Sept. 22, 1936. V. J. GRAF 2,055,378

SINK

Original Filed Aug. 25, 1933 2 Sheets-Sheet 1

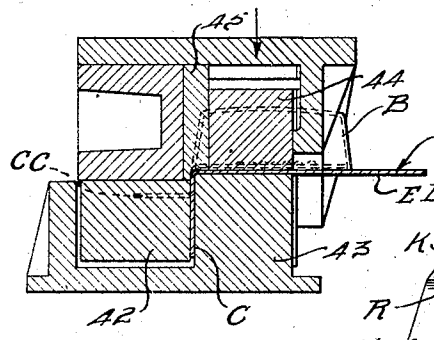


Fig. 1.

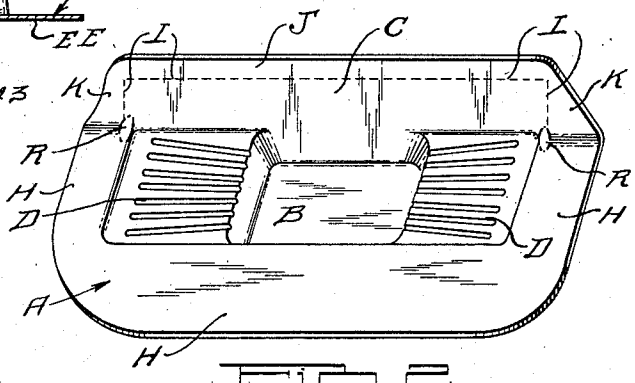


Fig. 2.

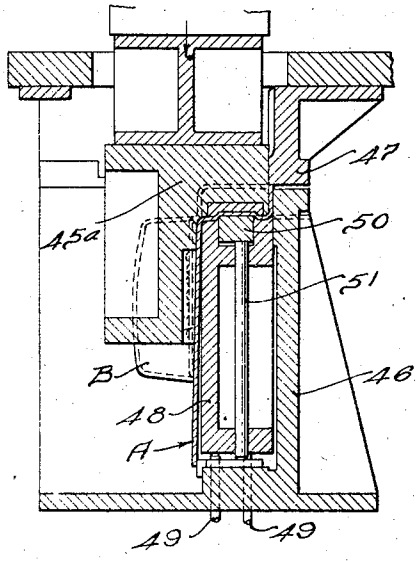


Fig. 3.

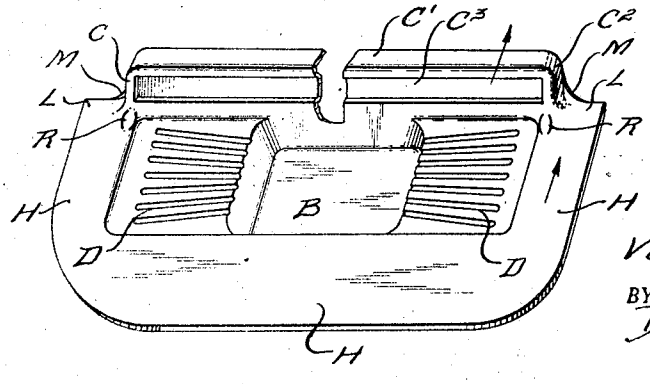


Fig. 4.

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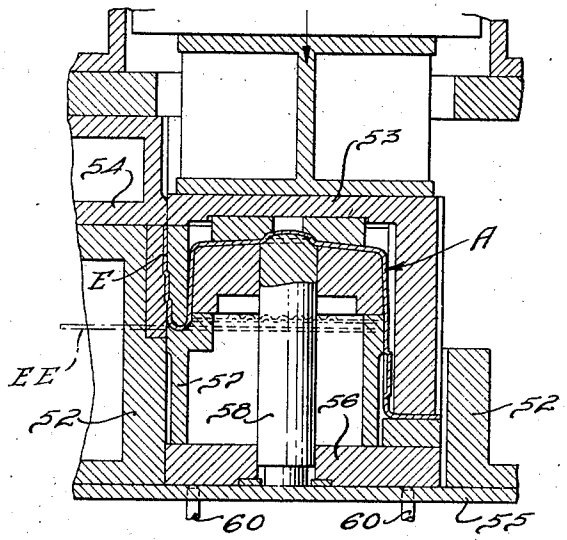


Fig. 5.

