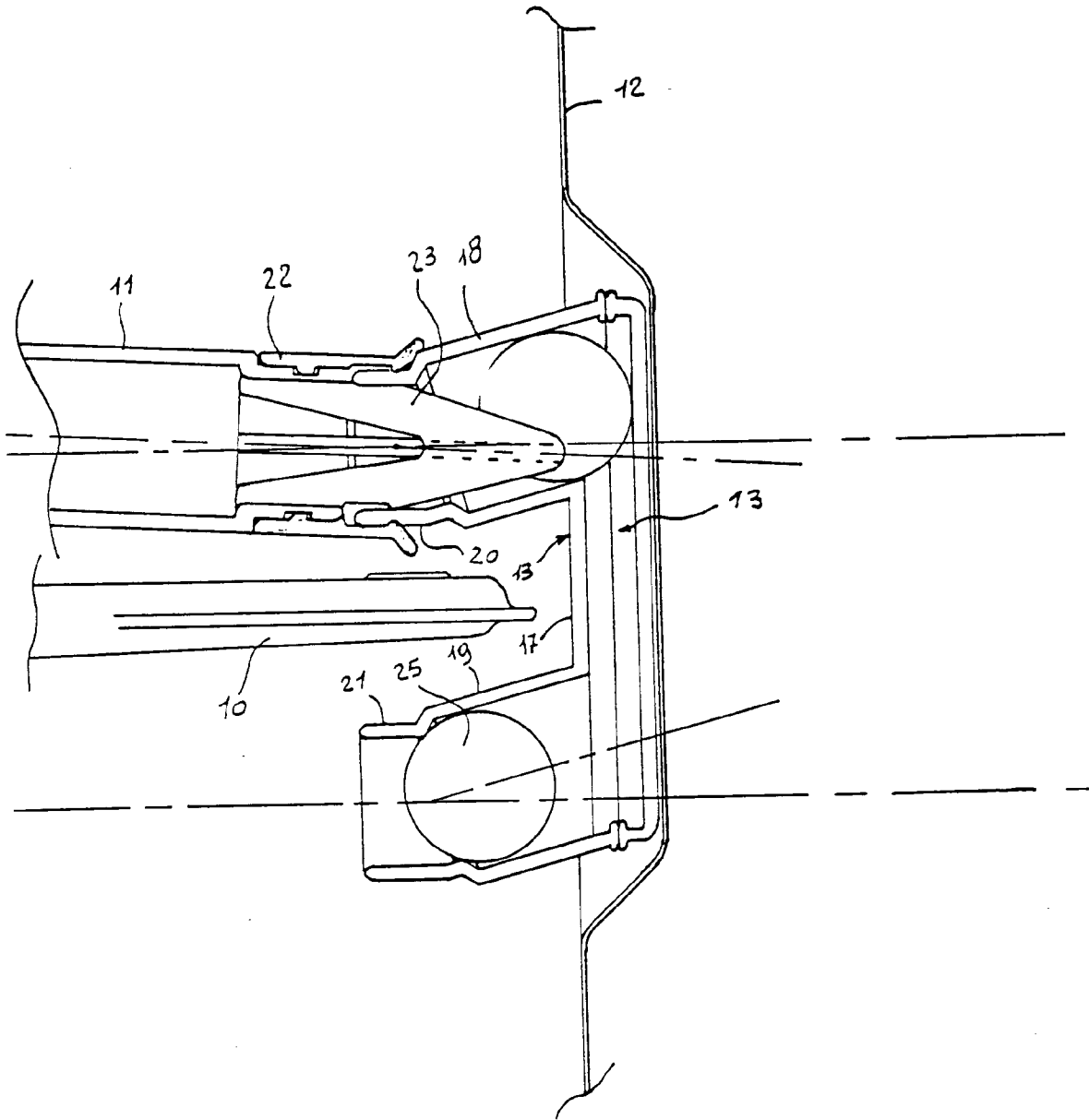


Fig. 3

