

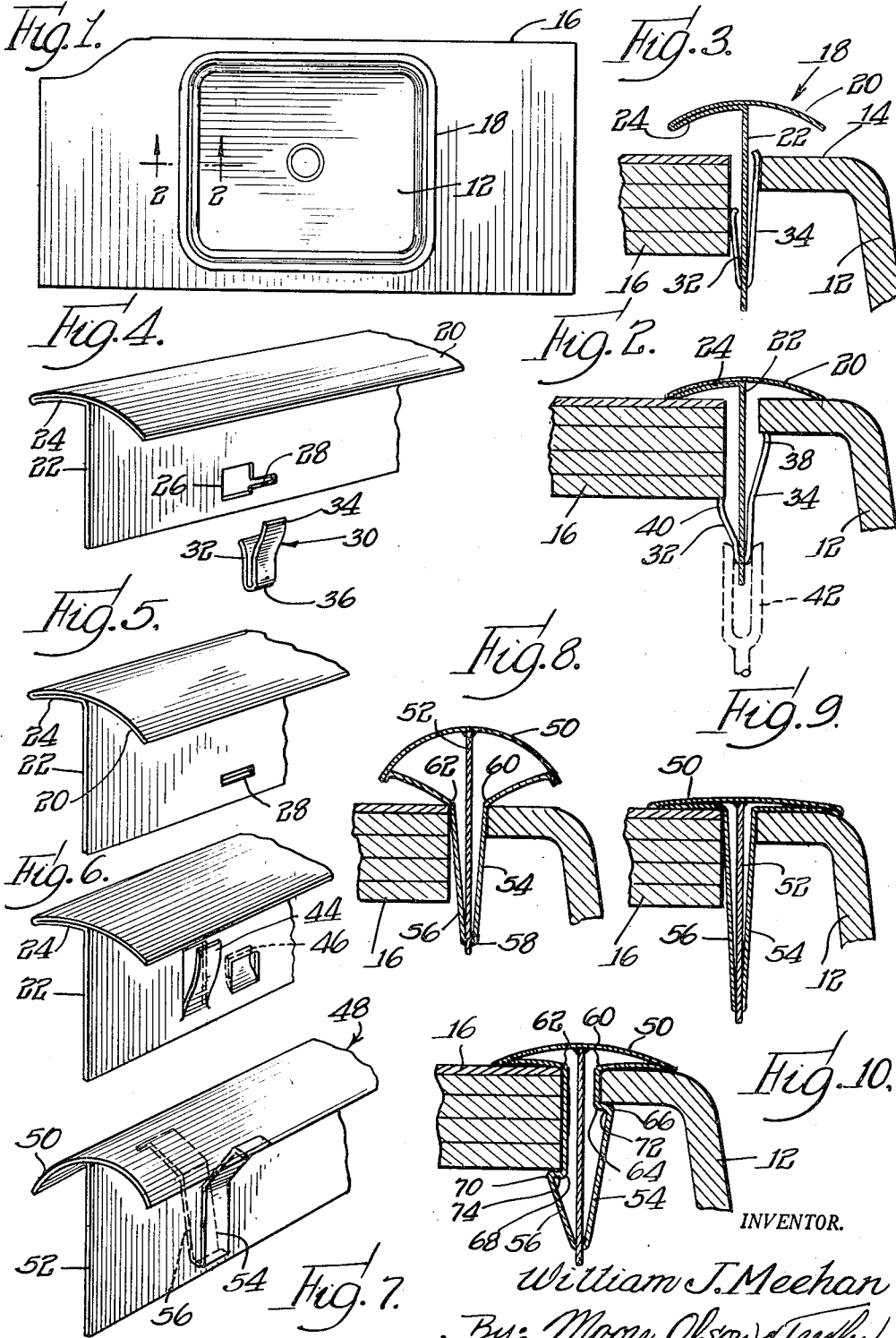
Jan. 22, 1957

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2,778,032

SELF-LOCKING SINK FRAME

Filed Sept. 22, 1952



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SELF-LOCKING SINK FRAME

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Application September 22, 1952, Serial No. 310,865

12 Claims. (Cl. 4-187)

The present invention relates to an improved device for mounting a sink within an opening in a drainboard and the like and more particularly to a self-locking device for mounting the sink and for covering and sealing the space between the edges of the sink and the drainboard.

The prior art devices now in use for mounting a sink generally includes a first element which is engageable with the upper surface of the drainboard and sink and which has a portion extending downwardly between the drainboard and a sink and a second sink supporting element or assembly, which must be connected with the first element from the under side of the sink after the sink has been located in the desired position. This connection of the second sink supporting element with the first is often relatively difficult and time consuming because of the inconvenient working position required for the person making the installation. It is, therefore, an object of this invention to provide an improved sink mounting device or frame which is self-locking and which may be installed quickly and easily entirely from the upper side of the drainboard and sink.

