



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
21.01.2026 Bulletin 2026/04

(51) International Patent Classification (IPC):
B65B 69/00 ^(2006.01)

(21) Application number: **24189833.7**

(52) Cooperative Patent Classification (CPC):
B65B 69/0041; B65B 69/0058

(22) Date of filing: **19.07.2024**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL
NO PL PT RO RS SE SI SK SM TR**

Designated Extension States:

BA

Designated Validation States:

GE KH MA MD TN

(71) Applicant: **Renata AG**
4452 Itingen (CH)

(72) Inventors:

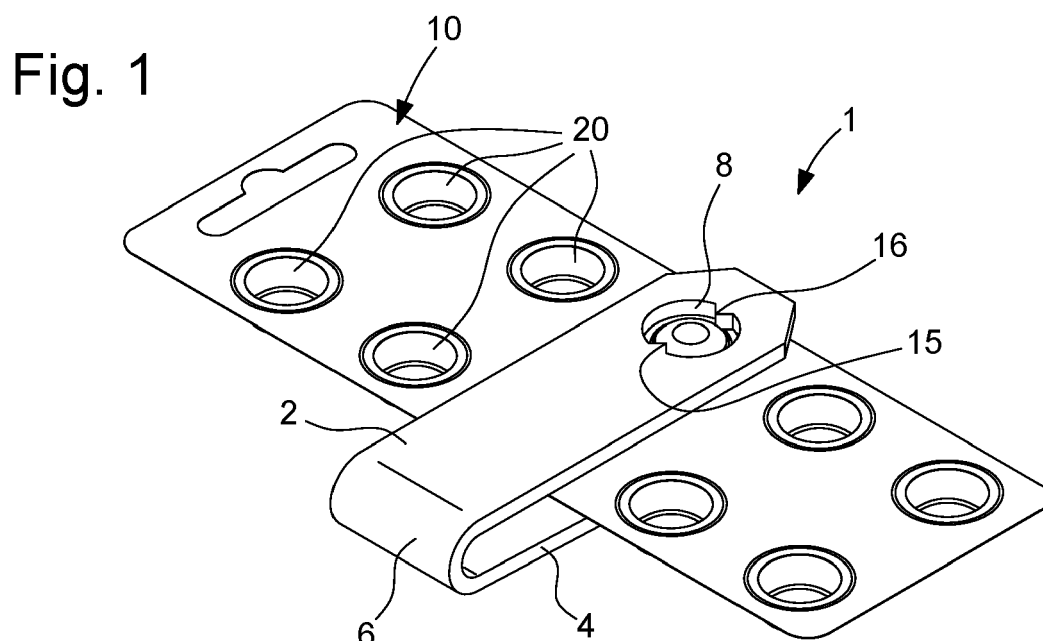
- **FREY, Remo**
4425 Titterten (CH)
- **LIPPUNER, Andreas**
Tenniken 4456 (CH)

(74) Representative: **ICB SA**
Faubourg de l'Hôpital, 3
2001 Neuchâtel (CH)

(54) **DEVICE FOR PRESSING OBJECTS FROM BLISTER PACKS**

(57) A device (1) for use with a battery carrier (10) defining at least one sealed compartment (12) in which a product (14) is located and which is at least partly formed of a frangible material (20), the device (1) having means for supporting the carrier (10) with the compartment (12) aligned with an aperture (8) in the supporting means, and means for engaging with the compartment (12) whereby to break the frangible material (20) and displace the

product (14) from the compartment (12) through the aperture (8), the supporting means and the engaging means being normally spaced apart but being relatively movable to effect product (14) displacement, the supporting means comprising at least one prong (15, 16) arranged in the aperture (8) in order to break the frangible material (20) when the engaging means displace the product (14).



Description

Technical Field of the Invention

[0001] This invention relates to a device for displacing a product from a sealed compartment in a carrier, and is particularly concerned with a device for removing batteries from blister packs thereof.

Background of the Invention

[0002] In the medical field, tablets are often sold in blister packs, i.e. plastics packs where compartments are pressed out of a base and are sealed across the base by a frangible material such as a metal foil, after the tablets are located in the compartments. Blister packs form a convenient means by which people can dispense one or more tablets as required, whilst leaving the remaining tablets in the pack in a sealed condition.

[0003] Such blister packs are also used to sell other products, for example to sell pack batteries. In particular, button cells are known to be arranged in compartments of such pack, when they are sold in batch.

