July 15, 1952 H. K. PHILLIPS 2,602,935

INSULATING APPARATUS FOR BATHTUBS

Filed July 26, 1949 2 SHEETS—SHEET 1

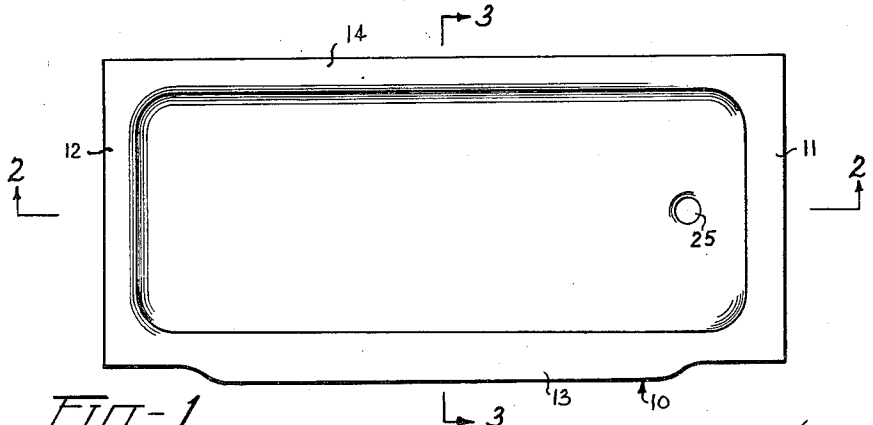


FIG-1

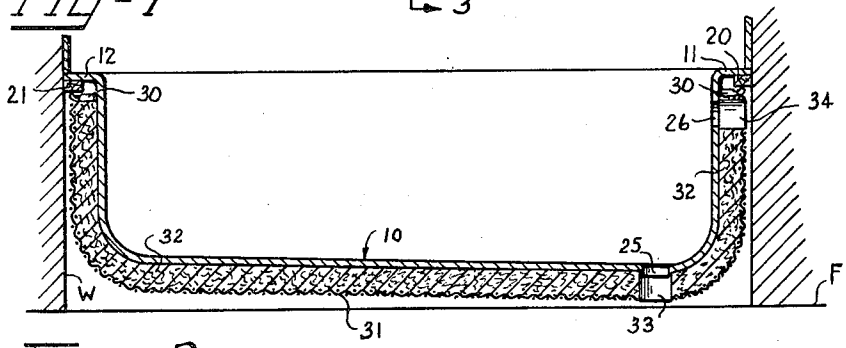


FIG-2

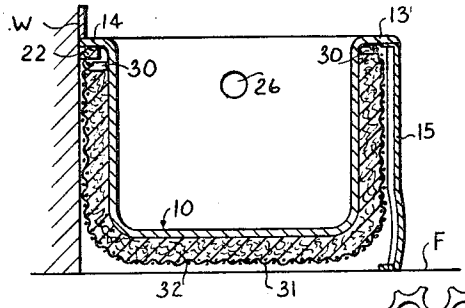


FIG-3

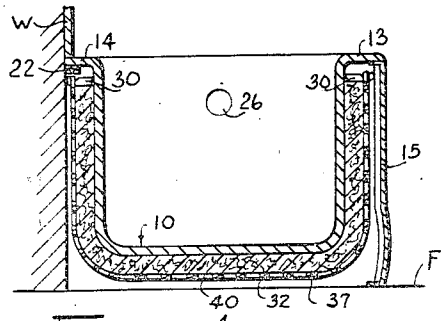
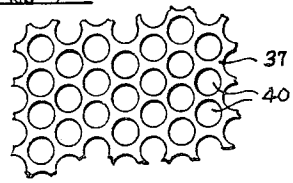


FIG-4

FIG-5



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INSULATING APPARATUS FOR BATHTUBS

