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(54) **DETACHABLE HYDRAULIC COUPLING OR FLOW DISTRIBUTION VALVE FOR USE IN THE HOUSEHOLD DISHWASHER**

LÖSBARE HYDRAULISCHE VERBINDUNG ODER FLUSSIGKEITSVERTEILUNGSVENTIL FÜR HAUSHALTGESCHIRRSPÜLMASCHINE

RACCORD HYDRAULIQUE AMOVIBLE OU VANNE DE REPARTITION D'ÉCOULEMENT POUR LAVE-VAISSELLE MENAGER

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EP-A- 0 401 767 **EP-A- 0 786 231**
DE-A- 3 125 853

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Description**BACKGROUND INFORMATION RELATED TO THE INVENTION**

[0001] In general, this invention is related to the automatic household dishwasher, and in particular, to an improved mechanism for distributing water to the dish racks.

[0002] The conventional dishwasher contains a body in which the dish racks are placed. Dish racks glide in and out of the body of the dishwasher on slides attached to the inside walls of the dishwasher. Water is sprayed throughout the body of the dishwasher by way of a motor pump forcing water through pipes, which are connected to dishwasher blades.

[0003] This invention is related to a special coupling for the pipe system, in which one can adjust the height of the upper dish rack. This special coupling provides better working conditions for the motor pump, as well as for the dishwasher blades. It also provides stabilization to the water flow, by connecting and disconnecting the pipes. EP 0786231 A, which falls under Article 54(3) EPC, discloses a hydraulic connection device for a dishwasher rack which can be positioned at different heights according to the preamble of claim 1. An other hydraulic coupling of similar type is known for example from EP-A-401767.

DETAILED DESCRIPTION OF THE INVENTION

[0004] With reference to the annexed drawings:

Figure 1 shows a cross-sectional view of a domestic dishwasher comprising a hydraulic coupling according to an embodiment of the invention.

Figure 2 shows a cross-sectional view of the hydraulic coupling according to an embodiment of the invention; the upper water inlet being connected to the water supply pipe.

Figure 3 shows a close-up view of the hydraulic coupling according to an embodiment of the invention.

Figure 4 shows a cross-sectional view of the hydraulic coupling according to an embodiment of the invention; the lower water inlet being connected to the water supply pipe.

Figure 5 shows a cross sectional view of a non-inventive hydraulic coupling; the upper water inlet being connected to the water supply pipe.

Figure 6 shows a cross-sectional view of a non-in-

ventive hydraulic coupling; the lower water inlet being connected to the water supply pipe.

5 **[0005]** In figure 1, a cross-sectional view of the domestic dishwasher is shown.

[0006] It is as follows: (1) Body; (2) door; (3) water drip tray; (4) filter; (5) motor pump unit;

10 (6) lower dish rack; (7) upper dish rack; (8) dishwasher blades with spray nozzles;

(9) pipe that provides water to the lower dishwasher blade; (10) pipe that provides water to the upper dishwasher blade; (11) the connection piece of the pipe; (12) hydraulic coupling fixed to the pipe.

[0007] In figure 2, a cross-sectional view of the hydraulic coupling is shown.

[0008] The pipe (10) extending from the motor pump is fixed to the back wall of the dishwasher body, its only outlet being at point (15). The coupling (12) has two water inlets; one is placed at the top, and it appears to be housed in the outlet (15); the other water inlet is placed at the bottom, and has a free support at point (14) (see section A-A), which is closed with a plate. Water flowing from the motor pump passes through the outlet (15) and reaches the upper dishwasher blade (8). Water flow applies pressure onto the plate, which in turn creates an airtight seal on the lower inlet of the coupling (12).

20 **[0009]** In figure 3, a close-up view of the coupling is shown:

[0010] In order to provide a secure connection to the inlets of the coupling, a safety ring (16), made of a thermoplastic material, was added. It is attached into a suitable slit on the outside of the outlet (15), and provides an airtight seal.

[0011] In figure 4, a sectional view of the second operating position of the coupling is shown.

[0012] In the second operating position, the upper dish rack is raised upwards to accommodate the space requirements of the kitchenware. Water flow comes from the outlet (15) and goes directly to the coupling of the pipe (11), pushing the plate (13) upward to create an airtight seal.

45 **[0013]** However, in order to create a better seal, the plate (13) may have a second connection surface with the water inlets. These surfaces are made of a soft plastic material or a thermoplastic material having the hardness to endure the impact that occurs when the coupling is working.

50 **[0014]** A non-inventive hollow sphere or a non-inventive solid sphere can also be used, instead of the plate. The explicit weight of this sphere maintains the constant movement within the coupling (12), which is caused by the water flowing under pressure. Details of this are shown in figures 5 and 6.

55 **[0015]** In this case, with the assumed water flow from the lower inlet to the coupling, the addition of a guide

component (18) is necessary to facilitate the closing of the upper water inlet.

[0016] The guide component (18), which is inserted with a trigger device, or welded within the coupling (15) has two functions. First, (see figure 6) it pushes the sphere (17) upwards to secure the water inlet in the coupling (12). Second, it provides for the correct positioning of the movable parts of the dish rack with the stable parts of the body.

[0017] This second function can also be used with the version of the present invention using plates (see figures 2, 3 and 4).

