

Jan. 12, 1954

T. JUNG MAYR
METHOD OF MANUFACTURING BOXES

2,665,616

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2 Sheets-Sheet 1

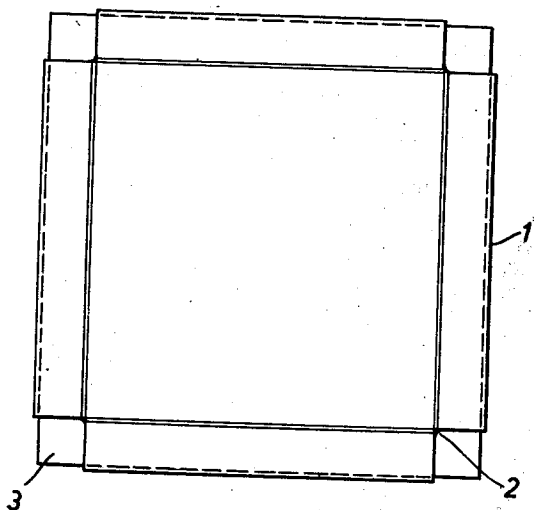


Fig. 1

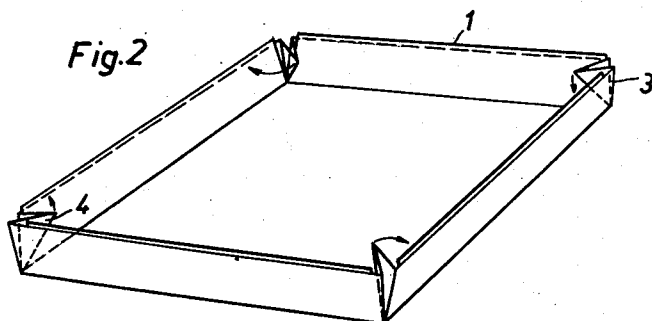


Fig. 2

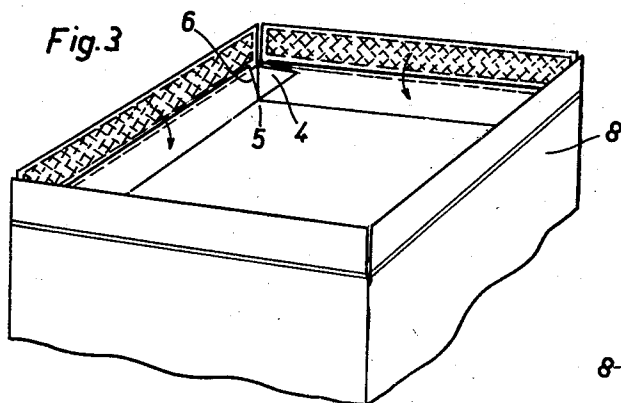


Fig. 3

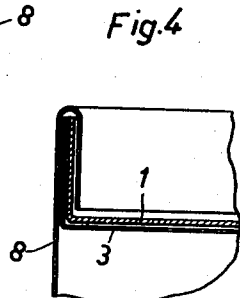


Fig. 4

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2 Sheets-Sheet 2

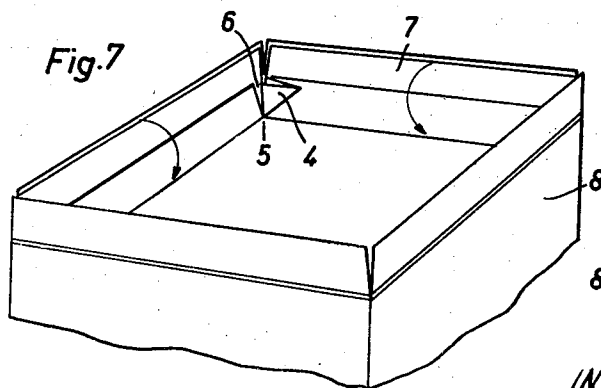
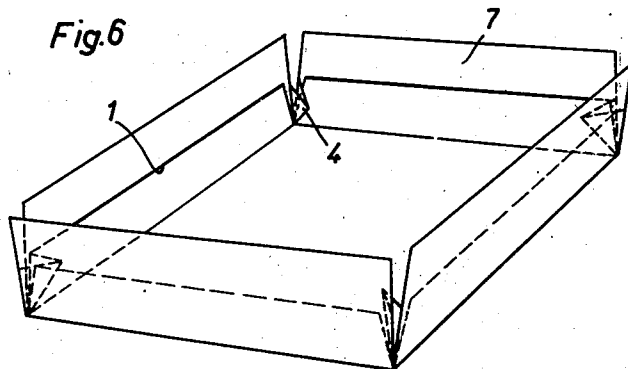
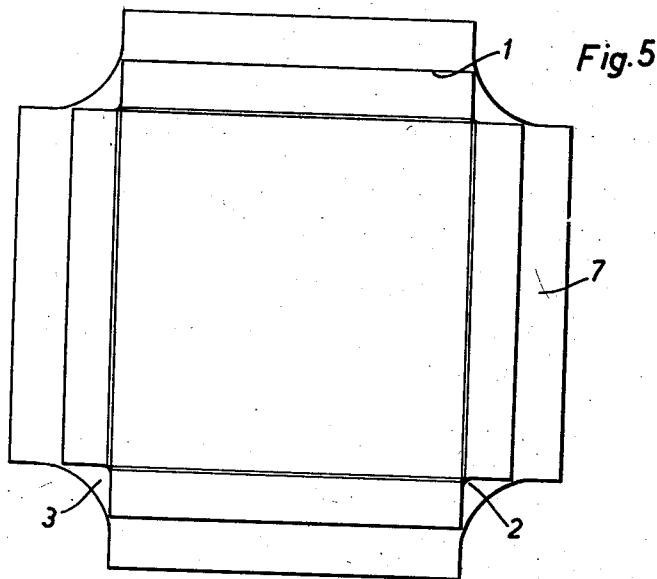
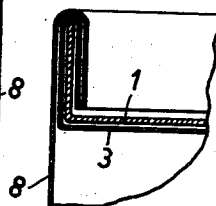


Fig. 8



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METHOD OF MANUFACTURING BOXES

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1 Claim. (Cl. 93—55.1)

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This invention relates to containers or boxes of the type consisting of a shell or casing and end plates inserted therein and provided with upwardly flanged borders or tabs, and to a method of manufacturing such containers. The invention has special reference to boxes of the type in which the end of the casing which by corner incisions is also formed with borders or tabs is inwardly turned, in a U-shape, over the edges of the borders of the end plate which has been inserted into the casing by a corresponding amount, and joined to the inner side of the upturned borders of the end plates, the connection between the end plate and the casing being effected by bonding the borders of the end plates to the casing.

It is the object of the present invention to provide a container of the type referred to which can be manufactured very easily and without the danger of tearing of the casing as the end plates are inserted.

Another object of the invention is to provide a container which is constructed in such a way that a tight seal between the end plate and casing parts are ensured.

