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D E C I S I O N
of 10 April 2002

Case Number: T 0493/99 - 3.2.4

Application Number: 91311929.3

Publication Number: 0493953

IPC: F16J 15/08

Language of the proceedings: EN

Title of invention:

A metal plate with intersecting beads

Patentee:

ISHIKAWA GASKET CO. LTD.

Opponent:

ElringKlinger AG

Headword:

-

Relevant legal provisions:

EPC Art. 54(1)

EPC R. 67

Keyword:

"Novelty - yes"

"Measurement of a patent drawing"

"Reimbursement of the appeal fee - no"

Decisions cited:

T 0204/83

Catchword:

-



Case Number: T 0493/99 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 10 April 2002

Appellant: ISHIKAWA GASKET CO. LTD.
(Proprietor of the patent) 5-5 Toranomom 2-chome
Minato-ku
Tokyo (JP)

Representative: Goddard, David John
HARRISON GODDARD FOOTE
Orland House
11c Compstall Road
Marple Bridge
Stockport SK6 5HH (GB)

Respondent: ElringKlinger AG
(Opponent) Max-Eyth-Str. 2
D-72581 Dettingen/Ems (DE)

Representative: Röhl, Wolf Horst, Dipl.-Phys., Dr.
Rethelstrasse 123
D-40237 Düsseldorf (DE)

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 9 March 1999
revoking European patent No. 0 493 953 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: C. A. J. Andries
Members: M. G. Hatherly
H. Preglau

Summary of Facts and Submissions

- I. The opposition division's decision revoking the European patent No. 0 493 953 was posted on 9 March 1999.

The appellant (patentee) filed a notice of appeal on 5 May 1999, paid the appeal fee on 17 May 1999 and filed the statement of grounds on 9 July 1999.

- II. Claim 1 as granted reads:

"A metal plate for a gasket, comprising,
a main metal plate (10), and,
a plurality of beads (11,12;11',12') formed on the main metal plate around portions to be sealed, each bead having two side edges (11a,12a;11a',12a') from which the bead projects outwardly, and a predetermined width (W) between the two side edges, said beads intersecting with each other and having at least one intersection portion (13;13'), said intersection portion having a central upper portion (13d;13d'), an outer portion outside the central upper portion and at least two side portions (13a;13a',13e') extending between the side edges of the beads adjacent to each other,
said metal plate being characterized in that each of said at least two side portions (13a;13a',13e') has at least one curved portion (13a;13a') to communicate with the side edges (11a,12a;11a',12a') adjacent to each other, said side portions (13a;13a',13e') being located on or laterally inside a part of an imaginary circular line contacting the side edges of the beads (11,12;11',12'), said imaginary circular line having a radius of curvature such that the center of the

circular line is located outside the intersecting portion (13;13') and the radius of curvature is at least twice as much as the width (W) of the bead so that when the metal plate with the intersecting portion (13;13') is compressed, the central portion (13d;13d') is at first compressed to support the outer portion outside the central portion to thereby provide surface pressure on the outer portion substantially the same as that on the bead outside the intersecting portion."

Five other versions of claim 1 were filed as auxiliary requests 1 to 5 (being in order the auxiliary requests 1, 2, 5 and 6 filed with the letter of 1 March 2002 and auxiliary request 5 filed during the oral proceedings before the board).

III. The following documents played a role in the appeal proceedings:

D1: DE-C-893 598

D2: JP-U-60-3357

D3: JP-U-1-87363

D4: US-A-4 861 047

D5: JP-U-1-168059

with translations into English of D1 to D3 and D5.

IV. Both parties attended oral proceedings on 10 April 2002.

During the appeal proceedings the appellant argued that

the subject-matter of claim 1 of each request was novel and inventive over the cited prior art and that the opposition division had committed a substantial procedural violation in the way they handled document D1 during the oral proceedings.

