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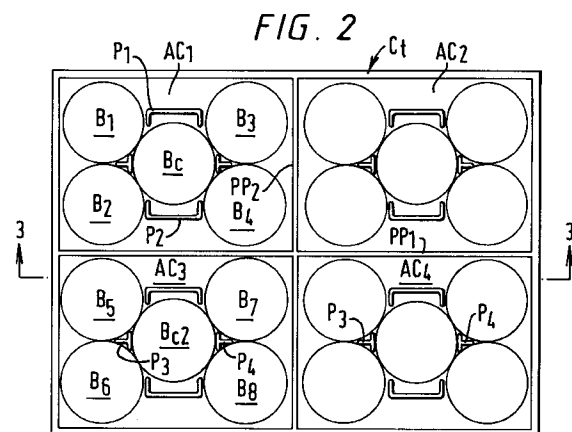
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(54) **Bottle crate and carton adapted for use therewith.**

(57) A crate (C_t) for returnable bottles and a carton adapted for use with the crate in which the crate is formed, for each carton with a set of upstanding spacer posts ($P_1, P_2; P_3, P_4$) arranged in two pairs. The carton is impaled upon the set of posts when it is received in the crate. The posts (P_1, P_2) of one pair of posts are each sized to span the space between a pair of bottles ($B_1, B_3; B_2, B_4$) adjacent a central bottle (B_c) of the group and the set of posts define a space in the central bottle of the group is received.



This invention relates to a shipping crate and to the combination of such a shipping crate and a carton adapted to receive a plurality of articles, such as bottles, and adapted for use with the crate. The crate is particularly adapted to receive a multiplicity of returnable glass bottles either singly or in groups packaged in such cartons.

The invention is also concerned with a complementary carton which accommodates a plurality of bottles in a group and which is adapted to be received in the crate with the bottles arranged as they would otherwise be without the presence of the carton.

One aspect of the present invention provides a crate for returnable bottles which includes a plurality of sets of internal spacer means arranged to allow articles to be received in discrete groups and wherein internal partition means separates one set of spacer means from another set.

According to a feature of this aspect of the invention, said internal partition means may separate the crate substantially along its longitudinal and transverse centre lines to separate four similar said sets of internal spacer means.

According to another feature of this aspect of the invention each of said sets of internal spacer means may comprise two pairs of upstanding posts arranged to create between them a central space to receive a bottle and, together with adjacent parts of the crate, a space for each of another four bottles surrounding said central space.

Another aspect of the present invention provides a crate for accommodating returnable bottles which crate includes a plurality of sets of internal spacer means arranged to allow articles to be received in discrete groups and wherein said spacer means of each set are arranged such that the spaces available to receive bottles include a central space which, together with corresponding spaces in other sets, produce rows whose spaces are out registry with the spaces available to receive bottles in each adjacent row of spacers.

Yet another aspect of the present invention provides a crate for returnable bottles and carton combination in which the crate is formed, for each carton, with two pairs of upstanding spacer posts upon which the carton is to be impaled, wherein each post of one pair of posts is sized to span the space between a pair of spaced bottles and, together with the posts of the other pair of posts, create between them a central space for a single bottle of the group.

According to a feature of this aspect of the invention, each post of the said other pair is adapted to cooperate with locking means which secures base panels of the carton together, such that said posts of the other pair can be engaged with and disengaged from the locking means without causing the locking means to be dislodged.

According to another feature of this aspect of the

invention each set of spacer posts comprising said two pairs may be separated from an adjacent set by internal partition means. Where partition means are provided, said internal partition means may separate the crate substantially along its longitudinal and transverse centre lines to separate four similar said sets of spacer means.

Preferably, said single bottle is a central bottle in a group of five bottles.

