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(54) **Container for rolls of foil material, having a toothed edge for tearing off portions of this material**

Behälter für Folienmaterialrollen mit einem gezahnten Rand zum Abziehen von Abschnitten dieses Materials

Récipient pour rouleaux de matériau en feuilles doté d'un bord denté pour couper des parties de ce matériau

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Description

[0001] The present invention relates to a container made of cardboard or similar material and suitable to house rolls of thin and tearable foil material, the container being in the shape of an elongated parallelepiped and being provided with a series of teeth punched in the cardboard and with the cusps thereof projecting outward, these teeth being suitable to cut the foil material to allow portions thereof to be torn and removed from the respective roll housed in the container.

[0002] The patent EP 0 369 346 B describes a container according to the preamble of claim 1, produced entirely in a single piece of punched, creased and folded cardboard, suitable to house a roll of tearable foil or thin film material, such as aluminium, plastic material (e.g. PET or PVC), baking paper or the like. These containers have a cutting edge produced along a longitudinal corner or edge of the box, between the bottom wall and the front wall thereof. These containers have the drawback that their teeth (designed to cut the foil material and cause tearing thereof when the foil is unwound from its roll and is stretched and pulled on the teeth of the relative container) are only present along a portion of the length of the cutting edge of the box (thus making the operation to tear off the desired portion of foil material very difficult and irregular) and that said teeth extend freely for their entire length outside the edge or corner of the box, so that the teeth are freely flexible and deform easily and rapidly and can therefore no longer perform the function for which they were designed.

[0003] The patent US 3 777 957 describes an embodiment of a container intended to overcome the aforesaid drawbacks by providing that the teeth designed to cause tearing of the foil material are produced on a toothed and sharp blade (called cutter blade) which is affixed to a wall of the container in such a manner that the toothed and cutting edge of the blade projects outside the free edge of the wall of the container to which it is affixed. An embodiment of this kind presents unacceptable drawbacks, such as a high cost, difficulty in producing the blade with the cutting teeth, the necessity and the difficulty of fixing this blade to the respective cardboard wall of the container, the fact that the teeth of the blade can scratch the surfaces of tables or furniture on which the containers are placed, or can wound the hands of persons using these boxes, besides the fact that the aforesaid blades must be removed from the containers before disposal thereof when the roll of foil material is finished.

[0004] The patent GB 1483620 describes a container the object of which is to overcome the aforesaid drawbacks by producing the cutting edge of the container using a strip of abrasive particles which is affixed to the surface of the cardboard by means of an adhesive: the production of this container is somewhat complex and costly and, in fact, it has not been a commercial success.

[0005] The patent application GB 2128590A describes a container made of cardboard and having cutting teeth (produced in the same sheet of cardboard) to which - after the cardboard has been punched, creased and folded to form the container - a resin is applied and subsequently polymerized to give a hardened edge with sharp teeth: it is evident that this construction technique is not industrially feasible.

[0006] Finally, the patent DE 2930725A1 describes a container housing a roll as defined above, the container having a lid from which there extends a wall which is positioned over and outside the front wall of the container: the wall which is part of the lid has a free edge shaped to present a continuous series of teeth or the like which are reinforced by an adhesive tape affixed to this wall and also provided with teeth, placed over (and produced simultaneously to) the teeth present on the free edge of the lid. The teeth are thus strengthened, but, being bent toward the inside of the container, when the foil material is cut, the entire wall projecting from the lid is consequently lifted outward forming an arch (making it impossible to use the container described in the German patent) when the foil is pulled out of the box, passing under the wall projecting from the lid and deforming this wall.

[0007] The main object of the present invention is to produce a container of the aforesaid type, which is easy and inexpensive to produce from a sheet of cardboard (or similar material) punched, creased and folded, having at least one edge or corner thereof along which there are provided teeth for cutting or tearing the foil material, where these teeth have high resistance to deformation.

[0008] Another object is that of producing a container that is not dangerous for the user and which, after use, can be disposed of as is, without having to remove constituent parts thereof.

[0009] These and other objects are achieved with a container according to claim 1.

[0010] Preferably, said end wall is divided into two distinct portions by continuous knurling, and the portion of end wall is glued to the outer surface of the front wall of the box.

[0011] Once again preferably, a strip of plastic material, in which cuts are produced and also delimiting a toothing placed over and coincident with the toothing produced on the cardboard, is affixed to at least one surface of the wall on which said cuts are produced, over these cuts.

[0012] To facilitate comprehension of the features of the container according to the invention and the manner of achieving it, a non-limiting embodiment shall now be described with reference to the accompanying drawings wherein:

- Figs. 1 to 4 show the various subsequent operating steps to obtain a cardboard blank, the cardboard being shown in a plan view, flat and extended;
- Figs. 5 and 6 show two subsequent steps of folding the previously punched and creased cardboard;
- Fig. 7 is a perspective and partial view of the front side of the finished container;

- Fig. 8 and 9 are partial sections of the container, according to the lines 8-8 and respectively 9-9 of Fig: 7; and
- Fig. 10 is a perspective and partial view of the container, shown during the operation to tear a portion of foil material from a roll of this material housed in the container.

[0013] To describe the features of the container of the invention, we shall firstly describe the method for the productions thereof.

[0014] Two pieces of plastic strip 2, e.g. PET or PVC, with a thickness of 125 microns, are affixed (for example glued using vinyl glue) to a sheet of cardboard 1 (or other material suitable to form the container) (Fig. 1). Subsequently, with the use of an automatic machine of well-known type, a punching and creasing operation is performed on the cardboard 1, through which the blank, represented in a plan view and in enlarged scale in Fig. 3, is separated from the remaining part of the cardboard.

