



US 20080197042A1

(19) **United States**

(12) **Patent Application Publication**
Ullrich

(10) **Pub. No.: US 2008/0197042 A1**

(43) **Pub. Date: Aug. 21, 2008**

(54) **BLISTER PACK WITH RADIO-FREQUENCY IDENTIFICATION DEVICE, AND METHOD FOR MANUFACTURING SAME**

(30) **Foreign Application Priority Data**

Dec. 21, 2005 (AT) A2048/2005

(75) Inventor: **Thomas Ullrich, Weinburg (AT)**

Publication Classification

Correspondence Address:
YOUNG & THOMPSON
209 Madison Street, Suite 500
ALEXANDRIA, VA 22314 (US)

(51) **Int. Cl.**
B65D 83/04 (2006.01)

(52) **U.S. Cl.** **206/531**

(73) Assignee: **TEICH AKTIENGESELLSCHAFT, Weinburg (AT)**

(57) **ABSTRACT**

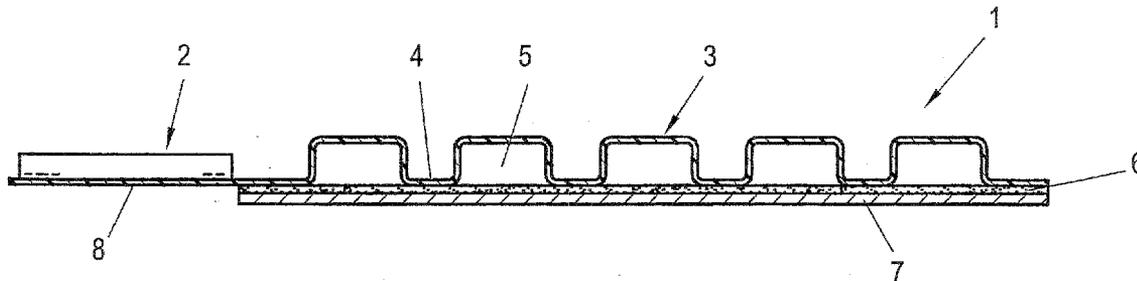
(21) Appl. No.: **11/916,458**

The invention specifies a blister pack (1) with a radio-frequency identification device (2, 2') which comprises—a support body (3) which is made of flat plastic material and which has a plurality of depressions (5), produced from deforming this material, within a planar region (4) for the purpose of holding the packed goods,—an aluminium sealing foil (7) which is connected flat to the planar region (4) of the support body (3), and—a radio-frequency identification device (2, 2') which is fitted in the region (8) of the support body (3) which projects over the aluminium sealing foil (7).