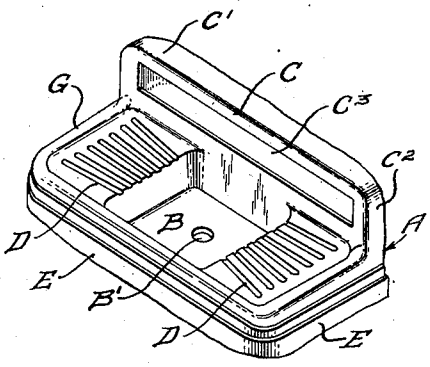


Fig. 6.

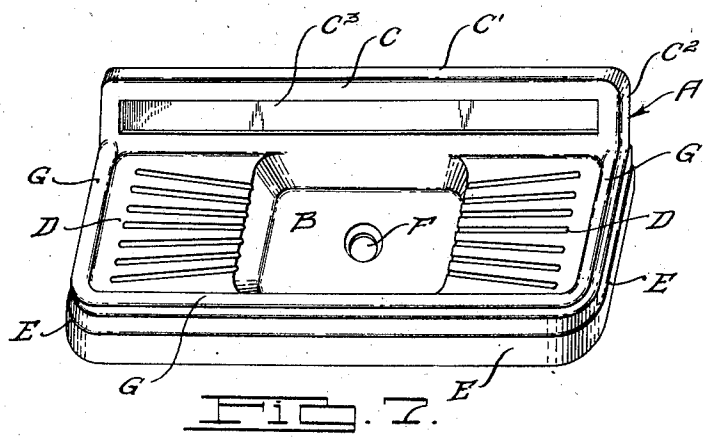


Fig. 7.

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UNITED STATES PATENT OFFICE

2,055,378

SINK

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Original application August 25, 1933, Serial No. 686,796. Divided and this application February 21, 1935, Serial No. 7,493

17 Claims. (Cl. 4—187)

This invention relates to sinks or wash basins preferably formed by stamping or draw die operations from a single sheet or blank of metal, of that character or design preferably having a basin, a single or double drain board which terminates in a depending apron flange, and an upright back wall or splash board, and is a division of my copending application Serial Number 686,796, filed August 25, 1933. This application is a continuation in part of my co-pending application Serial No. 663,711, filed March 31, 1933.

An object of the invention is to provide an improved sink or wash basin of the foregoing character which is of pleasing and attractive appearance, relatively inexpensive to manufacture, and having improved characteristics and advantages as compared with previous more costly sinks either of cast iron or fabricated with welded-in sections or parts.

Another object of the invention is to provide a sink provided with a basin portion, an apron flange and a flanged splash board or upright back portion having continuous, uninterrupted metal surfaces free from welded slits or patches, thereby eliminating enameling flaws resulting from the difficulty in providing a clear, uniform, baked enamel surface due to welds in the foundation metal.

A further object of the invention is to provide a one piece stamped metal sink or wash basin having a rolled or turned marginal rim between the basin portion and apron flange thereof, and in which the upright back panel or splash board has a continuous flange which merges integrally and coextensively with the apron flange.

A further object of the invention is to provide a pressed metal sink of improved character having a fluid receiving bowl or basin and an upright splash back or panel extending upwardly from the rear of the basin, the sink having preferably one or more drain boards terminating in a marginal rolled or turned rim forming part of a depending apron or flange, the improved construction being such that the place or places of merger or juncture of the rim and splash back are seamless.

The above and other objects and advantages of the present invention will appear from the following description and appended claims when considered in connection with the accompanying drawings forming a part of this specification.

In the drawings:

Fig. 1 is a vertical transverse section through a die press or mechanism which may be employed to partially form the upright back or splash board of the sink.

Fig. 2 is a perspective view of the sink after it issues from the mechanism of Fig. 1.

Fig. 3 is a vertical transverse section illustrating a suitable press or mechanism for flanging the splash board.

Fig. 4 is a perspective view of the blank as it appears after the operation performed by the mechanism of Fig. 3.

Fig. 5 is a fragmentary vertical transverse section illustrating mechanism for performing the next operation of fabricating the sink.

Fig. 6 is a perspective view of the sink as it appears after the operation performed by the mechanism of Fig. 5; and

Fig. 7 is a perspective view of a finished sink embodying the present invention.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation, and it is not intended to limit the invention claimed herein beyond the requirements of the prior art.

