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(54) **Dishwasher rack and dishwasher comprising the rack**

(57) Described is a dishwasher rack comprising: i) a frame (2) in turn comprising a base (21) and lateral containment means (22) forming a space (24) to hold the kitchenware to be washed; ii) a flap (3) which: is mobile at least between a first and a second operating position; in the first operating position it has an inclination which, if measured with respect to the base (21) of the frame (2), is different from that in the second operating position; at least in the first and second operating positions it may be used to hold the kitchenware articles to be washed; it may be fitted to guide means (23) forming part of the rack (1). For moving from the first to the second operating positions and vice versa the flap (3) is rotated and translated with respect to the guide means (23) whilst remaining connected to it.

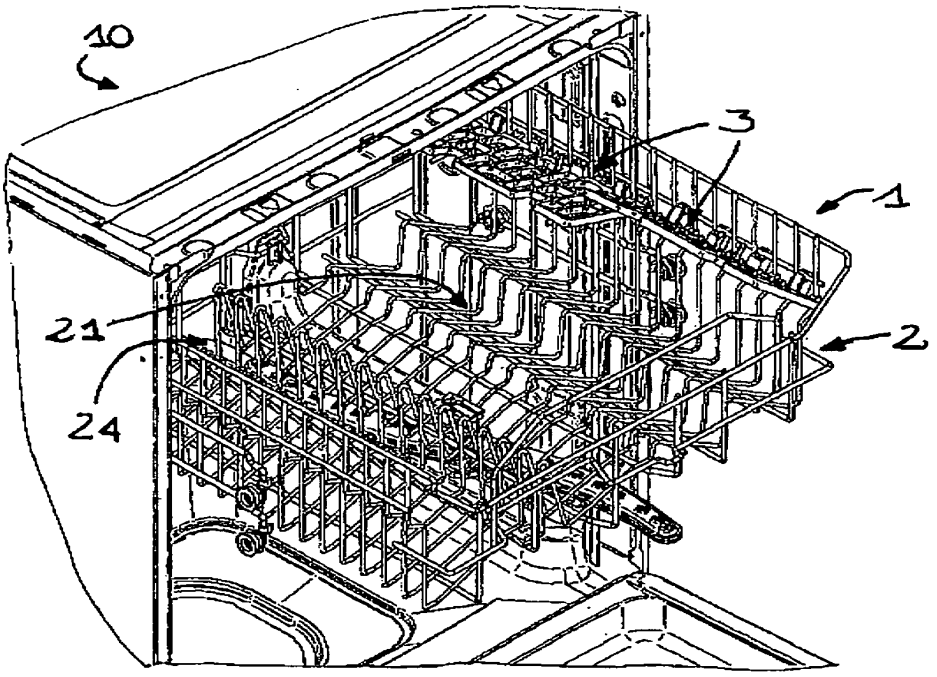

Fig. 1

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Description

[0001] This invention relates to a dishwasher rack and a dishwasher comprising the rack.

[0002] Dishwasher racks are used to hold the kitchenware to be washed inside the washing compartment of the dishwasher machine.

[0003] A dishwasher rack normally comprises a frame which in turn comprises a base and lateral containment means forming a space to hold the kitchenware to be washed.

[0004] In order to increase the loading capacity of the dishwasher, prior art racks comprise a flap which is mobile at least between a first and a second operating position, the flap having a different inclination with respect to the base of the frame in each of the operating positions. The flap is located above the base of the frame and at least in the first and second operating positions it may be used to hold the kitchenware to be washed which is additional to that normally placed on the base of the frame. In particular, the possibility of changing the inclination of the flap allows the distribution of the kitchenware articles in the rack to be optimised depending on the size of the articles.

[0005] The rack comprises a plurality of bodies supporting the flap, each of these bodies being shaped like a segment of a hypothetical straight cylinder whose axis is horizontal and having a lateral surface with a plurality of teeth. The segment makes an angle of approximately 90°. These support bodies are fixed to and integral with metal wires constituting the rack and they are positioned at a predetermined distance from each other. A striker integral with the flap engages with the teeth of the support bodies. The flap may therefore rotate about the axis of the hypothetical cylinder and each tooth of the body with which the flap striker engages corresponds to a different inclination of the flap with respect to the base of the frame.

[0006] The racks described above have certain shortcomings.

[0007] In particular, the support bodies are additional elements fixed on the plastic coated metal wires which constitute the sides of the frame. The application of these bodies is fundamental to allow the stable positioning of the flap and at the same time allow the inclination of the flap to be modified with respect to the base of the frame. The bodies must be manufactured specifically and separately from the flap and from the frame and subsequently fixed to the frame. This results in a manufacturing complication for the rack both in terms of manufacturing elements and in terms of assembly time. This all reflects, obviously, in an increase in the cost of the final product.

[0008] In addition, the positioning is linked to the contact between the striker of the flap and the teeth of the bodies and, therefore, the load which may be borne by these flaps is limited.

[0009] The aim of this invention is to overcome the above-mentioned shortcomings, providing an extremely robust dishwasher rack.

[0010] Another aim of this invention is to provide a dishwasher rack which simplifies the components and reduces assembly times.