[0015] It can already be noted that this blank is provided with crease or fold lines (from 3 to 6) which separate from one another five different and consecutive portions of cardboard designed to form - in the finished container - a bottom wall 7, a front wall 8, a rear wall 9, a top wall 10 and a front wall which is divided into two parts 11 and 11A by a predetermined and facilitated tearing line or knurling 12: a shaped cut is produced in the part 11A, which delimits therein an appendix 13 integral with the part 11 and suitable to be inserted (as will be explained hereunder) in a shaped opening 14 produced in the wall 8.

[0016] The fold or crease line 3 is composed of a discontinuous series of short segments of crease (mutually connecting the walls 7 and 8) separated from one another by a series of saw tooth cuts 15 produced through punching in the wall 8.

[0017] Similarly, a series of short rectilinear cuts 16, separated from one another by a group of tooth cuts 17 forming part of a series of saw tooth cuts 17, are produced in the part 11 A of the front wall.

[0018] From the figures it can also be noted that tabs (not numbered for simplicity) project from the ends of all the aforesaid walls, these tabs being designed to close the two ends of the container that is obtained at the end of all the assembly operations described hereunder.

[0019] The structure of the piece of cardboard blank described above is already known and is similar to the one illustrated in the prior art patent EP0369346B mentioned in the introduction of the present description.

[0020] An advantageous feature of the present invention consists in the presence of strips of plastic material 2 glued onto one (or if necessary onto both of the opposite surfaces of the sheet of cardboard 1) and, simultaneously, in the fact that the saw tooth cuts 15 and 17 (and also the series of short cuts 16) are obtained by simultaneous punching both on the sheet of cardboard 1 and on the pieces of strip 2 affixed thereto: it has been found that, in this manner, the teeth 15, 17 (which have the function of causing tearing of the thin foil of web material unwound from its roll enclosed in the container) have a much greater resistance to deformation thereof than they would have if they were not covered, on one or both the faces thereof, by the protective layer of the plastic strip.

[0021] It is evident that the plastic strip 2 is provided in those areas of the cardboard provided with the toothings having the function of causing tearing of the thin foil material which the container is designed to contain.

[0022] We shall now return to consider Fig. 2 which shows the cardboard on which, after affixing of the pieces of strip 2, the punching and creasing operations have been performed, already described and at the end of which the blank shown in Fig. 3 is separated from the cardboard. It is important to note that, as a result of the fact that the short rectilinear cuts 16 and the saw tooth cuts 17 produced (during the punching operation of the cardboard) in the part 11 A of the front wall form a single continuous longitudinal cut, when the blank of Fig. 3 detaches from the punched cardboard a portion of the strip 2 remains attached to the cardboard frame 1 (which is discarded), separating from the other portion of strip which remains affixed to the part 11 A of the front wall of the container: the cuts 16 and the teeth 17 thus form a continuous series delimiting the free edge of the part 11 A designed to form part of the front wall of the container.

[0023] To form the container starting from the blank of Fig. 3, this blank is turned over, so that it is as shown in Fig. 4. At this point the cardboard is folded about the fold line 4 (Fig. 5), placing the wall 7 over the wall 9 and the wall 8 over the wall 10, then applying a layer of glue 20 along the free longitudinal edge of the portion of wall 11 A (Fig. 5); the cardboard is then folded over itself along the fold line 6, placing the portion of wall 11 over the wall 10 and affixing (through the layer of glue 20) the portion of wall 11 A to the wall 8 (Fig. 6).

[0024] As can be noted in Fig. 6, the teeth 17 of the part 11 A of the front wall of the cardboard are placed over the fold lines 3 of the wall 8, the cusps or tips of these teeth 17 projecting slightly beyond the respective fold lines 3, while the teeth 15 are placed over the cuts 16, also projecting slightly over and beyond these cuts.

[0025] At this point the operations for industrial production of the container are terminated and, by exerting a force for mutual approach (in the direction shown schematically by the arrows A-A in Fig. 6), the container assumes a square shape which delimits a trapezoidal cavity defined by a bottom wall 7, by a front wall 8, by a rear wall 9 and by a top wall 10 from which an end wall 11, 11 A extends, placed over the front wall 8 and divided into the two portions 11, 11 A by the transverse and tearable knurling 12.

[0026] A roll 30 of thin foil material 31 (Fig. 10), a portion of which can be unwound and torn from the roll 30, can be inserted in the assembled container described above (through the ends of the container, still open).

[0027] As in the closed container containing the roll 30

the portion of wall 11, 11 A is glued to the outer surface of the wall 8, to open this container it is necessary and sufficient to break the wall 11, 11 A along the tearing line 12: in this manner the portion of wall 11 A will remain fixed and glued to the wall 8, while the portion of wall 11 can be lifted upward (together with the wall 10), rotating about the fold line 5: it will thus be possible to grasp the free edge of the thin foil 31 and pulling it out of the container - to unwind from the roll 30 a portion of the desired length which can then be easily torn (and removed) by pressing it against the teeth 15 and 17 delimiting the lower front corner of the container (Figs. 7 and 10).

[0028] For greater clarity, Figs. 8 and 9 represent, in enlarged scale, two (partial) sections of the container, taken according to the lines 8-8 and 9-9 of Fig. 7.

[0029] From these Figs. 7, 8 and 9, the most important feature of the container described above can easily be perceived. It is seen that a substantial part of the teeth 17 (projecting from the portion of wall 11 A which is glued to the wall 8, is resting on and held pressed on the this wall 8, while only a small portion (the cusps) of these teeth 17 project beyond the lower surface of the wall 7; and that a substantial part of the teeth 15 (projecting from the wall 7) is resting on and supported by the free edges of the cuts 16, while only a small portion (the cusps) of these teeth projects beyond the outer surface of the part of wall 11 A. Therefore, along the entire front and lower corner of the container there is provided a continuous cutting edge formed by the series of teeth 15 and 17, which are practically non-deformable under the thrust of the foil 31 which is torn from the roll 30.

