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IMPREGNATED ALUMINUM OVEN LINER

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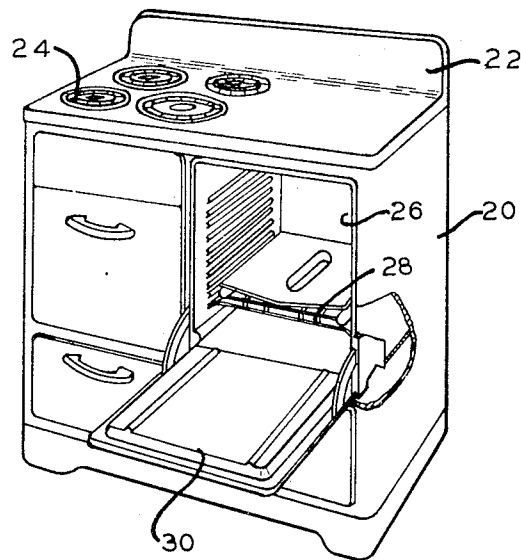


FIG. 1

ANODIZED ALUMINUM SURFACE LAYER
IMPREGNATED AND COATED WITH
POLYMERIZED SILICON RESIN

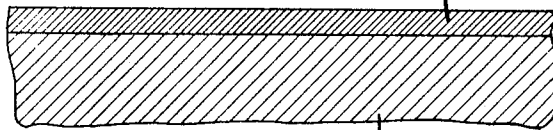


FIG. 2

ALUMINUM OVEN LINER

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UNITED STATES PATENT OFFICE

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IMPREGNATED ALUMINUM OVEN LINER

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1 Claim. (Cl. 126—19)

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This invention relates to a domestic appliance and more particularly to a range having an oven liner.

Oven liners used to provide the baking compartment of an oven are subject to certain conditions. The maximum temperature to which they are subjected prevents the use of many surface finishes. Also liquids are often spilled or frequently boil out into the oven liner and dry and char at temperatures to which oven liners are normally subjected. This causes a deposit which may be hard or which may stain the base metal surface. This may require removal by an abrasive. Often it is impossible to restore the surface to its original finish. Consequently porcelain enamel on enameling iron has been generally used for oven linings. Such enamel is subject to chipping in assembly and sometimes in use. This makes it expensive and somewhat undesirable. It also absorbs considerable heat.

It is an object of my invention to provide an oven with a durable inexpensive lining which will not stain and which can be kept clean easily.

It is another object of my invention to provide an oven with a durable inexpensive stainless lining which reflects more heat and absorbs less heat.

It is another object of my invention to provide an oven with anodized aluminum lining which will not stain.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings, wherein a preferred form of the present invention is clearly shown.

In the drawing:

Fig. 1 is a perspective view of an electric range having an oven liner embodying one form of my invention; and

Fig. 2 is a greatly enlarged sectional view of a portion of the lining.

Referring to the drawing and more particularly to Fig. 1, there is shown an electric range including a range shell 20, above which is the cooking top 22 containing four electric surface heaters 24. The oven is formed by an oven liner 26 which is in the form of a box having a flanged open end. This liner slips into the range shell with the flanged open end fitting against the edges of the opening in the shell 20. A swinging door 30 is mounted upon the shell for closing the oven. Within the oven liner 26 is an electric heating unit 28 covered by a baffle for providing better heat distribution and circulation within the liner 26.

According to my invention I form the oven lining 26 of sheet aluminum. This sheet aluminum is formed into a box-shape with an open end and then anodized until the anodized sur-

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face layer is from .0001 to .0006 of an inch in thickness. This anodized layer is a porous structure with capillary pores through which, in the formation thereof, the electrolyte and the electric current passes through the already formed non-conducting oxide to the metal itself. This oxide surface layer is comparatively hard, but its porosity makes it stain readily and makes it extremely difficult if not impossible to thoroughly clean.

To overcome this difficulty, prior to the insertion of the oven lining 26 into the range shell 20 I apply, preferably by spraying, a solution of a silicon resin in toluene to the previously dried anodized aluminum surface of the oven liner, thus thoroughly impregnating and coating the porous structure with the resin. One specific example of a silicon resin for this purpose is the Dow-Corning 990A resin which contains 70% silicon resin by weight and 30% toluene. The 990A resin is then diluted by the addition of 7 parts of toluene for spraying. The silicon resin is then dried and the entire lining is heated for five hours at a temperature of 500° F. to cure and polymerize the resin. This polymerized silicon resin is extremely stable towards heat and is generally inert chemically. This commercial resin has thermoset properties through the normal operating ranges of temperature of the oven. All silicon resins are predominately thermosetting. The polymerized silicon resin effectively seals the surface of the aluminum and provides great resistance to stain.

While I prefer to use a silicon resin coated anodized aluminum liner it is possible to use a silicon resin coated plain aluminum liner. The aluminum surface reflects heat within the oven and prevents a substantial portion of the normal loss by radiation. Also, since the aluminum is a light-weight metal and has a low heat capacity, the time required to bring the oven up to temperature is reduced and therefore electrical power is conserved. Such a lining is also low in cost. Thus, the performance is improved at no increase in cost.

While the form of embodiment of the invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, as may come within the scope of the claim which follows.

What is claimed is as follows:

An oven provided with an anodized aluminum oven liner, the exposed anodized surfaces of said liner being impregnated with a silicon resin polymer having thermoset properties through the range of normal operating temperatures of the oven to prevent staining.

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