BACKGROUND INFORMATION RELATED TO THE INVENTION

[0018] In general, this invention is related to the automatic household dishwasher, and in particular, to an improved mechanism for distributing water to the dish racks.

[0019] The conventional dishwasher contains a body in which the dish racks are placed. Dish racks glide in and out of the body of the dishwasher on slides attached to the inside walls of the dishwasher. Water is sprayed throughout the body of the dishwasher by way of a motor pump forcing water through pipes, which are connected to dishwasher blades.

[0020] This invention is related to a special coupling for the pipe system, in which one can adjust the height of the upper dish rack. This special coupling provides better working conditions for the motor pump, as well as for the dishwasher blades. It also provides stabilization to the water flow, by connecting and disconnecting the pipes. EP 0786231A, which falls under Article 54(3) EPC, discloses a hydraulic connection device for a dishwasher rack which can be positioned at different heights. An other hydraulic coupling of similar type is known for example from EP-A-401767.

DETAILED DESCRIPTION OF THE INVENTION

[0021] With reference to the annexed drawings:

Figure 1 shows a cross-sectional view of a domestic dishwasher comprising a hydraulic coupling according to a first embodiment of the invention.

Figure 2 shows a cross-sectional view of the hydraulic coupling according to a first embodiment of the invention; the upper water inlet being connected to the water supply pipe.

Figure 3 shows a close-up view of the hydraulic coupling according to the first embodiment of the invention.

Figure 4 shows a cross-sectional view of the hydraulic coupling according to the first embodiment of the invention; the lower water inlet being connected to the water supply pipe.

lic coupling according to the first embodiment of the invention; the lower water inlet being connected to the water supply pipe.

5 Figure 5 shows a cross-sectional view of the hydraulic coupling to the second embodiment of the invention; the upper water inlet being connected to the water supply pipe.

10 Figure 6 shows a cross-sectional view of the hydraulic coupling according to the second embodiment of the invention; the lower water inlet being connected to the water supply pipe.

15 [0022] In figure 1, a cross-sectional view of the domestic dishwasher is shown.

[0023] It is as follows: (1) Body; (2) door; (3) water drip tray; (4) filter; (5) motor pump unit;

20 (6) lower dish rack; (7) upper dish rack; (8) dishwasher blades with spray nozzles; (9) pipe that provides water to the lower dishwasher blade; (10) pipe that provides water to the upper dishwasher blade; (11) the connection piece of the pipe; (12) hydraulic coupling fixed to the pipe.

[0024] In figure 2, a cross-sectional view of the hydraulic coupling according to the first embodiment of the invention is shown.

30 [0025] The pipe (10) extending from the motor pump is fixed to the back wall of the dishwasher body, its only outlet being at point (15). The coupling (12) has two water inlets; one is placed at the top, and it appears to be housed in the outlet (15); the other water inlet is placed at the bottom, and has a free support at point (14) (see section A-A), which is closed with a plate. Water flowing from the motor pump passes through the outlet (15) and reaches the upper dishwasher blade (8). Water flow applies pressure onto the plate, which in turn creates an airtight seal on the lower inlet of the coupling (12).

[0026] In figure 3, a close-up view of the coupling according to the first embodiment of the invention is shown:

45 [0027] In order to provide a secure connection to the inlets of the coupling, a safety ring (16), made of a thermoplastic material, was added. It is attached into a suitable slit on the outside of the outlet (15), and provides an airtight seal.

50 [0028] In figure 4, a sectional view of the second operating position of the coupling according to the first embodiment of the invention is shown.

[0029] In the second operating position, the upper dish rack is raised upwards to accommodate the space requirements of the kitchenware. Water flow comes from the outlet (15) and goes directly to the coupling of the pipe (11), pushing the plate (13) upward to create an airtight seal.

[0030] However, in order to create a better seal, the

plate (13) may have a second connection surface with the water inlets. These surfaces are made of a soft plastic material or a thermoplastic material having the hardness to endure the impact that occurs when the coupling is working.

[0031] The second embodiment of the hydraulic coupling according to the invention is illustrated in figures 5 and 6.

[0032] A hollow sphere or a solid sphere can also be used, instead of the plate. The explicit weight of this sphere maintains the constant movement within the coupling (12), which is caused by the water flowing under pressure. Details of this are shown in figures 5 and 6.

[0033] In this case, with the assumed water flow from the lower inlet to the coupling, the addition of a guide component (38) is necessary to facilitate the closing of the upper water inlet. The guide component (18) which is inserted with a trigger device, or welded within the coupling (15) has two functions. First, (see figure 6) it pushes the sphere (17) upwards to secure the water inlet in the coupling (12). Second, it provides for the correct positioning of the movable parts of the dish rack with the stable parts of the body.

[0034] This second function can also be used with the version using plates (see figures 2, 3 and 4).

