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**Datasheet for the decision
of 6 October 2011**

Case Number: T 0357/08 - 3.2.07
Application Number: 00308143.7
Publication Number: 1088760
IPC: B65B 51/22, B29C 65/08
Language of the proceedings: EN

Title of invention:
Ultrasonic sealing apparatus

Patent Proprietor:
Shikoku Kakoki Co., Ltd.

Opponent:
AB Tetra Pak

Headword:

-

Relevant legal provisions:
EPC Art. 56, 87(1), 100(c), 123(2)

Relevant legal provisions (EPC 1973):

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Keyword:

"Added subject-matter: no"
"Entitlement to priority: yes"
"Allowance of new arguments in appeal proceedings: yes"
"Inventive step: yes"

Decisions cited:

G 0009/91

Catchword:

-



Case Number: T 0357/08 - 3.2.07

D E C I S I O N
of the Technical Board of Appeal 3.2.07
of 6 October 2011

Appellant:
(Opponent)

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Decision under appeal:

Interlocutory decision of the Opposition
Division of the European Patent Office posted
19 December 2007 concerning maintenance of
European patent No. 1088760 in amended form.

Composition of the Board:

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

Summary of Facts and Submissions

- I. Opposition was filed against European patent No. 1 088 760 as a whole based on Article 100(a) EPC (lack of novelty and lack of inventive step) and Article 100(c) EPC (added subject-matter).

The opposition division decided that it intended to maintain the patent in amended form in accordance with the first auxiliary request.

- II. Both the proprietor (respondent) and the opponent (appellant) filed an appeal against that decision.

During the oral proceedings before the Board the proprietor withdrew its appeal.

- III. The appellant requested that the decision under appeal be set aside and that the patent be revoked.

The respondent requested that the decision under appeal be set aside and that the patent be maintained on the basis of the first auxiliary request or in the alternative, on the basis of one of the second to ninth auxiliary requests, all filed with letter dated 6 September 2011.

- IV. Claim 1 of the **main request** (filed as first auxiliary request) reads as follows (amendments when compared to claim 1 of the patent as granted are depicted in bold or struck through by the Board):

"An ultrasonic sealing apparatus (7) for transversely ultrasonically sealing a tubular packing material

comprised of a laminated body including at least a thermoplastic resin layer having a tubular form and containing a fluid, the apparatus comprising:
a horn (12) having an elongated and flat sealing face (11);
a plurality of converters (13) for resonating the horn (12); and
an opposing jaw (18) with an action face (16) including a flat pressing portion for pressing a surface of the packing material in cooperation with the sealing face (11) of the horn (12) **and two grooves for forming a respective molten thermoplastic resin bulge (19) in contact with the fluid in the tubular packing material to control the thickness and width of molten thermoplastic resin flowing out to the side in contact with the fluid,**
wherein a **each** groove (20) is disposed on the action face (16) of the opposing jaw (18) in a vicinal area outside the sealing zone ~~for forming a molten thermoplastic resin bulge (19) in contact with the fluid in the tubular packing material to control the thickness and width of the molten thermoplastic resin flowing out to the side in contact with the fluid.~~

V. In view of the tenor of the present decision the wording of claim 1 of the other requests is of no relevance.

VI. The documents of the opposition proceedings cited in the present decision are the following:

D1: EP-A-0 979 723

D4: US-A-4 241 560

D5: JP-A-08-230834 with computer translation into
English

D13:DE-A-1 279 320

D17:US-A-5 730 351

and of the appeal proceedings:

D19:EP-A-1 066 951

VII. The arguments of the appellant may be summarised as follows:

(i) Claim 1 of the main request contains added subject-matter compared to the application as originally filed.

The feature that there are two grooves was not originally disclosed. In the embodiments shown in figures 5 and 6 there are four and three grooves respectively. The claim also covers the possibility that the two grooves are on the same side of the pressing zone and such an embodiment has not been disclosed originally.

There is no disclosure in the application as originally filed that the action face of the opposing jaw includes a flat pressing portion. This feature is not disclosed in the description and it cannot be deduced from the drawings since they show only a cross-section at one point so that no conclusions can be drawn for the cross-section at other points. It cannot be considered to be implicit because there exist non-flat pressing portions in the prior art. In the case of D13 the horn and anvil have faces with different profiles so that it

is possible for faces with different profiles to cooperate. This is also the case with D19.

The term "outside" with respect to the vicinal areas containing the grooves has been introduced which was not disclosed in the application as originally filed. The figures of the opposed patent show, however, that the grooves are inside the sealing zone.

