



US 20150320290A1

(19) **United States**(12) **Patent Application Publication**
HEDERSTIERNA et al.(10) **Pub. No.: US 2015/0320290 A1**(43) **Pub. Date: Nov. 12, 2015**(54) **CUTLERY TRAY MODULE FOR A
DISHWASHER AND DISHWASHER
COMPRISING AT LEAST ONE CUTLERY
TRAY MODULE****Publication Classification**(51) **Int. Cl.**
A47L 15/50 (2006.01)
(52) **U.S. Cl.**
CPC *A47L 15/502* (2013.01); *A47L 15/505*
(2013.01)(71) Applicant: **Electrolux Home Products
Corporation N.V.**, Brussels (BE)(72) Inventors: **Rickard HEDERSTIERNA**, Lund
(SE); **Daniel MESA**, Stockholm (SE);
Pontus Kåberg, Sollentuna (SE)(21) Appl. No.: **14/653,178**(22) PCT Filed: **Dec. 21, 2012**(86) PCT No.: **PCT/EP2012/076761**

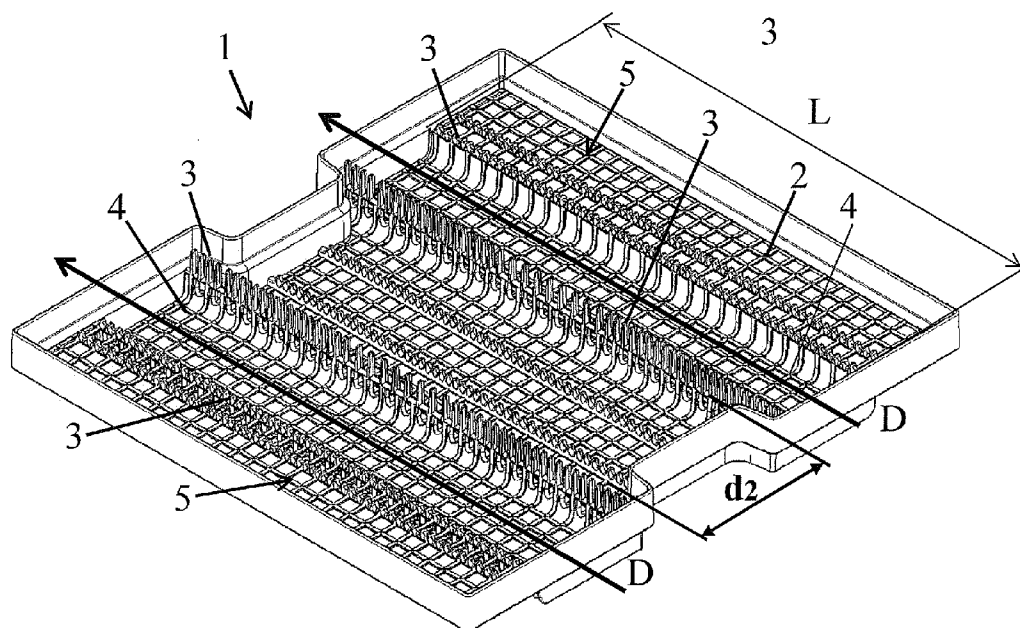
§ 371 (c)(1),

(2) Date: **Jun. 17, 2015**(30) **Foreign Application Priority Data**

Feb. 4, 2013 (JP) 2013-019046

(57) **ABSTRACT**

The present invention relates to a cutlery tray module (1) for a dishwasher, said cutlery tray module (1) comprising a bottom surface (2), adapted for substantially horizontal reception of cutlery items. The bottom surface (2) comprising a plurality of cutlery holding elements (3), adapted to hold said cutlery items, and at least one elongated indentation (4), having a longitudinal extension in a direction D. At least a number of said cutlery holding elements (3) are arranged such that said cutlery holding elements (3) are adapted to hold said cutlery items essentially transversely, with respect to said direction D, and across said elongated indentation (4). The present invention further relates to a dishwasher comprising at least one cutlery tray module (1).



