W. C. McKINNEY.

METHOD OF MANUFACTURING VITREOUS ENAMELED CAST METAL APRON BATH TUBS.

APPLICATION FILED JAN. 17, 1916.

1,282,255.

Patented Oct. 22, 1918.

2 SHEETS—SHEET 1.

FIG. 1.

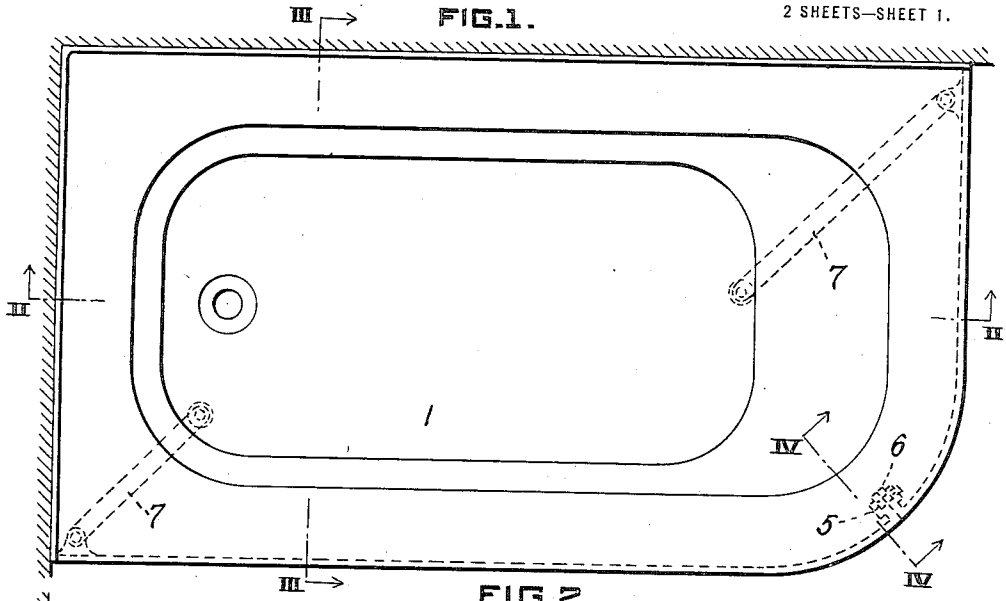


FIG. 2.

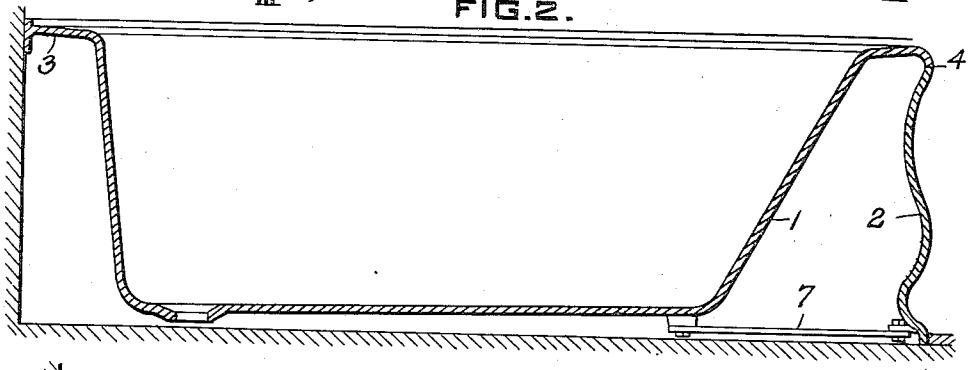


FIG. 3.

