

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



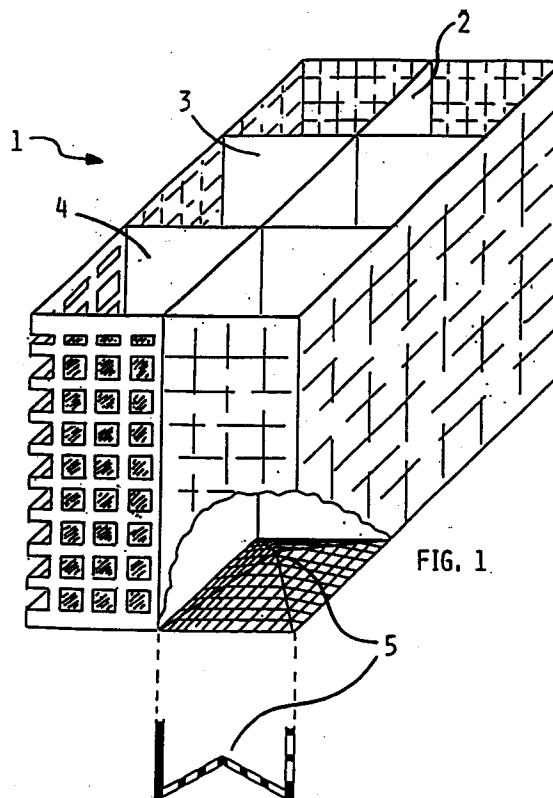
(11) Publication number:

0 488 093 A1

(12)

EUROPEAN PATENT APPLICATION(21) Application number: **91120016.0**(51) Int. Cl.⁵: **A47L 15/50, A47L 19/04**(22) Date of filing: **25.11.91**(30) Priority: **30.11.90 IT 6794790**(43) Date of publication of application:
03.06.92 Bulletin 92/23(84) Designated Contracting States:
DE ES FR GB(71) Applicant: **MERLONI ELETTRODOMESTICI
S.p.A.**
**Viale Aristide Merloni, 45
I-60044 Fabriano (AN)(IT)**(72) Inventor: **Olivieri, Gaetano**
**Corso Roma 22
I-10024 Moncalieri (TO)(IT)**(54) **Improvements to a cutlery basket for dishwashing machines.**

(57) A cutlery basket (1) for a dishwashing machine, divided into compartments, presenting a base comprising a plurality of holes which allow for the washing liquid to pass through; the principle characteristic of the basket (1) consists in the fact that the base of each compartment is not flat, but presents a substantial elevation (5) corresponding to the centre of the compartment.

**EP 0 488 093 A1**

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.

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 eliminate 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 for a dishwashing machine, divided into compartments, presenting a base comprising a plurality of holes which allow for the washing liquid to pass, characterised by the fact that the base of each compartment is not flat, but presents a substantial elevation corresponding to the centre of the compartment.

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.

It is however obvious that numerous variants may be supplied by the skilled man to the cutlery basket described as an example, without however departing from the novelty principles inherent in the invention.

Claims

1. 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, characterised by the fact that the base of each of said compartments is not flat, but presents a substantial elevation corresponding to the centre of the compartment.
2. Cutlery basket, according to claim 1, characterised by the fact that the base of each said compartment is shaped in the form of a pyramid.
3. Cutlery basket, according to claim 2, characterised by the fact that the base of said pyramid is substantially square.
4. Cutlery basket, according to claim 1, characterised by the fact that said elevation is not superior than 10 mm.
5. Cutlery basket, according to claim 3, characterised by the fact that said pyramid presents a gradient between the height and side of the base being 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. Cutlery basket, according to the previous claim, characterised by the fact that the small bars that are crossed between themselves are of a distance such as to avoid the formation of a film of water corresponding to the holes of the base. 5
10
8. Cutlery basket, according to one or more of the previous claims, characterised by the fact that the base of the walls that constitute each compartment are pointed. 15

