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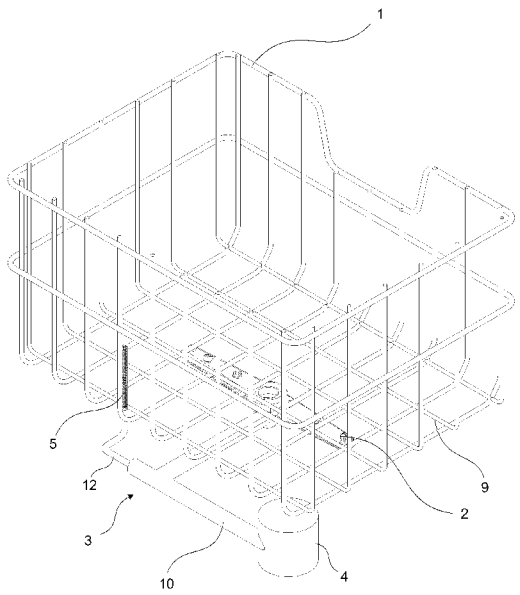
(54) **Title**: A DISHWASHER

Figure 1



(57) **Abstract**: A dishwasher comprising: a tub; a rack (1) which is disposed into the tub for holding kitchenware and dishes to be cleaned; and a hydraulic circuit for circulating the washing/rinsing liquid through the tub. The hydraulic circuit comprises: distribution means for distributing the liquid on the kitchenware and dishes placed on the rack (1) comprising a spray arm (2) configured to spray the liquid towards the rack (1); and at least one flexible spray element (5); collecting means placed on the bottom of the tub for collecting the distributed liquid; and conveying means for conveying to the distribution means the collected liquid or liquid coming from an external source.

Description

A DISHWASHER

[0001] The present invention relates to a dishwasher in particular allowing to optimally clean hollow and deep concave articles placed on the basket of the dishwasher and that could be hardly reached by the washing liquid and by the water during washing and rinsing phases.

[0002] Domestic dishwashers are commonly known in the art. A domestic dishwasher generally includes two racks which are extendably disposed into the washing tub one above the other. The racks are commonly made from a wire mesh which holds the kitchenware to be cleaned and dried. The user can load up the racks with various kitchenware such as pots, pans, trays, dishes, bowls, cups, bottles and jars.

[0003] The articles which are loaded into the upper rack and the lower rack are generally washed and rinsed by means of two rotating spray arms that spray the washing/rinsing liquid upwardly towards the racks respectively. In general, the dishwasher includes a hydraulic circuit for circulating the washing/rinsing liquid via the rotating spray arms. The hydraulic circuit is generally controlled by the control unit in accordance with user-selectable washing programs. During the operation of the dishwasher, the pressurized washing/rinsing liquid hits the articles, removes the dirt, marks or stain from the articles and drains down together with the dissolved dirt into the sump which is located on the bottom of the tub.

[0004] In the recent years, dishwashers having small dimensions and in some cases being portable have been developed in particular for small households and offices or for mobile devices such as motor homes, camper vans, yachts and the like. Such small dishwashers comprise only a single rack, in which only small amounts of articles can be placed and cleaned, and a single spray arm arranged below the rack.

[0005] A common problem with the prior art domestic dishwashers is that the hollow articles, in particular the hollow articles with relatively narrow openings such as drinking containers, bottles, feeding bottles and jars may not sufficiently receive the washing/rinsing liquid and remain dirty after the completion of the selected washing program.

[0006] This problem is often encountered in small dishwashers also for simply concave articles, especially for the ones having big dimensions, which, due to the limited space inside the tub, cannot be placed with the concavity completely facing the spray arm.

[0007] In such incidents, the user needs to wash the unclean articles again. In general, the poor washing results decrease the user satisfaction.

[0008] The European patent n. EP 0997100 B1 discloses a prior art domestic dishwasher which attempt to solve the above mentioned problem. The dishwasher therein disclosed comprises a duct attached to the bottom of the rack and having a plurality of terminations extending vertically through the bottom of the rack and provided each with one or more outlets for distributing the washing liquid. Each termination can be used for supporting a hollow article so that the concave portion of the latter can be efficiently cleaned.

[0009] The main drawback of this dishwasher resides on its poor flexibility in use, due to the fact that the articles need to be placed on the rack depending on the disposition of the terminations of the duct.

[0010] An objective of the present invention is to provide a dishwasher which solves the aforementioned problems of the prior art in a cost effective way and which enables an improved cleaning performance of deep concave and hollow articles.

[0011] This objective has been achieved by a dishwasher as defined in claim 1. Additional achievements have been attained by the subject-matters as defined in the dependent claims respectively.