[0011] An additional aim of this invention is to provide a dishwasher rack that increases the weight which may be borne by a flap with a variable inclination.

[0012] A further aim of this invention is to provide a dishwasher comprising this rack.

[0013] Yet another aim of this invention is to provide a method for moving a rack flap between two operating positions.

[0014] These and other aims, more apparent in the description which follows, are achieved, according to this invention, by a dishwasher rack having the structural and functional characteristics described in the accompanying independent claims. Other embodiments of the rack are defined in the corresponding dependent claims.

[0015] The invention will now be described by way of non-limiting example with reference to the accompanying drawings in which:

- Figure 1 shows a perspective view of a rack according to this invention which is applied to a dishwasher.
- Figures 2, 3 show an interrupted view of a portion of a dishwasher rack according to the invention in a first operating configuration.
- Figures 4, 5 show an interrupted view of a portion of a dishwasher rack according to the invention in a second operating configuration.
- Figures 6, 7 show two views of a particular component of the rack according to this invention.

[0016] With reference to the accompanying drawings, the numeral 1 denotes a dishwasher rack comprising a frame 2 which in turn comprises a base 21 and lateral containment means 22 forming a space 24 to hold the kitchenware to be washed. The kitchenware articles to be washed are normally placed on the base of the frame 2. The base 21 comprises support means which facilitates the positioning of the articles in order to optimise available space and allow the correct orientation of the articles with respect to the washing liquid nozzles.

[0017] The rack 1 also comprises a flap 3. In particular the flap 3 is suitable for supporting and housing small kitchenware articles such as, for example, cutlery or cups.

[0018] The flap 3 is mobile at least between a first and a second operating position. In the first operating position this flap 3 has an inclination which, if measured with respect to the base 21 of the frame 2, is different from that in the second operating position. With respect to a horizontal plane passing through a point of the base 21, the flap 3 is more inclined in the first operating position than in the second operating position. Normally, the greater the inclination with respect to a horizontal plane the faster will be the speed of drying of the kitchenware placed on it.

[0019] At least in the first and second operating positions, the flap 3 may be used to support the kitchenware

to be washed. At least in the first and the second operating positions the flap 3 is above the base 21 of the frame 2. The flap 3 may be fitted to guide means 23, the flap 3 forming part of the rack 1. The guide means 23 are conveniently connected to at least a first part of the lateral containment means 22.

[0020] Advantageously, the flap 3 in turn comprises:

- a shelf 31 for supporting the kitchenware to be washed; preferably the shelf 31 comprises holes, advantageously large, which facilitate the washing and drying of the kitchenware placed thereon; the shelf 31 has a convenient lattice structure which defines the holes;
- means 32 for attaching the shelf 31 to the guide means 23;
- striker means 33 to come into contact with the frame 2 and acting in conjunction with the attachment means 32 to allow the flap 3 to be positioned with respect to the frame 2 at least in the first and second operating positions.

[0021] The attachment means 32 and the guide means 23 are designed to allow the flap 3 to be rotated and translated with respect to the guide means 23.

[0022] In particular, the striker means 33 comprise first striker means 331 to come into contact with the frame 2 and acting in conjunction with the attachment means 32 to allow the flap 3 to assume at least the first operating position with respect to the frame 2.

[0023] The striker means 33 also comprise second striker means 332 to come into contact with the frame 2 and acting in conjunction with the attachment means 32 to allow the flap 3 to assume the second operating position with respect to the frame 2.

[0024] Advantageously, in order to move from the first to the second position and vice versa the flap 3 may be rotated and translated with respect to the guide means 23 whilst remaining connected to the guide means 23. In particular, the translating step allows selection of the striker means 33 which are to come into contact with the frame 2 in the subsequent rotating step. In particular, the translating allows selection of which of the first or second striker means 331, 332 are to come into contact with the frame 2 during the subsequent rotating step. The translating step is normally preceded by a rotating step which allows the striker means 33 to be moved away from the frame 2 in order to facilitate subsequent translation.

[0025] The guide means 23 comprise an elongated body extending along a predetermined reference direction 4. The translating of the flap 3 with respect to the guide means 23 occurs along the predetermined reference direction 4. The rotating of the flap 3 with respect to the guide means 23 occurs about an axis of rotation coinciding with the predetermined reference direction 4. Advantageously, the reference direction 4 is substantially horizontal. This reference direction 4 coincides with the principal direction of the wall formed by the lateral containment means 22 to which the flap 3 is fitted.

[0026] Advantageously, the shelf 31, the attachment means 32 and the first and the second striker means 331, 332 are integral with each other. Even more preferably, the shelf 31, the attachment means 32 and the first and second striker means 331, 332 form a single body. In this way, the flap 3 may be obtained by a single die and it may then be connected directly on the rack 1 with considerable advantages in terms of speed of manufacture and assembly.

[0027] The flap 3 is made by die-forming; advantageously it is made in a single die-forming operation. If the flap 3, in particular the shelf 31, has a quite complex shape the flap may be made in a series of die-forming operations. Preferably, the flap 3 is manufactured from plastic material, such as polypropylene.

