DISHWASHER DRIP GUARD

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3 Claims. (Cl. 312—229)

This invention pertains to the art of drip guards for liquid containers, such as dishwashers and the like.

The invention is particularly adapted for use with front loaded dishwashers for receiving water droplets from the door frame of the dishwasher and will be described with particular reference thereto, although it will be appreciated that the invention may be used in conjunction with various types of liquid containers in which it is desirable to receive or catch liquid droplets.

A front loaded dishwasher generally includes a cabinet defined by side, top and bottom walls for receiving dishes and other utensils to be washed. The cabinet contains a spray system for impinging water under relatively high pressures onto the dishes to be washed in conjunction with a water circulating system. One of the side walls of the cabinet, or a portion thereof, also serves as a door and is suitably pivotally mounted to the cabinet whereby the door pivots at its bottom edge between an open or horizontal position and a closed or vertical position at which the door is in relatively water tight sealing engagement with the cabinet. Usually a seal, such as a rubber gasket, is interposed between the door and a receiving door frame defined by the cabinet and may, for example, be secured on the inner peripheral surface edge of the door so that upon firmly closing the door the gasket forms a peripheral seal between the door and the door frame. In this manner water leakage from the interior of the cabinet during high pressure water spray operation is kept to a minimum.

However, after an extended period of dishwasher operation, the gasket frequently becomes less efficient as a seal and water leakage during the water spray operation of the dishwasher occurs. Hence, water droplets form along the outer edge of the gasket and door frame and drip downwardly to the floor supporting the dishwasher. Water leakage may also result if foreign matter is lodged between the gasket and the door frame so that even if the door is firmly closed a slight air gap is defined through which water leakage may pass. Also, if the operator has not firmly closed the dishwasher door it is apparent that the gasket may not serve to provide an efficient water tight seal.

The present invention relates to a drip guard for receiving and catching water droplets due to water leakage of a dishwasher cabinet as they drip downwardly along the door frame and gasket, to thereby prevent the droplets from falling to the floor supporting the dishwasher cabinet.

In accordance with this invention, a drip guard is provided for a dishwasher cabinet which is defined by top, side and bottom walls with one of the side walls defining an opening in the cabinet, and a door movably mounted on the cabinet for movement relative to the opening for closing the opening. The drip guard takes the form of liquid droplet receptacle means mounted on the cabinet for receiving droplets of liquid as they drip downwardly from the cabinet along the edges of the opening.

In accordance with another aspect of the invention, the drip guard takes the form of a pair of bowed flange portions of the bottom edges of the cabinet, each bowed portion being bowed outwardly and extending upwardly from the cabinet and located with respect to the side edges of the opening in the cabinet to receive water droplets therefrom.

In accordance with still another aspect of the invention, a bottom wall is provided for receiving the side walls of a dishwasher cabinet with one of the side walls having an opening therein and a door mounted to the cabinet for closing the opening. The bottom wall includes a peripheral upwardly extending flange for receiving the side walls of the cabinet. Receptacle means are formed in the flange and bowed outwardly of the cabinet and located below the opening for receiving droplets of liquid therefrom.

In accordance with a still further aspect of the invention, the receptacle means communicates with a water circulating means connected to the bottom wall of the cabinet. In this manner, water droplets received by the receptacle means may be circulated by the circulating means to water spray means contained within the cabinet at which the water droplets originated.

The primary object of the present invention is to provide a drip guard for receiving droplets of liquid which drip downwardly along the side edges of an opening in a front loaded dishwasher cabinet, and which is simple in construction and economical to manufacture.

Another object of the present invention is to provide a drip guard for a front loaded dishwasher cabinet which includes a pair of receptacles, each located to receive liquid droplets which drip downwardly along one of the two side edges of an opening in the dishwasher cabinet.

A still further object of the present invention is to provide a drip guard water receptacle means for catching water droplets from the side edges of an opening in a dishwasher cabinet and circulating the droplets back into a water spray means in the cabinet from which the droplets originated.

These and other objects and advantages of the invention will become apparent from the following description illustrated by the accompanying drawings in which:

FIGURE 1 is a partially cross sectioned, left side elevational view of a dishwasher illustrating the preferred embodiment of the present invention;
FIGURE 2 is a partial enlarged left side elevational view illustrating one embodiment of the invention;
FIGURE 3 is an enlarged partial front elevational view with parts broken away, illustrating the preferred embodiment of the invention;
FIGURE 4 is a cross sectional view taken along line 6-6 of FIGURE 3; and
FIGURE 5 is a perspective view of the bottom, left hand corner of the dishwasher cabinet illustrating the preferred embodiment of the invention.

