

[54] CONTAINERS

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229/3.5 MF

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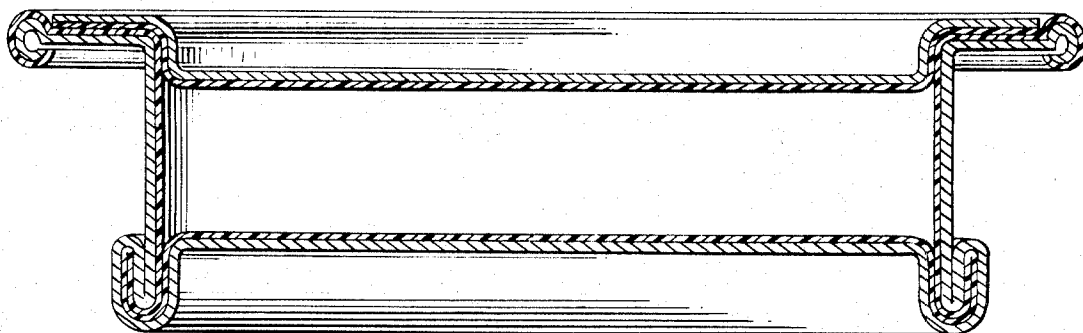
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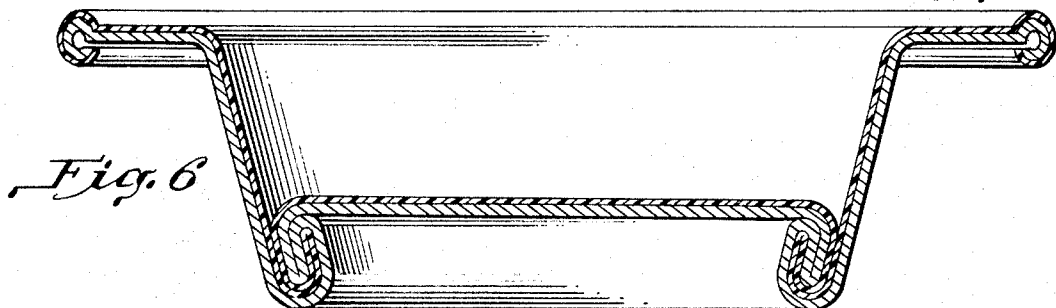
