A dish insert for a dishwasher includes a plurality of first tines disposed one behind the other on a first holding strut. Also included is a plurality of second tines disposed one behind the other on a rotatably mounted second holding strut so that the second tines are pivotable relative to the first tines and the first and second tines are alignable alternately one behind the other in a row and configured to receive dishes therebetween.
DISH INSERT FOR A DISHWASHER

[0001] Priority is claimed to German patent application DE 10 2005 044 264.1, filed Sep. 15, 2005, which is hereby incorporated by reference herein.

[0002] The present invention relates generally to a dish insert for a dishwasher, for example a dish insert to be arranged in a dish rack, and specifically to a dish insert having a plurality of upright tines arranged in at least one row between which dishes can be placed.

BACKGROUND

[0003] World patent application WO 00/49935 A1 and German utility model DE 201 04 114 U1, which are hereby incorporated by reference herein, describe dish racks which have several rows of upright tines on the bottom. Here, the individual tines are mounted on a shared axis and can be pivoted as a unit. This makes it possible to either place dishes between the tines in the dish rack or else to create more space so that pans or other larger objects can be placed into the dish rack without hindrance. A drawback of such a dish rack is that only rigid rows of tines are provided to hold the dishes, so that dishes that are somewhat deeper can no longer be placed between the tines. Precisely soup plates or pasta plates and the like can have a depth that exceeds the distance between two tines, as a result of which they cannot be held between them.

[0004] European patent application EP 0 797 949 A2 describes another dish rack that has several rows of tines on the bottom that are likewise pivotably mounted. In addition, different types of tines are provided, some of which are longer and are placed at a greater distance from each other. However, this dish rack also entails the problem that the rows of tines are rigidly arranged and cannot be flexibly adapted by the user to the dishes in question.

[0005] Japanese patent application JP 10286214 A describes a dish insert in which two opposite tines and a crosswise rod that serves to connect them are mounted so that they can slide along two lengthwise rods. As a result, the distances between two adjacent units consisting of the tines across from each other and the crosswise rod can be changed. Since in most cases dishes of a uniform size are placed into the dish insert, if dishes having a greater depth are to be accommodated, every other unit would have to be slid individually. This is time-consuming and complicated to do.

SUMMARY

[0006] Consequently, it is an object of the present invention to provide a dish rack which users can individually adapt to the dishes in question with just a few manipulations, thus allowing a flexible loading of the dishwasher.

[0007] In an embodiment, the present invention provides a dish insert for a dishwasher. The dish insert includes a plurality of first tines disposed one behind the other on a first holding strut; and a plurality of second tines disposed one behind the other on a rotatably mounted second holding strut so that the second tines are pivotable relative to the first tines and the first and second tines are alignable alternately one behind the other in a row and configured to receive dishes therebetween.

[0008] In another embodiment, the present invention provides a dish insert for a dishwasher. The dish insert includes a plurality of first tines disposed one behind the other on a first holding strut; and a plurality of second tines disposed one behind the other on a second holding strut, the second holding strut defining a second longitudinal axis and being movably relative to the first holding strut in a direction of the second longitudinal axis. In a first position of the second holding strut the first and second tines are alignable alternately one behind the other evenly spaced in a row at a first distance between adjacent tines of the row. In a second position of the second holding strut the first and second tines are alignable alternately one behind the other forming a plurality of tine units evenly spaced from each other in the row at a second distance between adjacent tine units, each tine unit including a respective tine of the first tines and a respective tine of the second tines, the second distance being greater than the first distance. In the first position, the tines are configured to receive first dishes therebetween, and, in the second position, the tine units are configured to receive second dishes therebetween.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The invention will be described in greater detail on the basis of an embodiment making reference to the accompanying drawings. The following is shown:

[0010] FIG. 1 a dish rack without a dish insert;
[0011] FIG. 2 a dish rack with a dish insert;
[0012] FIG. 3 a dish insert;
[0013] FIG. 4 an exploded view of the dish insert from FIG. 1;
[0014] FIG. 5 a perspective view of the dish insert from Fig. 1 with tines that have been pushed together,
[0015] FIG. 6 a perspective view of the dish insert from Fig. 1 with tines that have been flipped down,
[0016] FIG. 7 a perspective view of a dish insert with tines that have been partially flipped down.

