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**Datasheet for the decision
of 1 July 2016**

Case Number: T 2091/12 - 3.2.07

Application Number: 07115235.9

Publication Number: 1857370

IPC: B65D17/34, B21D22/30

Language of the proceedings: EN

Title of invention:

Can End for a Container

Patent Proprietor:

Rexam Beverage Can Company

Opponent:

Ball Packaging Europe GmbH

Headword:

Relevant legal provisions:

EPC Art. 56

RPBA Art. 13(3)

Keyword:

Grounds for opposition - fresh ground for opposition (yes)

Late-filed argument - admitted (no)

Inventive step - (yes)

Decisions cited:

G 0007/95

Catchword:



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Case Number: T 2091/12 - 3.2.07

D E C I S I O N
of Technical Board of Appeal 3.2.07
of 1 July 2016

Appellant: Ball Packaging Europe GmbH
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 18 July 2012
rejecting the opposition filed against European
patent No. 1857370 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman K. Poalas
Members: V. Bevilacqua
E. Kossonakou

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal against the decision rejecting the opposition against European patent No. 1 857 370.

II. The following documents have been referred to by the parties during the present proceedings:

E2: EP 0 621 195;

E4: US 5 738 237;

E5: US 4 503 989;

E6: WO98/22356;

E7: US 5 119 664;

E8: US 4 610 156;

E9: 202 Stolle LOE K10G;

E10: 202 Stolle LOE K10G;

E11: Letter from Stolle Machinery, Inc.;

E17: US 3 191 564;

E18: US 3 781 972;

E19: Affidavit of Randall G. Forrest.

III. Oral proceedings took place before the board on 1 July 2016.

The appellant requested that the decision under appeal be set aside and that European patent No. 1 857 370 be revoked.

The respondent (patent proprietor) requested that the appeal be dismissed (main request), and subsidiarily that the patent be maintained in accordance with one of auxiliary requests 1 to 5, submitted with the reply to the statement of grounds of appeal.

IV. The text of independent claim 1 of the **main request**, corresponding to the patent as granted, is as follows:

"An end member (10) for a container having a circumferential sidewall, the end member having a peripheral seaming edge (14) adapted to be integrally connected to the sidewall, and having a central panel wall (12) with a product side (34b) and a public side (34a), the public side having a means for opening a frangible panel segment (20), the end member comprising:

a rivet (46) positioned within the central panel (12) and adapted to integrally attach a tab lever to the panel, the tab lever having a nose portion (52) overlying at least a portion of the frangible panel segment (20) and having a lift end (48) opposite the nose;

a coined region (58) substantially surrounding the rivet (46), the coined region coin having an outer periphery;

a score groove (35) in the central panel defining an outer perimeter (22) of the frangible panel segment (20), the score groove having a portion separated from the product side of the central panel by a residual, (40);

a vent region (60) located adjacent the rivet (46), a portion of the vent region located within the coined region (58), the frangible panel segment (20) opening initially within the vent region in response to a pulling force on the lift end (48) of the tab lever;

a length of the score groove (62) defined by a thickened portion of the residual (64) located beyond the periphery of the coined region (58), the length of the score groove (62) being bounded at opposing ends by portions of the score groove having a residual

thickness less than the residual thickness of the length of the score groove (62); and a vent coin (65) adjacent the length of the score groove (62) defined by (62) thickened portion of the residual (64) for placing a compressive stress on the length of the score groove (62) defined by a thickened portion of the residual (64)".

V. Insofar as relevant to the present decision, the appellant argued substantially as follows:

A coined region surrounding the rivet is the by-product of forming the rivet by coining and is therefore always present in can end members such as the ones disclosed in E2. Furthermore, such a coined region is present in the can end member known from E2 due to the fact that E2 explicitly refers to E7.

In order to provide an effective vent stop, the thickened portion of the residual has necessarily to be located beyond the periphery of the coined region, because the metal material within the coined region is thinner.

As a consequence, the subject-matter of claim 1 of the main request lacks inventive step over the content of document E2 taken in combination with the knowledge of the person skilled in the art.

E5 discloses both a coined region and a length of the score groove characterised by a thickened portion of the residual, whereby said length is located beyond the periphery of the coined region. Therefore, the subject-matter of claim 1 of the main request does not involve an inventive step over the combination of the teachings of E2 and E5.

E6 teaches that the thickened portion of the residual should be placed away from the rivet. Starting from E2, the subject-matter of claim 1 of the main request also lacks inventive step when combined with the teaching of E6.

Lack of inventive step is also evident starting from E4, when the contents of E8 and E5, both mentioned in E4, are taken into consideration.