[0004] But, contrary to medical packs, the frangible material of such packs has to be hard to break, in order to make the battery relatively difficult to deblist as a child-resistant measure.

[0005] For this reason, the frangible material responds to specific regulations concerning its breakage capacity.

[0006] Consequently, not only the batteries are difficult to unpack for children, but also for an adult person.

The Object of the Invention

[0007] The goal of the present invention is to provide a device configured to remove a product from a compartment of a compartment pack with easiness.

[0008] According to the present invention there is provided a device for use with a carrier defining at least one sealed compartment in which a product is located and which is at least partly formed of a frangible material, the device having means for supporting the carrier with the compartment aligned with an aperture in the supporting means, and means for engaging with the compartment whereby to break the frangible material and displace the product from the compartment through the aperture, the supporting means and the engaging means being normally spaced apart but being relatively movable to effect product displacement.

[0009] the supporting means comprise at least one prong arranged in the aperture in order to break the frangible material when the engaging means displace the product.

[0010] The invention is remarkable in that the supporting means comprise at least one prong arranged in the aperture, in order to break the frangible material when the engaging means displace the product.

[0011] Thanks to the prong, the frangible is easier to

break, when the engaging means displace the product. The frangible material is pressed against the prong when passes through the aperture. Consequently, the breakage of the frangible material is triggered, and the breakage occurs more easily and efficiently.

[0012] According to a particular embodiment of the invention, the at least one prong extends in a plane defined by the aperture.

[0013] According to a particular embodiment of the invention, the supporting means comprise at least two prongs arranged in the aperture.

[0014] According to a particular embodiment of the invention, the at least two prongs are arranged in opposite positions inside the aperture

[0015] According to a particular embodiment of the invention, the frangible material comprises, preferably in totality, one of the following materials, such as cardboard or plastic films, for example made of PET, PE, PS.

[0016] According to a particular embodiment of the invention, the frangible material forms a layer a multilayer having a thickness between 0.01 to 0.5 mm for plastic, or up to 1mm for cardboard.

[0017] According to a particular embodiment of the invention, the at least one prong has a sharp end.

[0018] According to a particular embodiment of the invention, the carrier (10) comprises a blister pack with a product, such as a battery, and the compartment is pressed out of a base and is closed by the frangible material extending across the base, the supporting means being arranged to support the pack with the compartment upstanding thereon

[0019] According to a particular embodiment of the invention, the engaging means comprises a prominent member which provides a face arranged to initially engage an upstanding side edge of the compartment under pressure so as to deform same and cause the product to break the frangible material

[0020] According to a particular embodiment of the invention, the supporting means and the engaging means define spaced legs of a substantially U-shaped member, the aperture of the supporting means being located towards a free end of the respective leg

[0021] According to a particular embodiment of the invention, the prominent member projects inwardly from a location towards a free end of the other leg.

[0022] According to a particular embodiment of the invention, the legs may be resiliently movable towards one another.

Brief description of the drawings

[0023] An embodiment of the present invention will now be described by way of example only, with reference to the accompanying drawings, in which:

- Fig. 1 is a top perspective view of a device with a battery carrier according to the invention;

- Fig. 2 is a bottom perspective view of the device with the battery carrier of Fig. 1;
- Fig. 3 is a side elevation of the device with the battery carrier of Fig. 1 in a first arrangement;
- Fig. 4 is a side elevation of the device with the battery carrier of Fig. 1 in a second arrangement;
- Fig. 5 is a top perspective view of the device of Fig. 1;
- Fig. 6 is a side perspective view of the device of Fig. 1; and
- Fig. 7 is a top view of the device of Fig. 1.

Description of preferred embodiment

[0024] Referring to the drawings, a device 1 for manually removing products 14, from blister packs 10 is formed as a substantially U-shaped member, preferably of an injection molded plastics material or produced by additive manufacturing, defining a pair of spaced elongate, planar legs 2, 4 integrally connected by a base 6. In the described embodiment, the products 14 are batteries, in particular button cells.

[0025] The molding is such that the legs 2, 4 are normally in a spaced apart relation, as viewed in the drawings, but can be resiliently moved together for a purpose hereinafter described.

[0026] Means for supporting the carrier 10 comprises the upper leg 2 of the U-shaped member, whereas means for engaging with the compartment 14 comprise the lower leg 4.

