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Dec. 29, 1936. P. W. KERR 2,065,531

SHOWER BATH CABINET

Filed May 23, 1935

Fig. 1

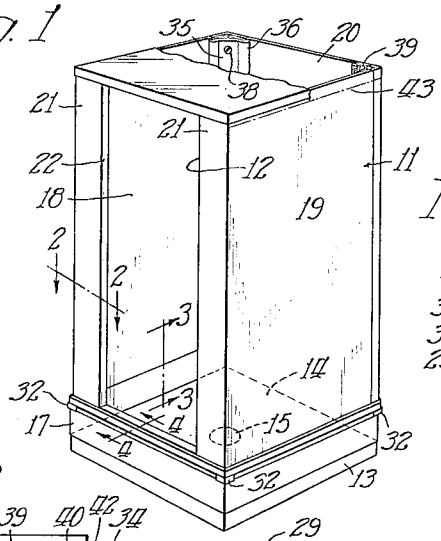


Fig. 2

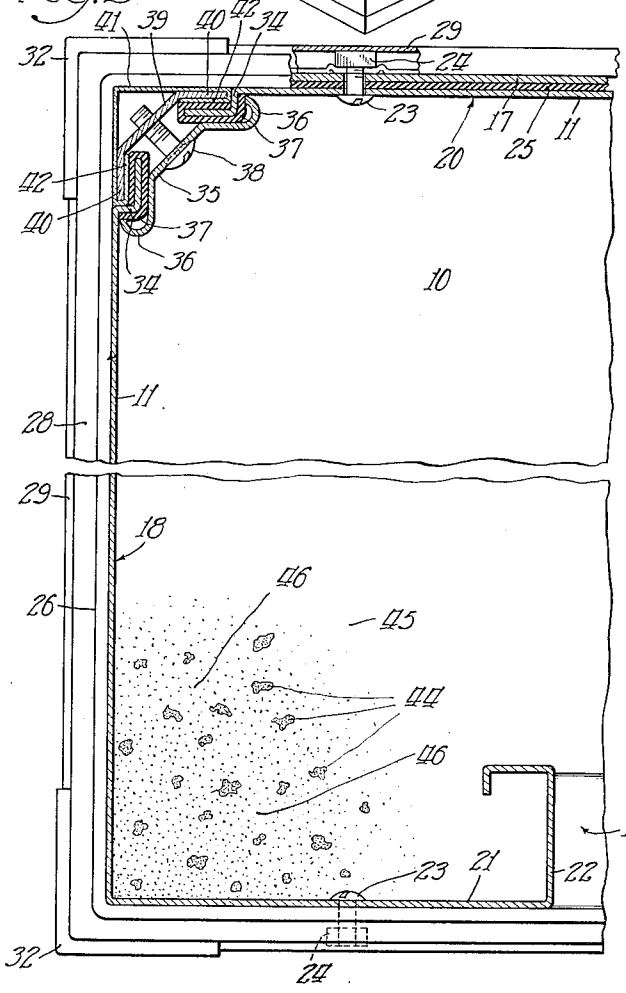


Fig. 4

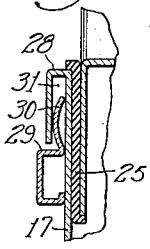
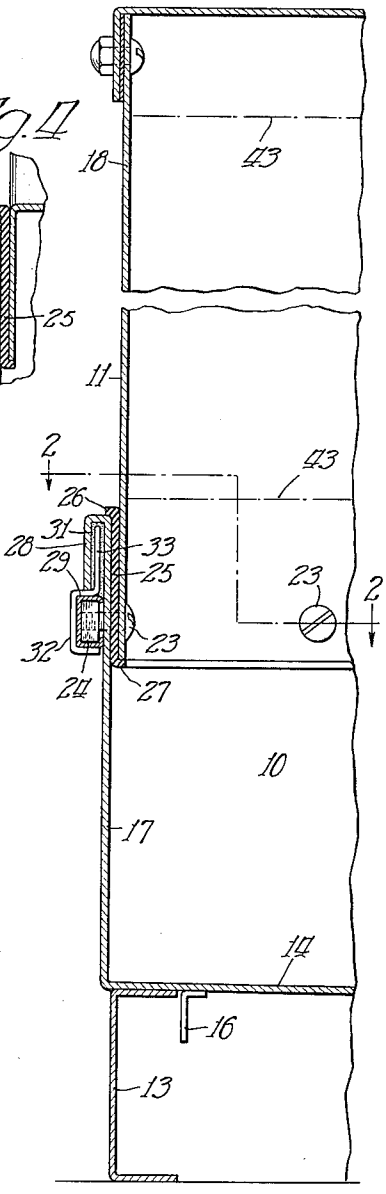


Fig. 3



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SHOWER BATH CABINET

Paul W. Kerr, Elkhart, Ind.

