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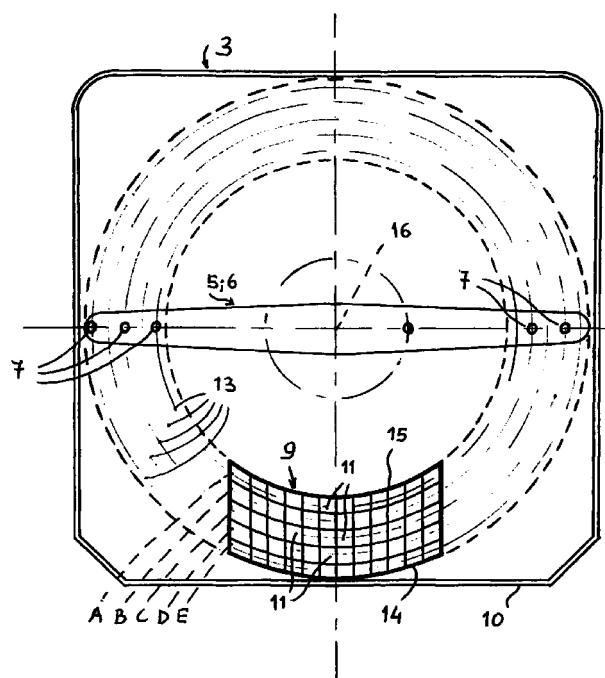
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(54) **Dishwashing machine with cutlery holding basket**

(57) A rotating spray arm (5) rotates in the washing vessel (3) of the dishwashing machine and issues water spray jets (7) that scan, in correspondence of a cutlery holding basket (9), respective areas in the shape of a circular crown (13). The basket (9) has a plurality of compartments (11) provided in a side-by-side arrangement along respective curvilinear concentric rows aligned with the circular crowns (13) described by respective water spray jets (7).



*Fig. 2*

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## Description

**[0001]** The present invention relates to a household-type dishwashing machine with cutlery holding basket adapted to be arranged in the washing vessel of the machine in a position which is adjacent to at least a spray arm that rotates about an axis.

**[0002]** Cutlery holding baskets for dishwashing machines are generally known to be usually made with a grid-like structure that is substantially conformed in the shape of a rectilinear parallelepiped and mainly comprises a perforated bottom wall and perforated side walls, as well as a plurality of internal septa acting as partitions. A basket of this kind, such as described for instance in GB-B-2 303 055, is adapted to be supported by a dish carrying rack inside the washing vessel of the machine in a position which is adjacent to said rotating spray arm.

**[0003]** In view of enabling the dishes to be cleaned in an effective manner, a usually preferred option is to provide the rotating spray arms with spray nozzles that are capable of issuing relatively concentrated water spray jets.

**[0004]** On the other hand, owing to the cutlery holding basket being arranged in a position which is quite close to the rotating spray arms, and owing also to the fact that the spray nozzles are generally spaced from each other along the same rotating spray arms, said concentrated water spray jets are practically unable to hit and wet in an effectively complete manner the entire cutlery holding basket. In fact, if the dishes in general are on the one side wetted in a sufficiently complete manner by the water spray jets, which are deviated by the same dishes owing to the size, shape and arrangement thereof, the cutlery pieces are on the other side generally so sized and shaped as to prove inadequate to such a jet deviation purpose, so that only partial zones of the cutlery holding basket are wetted effectively by said concentrated water spray jets.

**[0005]** During the rotation of the spray arms, in fact, the various concentrated water spray jets issuing therefrom "scan" respective substantially concentric areas in the shape of a circular crown. As a result, a cutlery holding basket of the traditional type, in the shape of a rectilinear parallelepiped having an adequate cutlery accommodation capacity, has areas that are situated between said areas in the shape of a circular crown and, as a result, are only scarcely affected by the washing action of the water spray jets.

**[0006]** As a result, at least a part of the items arranged in the cutlery holding basket are washed unsatisfactorily.

**[0007]** It is a main purpose of the present invention to provide a dishwashing machine with at least a cutlery holding basket in which the various cutlery pieces are actually washed and cleaned in a substantially complete and effective manner.

**[0008]** In particular, it is a purpose of the present

invention to provide a dishwashing machine of the cited kind, in which the cutlery holding basket has a simple construction and an adequate cutlery holding capacity.

**[0009]** Furthermore, it is a purpose of the present invention to provide a dishwashing machine of the above cited kind, in which the cutlery pieces contained in the cutlery holding basket can be washed in a substantially differentiated manner in accordance with the actual degree of soil thereof.

**[0010]** According to the present invention, these aims are reached in a dishwashing machine with at least a cutlery holding basket embodying the features as recited in the appended claims.