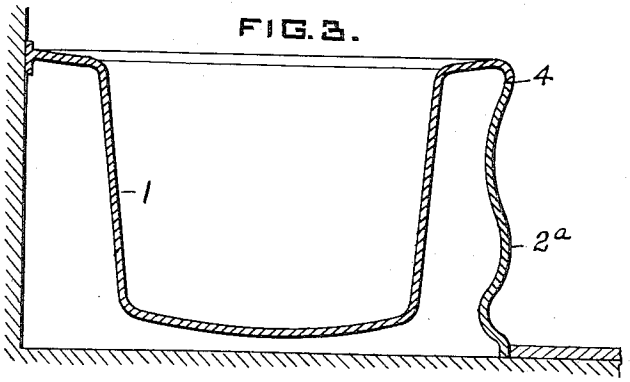
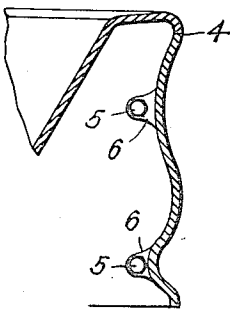


FIG. 4.



WITNESSES

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2 SHEETS—SHEET 2.

FIG. 5.

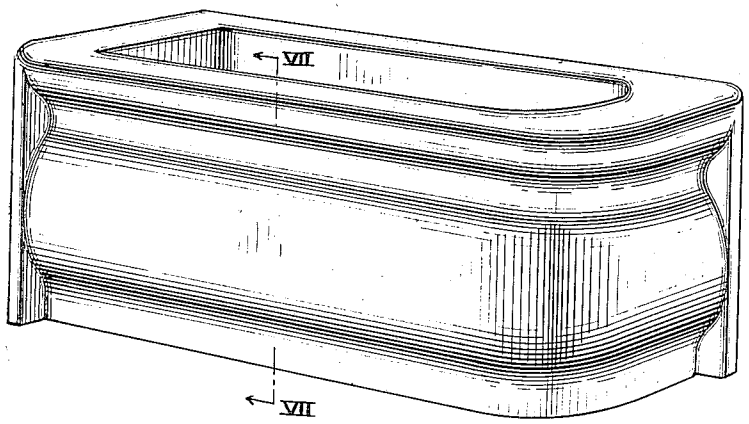


FIG. 7.

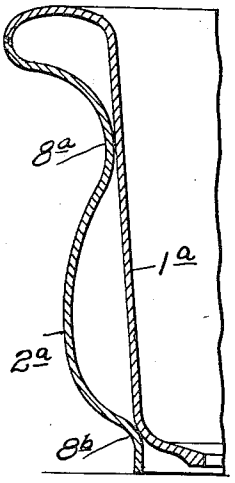


FIG. 6.

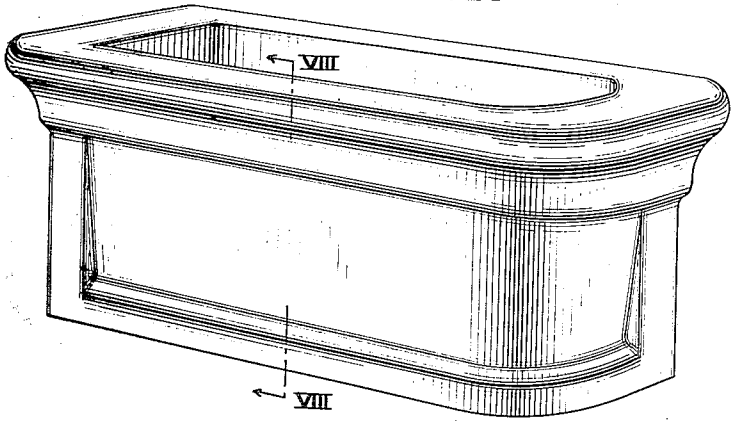
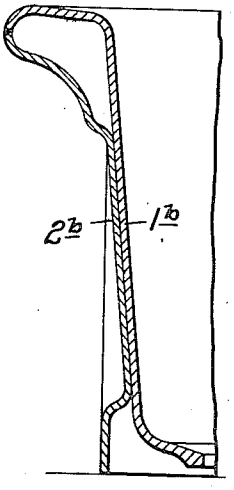


FIG. 8.



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UNITED STATES PATENT OFFICE.

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METHOD OF MANUFACTURING VITREOUS-ENAMELED CAST-METAL APRON BATH-TUBS.