[0028] The first striker means 331 comprise at least one protrusion 333 which extends away from the shelf 31 and it is used in the first operating position to come into contact with the frame 2. The second striker means 332 comprise sections of a lateral surface 334 of the shelf 31. In particular, the shelf 31 comprises a first surface 311 to support the kitchenware. During use in the first and second operating positions this first surface 311 faces upwards. Advantageously, anchor means extend from the first surface 311 to better hold the kitchenware placed thereon. The anchor means advantageously comprise a plurality of pins 81 protruding from the first surface 311. In Figure 6 only some of the pins 81 are labelled. The shelf 31 also comprises a second surface 312 opposite to the first surface 311. The second surface 312 in the first and second operating positions faces the base 21 of the frame 2. The thickness of the shelf 31 extends between the first and the second surfaces 311, 312 constituting, between the first and second surfaces 311, 312, the lateral surface 334. Advantageously, the shelf 31 comprises a prismatic body having a base with a substantially polygonal outer perimeter. The prismatic body preferably comprises conveniently shaped recesses for supporting certain types of kitchenware such as, for example, wine glasses or baby's bottles or teats (in the case of teats the perimeter may be advantageously shaped as shown in Community design or model 347331). Advantageously, the first striker means 331, the second striker means 332 and the attachment means 32 are located on the same side of the polygonal outer perimeter of the shelf 31.

[0029] In an embodiment not illustrated, the striker means 331 comprise a plurality of additional protrusions of different lengths to strike the frame 2 to allow the flap 3 to be positioned with an inclination which, with respect to the base 21 of the frame 2, is intermediate between that of the first and that of the second operating positions.

[0030] Advantageously, the lateral containment means 22 comprise a plurality of longitudinal elements 5. Some of the longitudinal elements 5 run alongside each other at a predetermined distance.

[0031] Advantageously, the longitudinal elements 5 in-

tersect each other to form mesh. In particular, the longitudinal elements 5 extend both horizontally and vertically. The longitudinal elements 5 are conveniently constituted by filiform elements; they normally comprise plastic coated metal wires. Normally, the base 21 of the frame 2 also comprises or is constituted by longitudinal elements 5 which intersect each other. Advantageously, the frame 2 comprises infill or other elements connected to the longitudinal elements 5. Advantageously, the elements are made integral with the longitudinal elements 5.

[0032] In the first operating position the striker means 331 are stopped by at least one (advantageously by a plurality) of the longitudinal elements 5 or by at least another element of the frame 2 connected to and/or integral with the longitudinal elements 5 (for example, a metal or plastic plate fitted to the longitudinal elements 5 - solution not illustrated) whilst the second striker means 332 remain at a distance from the longitudinal elements 5.

[0033] In the second operating position the second striker means 332 are struck by at least one (advantageously by a plurality) of the longitudinal elements 5 or by at least another element of the frame 2 connected to or integral with the longitudinal elements 5 (for example, a metal or plastic plate fitted to the longitudinal elements 5 - solution not illustrated).

[0034] In the second operating position the first striker means 331 enter inside the spaces 6 between the longitudinal elements 5.

[0035] In particular, at least a protrusion 333 of the first striker means 331 comprises an end 335 away from the shelf 31. The end 335 strikes the frame 2 in the first position. Advantageously, the end 335 of the protrusion 333 in the first operating position is in direct contact with the longitudinal elements 5 of the rack 1 which extend in a substantially vertical direction. The end 335 may have a concavity which in the first operating position houses a corresponding longitudinal element 5: in this way, a more stable positioning of the flap 3 is ensured in the first operating position.

[0036] Advantageously, the guide means 23 are integral with the frame 2.

[0037] Advantageously, the guide means 23 comprise or coincide with a longitudinal element 5 forming part of the lateral containment means 22. In a particular embodiment the guide means 23 are integral with the frame 2 and removably connected to the remaining parts of the frame 2. In particular, the elongated body of the guide means 23 comprise or coincide with a longitudinal element 5 forming part of the lateral containment means 22. The elongated body of the guide means 23 for example has a circular section in order to facilitate the rotating of the attachment means 32. The attachment means 32, as illustrated by way of example in the accompanying drawings, comprise one or more seats 320 which wrap at least partially around the elongated body of the guide means 23.

[0038] Advantageously, the same longitudinal elements 5 which in the first operating position strike the first striker means 331, in the second operating position are in contact with the second striker means 332.

[0039] Advantageously, the longitudinal elements 5 transversal to the guide means 23 limit the translating stroke of the attachment means 32 along the guide means 23 between two end positions.

[0040] In particular, the embodiment illustrated in the accompanying drawings shows a solution in which the attachment means 32 in the movement along the guide means 23 are struck by at least two longitudinal elements 5 alongside and forming part of the lateral containment means 22. In the accompanying drawings the guide means 23 extend horizontally and coincide with a longitudinal element 5 forming part of the lateral containment means 22; on the other hand, the two longitudinal elements 5 which strike the attachment means 32 during translation along the guide means 23 are vertical.

[0041] When the flap 3 is located in the first operating position, the attachment means 32 are preferably struck at a first of the two end positions by a longitudinal element 5 transversal to the guide means 23.

[0042] When the flap 3 is located in the second operating position, the attachment means 32 are preferably at a second of the two end positions.

