APPLIANCE RETAINER STRUCTURE

Inventor: Gerald J. Farrell, Elmhurst, Ill.
Assignee: Elkay Manufacturing Company, Broadview, Ill.

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ABSTRACT

A retainer structure for mounting an appliance, such as a sink, in a counter opening, wherein the appliance has an outer rim therearound overlying the edges of the counter opening, and comprising a clamp member secured to the underside of the rim and extending into the opening and carrying a cam pivotal about the point of the securement of the clamp member to the rim between a rest position and a fully deflected position, a retainer clip mounted on the counter within the opening and having a fixed cam surface extending upwardly and inwardly into the opening, the cam engaging the cam surface to press the periphery of the rim against the top of the counter, and a deflecting flange on the cam for permitting insertion of the appliance into the opening without the use of any tools; in a second form, a clip is provided between the underside of the counter and the clamp member and carrying a screw to permit manual adjustment of the rim against the top of the counter.

14 Claims, 12 Drawing Figures
APPLIANCE RETAINER STRUCTURE

The present invention is directed to retainer structures, and particularly to such structures for mounting appliances, such as sinks, having a rim around the outer edge thereof, the appliance being mounted on a counter and in an opening therein with the rim pressed against the top of the counter.

It is an important object of the invention to provide a retainer structure for mounting an appliance on a generally horizontally disposed counter having an opening therethrough, wherein the appliance has an outwardly extending perimetric flange defining a rim overlying the counter along the marginal edges of the opening therethrough, the retainer structure comprising a clamp member secured to the underside of the associated flange and extending therefrom into the associated opening and having on the lower portion thereof a cam, the cam being shiftable between a rest position and a fully deflected position and a plurality of intermediate retaining positions disposed therebetween, and a retainer clip mounted on the counter within the opening therein and having a cam surface thereon disposed away from the top of the counter and extending upwardly and inwardly into the opening, the cam surface being essentially rigid to provide a constant camming angle for engagement with the cam on the clamp member, movement of the cam along the surface as the cam moves from the fully deflected position towards the rest position thereof urging the clamp member and the flange secured thereto downwardly relative to the counter firmly to press the periphery of the rim against the top of the counter.

Another object of the invention is to provide a retainer structure of the type set forth wherein the cam is disposed outwardly with respect to the point of securement of the clamp member to the flange, so that the cam in shifting from the rest position to the fully deflected position moves away from the flange and the top of the counter and in shifting from the fully deflected position to the rest position moves toward the flange and the top of the counter.

Another object of the invention is to provide a retainer structure of the type set forth wherein the clamp member further comprises a deflecting flange below the cam and engageable with the clip upon insertion of the appliance into the counter opening to deflect the cam inwardly and past the clip and then into engagement with the cam surface on the clip.

A further object of the invention is to provide a retainer structure of the type set forth, but including a second form of clip, the second form of clip having a body extending through an aperture in the clamp member and being provided with a threaded hole adjacent to one end thereof and a bearing member adjacent to the other end thereof, and a screw having one end thereof disposed against an abutment surface on the clamp member and a threaded portion adjacent to the other end thereof extending through the threaded hole and threadedly engaging the body of the clip, rotation of the screw serving to move the body downwardly relative to the threaded portion and away from the underside of the flange and pivoting the clip to press the bearing member against the underside of the counter firmly to press the periphery of the rim against the top of the counter.

A still further object of the invention is to provide a clamp member and a retainer clamp and a clip having a threaded opening therein, all for use in retainer structures of the type set forth.

Further features of the invention pertain to the particular arrangement of the parts of the retainer structure, whereby the above outlined and additional operating features thereof are attained.