[0027] Relative to the in-use orientation as viewed in the drawings, the upper leg 2 has a circular through aperture 8 towards the free end 3 thereof. The lower leg 4 is formed with an inwardly projecting prominent member 5 towards a free end 9 thereof whereby, in a normal spaced relation, the member 5 is aligned above the aperture 8. The member 5 is integrally formed with the lower leg 4. Towards the free end 9 of the lower leg 4, the member 5 extends the maximum distance towards the upper leg 2, and then defines a face 7 towards the upper leg 2 to thereby define a cam surface. The member 5 has the shape of a truncated cone.

[0028] As showed in the figures, a blister pack 10 comprises several compartments 12, for example arranged in two rows. Each row comprises five compartments 12 in this embodiment. Each compartment 12 is filled with a single product 14, in particular one button cell. The frangible material 20 comprises one of the following materials, such as cardboard or plastic films, for example made of PET, PE, PS, preferably in totality. The frangible material 20 forms a layer or a multilayer having a thickness between 0.01 to 0.5 mm for plastic, and up to 1 mm for cardboard.

[0029] In use, the blister pack 10 is supported on the

lower leg 2 between the latter and the upper leg 4, with the sealed compartments 12 upstanding relative to the leg 2. One of the compartments 12 is aligned with the aperture 8.

[0030] Pressure applied by hand, for example by thumbs on the downer surface of the lower leg 4, if necessary, at respective ends of the location of the prominent member 5, moves the latter towards the sealed compartment 12. The face 7 of the member 5 towards the outer end thereof initially engages against a down standing side edge of the compartment 12, whereby continued hand pressure deforms the plastics material of the compartment 12 and pushes the product 14 against the layer to break the latter, and therefore displace the product 14 through the layer and through the aperture 8.

[0031] The face 7 is designed to enable as little force as is necessary to deform or crush the compartment 12, such force being less likely to damage the product 14 in the compartment 12. Deblistering does not therefore require any hand pressure on the blister pack itself, and the product 14 can be removed in a non-painful way without damage to fingers or fingernails. It will be appreciated that the position of the blister pack is simply changed to align another sealed compartment 14 with the aperture 8 when another product 14 requires to be obtained.

[0032] According to the invention, the supporting means comprise at least one prong 15 arranged in the aperture 8. In the figures, the supporting means comprise two prongs 15, 16 arranged in the aperture 8. Preferably, the two prongs 15, 16 are arranged in opposite positions and in opposite directions.

[0033] The prongs 15, 16 project in the plane defined by the aperture 8, preferably towards the centre of the aperture 8. Furthermore, the prongs 15, 16 project in the same plane as the plane of the upper leg 2.

[0034] Preferably, the prongs 15, 16 have sharp ends and terminate with an edge or a pin. In the figures, the prongs 15, 16 are triangular shaped with an edge at the free end.

[0035] Such prong ends make the breakage of the frangible material 20 easier to operate.

[0036] Various modifications may be made without departing from the invention. For example, the device may be made of other than injection molded plastics material and could be shaped and dimensioned differently to that described and shown in the drawings. And the products contained in the compartments pack could be different than batteries.

Claims

1. A device (1) for use with a carrier (10) defining at least one sealed compartment (12) in which a product (14) is located, and which is at least partly formed of a frangible material (20), the device (1) having means for supporting the carrier (10) with the compartment