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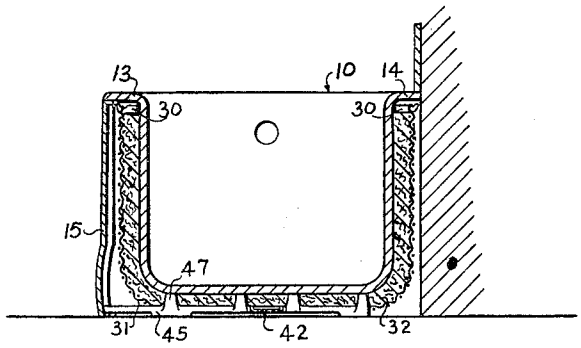


Fig-8

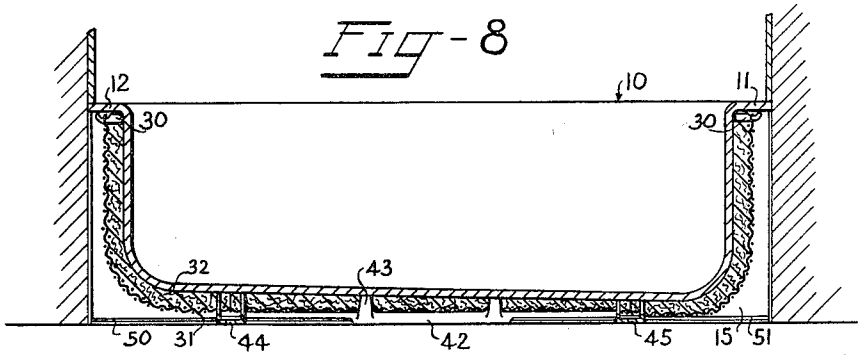


Fig 7

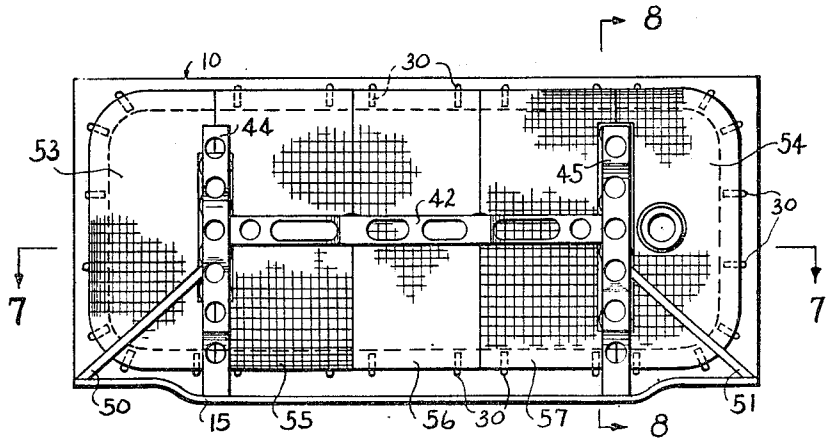


Fig-6

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INSULATING APPARATUS FOR BATHTUBS

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2 Claims. (Cl. 4—173)

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This invention relates to bath tubs, lavoratories and other analogous receptacles and more especially to an improved insulating apparatus therefor for minimizing heat losses.

Bath tubs and the like formed of sheet metal are not in demand by the public comparable to the demand for cast iron bath tubs, particularly due to the heat of the contents of the sheet metal bath tub being dissipated at a relatively fast rate through the thin sheet metal due to the fact that the sheet metal does not have an insulating effect against the contents of the bath tub. However, since sheet metal bath tubs may, obviously, be more economically produced than cast iron bath tubs and are also light in weight in comparison to cast iron bath tubs, the addition of an insulation material to the outer surfaces of the sheet metal bath tub, without the necessity of excessive modifications in the bath tub itself, is a very desirable feature.

The heat of the water drawn into a cast iron tub of usually about 500 pounds weight is absorbed by the cold iron tub so fast that before the normal bath is completed water temperature drops from a comfortable to an uncomfortable temperature while the heat thus absorbed flows through the heavy mass of iron and is absorbed, conducted and dissipated throughout the tub and its vertically disposed front wall thereby lowering the temperature of the bath water. Insulation of the exterior of such a tub would be of little value in conserving the heat of the water.

