A container is made of cardboard or the like material and a pattern or blank from which said container is obtained, and a pattern or blank which are joined intimately to a base of cardboard or the like material.
Invention: "CONTAINER MADE OF CARDBOARD OR THE LIKE MATERIAL AND BLANK FOR SAID CONTAINER"

I, Bernd-Claus Meurer, care of Meurer Nonfood Product GmbH, Libellenweg 10, D-7760 Radolfzell, Germany,

Do solemnly and sincerely declare as follows:

1. I am the applicant for the patent

2. In the case of an application by a body corporate, I am authorised by MEURER NONFOOD PRODUCT GmbH

3. The application for the patent to make this declaration on its behalf is defined by Section 141 of the Act was made in Germany

4. On 16th November, 1981

5. The said applicant is the assignee of the actual inventor.

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The said applicant is the assignee of the actual inventor.

At present, the first applicant is the first applicant made in a Convention country, in respect of the invention the subject of the application.

Dated at Radolfzell this First day of Nov., 1982

MEURER NONFOOD PRODUCT GmbH

L. The Commissioner of Patents
Signature of Declarant

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container is closed, there being at least one fold line running between the lid flap and a neighbouring wall section over the breadth of the same starting from the edge at the side of
CARDBOARD CONTAINER AND BLANK THEREFOR

FRANZ VOSSEK

1. Container made of cardboard or the like material having walls comprising a plurality of wall sections partly delimited by fold lines/lines and joining up intimately with a base, said container also having at least one lid flap at an opening surrounded by said wall sections and, transverse to the lid flap, attached dust flaps which, when the container is closed, face the inner side of the lid flap, there being between the flap and a neighbouring wall section at least one fold line running the breadth of the wall section starting from the edge at the side of the flap, in which the edges of the dust flap project out at both sides of the neighbouring wall sections beyond this section, extending a distance from the delimiting fold line to form peak-like areas each of which features a curved edge and is joined to the side of another wall section which adjoins and is at an angle to wall, the edges of dust flap running, at least in the region near the fold line, towards the flap with a curvature of radius.
The following statement is a full description of this invention, including the best method of performing it known to me/"as:

"CONTAINER MADE OF CARDBOARD OR THE LIKE MATERIAL AND BLANK FOR SAID CONTAINER"
A container is made of cardboard or the like material and a pattern or blank from which said container is assembled and has walls which are joined intimately to a base, a lid flap or flaps on one or one pair of these walls surrounding an opening to the container interior, and lying transverse to that lid flap, dust flaps which when the container is closed face the inner side of the lid flap/flaps. Said container is intended for contents of a finely divided form which could give rise to dust, and is able to prevent this dust formation.

To this end the edges at the sides of the dust flap extend on both sides beyond the delimiting wall section a distance from the related fold line to produce peak-like areas; each of which is delimited by a curved contour and are joined to another wall which is adjoined to and is at an angle to that wall section, the edge at the side of the dust flap featuring a radial curvature at least in the region next to the fold line. Further, the leading edges of a pair of dust flaps which feature slits at the leading edge should support the inner surface of the lid flap/flaps; the height of the dust flaps should be less than half that of the dust flap/flaps.

The invention relates to a container made of cardboard or the like material which has walls made up of a plurality of wall sections - partly delimited by a fold line or fold lines - joined up intimately to a base, has at least one lid flap at an opening surrounded by the said wall sections, and also dust flaps which lie transverse to the lid flap and face the inner surface of the lid flap/flaps when the
container is closed, there being at least one fold line running between the lid flap and a neighbouring wall section over the breadth of the same starting from the edge at the side of the flap. Furthermore, the invention also relates to a pattern or blank from which the said container is assembled.

Known containers of the above kind are employed to hold various kinds of substances. If these substances are in the form of finely divided dust-like material, or tend to create dust, it is necessary to have an additional container, for example a bag, pouch or the like to be placed inside the cardboard container. The reason for this is that up to now it has not been possible to make a dust-tight container from a cardboard blank without providing some additional facility.

SUMMARY OF THE INVENTION

In views of the above it is an object of the present invention to develop a container - and blank or pattern for that - of the kind mentioned at the start which, without problem, is able to contain substances tending to create dust, and is able to do so without requiring a special insert or inlay.

This object is achieved by way of the invention in which the edges at the side of the dust flap - or optionally the edges of the lid flaps - project out at both sides of the neighbouring wall section beyond this section and extend a distance from its delimiting fold line to form peak-like areas which feature a curved edge and are joined to another wall section which is adjoined to and is at an angle to the neighbouring wall section, the edge at the sides of the dust flap or lid flap featuring a radial curve at least in the region next to the fold line. The peak-like projections on the sides of the dust flap or lid flap, folded over when the container is
be curved in such a way that its height is less at the sides than in the middle.