During the appeal proceedings the respondent (opponent) maintained that the claimed subject-matter was not novel or not inventive over various disclosures from the prior art.

V. The appellant requested

- that the decision under appeal be set aside and the patent maintained either as granted (main request) or on the basis of the auxiliary requests 1 to 5 (being in order the auxiliary requests 1, 2, 5 and 6 filed with the letter of 1 March 2002 and the adapted claim 1 filed during the oral proceedings), and
- that the appeal fee be reimbursed.

The respondent requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.
2. *Interpretation of claim 1 as granted (main request)*
 - 2.1 Lack of clarity is not a ground for opposition but it is necessary to comment on the meaning of claim 1 as granted before proceeding to examine whether its

subject-matter is patentable.

2.2 The claim commences with the words "A metal plate for a gasket, comprising, a main metal plate (10)" but it is clear from the patent taken as a whole that the metal plate and the main metal plate are one and the same.

2.3 The respondent maintains that the word "on" in the wording "a plurality of beads (11,12;11',12') formed on the main metal plate" should be "in" and therefore that the gasket shown in the drawings of the present patent does not fall within the scope of the claim.

The use of prepositions in English is complicated and there are few rules to help in deciding which to use. In particular, the preposition "in" has several different functions, as does the preposition "on". However they can have similar or even identical uses. Thus "I found it **in** the road" means the same as "I found it **on** the road". However millionaires live **in** Jersey but Robinson Crusoe lived **on** a desert isle.

It would be possible to form a bead separately from the plate and then bond this bead onto the plate, such a bead would without doubt be **on** the plate. In the present patent it is however clear from Fig. 3 that the plate is bent to produce a bead which might thus be said to be **in** the plate because it is a part of it and surrounded by the outside edge of the plate but also **on** the plate because it lies outside the main plane of the plate. In the oral proceedings the appellant stated that this was the way that claim 1 was intended to be understood.

The wording "a plurality of beads formed on the main metal plate" is part of the originally filed claim 1 so that no objection could arise under Article 123 EPC, clarity is not a ground for opposition and in any case the board cannot see that the word "in" would be any more appropriate than the word "on".

2.4 Referring to the feature "each bead having two side edges (11a,12a;11a',12a') ... and a predetermined width (W) between the two side edges" in claim 1 as granted, the appellant maintains that the word "predetermined" means "constant" while the respondent maintains that these two words have different meanings. The respondent argues moreover that every bead has a predetermined width since is formed by a tool and thus the word "predetermined" in the patent is superfluous.

The respondent is correct that, in general, "predetermined" is not synonymous with "constant". A bead might increase in width linearly according to its distance from a bolt hole, the bead width would then be predetermined but not constant.

However the patent application as originally filed and the granted patent refer repeatedly to the width W of the bead and state e.g. that "the radius of the curved edge 13a has a double size of the width W of the bead" (column 3, lines 53 to 55 of the granted patent) and "more than 20 times relative to the width of the bead" (column 4, line 7 of the granted patent) and "the radius of curvature is at least twice as much as the width (W) of the bead" (claim 1, column 5, lines 43 and 44 of the granted patent).

These statements only make sense if there is a single

width for a bead. Otherwise the drafter would have needed to describe where the width for determining the radius was to be measured.

Also the statement in column 2, lines 42 to 44 that "If the two beads have different width, the curvature may be calculated based on the smaller bead" only makes sense if each bead has its own single width.

Thus in the context of the present patent, the board finds that the word "predetermined" in claim 1 as granted means "constant".

2.5 The meaning of the term "intersection portion" in claim 1 as granted is clear when looking at Fig. 2 of the patent. The constant width bead 11 has a top portion 11b and side edges 11a, the constant width ends at a transverse line and here the intersection portion 13 starts and here the side edges 11a become curved edges 13a. Each of these curved edges 13a extends to the side edge 12a of bead 12, meeting this side edge 12a at the respective transverse line where the bead 12 ceases to have a constant width.