On the other hand, steel, enameled steel, plastic or other thin tubs insulated as herein described, and requiring less hot water to heat the approximate 100 pounds weight thereof, and conserving that heat from conduction, radiation and dissipation into adjacent areas because of the low heat transfer rate of insulated sheet metal or plastic, would comprise a substantial improvement over insulated or non-insulated cast iron tubs. Further the lower conductive rate of flow of heat along thin metal or plastic construction compared to the speedy flow and draining away of heat through heavy cast iron would save the user an appreciable amount in the cost of heating water.

It is therefore an object of this invention to provide a preformed net or basket of screen wire, perforated sheet metal or strips of sheet metal, plastic, fabric or sheets of any foraminated material, the shape of which conforms generally to the shape of the exterior of the bath tub but which is somewhat larger than the bath tub so as to provide a space between the outer surface

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of the bath tub and the inner surface of the basket and in which space a suitable insulation material, preferably fiberglass insulation material, may be disposed. The most important feature in the use of a basket of the type described, for supporting the insulation material and holding the same against the outer surface of the bath tub, is that it minimizes condensation and avoids the accumulation of moisture in the insulation material which would, of course, destroy its heat conserving effect in bringing the receptacle to a desired temperature in accordance with its contents.

It is obvious that by insulating a sheet metal bath tub in the manner described, the weight of the finished product would not be materially increased from the weight of the bath tub before the insulating material had been applied thereto. This, of course, would add greatly to the value of the product and its desirability by the public, as well as extending the life of the tub, at a much lower cost than has heretofore been possible.

Furthermore, the use of insulating material packed between the basket and the tub serves to reinforce the sheet metal and thus makes the use of a relatively thin sheet metal for bath tubs possible.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which—

Figure 1 is a top plan view showing one type of bath tub or receptacle with which the present invention is adapted to be associated;

Figure 2 is a longitudinal vertical sectional view taken along the line 2—2 in Figure 1 and showing one form of basket connected to the bath tub for supporting the insulation material against the outer surface of the bath tub;

Figure 3 is a transverse vertical sectional view taken along the line 3—3 in Figure 1 and also showing the form of basket for supporting the insulation material illustrated in Figure 2;

Figure 4 is a vertical sectional view similar to Figure 3 but showing another form of basket which may be used for supporting the insulation material;

Figure 5 is an enlarged elevation showing a portion of the type of material from which the basket is made in Figure 4;

Figure 6 is a bottom view showing another form of bath tub having reinforcing members thereon and showing the manner in which a sectional basket is applied to the outer surfaces of the bath tub;

Figure 7 is a longitudinal vertical sectional view taken along the line 7—7 in Figure 6;

Figure 8 is a transverse vertical sectional view taken substantially along the line 8—8 in Figure 6.

Referring more specifically to the drawings the numeral 10 broadly designates a bath tub which comprises a hollow shell formed of pressed sheet metal and which has outwardly extending flanges 11 and 12 at opposite ends thereof and has similar outwardly extending flanges 13 and 14 at the front and rear upper edges thereof respectively. The tub 10, shown in Figures 1 to 4, inclusive, is of a type in which no reinforcing members are employed but is provided with a vertically disposed front wall portion 15 depending from the flange 13 at the front of the tub 10. The lower edge of the side wall portion 15 rests on a floor F and the endmost flanges 11 and 12 and the rear flange 14 are supported on frame members 20, 21 and 22, respectively, suitably secured to the walls of the building indicated at W. It will be noted that the flanges 11, 12 and 14 are placed against the walls W and the outer surfaces of the side walls and bottom of the tub 10 are spaced apart from the walls W and the floor F. The bottom of the tub 10 is provided with the usual drain opening 25 and the vertical wall adjacent the same is provided with the usual overflow opening 26.