Referring now to the drawings, there is shown in Fig. 7 a completed sink or wash basin embodying the present invention, the sink being shown as a whole at A. The sink is preferably formed from a single blank of sheet steel or other metal and comprises a basin portion or fluid receiving bowl B, an upright splash back panel or splash board C, and, as shown, a pair of drain boards D at opposite ends of the basin portion. The sink is provided on three sides with a depending flange or apron E. The back panel or splash board C has a continuous uninterrupted flange C^1 along its top edge which is extended to provide side flanges C^2, the face of the back or splash board having an embossed preferably oblong panel C^3. The basin portion is provided with the usual drain opening F. As seen in Figs. 4, 6 and 7 the end flanges C^2 of the splash board or back panel merge integrally and coextensively with the apron flange. The sink or basin has a rolled or turned rim G extending around three sides thereof and the junctures or places of merger between the ends of the rim and splash back are seamless. If desired, the depending flange or

apron E may be provided with stepped portions, as shown.

The sink or basin is preferably formed by a series of stamping or draw die operations which may be performed by the apparatus shown in Figs. 1, 3 and 5 of the drawings. Referring particularly to Fig. 1 it will be seen that the apparatus or die mechanism therein shown is employed to perform the first operation upon the sink or basin blank A which, as shown, has a generally rectangular fluid receiving bowl or preformed basin portion B, a forwardly extending horizontal flange EE and a rearwardly extending horizontal flange CC. The blank A is placed in position between the cooperating members of the die press which include a punch 42, a die member 43 secured to the bed of the press, a punch pad or upper binder plate 44 which holds the metal in position, and a punch or steel section 45 which is employed to restrike the radius at one end of the sink to form one of the beads or embossed portions R shown in Fig. 2, it being understood that sufficient metal is introduced at these points to provide, in a succeeding operation, the proper radius of curvature at the juncture of the turned or rolled rim and upright back wall or splash board C. It will also be understood that similar punches or steel sections 45 are provided at opposite ends of the mechanism to produce the two embossed portions R.

In Fig. 2 there is shown the blank after it issues from the mechanism of Fig. 1, this blank comprising a generally rectangular basin portion B, an upright splash back or splash panel C, upwardly sloping drain boards D and a marginal area H which merges seamlessly with the metal areas K of the splash panel section C.

In Fig. 3 there is shown, merely by way of example, suitable mechanism for forming the embossed panel C^3 in the face of the splash board and for forming the integral and continuous flanges C^1 and C^2 on the top and ends, respectively, of the splash board. This mechanism includes a punch or male form 45a which is actuated from the ram of the press and cooperates with a die 46 to form said top and end flanges on the splash board C. A hold-down ring or binder plate 47 binds the metal in the space between it and the die member 46 to hold it from wrinkling or buckling during the operation. A die pad or binder plate 48 is actuated by pressure pins 49 and serves to hold the metal between itself and the punch 45a. The die pad 48 carries a steel embossing member or unit 50 which is actuated by pressure pins 51 (one being shown) also carried by the die pad 48. Upward movement of the member 50 against the sheet metal of the splash board portion or section embosses the face thereof to produce the embossed panel C^3 (Fig. 4). Thus, the mechanism of Fig. 3 produces, in a single operation, the top flange C^1, the side or end flanges C^2, and the embossed panel C^3.

It will be seen that in the operations performed by the apparatus of Figs. 1 and 3, the back panel or splash board C is formed with a continuous flange and the marginal area H of the front section of the blank is formed into a continuous apron flange merging into the back wall flanging. In so doing, the marginal metal of the back panel or splash board is pressed rearwardly substantially along the broken line I (Fig. 2). The integrally joined metal areas J and K are simultaneously drawn or pressed rearwardly in the same direction, while at the same time the metal areas indicated at H and C are held in fixed position between the cooperating die members.

As a result of the draw operation shown in Fig. 3, the lower edges of the end flanges C^2 are drawn into and merge seamlessly with the horizontal areas L located at or adjacent the opposite rear ends of the horizontally disposed flange H. The metal of the area L (Fig. 4) is drawn largely from the area K shown in Fig. 2. The direction of the draw producing the areas C^1, C^2 and L is illustrated by the arrows in Fig. 4, and the shape of the blank at this stage is also substantially illustrated in this figure. Although portions of the metal during the draw may remain in the form of webs M, these portions can be readily removed in the final trim operations.

