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(54) **Cover for receptacles and container using such cover**

(57) A cover (1) for receptacles (R) comprising a shaped body (2) made of flexible sheet material, provided with a peripheral groove (3) adapted to sealingly couple with the edge (B) which delimits the mouth of the receptacle (R), and a concave area (4) made on its internal surface (1a) facing towards the interior of said receptacle

(R), closed by means of a rupturable membrane (5). Thus a containment chamber (6) is defined for a substance (S) to be added to the contents of said receptacle (R). A projecting element (7) is present on the internal surface (4a) of the concave area (4), facing towards the rupturable membrane (5) and adapted to rupture the membrane (5) when pressure is applied on the cover.

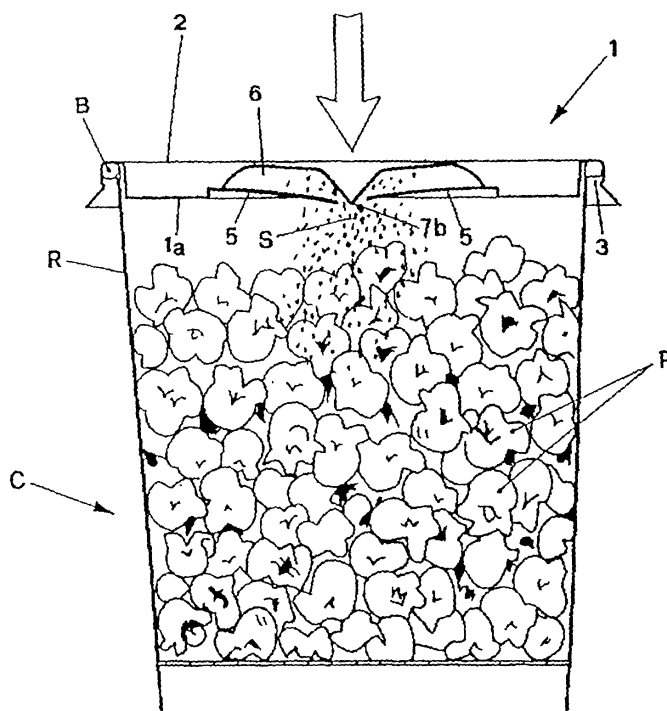


FIG. 7

Description

[0001] The invention relates to a cover particularly suitable for application on receptacles.

[0002] The invention also relates to a container particularly suited to contain food products comprising a receptacle using the aforesaid cover.

[0003] Preferably the cover of the invention is of the type suitable to be sealed on the perimeter edge of the mouth of receptacles in cup form which are used for liquid or solid food products, and more specifically used to contain popcorn supplied by coin or token operated vending machines.

[0004] It is a common fact that popcorn sales methods involve the use of suitable coin or token operated vending machines installed in food consumption areas such as game arcades, leisure meeting areas, sport centres, fun parks and similar areas.

[0005] A range of various types of popcorn vending machines exist, which, in spite of the different operational methods that distinguish them from one another, all include a cooking unit that transforms the corn kernels into pop-corn, associated with a feed group which fills the receptacle with the prepared pop-corn. Generally, the receptacle has a cup form, and is removed from the vending machine by the user once it is full.

[0006] If the user wishes to eat his pop-corn salted or sugared, rather than in its natural state, the distributor contains sugar and salt metering dispensers which add an adequate and predefined amount of salt or sugar to the container according to the user's taste.

[0007] In certain cases the consumer also removes a cover from a suitable dispenser for application over the cup mouth.

[0008] It is well-known that vending machines have certain recognisable problems relating to the quality and hygiene levels involved in the salt and sugar metering.

[0009] In particular, a first problem consists of the fact that the sugar and particularly the salt are strongly hygroscopic and both tend to absorb moisture from the environment, hence forming hardened lumps inside their respective metering dispensers.

[0010] Since such vending machines are installed in environments with considerable temperature changes and sometimes high humidity levels, the aforesaid phenomenon occurs rather frequently.

[0011] Naturally, when the salt or sugar forms hardened lumps, the metering becomes imprecise and the metering dispenser is often clogged.

[0012] A further problem is the fact that the contact of the salt and sugar with the metering dispensers and receptacles in which they are contained inside the vending machine can comprise the sterility.

