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Datasheet for the decision of 18 June 2010

Case Number: T 0196/09 - 3.2.07

Application Number: 00922107.8

Publication Number: 1194366

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Language of the proceedings: EN

Title of invention:
Dual dispense container having cloverleaf orifice

Applicant:
Pechiney Plastic Packaging, Inc.

Headword:
-

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step (no)"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0196/09 - 3.2.07

D E C I S I O N
of the Technical Board of Appeal 3.2.07
of 18 June 2010

Appellant: Pechiney Plastic Packaging, Inc.
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 8 August 2008 refusing European patent application No. 00922107.8 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: P. O'Reilly
Members: H. Hahn
E. Dufrasne

Summary of Facts and Submissions

I. The applicant lodged an appeal against the decision of the Examining Division to refuse the European patent application No. 00 922 107.8.

II. In the present decision the following documents are cited:

D1 = US-A-1 699 532
D3 = US-A-5 553 747
D4 = US-A-2 939 610.

III. The Examining Division held that the subject-matter of claim 1 of the single request filed with letter dated 11 February 2008 lacked an inventive step with respect to the embodiment of figures 7 and 9 of D1 and the knowledge of the skilled person. The subject-matter of the dependent claims 2 to 15 was considered to likewise lack an inventive step in view of D1 and D3.

IV. With its grounds of appeal dated 17 December 2008 the appellant requested to set aside the decision and to grant a patent on the basis of the claims 1-17 of the single request as filed together with the grounds of appeal. As an auxiliary request oral proceedings were requested.

V. With a communication dated 10 March 2010 and annexed to the summons to oral proceedings the Board gave its preliminary and non-binding opinion with respect to the claims of the single request.

The Board stated amongst others that claim 1 appeared to contravene Articles 84 and 123(2) EPC. Furthermore, the subject-matter of claim 1 seemed to be obvious in view of the closest prior art according to the embodiment of figures 7 and 8 of D1 and the common general knowledge of the person skilled in the art.

VI. With letter dated 17 May 2010 submitted by fax on 18 May 2010 the appellant submitted, as a response to the summons to oral proceedings, amended sets of claims as a main request and first to third auxiliary requests in combination with an amended description supported by arguments concerning the allowability of the amendments and the patentability of the subject-matter of the claims.

VII. Oral proceedings before the Board were held on 18 June 2010. Only the issue of inventive step was discussed and resulted in that the appellant withdrew all its requests submitted on 18 May 2010 and replaced them at 11h by a new main request and a new first auxiliary request. As a result of the ongoing discussion of inventive step the appellant finally also withdrew these requests at 12h25 and replaced them by a single main request.

The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request filed during the oral proceedings at 12h25.

At the end of the oral proceedings the Board announced its decision.

VIII. Independent claim 1 of the main request reads as follows:

"1. A dual dispense container (10) comprising
an outer container (12) having a neck (22) defining an orifice (24),
an inner container (112) having a neck (122) defining an inner orifice (124),
and
means for securing the containers (12, 112) to one another such that the neck (122) of the inner container (112) is disposed within the neck (22) of the outer container (12) and the necks and their orifices together form a dual dispense orifice (O),
the inner container neck (122) and orifice (124) comprising a central bore (B) that communicates with at least three hollow petals (P) centrally joined to each other,
each hollow petal (P) having an outer wall (123) and an opposed pair of side walls (125) that adjoin the outer wall and wherein the outer container neck (22) encompasses and engages the outer walls (123) of the petals (P) and with the petals (P) form at least three sub-orifices (24s) together comprising the outer orifice (24)
characterised in that it comprises four hollow petals (P) forming four sub-orifices, one in each quadrant of the dual dispense tube, the centrally joined petals radially outwardly extending, said petals and their interior portions being symetrical
the said side walls (125) of each hollow petal, in cross section, are rectilinear and converging as they approach the bore (B), there being a recess (R) between adjacent side walls of each pair of adjacent petals (P),

each of said sub-orifices (24s) being formed of one of the said recesses (R), space segments of an annular wall of the inner container adjoining adjacent side walls of adjacent pairs of petals and defining the bore, the petals (P) and the suborifices (24s) being triangular in cross section, the ratio of the total dispense area of the inner orifice (124) to that of the outer orifice (24) being substantially 1:1."