[0043] Advantageously, the flap 3 comprises fastening means 7 to interact with at least one element outside the flap 3 to allow the positioning of the flap 3 in a rest position in which the shelf 31 is located in a substantially vertical position and extends parallel to a portion of the lateral containment means 22.

[0044] In the rest position the size of the flap 3 is a minimum and even tall kitchenware may therefore be housed on the base 21 of the rack 1 without the risk of interfering with the flap 3. Advantageously, the element outside the flap 3 with which the fastening means 7 interact to allow the positioning of the flap 3 in the rest position forms part of the rack 1 (advantageously forming part of the frame 2).

[0045] Preferably, the fastening means 7 comprise at least one shaped protrusion 70 which extends from the shelf 31 in a substantially orthogonal direction to the first surface 311 of the flap 3 used to support the kitchenware. The at least one element outside the flap 3 with which the fastening means 7 interact advantageously comprises a longitudinal element 5 forming part of the lateral containment means 22. In the rest position of the flap 3 (in this position the shelf 31 is in a substantially vertical position) the at least one protrusion 70 attaches itself following an elastic deformation to a corresponding longitudinal element 5 to lock the flap 3. In the first and in the second operating position the at least one protrusion 70 is released by the corresponding longitudinal element 5.

[0046] In the solution illustrated, the fastening means 7 of the flap 3 comprise two protrusions 70 to interact with two corresponding longitudinal elements 5.

[0047] Alternatively (solution not illustrated) the protrusions 70 are integral with the frame 2 and in the rest

position of the flap 3 they engage the matching shapes of the flap 3.

[0048] In a further embodiment, not illustrated, the means outside the flap 3 with which the fastening means 7 of the flap 3 interact are integral with a washing tank of the dishwasher 10.

[0049] The flap 3 may be applied to several racks 1 of the same dishwasher 10. Typically, but not necessarily, there are two racks placed one above the other. Advantageously, the flap 3 is applied to the upper rack of the dishwasher 10.

[0050] Each rack 1 may comprise a plurality of flaps 3 positioned along the lateral containment means 22, with at least one, but advantageously all the flaps 2, having the above-mentioned technical characteristics.

[0051] This invention also provides a dishwasher 10 comprising a rack 1 of the type described above.

[0052] Another object of this invention is to provide a method to alter the inclination of a flap 3 of a dishwasher rack 1 by moving the flap 3 from a second to a first operating position.

[0053] Advantageously, the rack 1 has the above-mentioned technical characteristics.

[0054] The method comprises the steps of:

- obtaining the rack 1 comprising:

  i) a frame 2 forming a space 24 to hold the kitchenware to be washed;
  ii) the flap 3 which may be connected to the frame 2;
  iii) guide means 23 of the flap 3 with respect to the frame 2; the flap 3 comprising first and second striker means 331, 332 which, coming into contact with the frame 2, allow the flap 3 to be positioned in the first and second operating positions, respectively;

- moving the flap 3 which is in the second operating position, this step comprising the steps of translating the flap 3 along the guide means 23 by a predetermined amount and rotating the flap 3 with respect to the guide means 23 until resting the first striker means 331 on the frame 2; the steps of translating and rotating the flap 3 may occur at least in part simultaneously.

[0055] Normally, the step of translating the flap 3 comprises translating the flap 3 horizontally.

[0056] Advantageously, the step of moving the flap comprises the step of disengaging the second striker means 332 from the frame 2.

[0057] The step of disengaging the second striker means 332 from the frame 2 normally occurs before the step of translating the flap along the guide means 23.

[0058] The step of disengaging the second striker means 332 comprises the step of rotating the flap 3 with respect to the guide means 23 at least by a predetermined amount. This rotating allows the flap 3 not to undesirably strike the frame 2 during the subsequent translating step.

[0059] The frame 2 comprises a base 21 and lateral containment means 22 which constitute at least the space 24 to hold the kitchenware. The first and the second operating positions have been described above. The flap 3 in the first and in the second operating positions has a different inclination with respect to a fixed reference plane. In particular, the first and the second operating positions have a different inclination with respect to the base 21 of the frame 2.

[0060] Another object of this invention is to provide a method for altering the inclination of a flap 3 of a dishwasher rack 1 by moving the flap 3 from a first to a second operating position.

[0061] The method comprises the steps of:

- obtaining the rack 1 comprising:

  i) a frame 2 forming a space 24 to hold the kitchenware to be washed;
  ii) the flap 3 which is connected to the frame 2;
  iii) guide means 23 of the flap 3 with respect to the frame 2; the flap 3 comprising first and second striker means 331, 332 which, coming into contact with the frame 2, allow the flap 3 to be positioned in the first and second operating positions, respectively;

- moving the flap 3 which is in the second operating position, this step comprising the steps of translating the flap 3 along the guide means 23 by a predetermined amount and rotating the flap 3 with respect to the guide means 23 until resting the second striker means 332 on the frame 2; the steps of translating and rotating the flap 3 may occur at least in part simultaneously.

[0062] Normally, the translating step occurs along a horizontal direction.

[0063] Advantageously, the step of moving the flap 3 comprises the step of disengaging the first striker means 331 from the frame 2.

[0064] The step of disengaging the first striker means 331 from the frame 2 normally occurs before the step of translating the flap along the guide means 23.