[0012] The dishwasher of the present invention is provided, besides the spray arm, with one or more flexible spray elements, each of which has a first end hydraulically connectable to liquid conveying means of the dishwasher for receiving washing/rinsing liquid from it and a second end which is free and comprises one or more outlets. The position of the second end of the flexible spray element can be arranged in the rack according to a user's preference. The second end, through which the liquid is sprayed, can therefore be placed in dishes cavity or concavity or in any case used to reach part of dishes and kitchenware that differently would be hardly

reached by an appropriate amount of liquid or by liquid having an appropriate pressure for ensuring an efficient cleaning action.

[0013] According to an embodiment, the flexible element is manually bendable by the user in order to place the second end of it in the desired position in the rack according to the needs of the user.

[0014] In an embodiment, the conveying means comprises a first duct to which both the spray arm is connected and the first end of the flexible spray element is hydraulically connectable so that the dishwasher results constructionally simple and economic to be produced.

[0015] In a further embodiment, the first duct comprises a connection port to which the flexible spray element is removably connectable. Therefore the flexible element can be associated to the rack or not according to the user's needs and preferences.

[0016] In order to prevent the liquid from flowing through the connection port when the dishwasher is operated with the flexible spray element removed, in an embodiment the conveying means comprises a shutting element aimed to block the flow of liquid.

[0017] In a version of this embodiment the shutting element comprises a valve placed in the first duct for controlling the conveying of liquid to the flexible spray element and/or to the spray arm. The valve can be controlled by a control unit of the dishwasher according to the program selected by the user.

[0018] In another version of the above embodiment, the shutting element comprises an automatic flow stopper, so that the connection port is automatically closed when the flexible element is removed.

[0019] In a further version of the above embodiment, the shutting element comprises a cap for closing the connection port. The cap can be easily positioned by the user to close the connection port when the flexible element is removed.

[0020] In a different embodiment, the conveying means comprises a second duct, distinct from the first duct to which the spray arm is connected, to which second duct the first end of the flexible spray element is hydraulically connectable for receiving washing/rinsing liquid from it. Thus the

washing/rinsing liquid can be independently delivered to the spray arm and to the flexible element.

[0021] In an embodiment, the flexible spray element is extensible thus more easily reaching the desired location of the dishes or kitchenware to be sprayed by it and at the same time not getting entangled when the location of the dishes or kitchenware to be reached is closed to the connection site of the flexible element to the conveying means.

[0022] In an embodiment, the flexible spray element, in its maximum extension, extends for at least half of the height of the rack and preferably for at least the same height of the rack.

[0023] In another embodiment, the flexible spray element comprises a plurality of outlets at its second end and, preferably, at least partially along its length so that it can more efficiently spray the dishes or kitchenware to be cleaned by it.

[0024] In a further embodiment, the flexible spray element comprises at its second end UV lighting means for enhancing the cleaning of the kitchenware or dishes irradiated by it.

[0025] According to an embodiment, the dishwasher further comprises a control unit which is configured to control the conveying of washing/rinsing liquid to the tub and through which the flow parameters of the liquid supplied by the flexible spray element are controllable by the user.

[0026] In an embodiment the dishwasher has small dimensions, being designed to be placed on a countertop or hung on the wall, and it comprises a single rack.

[0027] Additional features and additional advantageous effects of the dishwasher according to the present invention will become more apparent with the detailed description of the embodiments with reference to the accompanying drawings in which:

[0028] Figure 1 – is a schematic perspective view in transparency of a rack and of part of a hydraulic circuit of the dishwasher according to an embodiment of the present invention;

[0029] Figure 2 – is a schematic plan view of the rack and of part of the hydraulic circuit assembly of the dishwasher of Fig. 1;

[0030] Figure 3 – is a schematic lateral view of the rack and of part of the hydraulic circuit of the dishwasher of Fig. 1;

[0031] Figure 4 – is a schematic frontal view of the rack and of part of the hydraulic circuit of the dishwasher of Fig. 1;

[0032] Figure 5 – is a schematic frontal view of a rack and of part of a hydraulic circuit of the dishwasher according to a different embodiment of the present invention.

[0033] The reference signs appearing on the drawings relate to the following technical features.

1. Rack
2. Spray arm
3. Conveying means
4. Pump
5. Flexible spray element
6. First end
7. Second end
8. Outlet
9. Base of the rack
10. First duct
11. Connection port
12. Extension
13. Valve
14. Second duct
15. Second pump

[0034] The dishwasher comprises a tub (not shown), one or more extendable racks 1 which are disposed one above the other into the tub for holding kitchenware and dishes to be cleaned and a hydraulic circuit (only partially shown in the attached figures) for circulating the washing/rinsing liquid through the tub.