(22) PCT Filed: **Dec. 14, 2006**

(86) PCT No.: **PCT/AT06/00515**

§ 371 (c)(1),
(2), (4) Date: **Feb. 1, 2008**



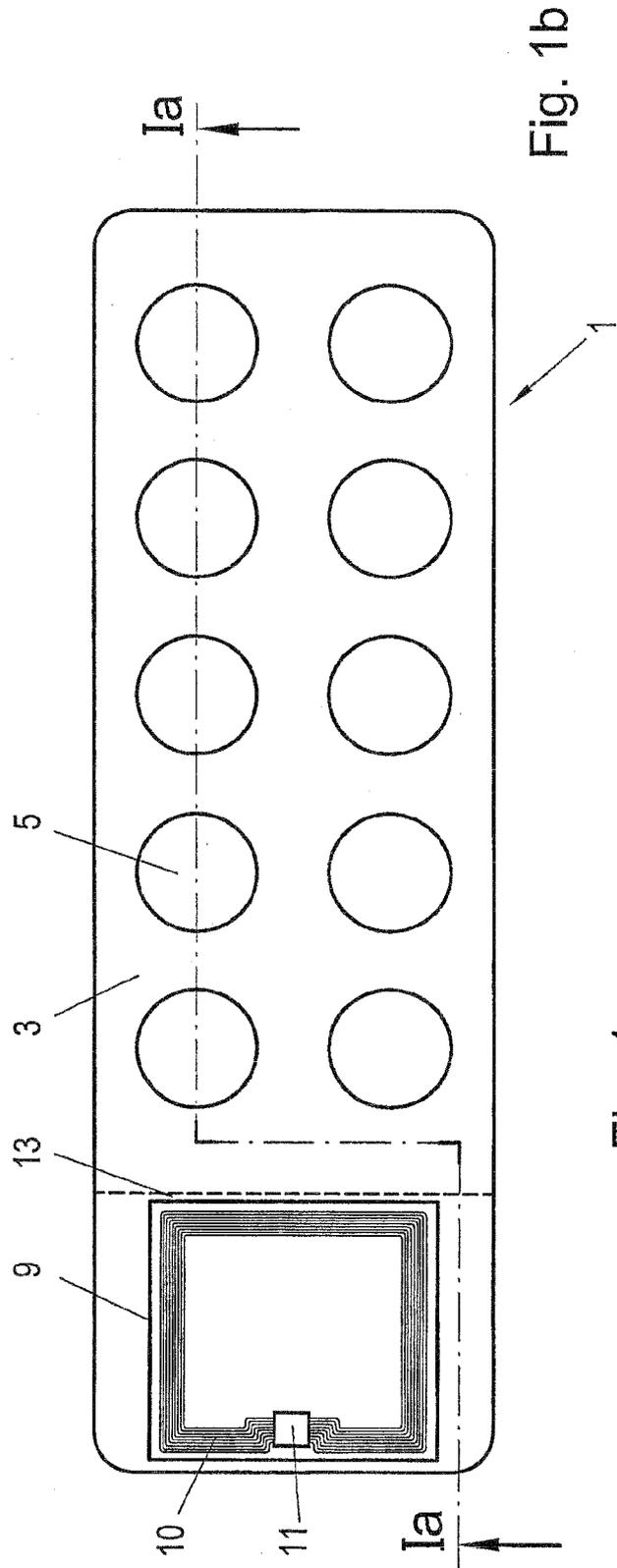
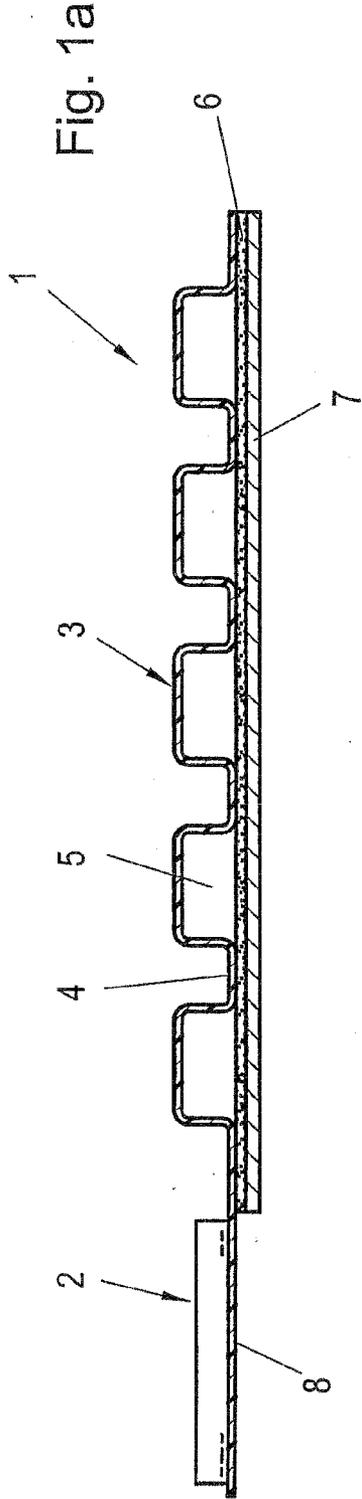