Claims

Claims for the following Contracting States : DE, ES, FR, GB, IT, SE

1. A detachable hydraulic coupling (12) for a vertically adjustable top sprayer of a domestic dishwasher, comprising two water inlets for selective coupling to an outlet (15) of a water supply pipe (10), a single water outlet connected to the connection pipe (11) to the top sprayer, a flow distribution movable plate (13) placed within the body of the coupling (12), said movable plate (13) being attached by means of pins (14) at one of the water inlets; and said movable plate (13) can be rotated about said pins (14) upwards due to incoming water pressure to create an airtight seal and thus block the other of the water inlets, said coupling (12) being preferably further detachably connected with a guide component (18) to be placed within the body of the coupling (12) for the correct positioning of said coupling (12) with the supply pipe (10); and while water flowing from the upper water inlet, water flow applies pressure onto the movable plate (13), which in turn creates an airtight seal on the lower inlet of the coupling (12) and, while water flowing from the lower water inlet, water flow comes from the outlet (15) of the water supply pipe (10) and goes directly to the coupling of the pipe (11), pushing the plate (13) upward to create an airtight seal, **characterised in that** the plate in

the upward pushed position is held almost parallel to the direction of water flow.

2. A detachable hydraulic coupling (12), according to claim 1, **characterized in that**, the detachable hydraulic coupling (12) and the connection pipe (11) are molded from thermoplastic material, and coupled in such a way as to create an airtight seal, and this coupling process is accomplished by means of ultrasound welding or vibration welding.
3. A detachable hydraulic coupling (12), according to claim 1, **characterized in that** the suitable cross section and radius of the pipe's connection system provides a silent work environment with no turbulence.

Claims for the following Contracting States : AT, BE, CH, LI, DK, FI, GR, IE, LU, MC, NL, PT

1. A detachable hydraulic coupling (12) for a vertically adjustable top sprayer of a domestic dishwasher, the coupling (12) comprising two water inlets for selective coupling to a water supply pipe (10), a single water outlet for coupling to the top sprayer (11) and a flow distribution movable plate (13), **characterized in that** said movable plate (13) is housed within the body of the hydraulic coupling (12), said movable plate (13) being attached by means of pins (14) at one of the water inlets; and **in that** said movable plate (13) can be rotated about said pins (14) upwards due to incoming water pressure to create an airtight seal and thus block the other of the water inlets, said coupling (12) being preferably further detachably connected with a guide component (18) to be placed within the body of the coupling (12), for the correct positioning of said coupling (12) with the supply pipe (10).
2. A detachable hydraulic coupling (12) according to claim 1, **characterised in that** while water flowing from the upper water inlet, water flow applies pressure onto the movable plate (13), which in turn creates an airtight seal on the lower inlet of the coupling (12) and, while water flowing from the lower water inlet, water flow comes from the outlet (15) and goes directly to the coupling of the pipe (11), pushing the plate (13) upward to create an airtight seal, where the plate is held in a position almost parallel to the direction of water flow.
3. A detachable hydraulic coupling (12) according to claim 1 or 2, **characterised in that** the detachable hydraulic coupling (12) and the connection pipe (11) are molded from thermoplastic material. and coupled in such a way as to create an airtight seal, and this coupling process is accomplished by means of

ultrasound welding or vibration welding.

4. A detachable hydraulic coupling (12), according to claim 1 or 2, **characterized in that** the suitable cross section and radius of the pipe's connection system provides a silent work environment with no turbulence.
5. A detachable hydraulic coupling (12) for a vertically adjustable top sprayer of a domestic dishwasher, the coupling (12) comprising two water inlets for selective coupling to a water supply pipe (10), a single water outlet for coupling to the top sprayer (11) and a flow distribution movable sphere (17), **characterized in that** said movable sphere (13) is housed within the body of the hydraulic coupling (12); and **in that** said movable sphere (17) can push upwards due to incoming water pressure to create an airtight seal and thus block the other of the water inlets, said coupling (12) being further detachably connected with a guide component (18) to be placed within the body of the coupling (12), for the correct positioning of said coupling (12) with the supply pipe (10).

Patentansprüche

Patentansprüche für folgende Vertragsstaaten : DE, ES, FR, GB, IT, SE

1. Lösbare Hydraulikkupplung (12) für eine vertikal einstellbare obere Sprühhvorrichtung einer Haushaltsgeschirrspülmaschine, mit zwei Wassereinlässen, die wahlweise mit einem Auslass (15) eines Wasserversorgungsrohrs (10) gekoppelt werden können, einem einzigen Wasserauslass, der mit dem Verbindungsrohr (11) zu der oberen Sprühhvorrichtung verbunden ist, einer beweglichen Strömungsverteilungsplatte (13), die in dem Körper der Kupplung (12) angeordnet ist, wobei die bewegliche Platte (13) durch Stifte (14) an einem der Wassereinlässe befestigt ist; und die bewegliche Platte (13) durch den ankommenden Wasserdruck um die Stifte (14) nach oben gedreht werden kann, um eine luftdichte Dichtung zu erzeugen und somit den anderen der Wassereinlässe zu versperren, wobei die Kupplung (12) vorzugsweise ferner lösbar mit einer Führungskomponente verbunden ist, die in dem Körper der Kupplung (12) anzuordnen ist, um die Kupplung (12) in dem Versorgungsrohr (10) richtig zu positionieren; wobei dann, wenn Wasser von dem oberen Wassereinlass anströmt, die Wasserströmung einen Druck auf die bewegliche Platte (13) ausübt, die ihrerseits eine luftdichte Dichtung an dem unteren Einlass der Kupplung (12) erzeugt, und wobei dann, wenn Wasser von dem unteren

Wassereinlass anströmt, die Wasserströmung von dem Auslass (15) des Wasserversorgungsrohrs (10) ankommt und sich direkt zu der Kupplung des Rohrs (11) bewegt, wodurch die Platte (13) nach oben geschoben wird, um eine luftdichte Dichtung zu erzeugen, **dadurch gekennzeichnet, dass** die Platte in der nach oben geschobenen Position fast parallel zu der Richtung der Wasserströmung gehalten wird.