[0065] The step of disengaging the first striker means 331 comprises the step of rotating the flap 3 with respect to the guide means 23 at least by a predetermined amount. This rotating allows the flap 3 not to undesirably strike the frame 2 during the subsequent translating step.

[0066] In general, the step of translating the flap 3 along the guide means 23 by a predetermined amount comprises translating the flap 3 between two end positions of the translating movement of the attachment means 32 along the guide means 23. In particular, the attachment means 32 during their translating along the

guide means 23 are struck by at least two longitudinal elements 5 forming part of the lateral containment means 2.

[0067] During the above-mentioned steps the translating of the flap 3 occurs along the predetermined reference direction 4 defined by the elongated body forming part of the guide means 23. The rotating of the flap 3 occurs about an axis of rotation coinciding with the predetermined reference direction 4.

[0068] This invention provides important advantages.

[0069] Above all, it provides a rack which increases the load that may be supported due to the modes of interaction between the flap and the frame at least in the first and in the second operating positions.

[0070] An equally important advantage is the reduction of the assembly times, as the flap may be connected directly on the rack frame.

[0071] The invention described herein is susceptible of industrial application and may be modified and adapted in several ways without thereby departing from the scope of the inventive concept.

[0072] Moreover, all the details of the invention may be substituted by technically equivalent elements.

[0073] In practice, all the materials used, as well as the dimensions, may be changed to meet specific needs.

Claims

1. A dishwasher rack comprising:

i) a frame (2) in turn comprising a base (21) and lateral containment means (22) forming a space (24) to hold the kitchenware to be washed;
ii) a flap (3) which is mobile at least between a first and a second operating position in which it may be used to hold the kitchenware to be washed, the flap (3) in the first operating position having an inclination which, if measured with respect to the base (21) of the frame (2), is different from that in the second operating position;

characterised in that the flap (3):

- may be fitted to guide means (23) forming part of the rack (1);
- in turn comprises a shelf (31) suitable to support the kitchenware to be washed and attachment means (32) of the shelf (31) to the guide means (23);
- comprises striker means (33) to come into contact with the frame (2) and acting in conjunction with the attachment means (32) to allow the flap (3) to be positioned with respect to the frame (2) at least in the first and second operating positions;

and **characterised in that**:

- the attachment means (32) and the guide means (23) are designed to allow the flap (3) to be rotated and translated with respect to the guide means (23);
- the striker means (33) comprise first striker means (331) to come into contact with the frame (2) and acting conjunction with the attachment means (32) to allow the flap (3) to assume at least the first operating position with respect to the frame (2);
- the striker means (33) comprise second striker means (332) to come into contact with the frame (2) and acting conjunction with the attachment means (32) to allow the flap (3) to assume the second operating position with respect to the frame (2);

for moving from the first to the second operating position and vice versa the flap (3) being rotatable and translatable with respect to the guide means (23) whilst remaining connected to it.

2. The rack according to claim 1, **characterised in that** the guide means (23) comprise an elongated body extending along a predetermined reference direction (4), the translating of the flap (3) with respect to guide means (23) occurring along a predetermined reference direction (4), the rotating of the flap (3) with respect to guide means (23) occurring about an axis of rotation coinciding with the predetermined reference direction (4).

3. The rack according to any of the foregoing claims, **characterised in that** the shelf (31), the attachment means (32) and the first and the second striker means (331, 332) are integral with each other.

4. The rack according to any of the foregoing claims, **characterised in that** the shelf (31), the attachment means (32) and the first and the second striker means (331, 332) form a single body.

5. The rack according to any of the foregoing claims, **characterised in that** the first striker means (331) comprise at least one protrusion (333) which extends away from the shelf (31) and is used in the first operating position to strike the frame (2).

6. The rack according to any of the foregoing claims, **characterised in that** the striker means (331) comprise a plurality of additional protrusions of different lengths to strike the frame (2) to allow the flap (3) to be positioned with an inclination which, with respect to the base (21) of the frame (2), is intermediate between the first and the second operating position.

7. The rack according to any of the foregoing claims, **characterised in that** the second striker means

(332) comprise sections of a lateral surface (334) of the shelf (31).

8. The rack according to any of the foregoing claims, **characterised in that** the lateral containment means (22) comprise longitudinal elements (5).

9. The rack according to claim 8, **characterised in that** the guide means (23) comprise, or coincide with, a longitudinal element (5) forming part of the lateral containment means (22).

10. The rack according to claim 8 or 9, **characterised in that** in the first operating position the first striker means (331) are stopped by at least one of the longitudinal elements (5) whilst the second striker means (332) remain at a distance from the longitudinal elements (5).

11. The rack according to claim 8 or 9 or 10, **characterised in that** in the second operating position the second striker means (332) are struck by at least one of the longitudinal elements (5).

12. The rack according to any of the foregoing claims from 8 to 11, **characterised in that** in the second operating position the first striker means (331) enter inside the space (6) between the longitudinal elements (5).

13. The rack according to any of the foregoing claims from 8 to 12, **characterised in that** the same longitudinal elements (5) which in the first operating position strike the first striker means (331), in the second operating position are in contact with the second striker means (332).