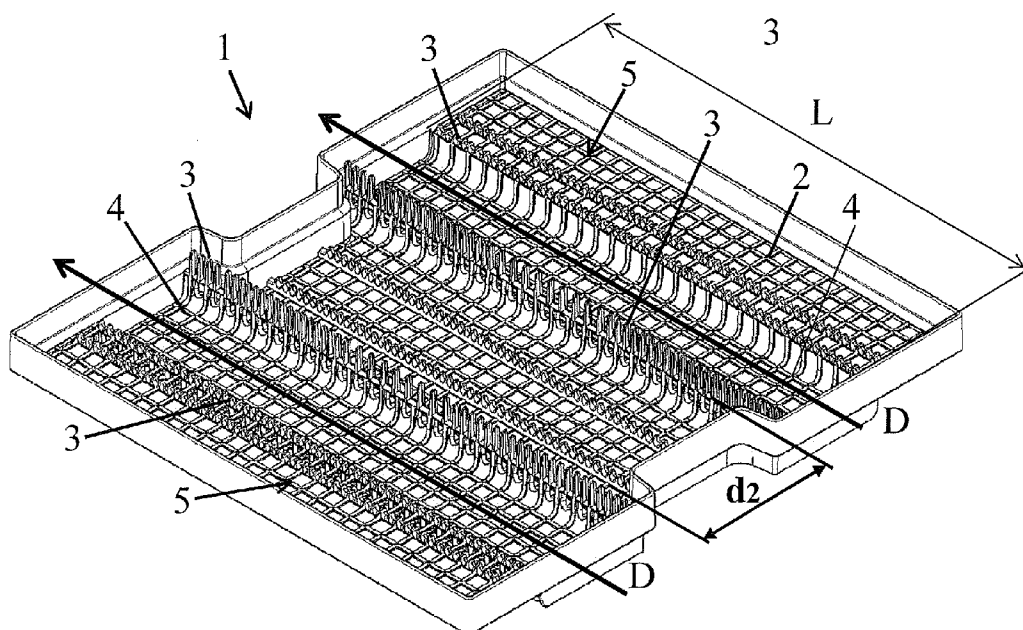


Figure 1

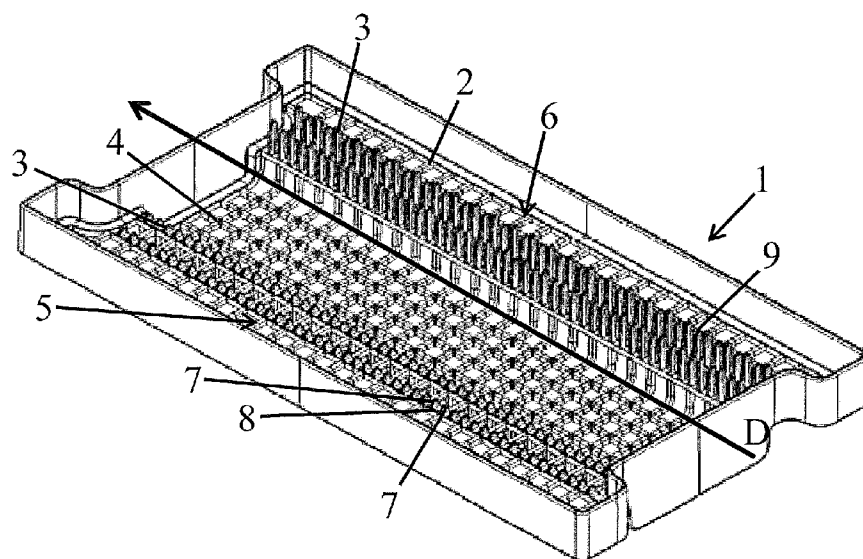


Figure 2

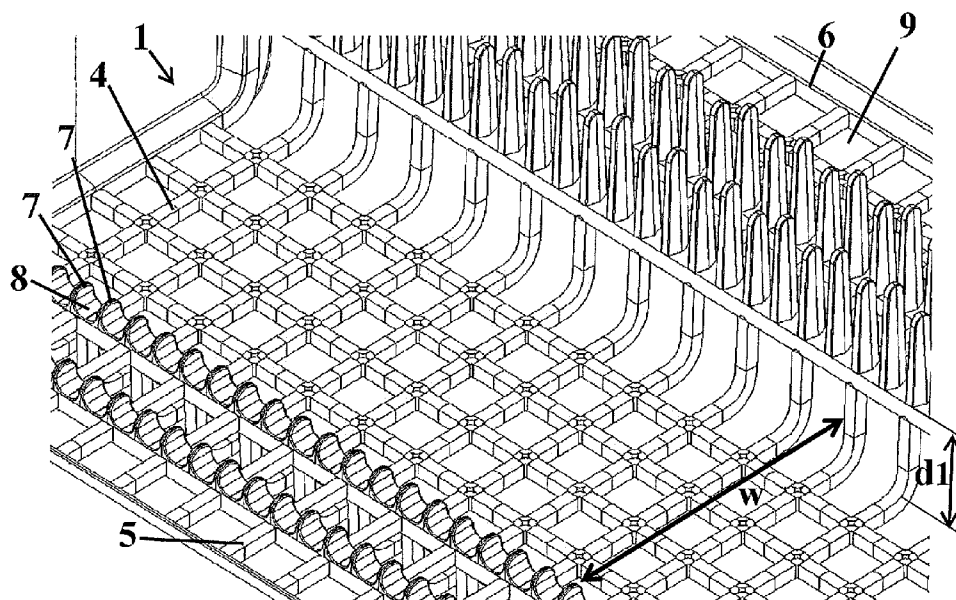


Figure 3

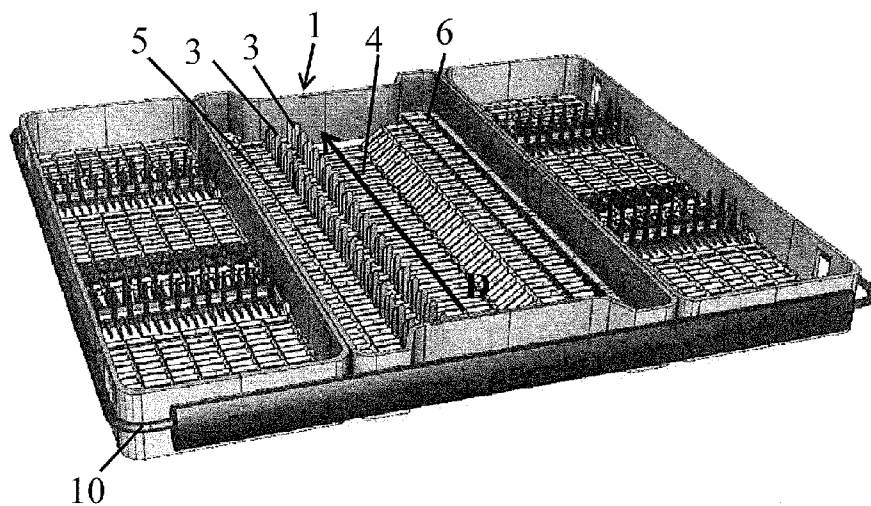


Figure 4

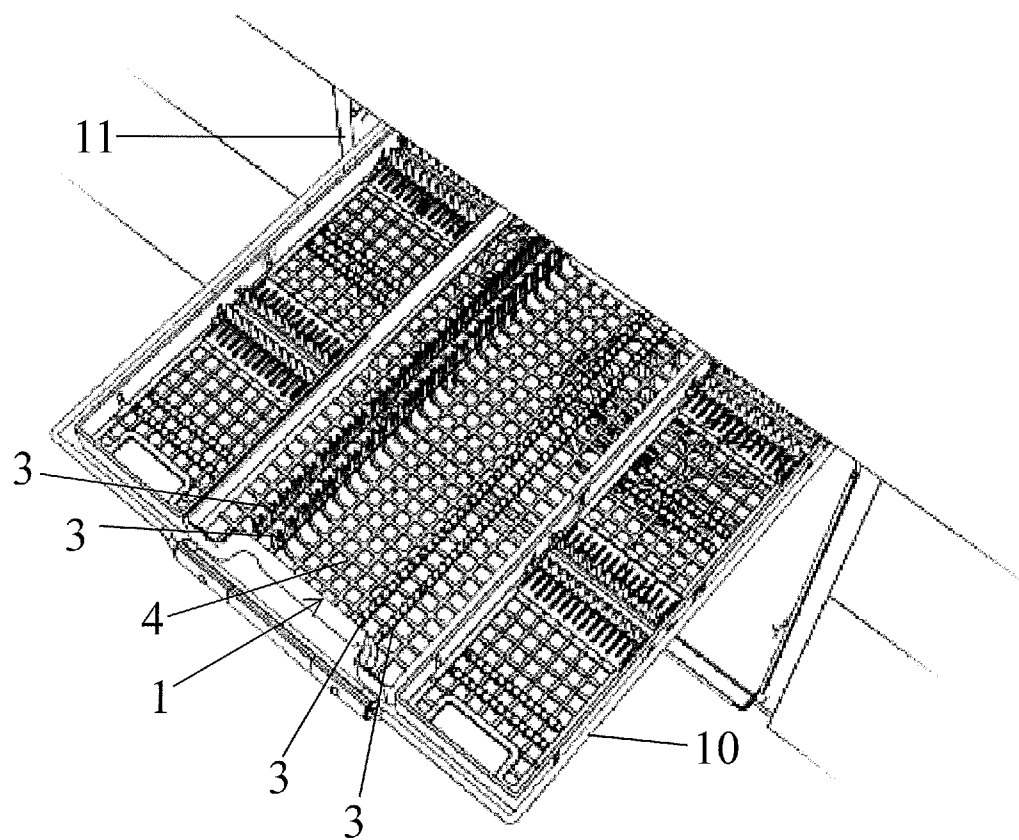


Figure 5

CUTLERY TRAY MODULE FOR A DISHWASHER AND DISHWASHER COMPRISING AT LEAST ONE CUTLERY TRAY MODULE

FIELD OF THE INVENTION

[0001] The present invention relates to a cutlery tray module for a dishwasher and a dishwasher comprising at least one cutlery tray module according to the preambles of the independent claims.

BACKGROUND OF THE INVENTION

[0002] Dishwashers, and in particular dishwashers designed for domestic use, are often provided with a cutlery basket or a cutlery tray for stacking cutlery pieces. Most commonly, cutlery baskets are detachably arranged within the lower rack of the dishwasher, and arranged for essentially vertical reception of cutlery. Cutlery trays are arranged for substantially horizontal reception of cutlery, and are adapted to be extractably arranged in the dishwasher, e.g. in the upper part of the dishwasher, above the upper rack.

[0003] An example of a cutlery tray is disclosed in US 2010155280 A which shows a cutlery tray for a dishwasher including a frame extendably disposed in a washing tub, and a plurality of inserts movably disposed on the frame and adapted to hold dishware. The plurality of inserts includes a first horizontally displaceable insert and at least one vertically displaceable insert. A central insert is mounted between the two lateral inserts. The central insert, just as the lateral inserts, is designed as a plastic mesh insert having wires embedded therein by injection molding, and has a trapezoidal indentation allowing larger cutlery items (serving ladles, etc.) to be received therein.

[0004] In US 2010117498 A a cutlery drawer for dishwashers comprising a base section and a holding device for holding a cutlery items, is disclosed. The holding device includes two fastening sections that fastens the holding device to the base section and a center section that connects the two fastening sections to each other. The two fastening sections are configured to hold an item of cutlery on both sides of the item.