2. Lösbare Hydraulikkupplung (12) nach Anspruch 1, **dadurch gekennzeichnet, dass** die lösbare Hydraulikkupplung (12) und das Verbindungsrohr (11) aus einem thermoplastischen Werkstoff gegossen sind und in der Weise gekoppelt sind, dass eine luftdichte Dichtung erzeugt wird, wobei dieser Koppelungsprozess mittels Ultraschallschweißens oder Vibrationsschweißens erzielt wird.
3. Lösbare Hydraulikkupplung (12) nach Anspruch 1, **dadurch gekennzeichnet, dass** der geeignete Querschnitt und der geeignete Radius des Rohrverbindingssystems eine ruhige Arbeitsumgebung ohne Turbulenzen schaffen.

Patentansprüche für folgende Vertragsstaaten : AT, BE, CH, LI, DK, FI, GR, IE, LU, MC, NL, PT

1. Lösbare Hydraulikkupplung (12) für eine vertikal einstellbare obere Sprühhvorrichtung einer Haushaltsgeschirrspülmaschine, wobei die Kupplung (12) zwei Wassereinlässe, die wahlweise mit einem Wasserversorgungsrohr (10) gekoppelt werden, einen einzigen Wasserauslass, der mit der oberen Sprühhvorrichtung (11) gekoppelt wird, und eine bewegliche Strömungsverteilungsplatte (13) umfasst, **dadurch gekennzeichnet, dass** die bewegliche Platte (13) in dem Körper der Hydraulikkupplung (12) untergebracht ist, wobei die bewegliche Platte (13) durch Stifte (14) an einem der Wassereinlässe befestigt ist; und dass die bewegliche Platte (13) aufgrund des ankommenden Wasserdrucks um die Stifte (14) nach oben gedreht werden kann, um eine luftdichte Dichtung zu erzeugen und dadurch den anderen der Wassereinlässe zu sperren, wobei die Kupplung (12) vorzugsweise ferner mit einer Führungskomponente (18) lösbar verbunden ist, die in dem Körper der Kupplung (12) anzuordnen ist, um die Kupplung (12) und das Versorgungsrohr (10) richtig zu positionieren.
2. Lösbare Hydraulikkupplung (12) nach Anspruch 1, **dadurch gekennzeichnet, dass** dann, wenn Wasser von dem oberen Wassereinlass anströmt, die Wasserströmung einen Druck auf die bewegliche Platte (13) ausübt, die ihrerseits eine luftdichte Dichtung an dem unteren Einlass der Kupplung (12)

erzeugt, und dann, wenn Wasser von dem unteren Wassereinlass anströmt, die Wasserströmung von dem Auslass (15) ankommt und sich direkt zu der Kupplung des Rohrs (11) bewegt, wodurch die Platte (13) nach oben geschoben wird, um eine luftdichte Dichtung zu erzeugen, wobei die Platte dann in einer zu der Richtung der Wasserströmung fast parallelen Stellung gehalten wird.

3. Lösbare Hydraulikkupplung (12) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die lösbare Hydraulikkupplung (12) und das Verbindungsrohr (11) aus einem thermoplastischen Werkstoff gegossen sind und in der Weise gekoppelt sind, dass eine luftdichte Dichtung erzeugt wird, wobei dieser Kopplungsprozess mittels Ultraschallschweißens oder Vibrationsschweißens erzielt wird.
4. Lösbare Hydraulikkupplung (12) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** der geeignete Querschnitt und der geeignete Radius des Rohrverbindungssystems eine ruhige Arbeitsumgebung ohne Turbulenz schaffen.
5. Lösbare Hydraulikkupplung (12) für eine vertikal einstellbare obere Sprühhvorrichtung einer Haushaltsgeschirrspülmaschine, wobei die Kupplung (12) zwei Wassereinlässe, die wahlweise mit einem Wasserversorgungsrohr (10) gekoppelt werden, einen einzigen Wasserauslass, der mit der oberen Sprühhvorrichtung (11) gekoppelt wird, und eine bewegliche Strömungsverteilungskugel (17) umfasst, **dadurch gekennzeichnet, dass** die bewegliche Kugel (13) in dem Körper der Hydraulikkupplung (12) untergebracht ist; und dass sich die bewegliche Kugel (17) durch den ankommenden Wasserdruck nach oben schieben kann, um eine luftdichte Dichtung zu erzeugen und somit den anderen der Wassereinlässe zu sperren, wobei die Kupplung (12) ferner mit einer Führungskomponente (18) lösbar verbunden ist, die in dem Körper der Kupplung (12) anzuordnen ist, um die Kupplung (12) und das Versorgungsrohr (10) richtig zu positionieren.