According to another aspect of the invention, there is provided a carton of the wraparound type for use in a crate or combination according to any of the preceding claims said carton accommodating a group of five bottles with a single central bottle and including a base in which a pair of apertures is provided at diametrically opposed locations relative to said single central bottle, each aperture being sized and positioned to receive one of a first pair of spacer posts of said crate and wherein locking means provided to secure said base is adapted to be put into a locked condition by a second pair of spacer posts of said crate.

According to a feature of this aspect of the invention said base comprises a pair of panels locked together in overlapping relationship by said locking means, said locking means comprising hinged tabs which are displaced by said second pair of spacer posts to lock together the base panels.

Another aspect of the invention provides a carton blank for use in providing a wraparound carton according to either of the two immediately preceding paragraphs.

An embodiment of the invention, will now be described, by way of example, with reference to the accompanying drawings, in which :-

Figure 1 is a plan view of a wraparound carton blank adapted to be wrapped about a group of five bottles and to cooperate with a complementary bottle crate;

Figure 2 is a schematic plan view of a bottle crate having upstanding posts on which a plurality of cartons according to the invention are impaled, the cartons being formed from blanks of the type shown in Figure 1 of the drawings; and

Figure 3 is a schematic side view of the crate shown with a superimposed cross-section thereof along the line 3-3 in Figure 2.

Referring to the drawings, and first to Figure 1 thereof, a blank 10 formed from paperboard or similar foldable sheet material comprises, in series a first base panel 12, a first heel panel 14, a first side panel 16, a top panel 18, a second side panel 20, a second heel panel 22 and a second base panel 24 hinged one to the next along transverse fold lines 26, 28, 30, 32, 34 & 36 respectively.

The carton blank is of the so called "neck through" wraparound type and, as such, is adapted to receive a group of bottles the neck portions of which are received and protrude through openings A formed

in the top panel 18 of the blank. In this case the carton blank is adapted to wrap a group of five bottles arranged in two rows of two bottles B_1, B_2, B_3, B_4 (Figure 2) each with one central bottle B_c . Thus the upper ends of the bottles are retained by the top panel apertures. The lower ends of the other (outermost) bottles in the group are secured by heel apertures h_1, h_2, h_3, h_4 provided in respective ones of the heel panels 14 and 22 as is well known in the art. Deltoid openings D , also well known in the art, are provided in each of the base panels 12 and 24 and serve to receive machine elements which draw the base panels 12 and 24 together into over-lapping relationship so that they can be locked together. Locking is achieved by means of locking tabs N_1, N_2 which are folded out of the plane of base panel 24 and received respectively in the openings defined by main retaining tabs T_1, T_2 which in turn remain in a braced and engaged relation respectively with locking tabs N_1, N_2 . The main locking tabs N_1, N_2 are displaced into their locked position such that the posts P_3, P_4 of one pair of spacer posts can be received in respective ones of the locking apertures and removed therefrom without disengaging the locking tabs N_1, N_2 . Subsidiary locking tabs n_1, n_2 likewise are folded out of the plane of base panel 24 and received in the openings defined by subsidiary retaining tabs t_1, t_2 struck from base panel 12.

In Figure 1a a more detailed view of the form of main retaining tab T_1 is shown. Retaining tab T_1 comprises a pair of like hinged flaps f_1, f_2 hinged along fold lines a_1 and a_2 respectively. The flaps are adapted to be displaced out of the plane of the panel 12 when locking tabs N_1, N_2 in base panel 24 are raised through the aperture defined by retaining tab T_1 .

Further openings x and y are formed in each of the base panels 12 and 24 respectively. Opening x is formed intermediate the deltoid openings D and intermediate the retention heel apertures h_3, h_4 . Likewise opening y is formed intermediate deltoid openings D and intermediate heel retention apertures H_3, H_4 . Openings x and y are positioned so that when the carton is formed from the blank and the base panels are locked together in overlapping relationship the openings x and y are positioned in diametrically opposed locations in relation to the location of a central bottle B_c of the packaged group.