In Fig. 5 there is shown mechanism for drawing the apron flange E of the sink and for embossing the drain opening F in the basin portion B. The mechanism, as shown, comprises a lower die ring or member 52, a punch or male form 53, a hold-down ring or binder 54, and a die plate 55 fastened to the die ring 52. The member 55 provides a rest for a pad 56, binder plate 57 and forming punch 58. The punch 58 forms the drain emboss B^1 in the sink basin B and is secured to the die plate 55. Pressure pins 60 serve to apply pressure from air cushions (not shown) in the bed of the press and to raise the die pad 56 and binder plate 57 above the die ring 52 thus to hold the sheet metal sink A securely between the plate 57 and the punch or male form 53 before forming. As the press closes and the die members move relatively to one another, the die ring 52 wipes the apron portion E of the sink from its horizontal position shown in broken lines at E—E to the upright position shown in full lines. The result of this operation is the sink shown in Fig. 6 which has the apron E extending continuously around the front and sides or ends thereof, the turned rim G being formed seamlessly as a part of this apron. As herein shown, the rear portions of the apron flange E form integral and seamless continuations of the end flanges C^2 of the splash board.

The sink as shown in Fig. 6 is then subjected to a trimming operation to trim the edges of the apron flange E and the splash board flanges C^1 and C^2. The drain emboss B^1 is punched out or pierced to provide the drain opening F.

While I have shown one form of apparatus for performing the various operations to produce the sink of Fig. 7, it will be understood that the sink may be formed by other mechanism and by a different sequence of operations than described herein.

From the foregoing it will be seen that I have provided a sheet metal sink or wash basin having an apron flange and a splash board flange or flanges which are formed integrally and coextensively. The splash back is bent up on a line lying in the horizontal plane of the rim G and the junctures of the rim and splash back at said bends are seamless. The sink may thus be formed with continuous uninterrupted metal surfaces free from welded slits or patches, thereby eliminating enameling flaws resulting from the difficulty in providing a clear, uniform, baked enamel surface due to welds in the foundation metal.

I claim:

1. A one-piece sink formed from a single metal blank, comprising a basin, an upright splash board panel, and a depending apron extend-

ing continuously around three sides of said basin, said splash board panel having a rearwardly projecting end flange, and said apron having a rearward end extension coextensive with said end flange, a portion of said end flange and a portion of said apron in the area of their juncture being formed from the same metal.

2. A one-piece sink formed from a single metal blank, comprising a basin, an upright splash board panel, and a depending apron extending continuously around three sides of said basin, said splash board panel having integral end flanges, and said apron having at opposite ends integral rearwardly extending portions coextensive with said end flanges, portions of said end flanges and adjacent portions of said apron being formed from the same metal.

3. A one-piece sink formed from a single metal blank, comprising a basin, an upright splash board panel, and a depending apron extending continuously around three sides of said basin, said splash board panel having integral end flanges, and said apron having at opposite ends integral rearwardly extending portions coextensive with said end flanges, portions of said end flanges and adjacent portions of said apron being formed from the same metal by a drawing operation.

4. A one-piece sink formed from a single metal blank, comprising a basin, an upright splash board panel, a drainboard at one side of said basin, and a depending apron extending continuously around three sides of said basin, said sink having a turned rim merging with said splash board panel, said splash board panel having a rearwardly projecting end flange, and said apron having a rearward end extension coextensive with said end flange, a portion of said end flange and a portion of said apron in the area of their juncture being formed from the same metal.

5. A one-piece sink formed from a single metal blank, comprising a basin portion, drain boards at opposite ends of said basin portion, an upright splash board panel, and a depending apron extending continuously around three sides of said basin and providing a turned rim defining the basin portion and drain boards at three sides of the sink, said splash board panel having a rearwardly projecting end flange, and said apron having a rearward end extension formed seamlessly with said end flange.

6. A one-piece sink formed from a single metal blank, comprising a basin portion, drain boards at opposite ends of said basin portion, an upright splash board panel having an embossed front face, and a depending apron extending continuously around three sides of said basin and providing a turned rim defining the basin portion and drain boards at three sides of the sink, said splash board panel having rearwardly projecting end flanges, and said apron having rearward end extensions coextensive with said end flanges, portions of said end flanges and portions of said apron extensions in the areas of their juncture being formed from the same metal.

7. In a sheet metal sink adapted to have a uniform enamel coating applied thereto, said sink having a fluid receiving bowl terminating in a drainboard having a marginal turned or rolled rim and in a splash-back all formed integrally from a single sheet of metal; the splash-back projecting upwards from the rear of said bowl and drainboard, the rolled rim surrounding the front and sides of said bowl and drainboard and the ends thereof terminating at and merging into the said splash-back, and the places of merger between the ends of the rolled rim and the splash-back being seamless.