Another object of this invention is to provide a novel sink mounting device or frame of the above described type which requires no auxiliary means for adjusting or tightening after installation.

Another object of this invention is to provide a novel sink mounting means having the above described characteristics which may be readily dismantled when desired.

A more specific object of this invention is to provide a novel sink mounting device or frame which may be constructed simply and economically from an integral blank of sheet stock.

Other objects and advantages of this invention will be apparent from the following description and the accompanying drawings wherein:

Fig. 1 is a plan view of a drainboard and sink assembly utilizing the novel mounting frame of this invention;

Fig. 2 is a fragmentary cross section taken along line 2-2 in Fig. 1;

Fig. 3 is a cross-sectional view similar to Fig. 2 but showing the novel mounting device or frame in an intermediate position of assembly;

Fig. 4 is an exploded fragmentary perspective view illustrating one form of a novel mounting frame embodying the principles of this invention;

Fig. 5 is a fragmentary perspective view showing a modified form of this invention;

Fig. 6 is a fragmentary perspective view showing another modified form of this invention;

Fig. 7 is a fragmentary perspective view showing still another modified form of this invention; and

Figs. 8, 9 and 10 are cross-sectional views illustrating the steps for assembling the device of Fig. 7 with a drainboard and sink.

Referring more specifically to the drawings wherein like parts are designated by the same numerals throughout the various figures, the novel mounting devices or

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frames may be used for supporting a sink 12 having a generally horizontally extending peripheral flange 14 within an opening in a drainboard 16. In the embodiment shown in Figs. 1 through 4 a mounting device or frame 18 is used to support the sink and cover the crack or space between the sink and drainboard.

The frame 18 includes an elongated body member or moulding constructed of resilient sheet material such as spring steel, and bent to provide a concavo-convex head 20 with the concave side facing downwardly when the frame is installed. A shank or web 22 extends substantially perpendicularly from a midportion of the head so that the body member has a substantially T-shaped cross section. The shank may be connected to the head as by welding but preferably the body member is formed from an integral blank and the shank is connected by a fold portion 24 which conforms to the concave side of the head and joins the upper edge of the shank to an outer edge of the head.

As seen best in Fig. 4, a relatively large generally rectangular opening 26 is cut in the lower marginal portion of the depending web or shank 22. A relatively small opening 28 communicates with the larger opening and extends laterally therefrom. It should be noted that the bottom edge of the smaller opening 28 is spaced above the bottom edge of the opening 26. These openings are provided to permit assembly of a clamping unit 30 with the body member or moulding.

The clamping unit 30 comprises a single piece of resilient sheet material such as spring steel, which has been bent to provide a pair of fingers 32 and 34. The fingers are joined along their bottom edges by a connecting portion 36 and extend upwardly therefrom for a short distance in spaced substantially parallel relationship.

The clamping unit 30 is assembled with the moulding by inserting one of the fingers through the larger opening 26 and then positioning the unit with its connecting portion 36 disposed within the smaller opening 28 as shown in Figs. 2 and 3. It should be noted that the opening 28 has a height which is substantially equal to but slightly greater than the thickness of the material of the connecting portion 36. Furthermore, the lower substantially parallel portions of the fingers closely grip the opposite sides of the web or shank 22. This structure securely holds the clamping fingers in assembled relationship with the web.

By referring to Fig. 2, it is seen that the fingers 32 and 34 are flared outwardly laterally of the web or shank from their lower parallel portions so that the upper ends of the fingers are normally in positions for engagement with the lower or downwardly facing surfaces of the drainboard and sink. If desired the upper ends of the fingers may be bent slightly inwardly as at 38 and 40 to facilitate both assembly and disassembly of the mounting frame with the drainboard and sink as more fully described below. Since, as illustrated, drainboards usually have a thickness greater than the thickness of the sink, the finger 32 is made shorter than the finger 34. However, it is understood that the relative lengths of the fingers may be varied in accordance with the requirements of the particular installation.

When installing a sink with the novel mounting of this invention, the sink is first located and temporarily supported in the position shown in Figs. 2 and 3. The mounting frame 18 is then positioned over the sink and the web or shank 22 is inserted through the opening between the sink and the drainboard. During this insertion, the fingers 32 and 34 are compressed towards the shank as shown in Fig. 3. The elements are so proportioned that when the edges of the resilient head 20 first contact the upwardly facing surfaces of the drainboard and sink, the fingers have not yet cleared the edges of the

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lower surfaces of the drainboard and sink. The head is then partially collapsed by applying a downward pressure thereto whereupon the shank and the fingers are advanced downwardly until the finger spring outwardly for engagement with the downwardly facing surfaces of the drainboard and sink. This outward springing action is facilitated by the inwardly curved free ends of the fingers which curved ends reduce the possibility of the edges of the fingers catching on the edges of the corners of the drainboard and sink. Upon release of the downward pressure, the head springs outwardly or upwardly to the position shown in Fig. 2, thereby securely clamping the drainboard and sink between the head 20 and the clamping fingers. The head 20 in effect, provides flanges extending in opposite directions from the shank for covering the opening between the sink and drainboard as well as supporting the sink. While only a single clamping unit 30 has been shown, it is understood that the frame 18 extends completely around the sink and that any number of clamping units may be provided in accordance with the requirements dictated by the size and weight of the sink.