[0013] Another drawback, concerning the salt in particular, consists of salt's strong aggressiveness with regard to parts of the vending machine which cannot withstand its aggression, and with which the salt comes into accidental contact during operation.

[0014] The action of salt becomes particularly aggressive with regard to these parts or materials when, in presence of humidity or worse still, condensation, the salt is transformed into brine.

5 **[0015]** A further drawback as a consequence of the aforesaid problems is the need for frequent and careful maintenance in order to ensure that the salt and sugar metering dispensers are in efficient working condition, removing possible encrustations and preventing incipient corrosion.

10 **[0016]** By no means the least of these drawbacks is the fact that the presence of salt and sugar in the vending machine makes it more complex and therefore more expensive to construct.

15 **[0017]** The present invention is aimed at overcoming the aforesaid drawbacks.

[0018] A first object of the invention is to improve the hygiene levels of the salt or sugar mixed with the popcorn supplied by vending machines.

20 **[0019]** Another object of the invention is to ensure that the amount of sugar or salt mixed with the popcorn always remains the same as the pre-established quantity, independent of external conditions.

25 **[0020]** Said objects are achieved by means of a cover for receptacles according to the principal claim, to be referred to for the sake of brevity.

[0021] Other detail characteristics of the invention are included in the related dependent claims.

30 **[0022]** Advantageously, a well-defined amount of salt or sugar is associated with the cover of the invention, which is mixed with the popcorn when the consumer wishes, by means of simple, rapid manoeuvres.

35 **[0023]** Even more advantageously, the cover of the invention ensures greater hygiene levels of the operation of adding salt or sugar to the product contained inside the cup.

40 **[0024]** The aforesaid objects and advantages will be made clearer from a description of a preferred embodiment of the invention provided as an example but not to be considered limiting in any way, with reference to the attached drawing tables wherein:

- Figure 1 shows an axonometric view of a container composed of the cover according to the invention applied to a receptacle;
- Figure 2 shows an axonometric view of the cover according to the invention seen from the external side;
- Figure 3 shows an axonometric view of the cover according to the invention seen from the internal side;
- Figure 4 shows a plan view of the cover according to the invention seen from the external side;
- Figure 5 shows a longitudinal cross-section of the cover illustrated in figure 4 along the viewing plane V-V;
- Figure 6 shows a longitudinal cross-section of the container illustrated in figure 1;

- Figure 6 shows a longitudinal cross-section of the container illustrated in figure 1;
- Figure 7 shows a longitudinal cross-section of the container illustrated in figure 1 during use.

[0025] The cover according to the invention is shown in figure 1 and identified throughout by the numeral 1. It is applied to a receptacle identified throughout by the letter R to define the container C.

[0026] Cover 1 according to the invention is applied to receptacle R, preferably having of cup form for containing pop-corn P, supplied by coin or token vending machines of known type, not illustrated.

[0027] However, it is understood that the cover according to the invention can also be applied to other receptacles having different forms and of other types for the production of containers for other food products.

[0028] The cover 1 according to the invention comprises a shaped body 2 made from flexible sheet material, as can be seen in figures 2-6, provided with a peripheral groove 3 adapted to be sealingly coupled with the edge B that defines the mouth of the receptacle R.

[0029] According to the invention, on the internal surface 1 a of the cover 1 there is a concave area 4 which faces the interior of the receptacle R, and is closed by an rupturable membrane 5 to define a containment chamber 6 of a substance S to be added to the contents P of receptacle R, there being on the internal surface 4a of the concave area 4 at least one projecting element 7 facing in the direction of the rupturable membrane 5.

[0030] Preferably, but not necessarily, said substance to be added to the receptacle contents is salt or sugar.

[0031] In more detail, on the internal surface 4a of the concave area 4, which has a substantially circular form, there is a single projecting element 7 positioned in the centre of the concave area 4 in question, facing the rupturable membrane 5. More specifically, the projecting element 7 has a frustoconical form 7a whose tip 7b is directed towards the rupturable membrane 5, positioned in a manner to be only just in contact with the membrane.

[0032] The perimeter of the concave area 4 is defined by an annular edge 8, set at a lower level than the internal surface 1a of the cover 1. The perimeter edge 5a of the rupturable membrane 5 is set around said edge 8 by adhesive means adapted to maintain the adherence between the membrane 5 and the circular rim 8.