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5 Claims. (Cl. 4—146)

This invention relates to shower bath cabinets, and among other objects aims to provide a so-called knock-down shower cabinet which can be produced at lower cost than heretofore and will have a quality and decorative appearance in harmony with standard bathroom design.

The nature of the invention may be readily understood by reference to one construction embodying the invention and illustrated in the accompanying drawing.

In said drawing:

Fig. 1 is a small scale perspective view of a shower bath cabinet;

Fig. 2 is a fragmentary plan section of the cabinet on a larger scale showing approximately one-half of the area of the cabinet, the section being taken approximately on the broken plane 2—2 of Figs. 1 and 3;

Fig. 3 is a vertical section taken on the plane 3—3 of Fig. 1; and

Fig. 4 is a fragmentary section through the edge of the receptor at the door opening, being taken on the plane 4—4 of Fig. 1.

One of the characterizing features of bathroom design is porcelain enamel both in white and attractive colors. For most fixtures this material has proved entirely satisfactory and it is now so firmly established as a standard material that its use in practically essential. For shower bath cabinets, particularly the sheet metal and knock-down types, which are fabricated largely of sheet metal, porcelain enamel has not heretofore been entirely satisfactory, and its application to sheet metal has been difficult and in some cases impractical.

The major problems in this connection have been (1) chipping or cracking of the relatively brittle enamel because of the flexibility of the sheet metal; (2) warping of the sheet metal side walls under the enameling heat, particularly at the connecting flanges or joints, which makes assembly difficult and tends to cause leakage at the joints; and (3) the slipperiness of a porcelain enameled receptor. Among other objects the present invention has solved these problems in a practical and economical way. The illustrative shower bath cabinet which embodies the invention, both harmonizes with present bathroom practices and design and may be produced at relatively low cost.

As here shown, the shower bath cabinet comprises the receptor 10 forming the base of the cabinet and the superposed sheet metal side walls 11, in this case embodied in connected sections, forming the enclosure except for the entrance or doorway 12 which may be closed either by a curtain or door as desired. The receptor is here shown resting upon a rectangular base frame 13 whose height is at least sufficient to accommodate the dish of the bottom 14 and may advantageously be somewhat higher, as in the present instance, to allow space for a portion of the drain outlet fixture 15 which is connected to the receptor at its center or lowest point. The receptor is centered on the frame by downwardly extending projections 16 preferably torch-welded to the under face of the receptor adjacent its corners.

The receptor is preferably formed of sheet enameling iron or steel of sufficient thickness to provide, in conjunction with the receptor side walls or flanges 17 (which are in this case integral with the bottom), an adequately stiff or rigid structure. Sheet metal of from sixteen to fourteen gauge has been found suitable for this purpose.

The side walls 11 are likewise formed from sheet enameling iron or steel but may be of a somewhat lighter gauge, twenty to sixteen gauge being satisfactory. As here shown, the side walls are formed in three sections, namely, two side sections 18 and 19 and a back section 20. The side sections include also front wall portions 21 formed with side stiles 22 to frame the door opening 12.

As shown more particularly in Fig. 3, the side walls are supported by and connected to the receptor side walls 17 by finishing screws 23 which penetrate the side walls and receptor and enter nuts 24 on the exterior. A leak-proof joint between the side walls and receptor is provided by a gasket 25 preferably of molded rubber which is located between the cabinet side walls and the receptor and is sufficiently resilient to compensate for any inequalities (frequently produced by warping in the enameling process) between the cabinet side walls and the receptor. Preferably the gasket is finished at its upper edge with a head or bead 26 which partially extends over the side of the receptor and at its lower end with a flange 27 which extends under the lower edge of the side wall. The upper edge of the receptor wall is advantageously finished by bending over the metal as at 28 to form a smooth and finished upper edge.

The nuts 24 are advantageously positioned and concealed by a partly closed sheet metal channel 29 extending around the receptor. As shown in Figs. 3 and 4, the channel is of a size to hold the nuts against turning, and is provided with an upwardly extended curved flange 30 constructed and arranged to be inserted in the space 31 under the

margin **28** by which the channel is frictionally held in place. The nuts are held in position longitudinally of the channels in any appropriate manner as by crimping the inner channel flange (see Fig. 2) on opposite sides of the nuts to prevent their sliding in the channel. The nuts may thus be located accurately opposite the registering perforations in the receptor and cabinet side walls through which the fastening screws eventually pass.

