July 22, 1958 S. HAMMER 2,843,855

CLAMPS

Filed Feb. 28, 1956

Fig. 2.

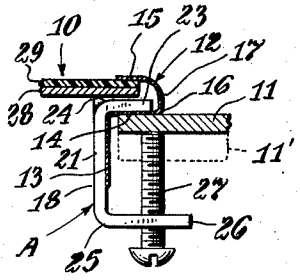


Fig. 3.

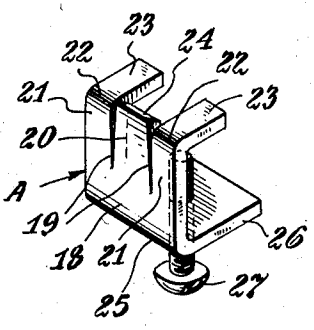


Fig. 5.

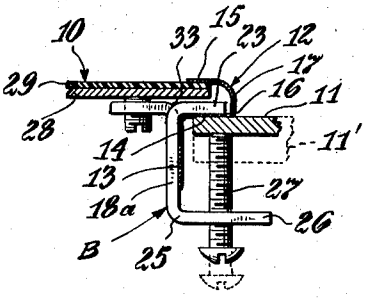


Fig. 1.

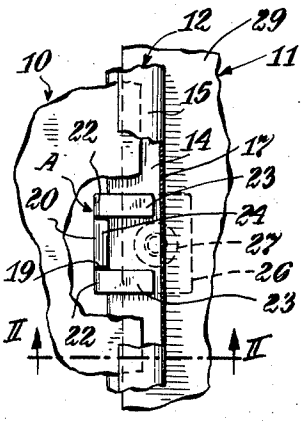


Fig. 6.

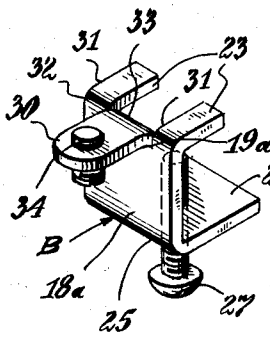


Fig. 4.

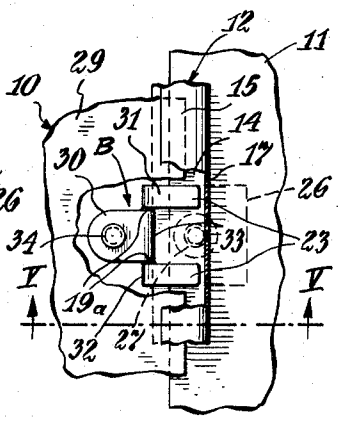


Fig. 9.

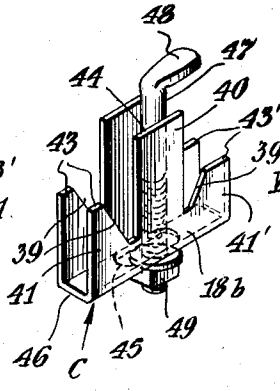


Fig. 7.

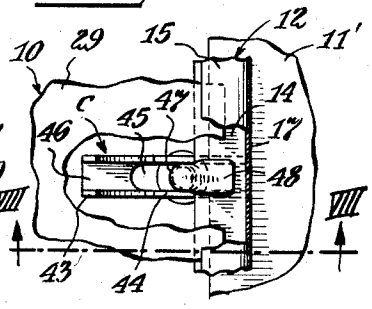
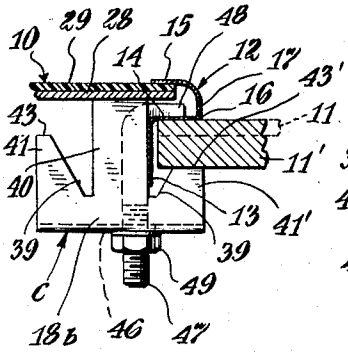


Fig. 8.



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CLAMPS

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6 Claims. (Cl. 4—187)

This invention relates to clamps, and more particularly to clamps utilized in association with sinks, drainboards, counter tops and the like.

It is an object of this invention to provide a clamp of improved construction adapted for use with metal fixtures such as a metal sink and metal drainboard.

A purpose involved in the invention is to provide a structure which is both inexpensive to manufacture and readily installed.

An object of the invention is to utilize the clamp to both tighten the trim in place and to grip the flange of the sink or the like.

A further object is to provide a simple and effective clamp readily applicable to sink flanges of any one of various thicknesses.

Another object of the invention is to provide a clamp utilizing the metal trim for attaching purposes but without distorting the trim noticeably.

Other objects, advantages and novel structural features will appear to persons skilled in the art to which the invention appertains, as the description proceeds, both by direct reference thereto and by inference from the context.

