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[54] **DISHWASHER SILVERWARE BASKET WITH SOAKER MEANS**

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[51] **Int. Cl.**.....**B08b 3/02,** B08b 13/00

[58] **Field of Search**.....134/57 DL, 58 D, 134/58 DL, 93, 143, 154, 183, 200; 312/138 A

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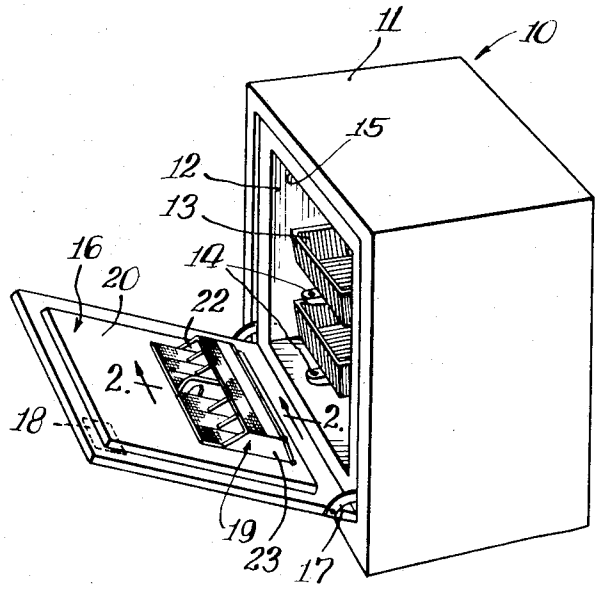
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[57] **ABSTRACT**

A dishwasher having a silverware basket carried on the door for washing of silverware placed in the basket during the dishwashing operation. The basket includes structure for alternatively arranging the basket for passage of the dishwashing liquid therethrough or for retaining a body of the dishwashing liquid in a lower portion thereof for soaking the silverware disposed in the basket during the first part of a dishwashing operation.

12 Claims, 3 Drawing Figures



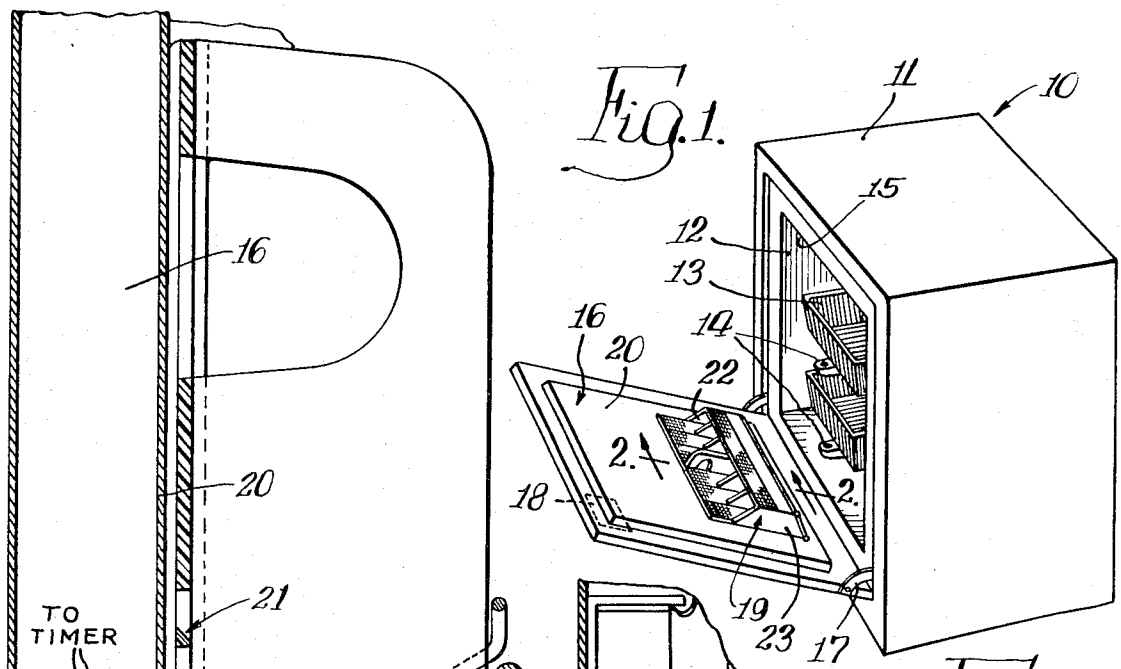


Fig. 1.

