Feb. 17, 1942. O. T. WEBBER 2,273,606

SHEET METAL SINK

Filed Nov. 10, 1937 3 Sheets-Sheet 1

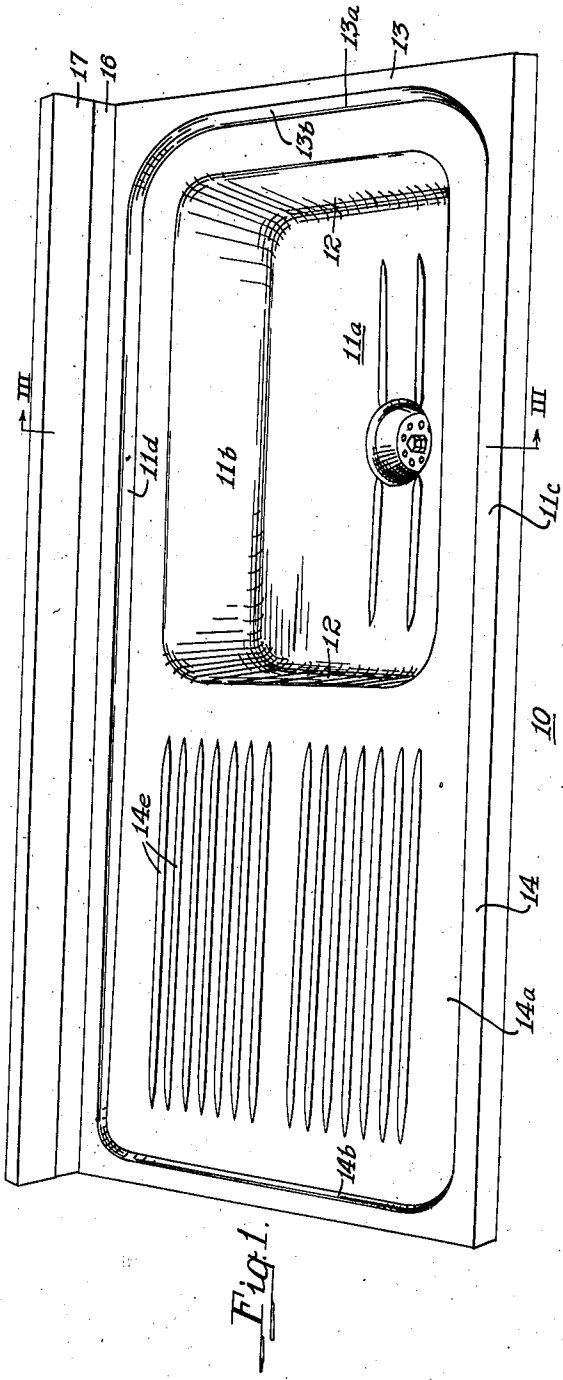


Fig. 1.