Revendications

Revendications pour les Etats contractants suivants : DE, ES, FR, GB, IT, SE

1. Un accouplement hydraulique détachable (12) pour l'arroseur supérieur verticalement réglable d'un lave-vaisselle domestique comprenant deux entrées d'eau pour l'accouplement sélectif à la sortie d'un tuyau d'alimentation en eau (10), une sortie unique d'eau reliée au tube de connexion (11) de l'arroseur

supérieur, une plaque mobile de répartition de l'écoulement (13) placée à l'intérieur du corps de l'accouplement (12), ladite plaque mobile (13) étant fixée au moyen de goupilles (14) à l'une des entrées d'eau ; et ladite plaque mobile (13) pouvant tourner vers le haut autour de ces goupilles (14) sous l'effet de la pression de l'eau entrante, de manière à créer un joint étanche à l'air, et à bloquer ainsi l'autre entrée d'eau, ledit accouplement (12) étant de préférence au surplus réuni de manière détachable à un composant de guidage destiné à être placé à l'intérieur du corps de l'accouplement (12), en vue du positionnement correct dudit accouplement (12) par rapport au tuyau d'alimentation (10), l'eau s'écoulant depuis l'entrée supérieure d'eau ayant pour effet que le courant d'eau applique une pression sur la plaque mobile (13), laquelle, à son tour, crée un joint étanche à l'air sur l'entrée inférieure de l'accouplement (12), tandis que l'eau s'écoulant depuis l'entrée inférieure d'eau a pour effet que le courant d'eau provenant de la sortie (15) du tuyau d'alimentation en eau (10) s'en va directement à l'accouplement du tuyau (11), en repoussant la plaque (13) vers le haut, en créant un joint étanche à l'air, **caractérisé en ce que** la plaque, dans sa position repoussée vers le haut, est maintenue presque parallèle à la direction du courant d'eau.

2. Un accouplement hydraulique détachable (12) selon la Revendication 1, **caractérisé en ce que** l'accouplement hydraulique détachable (12) et la plaque de connexion (11) sont moulés en matière thermoplastique, et accouplés de manière à créer un joint étanche à l'air, cet accouplement étant réalisé par soudure par ultrasons ou par soudure par vibrations.
3. Un accouplement hydraulique détachable (12A) selon la Revendication 1, **caractérisé en ce que** la section transversale et le rayon du système de connexion des tuyaux assurent un fonctionnement silencieux et sans turbulence.

45 Revendications pour les Etats contractants suivants : AT, BE, CH, LI, DK, FI, GR, IE, LU, MC, NL, PT

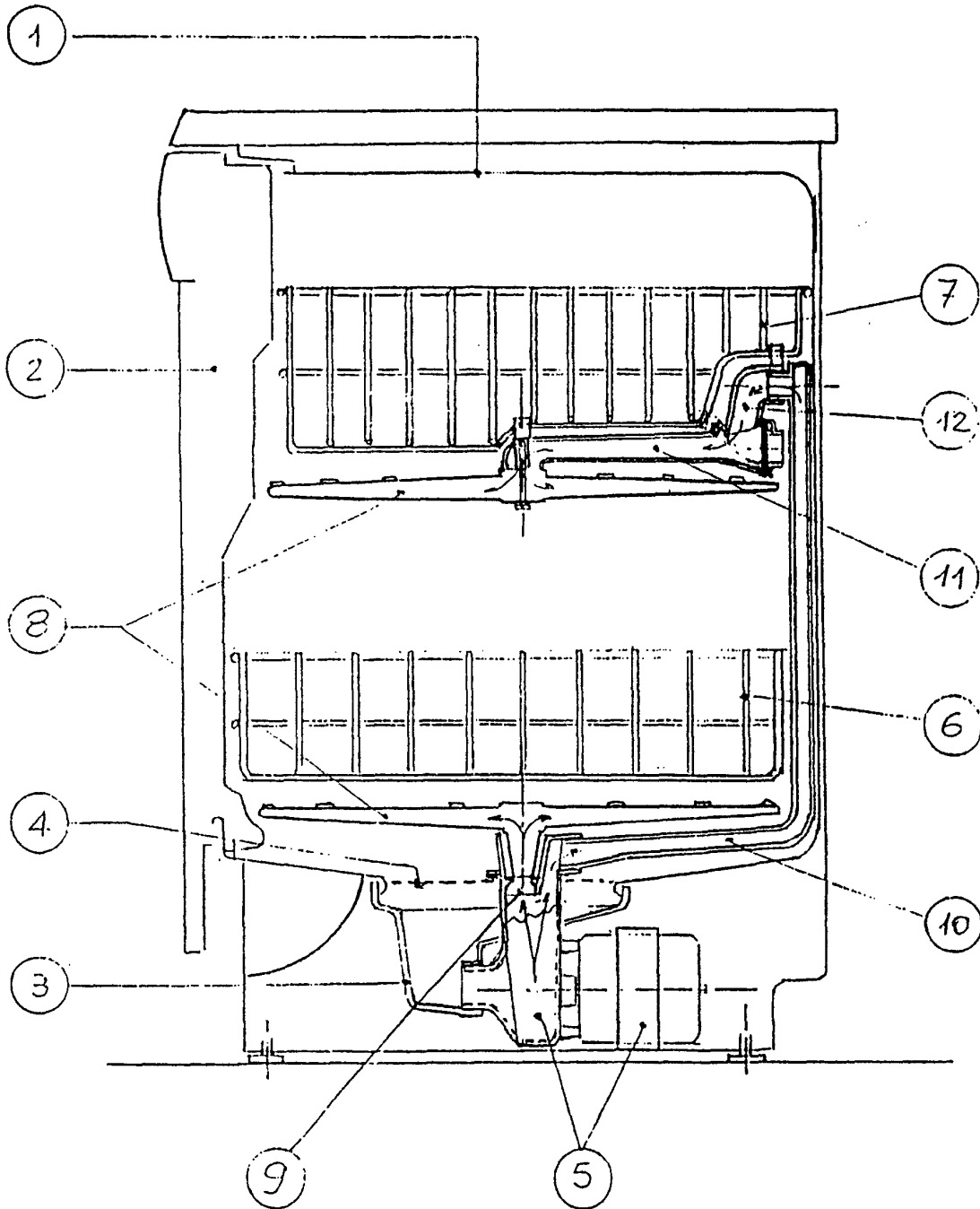
1. Un accouplement hydraulique détachable (12) pour l'arroseur supérieur verticalement réglable d'un lave-vaisselle domestique, cet accouplement (12) comprenant deux entrées d'eau en vue d'un accouplement sélectif à un tuyau d'alimentation en eau (10), une sortie unique d'eau en vue d'un accouplement avec l'arroseur supérieur (11), et une plaque mobile de répartition du courant d'eau (13), **caractérisé en ce que** ladite plaque mobile (13) est logée à l'intérieur du corps de l'accouplement hydraulique