[0035] The hydraulic circuit comprises distribution means, for distributing on the kitchenware and dishes placed on the rack 1 a certain amount of washing/rinsing liquid, i.e. generally simple water or water mixed with detergent depending on the specific cycle which is performed, which

distribution means comprises one or more rotating spray arm 2, associated to the rack 1 for spraying the washing/rinsing liquid towards it.

[0036] The hydraulic circuit further comprises collecting means, including a sump located on the bottom of the tub, for collecting the liquid distributed by the distributing means after it got into contact with the dishes, filtration means, for filtering the collected liquid, and conveying means for conveying the collected and filtered liquid or liquid coming from an external source to the distribution means.

[0037] The hydraulic circuit in particular further comprises one or more pumps 4 operationally connected to the collecting means and to the conveying means for forwarding the liquid, coming from the collecting means or the external source and pressurized, to the distribution means through the conveying means.

[0038] The dishwasher advantageously, according to a further embodiment, comprises a control unit (not shown) for controlling the hydraulic circuit, which control unit comprises one or more user selectable washing programs.

[0039] According to the present invention, the distribution means of the hydraulic circuit of the dishwasher further comprises one or more flexible spray elements 5, each having a first end 6 hydraulically connectable to the conveying means 3 for receiving washing/rinsing liquid from it and a second end 7 which is free and comprises one or more outlets 8 through which the washing/rinsing liquid received from the conveying means 3 is released in the tub. The position of the second end 7 of each flexible spray element 5 is arrangeable in the rack 1 according to a user's preference.

[0040] The second free end 7 of the flexible element 5 can be arranged by the user in the desired position in order to efficiently reach articles placed in the rack 1 or portions of articles that differently would be hardly reached by sufficient amounts of washing/rinsing liquid to be satisfactorily cleaned. To this aim, according to a preferred embodiment, the flexible element 5 is manually bendable by the user in order for the second end 7 of it to be positioned in the rack according to the needs of the user. Advantageously the flexible element 5 is elastically deformable to be shaped manually.

[0041] The presence of one or more flexible spray elements 5 allows to efficiently clean the articles placed in the rack 1, in particular deep concave articles, such as pots or bowls, as well as hollow articles also with relatively narrow openings such as bottles, feeding bottles and jars, by placing the second end 7 of the flexible element 5 inside their cavity or concavity, thus allowing part of the washing/rinsing liquid carried along the hydraulic circuit to be directly sprayed into it.

[0042] The articles placed in the rack 1 can therefore be efficiently cleaned without needing to be placed with their opening directly facing the base 9 of the rack 1 and therefore allowing also to accommodate a larger number of articles on the rack 1.

[0043] In an embodiment illustrated in the attached figures, the flexible spray element 5 has an oblong shape and it extends through the base 9 of the rack 1 toward the inside of it.

[0044] In the attached figures and in the following just one flexible spray element 5 associated to a rack 1 is illustrated, for an easier presentation of the invention. Differently two or more flexible spray elements 5 could be associated to each rack 1, preferably extending through the base 9 of it, spaced apart from each another, without departing from the scope of the present invention.

[0045] Obviously the conveying means 3 and the flexible element 5 attached to it have to be designed so as not to hinder the rotation of the spray arm during the operation of the dishwasher.

[0046] According to an embodiment illustrated in the attached Figures 1 - 4, the conveying means 3 comprises a first duct 10 to which a correspondent spray arm 2 is connected and to which the first end 6 of the flexible element 5 is hydraulically connectable for receiving washing/rinsing liquid from it. In this embodiment, both the spray arm 2 and the flexible element are hydraulically connected to the same first duct 10.

[0047] In particular, the first duct 10 is hydraulically connected to a pump 4 for receiving the pressurized washing/rinsing liquid from it. More in detail, in case the dishwasher comprises two racks 1, the first duct 10 associated to the lower rack is preferably mounted on the bottom of the tub, while the

first duct 10 associated to the upper rack is preferably attached to the base 9 of the rack. Both the first ducts 10 are hydraulically connected to the pump 4, in a conventional manner here not described in detail.

[0048] The fact that both the spray arm 2 and the flexible element 5 are connected to the same duct 10 allows to minimize the design modifications to be introduced in the dishwasher in order to provide it with the flexible spray element 5, thus reducing also the production costs.

[0049] In a further embodiment, the first duct 10 comprises a connection ports 11 to which a flexible spray element 5 is removably connectable. In case more than one flexible element 5 is associated to the same rack 1, the first duct 10 is preferably provided with as much connection ports 11 as the flexible element 5, so that to each connection port 11 a correspondent flexible element 5 can be connected.