(ii) Claim 1 of the patent is not entitled to the claimed priority date.

In particular the presence in claim 1 of the feature of a plurality of convertors for resonating the horn does not ensure that the priority claimed was actually the first application for the invention and not D1.

It is clear from the figures of D1, which is identical to its priority application, that there are two convertors which therefore form a plurality. Even if D1 does not disclose a plurality of convertors this is a trivial feature. It cannot be allowed that the provisions of Article 87(1) EPC may be circumvented by adding a trivial feature to a claim.

This has the result that D1 is part of the prior art pursuant to Article 54(2) EPC.

(iii) D4 was referred to in the opposition proceedings and in the appeal grounds so that it should be possible to refer to it in the argumentation with respect to lack of inventive step.

(iv) The subject-matter of claim 1 of the main request does not involve an inventive step.

Starting from D4 claim 1 is distinguished by the features that there are a plurality of convertors and that there are two grooves as opposed to the single one disclosed in D4. D4 seals individual non-endless cartons.

D5 shows that the skilled person needs to provide a groove on each side of the sealing element (see figure 5) and so it gives him the necessary information to apply this teaching to the apparatus of D4.

If the apparatus as claimed is to be seen as limited to the endless type, one could also start from D5. In that case the difference would be merely to provide a plurality of convertors.

For both lines of argumentation D17 shows that it was known to the skilled person to provide a plurality of convertors for resonating the horn.

VIII. The arguments of the respondent may be summarised as follows:

(i) The amendments made to claim 1 do not add subject-matter.

The figures show two grooves, one on each side of the pressing zone in a vicinal area in contact with the fluid. It would not make technical sense for the claim to be interpreted as covering the two grooves being on the same side since one of them would then be redundant.

Figure 5 shows that the opposing jaw has a flat pressing face in cross-section and the skilled person would plausibly understand that in the absence of any other indication the rest of this face is also flat. It is so to speak the default interpretation of the figures by the skilled person.

It is indicated in paragraph [0018] of the A2 publication that the grooves on the action face of the opposing jaw form resin bulges and it is indicated that these are formed by the thermoplastic resin being "discharged out of the sealing zones" so that the bulges must therefore be "outside" of these.

(ii) Claim 1 is entitled to the claimed priority date.

At least the feature that there are a plurality of convertors for resonating the horn is not disclosed in D1 so that the priority application of D1 is not the first application for the present invention. D1 discloses a **single** U-shaped high-frequency coil and it is the cross-section of this single coil that is visible in the figures of D1 whereby logically its two legs are visible in this cross-section. It is not a trivial feature since it ensures uniform application of the heat.

(iii) In accordance with G 9/91 (OJ EPO 1993, 408) the appellant should not be allowed to refer to D4 in its arguments for lack of inventive step since it did not particularly refer to this document in the opposition proceedings. If the Board does allow it do so the

respondent is entitled to defend its case before two instances.

(iv) The subject-matter of claim 1 of the main request involves an inventive step.

D4 discloses an apparatus in which the top of an individual carton is folded and sealed. This type of apparatus is fundamentally different to the endless type of apparatus as set out in the claim and as disclosed in D5. First of all the skilled person would not start from an apparatus sealing individual cartons and secondly he would not look to the teaching of an apparatus sealing an endless tube in order to solve a problem with a non-endless type apparatus. The former type has contact with the packaged fluid on both sides of the sealing arm and necessarily includes a cutting device so that its constructional features are quite different to those of the latter type.

D5 is not a proper starting point, as there are more distinguishing features, the more pronounced ones being the absence of an ultrasonic sealing apparatus with a plurality of convertors and the grooves being disposed on outside of the sealing zone. Thus even applying the teaching of D17 would not result in the apparatus as claimed.

Reasons for the Decision

1. *Added subject-matter (Articles 100(c) and 123(2) EPC)*

1.1 The appellant argued that the following features of claim 1 of the main request were not disclosed in the application as originally filed:

- a) the provision of **two** grooves;
- b) the action face of the opposing jaw including a **flat** pressing portion; and
- c) the vicinal area being **outside** the sealing zone.

1.2 The Board considers that in the application as originally filed in claim 1 it is specified "at least grooves" which form bulges "in the vicinal areas of the sides in contact with a fluid of the sealing zones". In the description it is disclosed that the sealing zone is positioned in between two packages that each contain the fluid. It is clear therefore that there are only two vicinal zones each in contact with a respective portion of the fluid. This is reflected in the two embodiments of figures 5 and 6 respectively which show two grooves 20 in these respective areas.