VI. Insofar as relevant to the present decision, the respondent argued substantially as follows:

No agreement is given to the introduction into the appeal proceedings of the fresh ground for opposition based on lack of novelty raised by the appellant for the first time in the statement of grounds of appeal.

The lack-of-inventive-step objection based on alleged prior uses was raised after oral proceedings had been arranged. Said objection should not be admitted into the proceedings, since it raises issues which cannot be dealt with without adjournment of the oral proceedings.

Rivet formation at a can end member does not automatically involve coining, see E17 and E18. E7 is only referred to in E2 as an example, and the reference to it in E2 does not imply that a coined region surrounds the rivet at the can end member.

E2 clearly refers to E5 in respect of the score groove having less residual, whereby E5 describes that the score line has a "progressively increasing residual on each side of the rivet".

The appellant's argument that the only possible location to place a vent stop feature would be beyond the periphery of the coined region is contradicted by the experience of a skilled person, according to which the preferred location for this feature is rather within the coined region surrounding the rivet.

The problem to be solved can be seen in the provision of safe venting when opening the can end member.

E5 relates to an outwardly opening frangible panel, which is a completely different can end member structure to the one disclosed in E2.

Since E6 is directed to avoiding splashing out of the beverage contained in the can due to the frangible panel segment rapidly moving into contact with the beverage, the skilled person starting from E2 and seeking to solve the above-mentioned problem of safe venting would not take the teaching of E6 into consideration.

Accordingly, the subject-matter of claim 1 of the main request involves an inventive step over the teaching of E2 in combination with either the knowledge of the person skilled in the art or the teachings of one of E5 and E6.

E4 does not disclose a coined region around the rivet, it does not give any teaching on the positioning of vent coin and check slot and it does not disclose a length of the score line having thicker residual being bounded at opposing ends by portions of the score groove of reduced residual thickness.

Neither E5 nor E8 discloses a length of the score line having thicker residual being bounded at opposing ends by portions of the score groove of reduced residual thickness.

As a consequence, the combination of the teaching of E4 with one of the teachings of E5 and E8 does not render the subject-matter of claim 1 of the main request obvious.

Reasons for the Decision

1. *Fresh ground for opposition (lack of novelty)*
- 1.1 According to the headnote of G 7/95, OJ EPO 1996, 649, "In a case where a patent has been opposed under Article 100(a) EPC on the ground that the claims lack an inventive step in view of documents cited in the notice of opposition, the ground of lack of novelty based upon Articles 52(1), 54 EPC is a fresh ground for opposition and accordingly may not be introduced into the appeal proceedings without the agreement of the patentee".
- 1.2 In its statement of grounds of appeal the appellant raised for the first time in the present opposition-appeal proceedings a lack of novelty objection based on alleged prior uses and filed evidence therefor.
- 1.3 The respondent explicitly requested that the above-mentioned fresh ground for opposition not be introduced into the appeal proceedings.
- 1.4 Given that according to G 7/95, *supra*, the board has no power to examine the above-mentioned fresh ground for opposition without the patent proprietor's agreement,

the board does not admit the appellant's lack of novelty objection into the appeal proceedings.

2. *Admissibility of the appellant's lack of inventive step objection raised after oral proceedings had been arranged and based inter alia on alleged prior uses*

2.1 According to Article 13(3) RPBA amendments sought to be made after oral proceedings have been arranged are not to be admitted if they raise issues which the board or the other party or parties cannot reasonably be expected to deal with without adjournment of the oral proceedings.

2.2 In the present case the appellant submitted with its letter dated 1 June 2016 (see point 3), i.e. after oral proceedings had been arranged, for the first time in the present opposition-appeal proceedings an objection as to lack of inventive step based *inter alia* on alleged prior uses.

2.3 As lack of inventive step had only been challenged up to that point of the appeal proceedings on the basis of the provided patent literature, the above-mentioned new objection based *inter alia* on alleged prior uses amounts to a complete change of the appellant's case.

2.4 This new inventive step attack raises complex issues requiring *inter alia* a discussion on whether the alleged prior uses based on documents E9-E11 and E19 can be regarded as substantiated and/or proven on the basis of the evidence submitted.

2.5 Due to the very late stage of the appeal proceedings at which this objection had been raised, it cannot be reasonably expected that the patent proprietor or the

board can deal with the above-mentioned complex issues without adjournment of the oral proceedings.

2.6 For the above reasons the board does not admit the appellant's lack of inventive step objection based *inter alia* on alleged prior uses into the appeal proceedings in accordance with Article 13(3) RPBA.