Referring now to the drawings wherein the showings are for the purpose of illustrating a preferred embodiment of the invention only, and not for the purpose of limiting same, FIGURE 1 shows a dishwasher cabinet 10 of substantially rectangular cross section and defined by a top wall 12, a bottom wall 14, a rear side wall 16, a front side wall 18, a left side wall 20, and a right side wall 22. The front side wall 18 also serves as a door and hereinafter will be referred to as such. The door 18 is pivotally mounted at its lower edge to the bottom wall 14 by means of a hinge 24, whereby the door may be selectively pivoted to an open position or a closed position, as shown in FIGURE 1. The bottom wall 14 extends downwardly from its peripheral side edges terminating at and connected to a lower truncated sump wall 26 in communicating relationship with the interior of cabinet 10. A water inlet line 28 is provided for directing water into the interior of cabinet 10 and is controlled by a valve 30 connected thereto and which is suitably actuated by a sig-
nal from a timing device (not shown). The water inlet line 28, when valve 30 is open, serves to direct water through the siphon chamber 32 into the cabinet 10 via a water inlet 34. Mounted directly below the cabinet 10 and adapted to receive water from sump wall 26 there is provided a water circulating mechanism 36 which serves to recycle water from the sump wall 26 through a perforated jet tower 38 connected onto the outlet of the mechanism 36 by means of a recycle line 40.

Dishes and other utensils to be washed are supported within the cabinet 10 on an upper dishrack 42 and a lower dishrack 44, which are positioned with respect to the perforated jet tower 38 in such a manner that water spraying from the perforations of the jet tower will impinge upon, and subsequently wash, all the surfaces of the dishes and utensils on the dishracks to wash and rinse them.

An upwardly extending stand pipe 46 extends vertically through the sump wall 26 from the water circulating mechanism 36. The stand pipe 46 extends vertically upward into the cabinet 10 and is provided with a central passageway 48, which communicates directly with a drain passageway (not shown) at the bottom end of the stand pipe. A pair of apertures 50 are provided in the uppermost end of the stand pipe and communicate with the passageway 48 so as to provide an overflow control for the central stand pipe 46. The stand pipe 46 serves to maintain a maximum water level 52 within the cabinet 10, as is best shown in FIGURE 1. If the water level within cabinet 10 tends to exceed the level 52, which coincides with the height of the apertures 50, the water is drained through the stand pipe via apertures 50 and passageway 48 and thence into the drain passageway 48.

The top wall 12 is provided with an upwardly extending flange 13 across the entire length of its forward edge, as shown in FIGURE 1. Similarly, the left side wall 20 of the cabinet 10 is bent outwardly along its forward edge as is shown by flange 21 in FIGURE 4, which extends along the entire outward edge of left side wall 20. Right side wall 22 is flanged in a manner identical to that of left side wall 20 to form a flange (not shown) extending along the entire forward edge of wall 22. The flanges 13, 21 and of wall 22 (not shown) define a door frame 27 on which the door 18 is seated when in its closed position, as shown in FIGURE 1. A gasket 25 of rubber like material is secured to the inner peripheral surface edge of the door 18 along the top and side edges of the door and is hooked behind a tongue 19 on the bottom interior portion of door 18. When the door is firmly closed, the gasket 25 and the flanges define door frame 27, in the manner as shown in FIGURE 4, tending to provide a water tight seal between the door 18 and the door frame 27 to prevent leakage of water from the interior of the cabinet 10. However, after an extended period of use of the dishwasher, or when foreign particles become interposed between the gasket 25 and the door frame 27, or if the door 18 is left slightly ajar, a certain amount of water leakage will prevail between the gasket and the door frame. Water droplets 29 will form along the flanges 21 and the one not shown on wall 22 adjacent the outer edge of the gasket and drip downwardly along these flanges, and perhaps also along the side peripheral edges of door 18, in the manner as shown in FIGURES 2 and 3.

The present invention is directed toward the construction of the lower wall 14 of the cabinet 10, which will be hereinafter described in greater detail. Referring now to FIGURES 1 through 5, the bottom wall 14 of the cabinet 10 is provided with an upwardly extending flange 54 which is of substantially rectangular cross section with respect to cabinet 10, and serves to receive the bottom end portions of rear wall 16, left side wall 20 and right side wall 22 of the cabinet 10, as well as the bottom tongue portion 19 of door 18.

In accordance with the invention a pair of identical receptacles 56 are formed in the peripheral flange portion 54 of the bottom wall 14 with one receptacle being located adjacent the lower left corner of gasket 25, as shown in FIGURES 2, 3, 4 and 5. The other receptacle is also located in an identical manner adjacent the lower right corner (not shown) of gasket 25. Each receptacle 56 is formed integral with flange 54 and is bowed outwardly and upwardly of the cabinet 10 to form a receiving space 58 into which water droplets 29 dripping downwardly along flanges 21 and the one not shown on wall 22 may be received.