[0005] EP 0186157 A discloses a domestic dishwasher with a removable crockery basket and a separate cutlery basket in which items of cutlery can be placed for the purpose of washing. The cutlery basket provides cutlery slots in the form of cutlery holders and cutlery rests for individual items or cutlery placed separately and lengthwise alongside one another in the slots.

[0006] Thus, a variety of cutlery trays for stacking cutlery pieces have been suggested. However, the inventors of the present invention have identified a need for a cutlery tray, which provides quick and easy unloading of the cutlery items, and which provides improved cleaning of the cutlery items.

[0007] An object of the present invention is to provide a cutlery tray which facilitates unloading, of the cutlery items from the cutlery tray.

[0008] A further object of the present invention is to provide a cutlery tray with a user friendly surface.

[0009] Another object of the present invention is to provide a cutlery tray which provides thoroughly cleaning of the cutlery items in the dishwasher.

SUMMARY OF THE INVENTION

[0010] The above-mentioned objects are achieved by the present invention according to the independent claims.

[0011] Preferred embodiments are set forth in the dependent claims.

[0012] The cutlery tray module for a dishwasher, in accordance with the present invention comprises a bottom surface, adapted for substantially horizontal reception of cutlery items, said bottom surface comprising a plurality of cutlery holding elements, adapted to hold said cutlery items, and at least one elongated indentation, having a longitudinal extension in a direction D, wherein at least a number of said cutlery holding elements are arranged such that said cutlery holding elements are adapted to hold said cutlery items essentially transversely, with respect to said direction D, and across said elongated indentation.

[0013] In another aspect, the present invention relates to a dishwasher comprising at least one cutlery tray module.

SHORT DESCRIPTION OF THE APPENDED DRAWINGS

[0014] FIG. 1 shows a cutlery tray module, according to one embodiment of the present invention.

[0015] FIG. 2 shows the cutlery tray module, according to another embodiment of the present invention.

[0016] FIG. 3 shows a detail of the cutlery tray module illustrating the bottom surface comprising the cutlery holding elements, according to one embodiment of the present invention.

[0017] FIG. 4 shows one cutlery tray module arranged in a rack support, according to one embodiment of the present invention.

[0018] FIG. 5 shows a dishwasher comprising a cutlery tray module according to the present invention, arranged in a rack support, according to one embodiment of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

[0019] FIG. 1 shows the cutlery tray module 1 for a dishwasher, according to one embodiment of the present invention. The cutlery tray module 1 comprises a bottom surface 2, adapted for substantially horizontal reception of cutlery items (not shown). The bottom surface 2 comprises a plurality of cutlery holding elements 3, adapted to hold the cutlery items. The bottom surface 2 further comprises at least one elongated indentation 4, having a longitudinal extension in a direction D, wherein at least a number of the cutlery holding elements 3 are arranged such that the cutlery holding elements 3 are adapted to hold the cutlery items transversely, with respect to the direction D, and across the elongated indentation 4. The cutlery items being arranged essentially transversely with respect to said direction D and across the indentation 4 is advantageous in that a space is provided, between the bottom surface 2 and the cutlery items, which facilitates gripping the cutlery items and provides easy unloading of the cutlery items. The number of cutlery holding elements 3 may be approximately between 1-40 along one side of the indentation 4. Thus, between 1-40 cutlery items may be arranged along one indentation 4.

[0020] As can be seen in FIG. 1, the cutlery holding elements 3 are arranged along said indentations 4. The cutlery holding elements 3 are consecutively arranged essentially in

the direction D. There may be a plurality of parallel rows of cutlery holding elements 3 arranged at each side of said indentation 4.