1,282,255. Specification of Letters Patent. Patented Oct. 22, 1918.

Application filed January 17, 1916. Serial No. 72,506.

To all whom it may concern:

Be it known that I, WILLIAM C. McKINNEY, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Methods of Manufacturing Vitreous-Enameled Cast-Metal Apron Bath-Tubs, of which improvements the following is a specification.

My invention relates to the manufacture of vitreous-enameled cast-metal bath tubs having inclosing aprons.

Bath tubs of this character are illustrated in the accompanying sheets of drawings, of which Figure 1 is a plan view of one form of tub, Figs. 2, 3 and 4 sectional views taken, respectively, on the lines II—II, III—III, and IV—IV, Fig. 1; Figs. 5 and 6 perspective views of two different shapes of bath-tubs illustrating in modified forms a feature of my invention; and Figs. 7 and 8 sectional views taken, respectively, on the general planes indicated by the lines VII—VII and VIII—VIII, Figs. 5 and 6.

Referring first to Figs. 1 and 4, inclusive, it will be seen that such tubs consist of a body portion 1 and an apron 2 which extends from the rim of the body to the floor and incloses the exterior of the body. The objects of such apron are twofold, first to prevent unsanitary accumulations beneath and back of the tub, and secondly, to improve the appearance of the tub. Of these two objects the second is the more important, although in providing apron bath-tubs it is very desirable to effectively accomplish the first. Aside from sanitary considerations, aprons do not render bath-tubs more suitable or effective for their intended purpose, nor do they cheapen the cost of manufacture, or facilitate the installations, of the tubs. On the contrary, the cost of manufacture of apron bathtubs is substantially greater than that of the usual exposed bathtubs, and their installation is usually attended with considerable more difficulty. However, because apron bath-tubs have a substantially better appearance than exposed bathtubs, there is a demand for them on the part of those who, in furnishing bathrooms, give consideration to the esthetic as well as the utilitarian properties of the fixtures. Accordingly, one of the problems which the manufacturer or producer must meet is the provision of bath-tubs which combine utility with appearance.

Depending upon whether the tub is to be installed in a bathroom recess, in a corner of the bathroom, or against one wall thereof, the apron extends, respectively, along one side, one side and one end, or one side and both ends. The drawings show corner bathtubs having aprons extending along the front sides and right ends, the rims at the rear sides and left ends extending horizontally and being adapted to be built into the tile walls of bathrooms.

As heretofore manufactured, apron bath-tubs have either been cast in separate pieces, the body portion forming one part and the apron the other part or parts, such parts being fitted together, or the entire tub (body and apron) has been cast integrally. With respect to the first, there are several objectionable features. In the first place the parts must be enameled separately, for they cannot be so securely fitted together as to be enameled when assembled, and to thereafter prevent the enamel from breaking at the joint. This manifestly increases materially the manufacturing cost of the tub. Secondly, it is practically impossible to obtain such a tight-fitting connection between the body and apron as to exclude unsanitary accumulations; and, as already explained, one of the purposes of an apron is to eliminate the unsanitary condition caused by the accumulations beneath and back of the tub. Finally, the appearance of a tub formed in separate parts bolted together is far less pleasing than that of a tub having an uninterrupted enameled surface.

With respect to the second manner of manufacturing apron tubs, that is, casting the apron integrally with the body, other difficulties arise which make this practice expensive and unsatisfactory for other reasons. The casting of even the usual well-known form of tubs, having an outstanding

or curved rim, is effected only by the exercise of very great care and skill, and even then a substantial percentage of the tubs are defective and useless. This percentage of defective tubs is greatly increased when aprons are cast integrally with the body. Furthermore, to cast such tubs in a practical manner and on a commercial scale, certain limitations incident to molding must be imposed on the form and configuration of the body portion and apron. Specifically, the side of the tub adjacent to the apron cannot have such a slight inclination to the perpendicular, as is indicated in Fig. 3, nor can the apron be inwardly fluted as there indicated, and this for the reason that in green sand molding the cores cannot be drawn unless adjacent walls have a continuous outward taper.

