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54 **Improvements to a cutlery basket for dishwashing machines.**

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US-A- 3 377 634

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Description

The present invention relates to a cutlery basket for a dishwashing machine, divided into compartments, presenting a base comprising a plurality of holes which allow for the washing liquid to pass through.

Dishwasher cutlery baskets of the type described are known; in which their bottom can be for instance formed of small crossed bars, or obtained with other systems, for example small nets, the material being of metal or stamped plastic; however the holes must be small, so as to avoid thin pieces, such as tea-spoon handles, passing through the holes; whereas small bars must therefore be relatively close to each other.

The small distance between the bars, or the small size of the holes, has the effect of substantially hindering the flow of the washing liquid through the base of the basket; in particular the draining of the liquid is greatly obstructed, thus the cutlery tends to remain wet even after the drying cycle has terminated, something that all dishwasher owners have certainly come across.

The evacuation of the washing liquid through the base of the basket is further hindered by the forming of a film of water between the tight mesh of the base caused by the superficial tension; this determines obvious consequences even during the drying cycle.

To solve such problems various solutions have been looked into having the aims of favouring the drainage and avoiding the forming of the film of water.

For instance the French patent application N° 77 26947 in the name of Esswein (the inventive idea of which is explained as seen in figure 4 of the present application) intends to solve the cited problem by realising a first base 10 in which the small bars are spaced enough so as to avoid the forming of the film of water.

In order to avoid the smaller pieces to be washed slipping beyond the first base 10 of the basket, a second grid 12 is also provided, placed below the first real base 10, being of such a vertical distance to avoid the forming of the film of water between the two. Such a solution however aims to solve the problem by means of doubling the horizontal base; such contrivance, apart from determining a major complicated realisation, does not effectively solve the problem.

In fact, with such a solution, the formation of the film of water is avoided, though no significant improvements are noted regarding the evacuation of the drops that rest in the contact points between the cutlery and one of the baskets bases; on the contrary such problem is increased as the said dishes probably come into contact with both of the

bases leading to an increase of the surfaces in contact. For this reason and for the presence of the double grid, the circulation of the drying air is made more difficult.

The cited problems are added to by the fact that in the traditional baskets, be it of single or double base, the cutlery is usually amassed in a given portion of the compartments, unless the pieces are inserted singularly (something of which being impractical) or with attention.

For instance, from JP-A-63-284507 a cutlery basket is known, divided into different compartments, the base of each compartment presenting a plurality of holes and an elevation in correspondence of the inner wall of each compartment. According to this embodiment the cutlery contained into each compartment of the basket has the natural tendency to amass in the same lower portion of the bottom: this amass of the cutlery has the consequence of determining a bad evacuation of water and therefore a bad drying of the cutlery and the basket itself.

From US-A-3 377 634 a cutlery cup is also known, for a manual rinsing, which rests on the bottom of a sink and has an infrastructure which engages the sink drain. Said cutlery cup, which does not have the basic problem of assuring the perfect drying of the cutlery and the basket, has the bottom contoured in order to direct water into four drain openings provided in the lowest portions of the bottom. According to this embodiment the cutlery will amass just in correspondence of the drain holes: apart from the already cited problems deriving from the amassment, some pieces of cutlery will obstruct the drain openings, determining the bad evacuation of water and the bad drying of the cup and the cutlery contained therein.

The invention is based on the knowledge of these facts, the aims of the present invention are to indicate a cutlery basket for dishwashing machines that eliminates such inconveniences with the use of simple means, without practically increasing costs.

To allow for such aims the present invention has as its object a cutlery basket as defined by the characterising features of the independent claim 1. Further improvements and embodiments of the invention are indicated in the dependent claims.

Further aims and advantages will become clear from the present description and annexed drawings, supplied as an explicative and non limiting example, wherein:

Figure 1 represents a schematic and, partially sectioned view of a cutlery basket according to the invention;

Figure 2 schematically represents a plan view of the base of one of the compartments of which a cutlery basket according to the invention is divided;

Figure 3 schematically represents a partial cross sectioned view of the base of the cutlery basket according to the invention;

Figure 4 schematically represents a partial cross sectioned view of the base of a cutlery basket of the type known.

