May 21, 1946. R. E. BURNETT 2,400,683

SHOWER BATH RECEPTOR

Filed Sept. 18, 1944

Fig. 1

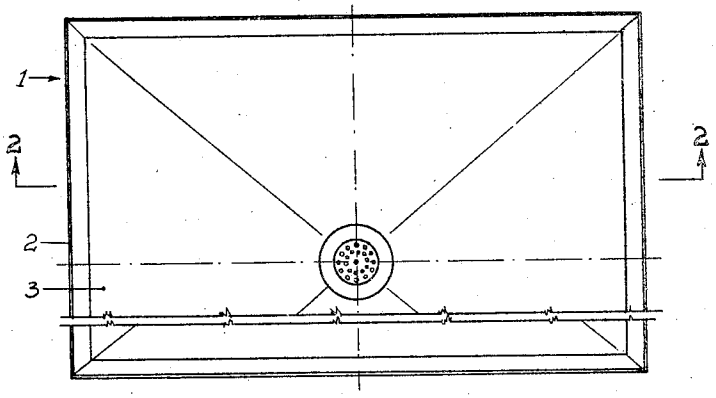


Fig. 2

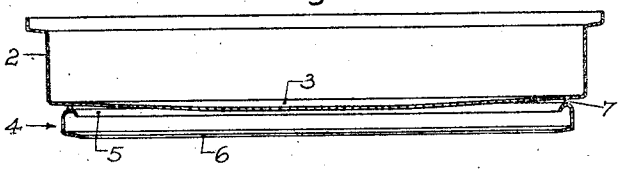


Fig. 3

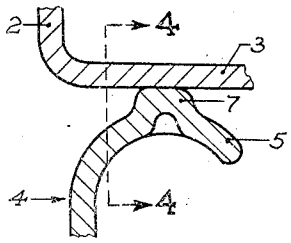


Fig. 4

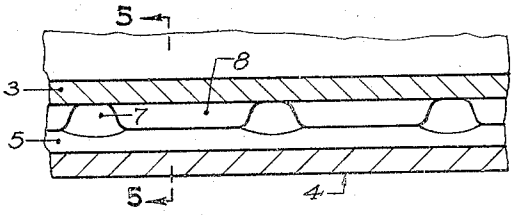
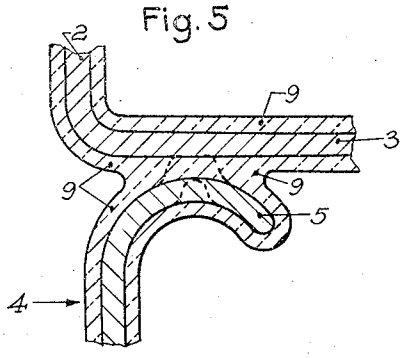


Fig. 5



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SHOWER BATH RECEPTOR

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Application September 18, 1944, Serial No. 554,658

4 Claims. (Cl. 189—2)

This invention relates to shower bath receptors of the type having an upper pan, the upper surface of which forms the shower cabinet floor and a lower base rim providing a foundation for the pan, the rim having continuous flat upper and inclined lower marginal flanges. The pan and rim are normally made of the lightest gauge sheet metal considered practical and assembled by resting the pan upon the flat upper marginal flange of the rim and then bolting or otherwise securing the parts together. It has been proposed to coat receptors of this character with porcelain enamel to improve them ornamentally and hygienically and protect them against rusting. The proper accomplishment of these objectives, while appearing simple, has proved difficult.

For example, in one arrangement proposed, the pan and base rim were separately enameled, assembled in the normal way and secured by bolting a series of spot welded lugs on the pan to an adjacent part of the rim. This proved unsatisfactory because, when a person walked upon the floor of the pan, the metal of the pan, along the adjacent portion of the joint line between pan and rim, moved relatively to the corresponding portion of the upper flange and sufficiently to create a distinctly objectionable rattle and cause damage to the porcelain.

To avoid this objection, a second arrangement was proposed wherein the flat contacting surfaces, of the pan and rim along the joint line, were spot welded directly together at spaced intervals and then pickled and enameled. This arrangement was unsuccessful because the joint line could not be successfully sealed with enamel while the enamel around the spot welds had an inherent tendency to chip, crack and flake off during use.

It was believed that these latter difficulties could be corrected by strengthening the base rim and welding at the corners only. However, it is highly desirable to make the pan with the lightest gauge metal possible, consistent with practical requirements, and it is necessary to make the rim of the same gauge, or one near it, to avoid uneven firing of the enamel. Accordingly, in the third arrangement proposed, wherein the pan was welded to the rim at each of its four corners, increased rim strength was secured by substantially widening the upper flange. In this construction the enamel adjacent the spot welds appeared to be reasonably free of the tendency to chip and crack, but the rim warped during firing, the joint line could not be sealed and the assembly was noisy.

The principal object of the present invention is to overcome these objections in an enameled receptor of simple and inexpensive construction.

Another object is to provide a substantially improved enameled receptor which can be sturdily constructed with extremely light gauge metal and which is quiet and completely rust proof.

A further object is to provide an improved method of uniting the pan and rim.

A receptor embodying the invention is disclosed in the accompanying drawing wherein:

Figure 1 is a plan view;

Figure 2 is a section along line 2—2 of Figure 1, before the coating is applied;

Figure 3 is an enlarged joint line detail of Figure 2;

Figure 4 is an enlarged joint line detail taken on line 4—4 of Figure 3; and

Figure 5 is a section along line 5—5 of Figure 4 after the coating is applied.