The embodiment of Fig. 4 is similar, except that what joins the side edges 11a' and 12a' is not a continuously curved edge but an intermittently curved edge 13a'.

Thus the intersection portion (13 on Fig. 2, 13' on Fig. 4) is bounded by the three transverse lines across the beads (11 or 11', 12 or 12') where the constant width stops, by the curved edges (13a or 13a') and by the uninterrupted side edge (12b on Fig. 2) of the bead (12 or 12') between two of the above mentioned

transverse lines.

- 2.6 The terms "outer portion" and "central upper portion" in claim 1 as granted can be understood from Figs. 2 and 3 of the patent.

Outside the intersection portion, the upper surface of the bead 11 rises from the main plane of the plate at the left hand side edge 11a to the top portion 11b (or crest) of the bead 11 and then falls again to the main plane of the plate at the right hand side edge 11a.

Similarly, **inside** the intersection portion, the upper surface of the intersection portion rises from the main plane of the plate at the left hand curved edge 13a to the top portion which is a continuation of the top portion 11b of the beads 11 (see column 3, lines 47 to 49 of the patent). This applies also to the right hand curved edge 13a.

In the same way the upper surface of the intersection portion rises from the main plane of the plate at the side edge 12b to the top portion 12c.

The result is the "outer portion" of claim 1 as granted, namely the areas of the intersection portion between, on the one hand, the curved edges 13a and side edge 12b and, on the other hand, the curved top portions 13c and straight top portion 12c.

Within this outer portion is situated the central upper portion 13d or 13d' (as shown in Figs. 2 to 4).

- 2.7 The "imaginary circular line contacting the side edges of the beads" contacts these side edges without

crossing them (otherwise so many circles could be drawn as to be meaningless). It will be realized that therefore on Fig. 2 of the patent each of the two circles is tangential to the side edges 11a and 12a at the transverse lines bounding the intersection portion i.e. at the transverse lines where the beads 11 and 12 cease to have a constant width. On Fig. 2 the circles follow the curved edges or side portions 13a, so that this configuration corresponds to the first alternative in claim 1 concerning the position of the side portions, namely **on** the imaginary circular line.

The situation is similar in Fig. 4 except that each circle is located outside the respective intermittently curved edge or side portion 13a' so that part of the intermittently curved edge 13a' lies within the circle (see claim 1, column 5, lines 36 to 39 of the granted patent, second alternative: "laterally inside").

3. *Novelty - claim 1 as granted*

3.1 The respondent argues that the subject-matter of claim 1 as granted is not novel because circles satisfying the definition in claim 1 as granted can be drawn on Fig. 1 of D1 at the intersection portion of bead 4 with the bead 8 at the bottom left of the Figure.

The opposition division argues that it is the intersection area of beads 4, 8 and 10 on Fig. 1 of D1 that destroys novelty.

3.1.1 In order to come to these conclusions it is plainly necessary to measure or scale Fig. 1 of D1.

3.1.2 However patent drawings are generally schematic (particularly in the absence of an indication in the document to the contrary) and so are not meant to be measured, see e.g. section 7 of T 204/83 (OJ EPO 1985, 310).

Even if it were permissible to measure Fig. 1 of D1, the board is convinced that the Figure was never meant to be used as precisely as needs to be done to support the arguments of both the respondent and the opposition division.

3.1.3 It seems moreover that Fig. 1 does not even show a real gasket but the compilation of various possible designs of beads, shown on one Figure merely for simplicity. This could explain why the pressure bores 1 and 2 are of different diameters and why they are not surrounded totally by beads.

3.1.4 The parties agree with this view but the respondent maintains nevertheless that the different designs of beads on Fig. 1 are to scale.