(12), ladite plaque mobile (13) étant fixée au moyen de goupilles (14) à l'une des entrées d'eau, et **en ce que** ladite plaque mobile peut tourner vers le haut autour desdites goupilles (14), sous l'effet de la pression de l'eau entrante, de manière à créer un joint étanche à l'air et à bloquer ainsi l'autre des entrées d'eau, ledit accouplement (12) étant au surplus de préférence réuni de manière détachable à un composant de guidage (18) destiné à être placé à l'intérieur du corps de l'accouplement (12), en vue du positionnement correct dudit accouplement (12) par rapport au tuyau d'alimentation (1)

au tuyau d'alimentation (10).

2. Un accouplement hydraulique détachable (12) selon la Revendication 1, **caractérisé en ce que**, quand l'eau s'écoule depuis l'entrée d'eau supérieure, le courant d'eau applique une pression sur la plaque mobile (13), laquelle crée, à son tour, un joint étanche à l'air sur l'entrée inférieure de l'accouplement (12), tandis que, quand l'eau s'écoule depuis l'entrée d'eau inférieure, le courant d'eau s'en va depuis la sortie (15) directement à l'accouplement du tuyau (11), en repoussant la plaque (13) vers le haut, en créant un joint étanche à l'air, la plaque étant maintenue dans une position presque parallèle à la direction du courant d'eau.
3. Un accouplement hydraulique détachable (12) selon la Revendication 1 ou 2, **caractérisé en ce que** l'accouplement hydraulique détachable (12) et le tuyau de connexion (11) sont moulés en matière thermoplastique et accouplés de manière à créer un joint étanche à l'air, le processus d'accouplement étant réalisé par soudure par ultrasons ou par soudure par vibrations.
4. Un accouplement hydraulique détachable selon la Revendication 1 ou 2, **caractérisé en ce que** la section transversale et le rayon du système de connexion des tuyaux assurent un fonctionnement silencieux et sans turbulences.
5. Un accouplement hydraulique détachable (12) pour l'arroiseur supérieur verticalement réglable d'un lave-vaisselle domestique, l'accouplement (12) comprenant deux entrées d'eau en vue d'un accouplement sélectif à un tuyau d'alimentation en eau (10), une sortie unique d'eau destinée à être accouplée à l'arroiseur supérieur (11), et une sphère mobile de répartition du courant d'eau (17), **caractérisé en ce que** ladite sphère mobile (17) peut être poussée vers le haut sous l'effet de l'eau entrante, en créant un joint étanche à l'air et en bloquant ainsi l'autre des entrées d'eau, ledit accouplement (12) étant au surplus réuni de manière détachable à un composant de guidage destiné à être placé à l'intérieur du corps de l'accouplement (12), en vue du positionnement correct dudit accouplement (12) par rapport