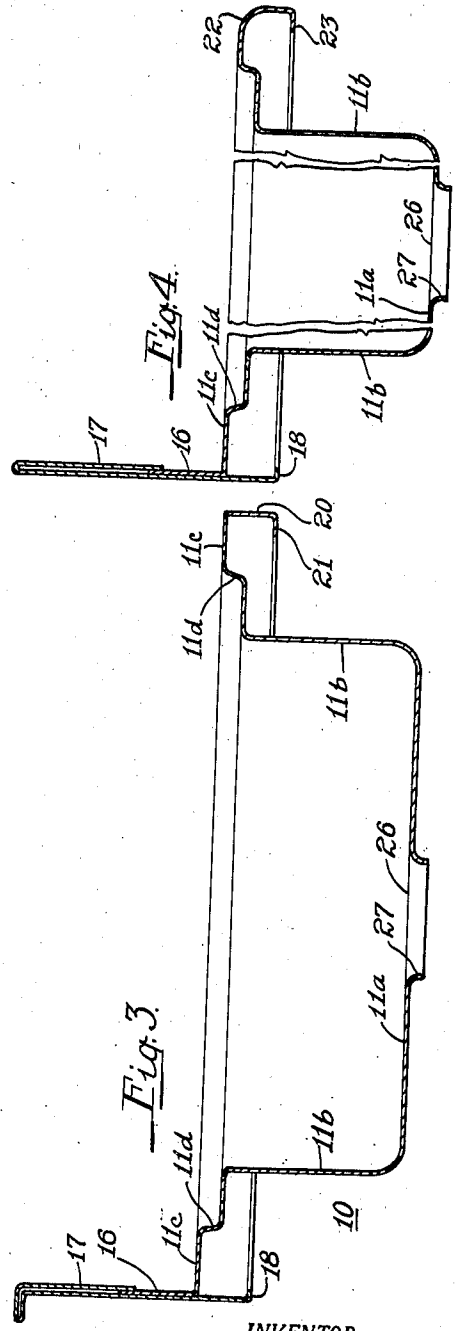


Fig. 4.

Fig. 3.

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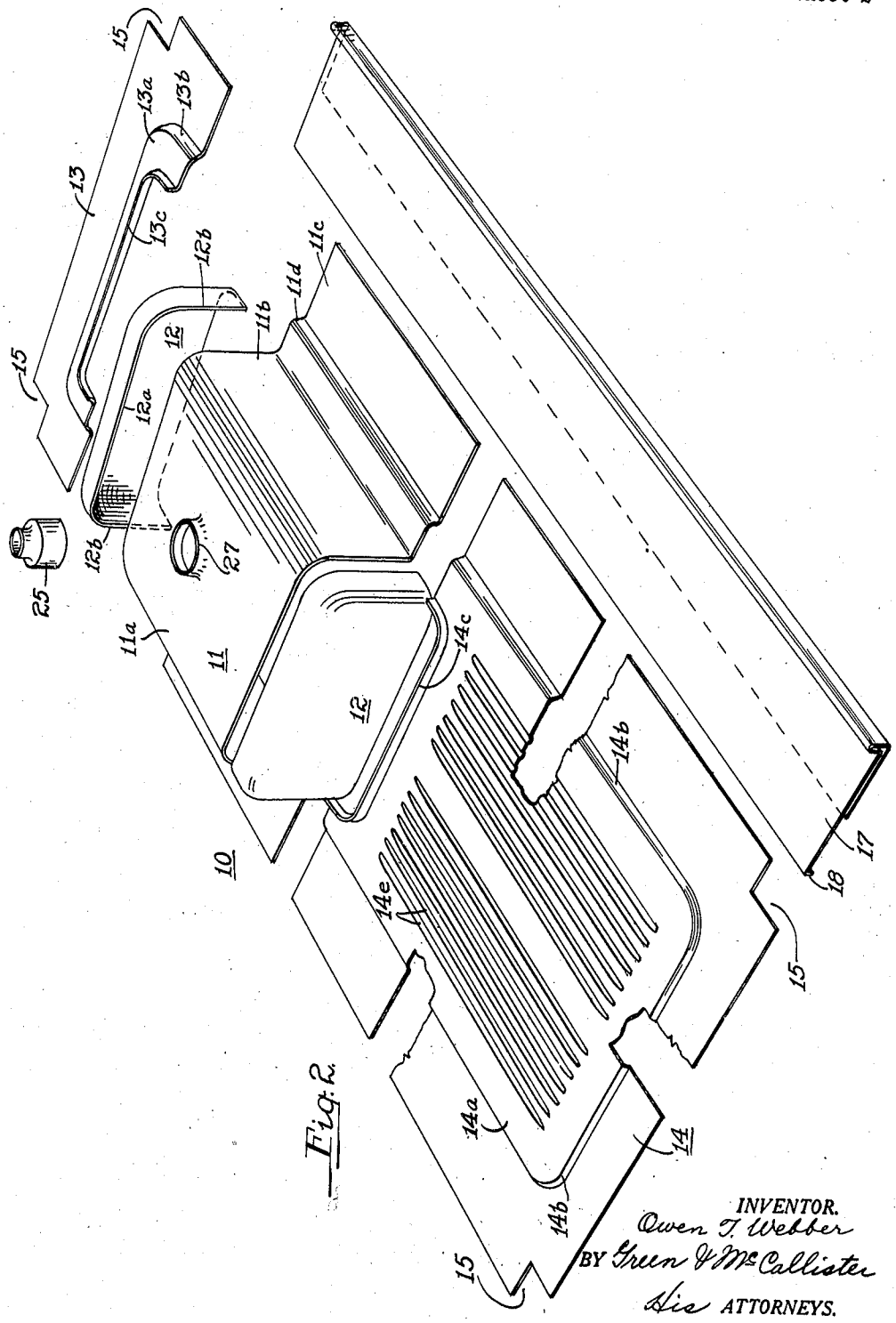


Fig. 2.