8. A sheet metal sink formed integrally from a single sheet of metal and having a fluid receiving bowl terminating in a drainboard, a rolled rim and in a splash-back; the splash-back projecting upwards from the rear of said bowl and drainboard, the rolled rim surrounding the front and sides of said bowl and the ends thereof terminating at and merging into the said splash-back, and the places of merger between the ends of the rolled rim and the splash-back being seamless, said rolled rim being formed seamlessly as a part of a depending apron extending around the front and sides of the sink.

9. A sink formed integrally from a single metal sheet or blank and having a fluid receiving bowl terminating in an upwardly extending splash-back, a drainboard and in a rolled rim formed as a part of a depending apron, the place of merger between an end of said rolled rim and the splash-back being seamless.

10. A sink formed integrally from a single metal sheet or blank and having a fluid receiving bowl terminating in an upwardly extending splash-back, a drainboard and in a rolled rim formed as a part of a depending apron, said rolled rim extending integrally around three sides of the bowl, and the places of merger of the rim and splash-back being seamless.

11. A sink formed integrally from a single metal sheet or blank and having a fluid receiving bowl terminating in an upwardly extending splash-back and at each side in a drainboard terminating in a rounded rim formed seamlessly as a part of a depending apron extending around three sides of the sink, the place of merger between an end of said rim and the splash-back being seamless.

12. A sheet metal sink formed integrally from a single sheet of metal having a generally rectangular fluid receiving bowl, a rolled or turned rim, a drainboard and a splash back; the splash back projecting upwards from the rear of said rectaunlgar bowl and drainboard, the rim integrally surrounding three sides of the bowl at the front and ends of the sink and the ends of the rim terminating at and merging into the splash back, and the places of merger between the ends of the rim and the splash back being seamless.

13. A sheet metal sink formed integrally from a single sheet of metal having a fluid receiving bowl, a rolled or turned rim, a depending skirt, and a splash back; the splash back projecting upwards from the rear of said bowl, the rim extending seamlessly around three sides of the bowl at the front and ends of the sink, the depending skirt being formed seamlessly in continuation of the rim and also extending around three sides of the bowl, the ends of the rim terminating at and merging into the splash back, and the places of merger between the ends of the rim and the splash back being seamless.

14. In an enamel coated sheet metal sink having a generally rectangular fluid receiving bowl and an adjacent drainboard terminating in a turned rim and in a splash back all formed integrally from a single sheet of metal; the splash back being bent upwards from the rear of said bowl and drainboard along a line lying in the plane of the upper surface of the rim, the drainboard sloping downward toward said bowl and being spaced below the plane of the upper portion of the turned rim, the rim surrounding the front

and sides of said bowl and drainboard and the ends thereof terminating at and merging into said splash back, and the places of merger between the ends of the rim and the splash back being seamless.

15. A pressed metal sink comprising a generally rectangular fluid receiving bowl terminating in an upwardly sloping drainboard at one side and in an outwardly and downwardly turned rim extending seamlessly around three sides of the bowl and drainboard and also comprising an upright splash back extending upwardly from the rear basin wall and rear edge of the drainboard, all being pressed integrally from a single metal sheet, the splash back being bent upwardly on a line lying in the horizontal plane of the upper edge of the rim and the junctures of said rim and splash back at said bends being seamless, said splash back having continuous rearwardly directed flanging along the top and ends thereof.

16. A pressed metal sink comprising a generally rectangular fluid receiving bowl terminating in an upwardly sloping drainboard at one side and in an outwardly and downwardly turned rim extending seamlessly around three sides of the bowl and drainboard and also comprising an upright splash back extending upwardly from the rear basin wall and rear edge of the drainboard, all being pressed integrally from a single metal sheet, the splash back being bent upwardly on a line lying in the horizontal plane of the upper edge of the rim and the junctures of said rim and splash back at said bends being seamless, said splash back having continuous rearwardly directed flanging along the top and ends thereof and the outer downwardly turned portion of said rim merging seamlessly into the end flanging on said splash back.

17. A one-piece sink formed from a single metal blank, comprising a basin, an upright splash board panel, and a depending apron, said splash board panel having a rearwardly projecting end flange, and said apron having a rearward end extension coextensive with said end flange, a portion of said end flange and a portion of said apron in the area of their juncture being formed from the same metal.

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