3. *Claim 1 of the main request - inventive step*

3.1 *Starting from E2*

3.1.1 The appellant argues that the subject-matter of claim 1 lacks inventive step over the disclosure of E2 taken in combination with either the knowledge of a skilled person or the teaching of E5.

Disclosure of E2

3.1.2 E2 discloses (see figures 1-9) an end member for a container having a circumferential sidewall (a can), the end member having a peripheral seaming edge adapted to be integrally connected to the sidewall, and having a central panel wall (10) with a product side (figure 2) and a public side (shown in figure 1, see also figure 8), the public side having a means for opening (27, see the dashed line in figure 2) a frangible panel segment (12), the end member comprising:
a rivet (25) positioned within the central panel (10) and adapted to integrally attach a tab lever (27, dashed in figure 2) to the panel (as explained at column 4, lines 8-18), the tab lever having a nose portion (28, see column 4 line 19) overlying at least a portion of the frangible panel segment (12) and having a lift end (30) opposite the nose.

3.1.3 Figure 3 depicts the venting region adjacent the inner end of the tear panel score line and the rivet, and shows a circular double line (without reference sign) substantially surrounding the rivet (see the lower portion of figure 3), said line defining the outer periphery of a region. A similar line is also shown in figure 8. As the description does not contain any information concerning this double line, it is not possible to conclude whether said double line indicates a coined area, or the two sides of a score line, or a raised or embossed region.

3.1.4 The can end member of E2 also comprises:

a score groove (15, see column 4, line 7) in the central panel defining an outer perimeter of the frangible panel segment (12), the score groove having a portion separated from the product side of the central panel by a residual (see figures 4-7);

a vent region (35, see figures 1 and 3 and column 4 lines 19-35) located adjacent the rivet (see figure 1), a portion of the vent region located (in the embodiment of figure 8) within the region surrounding the rivet, the frangible panel segment (12) opening initially within the vent region in response to a pulling force on the lift end (30) of the tab lever (27).

3.1.5 As explained in column 4, lines 45-50 of E2, this can end member also comprises a length of the score groove (15) defined by a thickened portion of the residual.

This feature is called "score stop" in E2, and is described in column 1, lines 49-57, where it is also explained that said length of the score groove being a shallower (less deep) **segment**, is bounded at opposing

ends by portions of the score groove being deeper (having less residual thickness).

The board considers that the reference in column 1, lines 49-51, of E2 to E5 is only for example purposes and is not formulated in such a way that the score groove structure of E5 should be considered as replacing the shallower segment of score line mentioned explicitly in E2.

3.1.6 E2 discloses further a vent coin (40, 40A) adjacent the length of the score groove (see figures 1 and 8) for applying a compressive stress on the length of the score groove defined by a thickened portion of the residual, i.e. the score stop (see column 5, lines 8-15).

3.1.7 The appellant argues that a coined region substantially surrounding the rivet and having an outer periphery is implicitly disclosed in E2 as a by-product of forming the rivet.

The board disagrees because rivet-forming methods without coining of the area surrounding the rivet are known in the art, see for example E18, figures 3-6; column 3, line 38, to column 4, line 27.

3.1.8 The appellant further argues in this respect that a coined region substantially surrounding the rivet and having an outer periphery is disclosed in E2, since E2 refers in column 5, line 6, to E7, and E7 mentions explicitly such a coined region around a rivet (column 3, lines 24-31; column 6, lines 48-65; figures 4A to 4D, 9 and 13).

The board disagrees with this argument since E2 refers to E7 only to demonstrate typical can end member conversion tools to be used for forming can end members. Such a reference is not to be interpreted as a statement that the can end members disclosed in E2 have been formed by these tools. Accordingly, the disclosure of E7 including a coined region surrounding the rivet is not to be considered as being incorporated in the disclosure of E2.

Differences

- 3.1.9 E2 fails therefore to disclose the following features of claim 1 of the main request:
a coined region substantially surrounding the rivet, the coined region having an outer periphery (feature (a));
a portion of the vent region being located within the coined region, whereby the length of the score groove defined by a thickened portion of the residual (called **check slot** in the patent in suit and in the following) is located beyond the periphery of the coined region (feature (b)).

Effects

- 3.1.10 Coining is a form of precision stamping in which a workpiece is subjected to a sufficiently high stress to induce plastic flow on the surface of the material. This process is normally used on sheet metal when small reliefs with good dimensional tolerances, like the rivet of a can end, are required.
- 3.1.11 According to the patent in suit the positioning of the vent coin outside of the coined region increases the compressive stress applied on the frangible score, see

paragraphs 34 and 35. This results in an increase of the resistance of the can end member to internal pressure without the need to change its residual thickness, as argued by the respondent.