[0030] It is evident that the structure of the container for the roll of thin foil material can differ from the one represented in the accompanying drawings. This structure can be of any known shape for the object at which the present invention is aimed; for example, the container can have the shape of any one of the containers described in the prior art patents already cited or have the toothed edge produced solely on the free edge of the wall 8 or on the free edge of the portion of wall 11 A, or yet another solution.

[0031] It is advantageous that the teeth designed to cut the thin foil material extracted from the container are protected and covered, a least on one surface thereof, by a layer or strip of plastic material or the like (e.g. a thin foil of metal, such as a foil of aluminium) in which the toothing for tearing is produced by punching simultaneously to the toothing produced in the sheet of cardboard or the like.

Claims

1. A container for a roll (30) of thin foil material (31), having a toothing (15, 17) for tearing portions of said foil material from said roll, comprising a bottom wall (7), a front wall (8), a rear wall (9), a top wall (10) and an end wall (11) a part (11A) of which is placed over said front wall (8), said walls (7-11, 11A) being mutually consecutive and separated from one another by mutually parallel fold lines (3-6) about which the walls are folded to form a parallelepiped housing for said roll (30), there being produced in at least one of said walls (8, 11A) cuts that delimit said toothing, the cusps of the teeth (15, 17) of said toothing being engageable by the foil (31) of material unwound from said roll (30) and pulled on these teeth to cause tearing of a portion thereof, **characterized in that** the teeth (17) of the toothing produced on the part (11A) of the end wall (11) are separated from one another by rectilinear cuts (16) to form a continuous series of cuts (16) and teeth (17), **in that** the teeth (15) produced in the front wall (8) are separated from one another by fold lines (3), **in that** in the assembled box the teeth (17) of the part (11A) of the end wall (11) are positioned in contact with the fold lines (3) that separate the teeth (15) of the front wall (8) from one another, while the teeth (15) of the front wall (8) are positioned in contact with the adjacent edge of the cuts (16) that separate the teeth (17) of the part (11A) of the end wall (11) from one another.

2. The container according to claim 1. **characterized in that** said end wall (11, 11A) is divided into two distinct portions (11 and respectively 11A) by continuous knurling (12), and **in that** the portion of end wall (11A) is glued to the outer surface of the front wall (8) of the box.

3. The container according to claims 1 or 2, **characterized in that** a strip (2) of plastic material, in which cuts are produced and also delimiting a toothing place over and coincident with the toothing produced on the cardboard, is affixed to at least one surface of the wall (8, 11A) on which said cuts (15, 16, 17) are produced, over these cuts.

Patentansprüche

1. Behälter für eine Rolle (30) von dünnem Folienmaterial (31), der eine Zahnung (15, 17) aufweist, mit der Abschnitte des Folienmaterials von der Rolle abgetrennt werden können, der eine Bodenwand (7), eine Vorderwand (8), eine Rückwand (9), eine obere Wand (10) und eine Abschlusswand (11) aufweist, die über der Vorderwand (8) angeordnet ist, wobei die Wände (7-11, 11A) jeweils aufeinanderfolgen und voneinander jeweils durch parallele Faltlinien (3-6) begrenzt sind, um die die Wände gefaltet werden zur Bildung eines quaderförmigen Gehäuses für die Rolle (30), wobei in zumindest einer der Wände (8, 11A) Einschnitte ausgebildet sind, die die Zahnung begrenzen, wobei, zur Abtrennung eines Folienabschnitts, die Spitzen der Zähne (15, 17) der Zahnung in Eingriffe mit der Folie (31) des Materials

stehen können, das von der Rolle (30) abgerollt ist und auf diese Zähne gedrückt wird, **dadurch gekennzeichnet, dass** die Zähne (17) der Zahnung, die auf einem Abschnitt (11A) der Abschlusswand (11) ausgebildet sind, voneinander durch geradlinige Einschnitte (16) getrennt werden zur Bildung einer kontinuierlichen Reihe von Einschnitten (16) und Zähnen (17), dass die Zähne (15), die in der Vorderwand (8) ausgebildet sind, durch Faltungslinien voneinander getrennt sind, dass in der zusammengefügten Box die Zähne (17) des Abschnitts (11A) der Abschlusswand (11) in Kontakt mit den Faltungslinien (3) angeordnet sind, die die Zähne (15) der Vorderwand (8) voneinander trennen, während die Zähne (15) der Vorderwand (8) in Kontakt mit der benachbarten Kante der Einschnitte (16) angeordnet sind, die die Zähne (17) des Abschnitts (11A) der Abschlusswand voneinander trennen.

2. Behälter nach Anspruch 1, **dadurch gekennzeichnet, dass** die Abschlusswand (11, 11A) durch eine durchgehende Rändelung (12) in zwei getrennte Abschnitte (11 und 11A) unterteilt ist, und dass der Bereich der Abschlusswand (11A) an die äußere Fläche der Vorderwand (8) der Box geklebt ist.

3. Behälter nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** ein Streifen (2) Plastikmaterial, in welchem Einschnitte vorgesehen sind und der auch eine Zahnung begrenzt, die über der Zahnung liegt, die auf der Pappe ausgebildet ist und mit dieser zusammentrifft, an zumindest einer Fläche der Wand (8, 11A) über diesen Einschnitten befestigt ist, auf der diese Einschnitte (15, 16, 17) ausgebildet sind.