The receptor illustrated conventionally includes: an upper pan 1 having side walls 2 and a bottom wall 3 forming the floor of the receptor; and a lower base or foundation rim 4 having an upper marginal flange 5 and an inclined lower marginal flange 6.

I have discovered that the objections heretofore specified may be entirely overcome by integrally connecting the joint line surfaces of the pan and rim through the agency of a series of small spacers 7 which are dimensioned to space the joint line surface sufficiently to permit the flow therebetween of liquid materials, such as pickling and enameling bath materials, and which are positioned along the joint line surfaces at intervals sufficiently frequent to distribute a normal load, concentrated on the floor adjacent one section of the joint line, over a number of connecting spacers, and thereby, in other words, prevent such load from being relatively concentrated on, and transmitted to the rim largely through, a single connection. The success of this construction indicates that, heretofore, a joint line seal apparently was prevented first by a lack of sufficient space between the joint line surfaces to permit such surfaces to be cleaned in the pickling bath and coated in the enameling bath, and second by the gasification, during firing, of grease on the uncleaned joint line surfaces, the ensuing gases forcing or rolling the enamel away from the outer edges of the joint line or otherwise breaking any seal formed along the joint line. Apparently also the deterioration of enamel at the spot welded areas was occasioned by the concentration of a load at the spot welded areas be-

tween corners causing the surface of the spot welded metal to move microscopically and yet sufficiently to fracture the enamel.

While the pan and rim may be integrally connected in various ways to produce a receptor embodying the present invention, they preferably are connected by means of projection welding. This involves the formation of a series of integral, vertically projecting spacers 7 in the form of teat-like protuberances on one part or the other, preferably the upper flange of the rim, and the spot welding of these protuberances to the opposed part. While the dimensions of the protuberances may vary, it may be noted that I have secured good results with protuberances initially dimensioned about $\frac{3}{32}$ of an inch in both height and diameter and spaced about two inches apart. During projection welding, these protuberances will be decreased from $\frac{1}{16}$ to $\frac{1}{32}$ of an inch in height and correspondingly flattened out. As a consequence a series of spaces 8, approximating $\frac{1}{16}$ to $\frac{1}{32}$ of an inch in height, are formed between each pair of adjacent protuberances 7. This space is sufficient to accommodate the flow of pickling and of enameling material and consequently insures the production of a clean joint line surface during pickling and a coated joint line surface during enameling and firing, the coating being indicated in Figure 5.

Where the joint line space 8 is small enough, it will be completely sealed by the enameling material coating 9 as indicated in Figure 5. Since this seal is desirable, the height of the space 8 should be reduced to a minimum. To this end, the upper marginal flange 5 is curved more or less circularly with the protuberances positioned at the top of the curve. By curving the flange in this manner the height of the space 8 increases outwardly in both directions from its center and thus provides access from both sides for pickling and coating purposes and correspondingly permits the height of the central part of that space to be much smaller than would be possible with a straight flange.

While a two inch spacing between protuberances is mentioned, this may be varied. The permissible degree of spacing will vary with variations in any of a number of factors, such for example as gauge of metal and size of protuberances. In any event, the frequency of the protuberances must be such as to prevent a normal load, which is concentrated on any section of the pan, from being concentrated on any one spacer to an extent subjecting the enamel adjacent that spacer to noticeable fracture. For a given receptor, this may be readily determined.

It will be readily appreciated that the parts of the foregoing receptor are relatively easy to fabricate, assemble and unite; that the resulting receptor is extremely sturdy and stiff to the point of being practically rigid with the lightest gauge metal otherwise found practical; and that it is completely coated and thus entirely rust proof.

Having described my invention, I claim:

1. An improvement in receptors of the type composed of an upper pan and a lower base rim which present opposed joint surfaces, comprising: a series of spacers interposed between and integrally connecting the opposed joint surfaces of the pan and rim, the spacers being dimensioned to space said joint surfaces sufficiently to permit the flow therebetween of liquid materials such as pickling and enameling bath materials and being positioned along said joint surfaces at intervals sufficiently frequent to distribute a normal load on any section of the pan substantially uniformly over a number of spacers; the pan and rim being shaped and arranged along their joint surfaces so that the height of the space between their joint surfaces increases from a minimum outwardly in at least one direction.

2. The improvement of claim 1 wherein: the joint surface of the rim is provided by an upper marginal flange which is so curved and arranged as to increase the height of the space between joint surfaces from said minimum outwardly in both directions.

3. A bath receptor comprising: an upper pan and a lower rim presenting opposed joint surfaces; and a series of protuberances integrally formed on the joint surface of the rim to extend upwardly therefrom and being welded at their upper ends to the joint surface of the pan, said protuberances spacing the opposed joint surfaces sufficiently to permit the flow therebetween of liquid materials such as pickling and enameling bath materials and being positioned along the joint surface at intervals sufficiently frequent to avoid appreciable enamel fracture adjacent any protuberance welded area when a normal load is concentrated on any section of the pan; the pan and rim being shaped and arranged along their joint surfaces so that the height of the space between their joint surfaces increases from a minimum outwardly in at least one direction.

4. The receptor of claim 3 wherein: the joint surface of the rim is provided by an upper marginal flange which is so curved and arranged as to increase the height of the joint space from said minimum outwardly in both directions.

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