With these objects in view, according to the present invention a soft foil which can be folded is used for sealing the closure, which foil is placed and fixed on the blank of the end plate in such a way that it covers the borders and the corner incisions between the borders and on upturning of the borders is also upturned with the formation of corner tips, so that on insertion of the end plate into the end of the casing of the box the edge or border of the foil will seal both the angle corners and the butt joints of the borders as well as their folding edges. The corner tips of the foil are joined to the borders and can be bonded thereto, if desired. However, the invention also offers the possibility of making the sealing foil of a thermoplastic material which on application of heat and pressure permits a plastic deformation of the loose corner tips without any folds and thus ensures an absolutely reliable sealing of the corners as well as a bond between the end plates and the casing. In this case it is also possible to dispense with the application of an adhesive on the casing and/or on the end plate, whereby a substantial simplification can be achieved in the manufacture of the boxes.

Other and further objects, features and advantages of the invention will be pointed out hereinafter and appear in the appended claim forming part of the application.

In the accompanying drawings several now

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preferred embodiments of the invention are shown by way of illustration and not by way of limitation.

Fig. 1 is a plan view of a blank of an end plate including the foil arranged thereunder,

Fig. 2 is a perspective view of an end plate with the foil, in an upwardly turned condition,

Fig. 3 is a perspective view of the end plate inserted in the casing,

Fig. 4 is a cross section showing the seal produced thereby,

Fig. 5 is a plan view showing a modified form of a blank of an end plate with foil,

Fig. 6 is a perspective view showing this end plate in an upwardly turned condition of its border portions,

Fig. 7 is a perspective view showing the end plate inserted in the casing, and

Fig. 8 is a section through the seal obtained in this case.

