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**EUROPEAN PATENT APPLICATION**

(21) Application number: **83200535.9**

(51) Int. Cl.<sup>3</sup>: **B 65 D 25/16**  
**B 21 D 51/26**

(22) Date of filing: **15.04.83**

(43) Date of publication of application:  
**24.10.84 Bulletin 84/43**

(84) Designated Contracting States:  
**BE CH DE FR GB IT LI NL**

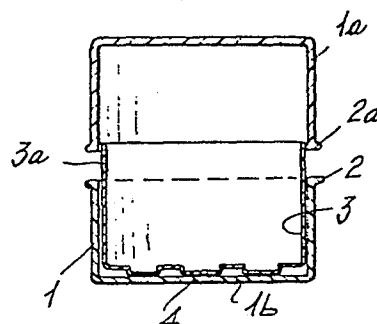
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(54) **A method of manufacture of metal sheet boxes in two distinct bodies and boxes thus obtained.**

(57) Method of manufacture of metal boxes of tinned strip by drawing, consisting of providing box-like bodies (7, 7a) all identical to one another and with open inlet, making up the actual containers and relative lids, and inserting in one of such bodies a tubular core made of plastic material (3), projecting from the container for simultaneously forming the removable connection element (3a) with another lid forming box-like body (7a), and in case also a container with inner shaped surfaces.



*Fig. 4*

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A method for manufacture of metal sheet boxes in two distinct  
bodies and boxes thus obtained

This invention relates to an improved method for rational and low cost manufacture of metal boxes comprising two container bodies separated from each other from metal sheet and preferably tinned strip or the like. Metal boxes as obtained by said  
5 method are also within the scope of the invention.

Metal boxes of any shape and size with hinged or separate lid for products of various kind and size have been since long known and used. Particularly, cylindrical or polygonal boxes with separate lid comprise two substantially glass or cup  
10 shaped containers, of which one is generally of a larger depth than the other and makes up the actual container; the other of which is instead the closure lid which is slightly forcibly coupled by partly inseting the inlet thereof on the outer upper edge of the container.

15 The most wide spread technique at present used for manufacture of metal boxes of tinned strip or the like, comprising separate bodies interconnected at opposing position, comprises the use of plane sheets of tinned strip, as suitably pretreated and/or in case provided with figures, words and various marks,  
20 providing the hollow glass or cup body making up to actual container by a drawing operation, providing a second box-like body forming the lid, of a different height and in some cases of a larger diameter than that of the former body by a second drawing operation of a sheet of a different size than that of  
25 the former, and forming in the actual container body an outer annular edge or rim by a further deformation process to make up a peripheral stop for the edge of the lid when at closed position.

30 Substantially, all of these operations involve notable pratical and economical burdens, as well as quite high execution times and the need of providing starting sheets of different dimensions from one another.

Therefore, it is the object of the present invention to provide a highly economical and rational method for the manufacture of boxes in two separate bodies, to produce by drawing  
35 of sheets all identical to one another both of the box-like bodies and enable a removable coupling thereof through retaining means of such a structure as to give a particular refinement to the finished box and rational use of the latter  
40 for products of specific shape and size.

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It is another object of the invention to provide a method of manufacture by suitable drawing for boxes of two bodies having any desired shape and size, and more particularly of both cylindrical and polygonal shape.

- 5 These and still further objects, which will be more clearly pointed out from the following detailed invention, have been substantially achieved by a method of manufacture by drawing of tinned strip sheets or the like of boxes as made of two distinct bodies, according to the present invention such a  
10 method comprising the steps of using sheets, as suitably treated and/or provides with figures and/or various ornaments, all of which of a same size, drawing such sheets according to known techniques to provide box-like bodies of a same size indifferently making up the containers and relevant lids,  
15 inserting in the container forming box-like bodies a box-like core or the like of plastic material, as obtained by thermo-forming or the like, of a larger height than that of the metal box-like bodies and such that the cylindrical portion projecting from the metal body edge can simultaneously form the removable  
20 connection element with another lid forming body, and in case also a container with a bottom and/or shaped walls as required.