With the foregoing considerations in mind, the object of my invention is to provide an inexpensive method of manufacturing vitreous-enameled cast-metal bathtubs having inclosing inwardly fluted aprons which method will overcome the difficulties and objectionable features attending their present manufacture and use, and whereby the aprons of such bathtubs may be constructed of any desired configuration to improve the appearance of the bathtubs.

According to the practice of my invention, the apron and the body portion of the tub are cast in separate pieces. As will be seen in Fig. 3, the apron is provided with an inwardly extending flute 8, which, at its innermost point, is at a less distance from the side of the tub than the portions of the apron above such point. These pieces, the apron and body portion of the tub, are subsequently welded together, and the interior of the body portion and the outer face of the apron are then simultaneously provided with a coating of vitreous enamel. The line of division between the apron and the tub body may be chosen to best facilitate the casting and the further steps of the method. In the tub shown in Figs. 1 and 4, inclusive, the body portion is provided with a laterally extending rim having a downwardly turned flange ending substantially at the point indicated at 4. The apron of this tub is preferably cast in two parts, an end section 2 and a side section 2^a, which, prior to their being welded together and to the body 1, are clamped to each other by means of bolts 5 extending through suitable lugs 6 provided for this purpose. Also the apron may, prior to its being welded to the tub, be connected to it by means of links 7, such connections serving both to properly position the apron for the welding operation and to prevent it from vibrating and consequently cracking the enamel after the tub has been completed.

The welding of the apron sections to each other and to the tub body may be effected in any well known manner as by an electric arc, or by the oxyacetylene or oxyhydrogen processes. Preferably the parts to be welded together are constructed and arranged for butt welding, as indicated in the drawings. To facilitate the welding, as well as to disclose prior to the welding any latent defects in the castings, the parts, after they have been assembled, may be heated to a suitable temperature. After the welding has been accomplished it will usually be necessary to grind the weld seam to remove such surface irregularities as may be caused by the welding. This may be done by means of suitable wheels in the same manner as irregularities are now removed from other portions of the tub. However, it will be observed that such grinding will be facilitated by locating the line of connection between the apron and tub body on convexity such as shown at 4.

When the welding together of the parts has been thus accomplished, the entire tub is heated in a suitable oven or furnace to the required temperature, after which the vitreous enamel dust is applied to all surfaces of the tub which when installed will be exposed to view.

In Figs. 5 to 8 there are shown two other forms of apron bathtubs which may be manufactured by my improved method, and wherein the inward fluting of the aprons is more pronounced than in the tub of Figs. 1 to 4. These tubs illustrate the adaptability of my invention to the manufacture of apron bathtubs of any desired outward configuration to produce esthetic effects impossible to attain when the bathtub body and apron are cast integrally. The bathtub of Figs. 5 and 7 is what is known as a roll-front bathtub having the apron 2^a inwardly fluted at two points 8^a and 8^b, while that of Figs. 6 and 8 is a panel bathtub having a large portion of its aprons 2^b inwardly fluted to contact with the body 1^b. In both forms, as well as that of Figs. 1 to 4, the body may be the same, and the aprons welded to the rims as indicated and in the manner described.

I claim as my invention:

1. The herein described method of manufacturing vitreous-enameled cast-metal bath tubs having inwardly fluted inclosing aprons, which consists in casting separately the body portion and inwardly fluted apron portion of the tub, welding such inwardly fluted apron portion to the body portion, and when thus united covering the interior of the body and the exterior of the apron with a coating of vitreous enamel.

2. The herein described method of manufacturing vitreous enameled cast-metal bath

tubs having inwardly fluted inclosing aprons, which consists in casting separately the body portion and inwardly fluted apron portion of the tub, the body portion having a laterally extending rim, butt-welding the upper edge of the inwardly fluted apron to the edge of such rim, and when thus united covering the interior of the body and the exterior of the apron with a coating of vitreous enamel.

In testimony whereof I have hereunto set my hand.

WILLIAM C. McKINNEY.

Witnesses:
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ANNA E. BAXTER.