[0033] The substance to be added to the pop-corn P which is inserted into the containment chamber 6 formed between the rupturable membrane 5 and the concave area 4, will be an appropriate quantity of either sugar or salt, in proportion with the amount of pop-corn contained in the receptacle.

[0034] Naturally, the containment chamber 6 is filled using automatic equipment available on the market.

[0035] The cross-section illustrated in figures 5, 6 and 7 shows that the peripheral groove 3 has a prismatic profile with at least one undercut area 9 which snap-receives the edge B of the receptacle R.

[0036] This means that when the cover is attached with a little pressure on the receptacle, a sealing snap-coupling is made between the cover 1 and edge B, which not only ensures the mechanical stability of cover 1 on receptacle R, but also isolates the product P from the outside environment.

[0037] In particular, figure 5 shows that the undercut zone 9 is an annular zone that is positioned between the annular bottom surface 3a, and the annular side wall 3b to form the peripheral groove 3 and is delimited, on the side opposite the annular bottom surface 3a, by a first annular edge 10 positioned at the end of the annular side wall 3b tilting towards the interior of the peripheral groove 3.

[0038] The first annular edge 10 also forms part of a frustoconical annular surface 11 that encircles the perimeter of the cover 1, and that also includes a second annular edge 12, connected with the first annular edge 1 tilting outwards from cover 1.

[0039] In this manner, the frustoconical annular surface 11 provides the gripping edge for the user to remove the cover 1 from the receptacle R.

[0040] Practically speaking, after the token or coin is inserted in the vending machine (not illustrated), the user removes the cup-shaped receptacle R containing the prepared pop-corn as well as a cover 1 provided with the dose of salt or sugar contained inside the containment chamber 6 set between the concave area 4 and the rupturable membrane 5.

[0041] The consumer then attaches the cover 1 onto the receptacle R to form the configuration of the container C, illustrated axonometrically in figure 1. By pressing down on the external surface 1b of the cover 1, this pushes the tip 7b of the projecting element 7 against the membrane 5 so that it is ruptured, causing the release of the salt or sugar S into the pop-corn, as illustrated in figure 7.

[0042] The user can then energetically shake the container C, favouring the mixture of the salt or sugar with the product.

[0043] Once the products are mixed, the user can remove the cover from the receptacle and consume the product.

[0044] If the entire product is not entirely consumed, the remaining amount can be preserved in the receptacle by re-closing the cover, which keeps the product isolated from the outside environment.

[0045] The aforesaid description demonstrates that the cover according to the invention achieves all the pre-established objects.

[0046] In relation to the food hygiene aspect, it is understood that the addition of the salt or sugar by the user directly from the cover into the receptacle and onto the product provides much higher hygiene levels since the salt and sugar do not come into contact with any mechanical metering device, and therefore at the moment they are added to the pop-corn they preserve all the sterility characteristics ensured by the supplier.

[0047] Moreover, the previously established amount

of salt or sugar in the containment chamber ensures that the quantities remain constant.

[0048] In addition, since the salt or sugar is isolated from the outside environment, the products do not absorb moisture.

[0049] Lastly, the use of a cover with a containment chamber for the salt or sugar delimited by a rupturable membrane simplifies the construction of vending machines, which can be built without metering devices, reducing their need for maintenance and increasing their operating reliability.

[0050] When manufactured, the cover according to the invention can be produced with a shape or size that differs from that illustrated and described.

[0051] It is intended that all possible changes made to the cover which fall within the scope of the following claims are to be considered protected by the present patent.