DETAILED DESCRIPTION

[0017] According to the invention, the distance between adjacent tines arranged in a row can be varied so that the dish insert can be individually adapted to the dishes in question; for instance, the distance between adjacent tines can be increased if deeper dishes are to be placed into the dish insert. Conversely, the tines can be arranged at a smaller distance, so that the volume is used particularly effectively. This possibility of varying the distance between adjacent tines allows an optimized space distribution of the dish rack. Here, the tines of one row are arranged on at least two rod-shaped carriers, at least one of which is rotatably mounted, as a result of which the group of tines arranged on this carrier can be pivoted relative to the tines arranged on the other carrier(s). This facilitates the handling since several distances can be changed simultaneously with one single manipulation.

[0018] Equally simple handling can be achieved in that the upright tines of one row are arranged on at least two holding struts, at least one of which can be moved in the direction of its longitudinal axis relative to the other strut, so that at least two tines lie close to each other to form a unit, and the distance between the units consisting of at least two tines is greater than in a position in which all of the tines stand upright individually at equal distances.
The upright tines can also be removed completely in order to allow the most flexible possible configuration of the dish rack so that the it can accommodate pans and other objects in cases where the tines would be in the way. In an advantageous manner, this can be done in that the carriers associated with the tines of one row are arranged together in a pivotably mounted holding device, so that pivoting the holding device causes all of the carriers arranged in it to turn at the same time, thus pivoting all the tines of one row. Here, two spaced rows of tines can be provided that are at approximately the same distance from each other as the length of the tines, so that when the tines are in the downward pivoted position, they create a bottom flat surface for dishes and pans. Moreover, locking means can be provided with which the tines can be locked in the upright position.

A dish rack 1 depicted in simplified form in FIG. 1, especially a lower rack for a household dishwasher, is fitted with a permanently installed plate holder 2 for dessert plates as well as for flat, large and small plates or soup plates of the standard set of dishes to be loaded into the dishwasher. The dish rack 1 includes struts 6 and rack frame 7. In addition to the plate holder 2, a free rack surface 3 is provided for purposes of accommodating large items such as pans, lids and the like. The plate holder consists of two rows 4 running parallel to each other, each having a plurality of upright tines 5 at a distance from each other, which can support plates placed between them. Optionally, the tines 5 of the plate holder 2 that is permanently installed in the dish rack 1 can be so configured so that they can be flipped down in the generally known manner. If necessary, the free rack surface 3 can also accommodate a glassware insert (not shown here) or can be employed to accommodate additional plates. In order to allow the latter, a dish insert 10 with two rows 11 of tines can be placed into the free rack surface 3. FIG. 2 shows the separate dish insert 10 installed in the dish rack 1, with the two rows 11 of tines flipped down. A fastening bracket 15 serves to affix the dish insert 10 inside the dish rack 1.

FIGS. 3 and 4 show a dish insert 10 as a single unit in which, for example, dishes (not shown here) can be accommodated. The dish insert 10 comprises a base 12 made up of two lengthwise oriented support struts 13, two guide struts 14 arranged crosswise thereto, and a fastening bracket 15. These parts are welded to each other. The support struts 13 have an extension on one side that is bent to form latching arms 16. The guide struts 14 have holding eyelets 17 on both ends. The fastening bracket 15 serves to affix the dish insert 10 inside the dish rack 1, as depicted in FIG. 2. For this purpose, both arms 18 of the fastening bracket 15 fastened to the support struts 13 are bent to form holding catches 19 that engage underneath one strut 6 of the dish rack 1; the upper end of the bracket 15 is configured so as to be springy and it rests on the rack frame 7 via two indentations 20.