20

25

30

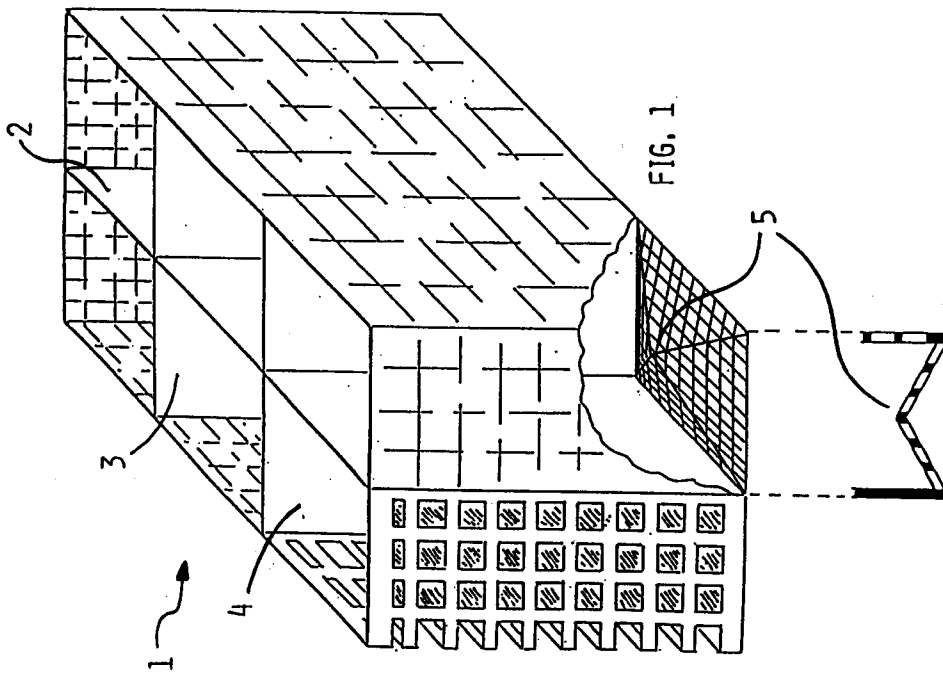
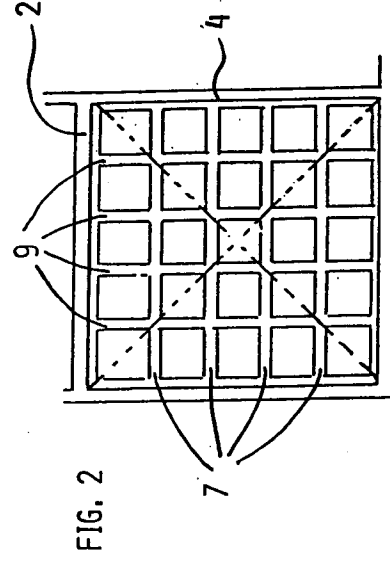
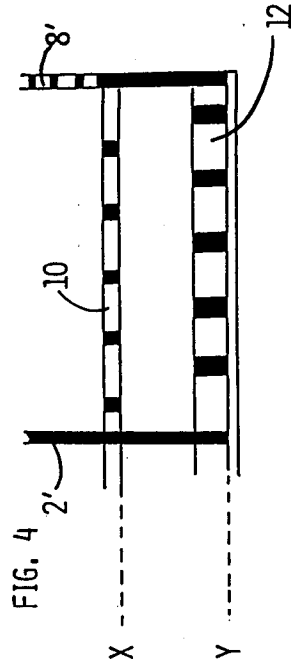
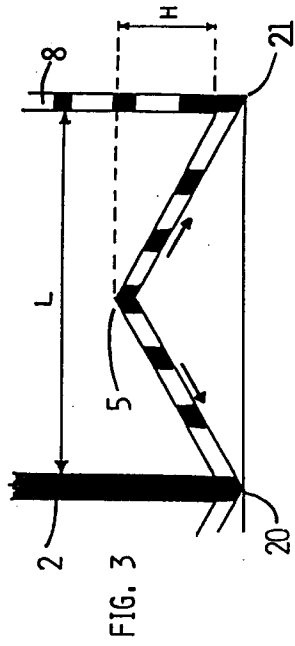
35

40

45

50

55





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 91 12 0016

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|---|--|---|---|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int. Cl.5) |
| A | PATENT ABSTRACTS OF JAPAN vol. 14, no. 350 (C-744)(4293) 27 July 1990 & JP-A-63 284 507 (MATSUSHITA ELECTRIC IND CO LTD) 10 November 1988 * abstract * | 1-7 | A47L15/50 A47L19/04 |
| D,A | FR-A-2 401 646 (ESSWEIN S.A.) * the whole document * | 1-8 | |
| A | PATENT ABSTRACTS OF JAPAN vol. 14, no. 431 (C-759)(4374) 17 September 1990 & JP-A-63 321 180 (MATSUSHITA ELECTRIC IND CO LTD) 20 December 1988 * abstract * | 1-7 | |
| A | FR-A-2 342 622 (BOSCH-SIEMENS HAUSGERÄTE GMBH) * the whole document * | 1-8 | |
| A | GB-A-1 091 919 (ALCHEMIKA S.A.) | | |
| A | US-A-3 377 634 (C. PATTERSON) | | |
| | | | TECHNICAL FIELDS SEARCHED (Int. Cl.5) |
| | | | A47L |
| The present search report has been drawn up for all claims | | | |
| Place of search THE HAGUE | | Date of completion of the search 09 MARCH 1992 | Examiner KELLNER M. |
| CATEGORY OF CITED DOCUMENTS | | | |
| X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document | | T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document | |