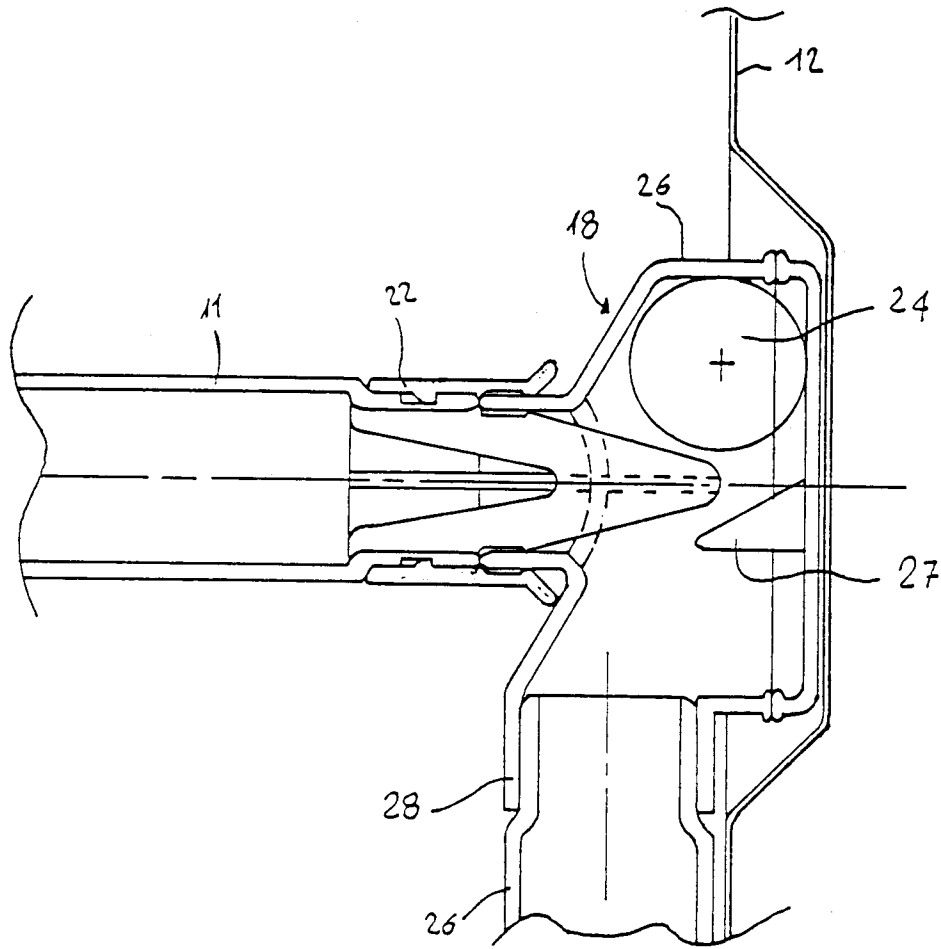


Fig. 4

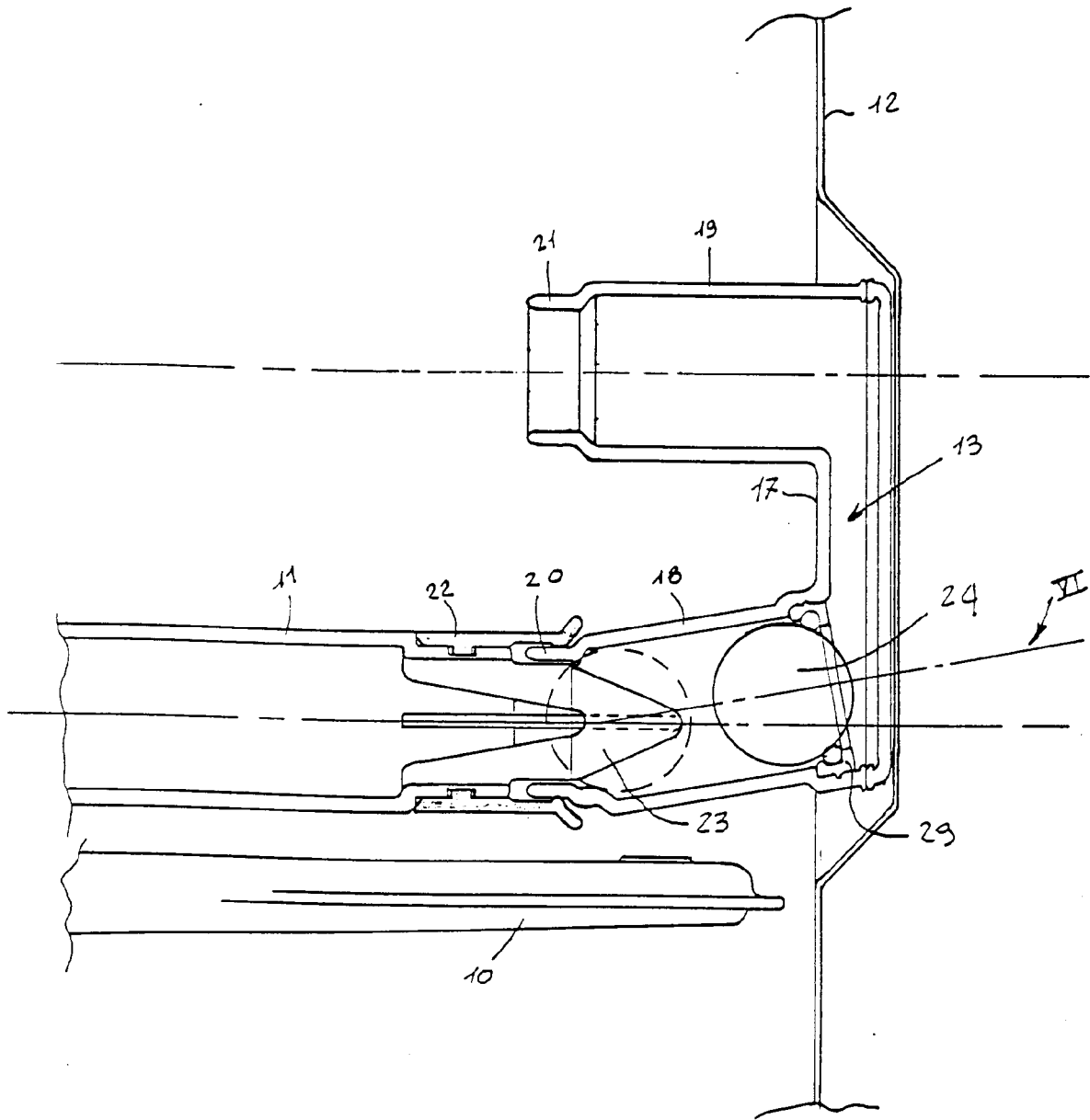