**[0011]** Anyway, characteristics and advantages of the present invention will become more readily apparent from the description that is given below by way of non-limiting example with reference to the accompanying drawings, in which:

- Figure 1 is a schematical, partial view of a dishwashing machine according to the present invention; and
- Figure 2 is a schematical, partial top view of the dishwashing machine shown in Figure 1, according to a preferred embodiment.

**[0012]** With reference to the Figures, the dishwashing machine comprises mainly a washing vessel 3, in which there are accommodated at least a dish-carrying rack 4 and at least a rotating spray arm associated therewith and adapted to rotate about a preferably vertical axis 16. For instance, there can be provided a first and/or a second rotating spray arm 5, 6 arranged below and above the rack 4, respectively.

**[0013]** The rotating spray arm 5, and preferably also the rotating spray arm 6, is provided with a plurality of spray nozzles adapted to eject towards the rack 4 respective water spray jets 7 that in a preferred manner are substantially concentrated, ie. only slightly diverging or dispersing. In a per se known manner, the rotating spray arms 5, 6 are supplied with water that is delivered under pressure by a circulation pump 8.

**[0014]** The rack 4 is adapted to support in a removable manner, preferably in a position on the front side near an access side 10 of the washing vessel 3, at least a cutlery holding basket 9. This basket has a grid-like structure with an adequate cutlery holding capacity and comprises in particular a plurality of compartments 11 adapted to accommodate the cutlery pieces 12 to be washed.

**[0015]** During the rotary movement of the rotating spray arms 5, 6, the water spray jets 7 scan, in correspondence of a virtual plane that is substantially orthogonal to the axis of rotation 16 and substantially passes through the basket 9, respective curvilinear areas that are schematically indicated at 13 in Figure 2 and that, in the preferred example being described, are in the shape

of concentric circular crowns.

[0016] According to a feature of the present invention, the compartments 11 of the basket 9 are provided in a side-by-side arrangement along at least a circular or, anyway, curvilinear segment and are adapted to be substantially aligned with the curvilinear area 13 that is scanned by a respective water spray jet 7 from at least one of said rotating spray arms 5, 6.

[0017] In a preferred manner, for the cutlery holding basket 9 to be provided with an adequate cutlery accommodation capacity, the same basket comprises a plurality of concentric rows of compartments 11 that extend according to respective curvilinear segments and are adapted to be substantially aligned with the curvilinear areas 13 described by respective water spray jets 7. In the example illustrated in Figure 2, said concentric rows of compartments 11 are shown to be in the number of five and are schematically indicated at A, B, C, D, E, respectively.

[0018] In any case, all of the compartments 11 of the basket 9 are substantially scanned by respective water spray jets 7 which therefore are capable of effectively and completely washing and cleaning the cutlery pieces 12 that are arranged in the same compartments.

[0019] As illustrated in Figure 2, the cutlery holding basket 9 preferably has a front face 14 and a rear face 15 which are curvilinear and concentric with respect to the axis of rotation 16, so that the basket itself, in departure from the traditional or prior-art solutions, does not show any portion or area thereof which is scarcely or poorly affected by the washing action of the water spray jets 7. In other words, the basket 9 enables the cutlery pieces 12 to undergo an optimum washing effect, while taking up actually only little space.

[0020] It will be of course fully appreciated that, in the current practice, the front face 14 and/or the rear face 15 of the basket 9 may be given any other suitable shape. For instance, in view of using the available space up to the greatest possible extent, the front face 14 may be rectilinear and adjacent to the access side 10 of the washing vessel 3 of the machine.

[0021] It should moreover be noticed that the dishwashing machine according to the present invention brings about a further innovative functional advantage.

[0022] Since in the example being described here the various water spray jets 7 have the same angular velocity, but describe circular crowns 13 having different diameters, the various water spray jets 7 aligned with respective concentric rows A-E of compartments 11 have a different tangential velocity. In particular, for a same unit of time the water spray jets 7 that are the closest to the axis of rotation 16 have a persistence on the compartments 11 of the row A which is longer than the persistence on the row E of the water spray jets 7 that are the most remote from said axis of rotation 16. In practice, such a physical phenomenon can be used to advantage in view of carrying out an optimum, selectively differentiated washing of the cutlery pieces 12 by

arranging the most heavily soiled cutlery pieces in the compartments 11 of the inner row A and the progressively less heavily soiled cutlery pieces in the compartments 11 of the rows B, C, D, E, respectively.

[0023] It will be appreciated that the afore described dishwashing machine may be the subject of a number of modifications without departing from the scope of the present invention.

[0024] For instance, the rows A-E of compartments 11 of the cutlery holding basket 9 can be arranged staggered angularly with respect to each other, according to the actual needs, or the curvilinear areas 13 and the corresponding rows A-E of compartments 11 can extend with a different pattern, ie. a pattern differing from the circular one illustrated in the Figures.

