

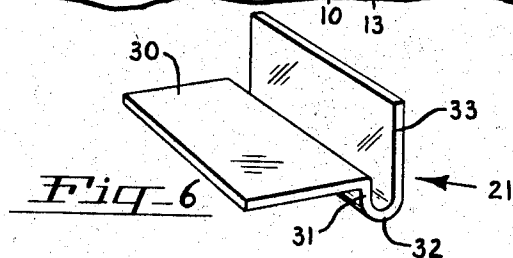
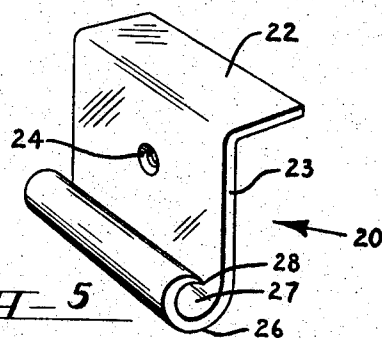
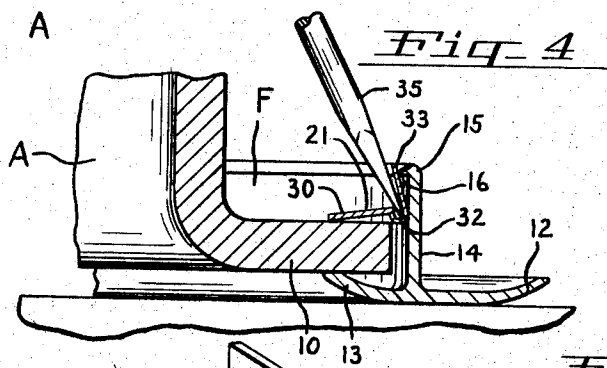
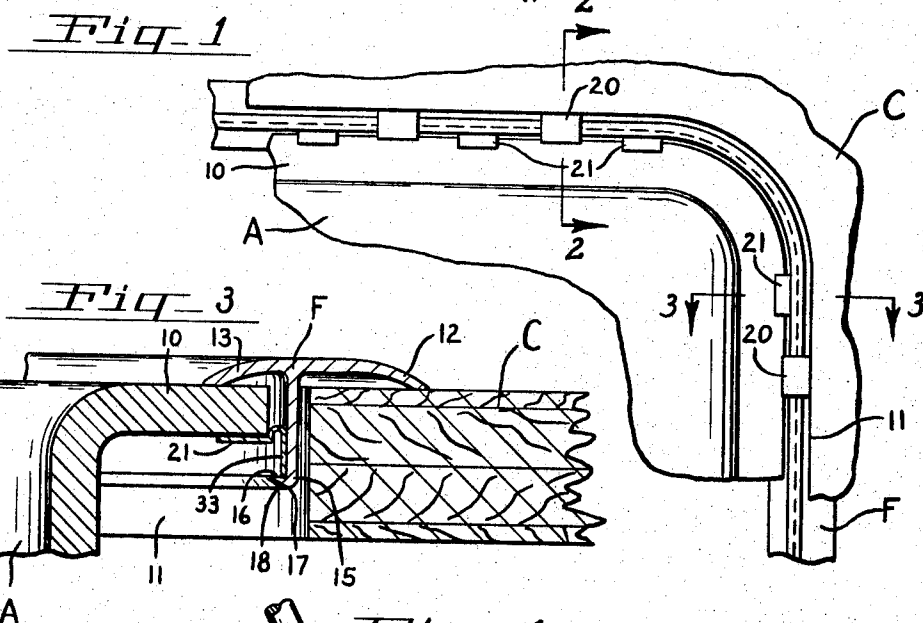
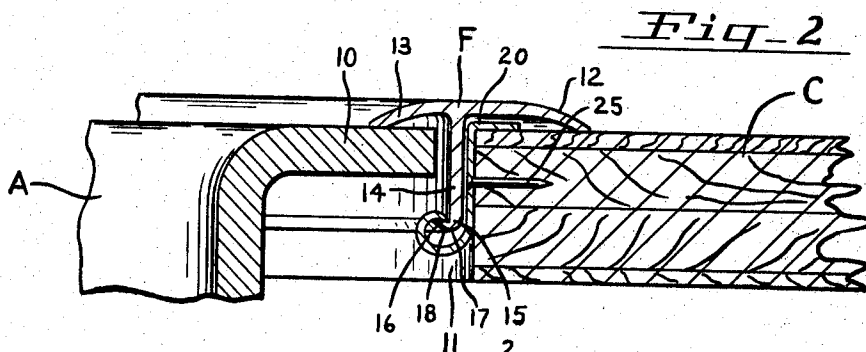
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SNAP-IN APPLIANCE MOUNTING

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SNAP-IN APPLIANCE MOUNTING

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2 Claims

ABSTRACT OF THE DISCLOSURE

A mounting arrangement for an appliance, such as a sink, in a counter opening, employing a conventional mounting frame and snap locking clips for securing the appliance in the mounting frame and for securing the mounting frame in the counter.