With reference to figure 1, in which a schematic and, partially sectioned view of a cutlery basket according to the invention is represented, it is observed how the basket 1, realised in stamped plastic material, is divided, by means of holed divisional walls 2, 3, and 4, into six compartments with practically square bases; the base of each compartment, formed by a plurality of small crossed bars, presenting a central elevation 5, the base itself being shaped to the form of a pyramid.

In particular, with reference to figure 2, the two divisional walls 2 and 4 are indicated that define one of the six compartments; the base of said compartment is made up of a plurality of small crossed bars 7 and 9.

Figures 3 and 4 make a comparison, by means of the partial schematic sections, of the base of the basket according to the invention (fig.3) and the base of the known solution, in particular the solution described in the French patent application N° 77 26947 (fig.4).

In particular, said figures show the base of the compartments of the two solutions, where 8 and 8' indicate the lateral wall of the basket and 2 and 2' indicates one of the divisional walls that define the compartment.

As can be seen in figure 3, that illustrates the present invention, the base of the compartment presents a central elevation 5, i.e. the vertex of a pyramid that constitutes the practically square base.

In a particularly advantageous form of realisation, the height (H) of the vertex of the pyramid with respect the sides of the base is typically that of 8-10 mm; the sides of which can be typically 60 mm; the gradient between the height and side being 1/7. Figure 4, on the other hand, schematically represents the base of the cutlery basket described in the French patent application° 77 26947. As can be seen, the base of such is in this case doubled, in the sense that it is constituted by two grids 10 and 12, placed on two horizontal planes X and Y appropriately distanced between themselves.

In the use of the basket according to the invention, the cutlery can be inserted, without paying particular attention, in the various compartments of the basket, as the lateral inclination of the pyramid in each compartment allows for a natural distribution in four directions, without any risks of the cutlery grouping itself in the proximity of the corners of the base.

The small bars 8 and 9 are appropriately distanced both for the aim of allowing the washing liquid that has to exit the basket to pass through, and with the aim of making the formation of a film of liquid between the mesh difficult; furthermore there is no risk that the cutlery leave the basket through the holes.

The drainage and the absence of the formation of the film of liquid are self assuring due to the fact that the remaining water, even in the contact points between the cutlery and the base, is to be found on an inclined surface; therefore, in a natural manner, the water is conveyed along the four directions, towards the sides of the elevated base of the pyramid that constitutes the base of each compartment (as indicated in figure 3). The pointed form of the sides of the base (two of which, being indicated with 20 and 21, are visible in fig.3) make it extremely easy for the evacuation of the remaining drops that do not fall vertically through the holes, but run along the lower part of the small bars.

Practical tests carried out have shown that the basket, in accordance with the invention presents drainage qualities far superior to that of a basket with a conventional flat base, so that the cutlery at the termination of the drying cycle results in being perfectly dry. The characteristics of the described cutlery basket result in being clear from the present description and annexed drawings.

From the present description, the practical advantages of the basket object of the present invention also become clear.

In particular they are represented by the fact that:

- the formation of a film of water or washing liquid between the mesh that constitutes the base of the compartment is avoided;
- the evacuation of the drops is assured in a natural manner, due to the inclination of the base, towards points that are not in contact with the cutlery;
- the cutlery can be inserted into the basket without paying particular attention, in as much that the elevated pyramid allows for an excellent distribution in each compartment;
- the realisation of the basket is extremely easy and economical with respect those that propose to solve the same basic problems.

Claims

1. Cutlery basket for a dishwashing machine, divided into compartments which are formed by a plurality of walls (2,3,4,8), at least the external walls (8) of each compartment being holed, each of said compartments having a base which is not flat and comprising a plurality of holes which allows for the washing liquid to

pass through, characterised by the fact that the base (7,9) of each of said compartments has a central elevation (5), said central elevation (5) being provided to favour the uniform distribution of the cutlery within said compartment, without requiring any additional element.

2. Cutlery basket according to claim 1, characterised by the fact that the base (7,9) of each of said compartment is shaped in the form of a pyramid (5).
3. Cutlery basket according to claim 2, characterised by the fact that the base of said pyramid (5) is substantially square.
4. Cutlery basket according to claim 1, characterised by the fact that said elevation (5) is not superior than 10 mm.
5. Cutlery basket according to claim 3, characterised by the fact that said pyramid (5) present a gradient between the height and the side of the base of approximately 1/7.
6. Cutlery basket according to one or more of the previous claims, characterised by the fact that the base of said basket is constituted by small crossed bars (7,9).
7. Cutlery basket according to the previous claim, characterised by the fact that the small bars (7,9) that are crossed between themselves are at a distance such as to avoid the formation of a film of water corresponding to the holes of the base.
8. Cutlery basket according to one or more of the previous claims, characterised by the fact that the bases (20,21) of the walls that constitute each compartment are pointed.