[0050] The fact that the flexible element 5 is removably connectable to the first duct 10 allows the user to remove it when not necessary and to arrange it in the tub only when he/she considers it needed, for instance when deep concave or hollow articles are placed on the rack 1 that can be better reached by the washing/rinsing liquid by means of the flexible element 5.

[0051] In a version of this embodiment, illustrated in the attached figures, the first duct 10 comprises an extension 12 provided with the connection port 11. The extension 12 allows to attach the flexible element 5 to the first duct 10 in a more favorable position with respect to the spray arm 2 not to hinder its rotation as previously specified.

[0052] In an embodiment the conveying means 3 comprises a shutting element, for preventing the liquid from flowing through the connection port 11 when the dishwasher is operated with the flexible spray element 5 removed.

[0053] This ensures an optimal flexibility in using the dishwasher, since the user can decide if operating the dishwasher with or without the flexible element 5 connected to the conveying means 3. In the last case, i.e. when the dishwasher is operated without the flexible element 5, the presence of the shutting element ensures the same operational conditions of a dishwasher having just the spray arm 2.

[0054] According to an embodiment, schematically illustrated in Figure 4, the

shutting element comprises a valve 13 placed in the first duct 10 for controlling the conveying of liquid to the flexible spray element 5 and/or to the spray arm 2.

[0055] More in detail the valve can advantageously be a three-way valve which can be operated in order to allow, and eventually also to control, the flow both toward the spray arm 2 and the flexible element 5, or only toward the spray arm 2.

[0056] In this way, when the user operates the dishwasher upon removal of the flexible element 5, the valve 13 is used to prevent the washing/rinsing liquid from flowing through the connection port 11. The valve 13 could be also used to prevent liquid from flowing through the connection port 11 when the flexible element 5 is connected to it. In particular, the valve 13 can be automatically operated by the control unit according to the washing program selected by the user.

[0057] According to another embodiment, the shutting element comprises an automatic flow stopper (not illustrated). The automatic flow stopper is suitable for automatically closing the connection port 11 when the flexible element 5 is removed. For instance the automatic flow stopper can comprise an internal rim and a sphere placed in the first duct 10, which sphere urges against the rim when the flexible element 5 is removed, due to the pressure applied by the fluid on it or due to the action of resilient means, and it is suitable for being distanced from the rim when the flexible element 5 is connected to the port 11, for instance for the action of separation means provided on the first end 6 of the flexible element 5.

[0058] The presence of the automatic flow stopper allows the user to simply remove the flexible element 5 when the latter is considered not necessary, without any further action being required.

[0059] According to an embodiment alternative to the last embodiment presented, the shutting element comprises a cap (not illustrated) for closing the connection port 11. The cap is removable in order to allow the connection of the flexible element 5 to the connection port 11 and it can be advantageously secured to the first duct 10 so as to remain connected to it also when removed from the connection port 11. The cap can be easily

placed or removed on/from the connection port 11 by the user.

[0060] Obviously the conveying means can comprise both the valve and the automatic flow stopper or the cap, so that the automatic flow stopper or the cap could prevent the washing/rinsing liquid to enter in the first duct 10 when the flexible element 5 is removed, thus avoiding that dirt liquid could enter the first duct 10 and reach the spray arm 2.

[0061] In a different embodiment, the conveying means 3 comprises a second duct 14, which is fixed with respect to the rack and to which the first end 6 of the flexible spray element 5 is hydraulically connected for receiving washing/rinsing liquid from it. The second duct 14 is advantageously independent from the first duct 10 and it can be hydraulically connected to a second pump 15 for receiving the pressurized washing/rinsing liquid from it.

[0062] In this last embodiment as well the flexible element 5 can be removable and the conveying means 3 can comprise a shutting element as above specified.

[0063] The second duct 14, connected to a second pump 15, ensures an appropriate pressure of the liquid that is sprayed by the flexible element 5 and by the spray arm 2 and, therefore, an appropriate cleaning efficiency.

[0064] According to an embodiment illustrated in Figures 1-4, the flexible spray element 5 is extensible. In particular the flexible element 5 might have a spiral configuration or an accordion configuration which allows its extension to be adjusted as desired by the user. This allows to comfortably reach also kitchenware and dishes that are located on the rack 1 in a position distant from the first end 6 of the flexible element 5 while at the same time it allows to avoid the flexible element 5 to clutter the rack 1 or to get entangled when the kitchenware or dishes to be reached are placed closed to the connection point of the flexible element 5 to the conveying means 3.