This invention relates to means for mounting an appliance such as a sink in an opening in a counter.

Most conventional means for mounting sinks and such appliances in a counter opening involve fastening means such as bolts or screws which must be applied or adjusted from the underside of the counter after the sink has been inserted in its opening. Usually the sink has to be raised into position from the underside of the counter, requiring one workman to hold up the sink while another workman applies the fastening means. This is a difficult and time-consuming operation, especially when the sink is made of heavy cast iron and the working space under the counter is cramped.

Various attempts have heretofore been made to provide a mounting which overcomes these difficulties but, in most cases, such attempted improvements have not met with commercial success because they were too complicated and expensive to manufacture.

Objects of the invention are to provide an improved mounting arrangement for an appliance in a counter opening, to provide a mounting assembly which is inexpensive to manufacture and easy to install, to provide a mounting assembly which does not require the installation or adjustment of fastening means under the counter after the sink has been placed in position, to provide fastening means which will snap into locking position automatically by merely lowering the sink into the counter opening and to provide mounting fixtures permitting the use of a conventional and well-known form of sink frame.

The present mounting arrangement permits the use of a conventional type of sink frame which is neat and attractive, which may be manufactured at relatively low cost and which is well-known and accepted by the trade. The only additional parts required are a plurality of novel clips to mount in the counter opening and a plurality of novel retainer clips to secure the frame to the sink. The first clips are applied to the counter before the sink is inserted in the opening and the latter clips are applied to the sink in a convenient working position on the floor.

Then all that is necessary is to lower the sink into the opening. The counter clips are arranged for snap acting, self-locking engagement with the sink frame as the sink and frame are lowered into position. Thus, the final operation is performed conveniently from the top of the counter and it is never necessary to crawl under the counter either before or after the sink is inserted in the opening.

Additional objects and advantages will become apparent and the invention will be better understood from the following detailed description of the preferred embodiment illustrated on the accompanying drawing. Various changes may be made, however, in the details of construction and arrangement of parts and all such modifications within

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the scope of the appended claims are included in the invention.

In the drawing:

FIGURE 1 is a fragmentary bottom plan view showing a sink mounting embodying the features of the invention; FIGURE 2 is a sectional view on the line 2—2 of FIGURE 1 showing a counter clip;

FIGURE 3 is a sectional view on the line 3—3 of FIGURE 1 showing a retainer clip;

FIGURE 4 is a fragmentary sectional view showing the step of securing the mounting frame to the sink;

FIGURE 5 is a perspective view of the counter clip in FIGURE 2; and

FIGURE 6 is a perspective view of the retainer clip in FIGURE 3.

In FIGURES 1 and 2, a sink or other appliance A having a horizontal peripheral flange 10 is shown mounted in an opening 11 in a drainboard or counter C. The mounting assembly involves the use of a conventional mounting frame F of generally T-shaped cross section. Thus, the frame F has an outer top flange 12 adapted to overlie the counter and an inner top flange 13 adapted to overlie the sink flange. These flange portions are preferably slightly crowned as shown in FIGURE 2 so that their edges will make a tight fit with the counter and sink and provide an open space underneath for a sealing compound, if desired.

The flanges 12 and 13 are integral with a vertical web portion 14 which surrounds the periphery of the appliance flange 10 and fits loosely within the opening 11. Extending along the lower edge of web 14 is a hook formation 15 having an upwardly facing ledge or shoulder 16 on the appliance side of the web. Preferably, the lower extremity of the web terminates in a point or short radius curve at 17 to provide a sloping wedging or camming surface 18 extending up to the ledge 16 but the details of this configuration may vary.

The frame F may be extruded of suitable material such as aluminum or it may be formed by bending a strip of suitable sheet material such as stainless steel. In either case, the frame member is usually first made in linear form and then bent to conform to the outline of the periphery of the appliance flange as shown in FIGURE 1 with the ends brought together in abutting relation. In FIGURE 1, the sink flange 10 is generally rectangular in plan view with rounded corners but it may also be circular or oval and the frame F is made to corresponding shape with a small clearance space between web 14 and the edge of flange 10.

In conventional practice, fittings are provided for securing the frame F to the counter and for locking the sink into the frame F at least some of which fittings must be applied or adjusted from under the counter after the sink and frame F have been inserted in the opening 11. In the present construction, such under counter work is eliminated by the use of novel counter clips 20 as shown in FIGURE 5 and novel retaining clips 21 as shown in FIGURE 6.

The counter clip 20 is made from a piece of sheet metal bent to the shape shown. There is a top horizontal flange 22 to overhang the top of the counter and a depending vertical web 23 with a hole 24 for securing the clip to the edge of the counter at the opening 11 by a nail 25. The lower end portion of web 23 is bent horizontally at 26 to provide a pocket 27 and the extremity is rolled and curled upward to form a spring tongue 28, which is spaced a short distance from the confronting face of web 23.