Whenever it is desired to disassemble the sink the clamping units may be disengaged merely by forcing them from the opening 23 into the larger opening 26. This enables the fingers to drop downwardly out of clamping engagement whereupon the unit may be easily removed. As an alternative method, the fingers may be compressed inwardly by any suitable means such as the tool 42 shown in dotted lines in Fig. 2 whereupon the body member and clamping unit assembly may be removed.

In Fig. 5 there is shown an embodiment of this invention which is substantially identical to the embodiment of Figs. 1 through 4 except that the larger opening 26 has been eliminated so that only the smaller opening remains for receiving a clamping unit 30. This embodiment may be assembled with the drainboard and sink in the same manner as described above. However, for disassembly of the frame shown in Fig. 5, the above described alternative method of compressing the fingers as with the tool 42 must be used.

Fig. 6 shows another embodiment of this invention wherein the clamping unit 30 has been replaced by the clamping fingers 44 and 46 which are integral with and struck from the web or shank 22 of the body member. The fingers 44 and 46 may be shaped in substantially the same manner as the fingers 38 and 40 and the mounting frame of Fig. 6 may be assembled with a drainboard and sink in the same manner as the mounting frames shown in Figs. 1 through 5. The device of Fig. 6 has the advantage over the previously described devices in that it may somewhat more economically be produced because of its integral construction.

Figs. 7 through 10 illustrate a mounting frame 48 which embodies another form of this invention. The frame 48 comprises a concavo-convex head 50 formed from resilient sheet material, such as spring steel, and a depending shank or web 52 welded or otherwise secured to the mid portion of the concave side of the head. A strap 54 of deformable sheet material such as metal, has one end secured to the head 50 along one edge thereof in any suitable manner such as welding. The opposite end of the strap is secured to a lower marginal edge portion of the shank 52. A second strap 56 is disposed in a similar manner on the opposite side of the shank. If desired the straps 54 and 56 may be constructed from an integral strip of material with a connecting portion 58 extending through a suitable slot in the shank.

As shown best in Figs. 7 and 8, the straps 54 and 56 extend upwardly along opposite sides of the shank or web 52 in slightly diverging relationship until they reach bend lines 60 and 62 respectively. From these bend lines the straps diverge sharply for connection with the opposite marginal edges of the head 50.

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The steps for assembling the mounting frame 48 with a sink and drainboard are illustrated in Figs. 8, 9 and 10. The shank 52 and the lower portion of the shanks are first inserted through the opening between the sink and drainboard as shown in Fig. 8. Downward pressure is then applied to flatten the head and force the shank further through the opening as shown in Fig. 9. This action also further bends the straps along the bend lines 60 and 62 until the upper portions of the straps are substantially flush with the upper surfaces of the drainboard and sink. The bend lines are weakened as by scoring to facilitate the bending of the straps. Upon release of the pressure the resilient head 50 tends to spring back to its original shape shown in Figs. 7 and 8. This tends to pull the shank or web 50 out of the opening and to jam the lower portions of the straps outwardly against the edges of the drainboard and sink. The strap 54 is weakened as by scoring along bend lines 64 and 66 and the strap 56 is similarly weakened along bend lines 68 and 70. Thus the straps buckle under the forces applied thereto to provide laterally extending shoulder portions 72 and 74 for clamping engagement with the under surfaces of the sink and drainboard respectively.

From the above description it is seen that the present invention provides a novel sink mounting device or frame which may be easily and economically produced entirely from sheet material stock. In addition the self-locking characteristic of the novel mounting devices of this invention greatly facilitates the mounting of a sink in a drainboard or the like.

While the preferred embodiments of this invention have been shown and described herein, many changes may be made in the details of the structures without departing from the spirit and scope of the appended claims.

I claim:

1. A molding frame for sealing between the upper lateral lip of a kitchen sink and the edge of a surrounding cover-sheet for a counter, including a rigid elongated body member being substantially T-shaped in cross-section and having a horizontal flange portion with a single leg which depends between the lip and said edge; an elongated attaching element being substantially U-shaped in cross-section and thrust upwardly to envelop the major vertical portion of said leg; an upwardly and outwardly slanting flange integral with said element and coacting with the horizontal flange portion of said member for impinging the sink lip; an upwardly and outwardly slanting spring arm carried by said element and coacting with said horizontal portion for impinging the edge of said cover-sheet; and means for rigidly anchoring said attaching element to said body leg.