Revendications

1. Récipient pour un rouleau (30) de matériau en feuille mince (31), ayant une denture (15, 17) pour couper des parties dudit matériau en feuille dudit rouleau, comprenant une paroi inférieure (7), une paroi avant (8), une paroi arrière (9), une paroi supérieure (10) et une paroi d'extrémité (11) qui est placée au-dessus de ladite paroi avant (8), lesdites parois (7 - 11, 11A) étant mutuellement consécutives et séparées l'une de l'autre par des lignes de pliage mutuellement parallèles (3 - 6) le long desquelles les parois sont pliées pour former un logement parallélépipédique pour ledit rouleau (30), des coupures étant produites dans au moins l'une desdites parois (8, 11A) pour délimiter ladite denture, les cuspides des dents (15, 17) de ladite denture pouvant être mises en prise par la feuille (31) de matériau déroulée dudit rouleau (30) et tirée sur ces dents pour provoquer le découpage d'une partie de celle-ci, **caractérisé en ce que** les dents (17) de la denture produites sur la partie (11A) de la paroi d'extrémité (11) sont séparées l'une de l'autre par des coupures rectilignes (16) pour former une série continue de coupures (16) et de dents (17), **en ce que** les dents (15) produites dans la paroi avant (8) sont séparées l'une de l'autre par des lignes de pliage (3), **en ce que** dans la boîte assemblée les dents (17) de la partie (11A) de la paroi d'extrémité (11) sont positionnées en contact avec les lignes de pliage (3) qui séparent les dents (15) de la paroi avant (8) l'une de l'autre, alors que les dents (15) de la paroi avant (8) sont positionnées en contact avec le bord adjacent des coupures (16) qui séparent les dents (17) de la partie (11A) de la paroi d'extrémité (11) l'une de l'autre.

2. Récipient selon la revendication 1, **caractérisé en ce que** ladite paroi d'extrémité (11, 11A) est divisée en deux parties distinctes (11 et respectivement 11A) par un moletage continu (12), et **en ce que** la partie de la paroi d'extrémité (11A) est collée sur la surface extérieure de la paroi avant (8) de la boîte.

3. Récipient selon la revendication 1 ou 2, **caractérisé en ce qu'**une bande (2) en matière plastique, dans laquelle des coupures sont produites et délimitant également une denture placée au-dessus afin de coïncider avec la denture produite sur le carton, est fixée sur au moins une surface de la paroi (8, 11A) sur laquelle lesdites coupures (15, 16, 17) sont produites, au-dessus de ces coupures.