The invention, both as to its organization and method of use, together with further objects and advantages thereof, will best be understood by reference to the following specification taken in connection with the accompanying drawings, in which:

FIG. 1 is a plan view of a portion of a counter illustrating a sink mounted therein utilizing a retainer structure made in accordance with and embodying the principles of the present invention;

FIG. 2 is an enlarged fragmentary view in vertical section through the structure of FIG. 1 along the line 2—2 thereof;

FIG. 3 is a view similar to FIG. 2 and illustrating the sink rim and the clamp member thereon before assembly in a counter;

FIG. 4 is a fragmentary view in vertical section along the line 4—4 of FIG. 2;

FIG. 5 is a fragmentary perspective view of a clamp member forming a part of the retainer structure of the present invention;

FIG. 6 is a view similar to FIG. 2 and illustrating the engagement of the parts when the counter opening is of a minimum size;

FIG. 7 is a view similar to FIG. 2 and illustrating engagement of the parts when the downturned flange on the appliance rim has a vertical extent less than that in FIG. 2;

FIG. 8 is also a view similar to FIG. 2 and showing the engagement of the parts when there is a minimum counter opening and a vertical extent of the rim flange as in FIG. 7;

FIG. 9 is a fragmentary plan view of a sink mounted in a counter top utilizing a second preferred embodiment of the retainer structure of the present invention;

FIG. 10 is an enlarged fragmentary view in vertical section along the line 10—10 of FIG. 9;

FIG. 11 is a view similar to FIG. 10 and showing the clip forming a part of the retainer structure in a second position thereof; and

FIG. 12 is an enlarged perspective view of the clip forming a part of the retainer structure of FIGS. 9 to 11.

Referring to FIGS. 1—5 of the drawings, there is illustrated a first embodiment of a retainer structure useful in mounting an appliance such as a sink 60 in a counter 50. As illustrated, the counter 50 includes the usual body 51 which may be formed of wood or the like, carrying on the upper side thereof a covering 52 of plastic or other composition material, the covering 52 having an exposed upper surface 53 while the body 51 has an exposed underside 54. Cut in the counter 50 is an opening 55, whereby the body 51 has a vertical peripheral surface 56 and the covering 52 has a peripheral edge 57, the surface 56 and the edge 57 defining the opening 55.

The retainer structure 100 may be utilized in mounting a wide variety of appliances in the opening 55 of the
counter 50 and for illustrative purposes, the appliance has been illustrated in the drawings as the sink 60, but it will be appreciated that other appliances may also be advantageously mounted by means of the retainer structure 100 in the counter opening 55. The sink 60, which may be formed of any suitable material such as stainless steel, is illustrated as having a pair of bowls 61 each provided with vertically extending side walls 62 and closed at the bottom by a bottom wall 63, the bottom walls 63 being provided with the usual drain openings 64. A top wall 65 extends around the upper surface of the sink 60 and carries in the rear portion thereof a series of inlet openings 66. Extending completely around the perimeter of the sink 60 is a rim 70 in the form of a flange including an inner inclined flange 71 directed upwardly and outwardly from the top wall 65, a main flange 72 disposed essentially parallel to the top wall 65, and an outer downwardly inclined flange 73 terminating in an outer edge 74 extending completely around the sink 60.

The retainer structure 100 includes a plurality of channels or clamp members 101, one such clamp member 101 being shown secured to each side of the sink 60, the clamp members 101 cooperating with a plurality of retainer clips 120 mounted on the vertical surfaces 56 defining the opening 55 in the counter 50.

As illustrated, each of the clamp members 101 includes a longitudinally extending attachment portion 102 carrying on the inner edge thereof a downturned flange 103 and carrying on the outer edge thereof a downwardly extending body 105. Attachment between the clamp member 101 and the associated rim 70 is by means of a series of weldments 104. In the unflexed condition of the clamp member 101, the body 105 is disposed at an angle of about 80° with respect to the plane of the attachment portion 102. As may be best seen in FIG. 5, the body 105 has a plurality of generally rectangular openings 106 therein which impart to the body 105 a predetermined flexibility or resiliency, all as will be explained more fully hereinafter. Integral with the lower edge of the body 105 is an outturned flange 107 that extends away from the body 105 in a direction opposite to the attachment portion 102, the outturned flange 107 in the unflexed condition of the clamp member 101 being essentially parallel to the attachment portion 102. The outer edge of the outturned flange 107 carries integral thereon a downwardly and inwardly directed deflecting flange 108, the lower edge of the deflecting flange 108 having a flange 109 rolled back thereon to provide a smooth lower edge for the clamp member 101. When the clamp member 101 is in the unflexed condition thereof, the deflecting flange 108 is disposed at an angle of about 65° with respect to the outturned flange 107, whereby when the flange 107 is disposed horizontally, the deflecting flange 108 is disposed at an acute angle of about 25° with respect to the vertical. The deflecting flange 108 further has therein a plurality of longitudinally aligned and generally rectangular apertures 111, the lower edge 112 defining each aperture 111 providing a pivotal surface in cooperation with the adjacent free edge of the flange 109. It further is pointed out that the openings 106 and the apertures 111 are in general vertical alignment as illustrated. As will be further explained hereinafter, the juncture between the outturned flange 107 and the deflecting flange 108 is rounded to provide a locking corner 110, while the outer surface, i.e., the surface disposed to the right in FIGS. 2 and 3, on the deflecting flange 108 comprises a camming surface 115 for use with the retainer clip 120.

