Dec. 12, 1950 C. J. RODMAN 2,534,146

BATHTUB AND METHOD OF PRODUCING THE SAME

Filed March 19, 1946 2 Sheets-Sheet 1

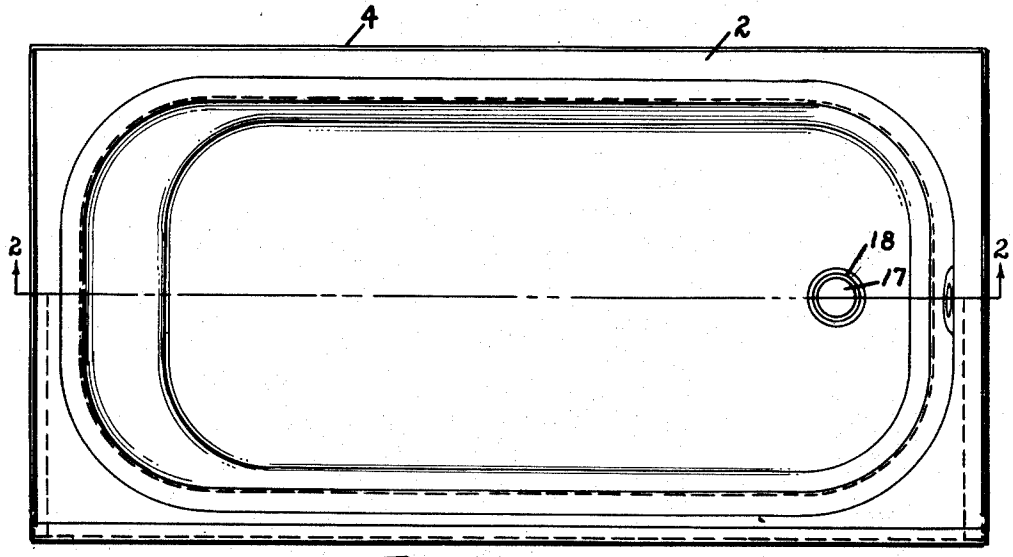


Fig. -1

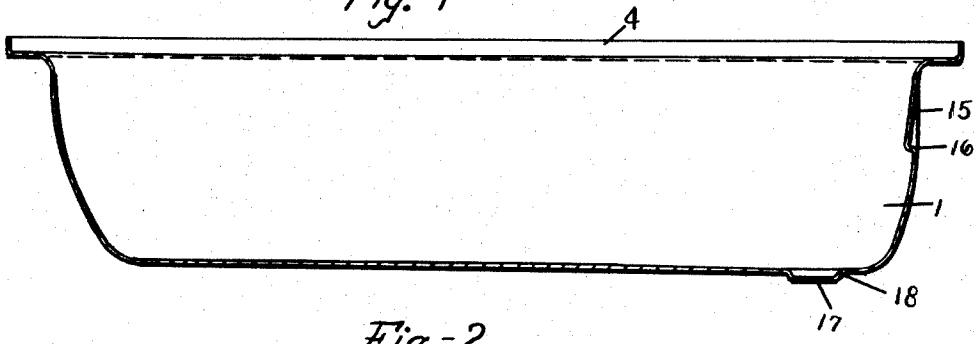


Fig. -2

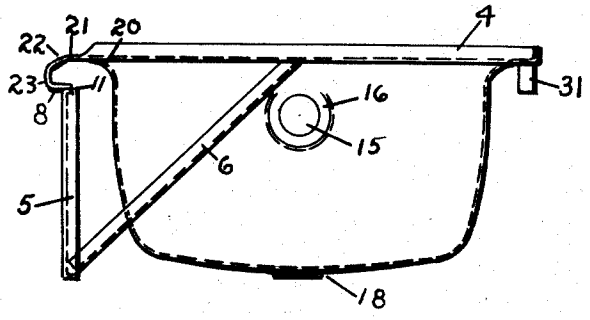


Fig. -3

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BATHTUB AND METHOD OF PRODUCING THE SAME

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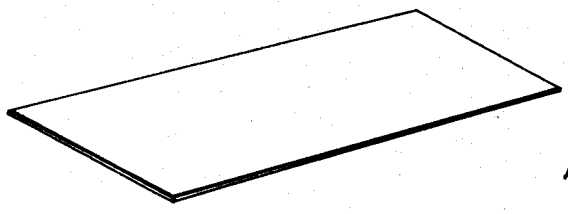