14. The rack according to any of the foregoing claims from 8 to 13, **characterised in that** the longitudinal elements (5) transversal to the guide means (23) limit the translating movement of the attachment means (32) along the guide means (23) between two end positions; when the flap (3) is in the first operating position, the attachment means (32) being struck at a first of the two end positions of a longitudinal element (5) transversal to the guide means (23).

15. The rack according to claim 14, **characterised in that** when the flap (3) is in the second operating position the attachment means (32) are at a second of the two end positions.

16. The rack according to any of the foregoing claims, **characterised in that** the flap (3) comprises fastening means (7) to interact with at least one element outside the flap (3) to allow the flap (3) to be positioned in a rest position in which the shelf (31) is substantially vertical and extends parallel to a portion of the lateral containment means (22) of the frame (2).

17. The rack according to claim 16 when it depends directly or indirectly on claim 8, **characterised in that** the fastening means (7) comprise at least one shaped protrusion (70) which extends from the shelf (31) in a substantially orthogonal direction to a first surface (311) to support the kitchenware, the first surface (311) forming part of the flap (3); the at least one element outside the flap (3) comprising at least one longitudinal element (5) forming part of the lateral containment means (22); in the rest position of the flap (3), the at least one protrusion (70) attaching itself following an elastic deformation to a corresponding longitudinal element (5) to lock the flap (3); in the first and in the second operating positions, the at least one protrusion (70) being released from the corresponding longitudinal element (5).

18. A dishwasher comprising a rack (1) according to any of the foregoing claims from 1 to 17.

19. A method for altering the inclination of a flap of a dishwasher rack by moving the flap from a second to a first operating position, **characterised in that** it comprises:

- obtaining the rack (1) comprising:

  - a frame (2) forming a space (24) to hold the kitchenware articles to be washed;
  - the flap (3) connected to the frame (2);
  - guide means (23) of the flap (3) with respect to the frame (2); the flap (3) comprising first and second striker means (331, 332) which, coming into contact with the frame (2), allow positioning of the flap (3) in the first and second operating positions, respectively;
  - moving the flap (3) which is in the second operating position, the step of moving the flap (3) comprising the steps of translating the flap (3) along the guide means (23) by a predetermined amount and rotating the flap (3) with respect to guide means (23) until resting the first striker means (331) on the frame (2); the steps of translating and rotating the flap (3) being able to occurre at least in part simultaneously.