Although Fig. 2 is larger than the section A-A on Fig. 1, if each was drawn to scale then the proportions of the Figures would be the same on the two Figures. However while the diameter of the hole 7 of the top left hand bead 8 on Fig. 1 is approximately the same as the distance from the edge of the hole to the edge of the plate (going up the paper along the line A-A), on the corresponding bead on the right hand side of Fig. 2 the hole 7 is noticeably bigger than the distance from the hole's right hand edge to the right hand edge of the plate. Other differences between Fig. 2 and the section A-A on Fig. 1 can be detected.

Thus Figs. 1 and 2 cannot both be accurate depictions of the bead 8. The same applies for the other beads.

3.1.5 Accordingly the board considers that the respondent and the opposition division were wrong to draw circles on Fig. 1 of D1 and were building their arguments on a foundation of sand.

3.2 For the sake of completeness, the board will briefly examine what would happen if nevertheless Fig. 1 were held to be to scale.

3.3 The respondent maintains that the circles added on the copy of D1 filed with his letter of 9 June 1997 have radii more than twice the width of the bead.

3.3.1 However, looking at the original of Fig. 1 carefully, there is a slight kink in the upper curve (where the bead 4 and the second bead 8 from the left on Fig. 1 meet) which is hidden by the circle drawn thereover but which would lie outside any circle of radius sufficiently large to satisfy the definition in the claim.

3.3.2 Moreover according to page 2, lines 107 to 112 of D1, bead 4 is not a constant width bead (which the board found in section 2.4 above to be a requirement of claim 1 as granted). Thus it cannot be determined where the bead 4 ends and where the circle meets the bead 4 tangentially. Furthermore an intersection portion in the meaning of the present patent (see the above section 2.5) cannot be unequivocally defined.

3.3.3 Even if the central portion of the bead 4 were said to have a constant width (a view with which the board

could not agree since it would contradict the teaching of D1) then the circles would not contact the bead 4 at the transverse lines bounding the intersection portion i.e. at the transverse line where the bead 4 would cease to have this postulated constant width.

- 3.3.4 Thus the area where beads 4 and 8 meet on Fig. 1 of D1 does not satisfy the requirements of claim 1 as granted.

- 3.4 The opposition division states at the beginning of page 4 of its decision that the central part of Fig. 1 of D1 - the intersection area of beads 4, 8 and 10 - discloses all structural features of the metal plate according to claim 1 as granted and refers to annex sheet A (annex 4) which is an enlarged and marked up version of Fig. 1 of D1 and was used during the oral proceedings before the opposition division.
 - 3.4.1 The decision, starting halfway through paragraph 2 on page 4, states that "The beads (e.g. 4 and 10) have a constant width between their two side edges and intersect with each other thus forming an intersecting portion, e.g. the curved portion linking beads 10 and 4 in the region of bead 8." The drawing annex sheet A (annex 4) is marked up with the reference numeral 13a (which is the numeral for the side portion in claim 1 as granted) and it is therefore clear to which side portion of the opposition division is referring, namely that linking beads 10 and 4.

 - 3.4.2 However, as remarked in section 3.3.2 above, bead 4 is not a constant width bead. Neither is bead 10, see page 2, lines 119 to 122 of D1. The addition of lines to indicate what the opposition division thinks are the

shapes of the beads seems dubious to the board, at least when considering novelty where there should be a clear and unambiguous disclosure in the prior art.

- 3.4.3 Moreover claim 1 as granted requires "at least two side portions (13a;13a',13e') extending between the side edges of the beads adjacent to each other". This of course has to be in the framework of two intersecting beads.

While, as stated above, the opposition division writes of one side portion, the left hand curved portion linking beads 10 and 4 and denotes it as 13a on annex sheet A (annex 4), it is not clear which other side portion is meant because there is no other reference numeral 13a, 13a' or 13e' marked on the sheet.