The suggestion of the appellant that the claim does not exclude that the two grooves are on one and the same side of the sealing zone is an attempt to misinterpret the claim in a way which, as pointed out by the respondent, does not make technical sense since the second groove would have no function. The Board agrees with the respondent in this respect.

There is thus a basis in the application as originally filed for this amendment.

1.3 In claim 1 of the application as originally filed is mentioned a horn having a "flat sealing face and an opposing jaw with an action face comprising a pressing portion". In the original description there is a reference to the sealing zones being concordant with the pressing portions (see page 15, lines 3 to 5). On page 16, lines 3 to 10, it is made clear that the grooves are outside the sealing zones. On page 21, line 15, it is indicated with respect to the embodiments of figures 5 and 6 that the horn has flat sealing faces 11. It is then indicated (lines 15 to 18) that the opposing jaw has an action face which includes pressing portions to press in cooperation with the sealing faces of the horn. These sealing faces of the horn are shown in figures 5 and 6 wherein the form of the flat sealing faces 11 is depicted in an identical manner to that of the pressing portion of the opposing jaw.

In the view of the Board this would lead the skilled person to assume that the pressing portions of the opposed jaw are also flat in the same sense as the sealing faces of the horn are described as flat.

The appellant argued that the drawings only show a cross-section at one point and do not allow conclusions to be drawn for the whole extent of the faces of the pressing portions of the opposing jaw.

However, as explained above the nature of the description of the pressing faces of the horn and opposing jaw is such that the skilled person would assume that they are both flat and this is confirmed

for the skilled person by the cross-section depicting them both in the same manner.

In this respect the appellant referred to D13 which in figure 3 shows a horn and an opposing jaw whereby the horn 1 is flat and the opposing jaw 2 is not flat and to D19 which discloses recesses in the longitudinal extension of a horn.

The Board notes, however, that in both these cases the difference was specifically shown in the figures whereby in the present application as originally filed both the horn and the opposing jaw are shown as flat.

There is thus a basis in the application as originally filed for this amendment.

- 1.4 The appellant argued that the term "outside" with respect to the vicinal areas had been introduced into the claim, which was not disclosed in the application as originally filed and it suggested that the figures of the opposed patent show that in fact the grooves are inside the sealing zone.

As pointed out by the respondent, on page 17, lines 2 to 16 of the application as originally filed, the grooves on the action face of the opposing jaw are stated to form resin bulges and it is indicated that these are formed by the thermoplastic resin being "discharged out of the sealing zones" so that these must therefore be outside of the sealing zones. The exact position of the grooves cannot be derived from the figures as these are schematic so that the latter

cannot be considered to be inconsistent with the amendment.

Therefore there is a basis in the application as originally filed for the amendment.

1.5 The Board concludes therefore that claim 1 according to the main request does not offend Article 123(2) EPC.

2. *Entitlement to priority*

2.1 The appellant argued that claim 1 of the patent as granted and as amended according to the main request was not entitled to the claimed priority date. The basis of its argument was that the priority application of D1 was the real first application for the invention so that the priority claim of the patent in suit was not valid.

D1 is a European patent application by the same applicant as for the patent in suit, which claims priority from a Japanese application which has a filing date more than 12 months earlier than that of the claimed priority date for the patent in suit. The appellant asserted, and the respondent did not dispute it, that the content of D1 was identical to that of its priority document.

2.2 The question to be decided is therefore whether or not it is the same invention, i.e. could D1 support a priority claim for claim 1 of the main request.

One of the features of claim 1 as granted as well as of claim 1 of the present main request is that there is a plurality of convertors for resonating the horn.

In paragraph [0024] of D1 it is indicated that the sealing jaw is equipped with a high-frequency coil having a U shape. In paragraph [0029] reference is made to figure 6 and "the high-frequency coil 2". In figure 6 and the other figures showing a cross-section of the jaw the coil appears twice. However, as pointed out by the respondent this is to be expected due to the U-shape of the high-frequency coil, of which a cross-section through the two legs of the "U" produces two individual parts of the coil.

The Board agrees with the respondent in this respect.

The appellant further argued that this feature was a trivial feature which could be left out of consideration. If the priority was to be recognised merely because of the additional presence of such a trivial feature, it would mean that the provisions of Article 87(1) EPC could be easily circumvented.

The Board notes that there is no evidence that this is a trivial feature. It is rather the contrary since it is indicated at the end of paragraph [0018] of the patent in suit (for which there is a corresponding paragraph in the application as originally filed) that the use of plural convertors allows a uniform heat seal.