Fig. 1

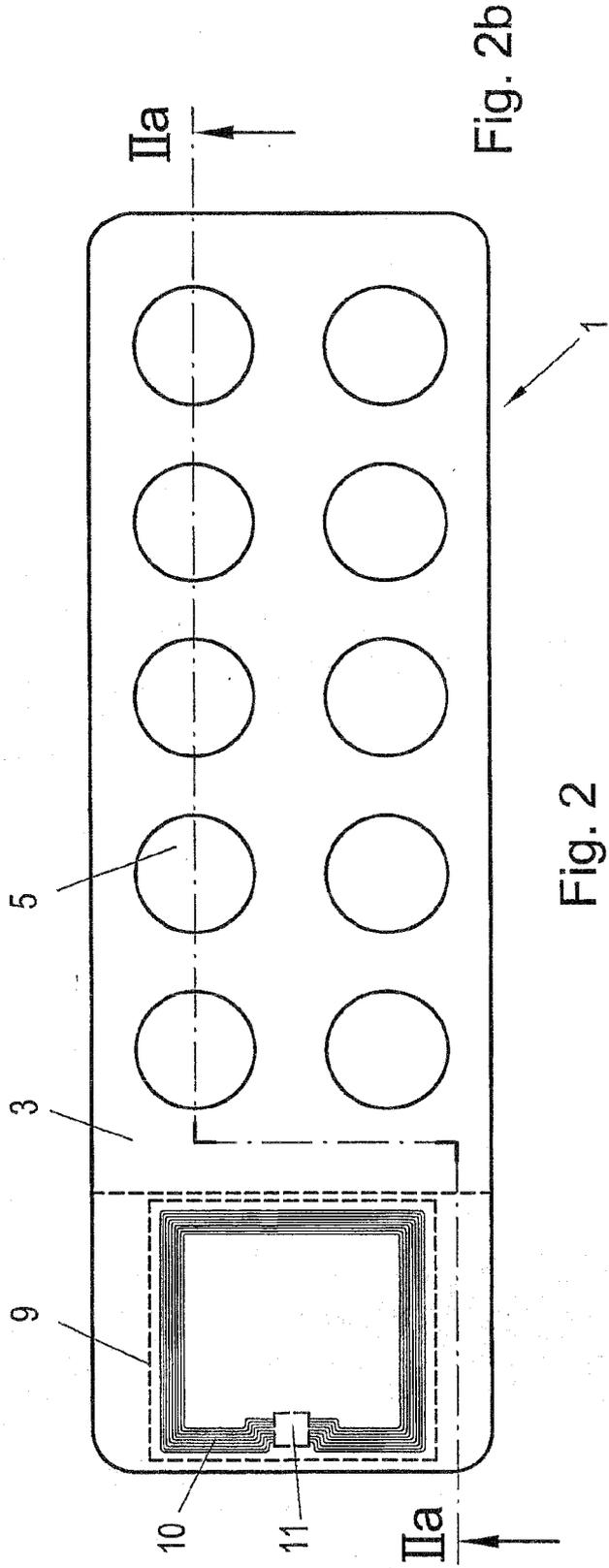
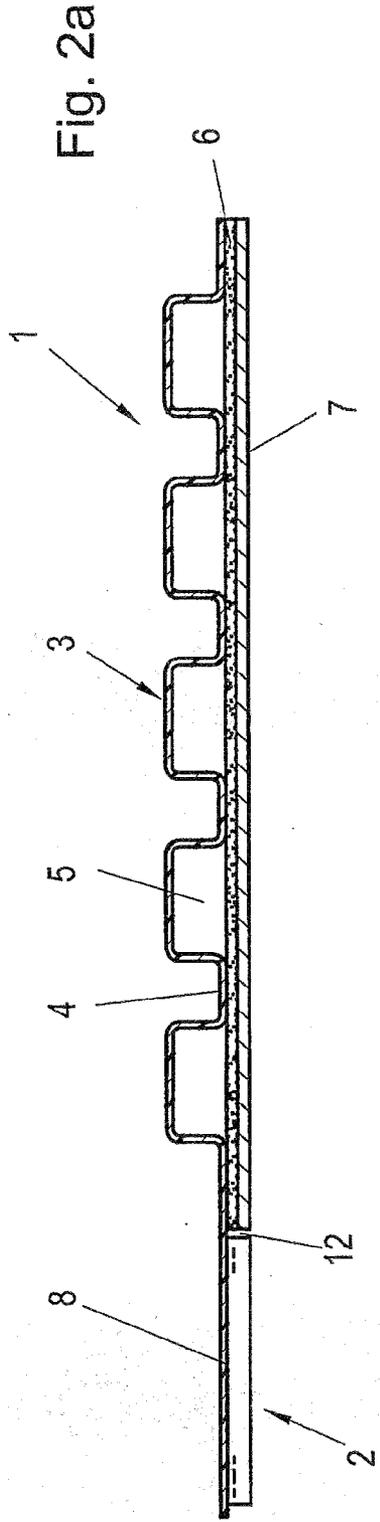


Fig. 2

BLISTER PACK WITH RADIO-FREQUENCY IDENTIFICATION DEVICE, AND METHOD FOR MANUFACTURING SAME

[0001] The invention relates to a blister pack with radio frequency identification means and a process for its manufacture.

[0002] Using blister packs for holding sensitive packaged articles such as tablets, capsules, and the like is known. In this connection a carrier body is produced from flat material, which within a plane region has several depressions produced by deformation of this material for holding the packaged article, and is connected two-dimensionally to an aluminum sealing foil in the plane region.

[0003] The aforementioned production process of a blister pack conventionally takes place in the course of the packing process. This means that the packaged articles, such as tablets or capsules, are placed in the depressions of the carrier material, and after placement, the sealing foil is fed onto the carrier material by application of pressure and elevated temperature, so that a connection is formed between the carrier material and the sealing foil.