Referring specifically to FIGS. 2 and 4 of the drawings, it will be seen that the retainer clip 120 includes a generally rectangular body 121 having a pair of openings therein for receiving therethrough suitable fasteners, such as the nails 127, for mounting the retainer clip 120 on one of the vertical surfaces 56 defining the counter opening 55. The upper edge of the body 121 carries a top flange 122 disposed substantially normal to the body 121 and in use overlying the adjacent surface 53 on the counter 50. The lower edge of the body 121 carries centrally thereof an inturned flange 123 having a longitudinal extent less than that of the body 121 and disposed essentially normal thereto. The outer edge of the inturned flange 123 carries in turn a camming flange 124 that extends back toward the body 121 and terminates in an edge 128 that is normally disposed against the surface 56 in the use position thereof. The camming flange 124 is relatively rigid in comparison to both the rim 70 and the clamping member 101, the camming flange 124 presenting on the lower surface thereof a camming surface 125 that is disposed at an acute angle of about 30° with respect to the upper surface 53 of the counter 50.

In using the retainer structure 100 to mount a sink 60 in the counter opening 55 and upon the counter 50, it will be appreciated that four of the channels or clamps members 101 are respectively secured as by welding at 104 to the underside of each of the four reaches of the rim 70, the length of the clamp members 101 being adjusted so as to be slightly less than the length of the associated reach of the rim 70. The workman installs a plurality of the retainer clips 120 along the periphery of the counter opening 55 by means of the nails 127; it will be appreciated that the provision of the top flange 122 on each of the retainer clips 120 serves to install the camming surface 125 in a predetermined position with respect to the upper surface 53 of the counter 50, i.e., each of the camming surfaces 125 is in the same relative position with respect to the counter surface 53.

In order to mount the sink 60 in the thus prepared counter opening 55, the sink 60 with the clamp members 101 thereon is simply centered over the counter opening 55 and pushed downwardly, the clamp members 101 and the retainer clips 120 serving automatically firmly to mount the sink 60 on the counter 50 with the outer edge 74 of the rim 70 firmly urged and pressed against the top surface 53 of the counter 50. During the movement of the sink 60 and the attached clamp members 101 to the fully installed position, the camming surfaces 115 first engage the retainer clips 120 at the junctures 129 of the inturned flanges 123 and the camming flanges 124 thereof, this contact between the parts together with the continued downward urging of the sink 60 serving to deflect the locking corner 110 of each clamp member 101 from its rest position inwardly to a fully deflected position which permits the locking corner 110 to pass the juncture 129. The above described deflection of the locking corner 110 is essentially a pivotal movement along an arc having the weld point 104 as the center thereof, at
least a part of the flexure being accommodated by the body 105 with the openings 106 therein. Since the locking corner 110 is disposed outwardly and to the right with respect to the weld point 104 as viewed in FIG. 2, the pivotal movement of the locking corner 110 in a counterclockwise direction due to the engagement between the camming surface 115 and the juncture 129 will cause the locking corner 110 to pivot downwardly as well as inwardly from the rest position thereof to the fully deflected position thereof. Once the locking corner 110 passes the juncture 129, the locking corner 110 engages the camming surface 125. More specifically, the locking corner 110 pivots about the weld point 104 from the fully deflected position thereof back toward the rest position thereof, such pivotal movement being from an inward lower position toward an outward upper position, whereby such return movement of the locking corner 110 has a substantial component toward the rim 70. Such movement of the locking corner 110 toward the rim 70 when applied against the camming surface 125 tends to pull the rim 70 and all the attached parts downwardly, thus firmly to seat the outer edge 74 of the rim 70 upon the surface 53 of the counter 50 and continually to urge and to press the outer edge 74 toward and against the upper surface 53 of the counter 50. As a consequence, any minor irregularities in the rim 70, and specifically in the contour of the outer edge 74, are smoothed out against the top surface 53 of the counter 50 so as to provide a uniform and tight fit between the metal outer edge 74 and the resilient covering 52.