[0021] According to the embodiment shown in FIG. 1, the cutlery tray module 1 comprises a plurality of elongated indentations 4. In this case the number of indentations 4, being adapted to hold cutlery items transversely and across the indentation 4, are two. In the embodiment shown in FIG. 1, the indentations 4 are arranged at a distance d_2 from each other. Arranging the indentations 4 at a distance d_2 from each other ensures that there is sufficient space for the cutlery items. However, the number of indentations 4 may be any number, but preferably the number of indentations 4 is between 1-10.

[0022] As illustrated in FIG. 1, each one of the elongated indentations 4 has a length L, along the direction D, wherein the length L preferably is between 420-440 mm. However, the elongated indentations 4 may have other lengths L. In case of a plurality of indentations 4, the length L of the different indentations 4 may be different.

[0023] According to one embodiment, as shown in FIG. 1, the bottom surface 2 comprises at least a first supporting area 5, adapted to support the cutlery items, said supporting area 5 extending in the direction D along the indentation(s) 4. The first supporting area 5 is elevated with respect to the indentation 4. In one embodiment, as illustrated in FIG. 1, the number of cutlery holding elements 3 is arranged along said first supporting area 5.

[0024] According to the embodiment shown in FIG. 2, the bottom surface 2 is essentially smooth, or at least partly essentially smooth, in the area of the indentation(s) 4. The term essentially smooth means that there are no holding elements 3 or other spiky or sharp elements provided on the bottom surface 2 in the area, or parts of the area, such that a user may load or unload cutlery items easily and without risking to be hurt when loading or unloading the cutlery items. Thus, the bottom surface 2 being smooth provides for a user friendly surface, which facilitates unloading of the cutlery items.

[0025] According to another embodiment, as shown in FIG. 2, the bottom surface 2 comprises a second supporting area 6. The number of cutlery holding elements 3 is then arranged, along the first supporting area 5 and the second supporting area 6. The first and second supporting areas 5, 6 are elevated with respect to the indentation 4, such that a space is provided between the cutlery items and the bottom surface 2 of the cutlery tray module 1. The first supporting area 5 is arranged along the opposite side of the indentation 4 with respect to the second supporting area 6.

[0026] In one embodiment, at least a number of the cutlery holding elements 3 are shaped as tines 9. The tines 9 are arranged along at least one of the first and second supporting areas 5, 6. In FIG. 2, two parallel rows of cutlery holding elements 3 shaped as tines 9 are arranged along the second supporting area 6.

[0027] According to one embodiment, as illustrated in FIG. 2, at least a number of the cutlery holding elements 3 comprises a plurality of protrusions 7 and intermediate recesses 8, the recesses 8 being adapted to receive a handle of one of the cutlery items. As can be seen in FIG. 2, the cutlery holding elements 3 comprising protrusions 7 and intermediate recesses 8 are arranged along the first supporting area 5. A recess 8 is provided between two consecutively arranged protrusions 7. In use, the handle of a cutlery item is arranged

in said recess 8, and advantageously the handle is then kept in a desired position transversely with respect to said direction D, and across the indentation 4. Advantageously, the cutlery holding elements 3 provides good fixation of the cutlery items. The cutlery items are preferably arranged essentially 180° rotated with respect to said direction D. However, the cutlery items may be arranged in any other angle with respect to said direction D as long as the cutlery items extend across the indentation 4.

[0028] FIG. 3 shows a detail of the cutlery tray module 1 illustrating the bottom surface 2 comprising the cutlery holding elements 3. As illustrated in FIG. 3, the indentation 4 has a depth d_1 , and the depth d_1 is approximately between 18-20 mm. Furthermore, the elongated indentation 4 has a width w, and the width w is approximately between 80-90 mm. In case of a plurality of indentations 4, the depth d_1 and the width w may be different at the different indentations 4.

[0029] According to one embodiment, the cutlery tray module 1 is adapted to be slidably arranged within the dishwasher. Preferably, the cutlery tray module 1 is provided with sliding means along two opposite side edges.

[0030] In one embodiment, the cutlery tray module 1 is adapted to be adjacently arranged with at least one further cutlery tray module 1 in the dishwasher.