Fig. 2.

Fig. 3.

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DISHWASHER SILVERWARE BASKET WITH SOAKER MEANS

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to washing apparatus and in particular to dishwashers having baskets in which silverware is washed during the dishwashing operation.

2. Description of the Prior Art

In one improved form of dishwasher as shown in co-pending application for U.S. letters patent Ser. No. 808,242 of William J. Lampman et al. filed Mar. 13, 1969, now U.S. Pat. No. 3,665,943, and owned by the assignee hereof, a dishwasher is shown to comprise a cabinet comprising a dishwashing space selectively closed by a door which carries a silverware basket. Silverware disposed in the basket is washed therein by the dishwashing liquid distributed through the dishwasher space during the dishwashing cycle. The basket is pervious so that the dishwashing liquid impinging on the silverware may flow downwardly and outwardly therefrom to maintain a constant silverware-washing action wherein food particles and the like are removed from the silverware. In said application, which is incorporated by references herein as a disclosure of the specific structure of the dishwasher means thereof, the front wall of the basket is pivotally carried so as to provide full accessibility to the basket space when desired.

SUMMARY OF THE INVENTION

The present invention comprehends an improved dishwasher structure wherein the silverware basket is selectively arranged to define a soaking means and a conventional flow-through washing means relative to the silverware disposed therein. More specifically, the present invention comprehends the provision of a dishwasher silverware basket comprising means defining an impervious four-sided or generally tubular wall structure, pervious wall means at the lower end of the impervious wall structure for supporting silverware to extend upwardly from the pervious means through the space defined by the impervious wall structure, and means for selectively closing the one end of the wall structure to cause the lower end of the basket to selectively define means for soaking the silverware therein.

Furthermore specifically, the invention comprehends the provision in a dishwasher having a cabinet defining a dishwashing chamber provided with a front opening, means for directing dishwashing liquid against dishes in the chamber, and a door for movably closing the front opening, of means for holding silverware to be washed therein, including a basket for removably holding silverware having a pervious upper side wall portion, an impervious lower side wall portion, and a pervious bottom wall, of means for mounting the basket in the cabinet exposed to the dishwashing chamber, closure means for selectively closing the lower end of the basket to prevent liquid flow downwardly through the previous bottom wall whereby the lower portion of the basket selectively defines a soaking chamber adapted to fill up with the dishwashing liquid to soak silverware disposed therein, and means for releasing the closure means during a subsequent dishwashing cycle to drain the soaking chamber and permit further washing of the silverware in the basket by continuous flow of dishwashing liquid therethrough.

The closure in the illustrated embodiment is pivotally carried on the lower end of the basket to extend subjacent the pervious bottom wall of the basket and the front portion of the basket is pivotally mounted to provide full accessibility to the space within the basket such as in loading the silverware therein. The closure may be latched to the pervious bottom wall by suitable latch means comprising, in the illustrated embodiment, magnetic latch means. Release means are provided illustratively in the form of a solenoid mounted within the door for actuating a pusher rod to disengage the magnetic latch means, thereby permitting the closure to swing downwardly in converting the basket from the soaker basket arrangement to a conventional flow-through basket arrangement. The solenoid is controlled by the timer means of the dishwasher so as to effect the change from the soaker arrangement at a preselected time in the dishwashing cycle to provide a desired period of soaking and a desired subsequent period of conventional washing automatically in the operation of the dishwasher.

The dishwasher silverware basket means of the present invention is extremely simple and economical of construction while yet providing the highly desirable features discussed above.