The retainer structure 100, including the clamp members 100 and the retainer clips 120, accommodates wide variations in the dimensions of the rim 70 and the counter opening 55, such accommodation being graphically illustrated in FIGS. 6 to 8 of the drawings. In FIG. 6 of the drawings, there is illustrated a minimum dimension of the counter opening 55 that can be accommodated by the retainer structure 100, while FIG. 7 demonstrates the maximum size of the counter opening 55 that can be accommodated, the difference in the size of the counter opening 55 being substantial and in a typical installation being about 1/8 inch total. In FIG. 8 there is illustrated the manner in which the retainer structure 100 accommodates an outer inclined flange 73 on the rim 70 that has a vertical extent less than the optimum. It will be seen from FIGS. 6 to 8 that substantial variations in the dimensions of the counter opening 55 and the rim 70 can be accommodated by means of the retainer structure 100.

Considering further the cooperation between the clamp members 101 and the retainer clips 120, it is pointed out that by placing the camming surface 125 on the retainer clip 120, the camming angle between the camming surface 125 and the locking corner 110 never changes. In addition, the engagement between the rounded locking corner 110 and the cam surface 125 provides an action analogous to that of a ball along an inclined plane, thereby to give good and efficient cooperation therebetween. As explained heretofore, the locking corner 110 is disposed well outwardly away from the center of the counter opening 55 and with respect to the weld points 104 which serve as the center of the deflection arc, whereby the locking corner 110 as it swings outwardly after deflection inwardly has a substantial and definite component directed upwardly so as to press the outer edge 74 of the sink rim 70 against the counter 50.

The free end of the deflecting flange 108 is always disposed inwardly, i.e., toward the center of the counter opening 55, with respect to the junctures 129 on the retainer clips 120, so that insertion of the sink 60 into the counter opening 55 is readily achieved. The deflecting flange 108 is further disposed at a small angle in the range from about 15° to about 25° with respect to the vertical during installation of the sink, so that the deflection of the clamp member 101 is about the weld points 104 rather than causing deflecting of the locking corner 110 vertically as the locking corner 110 passes by the retainer clips 120 during insertion.

Finally, the clamp member 101 is formed much stiffer than the rim 70 so that adjustment of the irregularity in the rim with respect to the top of the counter 50 is substantially all in the rim 70 with a minimum of deformation of the clamp members 101. In this regard, it is pointed out that a 1/16th inch movement in a vertical direction between the sink members 101 and retainer clips 120 is sufficient to tighten the outer edge 74 of the rim 70 against the covering 52 on the counter 50 to provide a uniform and tight joint therebetween.

Referring to FIGS. 9 to 12 of the drawings, there is illustrated a second embodiment of a retainer structure made in accordance with and embodying the principles of the present invention, the retainer structure 200 there illustrated being useful also to mount appliances, such as the sink 60, in the counter 50. The sink 60 has attached to the underside of the rim 70 thereof, the clamp members 101 described above, which clamp members 101 form part of the retainer structure 200. In place of the retaining clamp 120 utilized in FIGS. 1 to 8 of the drawings, there have been provided in the retainer structure 200 clips 220 and screws 230.