Fig.-4

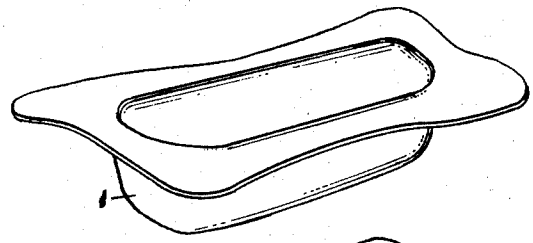


Fig.-5

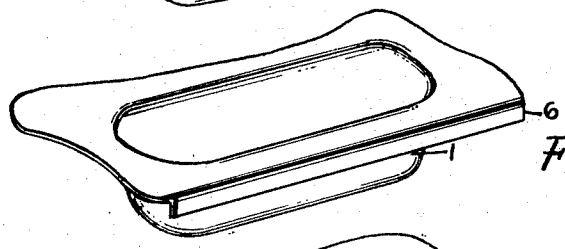


Fig.-6

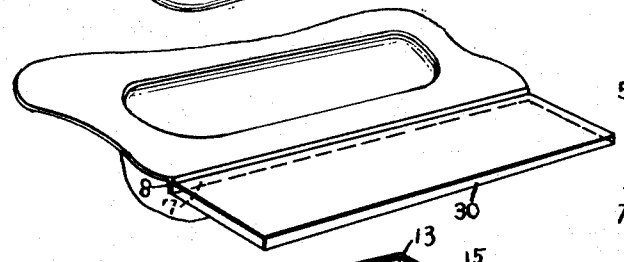


Fig.-7

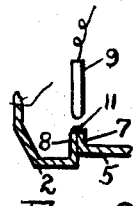


Fig.-8

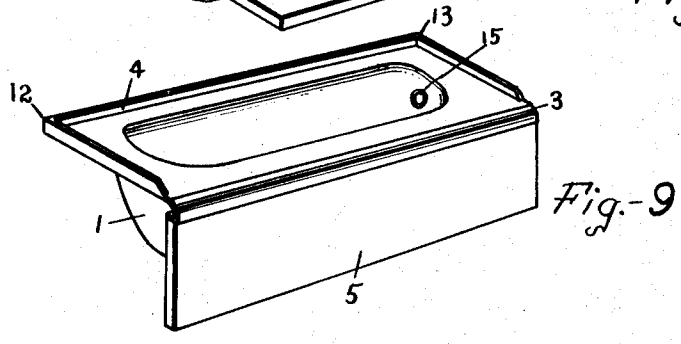


Fig.-9

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BATHTUB AND METHOD OF PRODUCING THE SAME

Clarence J. Rodman, Alliance, Ohio

Application March 19, 1946, Serial No. 655,515

7 Claims. (Cl. 4—173)

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The present invention relates to a new and improved type of bathtub and to the method of producing the same.

The tub of the present invention is drawn from a single piece of sheet steel. It is preferably completely drawn in a single stroke of the press because this reduces to a minimum the thinning of the metal. This is important because in the subsequent enameling of the tub uniform heating is desired. The tub is so designed that there are no flat surfaces in the bell, all of the surfaces being concave outwardly so that when heated and cooled during the enameling, the bell expands and contracts regularly.

The tub is designed for use in a recess where only the front of the tub will be exposed. This front is covered with an apron. In the past, when aprons have been welded to the front edge or rim of a tub, it has been necessary to trim excess metal from the weld to produce a pleasing appearance. In producing the tub of this invention, the front rim is bent down and back, and the apron is welded to the rim from underneath before this bending of the rim is completed. After welding, the rim is bent to hide the weld from view. Consequently, trimming is unnecessary.

The front rim is bent in such a way that there is no horizontal surface in the rim in front of the bell or bowl of the tub. The edge of the bell bends gradually outward to a straight line which extends across the front of the tub, and from this high line the rim is bent downwardly and then back toward the union with the apron. The bent rim protrudes a little in front of the apron and thus provides a grab rail for a bather to use in raising himself while in the tub. This protrusion of the rim hides the union of the tub with the apron when the tub is viewed from any ordinary angle.