- (12) aligned with an aperture (8) in the supporting means, and means for engaging with the compartment (12) whereby to break the frangible material (20) and displace the product (14) from the compartment (12) through the aperture (8), the supporting means and the engaging means being normally spaced apart but being relatively movable to effect product (14) displacement, **characterized in that** the supporting means comprise at least one prong (15, 16) arranged in the aperture (8) in order to break the frangible material (20) when the engaging means displace the product (14).
2. A device according to Claim 1, wherein the at least one prong (15, 16) extends in a plane defined by the aperture (8).
 3. A device according to Claim 1 or 2, wherein the supporting means comprise at least two prongs (15, 16) arranged in the aperture (8).
 4. A device according to Claim 3, wherein the at least two prongs (15, 16) are arranged in opposite positions inside the aperture (8).
 5. A device according to any of the preceding Claims, wherein the frangible material (20) comprises, preferably in totality, one of the following materials, such as plastic films or cardboard.
 6. A device according to Claim 5, wherein the frangible material (20) forms a layer or a multilayer having a thickness between 0.01 to 0.5mm for plastic, or up to 1 mm for cardboard.
 7. A device according to any of the preceding Claims, wherein the at least one prong (15, 16) has a sharp end.
 8. A device according to any of the preceding Claims, wherein the carrier (10) comprises a blister pack with a product (14), such as a battery, and the compartment (12) is pressed out of a base and is closed by the frangible material (20) extending across the base, the supporting means being arranged to support the pack with the compartment (12) upstanding thereon.
 9. A device according to any of the preceding Claims, wherein the engaging means comprises a prominent member (5) which provides a face (7) arranged to initially engage an upstanding side edge of the compartment (12) under pressure so as to deform same and cause the product (14) to break the frangible material (20).
 10. A device according to any of the preceding Claims, wherein the supporting means and the engaging means define spaced legs (2, 4) of a substantially U-shaped member, the aperture (8) of the supporting means being located towards a free end (9) of the respective leg (4).
 11. A device according to Claim 9, wherein the prominent member (5) projects inwardly from a location towards a free end (3) of the other leg (2).
 12. A device according to Claim 10 or 11, wherein the legs (2, 4) may be resiliently movable towards one another.