From the above it follows that feature (a) has an influence on the functionality of the check slot and of the vent coin. On the other hand there is no indication in the patent in suit that the presence of a check slot outside the coined region surrounding the rivet would require a modification of said region.

This means, for the purposes of discussing inventive step, that there is only a unidirectional interaction and that therefore two distinct problems can be formulated and are to be discussed.

Problems to be solved

- 3.1.12 The problem linked to feature (a) can be seen as how to form the rivet of the can end member of E2.
- 3.1.13 The problem linked to feature (b) can be seen as how to reliably slow down the fracture of the score line during opening, thereby achieving a reliable venting effect.

Discussion of inventive step

- 3.1.14 The board concurs with the appellant that the skilled person would solve the first problem by coining the area surrounding the rivet without the need for any inventive skills, because several prior-art documents point towards such a solution, see for example E7.

3.1.15 The appellant argues that feature (b) is also to be considered obvious, due to the fact that a skilled person would never position the check slot within the periphery of the coined region, because said region normally has a reduced thickness (see E2, column 5, lines 8-13). In this region it would not be possible to provide the check slot with enough residual (thickness) to reliably slow down propagation of the fracture of the frangible score.

The board disagrees with this argument, because the thickness of the residual is just one of the parameters having an influence on the capability of the check slot to reliably slow down the fracture of the score line. Other factors such the deformation induced by internal pressure on the check slot region, or internal stresses created in this region during the production of the can end member, also play a very important role, such that there is no guarantee that by maximising the residual thickness of the check slot satisfying results may be achieved.

As a consequence, the board concludes that starting from E2 the person skilled in the art would not be guided by his general technical knowledge to position the check slot outside the periphery of the coined region, as argued by the appellant.

3.1.16 The appellant argues further that a skilled person starting from E2 would solve the above-mentioned second problem by positioning the check slot beyond the periphery of the coined region by applying one of the teachings of E5 and E6.

The board disagrees, because these prior-art documents do not contain such an indication.

E5 discloses a can end member with a frangible panel segment opening outwardly, and not inwardly. Therefore, the skilled person when looking for a hint on the positioning of the check slot and the coined region would not consider E5 as being a particularly relevant document to be taken into consideration.

E5 further discloses a length of the score groove defined by an increasingly thicker portion of the residual (see column 3, line 66, to column 4, line 23), and it does not mention any coined region **surrounding** the rivet (coining of a different area is however mentioned in column 5, lines 13-19).

E5 therefore cannot provide any teaching leading a skilled person towards solving the second problem by positioning the length of the score groove defined by a thickened portion of the residual beyond the periphery of the coined region surrounding the rivet.

E6 is concerned with the avoidance of splashing-out of the beverage contained in the can due to the frangible panel segment rapidly moving into contact with the beverage, see page 4, lines 19-29. E6 discloses a thickened residual positioned at a specific distance from the rivet, see page 21, lines 2-7. A coined region adjacent to this thickening could not reasonably be called a vent coin.

Accordingly, due to the fact that E6 is not directed to the problem of reliably slowing down the fracture of the score line during opening, thereby achieving a reliable venting effect, the person skilled in the art seeking to solve the above-mentioned problem would not take the teaching of E6 into consideration. If he were

to take the teaching of E6 into consideration, he would not be guided to feature (b), since E6 does not teach placing a thickened residual at a place which is near the venting location or where missiling takes place.

3.2 *Starting from E4*

3.2.1 The appellant argues that the subject-matter of claim 1 of the main request lacks inventive step over the teaching of E4, when due consideration is given to the teachings of E5 and E8, which are explicitly referred to in E4.

Disclosure of E4

3.2.2 E4 discloses an end member (depicted in figures 1A and 1B) for a container having a circumferential sidewall, the end member having a peripheral seaming edge (14) adapted to be integrally connected to the sidewall, and having a central panel wall (12) with a product side (the lower side in figure 1B) and a public side (the upper side in figure 1B), the public side having a means for opening a frangible panel segment (16), the end member comprising:

a rivet (24, see column 4, lines 40-67) positioned within the central panel (12) and adapted to integrally attach a tab lever (26) to the panel, the tab lever having a nose portion (28) overlying at least a portion of the frangible panel segment (16) and having a lift end (30) opposite the nose.

3.2.3 E8 refers to coining at the base of a rivet produced at the can end member, see column 5, line 64, to column 6, line 13. Given that there is an explicit reference in column 5, lines 56-60, of E4 to E8, it follows that E4

also discloses a coined region substantially surrounding the rivet and having an outer periphery.