As the water droplets 29 are received by receptacle 56 they pass downwardly along bottom wall 14 and are deposited into the pool of water at water level 52 contained in the bottom surface 14 of the cabinet 10, as is shown in FIGURE 1. The water droplets are circulated by the water circulating mechanism 36 upwardly through recycling line 40 which communicates with receptacles 56 via sump wall 26 and bottom wall 14, into and through the perforated jet tower 38 to be sprayed on dishes and other utensils mounted on racks 42 and 44.

The top edge 60 of each receptacle 56 is located above the water level 52 maintained by the stand pipe 46. In this manner water at the water level 52 is prevented from filling the receptacles 56 and spilling over the top edge 60 thereof and thereby defeating the purpose of the receptacles.

During the operation of the dishwasher recycling mechanism 36, with door 18 closed, water will be passed through the perforated jet tower 38 under relatively high pressures into the interior of the cabinet 10. If for any of the reasons described hereinbefore some of the water leaks past the gasket 25, water droplets 29 will be formed and flow along the exterior side edges of the gasket downwardly along the flanges of the left and right side walls 20 and 22, respectively. As the water droplets reach the lowermost end of these flanges they will drop into the receiving spaces 58 and flow downwardly along the inner surface of the receptacles 56 and thence along the inner surface of bottom wall 14 into the pool of water at water level 52. The circulating mechanism serves to circulate the water below water level 52 up through recycling line 40 and thence again through the perforated jet tower 38 into the interior of cabinet 10.

The present invention has been described in connection with a particular structural embodiment which has proven satisfactory in use; however, it is appreciated that the structural embodiment may be modified without departing from the intended spirit and scope of the invention as defined in the appended claims.

1. In a dishwasher cabinet defined by top, side and bottom walls, one of said side walls having an opening therein and said bottom wall defining a liquid sump, a door hinged at the bottom and mounted on said cabinet for movement relative to said opening between a door open position and a door closed position at which the door is seated on said cabinet to close said opening, sealing means interposed between said door and said cabinet about the outer peripheral surface edge of said opening, the improvement comprising: water droplet receptacle means mounted on said cabinet, said receptacle means projecting forwardly beneath the inner surface of said door and outwardly at the sides beyond the boundary of said sealing means for receiving water droplets as they drip downwardly on said cabinet along the outer edge of said seal means, said receptacle means communicating with said cabinet to circulate said water droplets back to the side walls of said cabinet.

2. A dishwasher cabinet defined by top, side and bottom walls, one of said side walls defining a substantially rectangular opening in the cabinet with the side edges of said opening being in parallel vertical planes, a substantially rectangular shaped door pivotally mounted at its bottom edge on the cabinet for pivotal movement relative to said opening between an open position and a closed position at which the inner peripheral surface of said
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5 door is in engagement with said cabinet about the peripheral edge of said opening, sealing means interposed between said door and said cabinet about the outer peripheral surface edge of said opening, said bottom wall characterized in that a peripheral upstanding flange thereon closely bounds said sidewalls with the exception of said one side wall, said flange diverging outwardly from the plane of said opening in said one side wall so as to define a receptacle located vertically below one of the side edges of the opening in said cabinet for receiving droplets of liquid as they drip vertically downward from said side edges and sealing means.

3. A dishwasher cabinet of substantially rectangular cross section defined by front side, rear side, left side, right side, top and bottom walls, said front side wall being a door hinged at its bottom edge to said bottom wall for pivotal movement between an open position and a closed position at which the cabinet becomes a closed container; the front side edges of said top, left side and right side walls being flanged outwardly of said cabinet to form a door frame to which said door is seated when in its closed position; gasket mounted on the inner peripheral surface edge of said door tending to form a tight seal between said door and door frame when said door is in its closed position; said bottom wall being flanged upwardly about its periphery to receive said rear side, left side and right side walls of said cabinet and being flanged outwardly and upwardly to provide a hinge mounting surface for said door and defining a receptacle inwardly thereof, said inner peripheral surface edge of said door overhanging said receptacle when the door is closed so as to receive water droplets as they drip downwardly along the left and right side edges of said gasket and door frame.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

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It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

In the grant, line 3, and in the heading to the print specification, line 5, for "a corporation of Ohio" read -- a corporation of Delaware --.

Signed and sealed this 28th day of November 1967.

(SEAL)
Attest:

Edward M. Fletcher, Jr.  
Attesting Officer

EDWARD J. BRENNE  
Commissioner of Patents