In connection with a preferred but not exclusive embodiment, the invention will now be hereinafter further described with reference to the accompanying drawing, as given by mere way  
25 of unrestrictive example, in which:

Fig. 1 is a view showing a cylindrical container body according to the invention for indifferently making up either the lid or the actual container of a box for various products;

30 Fig. 2 is a front and plan view showing a core made of plastic or the like for insertion in one of the container bodies of Fig. 1;

Fig. 3 is a view showing the same container body of Fig. 1, in which a core of Fig. 2 is inserted; and

35 Fig. 4 is an axial diametrical sectional view showing a box with a lid partly raised, and provided by the method according to the present invention.

Referring to the figures of the accompanying drawing, the manufacture method according to the invention uses the known technique of drawing metal sheets, preferably tinned strip or  
40 the like, as previously surface treated (anodizing, painting, ecc.) and provided with figures, ornaments, words and the like, as required.

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In order to provide cylindrical boxes, such as that shown by mere way of example in the figures of the accompanying drawing, according to the invention metal sheets are used, all of which of a same size, to provide by drawing through  
5 a single punch and always under same operating conditions, cylindrical container bodies 1, all of a same size and having an upper peripheral edge or rim 2 which is slightly outward arcuate and with a bottom 1b of planar or recessed configuration as desired. For a box formation, two container  
10 bodies are used as those shown in Fig. 1, of which the lower body 1 (fig. 4) is the actual container, and on the other hand the overturned upper body 1a is the removable lid. To allow for a steady coupling between the two bodies, it is contemplated according to the invention to separately provide  
15 a core as a container body 3 (fig. 2) of thermoformed plastic material, having such an outer diameter than it can be slightly forcibly inserted and in case by interposition of adhesive in the metal body 1.

The height of said plastic body 3 is larger than that of body  
20 1, so that the projecting cylindrical section 3a of the plastic body can be used as connection means with said lid 1a. Therefore, the provision of the cylindrical core internally of said bodies 1 and 1a allow the projecting peripheral edges or rims 2 and 2a of said two opposing bodies to come in  
25 contact with each other maintaining the metal bodies axially aligned to each other and thus assuring a good sealing for the box.

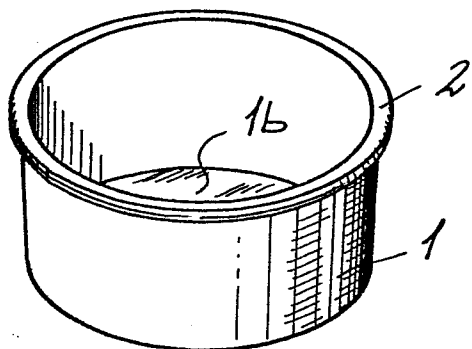
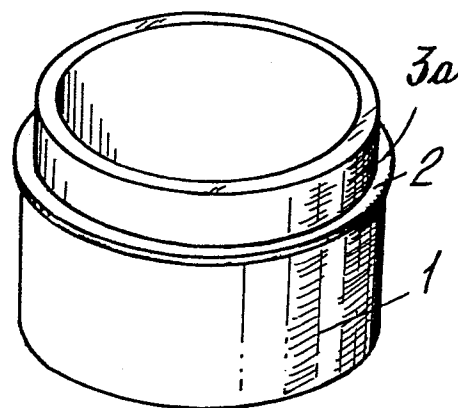
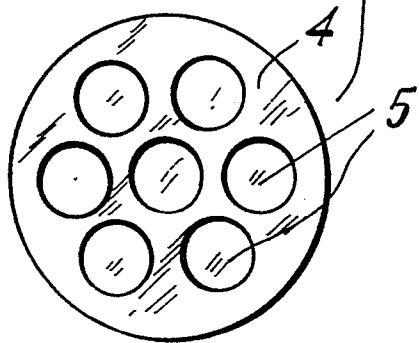
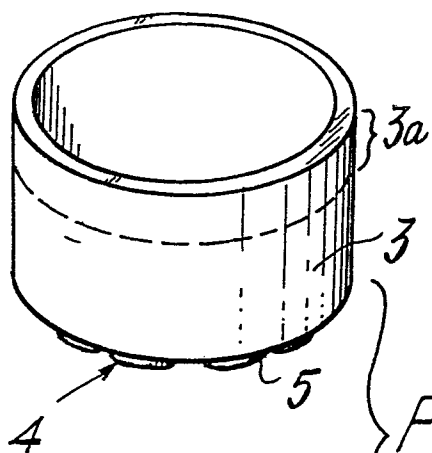
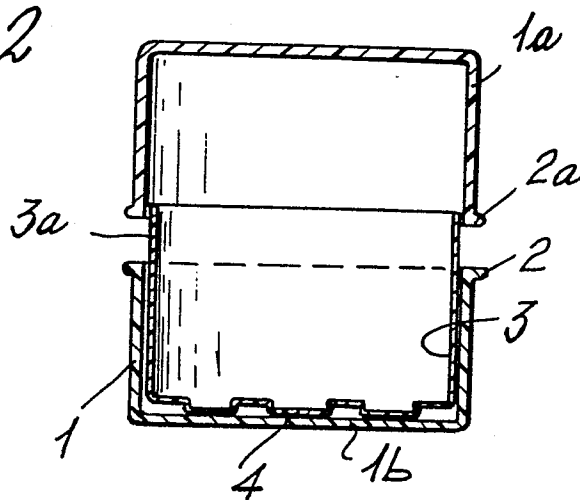
Advantageously, according to the invention, the plastic core or body 3 may have its bottom 4 (fig. 2) provided with  
30 recesses 5 of spherical cap or spider or other shape to form steady separating and retaining means for some products of specific shape.