[0025] Furthermore, the cutlery holding basket 9 can be supported in the washing vessel 3 of the machine independently of, ie. separately from the dish-carrying rack 4.

## Claims

1. Dishwashing machine, comprising a washing vessel in which there are accommodated at least a cutlery holding basket having a plurality of compartments, as well as at least a rotating spray arm adapted to rotate about an axis and issue at least a water spray jet which, during the rotation of said spray arm, scans, in correspondence of a plane that is substantially orthogonal to said axis and substantially passes through said basket, a corresponding substantially curvilinear area, **characterized in that** the compartments (11) of the cutlery holding basket (9) are provided in a side-by-side arrangement along at least a substantially curvilinear segment and are adapted to be substantially aligned with said curvilinear area (13) that is scanned by the water spray jet (7) from the rotating spray arm (5; 6).
2. Dishwashing machine according to claim 1, in which a plurality of water spray jets scan respective curvilinear areas in correspondence of said plane during the rotation of said rotating spray arm, **characterized in that** the cutlery holding basket (9) comprises a plurality of rows (A-E) of compartments (11) that extend according to respective curvilinear segments and are adapted to be substantially aligned with the curvilinear areas (13) described by respective water spray jets (7).
3. Dishwashing machine according to claim 1, **characterized in that** the cutlery holding basket (9) has a front face (14) and a rear face (15) that are both curvilinear.
4. Dishwashing machine according to claim 2, **characterized in that** said concentric rows (A-E) of

compartments (11) of the basket (9) are adapted to accommodate cutlery pieces (12) in a selectively differentiated manner according to the soil extent of the same cutlery pieces.

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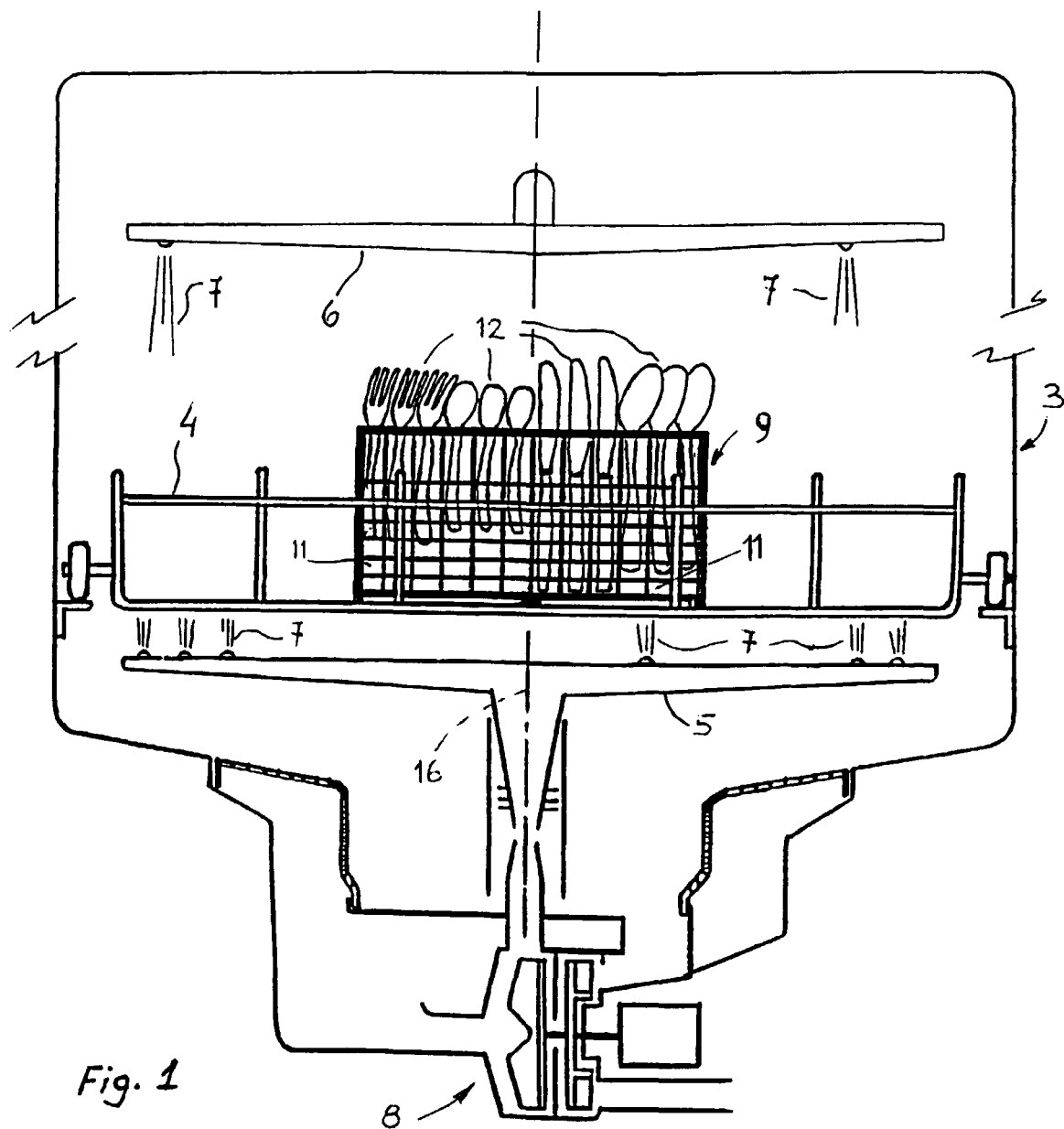