Retaining clip 21 is similarly made from a piece of sheet metal bent to the shape shown in FIGURE 6. This

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clip has a horizontal flat portion 30 connected with the short leg 31 of a U-shaped spring bend 32 having a longer leg 33. This places the bend 32 in offset position on one side of the plane of flat portion 30 while the long leg 33 extends to the other side of said plane. The dimensions of the parts of clips 20 and 21 are governed by the dimensions of frame F and the thickness of appliance flange 10 as will presently be explained.

In preparation for mounting an appliance in the counter, the opening 11 is first cut to a shape corresponding to the outline of the sink flange 10 with clearance on all sides as shown in FIGURE 2. Then a number of the counter clips 20 are installed at intervals around the opening by means of nails 25. Then the frame F is placed upside down on the floor and the sink is placed in the frame in upside down position as shown in FIGURE 4. The sink is secured in the frame by a plurality of the clips 21, the clips being spaced apart at intervals to fall between the clips 20 and employed in sufficient number to support the weight of the sink and whatever load it may carry in use.

The long leg 33 of the U in the clip 21 must be too long to slide freely under the ledge 16 of the frame F when the clip is placed in position as shown. The end of leg 33 is snapped under the ledge 16 by pressing downward in the bend 32 with a screwdriver 35 or other suitable tool to spring the U bent 32 downward in the space between the edge of sink flange 10 and frame web 14, as shown. This arrangement utilizes the stiff spring action of U bend 32 to hold the sink securely in the frame. During the installation of clips 21, the flange 13 of the frame may also be sprung downward slightly in FIGURE 4 whereby both the clip and flange 31 exert spring action in opposition to clamp the sink flange.

When the desired number of clips 21 have been installed, the sink with the frame F securely attached may be turned right side up and lowered into the opening 11. The position of tongues 28 is such that the frame F must be pressed down slightly by springing the outer flange 12 to cause the sloping surface 18 to cam itself past the ends of tongues 28 and cause the ends of the tongues to spring back over ledge 16 as shown in FIGURE 2. These parts fit together with a snap locking action and, after the tongues have engaged the ledge 16, the spring action of flange 12 tensions the web portion 14 of the frame, causing the outer edge of flange 12 to bear firmly against the top surface of the counter in a tight joint. Thus, the edge of flange 12 is held against the counter to make a tight joint between the flange and the counter and the flange 13 is held against the sink flange 10 to make a tight joint between these two flanges whereby a neat and tight installation is accomplished without any work underneath the counter.

The locking action just described assumes a rigid hook formation 15 on the web 14 as it would be in an extruded aluminum frame F as shown. When the frame is made of folded stainless steel strip the hook formation 15 is formed by a fold in the metal and is itself sufficiently resilient to pass a rigid tongue 28 with a snap locking action. With such a frame, the tongue 28 may be made rigid if desired.

Having now described my invention and in what manner the same may be used, what I claim as new and desire to protect by Letters Patent is:

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1. A counter having an opening therein with a vertical edge, an appliance, a horizontal peripheral flange connected to said appliance, said flange overlying said counter about said opening and supporting the appliance in said opening, a vertical web on said flange depending into said opening adjacent said vertical edge, a hook formation extending along the lower edge of said web, a plurality of vertical clips with a horizontal end portion overlying said counter and a vertical portion mounted on said vertical edge of the counter opening, a spring tongue integral with said vertical portion on each of said clips having snap fit engagement over said hook formation holding said web and appliance against uplift, said hook formation deflecting said tongues and entering into self-locking engagement with said tongues by downward movement of said appliance and web into said opening, said clips providing the sole means of retention of said web and appliance in the counter opening.

2. A counter having an opening therein with a vertical edge, an appliance having a peripheral horizontal flange; a peripheral frame of T-shape in cross section supporting said appliance in said opening, an inner horizontal flange on said frame overlying said appliance flange, an outer horizontal flange on said frame overlying said counter, a vertical web on said frame disposed between the edge of the appliance flange and said vertical edge of said opening, a hook formation along the lower inside edge of said web; a plurality of first spring clips providing permanent and sole support for said appliance in said frame, each clip having a horizontal end portion underlying the appliance flange, a straight vertical end portion lying flat against the inside surface of said web and a U-shaped intermediate portion disposed between the edge of said appliance flange and said web surface, said vertical end portion bearing at its lower end on said hook formation; and a plurality of second spring clips providing permanent and sole means of retention of said frame and appliance in said opening, said second clips being mounted on said vertical edge of said counter opening in intervals between said first clips, and a spring tongue on each of said second clips having snap fit engagement over said hook formation holding said web and appliance against uplift, said hook formation deflecting said tongues and entering into self-locking engagement with said tongues by downward movement of said appliance and frame into said opening.

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