The only other curve in the area of beads 4, 8 and 10 that is marked up with a radius is that linking beads 10 and 5 but it is clear from claim 1 as granted that the two side portions must link the **same** beads (compare Fig. 2 of the patent). In any case the curve from bead 5 goes to the continuation of the exterior edge of bead 10 whereas it seems from claim 1 as granted that the curve from bead 5 (if one could consider this to be a continuation of bead 4) would need to go to the right hand edge of the left hand leg of bead 10 (again compare Fig. 2 of the patent).

The opposition division referred to "the intersection area of beads 4, 8 and 10" but, if they were intending that the other side portion was the link between bead 8 and the right hand edge of the left hand leg of bead 10, then clearly bead 8 would intersect bead 10 at a sharp corner so that no imaginary circular line

satisfying claim 1 as granted could be drawn.

3.4.4 Thus the area where beads 4, 8 and 10 meet on Fig. 1 of D1 does not satisfy the requirements of claim 1 as granted.

3.5 Thus, even if Fig. 1 of D1 were held to be to scale, it still would not destroy the novelty of the subject-matter of claim 1.

In this respect the board emphasises that it considers the opposition division's actions concerning D1 ill-considered.

3.6 Fig. 2 of D2 shows the intersection of beads 12, 14 and 16 at a common intersection point 18. However, since the beads 12, 14 and 16 seem to be depicted schematically by single lines, the Figure certainly is not to scale. There is no indication of the widths of the beads and therefore no conclusion can be drawn as to the ratio of the bead width to the radius of the curve of the beads 12 and 14 where they intersect. Moreover this curve is only one curve and where the other curve satisfying the claim should be is unclear, certainly it could not involve bead 16 because this joins beads 12 and 14 at right angles.

3.7 Even if the Figures of D3 and D4 were to be regarded as being to scale, it would be clear that the radii at the bead intersections are smaller than claim 1 as granted demands.

3.8 D5 does not concern bead intersections.

3.9 Thus the board is satisfied that none of prior art

documents on file discloses a metal plate with all the features of claim 1 as granted.

The subject-matter of this claim is thus novel within the meaning of Article 54 EPC.

4. *Inventive step - claim 1 as granted*

4.1 The respondent argues that, if contrary to his view, the board finds D1 not to be novelty destroying then nevertheless it is the disclosure closest to the present invention. He maintains that both deal with equalising pressures and that, if the board holds that the circles drawn on the copy of D1 filed with his letter of 9 June 1997 do not exactly fulfil the claimed requirements, then the differences are small and it would be obvious to adapt the plate of Fig. 1 of D1 to fall within the scope of claim 1 as granted.

4.2 However the board questions just what D1, and in particular Fig. 1 thereof, would teach the skilled person.

The present patent deals with designing the beads such that they provide equal surface pressure even at the intersection portions of the beads, see column 1, lines 53 to 57.

D1 deals with designing beads (in different versions) so that without reinforcement of their cross section they are adapted at each point of the gasket to the pressure present there, see page 1, lines 30 to 33 of D1. The document does not emphasize the importance of designing the intersections of the beads in a particular way.

Moreover, even if the respondent were correct in maintaining that some of the intersection areas shown on Fig. 1 of D1 approach what is claimed, D1 still does not explain why this is significant and so does not lead the skilled person to modify the depicted intersection areas. Furthermore, while the intersection areas are well defined in the present patent, namely starting where the bead width ceases to be constant, in D1 intersection areas are not unequivocally definable due to the changing bead widths. Fig. 1 of D1 shows so many different intersection areas (e.g. the sharp corner at the bottom of the right hand side of the left hand leg of bead 10, and the pointed intersections of beads 5 and 6 at both ends with the respective bead 8) that the skilled person reading it would not realize that the design of the intersection areas was important and would not be able to draw any consistent teaching from the document.

4.3 In view of its lack of emphasis on the bead intersections resulting from different kinds of beads, the board does not find in this specific case that D1 is the most relevant prior art document for assessing inventive step. D1 in the board's view is not a proper, realistic starting point when assessing inventive step.