Since the two rows 11 of tines and the way they are mounted on the base are the same, their description below is restricted to one single row. In each case, half 21.1 of the tines 21 of one row are fastened to a first holding strut 22—shown on the left-hand side in FIG. 3 and at the bottom in FIG. 4—while the second half 21.2 is fastened to a second holding strut 23—shown on the right-hand side in FIG. 3 and at the top in FIG. 4. The tines on each holding strut are at a distance D from each other. The tines 21 are fastened to the struts 22 and 23 in such a way that the tines 21.1 of the first strut 22 are disposed on the left side of the strut while the tines 21.2 of the second strut 23 are disposed on the right of the strut. As a result, when the two struts are joined in the position shown in FIG. 3, one row of struts is created in which tines 21.1 of the first strut 22 and tines 21.2 of the second strut 23 are arranged alternately one behind the other and the individual tines are at a distance d from each other, whereby d is half the size of D. One end of the second strut 23 has a crank-like curved section 24. In contrast, the end of the first strut 22 has a shorter time 21.3 while the other end has an eyelet 25. A clip 26 made of plastic is placed onto the shorter time 21.3, said clip also being affixed by a fastening eyelet 27 to the first holding strut 22. The clip 26 serves to latch with the latching arm 16 by means of an indentation 30 in the clip (see FIG. 6), thus locking the tines 21 in the upright position, as shown in FIG. 5. Secondly, a holder 28 having a channel with an oblong cross section in its interior is shaped onto the lower area of the clip 26.

The two struts 22 and 23 are fastened to the base 12 in such a way that the first holding strut 22 is pivotably mounted in the holding eyelets 17 of the guide strut 14. The second holding strut 23 with its crank-like curved section 24 is inserted into the channel of the holder 28 on one side and into the eyelet 25 on the other side. As a result, this strut 23 is mounted so that it can slide and so that it can rotate, together with the clip and the first strut 22, over the holder 28 and over the curved section 24. Since the second strut 23 is mounted so that it can slide, it can be slid into the position shown in FIG. 5, in which two adjacent tines lie close to each other to form a unit 21.4, and the distance between the units 21.4 amounts to approximately the dimension D and is thus greater than the distance d between the tines 21 when the tines are in a position where all of the tines project upwards individually at equal distances d (see FIG. 3 or FIG. 6). In the embodiment shown, two holding struts 22 and 23 are used for each row 11 of tines, that is to say, every other tine can be slid. It is likewise conceivable to select an arrangement consisting of three or more holding struts per row, with which greater distances between the units can then be created. By the same token, the use of only one or else three or more rows 11 of tines is also possible.

FIG. 6 shows both rows 11 of tines in the flipped-down state. For this purpose, the ends 29 of the clips 26 are pressed down, so that their indentations 30 are disengaged from the latching arms 16. Then the clips 26 are pivoted to the side, as a result of which the holder 28 moves along and rotates the two holding struts 22 and 23 via short time 21.3 and crank-like curved section 24, respectively. In this process, all of the tines 21 are laid on their side. As shown in FIG. 6, the distance between the rows 11 of tines is slightly greater than the length of the tines 21. Therefore, the tines 21 can be flipped down all the way to the support struts 13, thus forming a flat surface on which pans and other large items can be accommodated without any loss of space.

FIG. 7 shows an embodiment in which one of the two holding struts 31 and 32 can be turned independently of the other. This makes it possible for the tines 21.5 fastened to this strut 31 to pivot away, thus enlarging the distance between the upright tines 21.6 from d to D.

What is claimed is:
1. A dish insert for a dishwasher, comprising:
   a plurality of first tines disposed one behind the other on a first holding strut; and
a plurality of second tines disposed one behind the other on a rotatably mounted second holding strut so that the second tines are pivotable relative to the first tines and the first and second tines are alignable alternately one behind the other in a row and configured to receive dishes therebetween.

2. The dish insert as recited in claim 1 wherein the first and second holding struts are configured to be disposed in a dish rack of the dishwasher.