The corners of the channels **29** are advantageously enclosed by corner members **32** having projections **33** which extend upwardly into the space **31** in which they are held by a cement or other appropriate means. Adjacent the corners the flanges **28** are cut or mitered away to accommodate the projections **33**. The channel and corner member fastening means need function only during the assembly of the cabinet since after the fastening screws **23** are positioned, the latter will serve to support the exterior channel **29**. The latter may be formed either in one piece or in a separate section for each side of the receptor. In either case, the supporting corner elements **32** serve to cover any joint at the corner. These channels may also advantageously serve as finishing strips just below the folded-over receptor flanges, and for that purpose are formed of suitably decorative material such as brass, stainless steel, nickel plate or the like.

As will presently appear, the location of the nuts in accurate position facilitates the assembly of the cabinet from within the receptor without requiring access to the exterior, and thereby permits the erection of the cabinet in small or confined spaces where access to the back or side walls of the receptor is impossible.

The cabinet side wall sections are in this case connected at the two rear corners of the cabinet. As here shown, the adjoining side flanges of the sections are inwardly offset as at **34** and are joined by an interior corner strip **35** having curved side edges **36** which embrace and conceal the offset portions. The joint is rendered leak-proof by gaskets **37** which lie between the corner strip and the inwardly offset margins. Preferably such gaskets are in the form of molded rubber channels which embrace the inwardly offset margins and extend, on the interior, to the edges of the corner strip and are there engaged by the inwardly curved margins of the strip. The corner strip is here shown appropriately secured in place by oval head finishing screws **38** which thread into anchor bar **39**, the side flanges **40** of which lie behind or outside the inwardly offset side wall margins, between which, in the present instance, the other side of the rubber gaskets extend. When the side wall margins and the corner strip are tightly clamped together, the resilient rubber gaskets serve to form a leak-proof joint notwithstanding inequalities caused by warping of the side wall edges during the enameling process. In this process the temperature is raised to about 1600° F. and it is generally impossible to prevent some slight warping of the side walls particularly at the free side flanges. Despite the magntiude of distortions due to warping and indeed recognizing the impossibility of preventing warping, the joint structure is such as to make assembly and eventual alignment of the parts possible without damage to the enamel. In the particular construction shown, the side walls and joint strip may be assembled and initially connected together (regardless of warped side flanges) simply by placing the corner strip **35** in its appropriate position and entering the screws **38** into the anchor bar **39**, the screws being long enough to allow for considerable initial separation of the parts due to warping. Thereafter the screws serve to draw the parts tightly together, flattening out any warping at the joint. It should be particularly noted that hammering or other violent methods of forcing the parts into alignment to form the corner joint is avoided, thereby protecting the porcelain enamel against chipping or cracking. These and other improvements herein disclosed, make practical the use of porcelain enamel on the sheet metal side walls.

The corner strip **35** is advantageously dished or countersunk at the screw holes to seat the oval screw heads and thus render them relatively inconspicuous. The rubber gaskets also prevent enamel to enamel contact or enamel to metal contact which might result in chipping of the enamel.

The rear corners of the cabinet structure may be advantageously finished by exterior corner strips **41** having inwardly turned flanges **42** which embrace the edges of anchor bar **39** and are thereby held firmly in place. The corner strips may be of appropriate decorative material such as brass, stainless steel, nickel plate or the like. The lower ends of the strips extend into the receptor and are seated against the rubber gaskets **25**.

It will be noted from the foregoing that the corner joints are formed without the necessity of penetrating the side walls with fastening means, thereby allowing slight relative movement between the parts and greatly facilitating assembly since accurate alignment of parts is unnecessary. Nevertheless, substantial movement or displacement of the side wall margins is prevented by the extremities **36** of the corner strip which pass behind the inwardly extending offsets **34** of the side walls and thus prevent their withdrawal without however preventing the aforesaid slight movement of the side wall flanges in the joint.

As shown in Figs. 1 and 3, the cabinet may be covered with an enameled sheet metal top whose flanges are bolted to the side walls.

The side wall sections and receptor are coated with vitreous porcelain enamel according to approved practices for enameling sheet metal ware. The so-called wet process may be employed to advantage. In that process the ground or grip coat is sprayed on the metal side walls and either dried at room temperature or in a drying oven for about an hour and a half at a temperature of about 150° F. The ground coat is then burned or fired in an enameling oven for about six minutes at about 1550° F.

All the margins, inside and out, of the side walls are then coated with so-called flexible enamel which is available only in dark colors. Black is employed since it can be so used as to provide a decorative effect. The width of the black stripe **43** is made wider than the margin covered by the corner and top and bottom joint structures, to leave a stripe of about one-eighth of an inch visible. After drying, the enameled margins are burned at about 1550° F.

Thereafter the color or finish coat is applied by spraying on enamel of the desired color which is brushed or otherwise applied adjacent the margins to leave a uniform width of black margin visible. The color coat is dried and then burned in the enameling oven at about 1600° F. for about six minutes. The greater flexibility of the black enamel on the margins allows the latter to be flexed sufficiently to flatten any warping at the

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corner joints and also avoids breaking or cracking of the enamel finish in ordinary handling and usage in which the edges of the metal are flexed more severely than any other portion of the side wall sections.