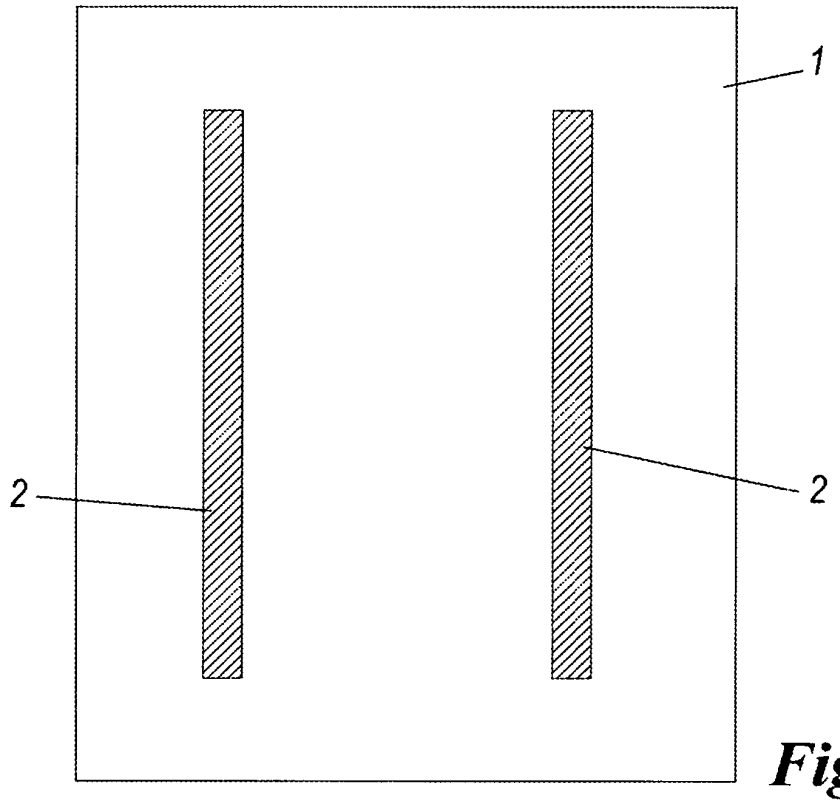

Fig. 1

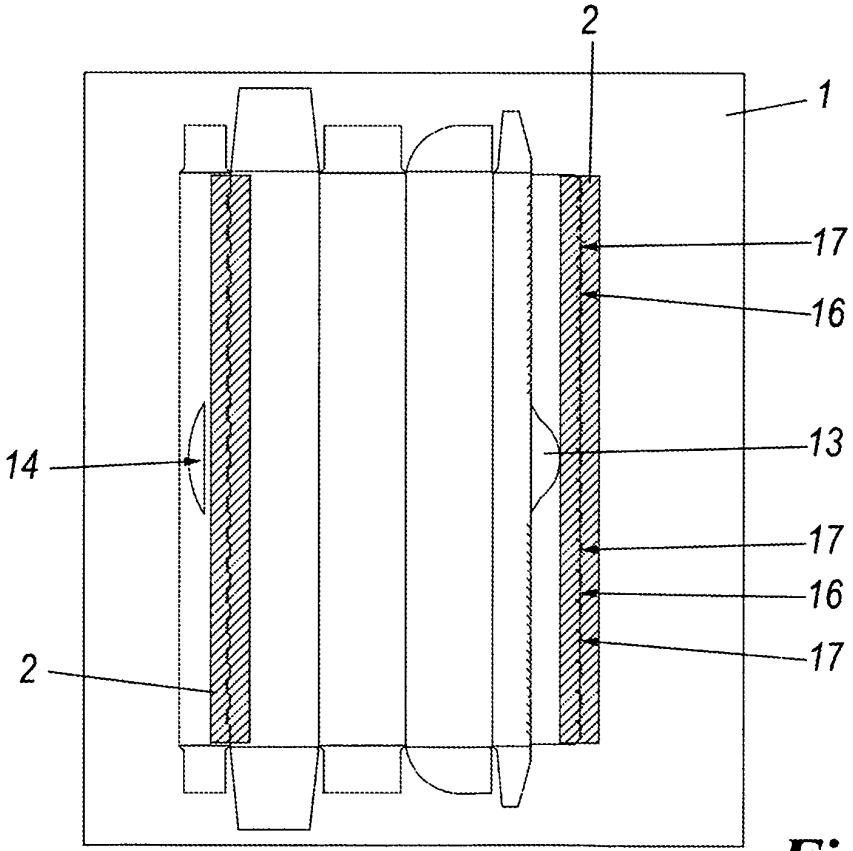

Fig. 2

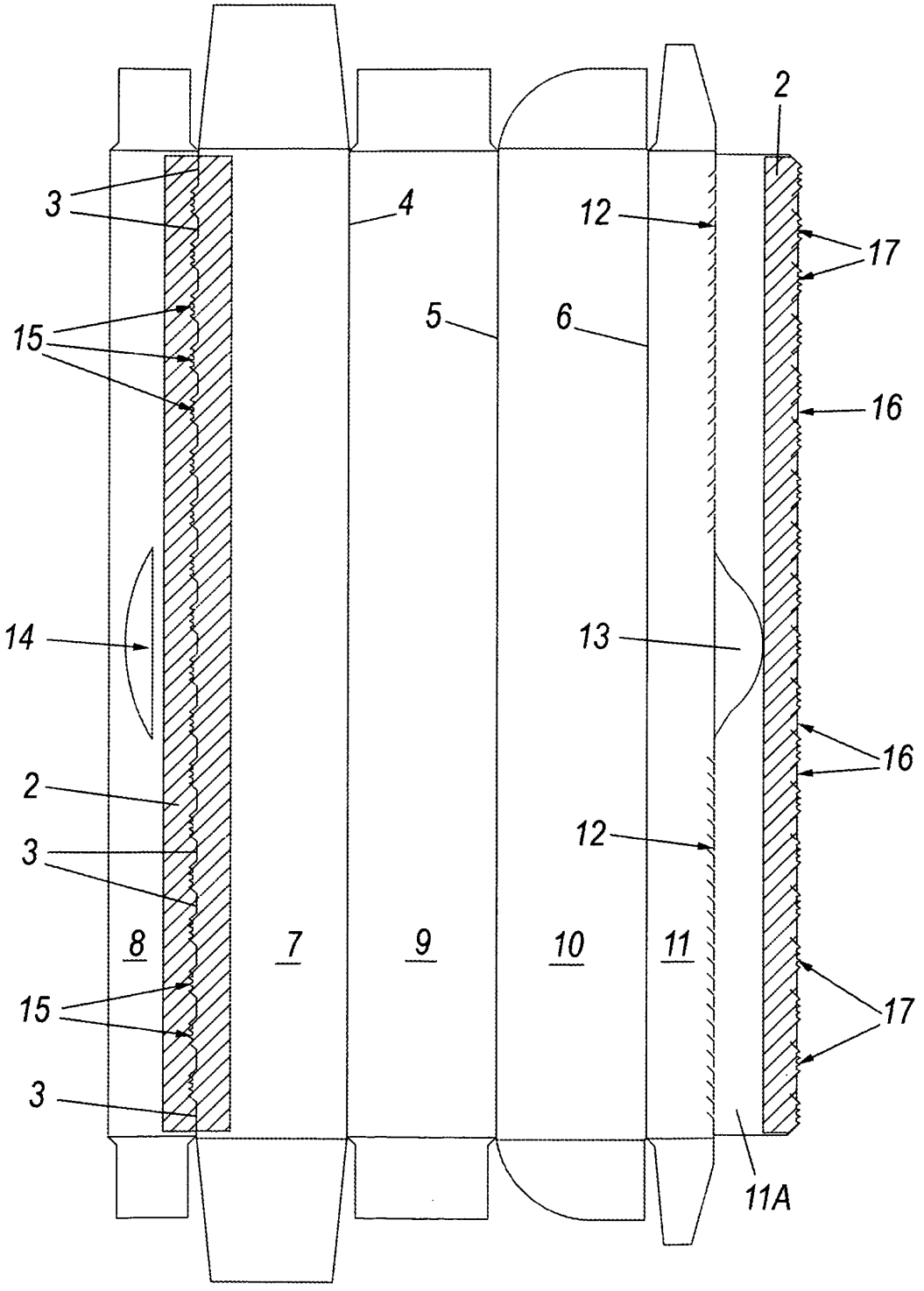

Fig. 3

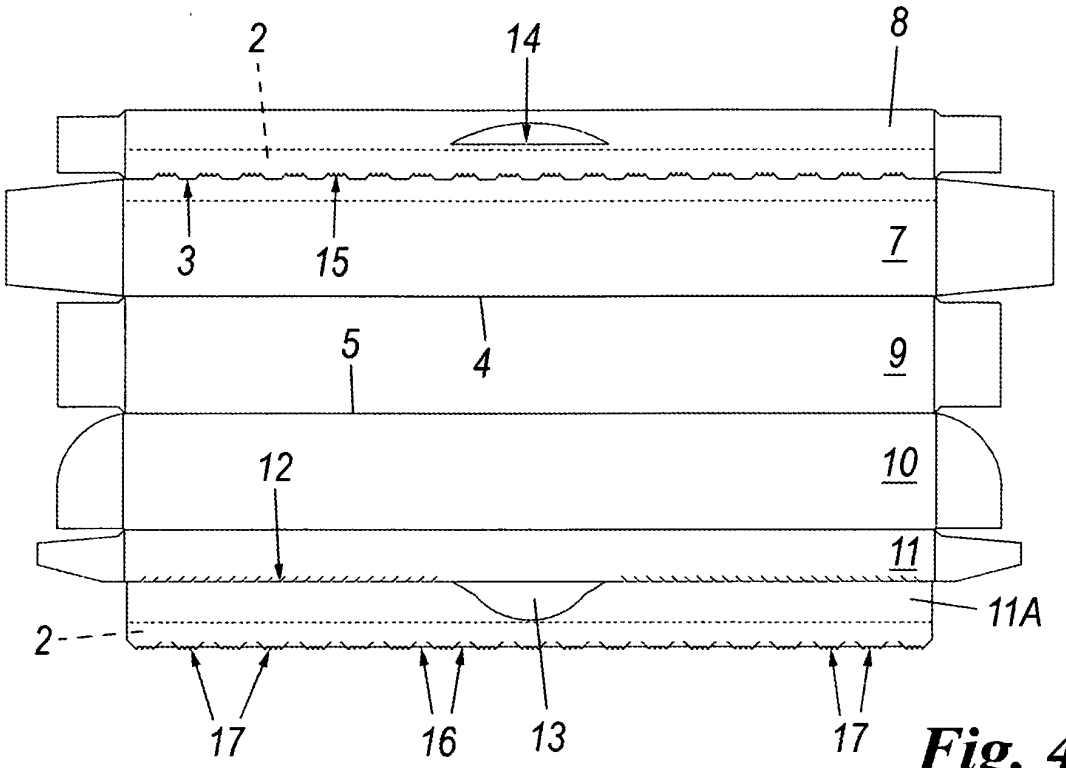