The weld between the apron and the rim of the tub is advantageously formed by welding with an arc at the interface between the apron and the rim of the tub. This minimizes deformation or drawing of the welded parts without substantial distortion of the apron.

The invention includes a new method of enameling and other novel features which will be explained in connection with the accompanying drawings, in which:

Fig. 1 is a plan view of the bathtub;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is an end view;

Fig. 4 shows in perspective the blank from which the tub is drawn;

Fig. 5 shows the same after drawing;

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Fig. 6 shows the front rim trimmed and flanged;

Fig. 7 shows the apron welded to this flange;

Fig. 8 illustrates the preferred method of welding; and

Fig. 9 is a perspective view of the completed tub.

The bathtub is drawn from a single sheet of steel and comprises the bell 1, the rim 2, and the flange or lip 4 which prevents seepage between the edge of the rim and the adjoining walls of the bathroom. The apron 5 is welded to the rim in a manner to be explained in what follows. Angle braces 6 are provided at each end of the tub. These are welded to the inturned end flanges of the apron and to the underside of the rim.

The method of manufacturing the tub is best illustrated by reference to Figs. 4–9. Fig. 4 illustrates simply the sheet of steel from which the tub is drawn. The first operation is to draw the bell 1 into the tub as shown in Fig. 5. The excess steel is then trimmed from the front rim of the tub which is then turned down at 6 as shown in Fig. 6.

In the past it has been customary to unite the apron to the front rim of the tub by some method which forms a weld across the face of the tub. It has, therefore, been necessary to dress down the weld to give the tub a satisfactory appearance. This trimming or dressing is a time-consuming and expensive operation which is entirely eliminated when a tub is made according to the process of this invention. The apron is flanged, and according to the process of this invention the top flange 7 of the apron is welded to the front rim of the tub before the bending of the rim is completed. As shown in Fig. 6, according to the preferred method, after drawing, the front rim is trimmed and flanged at 6. Figs. 7 and 8 show how the edge of the flange 7 of the apron is made to coincide with the edge of the flange 8 on the tub and the two are welded together. The preferred process of welding is illustrated in Fig. 8 in which the arc produced between the carbon electrode 9 and the tub is used to weld the edges of the flanges at their interface to form the weld 11. It is not necessary to add any metal from the electrode to form the weld. The edges of the flanges are converted to a fused mass which on cooling forms the weld 11 over the interface.

After welding, the bending of the front rim is completed so as to bring the apron down over the front of the tub as shown in Fig. 9. The weld 11 is thus brought to the rear of the apron and the protruding portion of the rim so that it is concealed from view. The following operations

are also preferably completed as a part of the same operation: The remaining three sides of the rim are trimmed, notches are cut in the back corners of the rim to permit the flange or lip 4 to be bent up, and this flange is then bent and welded at the corners 12 and 13 where the notches were formed. The overflow 15 is then cut in one end of the bell, and the area 16 surrounding the overflow is countersunk. The drain opening 17 is cut into the bottom of the bell, and the area 18 surrounding it is countersunk.

The front rim is bent in the manner illustrated in Fig. 3. There is no horizontal ledge at the front edge of the tub. The top portion of the bell 20 gradually aproaches the high line 21, and then the angular portion 22 of the rim is bent downward at an angle of about 30° to 35°. Below this is the vertical portion 23. The flange 8 extends horizontally backward from this so that the apron is vertical. By having the bell 20 approach the high line 21 and eliminating any horizontal portion in front of the bell, maximum drainage back into the tub is provided, and buckling of the tub during enameling is prevented. By making the flange 8 wider than the upper flange 7 on the apron, a grab rail is formed, and the front of the union between the rim and the apron is obscured from ordinary view.

After the structural operations have been completed, the tub is enameled. The enameling comprises the application of a ground coat followed by a cover coat and the customary firing. The bell is designed without any flat surfaces. This prevents distortion during the expansion and contraction incident to firing and cooling. According to a preferred method of enameling, only the ground coat is sprayed into the recess at the front of the tub between the horizontal flange 8 of the grab rail and the top flange of the apron. This prevents rusting. No cover coat is applied in the recess. This prevents chipping of the enamel which would be apt to occur in such a recess.