Fig 5

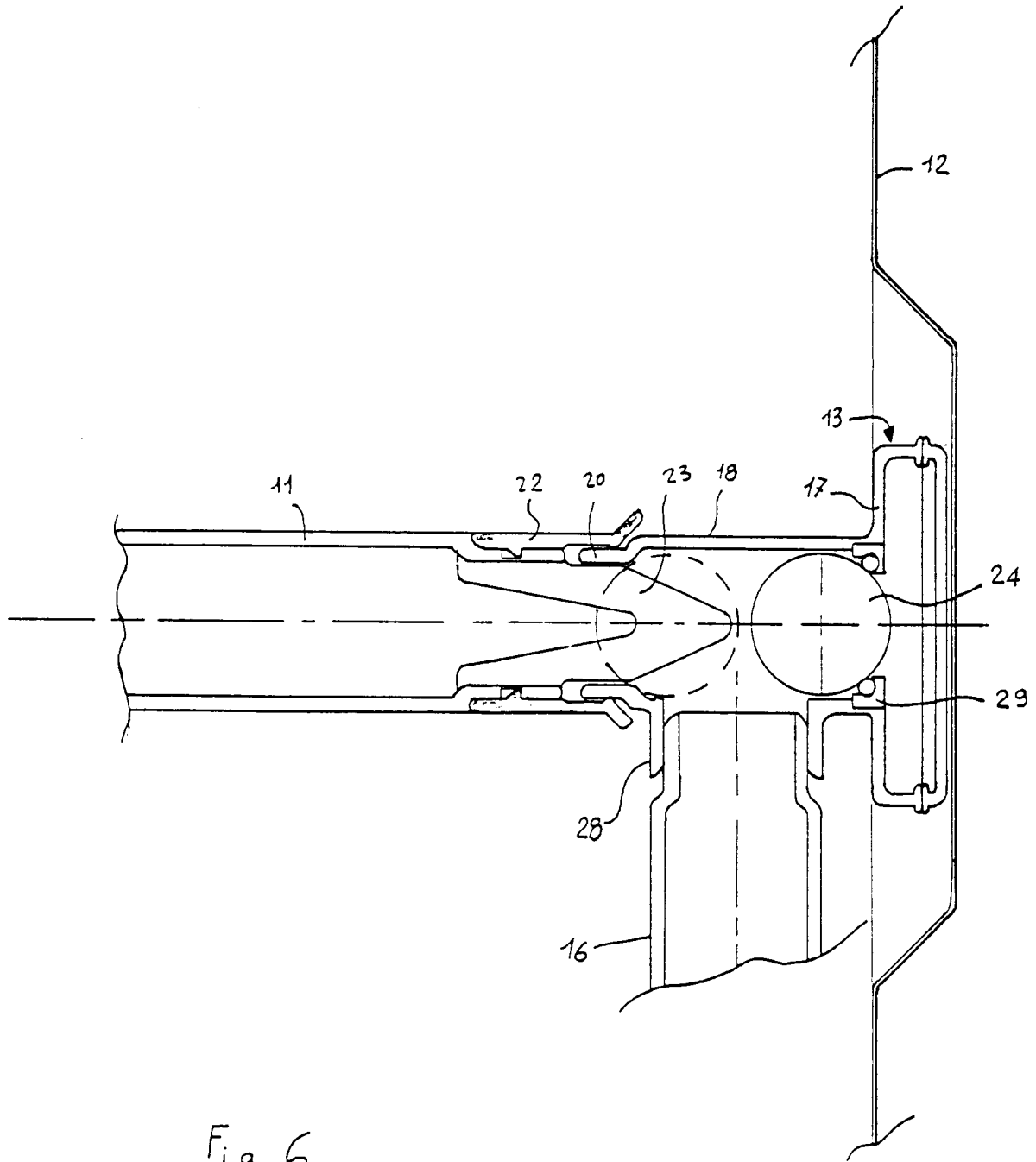


Fig 6