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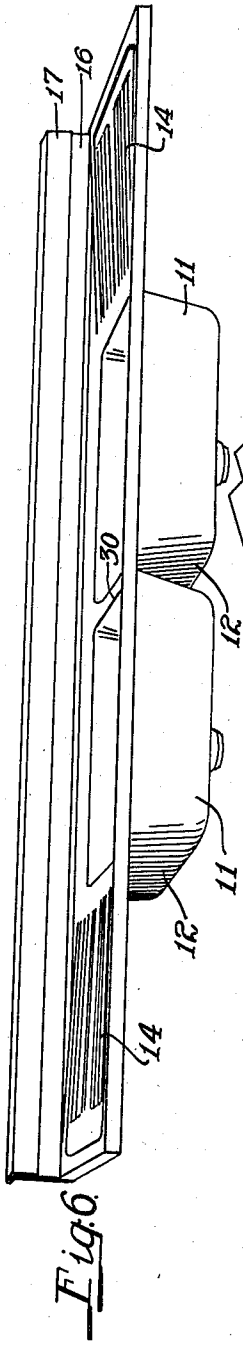


Fig. 6.

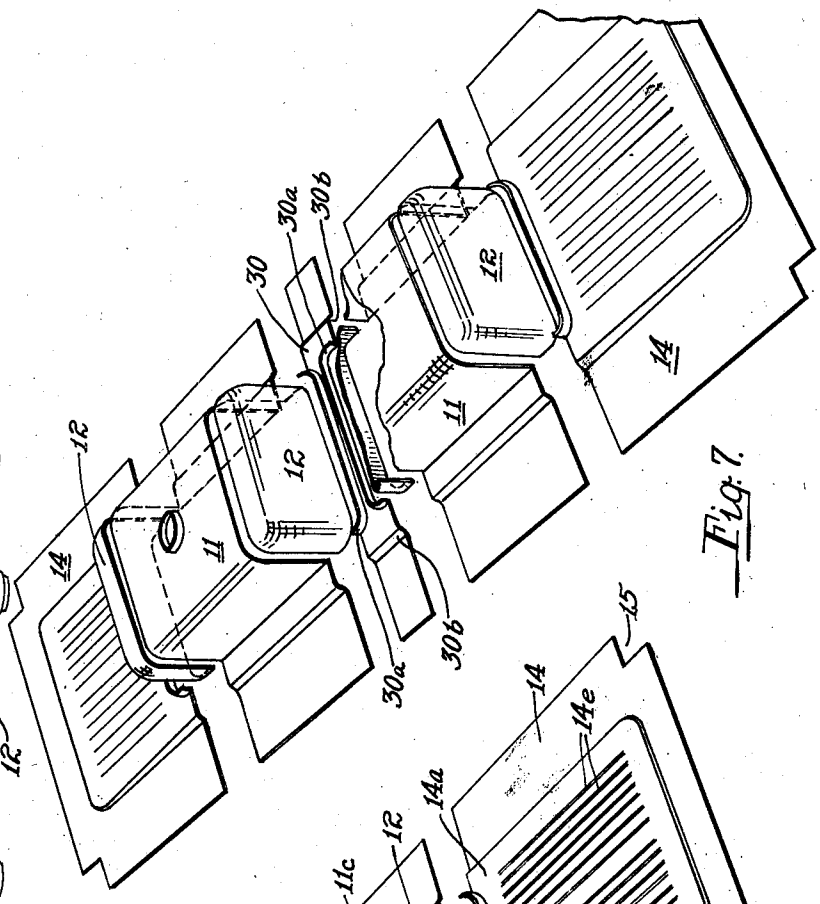


Fig. 7.