Claims

1. Cover (1) for receptacles (R) comprising a shaped body (2) made of a flexible sheet material, provided with a peripheral groove (3) adapted to be sealingly coupled with the edge (B) that delimits the mouth of said receptacle (R), **characterised in that** it has a concave area (4) made on the internal surface (1a) of said cover (1), facing towards the interior of said receptacle (R) and closed by means of a rupturable membrane (5) to define a containment chamber (6) of a substance (S) to be added to the contents of said receptacle (R), there being present on the internal surface (4a) of said concave area (4) at least one projecting element (7) facing towards said rupturable membrane (5).
2. Cover (1) for receptacles (R) according to claim 1 **characterised in that** on said internal surface (4a) of said concave area (4) there is a single projecting element (7) arranged in the centre of said concave area (4) and facing towards said rupturable membrane (5).
3. Cover (1) for receptacles (R) according to claims 1 or 2 **characterised in that** said projecting element (7) has a frustoconical shape (7a) with the tip (7b) positioned to just come into contact with said rupturable membrane (5).
4. Cover (1) for receptacles (R) according to claims 1 or 2 **characterised in that** said concave area (4) is peripherally delimited by an annular edge (8), lower than the internal surface (1a) of said cover (1), on which the perimeter edge (5a) of said rupturable membrane (5) is attached by adhesive means.
5. Cover (1) for receptacles (R) according to claim 1

characterised in that the cross-section of said peripheral groove (3) shows a prismatic profile wherein at least one undercut zone (9) is identified which snap-receives said edge (B) of said receptacle (R).

6. Cover (1) for receptacles (R) according to claim 5 **characterised in that** said undercut zone (9) is comprised between the annular bottom surface (3a) and the annular side wall (3b) of said peripheral groove (3) and is delimited on the opposite side of said annular bottom surface (3a) by a first annular edge (10) present at the end of said annular side wall (3b) and tilted towards the interior of said peripheral groove (3).
7. Cover (1) for receptacles (R) according to claim 6 **characterised in that** said first annular edge (10) forms part of a frustoconical annular surface (11) which peripherally delimits said cover (1) and in which a second annular edge (12) is identified, connected with said first annular edge (10) and tilting towards the exterior of said cover (1).
8. Container (C) comprising a receptacle (R) with a cover (1) according to claim (1).