Referring to the accompanying drawing, in which like numerals of reference indicate similar parts throughout the several views:

Figure 1 is a broken-away plan of proximate margins of a sink flange and a metal-base sinkboard and associated trim, and showing my improved clamp in place therewith;

Figure 2 is a cross-sectional view on line II—II of Fig. 1, and showing the clamp in elevation;

Figure 3 is a perspective view of the clamp shown in Figures 1 and 2;

Figure 4 is a broken-away plan of proximate margins of a sink flange and a metal-base sinkboard and associated trim similar to the showing of Fig. 1, but with a modified construction of clamp therewith;

Figure 5 is a cross-sectional view on line V—V of Fig. 4, and showing said modified construction of clamp in elevation;

Figure 6 is a perspective view of said modified construction of clamp shown in Figures 4 and 5;

Figure 7 is another broken-away plan similar to Figs. 1 and 4, and showing another modified construction of clamp therewith;

Figure 8 is a cross-sectional view on line VIII—VIII of Fig. 7 and showing this further modified construction of clamp in elevation; and

Figure 9 is a perspective view of said further modified construction of clamp shown in Figures 7 and 8.

In present-day construction and assembly of sinks with counter-top drainboards, it is common practice to provide an opening in the counter-top or drainboard which is at least as large as the sump portion of the sink but small enough to marginally overlap the sink flange peripherally of the sink and opening. Metal trim is provided to overlap the margin of said opening and cover

the edge of the drainboard thereat. The present invention likewise contemplates an assembly of counter-top or drainboard **10**, sink with peripheral flange **11**, and metal trim **12** having the general construction and relationships just described as prevailing in the art.

For purposes of this invention, however, there is a radical difference in the cross-sectional configuration of the metal trim from known trims heretofore used. According to my invention, the metal trim has a cross-sectional shape which may be described briefly as like an incomplete letter P, the leg **13** of the same extending only from the bottom reach **14** of the loop and not closing the loop. It may also be immediately stated that the top reach **15** of the loop is slightly shorter than the bottom reach **14**. The trim is manufactured as a complete frame, and consequently, viewing the same in plan, the bottom reach **14** of the looped or hooked portion will be seen protruding at the outside periphery of the frame somewhat beyond the outer periphery of the upper reach **15**. The opening in the drainboard is made smaller than the outside peripheral size of the bottom reach of the frame constituted by said trim, and thus, no matter how the trim may be slid, the bottom reach cannot pass through the opening. However, by virtue of the smaller size of the top reach outer periphery of the frame, and by providing adequate width and depth of the loop, the frame can be first slid beyond normal location onto the drainboard at two sides of the opening, thereby permitting the other two sides to be inserted through the opening, after which the frame is slid back to a centralized or normal location with the upper reach of the frame around the entire periphery of the same overlying the margin of said opening. The extra width needed in the loop portion of the frame trim for effecting this sliding placement of the frame, may be obtained by giving a depth to the loop considerably greater than the thickness of the drainboard and by making the bend **16** at the nose end of the lower reach substantially a sharp right angle so that when the lower reach is engaged with the under side of the drainboard the edge of the opening can be in engagement with the riser portion **17** of the loop, namely, at the point of the nose thereof. But when upper reach **15** is engaged with the top side of the drainboard it will assume a normal or substantially centralized location by virtue of a curving junction of the riser portion **17** with upper reach **15**. As finally assembled, the margin of the drainboard around the sink opening thereof is in tight engagement with the upper reach of the metal trim, leaving a crevice between the under side of the drainboard and the upper side of bottom reach **14** of the trim. The under side of said bottom reach is in engagement with the top surface of the sink flange, and the leg **13** of the trim depends around the outer edge of said sink flange **11**.

The essential feature of the present invention is the provision of a clamp which will hold the trim at its substantially centered location, which will obtain tight engagement of the trim with the top surface of the drainboard, which will obtain tight engagement of the lower reach of the trim with the sink flange, and which will lock the sink to the trim and to the drainboard. Three exemplifications, A, B and C, respectively shown in Figs. 1–3, Figs. 4–6 and Figs. 7–9, are set forth herein to indicate the scope of the invention is not confined to a single embodiment. Each of these constructions, considered in its general aspect, provides an upstanding body of sheet metal divided at an upper portion to provide a medial segment for drainboard clamping and end segments for sink flange clamping, the bottom of the body being integral with a foot portion transverse thereto which receives a screw element to effectuate the grip for which the clamp is intended.