- 2.3 The Board concludes therefore that the priority application of the patent in suit was the first application for the subject-matter of claim 1 of the

main request so that it is entitled to the claimed priority date.

As a result D1, whose publication date is later than said priority date, is not part of the prior art pursuant to Article 54(2) EPC.

3. *Allowance of arguments of lack of inventive step based on D4*

3.1 The respondent argued based on G 9/91 (*supra*) that D4 should not be taken into consideration. It argued that the appellant had barely referred to D4 during the opposition proceedings and that allowing the appellant now to argue on the basis of this document would take away the respondent's right to have its case heard in two instances.

3.2 The Board notes that the case law of the Boards of Appeal allows in certain circumstances for new documents to be admitted into the appeal proceedings without necessarily remitting the case to the department of first instance so that a case is not always heard in two instances. In the present case the document was already present in the first instance proceedings even if not principally relied upon and the arguments based on the document have already been presented with the appeal grounds. The respondent is not therefore presented at a late stage of the proceedings with a new case and has had the time to prepare its case.

The Board therefore allowed the document to be used by the appellant in its arguments regarding inventive step.

4. *Inventive step*

4.1 The appellant started its argumentation from D4.

According to the appellant, and it was not disputed by the respondent, the apparatus of claim 1 is distinguished over the disclosure of this document by the features that:

there are a plurality of convertors for the horn; and

there are two grooves for forming a respective bulge in contact with the fluid in the packing material to control the resin flowing out to the side in contact with the fluid.

4.2 The apparatus known from D4 is of the type whereby the cartons are already individually formed and it is only necessary to fold and seal their upper ends. This is hereinafter called the "individual type".

In accordance with claim 1 there are to the contrary two grooves which each form a bulge of resin in contact with the fluid. This means that the apparatus according to claim 1 is of the type sealing an endless fluid-filled carton tube passing through the apparatus which seals simultaneously the trailing end of the preceding carton and the leading end of the next carton, both still connected to each other. This is hereinafter called the "endless type".

4.3 The respondent argued that the endless type of apparatus, to which claim 1 is directed, is

fundamentally different to the individual type as disclosed in D4. It pointed out that the whole construction is different, for example in the former apparatus the carton tube passes through the sealing device and is not yet formed into individual cartons, whereas in the latter type individual cartons are already formed and move along underneath the sealing device which means that also the problems to be solved are different. In this respect the apparatus according to D4 only has to deal with possible fluid contact on one side of the seal. In addition the sealing device disclosed therein must also perform the folding function.

4.4 The Board agrees with the respondent that for the present case the individual type apparatus disclosed in D4 is not the proper starting point for the discussion of inventive step. Also the skilled person would not have a reason to start from such an individual carton sealing apparatus when wishing to construct a continuous tube sealing apparatus as in claim 1. It is clear that the problems to be solved are very different for the two types of apparatus, most particularly the sealing zone being in both directions in contact with the fluid which has to be expelled during sealing. The entire reasoning of the appellant starting from D4 cannot therefore succeed.

4.5 The appellant also started from D5 which discloses an endless type apparatus that includes slots for accepting molten resin from the sealing zone. The heat sealing is effected by electrical inductors. However, for the Board these slots are provided in the same jaw as the inductors, i.e. they are not in the action face

of the opposing jaw as specified in claim 1 of the main request. Secondly, as they are in that same jaw as the inductors, they are in the sealing zone, not in a vicinal area and **outside** the sealing zone as presently claimed. None of the available documents discloses such features, nor renders them obvious.

In particular, since the Board has already considered that the discussion of inventive step cannot start from D4 because the apparatus disclosed therein is of a different type, the Board considers that the skilled person also would not turn to D4 to solve a problem having started from D5 since the latter type is different from the type disclosed in D4.

Thus, also the reasoning against inventive step starting from D5 cannot succeed.

4.6 It is not necessary to discuss whether the first distinguishing feature of the claim, i.e. the provision of a plurality of convertors, could contribute to an inventive step since the Board considers that the subject-matter of the claim is not obvious in view of the other distinguishing features as explained above.

4.7 Therefore, the subject-matter of claim 1 of the main request involves an inventive step in the sense of Article 56 EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent on the basis of:

claims 1 to 6 as filed as first auxiliary request with letter dated 6 September 2011;

columns 1 to 9 of the patent as granted;

figures 1 to 6 of the patent as granted.

The Registrar:

The Chairman:

G. Nachtigall

H. Meinders