Additionally, the bottom 4 could also be omitted and the plastic body 3 may thus take the shape of a perfect cylinder,  
35 the height of which, if required, could also be such to enable the cylinder to reach the inner bottom of the metal body 1.

Of course, modifications and changes in shape, size, materials used and anchoring system for the tubular core within the metal container can be made to the invention, as described  
40 in accordance with an exemplary embodiment thereof, without departing from the covering scope of the invention. Furthermore, the lid could also be hinged to the underlying body, and raised and lowered on the plastic core, remaining coaxially coupled to the latter.

Claims:

1. A method for providing boxes in two separable bodies by drawing of metal sheets, and particularly tinned strip or the like, comprising the steps of using sheets, as suitably pre-treated and/or decorated, all of which having a same size,  
5 drawing said sheets to provide box-like open inlet bodies of a same size and indifferently making up the containers and relevant lids for each box, inserting in said bodies forming the containers for each box a preferably box-like tubular core of plastic material or the like, as obtained by thermoforming  
10 and of a greater height than that of the actual container, so as to enable the cylindrical portion projecting from the actual container to form both the removable connection element with another metal lid forming body and in the case also a container having shaped inner surfaces.
- 15 2. A method according to Claim 1, wherein said metal box-like bodies are obtained with an outward facing peripheral edge or rim for forming a steady stop and abutment means for the two metal bodies coupled to each other at overturned position.
3. A method according to Claims 1 and 2, wherein at least the  
20 bottom of the plastic box-like core is provided with recesses or the like to form separating and/or retaining means for the canned products.
4. A method according to the preceding claims, wherein said core is made of tubular shape having such a height not to  
25 reach the bottom of the metal container, the anchoring of said core being provided by slight shrinking and/or by adhesive.
5. A metal box made of tinned strip or the like for various products, as provided by the method according to Claims 1  
30 to 4.
6. Method and relative metal box according to the preceding claims, as provided for the above specified objects according to the foregoing description and illustration.

*Fig. 1**Fig. 3**Fig. 2**Fig. 4*



European Patent  
Office

# EUROPEAN SEARCH REPORT

**01 22336**  
Application number

EP 83 20 0535

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. <sup>3</sup> )
A	US-A-3 128 923 (GABLER)	1,5	B 65 D 25/16 B 21 D 51/26
A	US-A-2 044 093 (MILLS)	1,5	
A	US-A-3 779 420 (KNAUS)		
A	GB-A- 961 458 (SUN KIN CHAO)		
A	DE-C- 834 512 (NALLINGER)		
A	FR-A-2 364 713 (THE BRITISH ALUMINIUM CY.)		
A	EP-A-0 020 099 (THE CONTINENTAL GROUP)		
A	CH-A- 485 518 (HIRZEL)		
A	US-A-2 715 326 (GITS)		
A	GB-A- 264 084 (EISINGER)		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 19-01-1984	Examiner PEETERS L.
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