FIG. 1



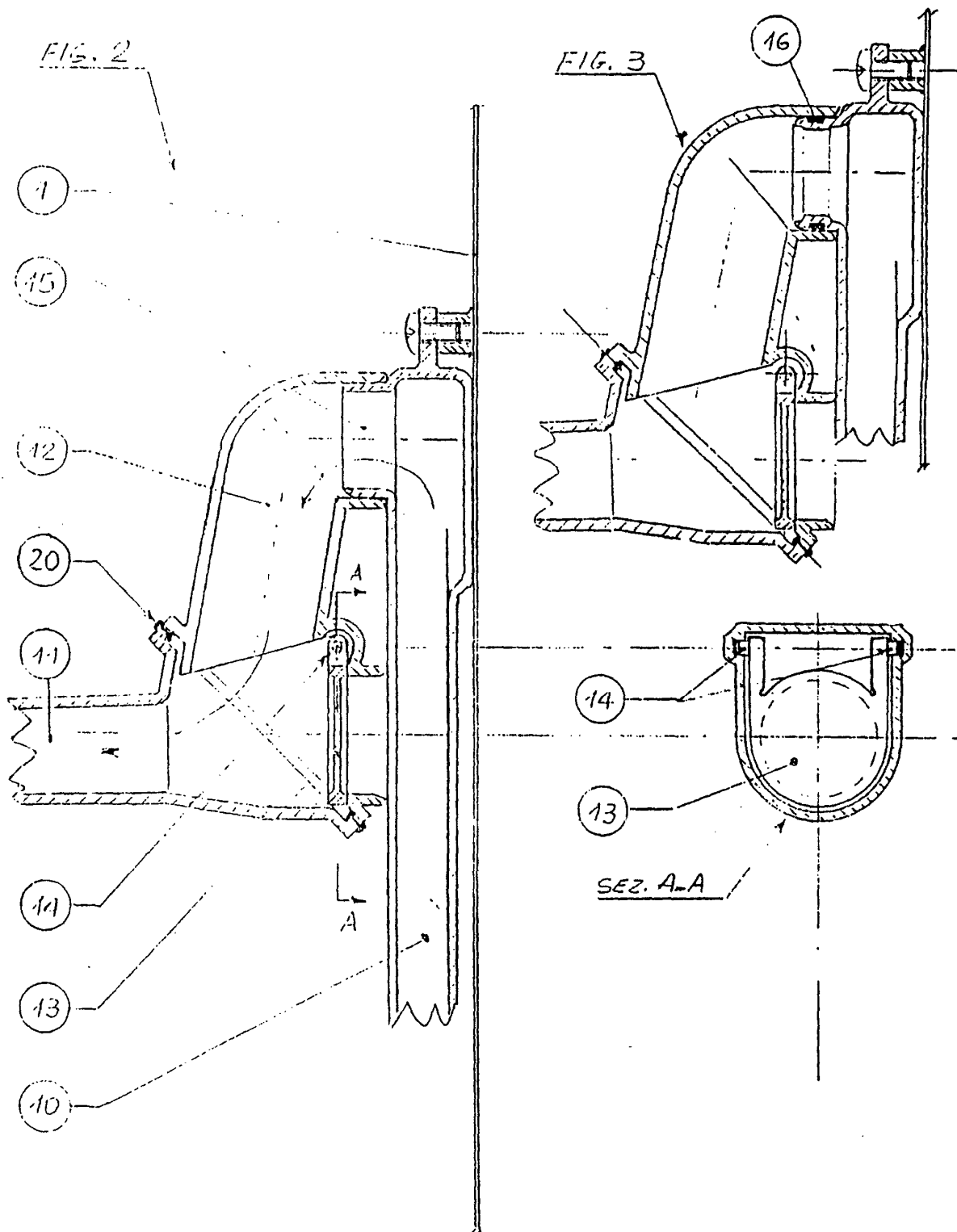


FIG. 4

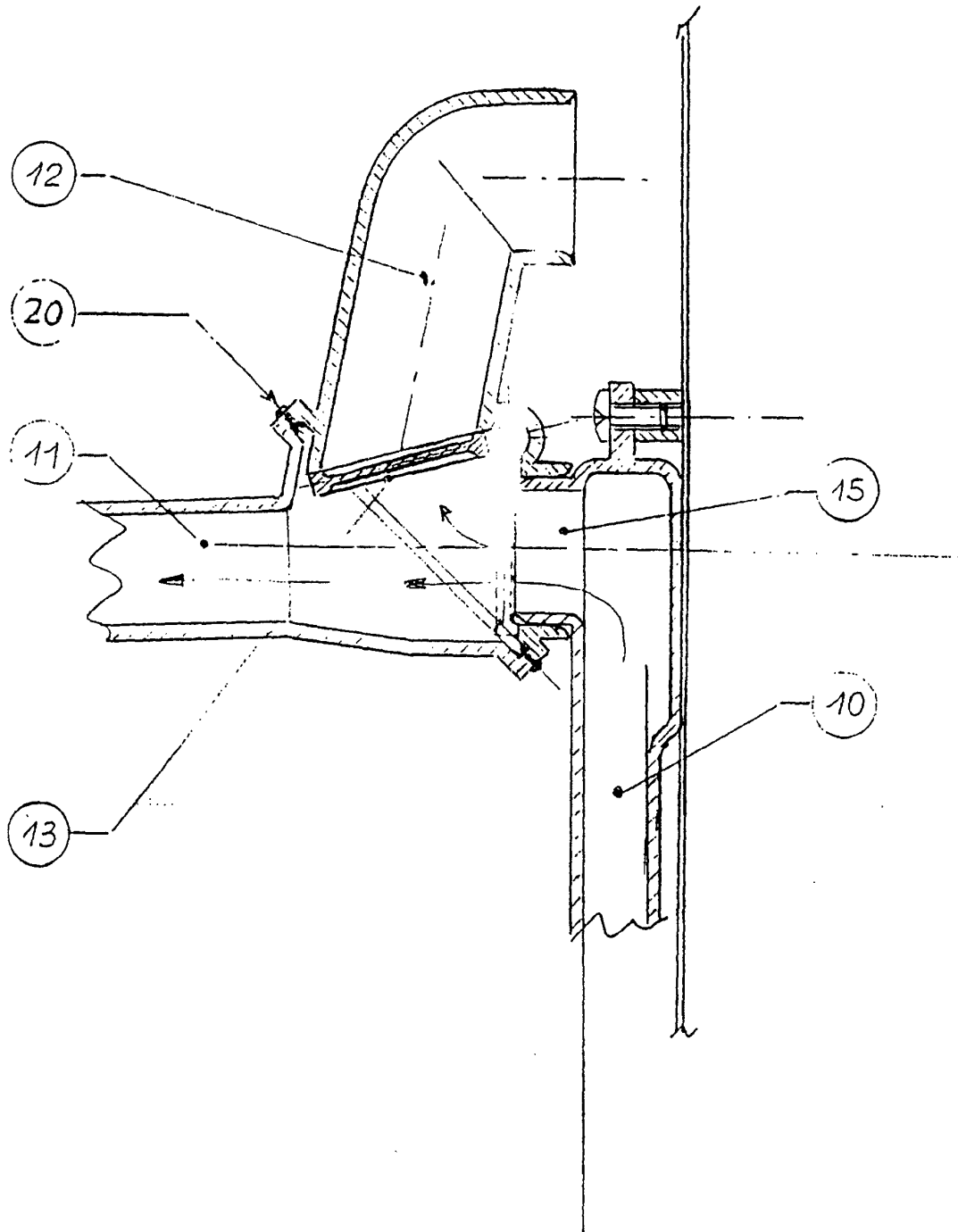