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Fig. 4

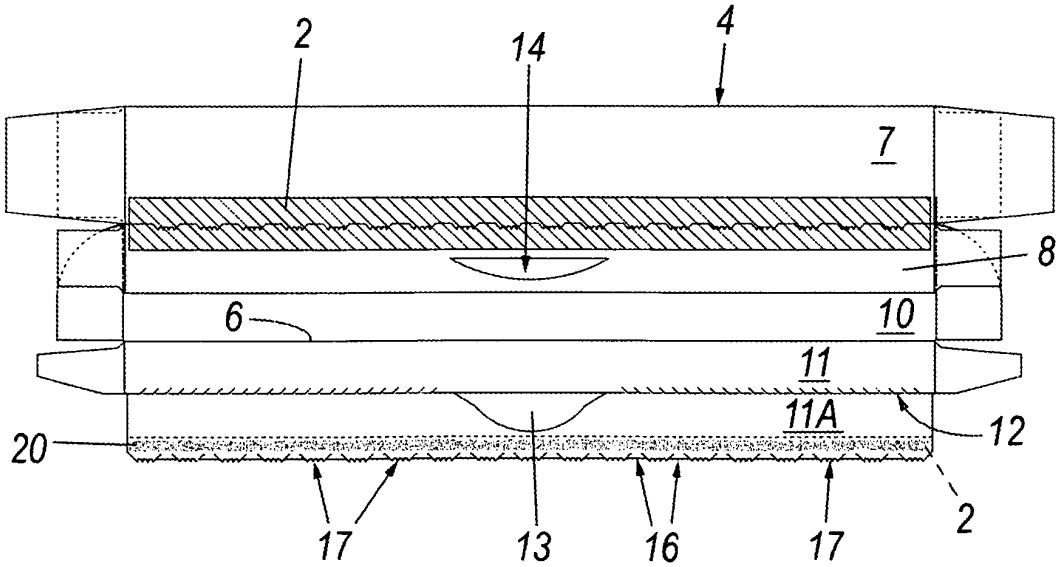
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Fig. 5