2. In combination with a sink and a drainboard, a device mounting the sink to the drainboard comprising a curved resilient head portion overlying adjacent marginal portions of the sink and drainboard, shank means extending downwardly from the concave side of said head between the sink and the drainboard, a sink supporting member carried by said shank means and having a portion yieldably disposed laterally outwardly from said shank means and engaging a downwardly facing surface of said sink, a drainboard supporting member carried by said shank means and also having a portion yieldably disposed laterally outwardly from said shank means and engaging a downwardly facing surface of said drainboard, said head being somewhat flattened and under tension and urging said shank means and said supporting members toward said head to press said drainboard and said sink toward and against said head, and said yieldably disposed portions being compressible toward said shank means to pass between said adjacent edges of the sink and drainboard during assembly and disassembly of said mounting device with said sink and drainboard.

3. A combination as defined in claim 2 wherein each of said supporting members includes a resilient finger

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extending outwardly from said shank means and providing said yieldably disposed portions.

4. A combination as defined in claim 3 wherein said resilient fingers are integrally joined with each other by a connecting portion and said shank means has an opening therein through which opening said connecting portion extends, said opening closely conforming to said connecting portion to locate said connecting portion and said fingers at a predetermined distance from said head.

5. A combination as defined in claim 4 wherein said opening in said shank communicates with another opening in said shank means into which said last-mentioned opening said connecting portion may be moved for spacing the fingers away from the head a distance greater than said predetermined distance so that the fingers may be disengaged from the sink and the drainboard.

6. A combination as defined in claim 2 wherein said shank means comprises a web of resilient sheet metal and wherein said supporting members consist of resilient fingers integral with said web.

7. A combination as defined in claim 2 wherein said sink mounting device includes deformable elements extending between marginal portions of said head and said shank means, and wherein said deformable elements have weakened areas which are deformed during assembly of the device with the sink and the drainboard to provide a sink supporting shoulder and a drainboard supporting shoulder.

8. A device for mounting sinks as defined in claim 7 which includes said opening in said shank means communicating with another opening in said shank means into which said last-mentioned opening said connecting portion may be moved for spacing the fingers away from the head a distance greater than said predetermined distance so that the fingers may be disengaged from the sink and the drainboard.

9. A device for mounting sinks to drainboards and the like, comprising a body member having a curved resilient head adapted to overlie adjacent marginal portions of a sink and drainboard, shank means extending from the concave side of said head and adapted to be inserted between a sink and a drainboard, a pair of supporting members carried by said shank means and having resilient fingers yieldably disposed laterally outwardly from said shank means on the opposite sides thereof so that during the insertion of said shank means between said sink and drainboard said resilient fingers will be pressed between said sink and said drainboard and then move outwardly to engage downwardly engaging faces of said sink and said drainboard, said head being somewhat flattened and under tension in installed position to urge

said shank means and said sink supporting members toward said head to press said sink and drainboard toward and against said head, said resilient fingers being integrally joined with each other by a connecting portion, said shank means having an opening therein through which opening said connecting portion extends, and said opening closely conforming to said connecting portion to locate said connecting portion and said fingers at a predetermined distance from said head.

10. In combination with a sink and a drainboard a sheet metal device mounting the sink to the drainboard comprising a curved resilient sheet metal head portion overlying adjacent marginal portions of the sink and drainboard, sheet metal shank means extending downwardly from a mid portion of the concave side of said head between the sink and the drainboard, a sheet metal sink supporting member carried by said shank means and having a portion yieldably disposed laterally outwardly from said shank means and engaging a downwardly facing surface of said sink, a sheet metal drainboard supporting member carried by said shank means and also having a portion yieldably disposed laterally outwardly from said shank means and engaging a downwardly facing surface of the drainboard, said head being somewhat flattened and under tension and urging said shank means and said supporting members toward said head to press said drainboard and said sink toward and against said head, and said yieldably disposed portions being compressible toward said shank means to pass between said adjacent edges of the sink and drainboard during assembly and disassembly of said mounting device with said sink and drainboard.

11. A combination as defined in claim 10 wherein each of said supporting members includes a resilient finger extending outwardly from said shank means and providing said yieldably disposed portions.

12. A combination as described in claim 11 wherein said resilient fingers are integrally joined with each other by a connecting portion and said shank means has an opening therein through which opening said connecting portion extends, said opening closely conforming to said connecting portion to locate said connecting portion and said fingers at a predetermined distance from said head.

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