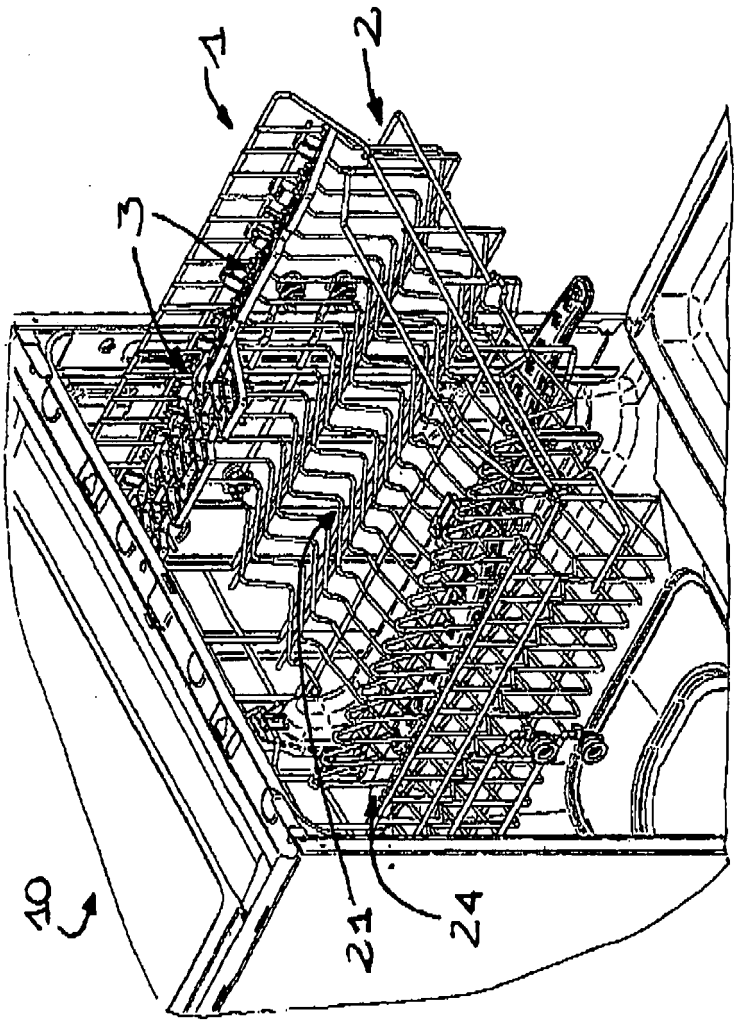

Fig. 1

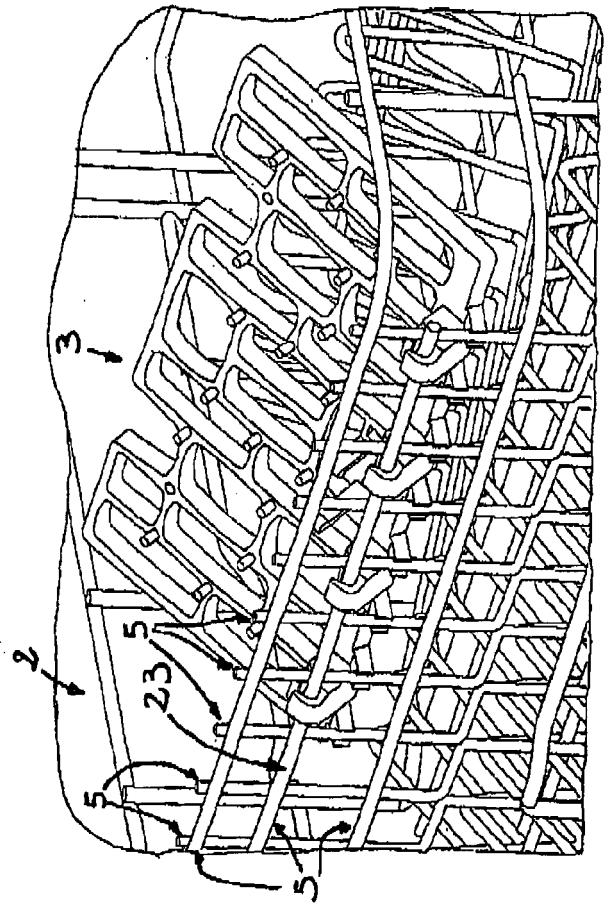

Fig. 2

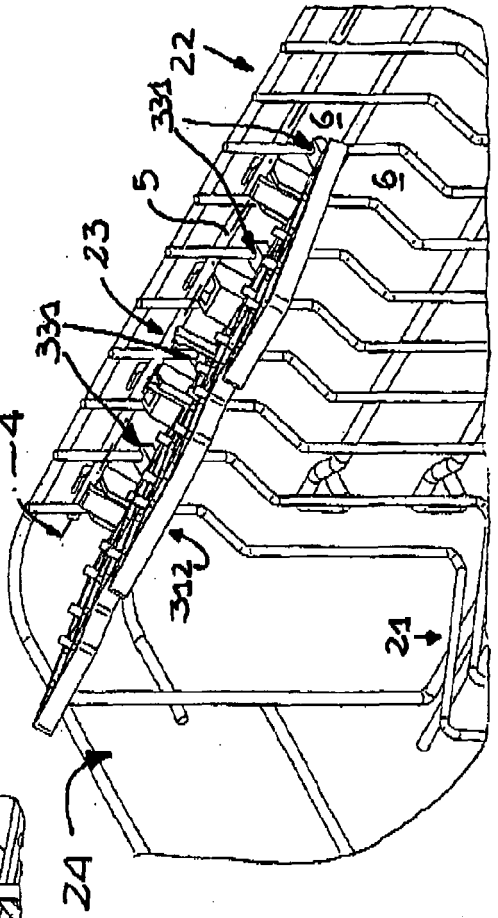

Fig. 3

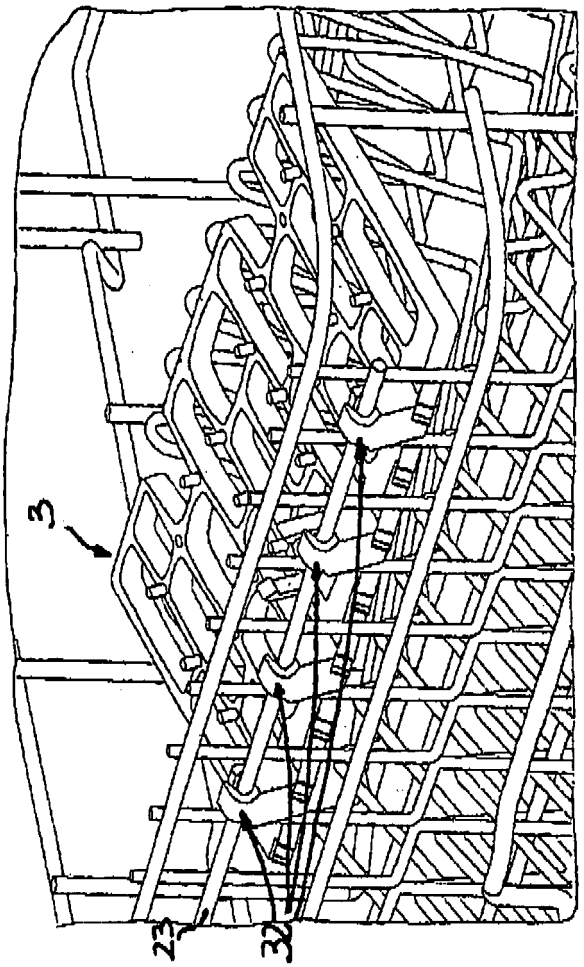

Fig. 5

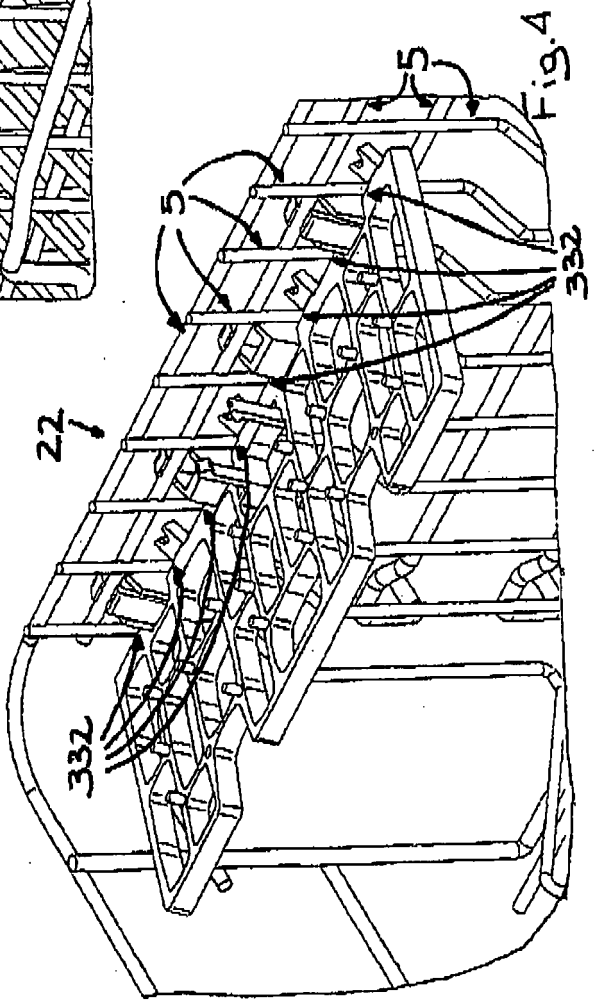

Fig. 4

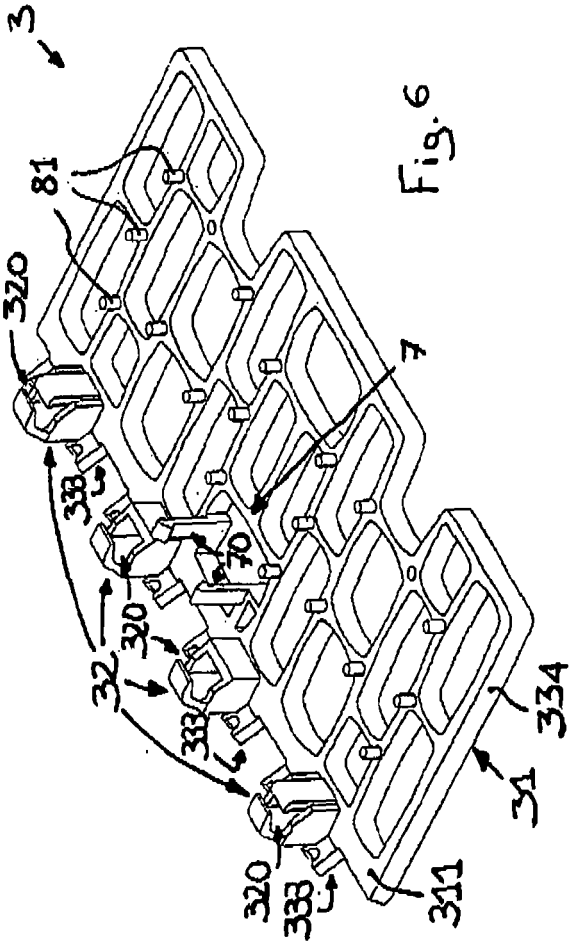