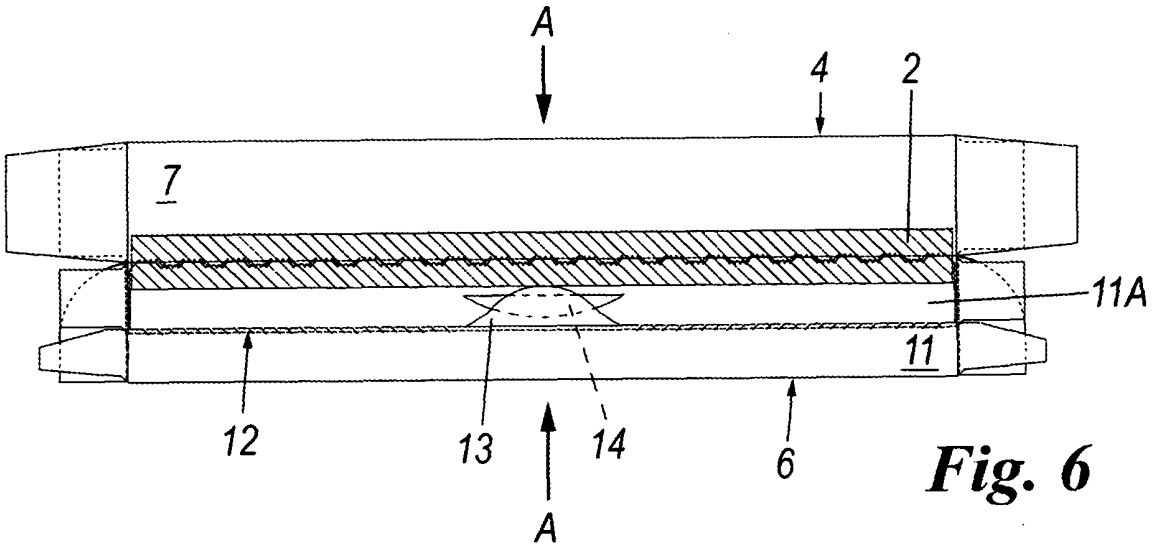

Fig. 6

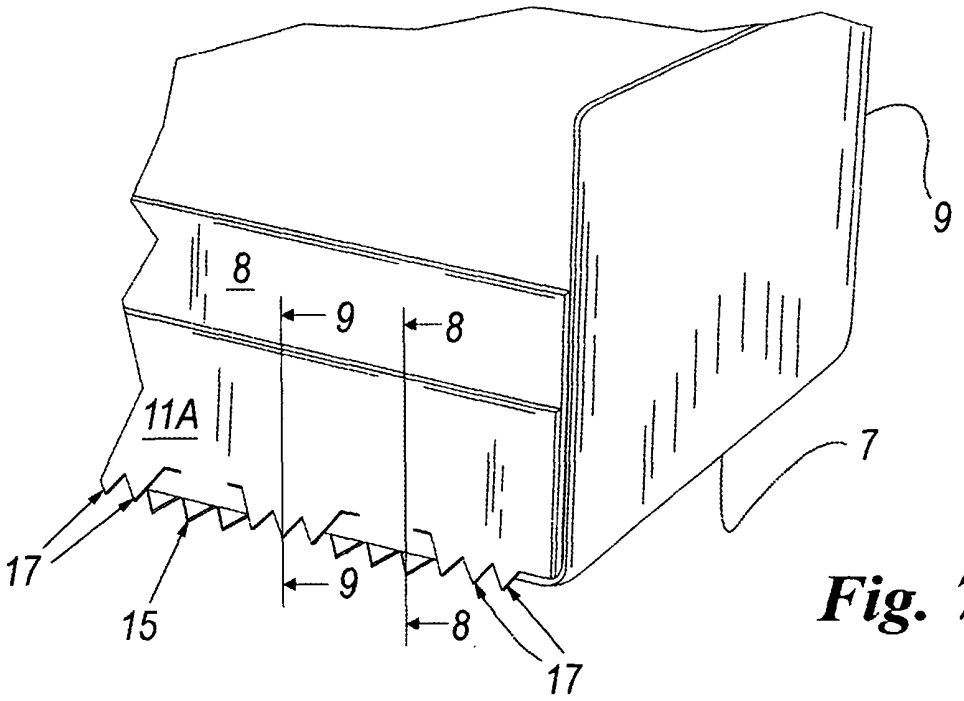

Fig. 7

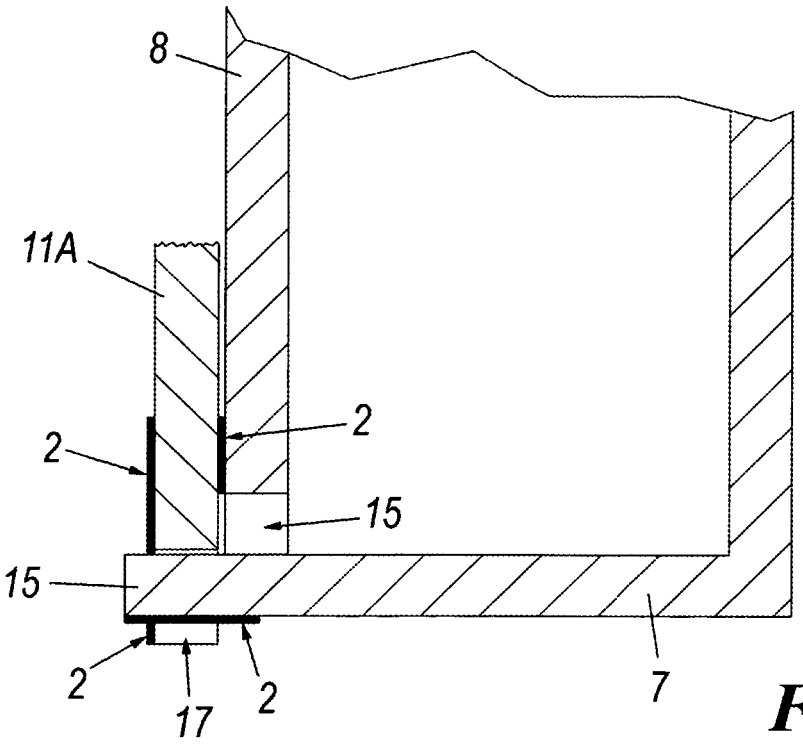

Fig. 8

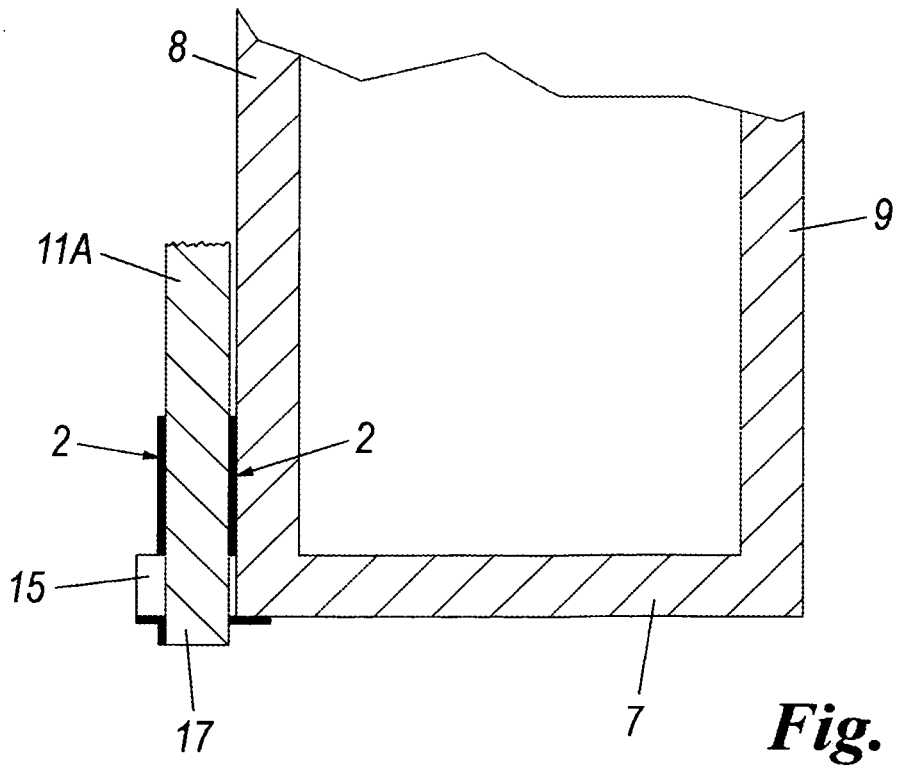

Fig. 9

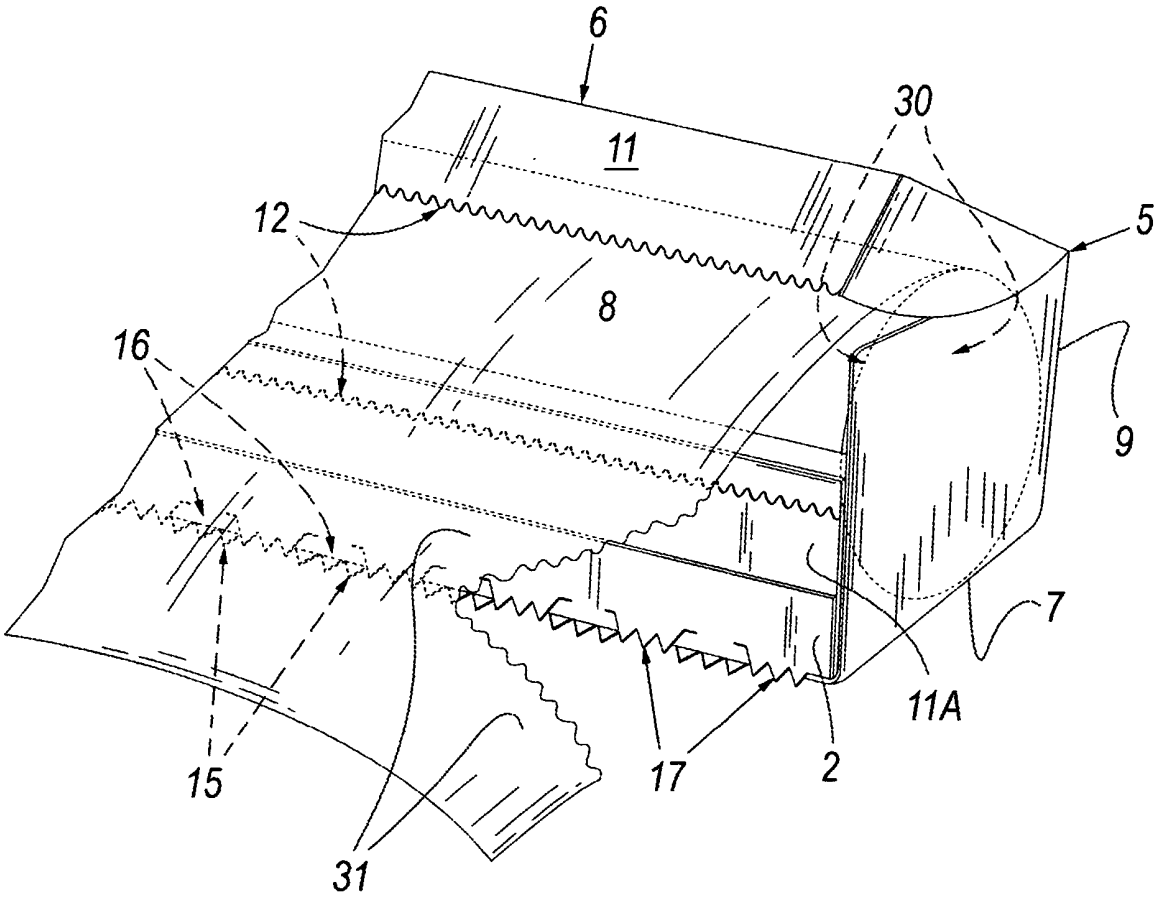

Fig. 10

REFERENCES CITED IN THE DESCRIPTION

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- US 3777957 A **[0003]**
- GB 1483620 A **[0004]**
- GB 2128590 A **[0005]**
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