[0004] After unpacking, it is therefore only possible more by destroying the package to achieve safety over genuineness or quality of the packaged article.

[0005] As claimed in WO-A1-01/63368, therefore to improve quality control there has been a transition to attaching radio frequency identification means to the blister pack. Radio frequency identification systems are recognition systems as are used for example in chip cards. In any case the technical processes for this purpose have been adopted from radio and radar so that the radio frequency identification system consists altogether of two components, specifically of a transponder which is attached to the objects to be identified, and a reader or detection device.

[0006] As claimed in WO-A1-01/63368, the transponder is attached directly to the blister pack. The aluminum foil in the blister pack attenuates the electromagnetic field of the reader to such an extent that the readability of the RFID transponder is greatly reduced.

[0007] It is here that the invention will provide a remedy.

[0008] As claimed in the invention, a blister pack with radio frequency identification means is suggested which comprises the following components:

[0009] a carrier body of flat plastic material which has several depressions produced by deformation of this material within a plane region for holding the packaged article,

[0010] an aluminum sealing foil which is connected flat to the plane region of the carrier body, and

[0011] the radio frequency identification means which is attached in the region of the carrier body projecting over the aluminum sealing foil.

[0012] Advantageous embodiments of the blister pack as claimed in the invention with radio frequency identification means are disclosed according to the dependent claims.

[0013] The invention furthermore relates to a process for producing the blister pack as claimed in the invention with radio frequency identification means comprising the following process steps:

[0014] producing a carrier body of flat plastic material, depressions being produced within the plane region of the carrier material by deep drawing,

[0015] filling of the carrier body, the packaged articles being placed in the depressions,

[0016] sealing of the filled carrier body in its plane region with an aluminum sealing foil and

[0017] subsequent attachment of a radio frequency identification means to the region of the carrier body projecting over the aluminum foil.

[0018] Advantageous embodiments of the process as claimed in the invention are disclosed according to the dependent claims.

[0019] The invention is detailed below using FIGS. 1 and 2 and using one advantageous embodiment of the blister pack as claimed in the invention.

[0020] FIG. 1 shows the blister pack as claimed in the invention with the radio frequency means 2 which is attached to the same side as the depressions 5, and FIG. 2 shows one version of this blister pack, the radio frequency identification means 2' being attached to the side opposite the depressions 5. In this connection, the embodiments as shown in FIGS. 1 and 2 are reproduced both in a top view—see FIG. 1*b*, 2*b*—and also in a cross section—see FIGS. 1*a*, 2*a*.

[0021] To produce the blister pack 1 as claimed in the invention, for example the carrier body 3 is produced from a for example transparent plastic film by a thermal deep drawing process. The parent products are for example PVC or PP films in a thickness of roughly 0.2-0.3 mm, and they can be present as monofilms or film composites. The thermal deep drawing process is a shaping process with which the depressions 5 are formed within the plane region 4 of the carrier body 3.

[0022] In a further process step the aluminum sealing foil 7 is produced. The parent product is an aluminum foil in a thickness of roughly 0.01-0.04 mm which is advantageously provided on the bottom with a hot adhesive varnish layer 6. The coating thickness of the hot adhesive varnish layer 6 is roughly in the range of 0.003-0.02 mm. Due to this hot adhesive varnish layer 6, in the flat region 4 of the carrier body 3 a connection is produced between it and the aluminum sealing foil 7.

[0023] The radio frequency identification means 2, 2' is advantageously intended as a so-called RFID transponder which is located in a housing 9. The important transponder components are a coupling element or an antenna 10 in the form of copper wires and a microchip 11.

[0024] The RFID transponder 2 and 2' is now attached in the region 8 of the plastic carrier material 3 which projects over the aluminum sealing foil 7. This takes place for example by the RFID transponder being purchased in label form and being cemented onto the carrier material 3 in the region 8 by means of commercial automatic labelling machines.

[0025] Furthermore it is possible to buy the RFID transponder in tape goods and to cut off according to the dimensions of the region 8 and to apply it in this region.

[0026] Furthermore it is possible to imprint parts of the RFID transponder 2, 2' such as the antenna and the coupling element 10 as well as the contact surface for the microchip 11 in the region 8 of the carrier material 3. Then the microchip 11 is inserted mechanically into the imprinted contact surfaces. This process is also called "pending".

[0027] In series production it is recommended that all parts of the RFID transponder 2, 2', i.e. the antenna or the coupling element 10 and also the microchip 11, be imprinted onto the carrier material 3 using printing technology.