The clip 220 is best illustrated in FIG. 12 and includes a generally rectangular body 221 having at one end thereof a threaded opening 222 and at the other end thereof a flange 223 disposed at an obtuse angle with respect to the body 221. The outer end of the flange 223 has integral therewith a bearing member 225 that is disposed substantially normal to the body 221, the juncture 226 between the flange 223 and the bearing member 225 being rounded and providing a bearing surface 226 as illustrated in FIG. 10.

The screw 230 includes an elongated shank 231 having on one end thereof a conical end 232 and at the other end thereof threads 235. Also provided in the other end of the screw 230 is a slot 236 for receiving a tool, such as the blade of a screwdriver for rotating the screw 230 about its longitudinal axis.

The use of the retainer structure 200 with a relatively thick counter 50 is illustrated in FIGS. 9 and 10 of the drawings, wherein it will seem that one of the channels or clamp members 101 is respectively secured to the underside of each of the straight reaches of the rim 70. To install the sink 60 utilizing the retainer structure 200, the sink 60 is first placed in position in the counter opening 55 with the outer edge 74 of the rim 70 resting upon the upper surface 53 of the counter 50. The workman then inserts the body 221 of a clip 220 through each of the apertures 111 in the clamp members 101 with the juncture 226 bearing against the underside 54.
of the counter 50 and with the body 221 resting upon the pivot surface 112. A screw 230 is then inserted into the threaded opening 222 so that screw threads 235 engage the threads in the openings 222, the parts now being in the dashed line positions in FIG. 10. Using a suitable tool such as a screwdriver, the workman then rotates the screw 230 about its longitudinal axis in a direction to cause the clip body 221 to move downwardly along the screw threads 235. It will be noted that the screw end 232 bears against the attachment portion 102 of the associated clamp member 101, whereby the clip body 221 is caused to pivot in a counterclockwise direction about the pivot surface 112 to urge the juncture 226 against the underside 54 of the counter 50. Such action pulls the rim 70 downwardly and urges and presses the outer edge 74 of the rim 70 against the top surface 53 of the counter 50 so as to provide a uniform and tight fit between the metal outer edge 74 and the resilient covering 52.

It will be appreciated that due to the length of the clip body 221 and the length of the screw thread 235, wide variations in the size of the counter opening 55 and wide variations in the dimensions of the rim 70 can be accommodated. Furthermore, it is pointed out that the engagement between the screw threads 235 and the clip 220 is loose, whereby it is desirable to apply the maximum stress between the clip 220 and the screw 230 when the axis of the screw 230 is essentially perpendicular to the clip body 221, all as is illustrated by the solid line positions of the parts in FIG. 10.

The manner in which the retainer structure 200 of the present invention can accommodate widely varying thicknesses of counters is illustrated in FIG. 11 of the drawings, the parts of the counter in FIG. 11 being given numbers in the 150's series corresponding to the numbers in the 50's series for like parts in FIG. 10. More specifically, the counter 150 in FIG. 11 has a thickness substantially less than the thickness of the counter 50 in FIG. 10, and in fact, the counter 150 has a thickness so small that the underside 154 thereof is disposed well above the apertures 111 in the clamp members 101. In order to accommodate the smaller thickness of the counter 150, the position of the bearing member 225 is changed from the depending position of FIG. 10 to the upstanding position of FIG. 11. More specifically, the outer end 227 of the bearing member 225 is placed against the underside 154 of the counter 150, the parts being shown in dashed lines upon initial assembly thereof by hand. The workman then rotates the screw 230 about its longitudinal axis to pivot the clip body 221 in a counterclockwise direction about the pivot surface 112 to urge the end 227 against the underside 154 of the counter 150, the parts finally arriving at the solid line positions thereof. Such action pulls the rim 70 downwardly and urges and presses the outer edges 74 of the rim 70 against the top surface 153 of the counter 150 so as to provide a uniform and tight fit between the metal outer edge 74 and the resilient covering 52.