Referring now also to Figure 2 of the drawings, bottle crate Ct is formed from a suitable plastics material and includes longitudinal and transverse partitioning panels $PP1$ and $PP2$ respectively, which define four similar carton receiving areas AC_1, AC_2, AC_3 & AC_4 , respectively, within the crate. These areas also receive a group of single bottles introduced into the crate without a carton wrap. Each of the carton receiving areas, for example, area AC_1 includes a set of upstanding spacer posts arranged in pairs P_1, P_2 and P_3, P_4 respectively. Posts P_1 and P_2 , which are channel-shaped when viewed in plan, are adapted to be re-

ceived through the apertures x and y provided in the base panels of a carton received in carton receiving area AC_1 . The posts are positioned so as to be disposed at diametrically opposed locations in relation to the central bottle B_c of the carton group. The posts also are sized to span the space between the end-most bottles B_1, B_3 and B_2, B_4 in the respective rows of the group. Thus post P_1 spans the space between bottles B_1 and B_3 and likewise post P_2 spans the space between bottles B_2 and B_4 . Posts P_3 and P_4 , which are T-shaped when viewed in plan are adapted to be received through the apertures defined by locking tab N_1 and retaining tab T_1 and locking tab N_2 and retaining tab T_2 respectively. Posts P_1, P_2 and P_3, P_4 are shaped and positioned not only to define a central receiving area for bottle B_c , whether as part of a packaged group or as a single bottle, but also to define, together with the adjacent walls and/or partition panels of the crate, the other receiving areas for the remaining four bottles.

The bottles in each area of the crate such as AC_1 are therefore arranged as a discrete group each of which has a central space for bottle B_c . The central spaces of adjacent areas eg. AC_1 and AC_2 produce a row BC, BC_2 which is out of register with the spaces available to receive or occupied by the bottles B_1, B_2, B_5, B_6 and B_3, B_4, B_7, B_8 respectively. Hence bottle B_c is in "nested" relationship with respect to bottles B_1, B_2 and B_3, B_4 .

It will be appreciated that the crate and carton combination is thus adapted to accommodate a set of four cartons each containing five bottles for distribution and sale and thereafter the crate is able to receive single bottles in the arrangement shown in Figure 2 for return shipment for recycling. Hence the carton/crate combination of this invention is particularly useful for use with returnable glass bottles and preferably can accommodate twenty such bottles either singly or in packaged groups of five bottles per carton.

Claims

1. A crate for returnable bottles includes a plurality of sets of internal spacer means arranged to allow articles to be received in discrete groups and wherein internal partition means separates one set of spacer means from another set.
2. A crate according to claim 1 wherein said internal partition means separates the crate substantially along its longitudinal and transverse centre lines to separate four similar said sets of internal spacer means.
3. A crate according to claim 1 or claim 2 wherein each of said sets of internal spacer means com-

prises two pairs of upstanding posts arranged to create between them a central space to receive a bottle and, together with adjacent parts of the crate, a space for each of another four bottles surrounding said central space.

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4. A crate for accommodating returnable bottles includes a plurality of sets of internal spacer means arranged to allow articles to be received in discrete groups and wherein said spacer means of each set are arranged such that the spaces available to receive bottles include a central space which, together with corresponding spaces in other sets, produce rows whose spaces are out registry with the spaces available to receive bottles in each adjacent row of spaces.

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5. A crate for returnable bottles and carton combination in which the crate is formed, for each carton, with a set of upstanding spacer posts comprising two pairs of posts (P_1 , P_2 , P_3 , P_4) upon which the carton is to be impaled, wherein each post of one pair of posts is sized to span the space between a pair of spaced bottles (B_1 , B_3) and, together with the posts of the other pair of posts, create between them a central space for a single bottle of the group.

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6. A crate and carton combination according to claim 5 wherein each post of the other pair (P_3 , P_4) is adapted to cooperate with locking means, which secures base panels of the carton together, such that said posts of the other pair can be engaged with and disengaged from the locking means without causing the locking means to be dislodged.