- 3.2.4 E4 further discloses (see figures 3A-3B; column 5, line 65, to column 6, line 29) a score groove (18) in the central panel defining an outer perimeter of the frangible panel segment (16), the score groove having a portion separated from the product side of the central panel by a residual (R1, see figure 3B); a vent region (see column 3, lines 17-20) located adjacent the rivet (26), the frangible panel segment (16) opening initially within the vent region in response to a pulling force on the lift end of the tab lever; a vent coin (38) adjacent the score groove in the vent region (18, see column 3, lines 27-56, column 6, lines 13-29, and column 7, lines 12-36) for placing a compressive stress on the length of the score groove (62) in the vent region.
- 3.2.5 The appellant argues further that, as E8 teaches that the rivet has a circular coined area surrounding it (see column 6, lines 11-13) having a relatively small diameter (see column 6, line 43, to column 7, line 8; figures 4A-4C), the vent coin of E4 (38, 238) would inevitably be located beyond the periphery thereof, as is clearly shown in figure 5A of E4.

The board disagrees for the following reasons:

E8 does not disclose a vent coin. It thus cannot provide any teaching in relation to the position of such a vent coin. Although figure 5B of E8 shows that a portion of the score groove is within the periphery of the coined region, E8 does not provide any concrete information on the dimensions of this coined area.

E4 mentions the use of a shallower segment of the score line of relatively short length to increase tear resistance and for safe venting (see column 2, lines 39-51). The reference in the same passage of E4 to E5 is only for example purposes and is not formulated in such a way that the score groove structure of E5 should be considered as replacing the shallower segment of score line explicitly mentioned in E4.

Differences

- 3.2.6 E4 therefore fails to disclose a length of the score groove defined by a thickened portion of the residual located beyond the periphery of the coined region, the length of the score groove being bounded at opposing ends by portions of the score groove having a residual thickness less than the residual thickness of the length of the score groove (check slot); that the vent coin is adjacent the length of the score groove defined by a thickened portion of the residual for placing a compressive stress on the length of the score groove defined by a thickened portion of the residual.

Effects

- 3.2.7 The above-mentioned differentiating features have a common effect, because they all contribute to achieving safe venting.

This is particularly evident as the vent score and the check slot interact with each other (see paragraphs 34 and 35 of the patent in suit), because the vent coin induces compressive stress on the check slot, thereby

increasing the overall resistance of the can end member.

Problem to be solved

- 3.2.8 The board considers that the problem to be solved can be seen in the provision of a reliable slow-down of the fracture of the score line during opening, thereby achieving a reliable venting effect.

Discussion of inventive step

- 3.2.9 The appellant argues that starting from the can end member described in E4, the skilled person seeking to solve the above-mentioned problem would provide the can end member with a shallower segment of the score line, as disclosed in column 2, lines 39-51, of this same document, and would arrive at the subject-matter of claim 1 of the main request without the exercise of an inventive activity.

The board disagrees.

The board considers that column 2, lines 39-51, of E4 discloses only the general information that a shallower segment of the score line is used as score stop. There is no information therein that said segment is to be positioned adjacent to the vent coin, such that a compressive stress is placed on it, as claimed in claim 1 of the main request.

- 3.2.10 The appellant further argues that starting from the can end member known from E4 the skilled person seeking to solve the above-mentioned problem would apply the teaching of E5 and arrive at the subject-matter of

claim 1 of the main request without the exercise of an inventive activity.

The board disagrees for the following reasons:

E5 would not be regarded by the skilled person as being a particularly relevant document, since it discloses a can end member with a substantially different structure from the one known from E4, as the frangible panel segment of E5 opens outwardly, and not inwardly as is the case in E4.

E5 discloses a score groove in the proximity of the rivet and has a residual increasing outwardly (see column 3, line 66, to column 4, line 23). Therefore, as the residual continuously increases outwardly, E5 does not disclose a length of the score groove defined by a thickened portion of the residual and being bounded at opposing ends by portions of the score groove having less residual thickness.

Further, E5 does not mention any coined region surrounding the rivet. As a consequence E5 does not disclose a hint for positioning a length of the score groove defined by a thickened portion of the residual beyond the periphery of a coined region surrounding the rivet.

Finally, E5 does not teach that the vent coin should be adjacent to the length of the score groove defined by a thickened portion of the residual for placing a compressive stress on it.

3.3 For the above-mentioned reasons the subject-matter of claim 1 of the main request involves an inventive step.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



G. Nachtigall

K. Poalas

Decision electronically authenticated