Fig. 1

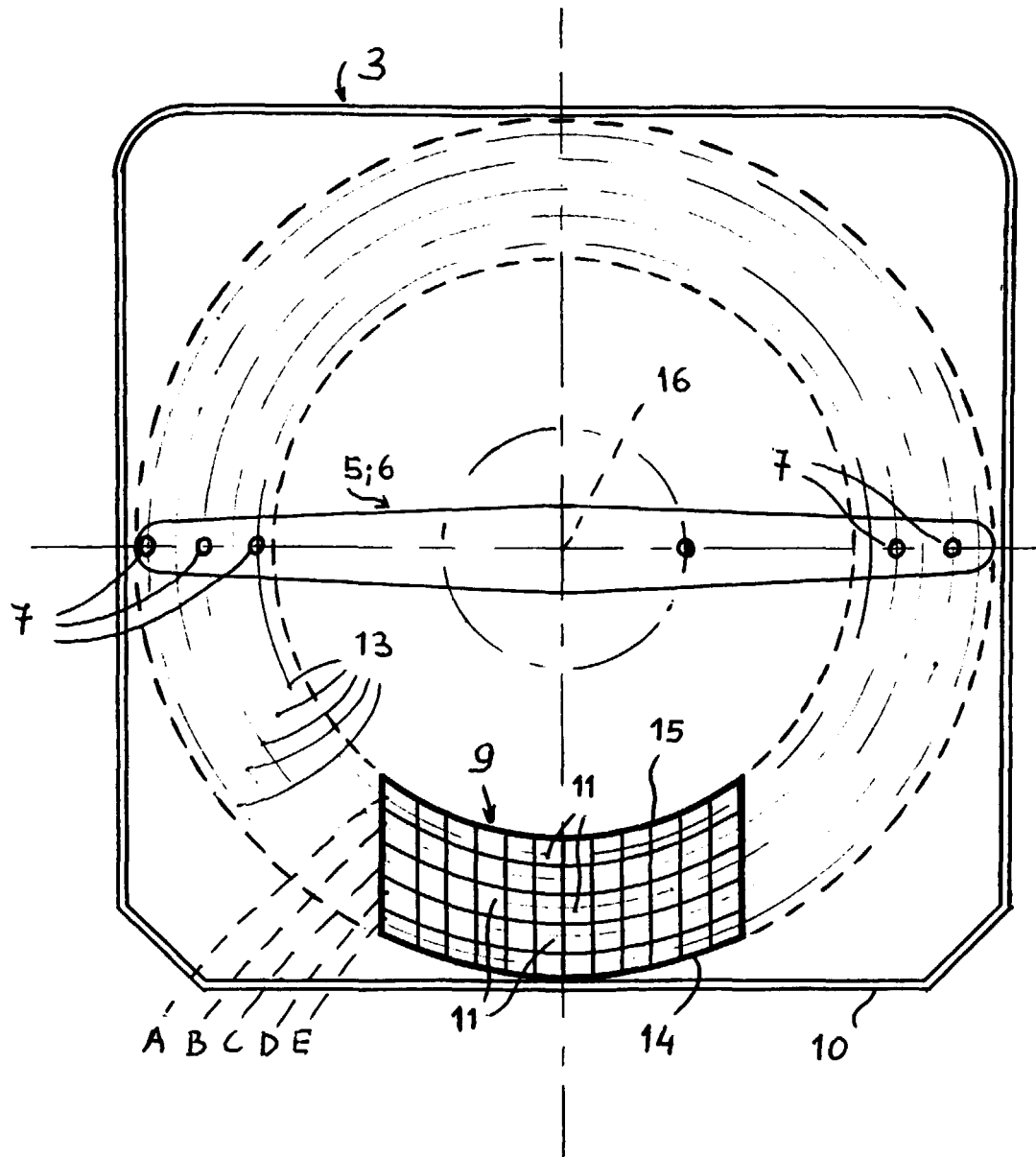


Fig. 2