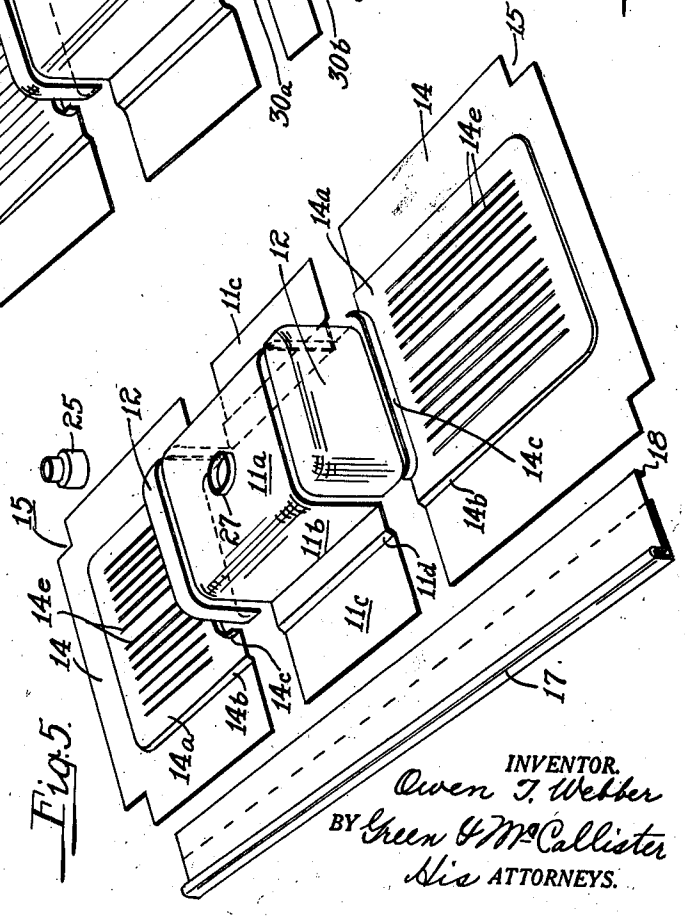


Fig. 5.

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Patented Feb. 17, 1942

2,273,606

UNITED STATES PATENT OFFICE

2,273,606

SHEET METAL SINK

Owen T. Webber, Pittsburgh, Pa., assignor to Allegheny Ludlum Steel Corporation, a corporation of Pennsylvania

Application November 10, 1937, Serial No. 173,754

1 Claim. (Cl. 4—187)

This invention relates to sinks for domestic use, and more particularly to improvements in a metallic sink and sink units and to a method of manufacturing such sinks from strip or sheet metal materials, and preferably, although not essentially, from strip or sheet material of the less ductile metals, such as stainless steel.

In the manufacture of sinks having a substantial depth from sheet metal, it has heretofore been found essential when forming such articles by pressing to effect the formation of the article by a series of drawing operations which necessitates expensive plant equipment and requires, in addition, when less ductile metals such as stainless steel are being used, an annealing operation between the pressing operations. Even where such precautions, such as annealing between each pressing operation, have been taken, the stresses set up in the metal during the drawing operations frequently cause the sink manufactured therefrom to split and be unfit for commercial use.

The primary object of the present invention is to provide a pressed metal sink and a simple, easy and economical method for fabricating such sinks from strip or sheet materials of the less ductile metals, such as stainless steel, which will have all the features and advantages of cast metal sinks, such as a sloping drainboard, on at least one side of the sink and a level fillet edge surrounding the drainboard and body of the sink for giving good and uniform appearance to the sink, and I accomplish this object by forming a series of interchangeable shallow pressings of relatively small area from such metal, all of which have one definite dimension and one indefinite dimension, and then welding these pressings together on the line of their definite dimensions to procure a sink of predetermined width but of any desired length.

Another object is to provide a splash back or riser for a sheet or strip metal sink which can be fabricated to extend to any desired height above the body of the sink and when positioned on the sink body becomes, to all intents and purposes, an integral part thereof, and which does not unduly increase the fabrication cost of the sink.

A further object of this invention is to provide a method of manufacturing domestic sinks from strip or sheet material particularly, although not essentially, from the less ductile metals such as stainless steel, which consists in forming the sink from a series of interchangeable shallow pressings having one predetermined and standard dimension and one variable dimension and then welding such pressings together in any desired relation to form a sink having a predetermined standard width and a variable length.