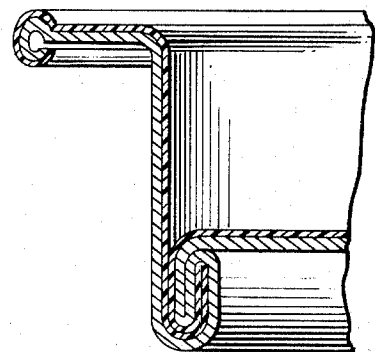
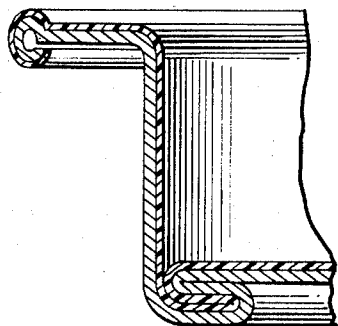
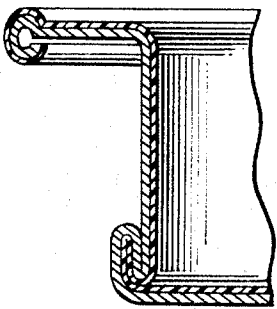
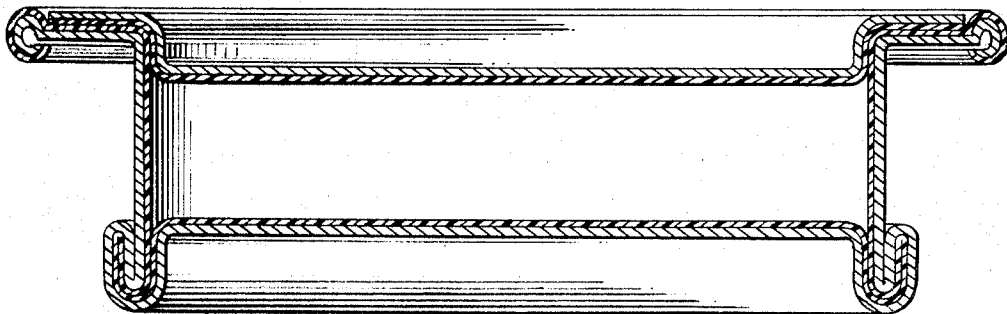
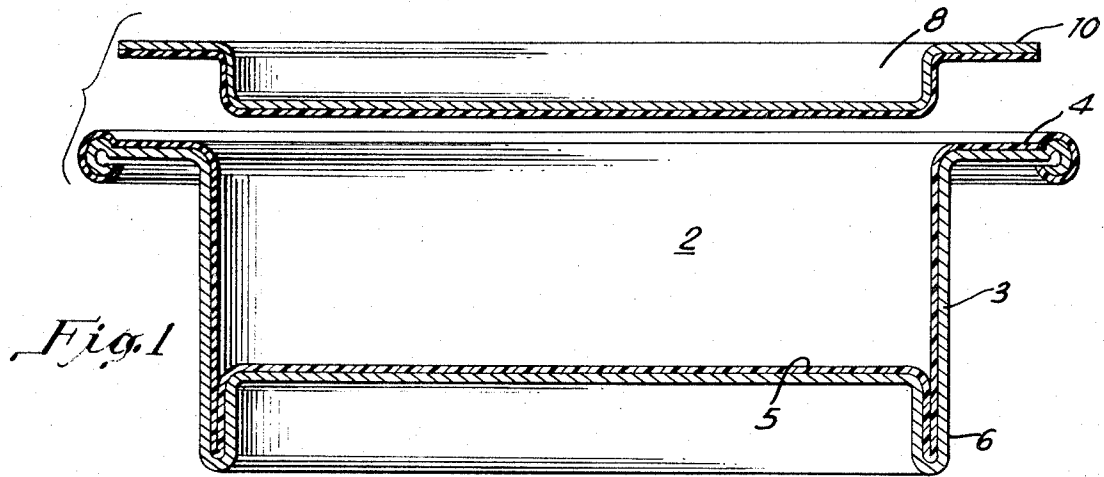
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[57] ABSTRACT