In installing the tub, the weight is supported by the apron which rests on the bottom flange 30 and the stringer 31 which is fastened to the studding. The apron may be suitably embossed or otherwise treated to dampen vibration.

The finished tub is strong and attractive in appearance. It is designed to fit into a recess of standard length so that only the front is exposed to view. By concealing the weld between the apron and the tub, the cost of trimming the weld necessary with all prior constructions of this general type is eliminated entirely. The tub is, therefore, relatively inexpensive, and the cheapness of design does not detract from the appearance, strength or serviceability of the finished article. Modifications in the structure may be made without departing from the scope of the appended claims.

What I claim is:

1. A bathtub formed from sheet steel with an apron welded to at least a portion of the front rim thereof, the union of the apron being to an underturned horizontal portion of the rim and being set back from the front edge of the underturned horizontal portion so that the latter protrudes in front of the apron to serve as a grab rail.

2. A steel bathtub with at least a portion of the rim turned down and back, an apron below the downturned rim which screens off what is in back of it, the apron being provided at the top with a rearwardly projecting flange, the back edge of the flange and the back edge of the backturned portion of the rim substantially coinciding and being welded at the interface of the coinciding edges.

3. A porcelained steel bathtub with at least a portion of the rim thereof bent down and back, a steel apron below said portion with an inwardly extending flange at the top thereof, the flange being welded to the backwardly bent portion of the rim with the steel surfaces of the flange and rim in face-to-face contact, the recess at the outside of said union of the rim and flange being protected with ground coat on which there is substantially no cover coat.

4. A porcelained steel bathtub with the front rim turned down and under to form a substantially horizontal portion bent back toward the bell of the tub, a steel apron with a top flange thereon bent back toward the bell of the tub, the flange being narrower than the substantially horizontal portion of the rim, the back edge of the flange and the back edge of the bent-back portion of the rim substantially coinciding and being welded at the interface of the coinciding edges, the horizontal portion of the rim extending forwardly from the front of the apron, the tub being porcelain enameled with ground coat in the recess in the front face of the tub between the flange and the horizontal portion of the rim, the steel surfaces of which are in face-to-face contact, but with substantially no enamel cover coat on said ground coat in said recess.

5. The method of manufacturing a bathtub which comprises drawing the bell in a single sheet of steel to produce a tub with a rim, trimming the front edge of the drawn sheet to form a straight edge substantially parallel with the center line of the tub and bending downwardly a narrow flange at the edge thereof, uniting to the flange an apron with a top flange which is narrower than the flange on the tub and which is bent backward from the face of the apron by bringing the flanges together with the edges thereof substantially coinciding and welding the edges at the interface, and then further bending the rim so that the flange on the tub extends backwardly, thereby bringing the apron to a substantially vertical position so that the apron and bent rim conceal the weld and the bell of the tub, and the front part of the backwardly extending portion of the rim protrudes forwardly from the apron to serve as a grab rail.

6. The method of manufacturing a bathtub which comprises drawing the bell in a single sheet of steel to produce a tub with a rim, bending downwardly a narrow flange at the edge of the rim, uniting to the flange an apron with a top flange bent backward from the face of the apron by welding the flanges together, and then further bending the rim so that the flange on the tub extends backwardly, thereby bringing the apron to a substantially vertical position.

7. The method of manufacturing a bathtub which comprises drawing the bell in a single sheet of steel to produce a tub with a narrow rim, trimming the front edge of the drawn sheet to form a straight edge substantially parallel with the center line of the tub and bending downwardly a narrow flange at the edge of the rim, uniting to the flange an apron with a top flange bent backward from the face of the apron by bringing the flanges together with the edges thereof substantially coinciding and welding the edges at the interface, thereby forming over the interface between the flanges a fused mass which on cooling

bonds them together, and then further bending the rim so that the flanges extend backwardly, thereby bringing the apron to a substantially vertical position.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,870,836	Cromwell	Aug. 9, 1932
2,087,183	Davock	July 13, 1937
2,122,247	Coordes	June 28, 1938
2,199,791	Gwynn	May 7, 1940
2,302,563	Masters	Nov. 17, 1942
2,305,846	Coordes	Dec. 22, 1942

FOREIGN PATENTS

Number	Country	Date
52,522	Denmark	Jan. 4, 1937