[0028] As is apparent from FIG. 1, the RFID transponder 2 in the region 8 of the carrier material 3 is attached to the same side on which the depressions 5 for holding the tablets are provided. In this case it is advantageous to provide a certain distance 13 which can be varied from case to case, in order to thus avoid disruptions in reading out the data stored on the microchip in any case.

[0029] Furthermore, it is possible, as shown in FIG. 2, to attach the RFID transponder 2' in the region 8, but on the side opposite the depressions 5. Here it is advantageous to provide a gap 12 with a width which can vary from case to case, in order to thus avoid disruptions in reading out the data stored on the microchip in any case.

[0030] Both for the version as shown in FIG. 1 and also for that as shown in FIG. 2 it is possible to input data sets into the microchip 11, such as security codes relating to checking the genuineness of materials such as pharmaceuticals, their production date, expiration date, batch number and general data for checking. They can now be easily read out with a reader (not shown), and a practicable distance between the transponder and reader can be achieved in the range from 10 to 30 cm. This means that contactless detection or read-out of the stored data can take place without possible disruptive factors. Contactless read-out of the aforementioned data is especially necessary when using sensitive packaged articles such as pharmaceuticals.

- 1. Blister pack (1) with radio frequency identification means (2, 2') comprising the following:
 - a carrier body (3) of flat plastic material which has several depressions (5) produced by deformation of this material within a plane region (4) for holding the packaged article,
 - an aluminum sealing foil (7) which is connected flat to the plane region (4) of the carrier body, (3) and
 - a radio frequency identification means (2, 2') which is attached in the region (8) of the carrier body (3) projecting over the aluminum sealing foil (7).
- 2. Blister pack as claimed in claim 1, wherein the radio frequency identification means (2, 2') is a radio frequency identification transponder.
- 3. Blister pack as claimed in claim 1, wherein the radio frequency identification means (2, 2') is attached to the same side as the depressions (5).
- 4. Blister pack as claimed in claim 1, wherein the radio frequency identification means (2, 2') is attached to side opposite the depressions (5).
- 5. Blister pack as claimed in claim 1, wherein the radio frequency identification means (2, 2') is spaced apart from the aluminum sealing foil (7).
- 6. Blister pack as claimed in claim 1, wherein the carrier body (3) is a plastic film or plastic film composite.

7. Blister pack as claimed in claim 6, wherein the plastic film(s) consist of polyvinylchloride (PVC) and/or polypropylene (PP).

8. Blister pack as claimed in claim 6, wherein the plastic film(s) has (have) a thickness from 0.1 to 0.5 mm.

9. Blister pack as claimed in claim 1, wherein the aluminum sealing foil (7) has a thickness from 0.01 to 0.05 mm.

10. Blister pack as claimed in claim 1, wherein the aluminum sealing foil (7) is connected to the plane region (4) of the carrier body (3) via a hot adhesive varnish layer (6).

11. Process for producing a blister pack (1) with radio frequency identification (2, 2') as claimed in claim 1, comprising the following process steps:

- producing a carrier body (3) from flat plastic material, depressions (5) being formed within the plane region (4) by deep drawing,
- filling of the carrier body (3) with the packaged article which is placed within the depressions (5),
- producing the aluminum sealing foil (7) and subsequently sealing it in the plane region (4) of the carrier body (3) and
- attachment of a radio frequency identification means (2, 2') to the region (8) of the carrier body (3) projecting over the aluminum sealing foil (7).

12. Process as claimed in claim 11, wherein the radio frequency identification means (2, 2') is a radio frequency identification transponder.

13. Process as claimed in claim 11, wherein the radio frequency identification means (2) is attached to the same side as the depressions (5) of the carrier body (3).

14. Process as claimed in claim 11, wherein the radio frequency identification means (2') is attached to the side opposite the depressions (5) of the carrier material (3).

15. Process as claimed in claim 11, wherein the radio frequency identification means (2, 2') is applied spaced apart from the aluminum sealing foil (7).

16. Process as claimed in claim 11, wherein a plastic film or plastic film composite is used to produce the carrier body (3).

17. Process as claimed in claim 16, wherein polyvinylchloride (PVC) and/or polypropylene (PP) film is used as the plastic film(s).

18. Process as claimed in claim 16 or 17 claim 16, wherein the plastic film(s) has (have) a thickness from 0.1 to 0.5 mm.

19. Process as claimed in claim 11, wherein an aluminum foil with a thickness from 0.01 to 0.05 mm is used to produce the aluminum sealing foil (7).

20. Process as claimed in claim 11, wherein the aluminum sealing foil (7) is connected to the plane region (4) of the carrier body (3) via a hot adhesive varnish layer (6).

* * * * *