A still further object is to provide a sink made up of a series of shallow sheet metal pressings welded together, which does not require any expensive machinery or equipment, such as large size and expensive dies, in the fabrication of the sheet metal parts, and in which all the pressings may be readily formed from moderately small rigid sheets and thus avoid the extra cost which would be entailed in using large sized sheets and also minimize the waste of the sheet material.

In carrying out my invention, I form, by pressing operations, a series of pieces, consisting of a "saddle piece" which defines the depth of the sink bowl and has a flat edge fillet on two opposed sides thereof, two end pressings for closing the ends of the saddle piece, at least one drainboard section having an edge fillet on three sides thereof for joining to either or both ends of the saddle piece, and at least one end fillet section for completing the edge fillet of the saddle piece on either or both ends thereof. These pieces are adapted to be assembled in any desired relation so far as the end fillet and drainboard sections are concerned and then welded together to provide an integral sink. The saddle and the two end pressings form the bowl of the sink and the end pressings, the drainboard section and the end fillet sections are interchangeable, that is, one end pressing can be joined to either end of the saddle piece and a drainboard or end fillet section can be joined to either or both ends of the saddle piece and to the end pressings attached thereto. The fillets on the saddle project out from the top of side walls of the bowl at substantially right angles thereto and are maintained in a flat plane during the assembling of the pieces, which plane corresponds to the plane of the edge fillets on the drainboard section and the fillets on the end section. After the pressings are united by welding, the edges of the fillets on the various pieces are sheared and bent to give the desired shape of fillet surround to the sink.

In order that my invention may be more clearly understood, the preferred embodiment thereof is described in the following specification and illustrated in the accompanying drawings, wherein:

Figure 1 is a perspective view of a strip or sheet metal sink made in accordance with my invention;

Fig. 2 is an enlarged exploded view in perspec-

tive of the bottom of the sink shown in Fig. 1 and illustrates the shape and position of the various interchangeable pressings making up the sink;

Fig. 3 is a section taken on line III—III of Fig. 1;

Fig. 4 is a section similar to Fig. 3 having portions thereof broken away for convenience of illustration and shows another form of back riser and front edge of a sink;

Fig. 5 is an exploded view in perspective of the bottom of a sink equipped with double drainboards;

Fig. 6 is a view in perspective of a double sink having a double drainboard; and

Fig. 7 is an exploded view in perspective of the body of the sink looking at the bottom of the sink shown in Fig. 6.

Referring particularly to Figs. 1 and 2 of the drawings, a metallic sink 10 is illustrated which is fabricated from a series of interchangeable shallow pressings formed of stainless steel that are adapted to be welded together into an integral whole. The interchangeable pressings, which are to be integrally welded together to produce the sink 10, comprise a saddle piece 11, two end pressings 12, at least one end fillet 13 and at least one drainboard piece 14, all of which are pressed to the desired shape from a strip or sheet of metal—preferably a non-corrosive metal—by the use of suitable dies. The saddle portion 11 includes a bottom 11*a* having parallel walls 11*b* on the sides extending lengthwise of the assembled sink 10 which terminate at their upper edges in fillets 11*c* that extend outwardly from the side walls at substantially right angles thereto. Each of the edge fillets 11*c* is preferably provided with an offset 11*d* extending lengthwise thereof, the purpose of which will be hereinafter described. The saddle piece 11 can be made either in one or a plurality of forming operations from a suitable strip, the ends of which are left free during the pressing of the side walls. Under these conditions the metal is not subjected to any deep drawing operation, and thus requires no compensating anneal. Since the edge fillets 11*c* are merely bent outwardly from the side walls 11*b* and are only subjected to a slight drawing operation to produce the offsets 11*d*, there are no work strains of consequence set up in the saddle piece and, consequently, no annealing is needed even though the piece be formed from one of the less ductile materials such as stainless steel.

In the forming of the saddle pieces 11, the distance between the side walls 11*b* of each piece is maintained constant and the height of the side walls is also maintained constant, whereby sinks of definite and standard width and depth will be produced, but by varying the width of the strip or sheet from which saddle pieces are formed, it is apparent that the length of the sink may be readily varied as desired.