BRIEF DESCRIPTION OF THE DRAWING

Other features and advantages of the invention will be apparent from the following description taken in connection with the accompanying drawing wherein:

FIG. 1 is a perspective view of a dishwasher having silverware basket means embodying the invention;

FIG. 2 is a fragmentary enlarged vertical section taken substantially along line 2—2 of FIG. 1 with the basket disposed in the soaking arrangement; and

FIG. 3 is a fragmentary vertical section similar to that of FIG. 2 but with the basket arranged in the flow-through arrangement.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In the exemplary embodiment of the invention as disclosed in the drawing, a dishwasher generally designated **10** is shown to comprise a cabinet **11** defining a dishwashing space **12** in which a plurality of dishholding baskets **13** are mounted for washing of dishes placed therein by suitable dishwashing liquid sprayed forcibly through space **12** by suitable spray arm means **14** of conventional construction. The dishwashing space **12** defines a front opening **15** which is selectively closed by a door **16** which, in the illustrated embodiment, is hingedly mounted at the base thereof by suitable hinge means **17**. The dishwasher includes automatic control means defined by a timer **18** for effecting an automatic cycling dishwashing operation of the dishwasher illustratively providing conventional prerinse, dishwashing, rinsing, and drying operations.

Silverware is washed in the dishwasher by the placement thereof in a basket **19** which is exposed to the dishwashing space **12** during the dishwashing cycle. In the illustrated embodiment, basket **19** is mounted on rear surface **20** of door **16** so as to be disposed in an upright arrangement when the door is closed across opening **15** as shown in FIG. **2**.

As disclosed in greater detail in the above-indicated Lampman et al application Ser. No. 808,242, the silverware basket comprises a basket formed as by molding

from a suitable plastic to define a pervious rear wall **21**, sidewalls **22** and **23**, a pervious bottom wall **24**, and a front wall **25** pivotally mounted on the front end of the bottom wall by suitable pivot means **26**. The pivotally mounted front wall **25** may be selectively latched in an upright position to define a silverware holding space **27** rearwardly of the front wall, forwardly of the rear wall **21**, and between the side walls **22** and **23**.

The basket is secured to the rear surface **20** of door **16** by a suitable screw **32** and grommet **33**. As shown in FIG. **2**, the basket is preferably secured to the door in an elevated position so as to be above the level of the lowermost spray arm **14**. The bottom wall **24** extends forwardly angularly upwardly from the lower end **34** of the rear wall **21** whereby spray S from the spray arm **14** may be projected toward the bottom wall suitably to pass upwardly through the openings **35** therein when the bottom wall is exposed to the spray arm, as shown in FIG. **3**.

The lower portion of rear wall **21** defines an impervious wall portion **36** and the lower portion **37** of the front wall **25** defines an impervious lower wall portion thereof which lower wall portions cooperate with the impervious side walls **22** and **23** to define a four sided soaker space portion **38** in the lower portion of the silverware basket space **27**.

Dishwashing liquid may be retained in the soaker space portion **38** suitably to soak silverware portions disposed therein during the dishwashing operation, by selectively closing the lower end of space **38**. To this end, a closure wall **39** is pivotally mounted on the lower end **34** of rear wall **21** by a suitable hinge **40** to extend subjacent the pervious bottom wall **24** and effectively close the openings **35** therethrough during the soaking operation. Impervious wall **39** may be latched in the basket closing position of FIG. **2** by a suitable latch, herein comprising a magnetic latch **41** including a magnet **42** carried by the impervious wall **39** and a latch plate **43** carried by the pervious wall **24**. Thus, when closure **39** is disposed across the lower end of basket space **38**, as shown in FIG. **2**, liquid directed into the basket from the spray means **14** collects in the lower space **38** up to the top of the impervious portion **37** of front wall **25** thereby soaking the silverware portions disposed in the basket, during an initial operation in the dishwashing cycle.

As discussed above, the timer **18** may be utilized to effect a release of the closure **39** at a preselected time in the automatic operation of the dishwasher so as to rearrange the basket suitably to permit flow of the dishwashing liquid therethrough and downwardly outwardly therefrom through the pervious bottom wall **24** upon completion of the desired soaking period. For this purpose, means are provided for releasing latch **41** at the desired point in the dishwashing cycle which, in the illustrated embodiment, may comprise a solenoid **44** mounted in door **16** and connected to timer **18** by suitable electrical conductor wires **45**. The solenoid plunger **46** may be connected through a connector rod **47** and rocking arm **48** to a pusher rod **49** coaxially slidable through a sleeve **50** so as to have the distal end **51** of the rod **49** bear against the upper surface of closure **39** outwardly of pivot **40**. Sleeve **50** extends through basket rear wall **36** and door rear wall **20** and is secured to the door wall **20** by a suitable sealing gasket **52**. A coil spring **53** may be provided on the solenoid plunger **46** to bear against an outer collar **54** thereon and urge the plunger suitably to draw rod **49** upwardly in the soaker arrangement of the basket, as shown in FIG. **2**.