[0065] In another embodiment, the flexible spray element 5 extends, at its maximum extension, for at least half of the height of the rack 1, and preferably approximatively for the same height of the rack 1 or more. This allows the flexible element 5 to reach kitchenware and dishes also

remotely placed on the rack 1.

[0066] In an embodiment, the flexible spray element 5 comprises a plurality of outlets 8 at its second end 7 and, preferably, at least partially along its extension. Preferably the flexible element 5 is provided with a plurality of outlets 8 which are distributed from second end along at least half of its extension. This allows a more efficient cleaning performance, since the washing/rinsing liquid is more widely sprayed on the kitchenware and dishes.

[0067] According to an embodiment, the flexible spray element 5 comprises, preferably at its second end 7, UV lighting means for enhancing the cleaning of the kitchenware or dishes irradiated by it.

[0068] The flexible element 5 can also or alternatively comprise at its second end 7 simple LED lightening means to illuminate the cavity or concavity of the kitchenware or dishes in correspondence of which it is placed, thus providing to the user a visual feedback of the correct positioning of the second end 7 of the flexible element 5.

[0069] As previously specified, the dishwasher further comprises a control unit which is configured to control the conveying of washing/rinsing liquid into the tub. According to an embodiment, the flow parameters of the liquid supplied into the tub by the flexible spray element 5, such as in particular exit speed and flow rate of the liquid, are controllable by the user through the control unit.

[0070] This allows a major flexibility in use of the dishwasher according to the needs and desires of the user.

[0071] The flexible element 5 above described has been in particular designed for dishwashers having small dimensions and comprising a single rack 1, since it is generally particularly difficult for the user to arrange all the kitchenware and dishes to be washed on this single rack 1 and also in a position favorable for them to be properly reached by the washing/rinsing liquid.

[0072] In particular, according to an embodiment, the dishwasher is portable.

[0073] With the present invention the problem of having deep concave or hollow articles still dirty at the end of the washing/rinsing cycles of the dishwasher

due to the fact that not all the parts of these articles can be efficiently reached by a sufficient amount of washing/rinsing liquid or by liquid having a sufficient pressure is overcome. This is made possible by bringing directly the washing/rinsing liquid to be sprayed on the critical parts of the above mentioned dishes or kitchenware by means of the flexible element that can be arranged by the user with its free end, through which the liquid is sprayed, positioned in the rack according to the needs.

Claims

1. A dishwasher comprising:
   - a tub;
   - a rack (1) which is disposed into the tub for holding kitchenware and dishes to be cleaned; and
   - a hydraulic circuit for circulating the washing/rinsing liquid through the tub and comprising:
   - distribution means for distributing the liquid on the kitchenware and dishes placed on the rack (1) comprising a spray arm (2) configured to spray the liquid towards the rack (1);
   - collecting means placed on the bottom of the tub for collecting the distributed liquid; and
   - conveying means (3) for conveying to the distribution means the collected liquid or liquid coming from an external source;
   characterized in that the distribution means further comprises at least one flexible spray element (5) having a first end (6) hydraulically connectable to the conveying means (3) for receiving washing/rinsing liquid from it and a second end (7) which is free and comprises at least one outlet (8), the position of the second end (7) of the flexible spray element (5) being arrangeable in the rack (1) according to a user's preference.
2. A dishwasher according to claim 1, **characterized in that** the at least one flexible spray element (5) is manually bendable in order to arrange the position of its second end (7) in the rack (1) according to the user's preference.
3. A dishwasher according to claim 1 or 2, **characterized in that** the conveying means (3) comprises a first duct (10) to which the spray arm (2) is connected and to which the first end (6) of the at least one flexible spray element (5) is hydraulically connectable for receiving washing/rinsing liquid from it.
4. A dishwasher according to claim 3, **characterized in that** the first duct (10) comprises at least one connection port (11) to which the at least one flexible spray element (5) is removably connectable.
5. The dishwasher according to claim 4, **characterized in that** the conveying means (3) comprises a shutting element, for preventing the liquid from flowing through the connection port (11) when the dishwasher is operated with the at

least one flexible spray element (5) removed.