The pressings 12 which form the ends of the sink are identical in shape and size and are likewise formed from strip or sheet metal. To produce one of the end pressings 12, a rectangular strip of metal is placed in a suitable die and pressed so that the edges on three sides thereof are dished or curved around to produce a bottom edge 12*a* which is exactly the same width as the edge of the bottom 11*a* of the saddle piece 11, and side edges 12*b* which, when the pieces are assembled, abut against the ends of the side walls 11*b* of the saddle piece. Since the saddle piece 11 is of definite or fixed width, the end pressings 12 are also of fixed width and since the saddle piece is the same at each end, the end pressings may be readily interchanged.

The end fillet 13 is also formed from strip or sheet metal and has a depressed portion 13*a* therein that forms an offset 13*b* along the sides and end thereof, which corresponds in depth at the end of said depressed portion 13*a* to the depth of the offset 11*d* of the saddle piece 11. The fillet 13 which may be used, if desired, to form the rim at one end of the sink, has a downwardly projecting curved flange 13*c* along the edge of the depressed portion 13*a*, which corresponds in shape and width to the top of the end pressings 12 against which it is adapted to abut when the pressings are assembled into an integral sink.

Drainboard 14, which is likewise formed from a sheet or strip of metal, has a depressed portion 14*a* that provides an offset 14*b* adjacent the sides and end thereof. The offset 14*b*, at the end of the drainboard 14, is of the same depth as the offset 11*d* in the saddle piece 11 but decreases gradually in depth as it approaches the other end and thus, when assembled, provides a sloping drainboard section for the sink. The edge of the depressed portion 14*a*, between the offsets 14*b*, is provided with a downwardly depending flange 14*c* which is curved at the ends and corresponds in shape and size to the top of the end pressings 12. The edges of the drainboard 14 on the outside of the offset 14*b* are flat as are the edges of the side fillets 11*c* beyond the offsets 11*d* and the edges of the end fillet 13 on the outside of the offset 13*b* so that when the pieces are assembled, the edges of the drainboard 14 and the end fillet 13 will be in the same horizontal plane as the side fillets 11*c* against which they are adapted to abut.

The downwardly depressed section 14*a* of the drainboard 14 is also provided with a series of shallow upwardly projecting ribs 14*e* which are formed therein during the pressing of the center portion. The ribs 14*e*, while shown as parallel, may, of course, extend in any desired direction, and the design of the ribbing on the drainboard may be readily changed to any desired form, by employing a die having a floating panel with the desired design of the ribbing formed thereon. Thus, by replacing the panel of the die with a panel having a different design of ribbing the design of the ribbing on the drainboard may be readily changed, or a panel may be inserted in the die calculated to provide a smooth area without weld.

In assembling a single drainboard sink, the top of an end pressing 12 is advisably but not necessarily welded by any suitable welding method, such as flash welding, to the flange 13*c* of the end fillet 13 and the other end pressing 12 is then welded to the flange 14*c* of the drainboard pressing 14. With the two end pressings thus secured to the end fillet 13 and to the drainboard 14, the end fillet and drainboard are placed in abutting relation with the fillets 11*c* on the saddle piece 11. When in this position, the edges 12*a*—12*b* of the end pressings abut against the ends of the bottom 11*a* and the side walls 11*b* of the saddle piece. The end pressings 12 are then welded to the bottom and walls of the saddle piece and the edges of the drainboard 14 and end fillet 13 are welded to the edges of fillets 11*c* of the saddle piece. When welded together, these sections 11, 12, 13 and 14 provide a sink

having a single drainboard and a flat fillet surround having a slightly irregular outer edge due to creep in the metal due to the pressing operations. After the pieces have been welded together, the edges of the fillet surround are sheared off to equal or desired dimensions and the weld beads are then removed true and level with the adjacent material and each corner of the drainboard **14** and end fillet section **13** are notched as at **15** to permit the fillet surround to be bent into any desired shape of rim, such as shown in Figs. 3 and 4.

From the foregoing description, it is apparent that the end pressings **12** are exactly the same shape and size and that the flanges **13***b* and **14***c* of the end fillet **13** and of the drainboard **14** are also exactly similar in size and shape. Consequently, all the pieces are interchangeable and a sink having either a left hand or a right hand drainboard may be readily fabricated by merely changing the end fillet **13** and drainboard **14** from one side to the other of the saddle piece.