[0031] In another aspect, as illustrated in FIG. 4, the present invention relates to a dishwasher (not shown) comprising at least one cutlery tray module 1, the cutlery tray module 1 being arranged in a rack support 10 extractably arranged in the dishwasher. The rack support may be a wire support, or any other similar support, e.g. a rack support made of plastic. A plurality of cutlery tray modules 1 may then be detachably and rearrangeably arranged in the rack support 10 within the dishwasher.

[0032] In the embodiment shown in FIG. 4, the rack support 10 comprises three different modules, whereof the middle one is a cutlery tray module 1 according to the present invention. Naturally, all modules arranged in the rack support 10 may be cutlery tray modules 1 according to the present invention. In FIG. 4, the indentation 4 has a trapezoidal cross-section in the direction D. However, the indentations 4 may have other cross-sectional shapes, e.g. a square-shaped cross-section. Adjacently arranged cutlery tray modules 1 may be height-adjustably attached to each other. Advantageously, the removable cutlery tray modules 1 give the user the freedom to customize the product depending on their usability habits.

[0033] FIG. 5 shows a dishwasher 11 comprising one cutlery tray module 1 provided with an indentation 4 and a plurality of cutlery holding elements 3. The cutlery tray module 1 is arranged in a rack support 10 extractably arranged in the dishwasher 11.

[0034] The present invention is not limited to the above-described preferred embodiments. Various alternatives, modifications and equivalents may be used. Therefore, the above embodiments should not be taken as limiting the scope of the invention, which is defined by the appending claims.

1. Cutlery tray module for a dishwasher, said cutlery tray module comprising a bottom surface, adapted for substantially horizontal reception of cutlery items, said bottom surface comprising a plurality of cutlery holding elements, adapted to hold said cutlery items, and at least one elongated indentation, having a longitudinal extension in a direction D, wherein at least a number of said cutlery holding elements are arranged such that said cutlery holding elements are adapted

to hold said cutlery items essentially transversely, with respect to said direction D, and across said elongated indentation.

2. Cutlery tray module according to claim 1, wherein said cutlery tray module comprises a plurality of elongated indentations.

3. Cutlery tray module according to claim 1, wherein said number of cutlery holding elements are arranged along said indentation.

4. Cutlery tray module according to claim 1, wherein said bottom surface comprises at least a first supporting area, adapted to support said cutlery items, said supporting area extending in said direction D, along said indentation.

5. Cutlery tray module according to claim 4, wherein said number of cutlery holding elements is arranged along said supporting area.

6. Cutlery tray module according to claim 4, wherein said bottom surface comprises a second supporting area, and wherein said number of cutlery holding elements are arranged, along said first supporting area and said second supporting area.

7. Cutlery tray module according to claim 1, wherein said cutlery holding elements are consecutively arranged essentially in said direction D.

8. Cutlery tray module according to claim 1, wherein said bottom surface is essentially smooth, or at least partly essentially smooth, in the area of said indentation.

9. Cutlery tray module according to claim 1, wherein at least a number of said cutlery holding elements are shaped as tines.

10. Cutlery tray module according to claim 1, wherein at least a number of said cutlery holding elements comprises a plurality of protrusions and intermediate recesses, said recesses being adapted to receive a handle of one of said cutlery items.

11. Cutlery tray module according to claim 1, wherein said indentation has a depth d_1 , and wherein said depth d_1 is approximately between 18-20 mm.

12. Cutlery tray module according to claim 1, wherein said elongated indentation has a length L, along said direction D, wherein said length L is between 420-440 mm.

13. Cutlery tray module according to claim 1, wherein said elongated indentation has a width w, and wherein said width w is approximately between 80-90 mm.

14. Cutlery tray module according to claim 1, wherein said cutlery tray module is adapted to be slidably arranged within said dishwasher.

15. Dishwasher comprising at least one cutlery tray module according to claim 1, said at least one cutlery tray module being arranged in a rack support extractably arranged in said dishwasher.

* * * * *