FIG. 5

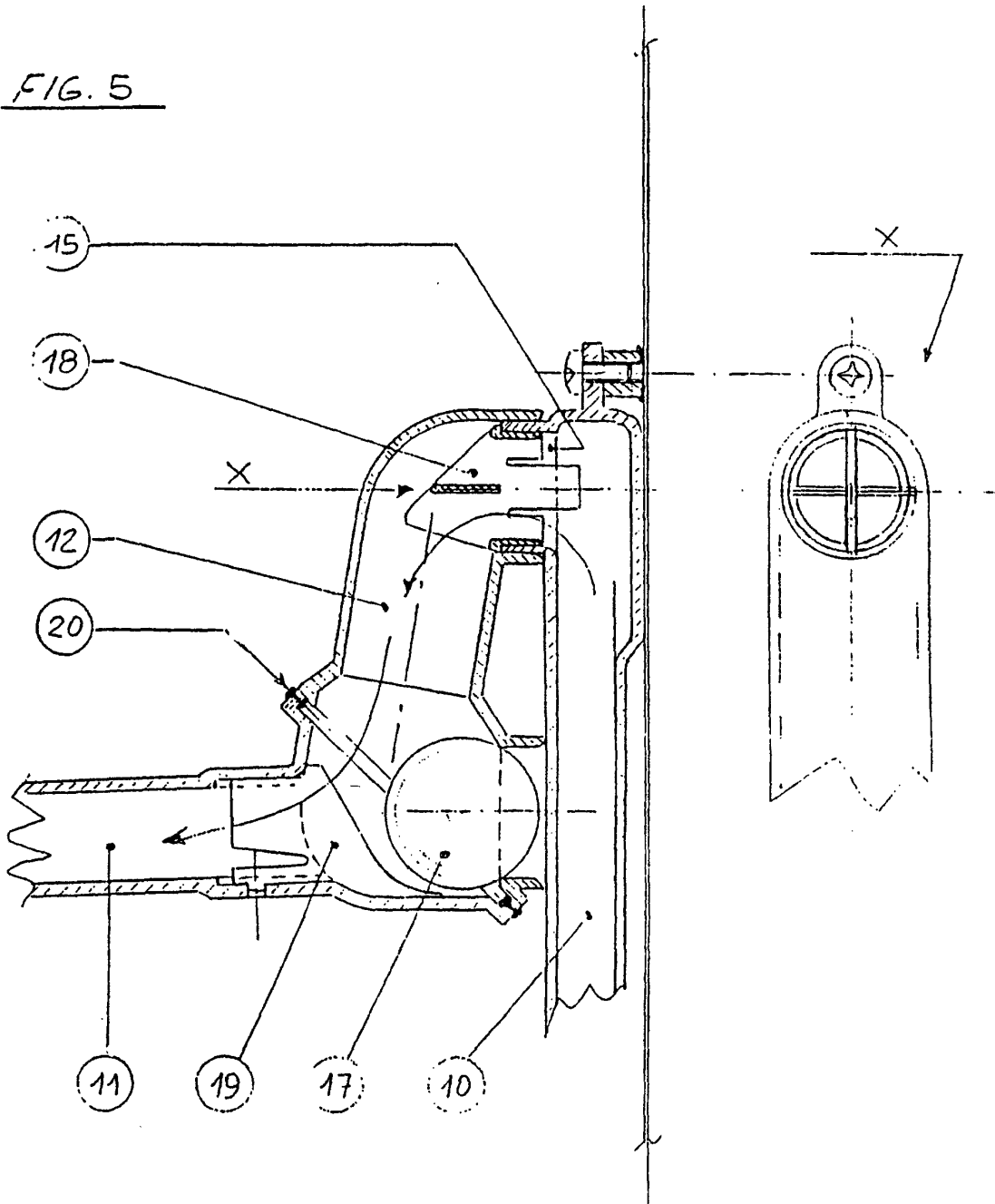


FIG. 6