The invention relates to a deep-drawn sterilisable metal container for foodstuffs. The container is of thin wall construction from metal foils, e.g. aluminium foil, coated at least on its inside with a thermo plastics layer. It is provided around its lower or base edge with an edge bead of double wall configuration which is folded or rolled either inwardly beneath the bottom wall or outwardly adjacent the side wall.

1 Claim, 6 Drawing Figures





CONTAINERS

This invention relates to deep-drawn sterilisable metal containers for example for containing foodstuffs. The invention is particularly concerned with the manufacture of containers from metal foils, e.g. aluminium foil which are coated at least interiorly with a thermo plastics layer, the body of the container having a flange around its open end to which a lid formed of the same material is welded, or otherwise sealed. In comparison with containers made from bare tin plate or sheet aluminium, containers of the above type generally have less stiffness so that they readily become dented or perforated during transportation of the body of the container or when they are filled, or when they are closed and sealed. As a result they do not withstand autoclaving and/or washing.

Whilst it is known from German Gebrauchsmuster 6,807,656 to provide the body of a container at its open end with an outwardly bent and rolled-in edge flange, and to arrange for a bent-over edge of a lid, which is to be sealed on the body, to engage over the rolled-in edge of the edge flange of the body, and this reinforces the top of the container, the base of the container is not reinforced and is consequently sensitive to damage. It is also known from German Gebrauchsmuster 6,812,346 to secure to a container body a lid formed from sheet aluminium coated with an inner layer of thermo-plastic material. In this case, the open end of the container body has an outwardly bent edge flange also coated on the inside with a thermo-plastic material with the edge of the lid projecting beyond the sealing edge of the edge flange of the body. This arrangement also provides reinforcement at the top container edge to some extent, but it is, in general, inadequate and apart from providing no reinforcement at the base of the container there are objections to this construction on hygienic grounds since there is an outwardly open gap between the edge of the lid and the edge flange of the body.

It is an object of the present invention to provide a light and cheap container for foodstuffs or the like which can be readily sealed and which has adequate stiffness particularly at its lower end either when empty or filled and also be capable of surviving treatment during autoclaving.

According to the present invention a deep-drawn sterilisable container of metal foil coated at least interiorly with a thermo-plastics layer, has integral bottom and side walls with the latter extending from an upper peripheral edge, and an integral folded lower edge bead of at least double wall configuration lying adjacent one of the bottom and side walls.

Containers formed in this way can be handled in almost the same way as those made from uncoated, thicker metal, and they allow the devices and machines hitherto used in the food industry still to be utilised. Where the side wall is of tapered form, to obtain optimum stackability the edge bead is folded or rolled inwardly beneath the bottom wall.

The invention may be carried into practice in a number of ways but several specific embodiments will now be described by way of example with reference to the accompanying drawings in which:

FIG. 1 shows the body of a container according to the

invention with a lid unfitted and the base of the container being incomplete;

FIG. 2 shows the lid in a fitted position and a bead formed around the base of the container;

FIGS. 3 to 6 show alternative configurations of bead around the base of the container.

FIG. 1 illustrates a body 2 of a container which has been deep-drawn from a disc or strip of aluminium foil to provide a side wall 3 extending downwards from a flange 4 at the open end of the container, this flange having a rolled or beaded outer edge. The drawing process is such that the bottom wall 5 is drawn in as shown in FIG. 1 to produce a double walled annular edge 6 which is shown in FIG. 1 and which is subsequently formed in one of the ways shown in FIGS. 2 to 6 to provide a reinforcing bead. The forming of the bead can take place after drawing down the side wall 3 prior to or after filling the container body or even after closure by means of the lid. In general however, the bead will be formed immediately after the deep-drawing process.

Additional reinforcement of the upper peripheral edge of the container can be provided, if necessary, by folding over or rolling-in the edge 10 of the lid with the folded over or rolled in edge bead of the flange 4 of the container body.

These reinforcing edges on the upper or lower ends of the container can be formed by rotating tools of known form for example in the form of closure rollers, or pressing tools movably mounted with respect to the container axis or multi-part pressing tools disposed at right angles to the container axis. The metal used in general is aluminium foil and this is coated with a varnish or other suitable thermoplastics material to render the body and lid heat sealable. Alternatively the aluminium, before forming of the body and the lid, may be coated at least on one side which is to form the interior of the container with a sterilisable thermoplastics material acceptable for foodstuffs and capable of withstanding autoclaving.

By way of example only it is pointed out that in the production of containers of the kind as described above and having a volume of about 30 to 400 ml (cm³) the following material may be used:

The body is made from an aluminium foil strip having a thickness of 60 to 200 μ m and laminated with a plastics film of between 40 and 75 μ m, while for the lid there is used an aluminium foil strip of 50 to 100 μ m laminated with a plastics film of 40 to 75 μ m. The exact thicknesses depend more or less on the purpose and the stress of the container.

What we claim as our invention and desire to secure by Letters Patent is:

1. A deep-drawn container of metal foil coated at least interiorly with a thermoplastic layer, the container having integral bottom and side walls with the latter extending to an upper peripheral edge, said upper edge carrying a radially extending peripheral flange with a lid closing the container and engaging said flange, and an integral folded lower edge bead of at least double wall configuration overlying and paralleling the outer face of a lower portion of the side wall of the container.

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