As shown in FIG. **3**, when solenoid **44** is energized by timer **18**, connector rod **47** is drawn upwardly to pivot rocking arm **48** about its pivot **55** on mounting bracket **56** in a clockwise direction thereby to force rod end **51** downwardly against closure **39** thereby separating magnetic means element **42** from element **43** and permitting closure **39** to swing downwardly to the full line position of FIG. **3**, thereby permitting liquid to flow downwardly through openings **35** in bottom wall **24** and arranging the basket in the normal flow-through silverware-washing arrangement. Further, dishwashing liquid may be sprayed upwardly through openings **35** in the open arrangement of the basket by virtue of the rearwardly upwardly inclined arrangement of the pervious bottom wall **24**. The disclosed latching means and release means for effecting the selected positioning of the closure **39** are illustrative, it being understood that other suitable latching and releasing means may be employed within the scope of the invention.

Loading of the silverware into basket **27** may be effected by the unlatching of front wall **25** and the swinging thereof in upward clockwise direction, as seen in FIG. **1**, providing full access to the space **27** including the lower soaker section **38**. Closure **39** may be swung upwardly to the latched arrangement of FIG. **2** and the front wall may be swung in a counterclockwise arrangement thereof to arrange the basket for the silverware washing operation wherein the dishwasher provides an automatic sequential soaking and flowthrough washing of the silverware as discussed above.

The foregoing disclosure of specific embodiments is illustrative of the broad inventive concepts comprehended by the invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. In a dishwasher having a cabinet defining a dishwashing chamber provided with a front opening, means for directing dishwashing liquid against dishes in said chamber, and a door for movably closing said front opening, means for holding silverware to be washed therein, comprising:

a basket for holding silverware having a pervious upper side wall portion, and impervious lower side wall portion, and a pervious bottom wall;

means for mounting said basket in said cabinet exposed to said chamber;

closure means for selectively closing the lower end of the basket to prevent liquid flow through said pervious bottom wall whereby the lower portion of the basket defines a soaking chamber adapted to fill up with the dishwashing liquid to soak silverware disposed therein; and

means for rearranging the closure means to open said lower end of the basket to drain the soaking chamber and permit subsequent washing of the silverware in the basket by continuous flow of dishwashing liquid therethrough.

2. The dishwasher means of claim **1** wherein said closure means comprises an impervious wall selectively disposable across the bottom of the basket adjacent said pervious bottom wall.

3. The dishwasher means of claim **1** wherein said closure means comprises an impervious wall selectively

disposable across the bottom of the basket subjacent said pervious bottom wall.

4. The dishwasher means of claim **1** wherein said mounting means comprises means mounting the basket on said door.

5. The dishwasher means of claim **1** wherein said impervious sidewall portion includes a section movably carried on the basket for selectively providing full access to the space within the basket.

6. The dishwasher means of claim **1** wherein magnetic means are provided for retaining said closure in the basket closing disposition.

7. The dishwasher means of claim **1** wherein magnetic means are provided for retaining said closure in the basket closing disposition comprising a catch piece on one of said bottom wall and said closure means and a magnet on the other thereof.

8. The dishwasher means of claim **1** wherein latch means are provided for holding said closure means in the basket closing disposition and the dishwasher includes an electrical control means having a portion arranged to disengage said latch means at a preselected time in the dishwashing cycle.

9. The dishwasher means of claim **8** wherein said control means portion comprises a solenoid and means operated by the solenoid to urge said latch means from the latched disposition thereof.

10. The dishwasher means of claim **8** wherein said basket and said electrical control means portion are carried by said cabinet door.

11. The dishwasher means of claim **1** wherein the basket is mounted on the inner surface of the door and said pervious bottom wall extends angularly upwardly away from the door.

12. The dishwasher means of claim **1** wherein the basket is mounted on the inner surface of the door, said pervious bottom wall extends angularly upwardly away from the door, and the closure means comprises an impervious wall pivotally mounted to the basket adjacent said door surface and engages the underside of the bottom wall in the basket closing arrangement.

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