Considering initially the construction of Figs. 1–3, reference numeral **18** designates the upstanding sheet-metal body of clamp A shown therein. Two slits **19** extending downwardly parallel to each other from the top of said body for part of the depth thereof provide a medial segment **20** of said body partially separate from end segments **21**. Said end segments in this showing have bends **22**, in alignment with each other, so that the extremities of said end segments are directed inwardly of the clamp in perpendicular relation to the body portion **18** and thereby constitute transverse shoulders **23** in a common plane substantially at the top of the clamp. However, the medial segment **20** projects slightly above said plane and is preferably sharpened somewhat along its outside top edge for the purpose of constituting a prop **24** which in use will make gripping engagement with the under surface of the drainboard. The bottom of the body **18** has a bend **25** in an inward direction similar and parallel to the aforementioned bends of the end segments, thereby providing a foot portion **26** parallel to and spaced beneath said shoulders **23**. It is preferable that said foot portion shall extend further inwardly from the body **18** than said shoulders. A screw **27** is threaded through a mid-part of said foot and extends upwardly toward and perpendicular to the said plane of the shoulders, the head of the screw being located below said foot. The screw is long enough so that the head will not encounter interference with said foot when the upper end of the screw, in use of the clamp, comes into clamping engagement with the under side of the sink flange.

After the drainboard, trim and sink have been assembled as above described, a plurality of clamps A are applied at spaced intervals around the periphery of the trim and sink at the under face of the sinkboard. Since, as described above, there is extra space between the upper and lower reaches of the trim after the margin of the drainboard is inserted therebetween, shoulders **23** of each clamp may be inserted therein, namely, are inserted between the under face of the drainboard and the upper face of lower reach **14**. It will be observed that prop **24** projects above the level of the top face of shoulders **23** so that in making the insertion of the shoulders into the afore-mentioned crevice between the drainboard and lower reach, the clamp is initially tilted somewhat to force the ends of the shoulders into the crevice while the prop is brought into position without exerting upward pressure. Thereafter the clamp is straightened up, the screw **27** being tightened to apply leverage pressure upwardly on the prop **24** and downwardly on the ends of the shoulders remote from said prop. The result is that the drainboard margin around the opening is pushed upwardly into tight engagement with the top reach of the trim and the nose of the trim loop is pressed downward upon the sink flange **11** with the screw pushing up at the under side of said flange. Consequently the crucial edges of the trim which need to be held tightly in place have the tightening pressures applied by the clamp where thus needed. By virtue of the pressure applied by the screw, the clamp is rendered immovable and by pressure and friction immobilizes the trim and drainboard in their relation to each other and to the sink.

The illustration of drainboard **10** is intended to indicate one having a metal body **28**, such as sheet steel, or a suitable alloy, and having a composition surfacing material **29** thereon, such as one of the presently popular plastics obtainable in sheet form. Both because the drainboard may be used without any surfacing material and because either the body or the surfacing material when used may not have the standard thickness to be properly engaged by the prop **24**, having the specific height shown, it is deemed within the scope of the invention to provide clamps with props of varying heights. An example of a clamp having an adjustment for the height of the prop is shown in Figs. 4–6 and designated generally as clamp B.

With specific reference to clamp B of Figs. 4–6, it is shown as providing an upstanding sheet metal body **18*a*** having two slits **19*a*** at the top thereof which creates a medial segment **30** between end segments **31**. Said end segments, as in the former illustration of Figs. 1–3, have bends **32** aligned with each other, so that the extremities of said end segments are directed inwardly of the clamp in perpendicular relation to the body portion **18*a*** and thereby constitute transverse shoulders **23** in a common plane substantially at the top of the clamp. The medial segment **30** in this instance has a length approximating the lengths of the end segments but having a bend **33** directing said segment in the opposite direction from end segments **31** at substantially the same level therewith. An adjustable prop screw **34** is threaded through this medial segment **30** and is directed upwardly so as to engage against the under face of the drainboard and is therefore included in the general term of prop.

There is a considerable difference in the thickness of the flange of, for instance, a stainless steel sink, and an enameled cast-iron sink. In the showings of clamps A and B of Figs. 1 to 6 inclusive, bend **25** at the bottom of the body portion is at ample distance from the top bends **22** or **32** to admit the sink flange between shoulders **23** and foot **26** and to also clear the bottom edge of leg or skirt **13** of the trim **12**. In Figs. 2 and 5, the sink flange **11** shown in dotted lines is representative of the greater thickness encountered with cast-iron sinks than with sheet metal sinks the flange of which is shown in full lines and engaged by screw **27**.