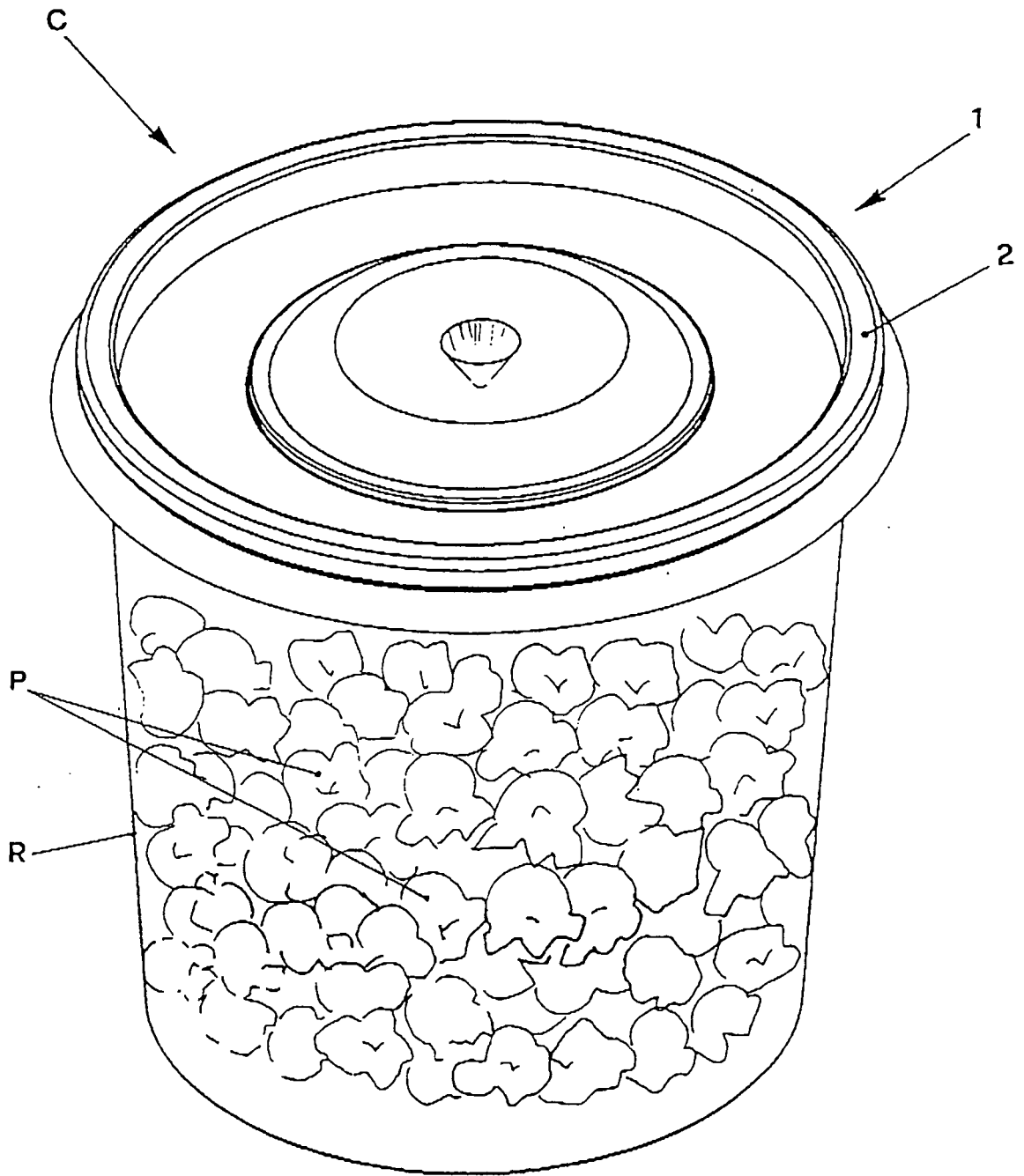


FIG.1

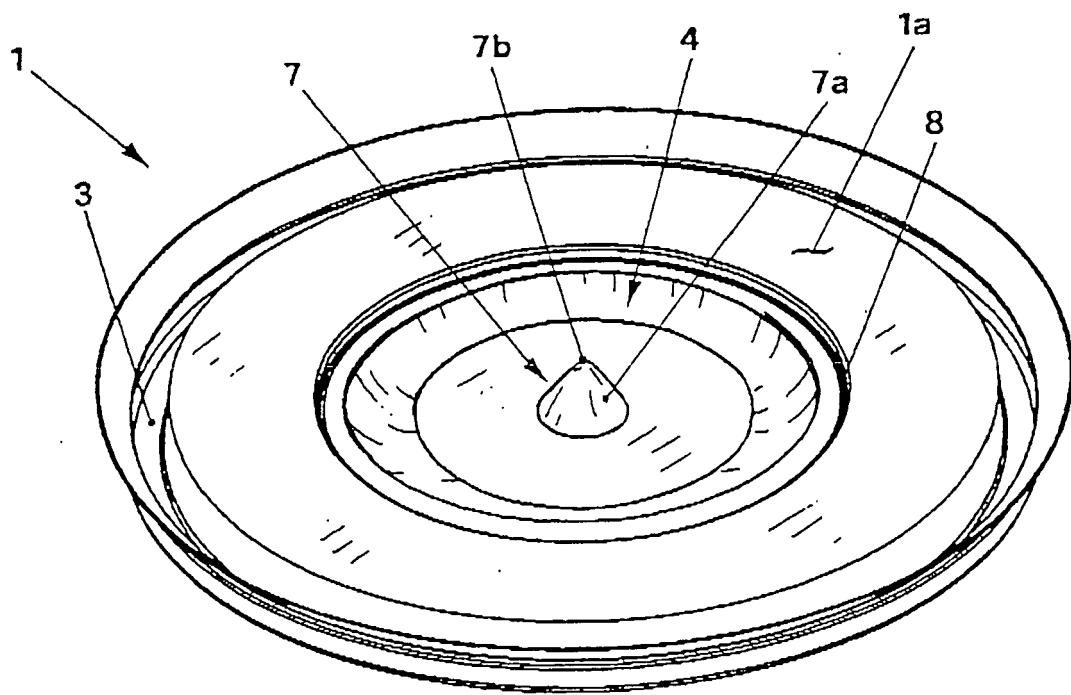