IX. The appellant argued essentially as follows:

The triangularly shaped dual dispense orifice embodiment of figures 7 and 8 of D1 represents the closest prior art and not the embodiment of figures 9 and 10 of D1 as considered by the Examining Division. Its view cannot be accepted since the embodiment of figures 9 and 10 corresponds to the "dual tube sandwich-type orifice" as described at page 3, lines 14 to 18 of the present application. Said embodiment has a generally rectangular inner orifice having small dents on its long sides which are oriented towards the centre which was presumably the reason why the Examining Division considered them to form two "petals". However, these two "petals" do not communicate with a central bore as they are coalesced with each other. Actually these two "petals" are the central bore and have a different function than the "petals" of a flower which are attached to the corolla, i.e. they are peripheral and communicate with a central part. This significant difference has not only an aesthetic value but also a mechanical one since it influences the mixing of the two compounds to be dispensed.

The most important aspect of the problem to be solved is to provide a simultaneous inter-distribution of the two products having similar viscosities with a maximum surface contact area in order to facilitate their mixing. The two products shall be distributed with a volume ratio of about 1 which should result in a balanced distribution of them in the output, i.e. their ratio should be as constant as possible in the course of time, irrespective of their viscosities and whatever the value of said ratio is (see page 1, lines 21 to 30; page 3, lines 19 to 32; page 4, lines 22 and 23; page 5, lines 17 to 20; page 6, lines 3 to 5). The objective technical problem is thus not limited to a dual dispense container which is suitable for packaging two products having the same or similar flow characteristics and for simultaneously dispensing the products in the same or substantially the same volumes but includes the provision of a better striped appearance and for a maximum effect upon mixing and/or during use, in the case of reactive products. Neither said "sandwich-shaped orifice" of the dual dispense tube according to figures 9 and 10 of D1 or figures 9 and 10 of D4 nor the D-shaped orifice dual dispense tube according to figures 1-8 of D4 are suitable for this purpose and do not provide a radial pressure distribution since they do not have converging petals.

Claim 1 has been amended in view of the prior art embodiments to clarify that the symmetrical four petal shape defines radial slices which are converging as they approach the central bore and that the two walls adjacent the two adjacent petals form a recess, i.e. a fold/corrugation, an angle and not a vague dent. The presence of the four hollow segments between the hollow

petals together with the fact that said hollow petals communicate with said central bore provides an increased number of inner product channel sections and of outer product flow passageways and sub-orifices than heretofore known. The specific triangular geometric configuration contributes to an equal distribution of the two products without differing flow resistances from one part to the other of the dual dispense container (compare page 6, lines 8 and 9 of the application as originally filed). The claimed container does not produce slices of products as the prior art but produces a dispensed product wherein the two products are well pre-mixed due to the four petals in the four quadrants. This symmetrical and radial arrangement of the four petals allows applying the pressure more equally onto both products so that they are distributed more evenly in the dispensed product. With a wider bore the shape will be more trapezoidal but the limit of claim 1 resides in the wording itself. Nothing is added with respect to an embodiment having a wide central bore in combination with small tight petals.

Neither D1 nor the other cited documents give any hint to arrive at the claimed solution according to claim 1. It is not known whether the person skilled in the art would have thought of four petals but the question is whether or not he would have changed to the triangular shape of the application. Claim 1 thus involves an inventive step.

It is admitted that no evidence is on file which would prove any effect attributed to the claimed tube which

would be based on a comparison with respect to the closest prior art D1.

Reasons for the Decision

1. Since the Board came to the conclusion that claim 1 of the single request lacks an inventive step, there is no need to verify whether or not the amendments comply with Articles 84 and/or 123(2) EPC.

2. *Inventive step (Article 56 EPC)*

2.1 The Board would remark that two features of claim 1 of the single request have to be interpreted differently from their literal meaning:

2.1.1 Firstly, the term "central **bore**" of claim 1 has **not** the normal meaning of a bore, i.e. a through hole in a solid body.

According to the present application the "central bore" means basically a round opening which communicates with the four hollow petals and which is formed by four arcuate walls 128 being adjoined to the eight sidewalls 125 of the four petals (see the application as originally filed corresponding to the published WO-A-00 63111; e.g. page 6, lines 16 to 21; and figures 1-3, 5, 7 and 12).

2.1.2 Secondly, although claim 1 defines that "the petals (P) and the sub-orifices (24s) being **triangular in cross section**" neither the petals nor the sub-orifices are,

however, actually triangular in the trigonometric sense, i.e. a figure bounded by three straight lines.