Fig. 1

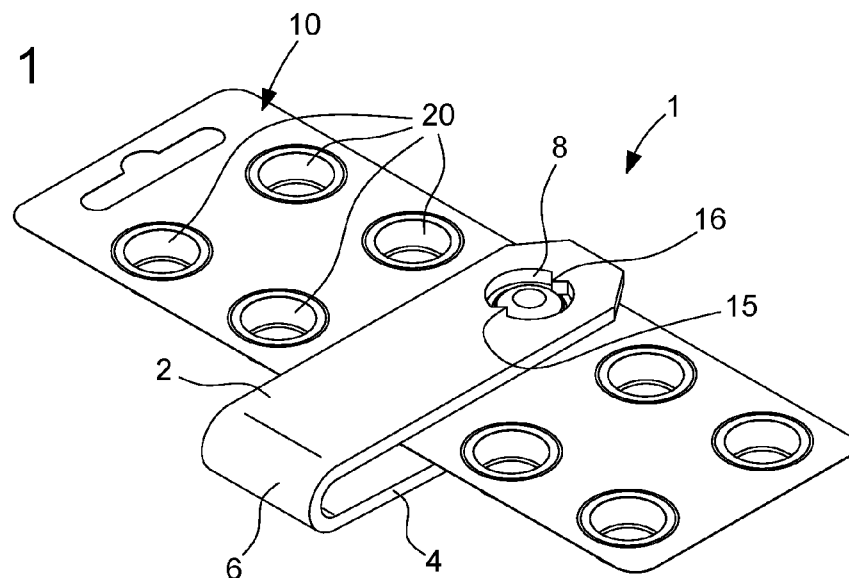


Fig. 2

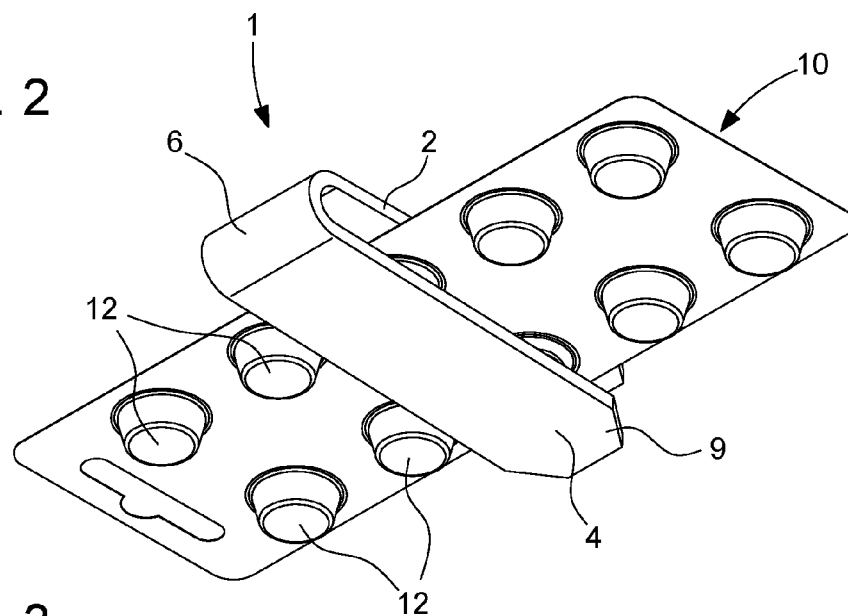


Fig. 3

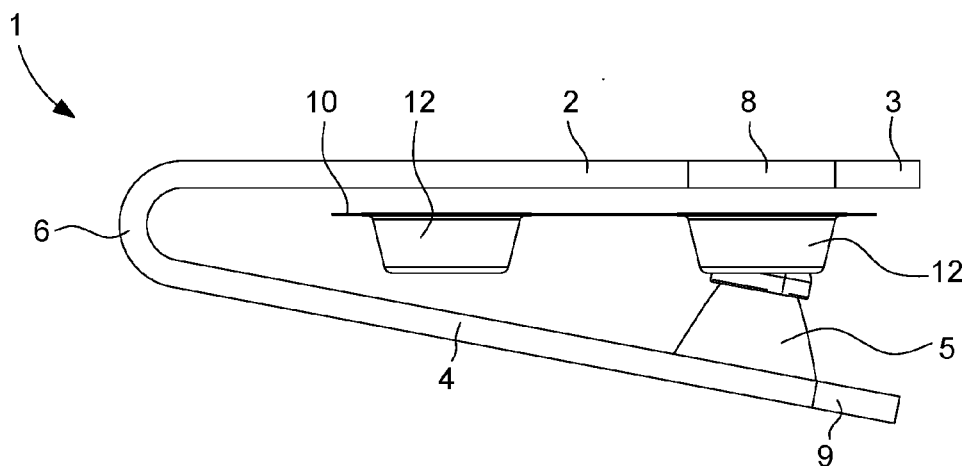


Fig. 4

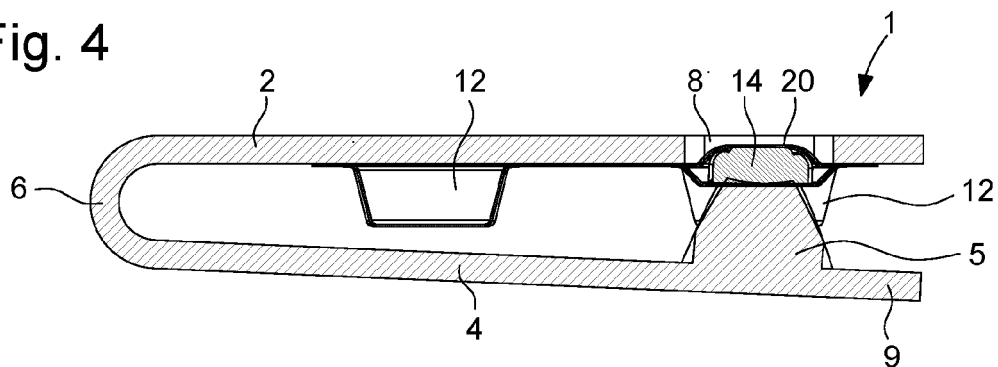


Fig. 5

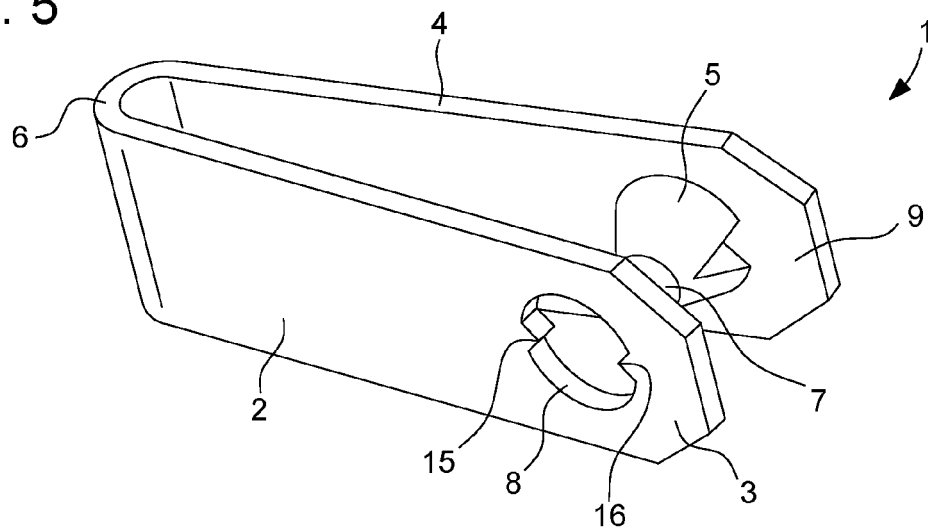


Fig. 6

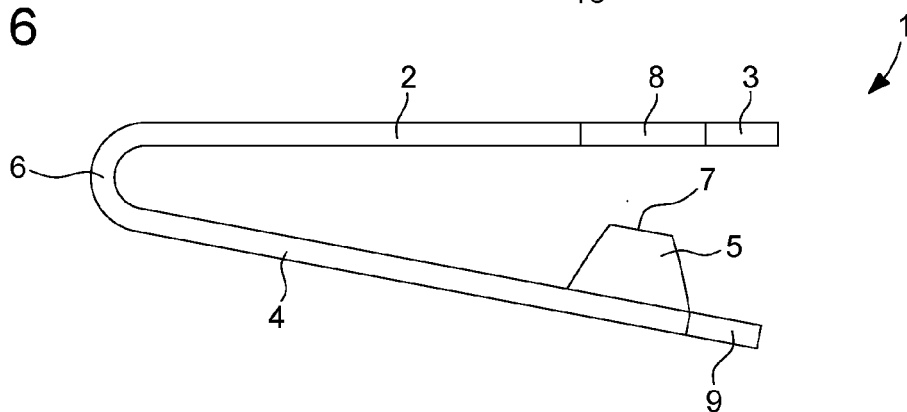
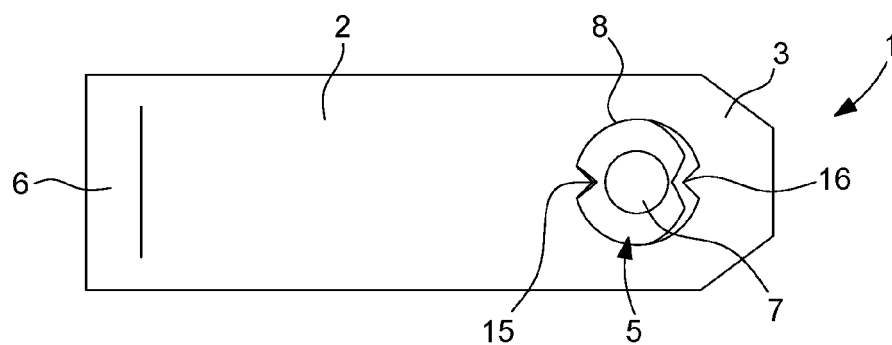


Fig. 7





EUROPEAN SEARCH REPORT

Application Number

EP 24 18 9833

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 02/098760 A1 (BLAST PACKAGING PTY LTD [AU]; ORETTI JOHN ERNEST [AU] ET AL.) 12 December 2002 (2002-12-12)	1-4,7,9	INV. B65B69/00
Y	* see particularly passages cited in the written opinion; the whole document *	5,6,8	
X	EP 1 149 026 B1 (COORY FREDRICK MICHAEL [NZ]) 6 September 2006 (2006-09-06)	1-4,7,9	
Y	* see particularly passages cited in the written opinion; the whole document *	5,6,8	
X	FR 2 638 430 A3 (CHOLLET JEAN LOUIS [FR]) 4 May 1990 (1990-05-04)	1,10-12	
Y	* see particularly passages cited in the written opinion; the whole document *	5,6,8	TECHNICAL FIELDS SEARCHED (IPC) B65B
A	GB 2 436 559 A (WESTON TERENCE E [GB]) 3 October 2007 (2007-10-03) * the whole document *	1-12	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 23 January 2025	Examiner Paetzke, Uwe
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 24 18 9833

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

23-01-2025

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 02098760	A1	12-12-2002	NONE

EP 1149026	B1	06-09-2006	AT E338696 T1 15-09-2006
		AU 762110 B2 19-06-2003	
		CA 2350805 A1 18-05-2000	
		CN 1328516 A 26-12-2001	
		DE 69933138 T2 02-08-2007	
		EP 1149026 A1 31-10-2001	
		ES 2273512 T3 01-05-2007	
		JP 2002529324 A 10-09-2002	
		US 6679375 B1 20-01-2004	
		WO 0027717 A1 18-05-2000	

FR 2638430	A3	04-05-1990	NONE

GB 2436559	A	03-10-2007	NONE