FIG. 3

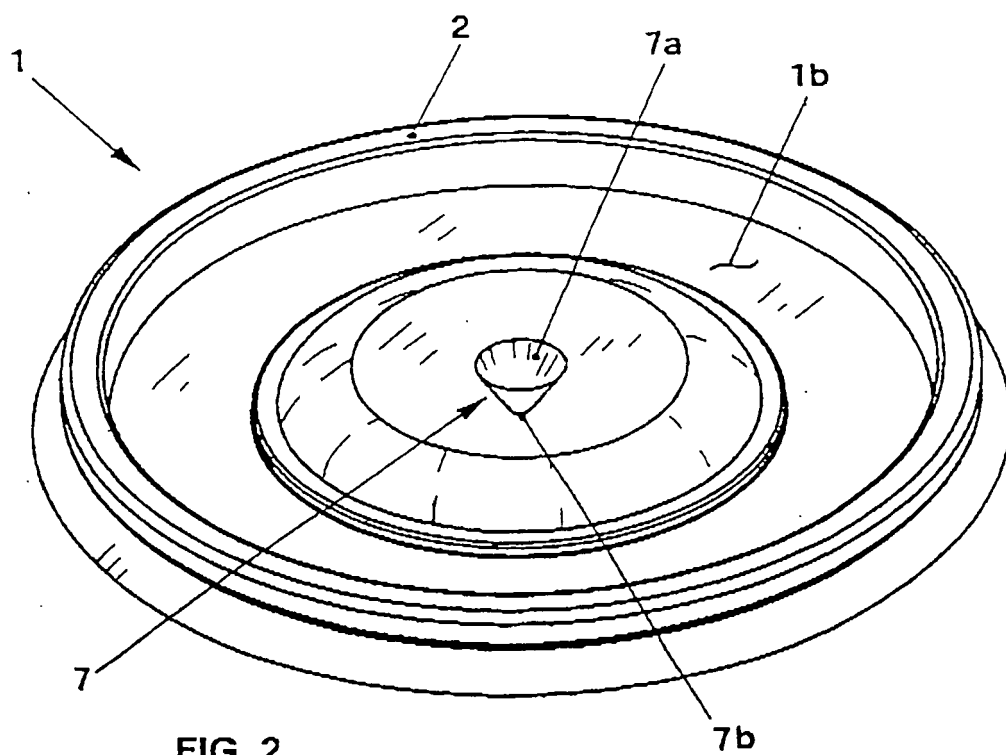