Consequently, on closing the container, this leading edge presses against the contacting lid flap; this effect is reinforced further by providing slits in the region of the leading edge of the dust flap.

As a result of these measures, including the fact that the height of the dust flap is not great, it is now possible to ensure a dust-tight closure of the container, without problem and in a single operation.

Although features described in greater detail in the claims contribute to improvement of containers or boxes of the kind mentioned at the start, a secure dust-tight closure is assured by the provision of relatively short dust flaps with slits running from their leading edge, and the provision of peak-like regions projecting out of the side edges of the dust flap. As a result of the curvature of the leading edge of the dust flap, the lip of the dust flap conforms easier to the shape of the lid flap - an effect which is favoured further by the presence of the slits at the leading edge of the dust flap. These slits also make it possible for the chalk, heavy spar or barite surface of the cardboard - which does not readily accept adhesive - to be broken through and made more suitable for sticking. In addition, the described creation of tongues on the dust flap makes it possible for the dust flap to conform to the lid flap even when the latter is curved in cross section. The high pressure produced at the leasing
edge of the dust flap as a result of this design facilitates considerably the adhesive sealing of the container as it is closed.

In the finished box the peak-like edge regions are led around their corners and joined to the neighbouring front side of the box. In this respect it has been shown to be particularly favourable to extend the line of curvature on the peak-like regions upwards and at an angle to the line representing the middle of the narrow side—preferably at an angle of about 80°—so that, at the then sloping edge at the sides of the dust-lid, such projections are formed at the flanking lid flaps that when the box is closed these projections overlap the corner region or form a bead or flap there.

Of particular significance with respect to dust-tight closure is the described shape of the edges at the sides of the dust flap; these edges begin as a gentle curve at the fold line of the box side wall and continue as a line running at an angle to the line representing the middle of the narrow side. Together with the curved leading edge on the dust flap, this shape of the sides of the dust flap permits an extremely close fit to the lid flap/flaps.

The features of the pattern or blank according to the invention are revealed in the claims.

**BRIEF DESCRIPTION OF THE DRAWINGS**

Further advantages, features and details of the invention are revealed in the following description of the preferred exemplified embodiments represented by the schematic drawings viz.,

*Fig. 1* A perspective view of part of a box assembled by folding a cardboard blank or pattern.
Fig. 2 A corresponding representation of another box.

Fig. 3 Plan view of a part of a cardboard blank for manufacturing the box shown in fig. 2.

Fig. 4 Part of the box in fig. 2, shown here partly closed.

Fig. 5 A further detail of the view shown in fig. 2.

Fig. 6 A perspective view of a part of the closed box.

Fig. 7 A section through fig. 6 along line VII - VII.

Fig. 8 An enlarged view of region VIII in fig. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Fig. 1 shows a box having a pair of narrow sides 2 for example of breadth a of 30 mm, and joining these front and back sides 3 - the breadth b of which is not shown here in full - and a base sheet 4. This, together with narrow sides 2 and broader sides 3, forms part of a common cardboard pattern which also features two lid flaps 5 as an extension to the broader sides 3 and two dust flaps 6. These and the lid flaps 5 surround an opening 7, and are delimited by fold lines 8 from the neighbouring narrow side 2 or broad side 3. Fold lines 8b also run between the narrow and broad sides 2, 3 of the box or container; the normal adhesive flaps to join the cut edges to the body of the box are not shown in the drawing.

The height i of the lid flaps 5 is slightly smaller than the breadth a of the narrow sides 2, while the maximum height m of the dust flap 6 in the example shown is less than 15 mm. Also the upper, leading edge 9 of the dust flap is curved with a radius of curvature r of about 180 mm running
towards the base sheet 4. Running from the edge 9 of the dust flap are slits 10 of length e equal to approx. 8 mm - creating individual tongues 11 in the flaps 6.

Also curved are the edges 12 at the sides of dust flaps 6, and these in such a way that they terminate on the fold line 8 at a distance "s" (e.g. 2 mm) from the point of contact or corner 13 of that fold line 8 on the narrow side 2, thus forming -- shaded in fig. 8 -- a triangular-like field 14. The radius of curvature q for that end region of edge 12 is about 10 mm.

After the interior 16 of box 1 has been filled with dust-like contents, the opening 7 in the box 1 is closed by folding the lid flaps 5 about their fold lines 5 in the direction of the arrows x, x, so that both dust flaps, as shown in fig. 7 lie against the inner face of the then lower lid flaps 5 with a layer of adhesive - not shown here - between.