4.4 The board considers D4 (or the similar D3) to be the most appropriate disclosure. This stresses the importance of the bead intersections and even shows rounded intersections e.g. in Fig. 5c. However whatever impression the Figures of D4 might give the skilled person, this could only be of radii very considerably smaller than specified in claim 1 as granted. D4 gives the skilled person no hint to round the intersections with radii at least twice the width of the bead.

- 4.5 It would not be obvious to proceed from the disclosure of D2 to the present invention because no information whatsoever is given as to the width of the beads and because the bead 16 joins beads 12 and 14 at right angles.
- 4.6 D5 does not concern bead intersections.
- 4.7 Starting nevertheless from D1 and trying to improve the construction of the intersection areas would lead a person skilled in the art to D2. D2 however proposes another solution having nothing to do with the presently claimed solution.
- 4.8 The board therefore finds that it would not be obvious for the skilled person to proceed from the disclosures of the prior art documents D1 to D5, taken singly or in combination, to the subject-matter of claim 1 as granted.
- 4.9 Thus claim 1 as granted (i.e. of the main request) is patentable. Its dependent claims 2 to 7 are also patentable.
5. The patent may therefore be maintained unamended (i.e. as granted, in the version according to the main request) and thus there is no need to look at the auxiliary requests 1 to 5.
6. *Request of the appellant for reimbursement of appeal fee*
- 6.1 The appellant maintains that the behaviour of the opposition division amounts to a gross violation of procedure.

6.2 Firstly, the appellant objects that "D1 was not considered to be relevant to novelty as expressed in the Preliminary Opinion accompanying the Summons to Oral Proceedings dated 24 April 1998. D1 was only considered to be relevant to novelty at the start of the Oral Proceedings on 19 January 1999."

However, as the appellant recognizes in the quotation above, the opposition division was expressing a **preliminary** opinion. Indeed lines 4 and 5 on page 1 of the communication states that "The following explanations are of preliminary and non-binding nature; they do not prejudice the final decision."

Moreover the respondent replied by letter of 17 November 1998 arguing that the opposition division's view was wrong.

Thus the appellant should not have ruled out the possibility of a change of view by the opposition division at the oral proceedings.

6.3 Secondly, the appellant objects to the opposition division adding subject-matter to D1 based on hindsight.

The board considers that the modification of Fig. 1 of D1 by the opposition division, although ill-considered, was a part of its misinterpretation of this document. Misinterpretation of a document does not however constitute a substantial procedural violation.

6.4 Thirdly, the appellant objects that subject-matter was added to D1 only part way through the oral proceedings and the appellant's representative was not allowed

sufficient time to consider and counter the opposition division's arguments.

Section 5 of the minutes of the oral proceedings commences "After a further break, the PP formally protested against this new line of reasoning produced by the OD ..." so it is clear that, in accordance with Article 113(1) EPC, the appellant was given an opportunity to consider and counter the opposition division's arguments.

The appellant maintains in the statement of grounds of appeal that this opportunity was not long enough. However it is not apparent from either the statement of grounds of appeal or the minutes that, already during the oral proceedings, the appellant asked for more time.

Although the opposition division was now considering the area around holes 7 and 9, they were still using the same Fig. 1 of the same citation D1 and adopting some of the reasoning put forward by the respondent concerning the circles drawn on the copy of D1 filed with his letter of 9 June 1997. Therefore, while the appellant was being presented with a new reasoning, this was not as radically different from the one presented with the letter of 9 June 1997 as the appellant would have the board believe.

- 6.5 The board does not consider that the appellant has shown that the opposition division committed a substantial procedural violation. Therefore the request for reimbursement of the appeal fee (Rule 67 EPC) is unjustified.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent as granted.
3. The request for reimbursement of the appeal fee is refused.

The Registrar:

The Chairman:

G. Magouliotis

C. Andries