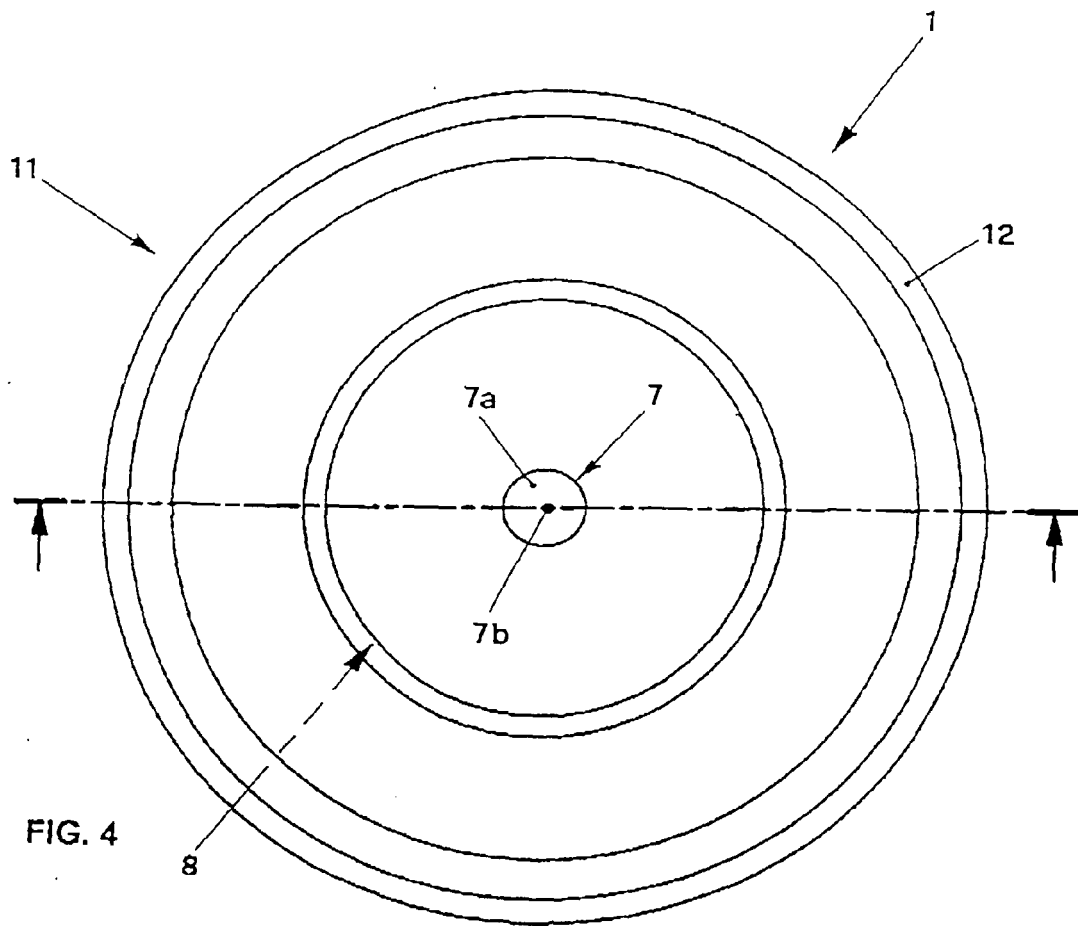
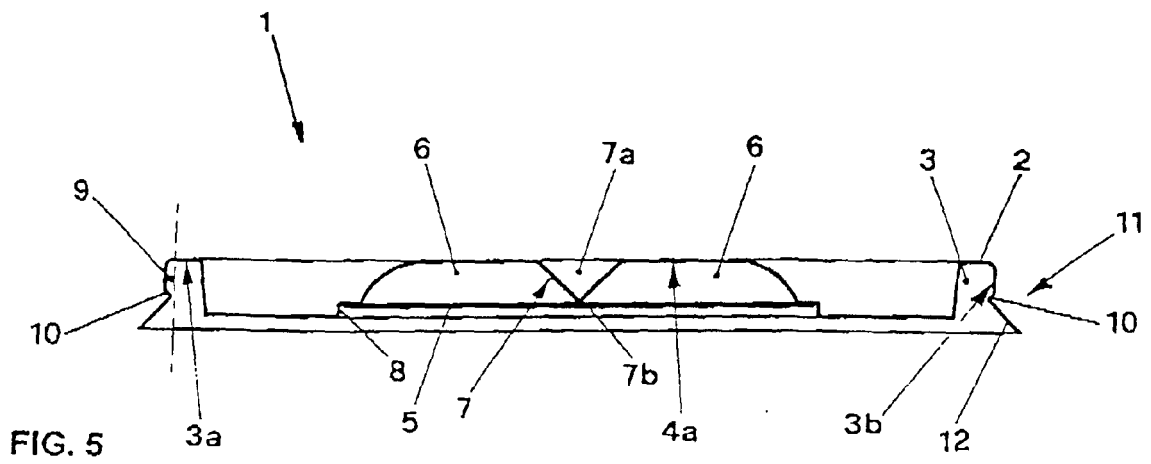