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Fig. 6

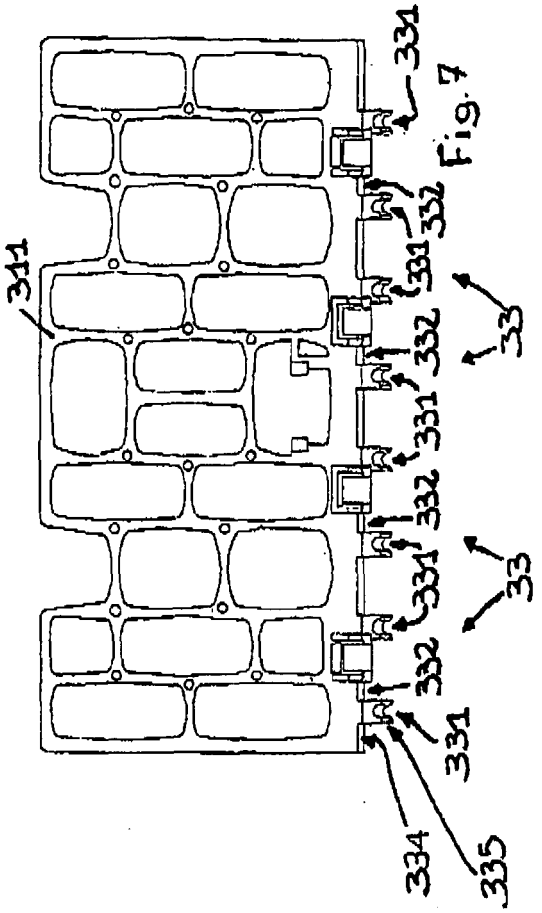
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Fig. 7

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EUROPEAN SEARCH REPORT

Application Number
EP 08 02 1973

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