It is also apparent that with the sink in this stage of manufacture it can be completed in a wide variety of ways. For example, the edges of the drainboard, saddle piece **11** and end fillet **13** can be turned down all around to form a sink having a complete fillet surround and no splash back, or the fillet can be turned down on the front and both ends and up at the back to form a sink having a fillet surround for the front and ends with a riser at the back. Again, the fillet at either or both ends of the sink can be welded to a flat sheet of metal of any reasonable and desired length to form a work table area integral with the sink. It should be understood, however, that when a work table top is to be formed integrally with the sink the corners of the end fillet **13** or the drainboard **14**, or both, depending on which end or ends the table top is desired, are not notched but that the ends of the sheet fastened thereto would be notched to permit the desired shape of fillet surround to be formed.

If a shallow splash back is desired, the fillet at the back of the sink is bent up to provide a riser **16**. If a splash back is desired higher than the limits of which the sink fillet will provide, then the fillet at the back of the sink is bent up to provide a riser **16** for receiving a splash back member **17**. The splash back **17** is fabricated from a strip of metal having one side bent over completely upon itself into substantially U-shape having one leg shorter than the other. The longer leg is preferably flanged inwardly, as at **18**, to secure the proper degree of stiffness in the feet and to act as a retaining member for a suitable sound deadening material, and the short leg is then forced over the top of the riser **16** where it is securely held in place by the strength and spring of the metal. After the splash back **17** has been positioned on the riser **16**, the outer edges thereof are welded to form a solid seam and the edges of the splash back **17** adjacent the turned down portions of end fillet **13** and drainboard **14** are welded together to provide uniformity and to give strength to the sink and also to retain the sound deadening material which may be used with the sink.

While I have illustrated two shapes of fillet surrounds in Figs. 3 and 4, that is, a square type in Fig. 3 wherein the edges of the fillets are bent at right angles to the flat upper surface to provide a downwardly extending flange **20** having an inturned lower edge **21** for the purpose of strengthening the sink, and a rolled type in Fig. 4 wherein the fillets are bent to provide a rolled edge **22** having a lower inturned edge **23**, it is to be understood that any desired shape of fillet surround may be employed without departing from the spirit of my invention. The shape of the splash back **17** may also be readily changed to a box type, if desired, by merely bending the upper end of the top edge of the splash back at right angles to the front face, as shown in Fig. 3, or by bending the edge at 45° or curving it to any desired contour. Also, should a decoration or relief be desired for the raised back, this can be provided in the strip material for the back riser before same is bent into the final shape required. For instance, to provide a molded band or rib on the front face of the splashback **17**, the edge of the material would be put in a forming press having a strip die designed to such a contour that would mold the edge in a decorative manner such as three parallel ribs. Such ribs would also act as a stiffener for the riser. When a box type of splash back is employed, I prefer to close in the ends of the riser by welding a piece of metal to the flat top edges and sides of the riser.

The fabrication of the sink is completed by installing a waste sump **25** on the saddle piece **11**. In order to receive the sump **25** an opening **26** is formed in the bottom of the saddle piece **11** having a downwardly extruded annular edge **27** which extends a siutable distance below the bottom of the saddle piece **11**. The extruded edge **27** on the bottom of the saddle piece has an internal diameter slightly less than the outside diameter of the sump **25** which is of standard construction, and the sump is fitted into the opening, preferably drive fitted, so as to make a water tight joint therebetween, after which the sump is tack welded to the depending extruded edge **27** of the saddle piece **11** to prevent dislodgment during the installation of the sink. When the sump is installed in this manner, it is apparent that the top of the sump forms a seat or ledge at a distance slightly below the bottom of the saddle piece, which may be utilized as a seat for holding a strainer in proper position within the sump. It should be understood that the sump can be arranged to fit over the outside of the extruded edge **27**, if desired, and the strainer seat provided in any other desired manner.