3. The dish insert as recited in claim 1 wherein the first holding strut is rotatably mounted so that the first tines are pivotable relative to the second tines.

4. A dish insert for a dishwasher, comprising:
a plurality of first tines disposed one behind the other on a first holding strut; and
a plurality of second tines disposed one behind the other on a second holding strut, the second holding strut defining a second longitudinal axis and being movable relative to the first holding strut in a direction of the second longitudinal axis so that in a first position of the second holding strut the first and second tines are alignable alternately one behind the other evenly spaced in a row at a first distance between adjacent tines of the row, and in a second position of the second holding strut the first and second tines are alignable alternately one behind the other forming a plurality of tine units evenly spaced from each other in the row at a second distance between adjacent tine units, each tine unit including a respective tine of the first tines and a respective tine of the second tines, the second distance being greater than the first distance;
wherein, in the first position, the tines are configured to receive first dishes therebetween, and, in the second position, the tine units are configured to receive second dishes therebetween.

5. The dish insert as recited in claim 2 wherein the first and second holding struts are configured to be disposed in a dish rack of the dishwasher.

6. The dish insert as recited in claim 2 wherein the first and second tines stand upright in the first and second positions.

7. The dish insert as recited in claim 2 further comprising a pivotably mounted holding device, wherein the first holding strut defines a first longitudinal axis, and wherein the first and second holding struts are operatively connected to the pivotably mounted holding device so that a pivoting of the holding device causes the first and second holding struts to rotate at a same time respectively about the first and second longitudinal axes so as to pivot the first and second tines at the same time.

8. The dish insert as recited in claim 1 further comprising:
a plurality of third tines disposed one behind the other on a third holding strut; and
a plurality of fourth tines disposed one behind the other on a rotatably mounted fourth holding strut so that the fourth tines are pivotable relative to the third tines and the third and fourth tines are alignable alternately one behind the other in a second row and configured to receive dishes therebetween;
wherein a distance between the first and second rows is approximately the same as a length of a tine of the fourth tines.

9. The dish insert as recited in claim 7 further comprising:
a plurality of third tines disposed one behind the other on a third holding strut; and

a plurality of fourth tines disposed one behind the other on a rotatably mounted fourth holding strut so that the fourth tines are pivotable relative to the third tines and the third and fourth tines are alignable alternately one behind the other in a second row and configured to receive dishes therebetween;
wherein a distance between the first and second rows is approximately the same as a length of a tine of the fourth tines.

10. The dish insert as recited in claim 1 further comprising a locking device configured to lock at least one of the first tines and the second tines in an upright position.

11. The dish insert as recited in claim 7 further comprising a locking device configured to lock at least one of the first tines and the second tines in an upright position.

12. The dish insert as recited in claim 8 further comprising a locking device configured to lock at least one of the first tines and the second tines in an upright position.

13. The dish insert as recited in claim 9 further comprising a locking device configured to lock at least one of the first tines and the second tines in an upright position.

14. The dish insert as recited in claim 4 wherein in the second position of the second holding strut the respective first and second tines of each respective tine unit are disposed against each other.

15. The dish insert as recited in claim 4 wherein in the second position of the second holding strut the respective first and second tines of each respective tine unit are disposed with a space between each other.

16. The dish insert as recited in claim 1 further comprising:
a plurality of third tines disposed one behind the other on a third holding strut; and
a plurality of fourth tines disposed one behind the other on a rotatably mounted fourth holding strut so that the fourth tines are pivotable relative to the third tines and the third and fourth tines are alignable alternately one behind the other evenly spaced in a second row at a third distance between adjacent tines of the second row, and in a fourth position of the fourth holding strut the third and fourth tines are alignable alternately one behind the other forming a plurality of tine units evenly spaced from each other in the second row at fourth distance between adjacent tine units, each third tine unit including a respective tine of the third tines and a respective tine of the fourth tines, the fourth distance being greater than the third distance;
wherein, in the third position, the tines are configured to receive third dishes therebetween, and, in the fourth position, the second tine units are configured to receive fourth dishes therebetween.