While there have been described what are at present considered to be certain preferred embodiments of the invention, it will be understood that various modifications may be made therein and it is intended to cover in the appended claims all such modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. Retainer structure for mounting an appliance on a generally horizontally disposed counter having an opening therethrough, wherein the appliance has an outwardly extending perimetric flange defining a rim overlapping the counter along the marginal edges of the opening therethrough, said retainer structure comprising a clamp member secured to the underside of the associated flange and extending therefrom into the associated opening and having on the lower portion thereof a cam presenting a limited contact area, said cam being resiliently shiftable between a rest position disposed upwardly and outwardly with respect to the flange and a fully deflected position disposed downwardly and inwardly with respect to the flange and a plurality of intermediate retaining positions disposed therebetween, and a retainer clip mounted on the counter within the opening therein and having a cam surface thereon disposed away from the top of the counter and extending upwardly and inwardly into the opening at an acute angle with respect to the top of the counter, said cam surface presenting an extended contact area and being essentially rigid to provide a constant camming angle for engagement with the cam on said clamp member thus providing a fixed ratio of the larger vertical force to the horizontal force between said cam and said cam surface, movement of said cam along said cam surface as said cam moves from the fully deflected position towards the rest position thereof generating a substantial vertical force urging said clamp member and the flange secured thereto downwardly relative to the counter firmly to press the periphery of the rim against the top of the counter.

2. The retainer structure set forth in claim 1, wherein said clamp member is secured to the underside of the associated flange by welding, and said cam pivots about the welded juncture between the rest position and the fully deflected position thereof.

3. The retainer structure set forth in claim 1, wherein said cam is in the form of a rounded corner bearing against the cam surface to provide a smooth camming action along the inclined cam surface.

4. The retainer structure set forth in claim 1, wherein said clamp member is in the form of an elongated channel having a longitudinal axis thereof disposed essentially parallel to the upper surface of the associated counter, said clamp member being engageable with a plurality of said retainer clips mounted on the associated counter.

5. The retainer structure set forth in claim 1, and further comprising a deflecting flange on said clamp member below said cam and shiftable therewith, said deflecting flange engaging said clip upon insertion of the appliance in the counter opening to move said cam into engagement with said cam surface.

6. Retainer structure for mounting an appliance on a generally horizontally disposed counter having an opening therethrough, wherein the appliance has an outwardly extending perimetric flange defining a rim overlapping the counter along the marginal edges of the opening therethrough, said retainer structure comprising a clamp member secured to the underside of the associated flange and extending therefrom into the associated opening, a cam on said clamp member and disposed outwardly with respect to the point of securement of said clamp member to the flange and presenting a limited contact area, said cam being resiliently
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shiftable between a rest position disposed upwardly and outwardly with respect to the flange and a fully deflected position disposed downwardly and inwardly with respect to the flange and a plurality of intermediate retaining positions disposed therebetween, said cam in shifting from said rest position to said fully deflected position moving away from the flange and the top of the counter and in shifting from said fully deflected position to said rest position moving toward the flange and the top of the counter, and a retainer clip mounted on the counter within the opening therein and having a cam surface thereon disposed away from the top of the counter and extending upwardly and inwardly into the opening at an acute angle with respect to the top of the counter, said cam surface presenting an extended contact area, to engage said cam between the rest position and the fully deflected position thereof and being essentially rigid to provide a constant camming angle for engagement with said cam thus providing a fixed ratio of the larger vertical force to the horizontal force between said cam and said cam surface, movement of said cam along said cam surface as said cam moves from the fully deflected position towards the rest position thereof generating a substantial vertical force urging said clamp member and the flange secured thereto downwardly relative to the counter firmly to press the periphery of the rim against the top of the counter.

7. The retainer structure set forth in claim 6, wherein said clamp member is substantially stiffer than the associated rim, whereby preferentially to deform the rim so as to press the periphery thereof firmly against the top of the associated counter.

8. The retainer structure set forth in claim 6, and further comprising a deflecting flange on said clamp member below said cam and engageable with said clip upon insertion of the appliance into the associated counter opening to deflect the cam inwardly and past said clip and then into engagement with the cam surface on said clip.

9. The retainer structure set forth in claim 8, wherein the deflecting flange is disposed at a small angle with respect to the vertical to insure that said cam shifts about the point of attachment of said clamp member to the flange.