6. The dishwasher according to claim 5, **characterized in that** the shutting element comprises a valve (13) placed in the first duct (10) for controlling the conveying of liquid to the at least one flexible spray element (5) and/or to the spray arm (2).
7. The dishwasher according to claim 5, **characterized in that** the shutting element comprises an automatic flow stopper.
8. The dishwasher according to claim 5, **characterized in that** the shutting element comprises a cap for closing the connection port (11).
9. The dishwasher according to claim 1 or 2, **characterized in that** the conveying means (3) comprises a second duct (14) to which the first end (6) of the at least one flexible spray element (5) is hydraulically connected for receiving washing/rinsing liquid from it.
10. A dishwasher according to any of the previous claims, **characterized in that** the at least one flexible spray element (5) is extensible.
11. A dishwasher according to any of the previous claims, **characterized in that** the at least one flexible spray element (5) extends for at least half of the height of the rack (1).
12. A dishwasher according to any of the previous claims, **characterized in that** the at least one flexible spray element (5) comprises a plurality of outlets (8) at its second end (7) and, preferably, at least partially along its length .
13. A dishwasher according to any of the previous claims, **characterized in that** the at least one flexible spray element (5) comprises at its second end (7) UV lighting means for enhancing the cleaning of the kitchenware or dishes irradiated by it.
14. The dishwasher according to any of the preceding claims, **characterized in that** it further comprises a control unit which is configured to control the conveying of washing/rinsing liquid to the tub and through which the flow parameters of the liquid supplied by the flexible spray element (5) are controllable by the user.
15. The dishwasher according to any of the preceding claims, **characterized in that** it comprises a single rack (1).