Similar reference numerals denote similar parts in the different views.

Referring now to the drawings in greater detail, and first to Fig. 1, it will be seen that 1 is the end plate with cut-out corners 2 which are not rounded, or only slightly rounded. These re-entering angles as well as the borders of the blank are covered or overlapped by a sheet 3 of a soft foil material which can be folded and which is bonded to the blank 1 by an adhesive while the same is still in a flat condition. Before or on insertion of the end plate into the end of the shell part 8 which is also provided with borders, the borders of the end plate together with the edge of the foil are turned upwards, whereby the corners of the foil 3 are folded into tips 4 which in this embodiment project inwards through the corresponding gaps between the borders of the end plate and are joined to the upwardly turned borders of the end plate and secured thereto, if desired, more particularly, by an adhesive. As shown in Fig. 3, the edge of the foil seals both the angular corner 5 and the gap 6 at the neck corners of the end plate.

Where the foil according to the invention consists of a thermoplastic material, the borders of the end plate can be bonded with the shell part by application of heat and pressure, so that a particularly tight connection is produced between the end plate and the shell. Then the borders of the end of the shell on application of an adhesive are inwardly folded according to the arrows in Fig. 3 over the edges of the borders of the end plates and bonded and pressed onto the borders of the end plate, as shown in Fig. 4.

In the embodiment as per Fig. 5, if using a foil

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of a thermoplastic material, it is not necessary to apply an adhesive on the tabs or borders of the shell, since the foil also serves as a bonding agent between the borders of the end plates and the borders of the shell. To this end according to Fig. 5 the foil 3 on each side is formed with an extension 7 projecting over the borders of the end plate, the length of this portion 7 corresponding to that of the borders or tabs of the shell. Here again as shown in Fig. 6 before or on inserting the end plate into the end of the shell 8 the tabs together with the borders of the foil are upturned, the corners of the foil 3 forming tips 4 projecting inwards through the gaps between the tabs of the end plates and being put on the upwardly turned tabs, as shown in Fig. 7. Now the tabs of the shell 8 are folded inwardly about the edges of the tabs of the end plate, as shown in Fig. 8, whereby the extensions 7 of the foil 3 come to lie between the tabs of the end plate and the tabs of the shell. By application of heat and pressure the tabs of the end plates are bonded both with the shell and with the turned over tabs of the shell. For heating the foils radiating heat, preferably electrical heat, is used.

The process can also be carried out in such a way that the tips 4 formed by the corners of the foil extend outwardly and are turned against the tabs from outside.

The box may consist, for instance, of paper, cardboard or any other sheet material which can be folded. The thermoplastic foil may consist, for instance, of polyvinyl compounds, cellulose derivatives or other synthetic materials.

While the invention has been described in detail with respect to certain now preferred examples and embodiments of the invention, it will be understood by those skilled in the art after understanding the invention that various changes and modifications may be made without depart-

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ing from the spirit and scope of the invention, and it is intended, therefore, to cover all such changes and modifications in the appended claim.

What is claimed is:

5 A method of producing boxes from a casing blank and a closure blank, the closure blank having foldable borders and being formed with corner cut-outs, and having a foil of foldable material attached thereto, said foil having extending portions projecting beyond the corner cut-outs and covering the same, comprising; upturning the borders of the closure blank to form a tray with said extending foil portions forming projecting corner tips while dividing said extending foil portions to project inwardly of the tray and between the edges of the cut-outs of the closure blank to form inwardly projecting tips; holding the projecting corner tips against adjacent upturned borders of the closure blank; inserting the thus produced and erected closure into one end of the casing blank; folding edge portions of the casing blank about the borders of the end closure and over the folded corner tips; and joining the edge portions of the casing blank to the borders.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
726,205	Tuttle	Apr. 21, 1903
737,692	Alger	Sept. 1, 1903
1,455,321	Case et al.	May 15, 1923
2,409,460	Waters	Oct. 15, 1946

FOREIGN PATENTS

Number	Country	Date
324,383	Great Britain	Jan. 27, 1930
366,194	Great Britain	Feb. 4, 1932