10. Retainer structure for mounting an appliance on a generally horizontally disposed counter having an opening therethrough, wherein the appliance has an outwardly extending perimetric flange defining a rim overlying the counter along the marginal edges of the opening therethrough, said retainer structure comprising a clamp member secured to the underside of the associated flange and extending into the associated opening and below the lower side of the associated counter, said clamp member having an aperture therein and providing a pivot surface defining the lower portion of said aperture and an abutment surface adjacent to the point of securement of said clamp member to the associated flange, a clip including a body extending through said aperture and having a fastener engaging hole adjacent to one end thereof and a bearing member adjacent to the other end thereof, a screw having one end thereof disposed against said abutment surface on said clamp member and a threaded portion adjacent to the other end thereof extending through said hole and threadedly engaging the body of said clip, rotation of said screw serving to move said body downwardly relative to said threaded portion and away from the underside of the associated flange and pivoting said clip upon said pivot surface to press said bearing member against the underside of the associated counter firmly to press the periphery of the rim against the top of the counter.

11. The retainer structure set forth in claim 10, wherein the engagement of the threaded portion of said screw in the hole in said body is loose to permit rapid rotation of said screw, the parts being constructed and arranged so that the maximum stress is applied therewithin when the longitudinal axis of said body is essentially normal to the longitudinal axis of said screw.

12. A clip for use in mounting on a counter in an opening therein an appliance having a peripheral rim overlying the counter and having depending therefrom a retainer having an opening therethrough providing a pivot surface, said clip comprising a substantially planar body adapted to extend through the opening in the associated retainer and to rest upon the pivot surface thereof, said body having adjacent to one end thereof a threaded opening for engagement with a threaded screw acting between said body and the underside of the associated rim, the other end of said body carrying an intermediate flange disposed at an obtuse angle with respect thereto, the outer edge of said intermediate flange carrying a bearing flange disposed at an acute angle with respect to said intermediate flange and disposed substantially normal to the plane of said body, the juncture between said intermediate flange and said bearing flange providing a rounded first abutment surface and the free edge of said bearing flange providing a second abutment surface said abutment surfaces being selectively engageable with the undersurface of the associated counter for clamping the associated appliance in the opening in the associated counter.

13. Retainer structure for mounting an appliance on a generally horizontally disposed counter having an opening therethrough, wherein the appliance has an outwardly extending perimetric flange defining a rim overlying the counter along the marginal edges of the opening therethrough, said retainer structure comprising, a clamp member including an attachment portion secured to the underside of the associated flange, a body extending downwardly from said attachment portion and having an opening therein to accommodate flexure thereof, and an outturned flange on the lower end of said body extending outwardly toward the periphery of the associated counter opening and carrying on the outer end thereof a rounded cam, said cam being resiliently shiftable between a rest position and a fully deflected position and a plurality of intermediate retaining positions disposed therebetween, and a retainer clip mounted on the counter within the opening therein and having a cam surface thereon disposed away from the top of the counter and extending upwardly and inwardly into the opening, said cam surface being essentially rigid to provide a constant camming angle for engagement with the cam on said clamp member, movement of said cam along said cam surface as said cam moves from the fully deflected position towards the rest position thereof generating a substantial vertical force urging said clamp member and the
flange secured thereto downwardly relative to the
counter firmly to press the periphery of the rim against
the top of the counter.

14. A clamp member for use on an appliance having
an outwardly extending perimetric flange defining a
rim, said clamp member comprising an elongated chan-
nel including an elongated attachment portion for
placement below an associated rim to be secured
thereto, a body in use extending downwardly from one
eight of said attachment portion and integral therewith
and having a plurality of openings therein to provide
for controlled flexibility thereof, a laterally extending
flange on the lower edge of said body and normally
disposed substantially parallel to said attachment por-
tion, and a deflecting flange integral with the outer
edge of said laterally extending flange and disposed at
an acute angle with respect thereto and extending
therefrom in the same direction as said attachment por-
tion, said deflecting flange having an opening therein
and providing a pivot surface on the edge thereof
dispersed away from said outwardly extending flange,
the juncture between said outwardly extending flange
and said deflecting flange being rounded to provide a
camming surface.

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