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7. A crate and carton combination as claimed in claim 5 or claim 6 wherein each set of spacer posts comprising said two pairs is separated from an adjacent set by internal partition means.

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8. A crate and carton combination as claimed in claim 7 wherein said internal partition means separates the crate substantially along its longitudinal and transverse centre lines to separate four similar said sets of spacer means.

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9. A crate and carton combination as claimed in any of claims 5 to 8 wherein said single bottle is a central bottle in a group of five bottles.

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10. A carton of the wrap around type for use in a crate or combination according to any of the preceding claims said carton accommodating a group of five bottles with a single central bottle and including a base in which a pair of apertures is provided at diametrically opposed locations relative

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to said single central bottle, each aperture being sized and positioned to receive one of a first pair of spacer posts of said crate and wherein locking means provided to secure said base is adapted to be put into a locked condition by a second pair of spacer posts of said crate.

11. A carton according to claim 10 wherein said base comprises a pair of panels locked together in overlapping relationship by said locking means, said locking means comprising hinged tabs which are displaced by said second pair of spacer posts to lock together the base panels.

12. A carton blank for use in providing a wraparound carton according to claim 10 or claim 11.

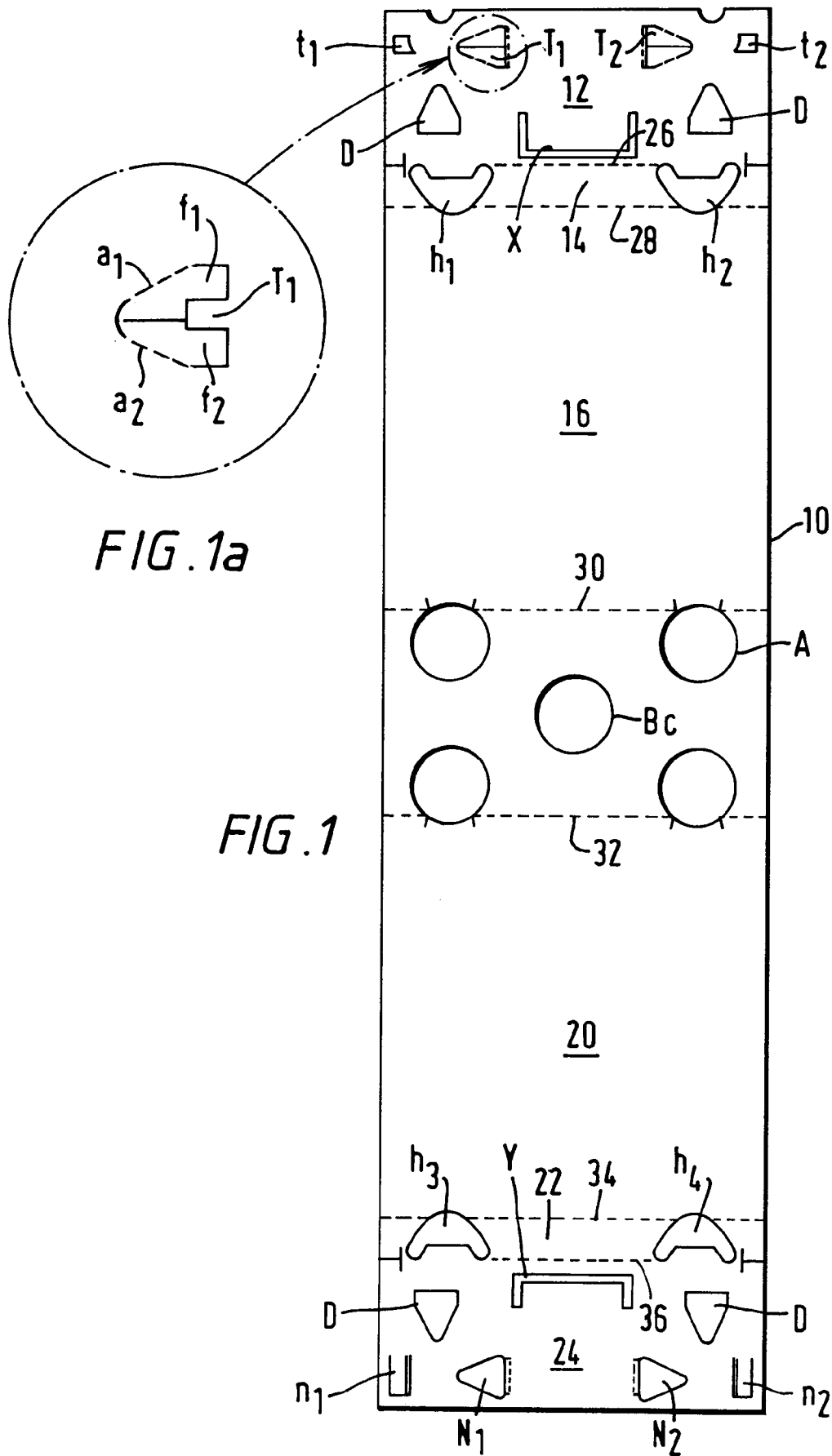