Each of the four petals includes an **arcuate outer wall** 123 having circumferentially opposed ends and a pair of spaced side walls 125 that adjoin the opposed ends and converge as they approach the bore. The inner end of the petal ends in a gap between the spaced side walls and not in an apex. There is a recess (R) between each pair of adjacent petals which corresponds to one sub-orifice (24s). Each of the four sub-orifices is further defined by an **annular wall** 128 - which forms said bore and is formed from spaced segments of a circle - and the corresponding **arcuate wall** portion of outer tube neck 24 together with a pair of spaced side walls 125 (see page 9, line 20 to page 10, line 6 and figure 3). Consequently, the definition "triangular in cross section" of claim 1 has to be interpreted for the sub-orifice (24s) as including four-walled shapes with curved walls with converging walls.

2.2 The Board agrees with the appellant that that the closest prior art for the subject-matter of claim 1 is represented by the dual dispense container ("double collapsible tubes") for dispensing paste products according to figures 7 and 8 of D1.

2.2.1 The container according to D1 comprises in its outer tube a first paste or material which usually is chemically different from the paste or material in the inner tube (e.g. chemically reacting) and it is usually very desirable to mix the two materials upon using them by providing a plurality of streams or ribbons of each

of the materials (see page 1, line 106 to page 2, line 19).

The dual dispense container of figures 7 and 8 has an outer neck portion 5 of an outer circular tube which includes a generally triangular-like orifice formed by the neck 27 of the inner tube (i.e. an inner neck) having three arcuate wall portion extensions, said inner neck 27 having a single orifice 26 and forming with its curved side walls three outer orifices 25 (i.e. three sub-orifices) which all form passageways for the material to be dispensed and have the indicated shape (see figures 7 and 8). The inner orifice 26 is considered to form a "bore" in the sense of point 2.1.1 above and communicates with three hollow petals formed by the three arcuate wall portion extensions. The side walls of said neck 27 of each hollow petal are symmetrical and are diverging in cross section as they approach the central opening of said single inner orifice 26.

This container thus comprises three centrally joined hollow petals radially outwardly extending, the petals and their interior portions being symmetrical.

The Board further considers that the embodiment according to figures 7 and 8 of D1 also comprises a "recess" between each pair of adjacent hollow petals, said "recess" corresponding to the passageway shown by reference sign 25 in figures 7 and 8 of D1 and forming one of three sub-orifices within the meaning of the present application, particularly when considering the - now no longer claimed - embodiments in the application as originally filed, which have pairs of

diverging sidewalls shown in figures 13 and 14, particularly as shown in figure 14. The total dispensing area of the three sub-orifices 25 appears to be smaller than that of the inner orifice 26 so that the ratio of the total dispense areas is not substantially 1:1.

2.2.2 The Board considers that the embodiment according to figures 7 and 8 of D1 - wherein three ribbons of the paste of the outer tube are applied onto one ribbon of the paste of the inner tube - represents a modification of the sandwich-type embodiment of D1 (where two ribbons of the outer paste are applied via two orifices 32 onto one ribbon of the inner paste dispensed from a single orifice 31 having two hollow petals; see page 2, lines 45 to 64; and figures 9 and 10) wherein the number of hollow petals has been increased to three.

2.2.3 D1 states that, although the mixing according to this embodiment is not so thorough as in the case of the one according to figure 4, the peculiar shape of the orifice 26 aids the mixing of the material ejected therefrom with the material ejected from the three orifices 25 (see page 2, lines 20 to 44).

2.3 The subject-matter of claim 1 of the single request thus differs essentially from the container according to the embodiment of figures 7 and 8 of D1 in that there are four hollow petals one in each quadrant, that the pair of side walls of each of the petals in their triangular-like cross section are rectilinear and converging as they approach the bore, and that the ratio of the total dispense area of the inner orifice to that of the outer orifice is substantially 1:1.

2.3.1 The application states that a symmetrical arrangement of four hollow petals with one orifice section in each quadrant of the dual dispense tube is advantageous, e.g. with respect to the dispensing ratio variation during the dispensing life or the pressure distribution (see page 20, line 32 to page 21, line 12; page 22, lines 5 to 15). However, as admitted by the appellant during the oral proceedings there is **no** evidence on file which would support these statements. The comparative examples of the present application have not been made with respect to the closest prior art (see Case Law of the Boards of Appeal of the European Patent Office, 5th edition 2006, section I.D.9.8) so that an effect or advantage compared to the embodiment of figures 7 and 8 of D1 has **not** been made credible. Furthermore, said examples additionally do not specify the respective dispensing areas for the two different materials. These deficiencies have been remarked by the Board in the communication annexed to the summons to oral proceedings (see point 5.3).