FIG. 2



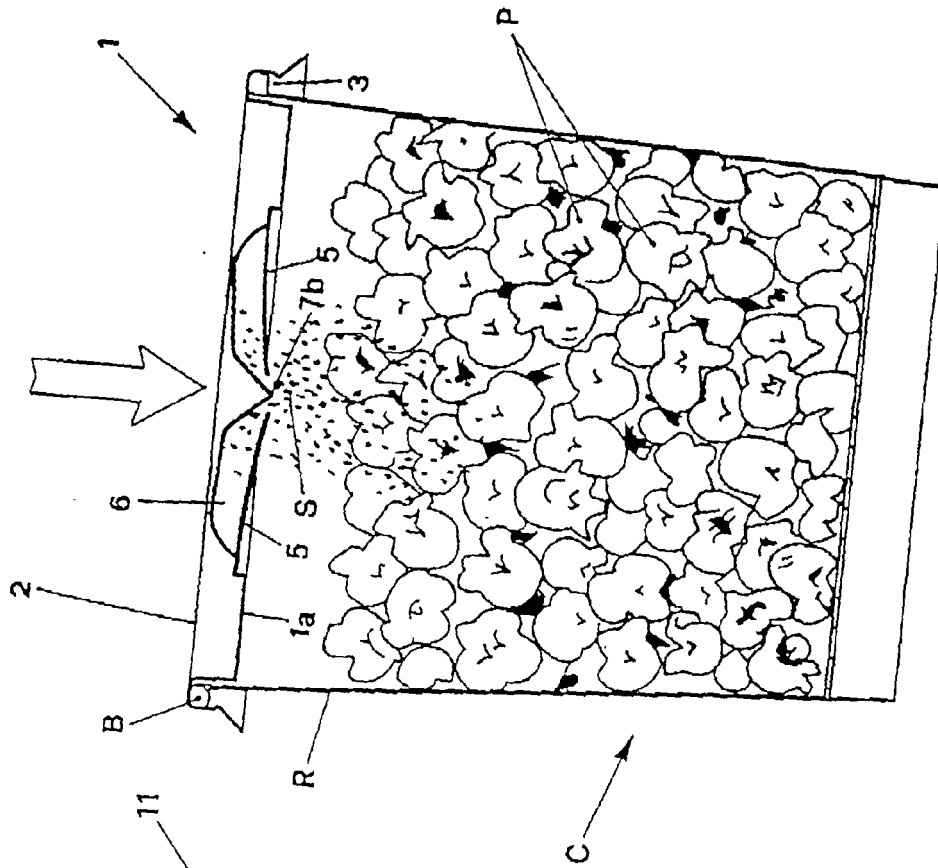


FIG. 7

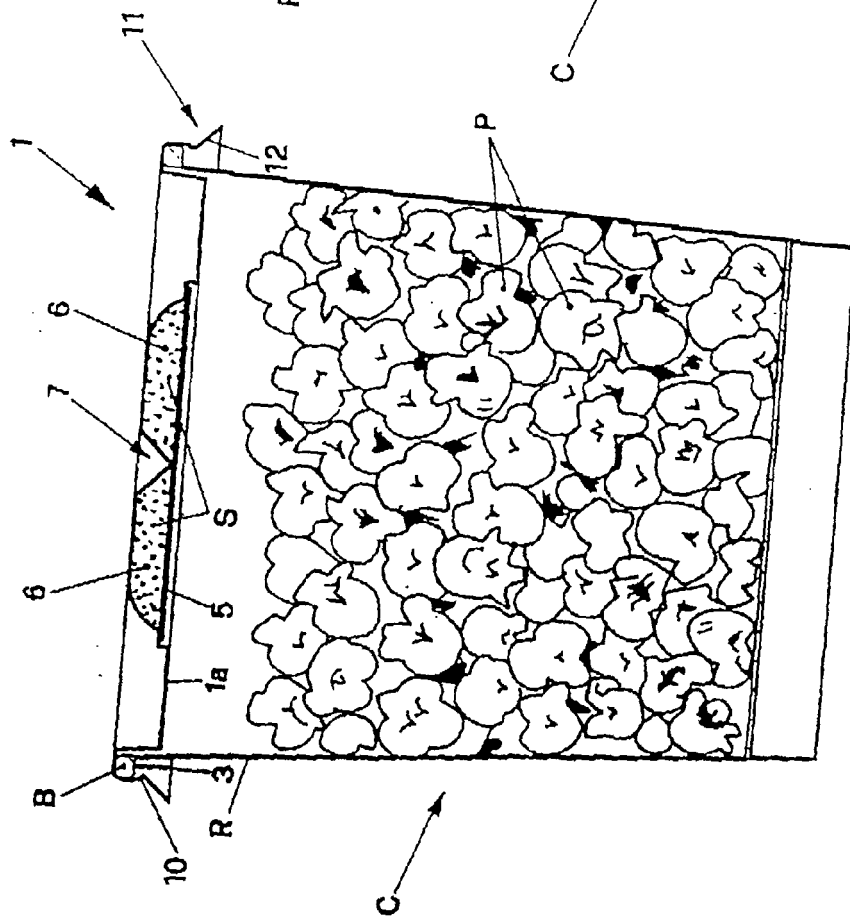


FIG. 6



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 07 00 1256

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			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 31 May 2007	Examiner Dederichs, August
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			

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EPO FORM 1503 03 82 (P04C01)

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

EP 07 00 1256

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31-05-2007

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