Figure 1

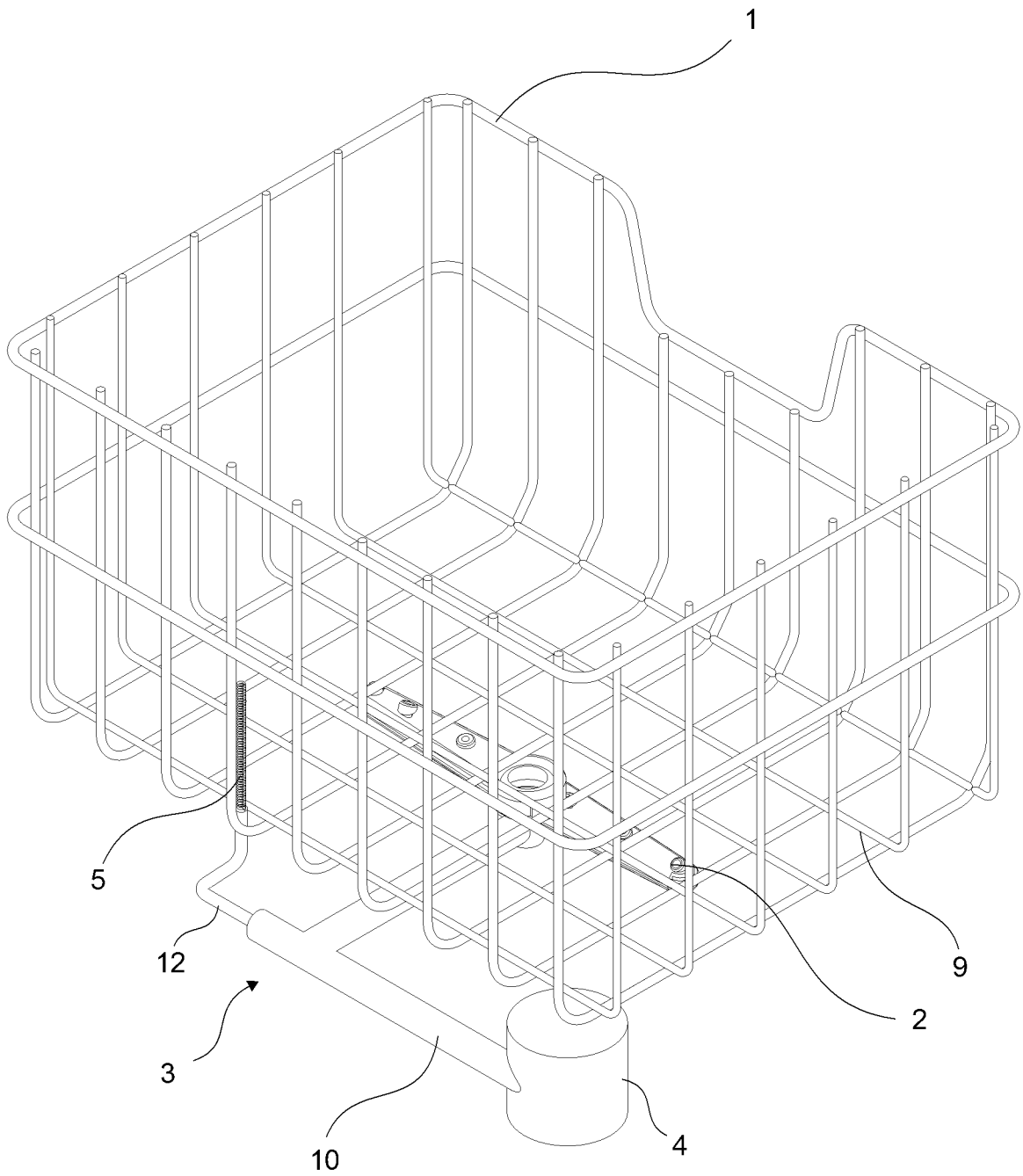


Figure 2

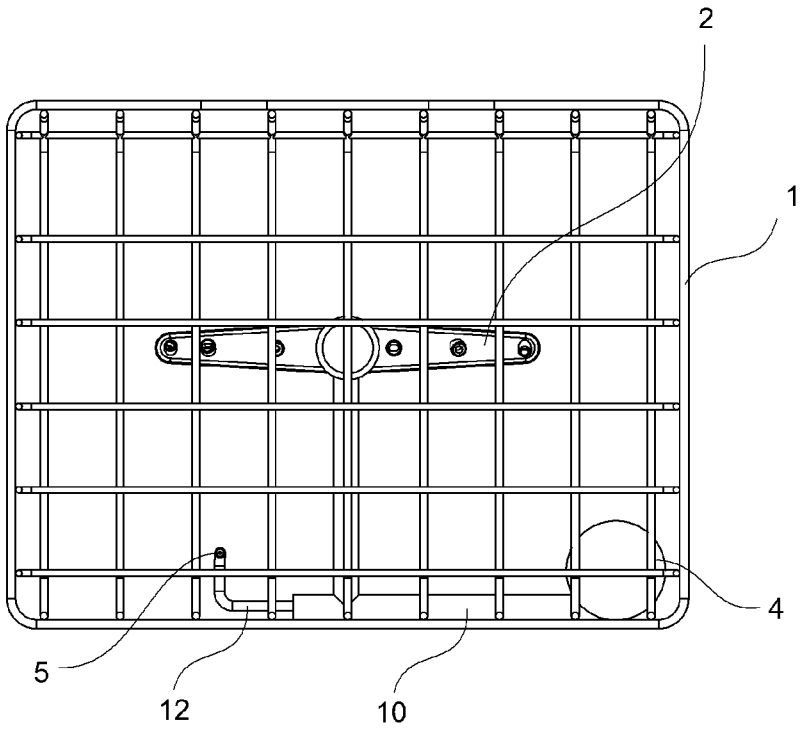


Figure 3

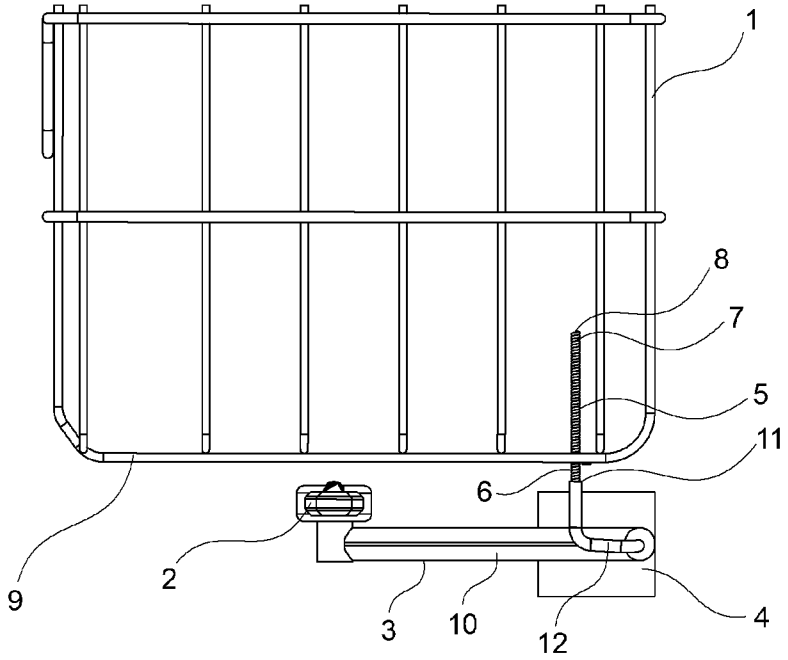


Figure 4

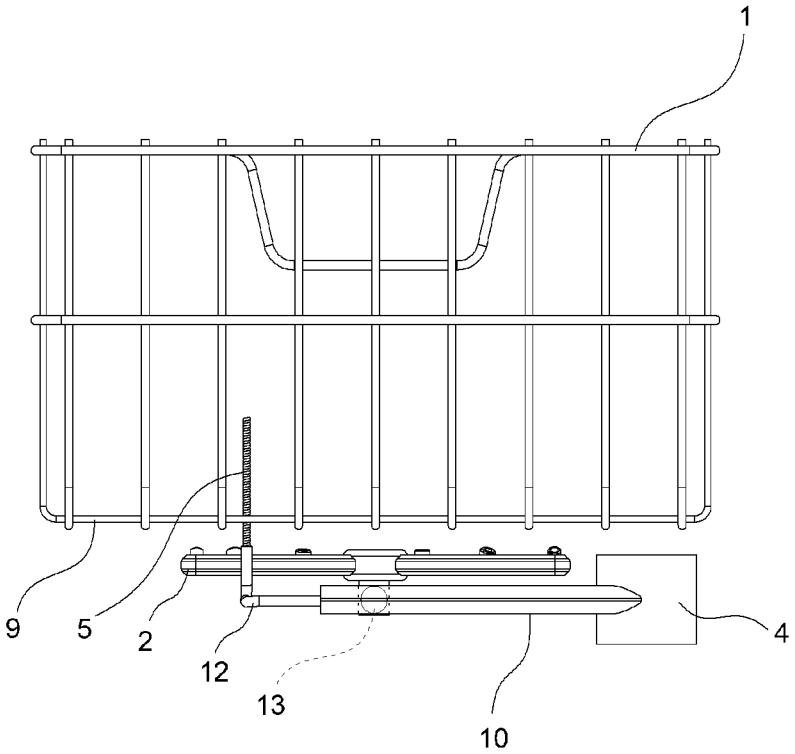
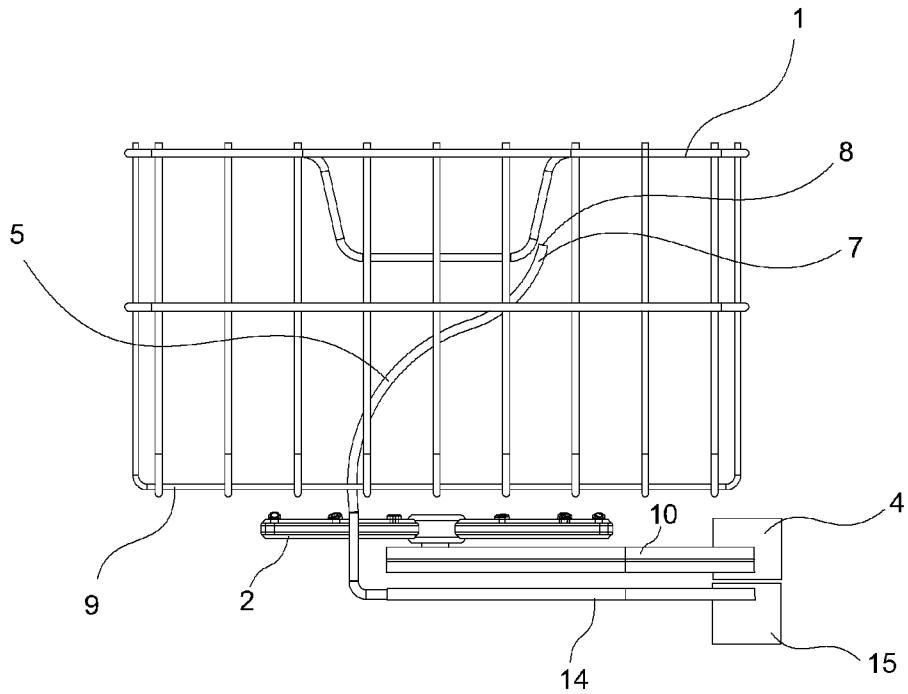


Figure 5



INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. A47L15/42 A47L15/16 A47L15/50
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2015/272421 A1 (BENEDICT MICHAEL ALEXANDER [US] ET AL) 1 October 2015 (2015-10-01)	1-4,9, 11,12,15
A	the whole document	5-8,10, 13,14
A	EP 0 997 100 A1 (AEG HAUSGERAETE GMBH [DE]) 3 May 2000 (2000-05-03) cited in the application the whole document	1-15
A	DE 29 46 591 A1 (RAPP HELMUT [DE]) 27 May 1981 (1981-05-27) the whole document	1-15

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
15 December 2015	04/01/2016

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Jezierski, Krzysztof

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International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2012/291827 A1 (BUDDHARAJU SATISH KUMAR RAJU [US] ET AL) 22 November 2012 (2012-11-22) the whole document -----	1-15
A	US 2 977 963 A (KLINT ROBERT V) 4 April 1961 (1961-04-04) the whole document -----	1-15

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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PCT/EP2015/076133

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