It is, however, clear that an embodiment with four petals results in an improved mixing of the two products in the output stream compared to an embodiment having a symmetrical arrangement of only three petals due to the increased interproduct surface contact area.

2.3.2 The ratio of the total dispense area of the inner orifice to that of the outer orifice of substantially 1:1 is a prerequisite in order to allow to dispense two products in substantially equal volumes when both products have a similar viscosity and when a similar pressure is applied to them.

2.3.3 The application as originally filed is silent with respect to an effect of the shape of the petals and sub-orifices. The petals can be of any suitable shape (see page 13, lines 5 to 7) and the side walls forming the petals and sub-orifices are stated to preferably be non-diverging and preferably converging as they approach the bore of the inner container neck (see e.g. page 7, lines 23 to 26; page 8, lines 1 to 6; page 9, lines 27 to 29; page 13, lines 27 to 29) but the pair of side walls can also be diverging (see page 19, lines 13 to 15 and lines 31 to 34), or can have any shape or dimension (see page 21, lines 5).

2.4 Thus the objective technical problem to be solved can be considered to be the provision of a dual dispense container for packaging two products having similar flow characteristics which is suitable for simultaneously dispensing them in the same or substantially the same volumes, and which maximises the mixing between them and produces the same width appearance of them in the dispensed output product (compare page 1, lines 21 to 30; and page 5, line 17 to page 6, line 13 of the application as originally filed).

2.5 Claim 1 does not define any size for the bore relative to the size of the outer tube orifice or any ratio of the bore area to the inner orifice area. The Board therefore considers that the subject-matter of claim 1 covers a range of embodiments having varied dispensing areas attributed to the central bore and to the four petals. This variation may range from one having a very small bore with large petals to the opposite one having a very large bore with only very small petals. The

dispensed output product of the embodiment with the relatively large bore would, however, be similar in its appearance and mixing effect to that of a sandwich-type dispense container according to D1 having four petals, i.e. the distribution and appearance of the two products in the innermost part of the output product is not equal.

It is thus evident that the latter embodiment does **not** solve the aforementioned sub-problems of maximising the mixing and producing the same width appearance of the dispensed output product. The appellant did not submit any counter-arguments in this context during the oral proceedings.

2.6 Consequently, the objective problem of point 2.4 above has to be amended to a less ambitious one, namely the provision of an alternative dual dispense container for packaging two products having similar flow characteristics which is suitable for simultaneously dispensing them in the same or substantially the same volumes.

2.7 The above problem is solved by claim 1 of the single request. The Board considers, however, that this solution is obvious to the person skilled in the art.

2.8 First of all, the person skilled in the art would apply his common general knowledge and would foresee a ratio of the total dispense area of the inner orifice to that of the outer orifice of substantially 1:1 since this represents a prerequisite for dispensing two products having similar viscosity in similar volumes when a

similar pressure is applied to both of them (compare point 2.3.2 above).

Secondly, the person skilled in the art knowing the teaching of D1 - which discloses sandwich-type dispense containers having two petals (see figure 9) or three petals (see figure 7) - would change to a four petal dispense container by applying also his general knowledge that increasing of the number of petals increases the interproduct surface contact area and thereby improves the mixing of the two products.

2.8.1 The appellant's argument that the question to be answered is whether or not the skilled person would have changed to the "triangular shape" of the petals and orifices cannot hold in view of the fact that firstly no effect has been demonstrated which would be attributed to this shape (see point 2.3.1 above) which has to be interpreted as meaning "triangular-like in cross section" (see point 2.1.2 above). Furthermore, the inner orifice 31 of the two petal sandwich-shaped container according to figure 9 of D1 has a constriction in its middle so that the side walls converge towards the inner opening, i.e. towards the bore, between the two petals so that its shape has to be considered to be "triangular-like in cross section".

Besides that - when changing the number of petals from three to four - the person skilled in the art would have to modify the shape of the petals at the same time in order to maintain said dispense area ratio of substantially 1:1.

The aforementioned shape of the petal of the two petal embodiment of D1 (figure 9) represents one suitable shape corresponding to a symmetrical cloverleaf the person skilled in the art would either choose or at least would try with more petals, in particular with four. Thereby the person skilled in the art, however, arrives at the subject-matter of claim 1 in an obvious manner.

2.9 The Board thus comes to the conclusion that the subject-matter of claim 1 of the single request lacks an inventive step over D1. The single request is therefore not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

V. Commare P. O'Reilly