The receptor is preferably finished to simulate generally the conventional terrazzo or other shower receptors. After the ground or grip coat has been applied by dipping or spraying and then dried, the color or finish enamel is stippled on so that it falls in relatively large drops (which spread to irregular areas **44** about three-sixteenths of an inch in diameter) which in contrast with the dark ground coat **45**, give an attractive finish. The coarse stippling or speckled effect as aforesaid may be produced by lowering the air pressure on the spray gun so that the enamel is deposited in relatively large drops spaced substantial distances apart (see Fig. 2). If a uniform or plain color coat be desired, the finish enamel coat may be sprayed on the receptor in the usual way; but in that event it is preferable first to fire the ground coat. With either method of finishing, the receptor with the ground coat and subsequently applied and dried finish or speckle coat is then placed in the enameling oven and subjected to a temperature of about 1600° F. for about six minutes.

The receptor bottom is advantageously made slip-proof by uniformly distributing thereover granular material such as fine silica sand and anchoring the same in the enamel. In Fig. 2 an attempt has been made to illustrate the sand particles **46** by fine dots but it will be understood that exact illustration is impossible since the particles of sand are relatively inconspicuous and are individually much smaller than illustrated. Moreover, their concentration is much greater than shown. Indeed, the effect is somewhat like fine sandpaper except that the particles of sand are preferably not as sharp as in sandpaper and are not so concentrated. When the surface is wet, the appearance of the bottom of the receptor is not noticeably different from that of the interior faces of the receptor side walls which are not rendered slip-proof.

The sand is advantageously applied by uniformly sprinkling the same over the bottom of the receptor at some stage in the enameling process prior to the firing of the top or finish coat, which in this instance is the stipple or speckle coat. Uniform distribution can readily be effected by a vibrating screen on which the sand is placed. The texture of the non-slip surface depends on the following: (1) The coarseness or fineness of the sand; (2) its sharpness; (3) the degree to which the particles of sand are submerged in the enamel; and (4) the amount or concentration of the sand grains. Preferably the sand should be clean to eliminate fine dust particles which serve no useful function and only dull the finish. A satisfactory non-slip surface can be secured by using dull silica sand (i. e. sand in which the corners and edges are somewhat rounded) of minus forty and plus sixty mesh. Satisfactory results as regards anchoring the sand in the enamel may be secured by sprinkling the sand uniformly on the bottom after the finish or speckle coat has been applied but before the latter has been dried. Those particles of sand which lie on the ground coat between the speckles **44** or finish coat, do not become embedded until the firing operation, at which time the ground coat softens and allows the grains of sand to embed themselves. The grains of sand lying in the speckles or finish coat are of course somewhat more deeply embedded in the enamel but are not entirely embedded nor glazed over. Too deep embedding of the particles should be avoided since it increases the possibility that they will be glazed over in firing and thus to a great extent lose their property of rendering the receptor bottom slip-proof.

Obviously the invention is not limited to the details of the illustrative construction since these may be variously modified. Moreover, it is not indispensable that all features of the invention be used conjointly since various features may be used to advantage in different combinations and subcombinations.

Having described my invention, I claim:

1. A shower bath cabinet of the character described comprising in combination sheet metal side walls, coated with porcelain enamel, a sheet metal receptor having side flanges supporting said side walls, said receptor being coated with porcelain enamel and the bottom thereof having particles of sand partly embedded in said enamel.

2. A receptor for shower bath cabinets comprising in combination an integral sheet metal structure having a bottom and side flanges, said bottom having thereon porcelain enamel, and grains of sand partly embedded in the enamel coat to provide a non-slip surface.

3. A shower bath cabinet of the character described comprising in combination a sheet metal receptor having marginal side flanges, said flanges being bent down to form a double thickness of metal at the top edge of the receptor, sheet metal side walls carried by said receptor flanges, bolts passing through said side walls and flanges to connect the same and carrying nuts on the exterior of said receptor, and an exterior finishing strip covering the nuts for said bolts and having flanged portions which lie between the nuts and said receptor.

4. A shower bath cabinet of the character described comprising in combination a sheet metal receptor having marginal side flanges, sheet metal side walls carried by said receptor flanges, bolts passing through said side walls and flanges to connect the same and carrying nuts on the exterior of said receptor, and a channel-shaped exterior finishing strip covering the nuts for said bolts and provided with a flange lying between the nuts and the face of said receptor.

5. A shower bath cabinet comprising in combination a metal receptor, side walls rising from said receptor, said receptor having an enamel surface with grains of sand or the like embedded therein to provide a non-slip surface.

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