Patentansprüche

1. Besteckbehälter für eine Geschirrspülmaschine, unterteilt in Fächer, die von einer Anzahl Wänden (2, 3, 4, 8) gebildet sind, von denen zumindest die Außenwände (8) jedes Faches mit Löchern versehen sind, wobei jedes der Fächer einen Boden aufweist, der nicht eben ist und eine Anzahl von Löchern zum Passieren der Spülflüssigkeit aufweist, dadurch gekennzeichnet, daß der Boden (7, 9) eines jeden Faches eine zentrale Anhebung (5) aufweist, und daß diese zentrale Anhebung (5) vorgesehen ist, um eine gleichmäßige Aufteilung der Bestecke innerhalb des Faches zu erlangen, ohne jegliches zusätzliches Element zu benöti-

gen.

2. Besteckbehälter nach Anspruch 1, dadurch gekennzeichnet, daß der Boden (7, 9) eines jeden Faches in Form einer Pyramide (5) ausgebildet ist.
3. Besteckbehälter nach Anspruch 2, dadurch gekennzeichnet, daß der Boden der Pyramide im wesentlichen quadratisch ist.
4. Besteckbehälter nach Anspruch 1, dadurch gekennzeichnet, daß die Anhebung (5) nicht höher als 10 mm ist.
5. Besteckbehälter nach Anspruch 3, dadurch gekennzeichnet, daß die Pyramide (5) zwischen dem höchsten Punkt und der Seite des Bodens eine Steigung von ca. 1/7 aufweist.
6. Besteckbehälter nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß der Boden des Behälters aus schmalen Querstreben (7, 9) gebildet ist.
7. Besteckbehälter nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die schmalen Querstreben (7, 9) untereinander in einem solchen Abstand gekreuzt sind, um die Bildung eines Wasserfilms über den Öffnungen in dem Boden zu verhindern.
8. Besteckbehälter nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Unterseiten (20, 21) der Wände, die jedes Fach bilden, verjüngt sind.

Revendications

1. Panier de lave-vaisselle pour argenterie de table, divisé en compartiments qui sont formés de plusieurs cavités (2, 3, 4, 8), les parois externes (8) au moins de chaque compartiment ayant des trous, chaque compartiment ayant une base qui n'est pas plate et qui comprend plusieurs trous qui permettent le passage d'un liquide de lavage, caractérisé par le fait que la base (7, 9) de chacun des compartiments a une élévation centrale (5) qui est destinée à favoriser la répartition uniforme de l'argenterie de table dans le compartiment sans nécessiter un élément supplémentaire.
2. Panier pour argenterie de table selon la revendication 1, caractérisé par le fait que la base (7, 9) de chaque compartiment a la forme d'une pyramide (5).

3. Panier pour argenterie de table selon la revendication 2, caractérisé par le fait que la base de la pyramide (5) est pratiquement carrée.
4. Panier pour argenterie de table selon la revendication 1, caractérisé par le fait que ladite élévation (5) n'est pas supérieure à 10 mm. 5
5. Panier pour argenterie de table selon la revendication 3, caractérisé par le fait que la pyramide (5) présente une pente telle que le rapport de la hauteur et du côté de la base est d'environ 1/7. 10
6. Panier pour argenterie de table selon une ou plusieurs des revendications précédentes, caractérisé par le fait que la base du panier est constituée par des petites barres croisées (7, 9). 15
7. Panier pour argenterie de table selon la revendication précédente, caractérisé par le fait que les petites barres (7, 9) qui sont croisées se trouvent à une distance telle qu'elles évitent la formation d'un film d'eau aux emplacements correspondants aux trous de la base. 20 25
8. Panier pour argenterie de table selon une ou plusieurs des revendications précédentes, caractérisé par le fait que les bases (20, 21) des parois qui constituent chaque compartiment sont pointues. 30

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