The clamp C illustrated in Figs. 7 to 9, is of channel formation and each upstanding flange thereof is to be considered according to the foregoing terminology as an upstanding body **18*b*** with a medial segment **40** partially separated by slits **39** from end segments **41**, **41'** one of which, as **41**, is taller than the other, the medial segment **40** being taller than either of the end segments. The upper edge of the medial segment constitutes a prop **44** for engagement with the underside of drainboard **10**, whereas the upper edges of end segments **41**, **41'** constitute shoulders **43**, **43'** respectively thereof. The higher one of these shoulders, namely **41**, is for engagement with a relatively thin sink flange (such as indicated by dotted lines **11** in Fig. 8) whereas the lower one of these shoulders **43'** is intended for engagement with a thicker type of sink flange **11'** shown in full lines. The web of the channel constitutes a foot **46** common to both flanges or body portions **18*b***, and in this instance is shown slotted at **45** to receive a screw **47** adjustably therethrough. The head **48** of said screw projects laterally into the crevice between the drain board and sink and approximately to the nose of the trim **12** on top of the lower reach **14** thereof. A nut **49** on the lower end of screw **47** may be tightened to obtain the desired pressures of prop **44** against the sink board, shoulders **43** or **43'** against the sink flange, and screw head **48** against the said lower reach of the trim at the upper side of the sink flange.

In all of the showings of clamps A, B, and C therein, the three elements, namely, of force, load and fulcrum, constituting a classical lever, are present. The clamp is capable of teetering to a position of stability under influence of the force applied by the screw, and in that position securely holds the sink, trim and drainboard assembled in desired relation.

I claim:

1. A clamp of the character described, comprising a planar body portion adapted to be oriented in an upright position, a foot portion at the bottom of said body portion, a shoulder next to the top of said body portion, said shoulder having a thickness the top and bottom surfaces whereof are in parallel planes, said foot portion and shoulder being parallel to each other and both projecting

laterally from the same side of said body portion, said body portion providing another part at the top thereof projecting in a direction therefrom different from the direction of projection of said shoulder and foot portion and having prop means at its tops above the level of said plane of the top surface of said shoulder and thereby adapted in use to engage a member having clearance above said top surface of said shoulder.

2. A clamp of the character described, comprising a planar body portion adapted to be oriented in an upright position, a foot portion at the bottom of said body portion, a shoulder next to the top of said body portion, said shoulder having a thickness the top and bottom surfaces whereof are in parallel planes, said foot portion and shoulder being parallel to each other and both projecting laterally from the same side of said body portion, said shoulder being bifurcated in its direction of projection from the body portion, said body portion providing another part at the top thereof projecting from between said bifurcations of said shoulder in a direction therefrom different from the direction of projection of said shoulder and foot portion and having prop means at its top above the level of said plane of the top surface of said shoulder and thereby adapted in use to engage a member having clearance above said top surface of said shoulder.

3. A clamp of the character described, comprising a planar body portion adapted to be oriented in an upright position, a foot portion at the bottom of said body portion, a shoulder next to the top of said body portion, said shoulder having a thickness the top and bottom surfaces whereof are in parallel planes, said foot portion and shoulder being parallel to each other and both projecting laterally from the same side of said body portion, said body portion providing another part at the top thereof projecting in a direction coplanar with said body portion to an elevation above the said plane of the top surface of said shoulder and having prop means at its top adapted in use to engage a member having clearance above said top surface of said shoulder.

4. A clamp of the character described, comprising a

planar body portion adapted to be oriented in an upright position, a foot portion at the bottom of said body portion, a shoulder next to the top of said body portion, said shoulder having a thickness the top and bottom surfaces whereof are in parallel planes, said foot portion and shoulder being parallel to each other and both projecting laterally from the same side of said body portion, said shoulder being bifurcated in its direction of projection from the body portion, said body portion providing another part at the top thereof projecting from between said bifurcations of said shoulder in a direction coplanar with said body portion to an elevation above the said plane of the top surface of said shoulder and having prop means at its top adapted in use to engage a member having clearance above said top surface of said shoulder.

5. A clamp of the character described, comprising a planar body portion adapted to be oriented in an upright position, a foot portion at the bottom of said body portion, a shoulder next to the top of said body portion, said shoulder having a thickness the top and bottom surfaces whereof are in parallel planes, said foot portion and shoulder being parallel to each other and both projecting laterally from the same side of said body portion, said body portion providing another part at the top thereof transverse to said body portion and projecting in a direction opposite from the direction of projection of said shoulder at the opposite side of said body portion and having prop means at its top adapted in use to engage a member having clearance above said top surface of said shoulder.

6. A clamp in accordance with claim 5, wherein said prop means comprises a screw threaded upwardly through said transverse part at the top of the body portion.

References Cited in the file of this patent

UNITED STATES PATENTS

2,158,467	Madsen	May 16, 1939
2,353,777	Weissert	July 18, 1944
2,628,365	Drain	Feb. 17, 1953