FIG. 2

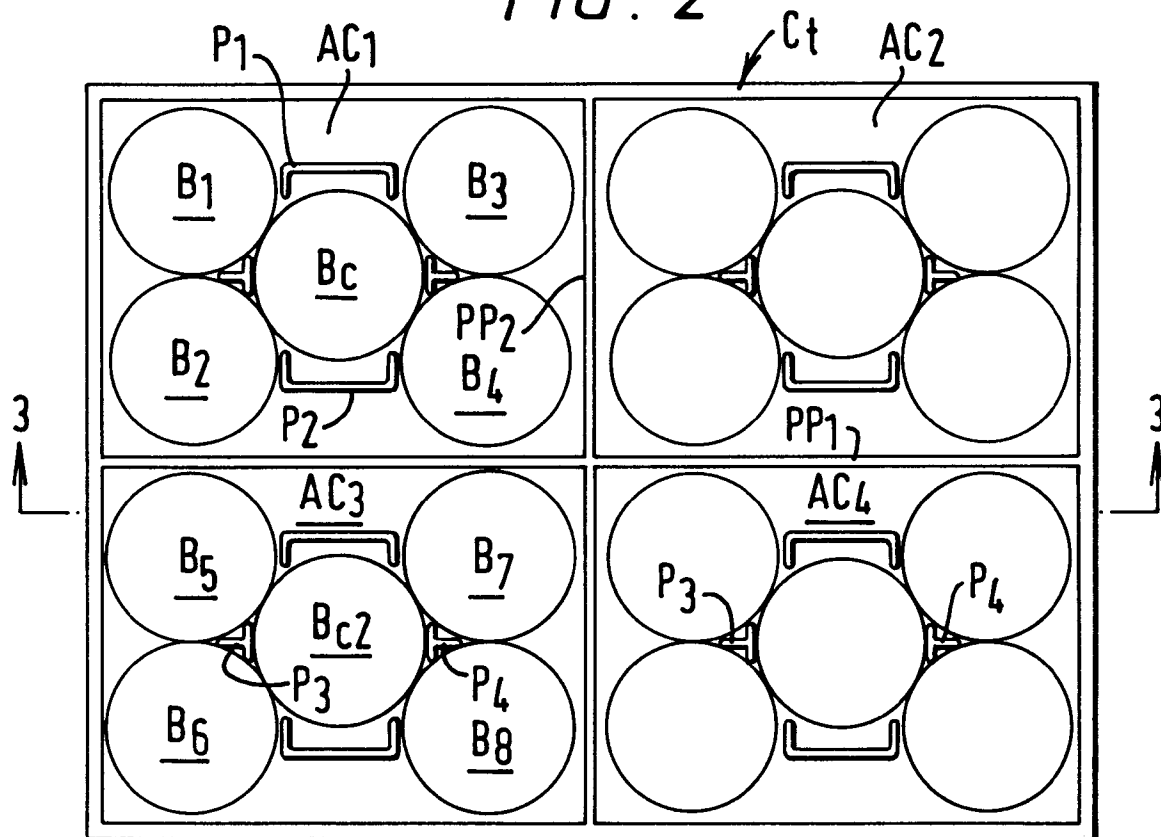
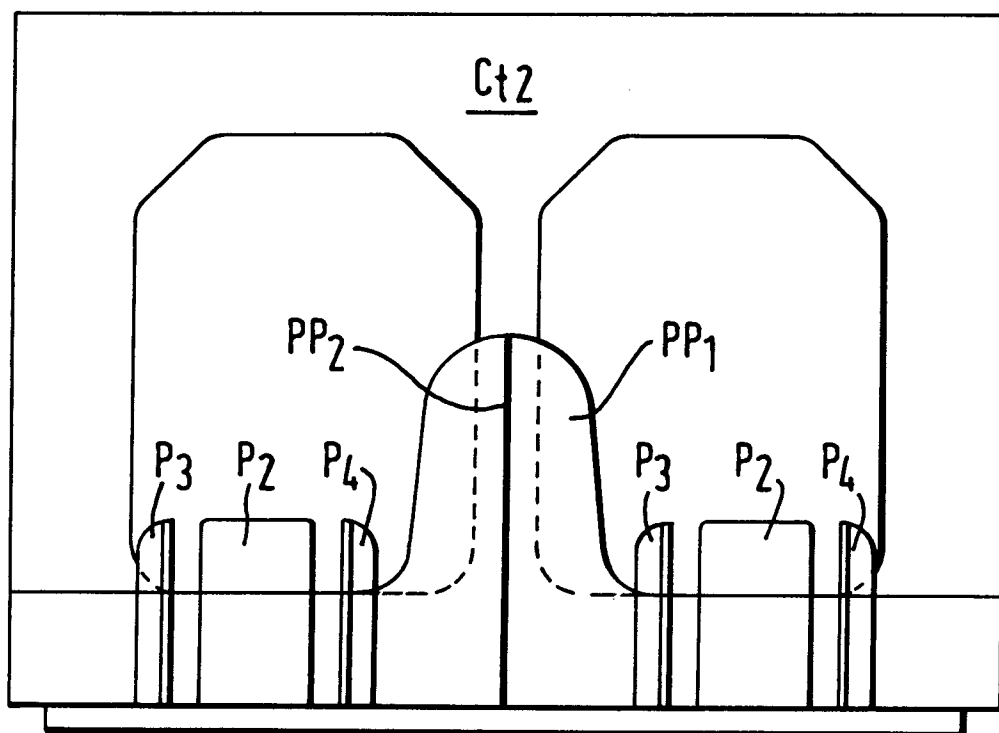


FIG. 3





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EUROPEAN SEARCH REPORT

Application Number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 94306954.2
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 6)
X	AT - B - 368 967 (SPUMALIT-ANSTALT) * Fig. 1-4 *	1, 2	B 65 D 1/24
A		4, 5, 7, 8, 12	
X	US - A - 4 655 360 (JUHANSON) * Fig. 1-19 *	1, 2	
A		4	
X	US - A - 4 269 309 (PRODEL) * Fig. 1-5 *	1	
A		3-5, 7, 10, 12	
X	DE - A - 2 348 082 (SPUMALIT-ANSTALT) * Fig. 1-12 *	1	
A		2, 4, 5, 10, 12	TECHNICAL FIELDS SEARCHED (Int. Cl. 6)
X	US - A - 3 927 789 (PRODEL) * Fig. 1-12 *	1	B 65 D 1/00 B 65 D 25/00
A		4, 5, 10, 12	
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 28-11-1994	Examiner BRÄUER
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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