The structure heretofore described exemplifies the usual types of metal bath tubs and it is with the above that the forms of the present invention shown in Figures 1 to 5, inclusive, are adapted to be associated. It is to be understood however, that the structural features herein disclosed relative to the tub are not to be considered as restricting the invention to a tub since the present invention may be employed with equal advantage with other sheet metal receptacles such as wash basins, sinks, lavoratories and the like.

In order to accommodate the means for supporting the insulation material, a plurality of spaced hook members 30 are secured, as by welding, to the outer surfaces of the bath tub and arranged in a row a substantial distance below the flanges 11 to 14, inclusive. In Figures 2 and 3 there is shown a basket 31 of a single piece of material such as screen wire or which may be of a woven wire such as is used for metal lath in building construction. It will be noted that this basket 31 conforms generally to the shape of the outer surfaces of the tub 10 except that it is made substantially larger to provide a space in which a suitable insulation material 32 such as rock wool, cork or fiber glass, may be placed. This insulation material may be placed against the outer surfaces of the bath tub 10 in the form of bats, or sheets, or in loose form and then the wire basket 31 is placed over the insulation material and its upper edges connected to the hooks 30. Obviously, the insulating material 32 and the basket 31 must be provided with suitable coinciding openings 33 and 34 which coincide with the openings 25 and 26 in the bath tub thus providing access thereto for the installation therein of appropriate plumbing fixtures. If a metal screen or other metal foraminated material is employed in forming the basket 31, it is preferred that it be treated or finished, as by painting, to prevent corrosion or rusting of the material.

Referring to Figure 4, there will be observed another form of basket connected to the hooks 30 on the bath tub 10. This basket is made of a single piece of preformed sheet metal, or the like, and is indicated at 37. An enlarged detail of a portion of the material from which the basket 37 is made is shown in Figure 5. The material 37 is provided with a plurality of openings or perforations 40 and since the remainder of the parts associated with the modified form of basket 37 in Figure 4 are identical to the parts shown in Figures 1, 2 and 3, the same reference characters shall apply with the exception of the basket 37.

Referring to Figures 6, 7 and 8, there is shown still another form of the invention which is also applied to a tub which is very similar to the tub shown in Figures 1, 2, 3 and 4 and therefore like parts will bear like reference characters and a further description of the structure of the tub will be given relating only to the reinforcing members shown in association with the tub 10 in Figures 6, 7 and 8.

There are many types of tubs which are manufactured with reinforcing members thereon similar to those shown in Figures 6, 7 and 8. In this instance, the tub has a longitudinally extending reinforcing member 42, opposed ends of which terminate short of opposed ends of the tub 10. The member 42 is provided with spaced projections 43 which extend upwardly in Figure 7 and are welded to the lower surface of the tub 10 thus holding the substantial portion of the reinforcing member 42 in spaced relation to the tub 10. Welded to opposite ends of the longitudinally extending reinforcing member 42 are transverse reinforcing members 44 and 45 which are similar in structure to the longitudinally extending reinforcing member 42 in that they are provided with upwardly projecting portions 47 which are spaced apart from each other and the upper ends of which are secured, as by welding, to the outer surface of the bottom of the bath tub 10.

It will be noted in Figure 8 that the reinforcing member 45 extends a substantial distance to the left beyond the left-hand vertical wall of the tub 10 and is secured, as by welding, to the lower end of the front wall portion 15 to thus lend rigidity to the lower end thereof, the upper end of the side wall portion 15, of course, being integral with, or welded to, the outer edge of the flange 13. The member 45 is mounted in a manner identical to the member 44 (Figure 6).

The reinforcing members 44 and 45 are spaced a substantial distance inwardly from opposite ends of the bath tub 10 and therefore there is provided a pair of outwardly extending and diverging bracing members 50 and 51 the inner ends of which are welded to remote edges intermediate the ends of the reinforcing members 44 and 45 and the outer ends of which are welded adjacent the extreme outer edges of the vertical wall member 15 to further assist in lending rigidity to the wall member 15.