In Fig. 5, I have illustrated another form of sink which may be made up of the parts heretofore described. In this particular construction, the sink is provided with a double drainboard, that is, one drainboard on each side of the sink proper, and in constructing this particular sink the end fillet member **13** is replaced with a drainboard pressing of the exact shape and size and configuration of the drainboard pressing **14** used on the other side of the sink which is welded to the end pressing **12** and to the saddle piece **11**.

While I have shown the sink as having two drainboards, it is also apparent that a sink can be fabricated without any drainboard, if desired. Under such a construction, two end fillets **13** are employed one on each side of the sink instead of the drainboard pressings **14**.

Figs. 6 and 7 show a double sink constructed from the parts heretofore described. In this construction two end pressings are joined to a spacer **30**, the side edges of which, intermediate the ends thereof, are provided with depending flanges **30***a*—**30***a* curved to correspond in shape and size to the top edge of the end pressings **12**. The ends of the spacer **30** are also depressed to provide offsets **30***b* of the same size and shape

as the offset 11*d* in the saddle piece 11 so that when the parts are assembled the ends of the spacer 30 lie in the same plane as the edge fillets 11*c* of the saddle piece. In fabricating a sink having a double bowl, two end pressings 12 are first welded to the flanges 30*a*—30*a* of the spacer 30 and two other end pressings are welded to flanges 14*b* of two drainboards 14, after which the four end pressings are flash welded to the bottom and side walls of two saddle members 11, and the edges of the spacer and of the drainboards are then welded to the edges of the saddle members. While the sink shown in Figs. 6 and 7 is of the double bowl construction and has two drainboards, it is to be understood that a single drainboard may be employed on either side of the sink and that the other end may terminate in an end fillet 13 such as that shown in Fig. 2, or, if desired, both drainboards may be replaced by two end fillets 13 which are secured to the end pressings at each end of the double sink. In each of the constructions, the flat edges of the end fillets, saddle pieces and drainboard pressings are shaped to any desired form of fillet surround after welding.

From the foregoing, it is apparent that I have provided a sink adapted to be made of sheet or strip material and a method of constructing such a sink which makes it possible to manufacture a plurality of shapes and sizes much more cheaply than would be the case if the sinks were manufactured from a single piece of material, since no unduly expensive machinery and dies are needed as the bending and forming operations involved are such that the design is relatively simple and machinery can be employed to shape the various units which can be united together by a suitable welding method, preferably flash welding, with good and uniform results. Further, since the parts are of such shape and size that strip or sheet metal may be used instead of a single piece of sheet metal, such as has heretofore been the practice, the loss of material as a result of waste and the like is materially reduced and the base cost of strip pieces instead of a sheet of material is very economical.

Further, my improved sink lends itself admirably to large scale production since the parts are interchangeable and can be united in any desired way to form any type of sink. Consequently, the separate parts or pressings may be fabricated and stored and the sinks made up from these prefabricated parts to meet any type of order.

It should be further understood that the only fixed dimension on my improved sink is the width between the side walls 11*b*—11*b* of the saddle piece 11, and that since the longitudinal edge of the saddle piece is substantially the same as the width of the sheet or strip from which the sink is being fabricated, the length of the bowl of the sink may be readily varied by using sheets of greater or lesser width. Also, the length of the drainboards and end fillets may be varied by varying the length of the sheets from which said members are fabricated and, consequently, sinks of varied capacity may be readily made from standard prefabricated pressings to fit any desired or special need.

While I have described one method of making sinks in accordance with my invention, it is to be understood that other methods may be employed and that other types of welding, besides flash welding, may be employed to unite the various pressings into an integral whole and that articles of a standard width but of variable length and construction may be readily assembled from prefabricated sections, and that the invention is in no way restricted to the particular embodiments heretofore described by way of an example and that many modifications of such embodiment may be made within the scope of the appended claim.

The method of making built-up sinks of the kind herein described is not claimed herein as the same forms the subject matter of my divisional copending application Serial No. 259,166 filed March 1, 1939.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

In combination with a sheet metal sink having a bowl section and a fillet section at each end thereof, at least one of which is centrally depressed to provide a drainboard, of an upstanding flange along the back of said bowl and end fillet sections, and a member extending the full length of said sink having one edge bent over upon itself to provide a spring for frictionally holding said member on said flange, said member having its end seams welded together and to the ends of said flange.

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