When the box 1 is closed, the - as shown in fig. 8 - outwards drawn edges 12 of the dust flaps 6 ensure that a dust-tight closure is provided; the tongues 11 on flaps 6 produce, with their curved leading edge 9, a close fit against the lid flap 5; on folding over lid flap 5 this presses first against the middle region of dust flap edge 9, which then presses with high edge pressure against the lid flap 5.

A special effect produced by the pressure-giving slits 10 - apart from creating the tongues 11 - is that they cause the normal chalk layer on the cardboard to be broken through, which leads to improved adhesion and a more intimate bonding of the joint.

According to the version shown in figs. 2 to 4, the edges 12 of the dust flaps 6 beyond the curved part 20 (fig. 3)
delimiting the field 14 - are inclined at an angle W, for example of 80°, towards the middle line 14 of the narrow side 2 in such a way that triangular shaped projections 22 are produced at the edges 21 of the lid flaps 5 and, when the box 1 is closed these projections 22 stand out from the body of the box 1.

Fig. 5 shows that these projections 22 can also be folded along a further fold line 18 on the inner side 23 of lid flap 5 thus forming a bead of flap there.
The claims defining the invention are as follows:

1. Container made of cardboard or the like material having walls comprising a plurality of wall sections partly delimited by fold line/lines and joining up intimately with a base, said container also having at least one lid flap at an opening surrounded by said wall sections and, transverse to the lid flap, attached dust flaps which, when the container is closed, face the inner side of the lid flap, there being between the flap and a neighbouring wall section at least one fold line running the breadth of the wall section starting from the edge at the side of the flap, in which the edges of the dust flap project out at both sides of the neighbouring wall sections beyond this section, extending a distance from the delimiting fold line to form peak-like areas each of which features a curved edge and is joined to the side of another wall section which adjoins and is at an angle to wall, the edges of dust flap running, at least in the region near the fold line, towards the flap with a curvature of radius.

2. Blank for a container made of cardboard or the like material having walls comprising a plurality of wall sections partly delimited by fold line/lines and joining up intimately with a base, said container also having at least one lid flap at an opening surrounded by said wall sections and, transverse to the lid flap, attached dust flaps which, when the container is closed, face the inner side of the lid flap, there being between the flap and a neighbouring wall section at least one fold line running the breadth of the wall section starting from the edge at the side of the flap, in which the edges of the dust flap extend beyond the breadth of the adjoining wall section at both sides of the same, thus
follows:-

ike material is partly ely with a lap at an verse to ontainer re being least one tarting edges of hbouring ance from each of which another all, the near the us.

ard or the f wall lining up at least nctions which, of the lid ing wall of the wall flap, in breadth of, thus forming projections which extend a distance from the fold line and return at least to the breadth of the wall section and such that the parts of the dust flap projecting out beyond the sides of the wall section form peak-like areas each of which is delimited by a curved edge and is joined to the side of another wall section which adjoins and is at an angle to wall section.

3. Device according to claim 1 or 2, wherein the outer curved edge of the peak-like regions at the sides of the dust flap meets up at about half the height of that flap - with a fold line which is also the line demarking a long edge of the adjacent wall section.

4. Device according to claim 2, wherein the radius of the peak-like area of the dust flap is approximately equal to the height of that flap or is smaller by up to half that dimension.

5. Device according to claim 1 or 2, wherein the free leading edge of the dust flap is curved and runs from its centre to the side edges and at the same time towards the fold line.

6. Device according to one of the claims 1 to 5, wherein the radius of curvature of the leading edge is about 10 times as long as the height of flap.

7. Device according to one of the claims 1 to 6, wherein slits run from the leading edge of the dust flap, thus forming tongues in the flap.

8. Device according to claim 7, wherein the length of the slits is about half the height of the flap.

9. Device according to one of the claims 1 to 8, wherein the height of the dust flap is less than half of the

- 10 -
10. Device according to one of the claims 1 to 9, wherein the height of the lid flap is approximately equal to the width of the container opening.

11. Device according to at least one of the claims 1 to 10, wherein the edges at the sides of the dust flap run inclined at an angle towards the line representing the middle of the narrow side, if desired with these inclined edges delimiting angular shaped projections on the lid flaps at both sides of the same.

12. Device according to claim 1 and at least one of the claims 3 to 9, wherein the opening in the container is covered over at least one lid flap the inner surface of which is supported by the leading edge of a pair of dust flaps, which feature edge slits, the height of the said dust flap being shorter than half of the height of the lid flap/flaps, and the edges of the flaps extending sideways beyond the edges of the neighbouring wall section forming curved bend edges which, when the container is closed, overlap the resultant corners of the container.

DATED this SECOND day of NOVEMBER, 1982

MEURER NONFOOD PRODUCT GmbH

Patent Attorneys for the Applicant
SPRUSON & FERGUSON
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