These reinforcing members 42, 44, 45, 50 and 51 are conventional parts of many types of bath tubs and it is with a tub of this type that another modified form of the invention, to be presently described, is adapted to be associated.

As in the original form of the invention shown in Figures 2 and 3, the bath tub 10 in Figures 6, 7 and 8 is also provided with a plurality of spaced hook members 30 to which the means for supporting the insulation material is adapted to be connected. The means for supporting the insulation material is shown as a wire material in Figures 6, 7 and 8. However, it is to be understood that there are many different types of materials that could be used with equal advantage in lieu of the wire material shown,

such materials having been described earlier in the specification.

The form of the invention shown in Figures 6, 7 and 8 differs from the form shown in Figures 1, 2 and 3 in that a plurality of sections of insulation supporting material are employed, these sections also being preformed substantially the same as the single section shown in Figure 2 with the exception that end sections 53 and 54 are provided as well as intermediate sections 55, 56, and 57 all of which abut one another and, if desired, may be secured together in any desired manner. These sections are cut away at the edges thereof to clear the obstructing projections 43 and 47 on the members 42, 44 and 45. However, the sections 55, 56 and 57 are necessarily bowed slightly as they are slid between the projections 43, 44 and 45 and once inserted, they may assume a flattened condition as shown in Figure 7. It is manifest that the insulation material 32 in Figures 7 and 8 must either be in loose form when applied to a bath tub of the type shown in Figures 6, 7 and 8 or it must also be made up in sections conforming generally to the sizes of the sections of insulating supporting material 53 to 57, inclusive. The purpose of the sections is obviated by the fact that a single piece of material could not be applied to the outer surfaces of a bath tub such as that shown in Figures 6, 7 and 8 due to the interference of the bracing members 42, 44 and 45.

The present means for insulating both tubs and analagous receptacles makes the use of a relatively thin sheet metal possible in forming the shell of the receptacle and which would further reduce the cost of manufacture of the article. The insulating material would then have to be of such consistency as to lend strength to the walls and bottom of the tub 10.

It is thus seen that I have provided an improved means for insulating sheet metal bath tubs which requires a minimum of modification to the existing types of bath tubs and which is simple to install and does not increase the weight of the bath tub materially. As heretofore stated, it is manifest that the perforation 40 in the material 37, and the openings in the woven wire material 31 shown in Figures 2 and 3, or in the material forming the sections 53 to 57, inclusive, in Figures 6, 7 and 8 would minimize condensation and would, of course prevent an accumulation of moisture in the insulation material which would thus prevent deterioration of the insulating material and would preserve its insulating properties. It might be stated that not only is the efficiency of the insulating material increased when supported in the manner shown and described, but the wire material, or the material shown in Figure 5, may be of such strength as to also prevent rodents from gaining access to the insulation material where they might tear it apart or attempt to carry it away.

In the drawings and specification there has been set forth a preferred embodiment of the invention, and although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being defined in the claims.

I claim:

1. An insulating structure for covering the outer surfaces of bath tubs and analogous receptacles comprising a plurality of spaced hooked members projecting outwardly from the side walls of the bath tub adjacent the upper end thereof, a basket depending from the hook members and substantially conforming to the shape of the outer surfaces of the bath tub but being spaced apart from the tub, a fibrous insulation material disposed in the space between the basket and the outer surface of the tub, the basket serving to hold the insulation material against the outer surfaces of the tub.

2. An improvement in a bath tub comprising a hollow shell having a centrally located and longitudinally extending brace member and transverse reinforcing members secured to the bottom thereof, the improvement including means for supporting a fibrous insulation material against the outer surfaces of the tub comprising a plurality of preformed sections of foraminated material such as screen wire, perforated metal and the like adapted to fit against the insulation material, the edges of adjacent sections of the foraminated material being disposed in alinement with the reinforcing members on the bottom of the tub and means for securing the sections of foraminated material to the side walls of the tub.

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