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**Datasheet for the decision
of 12 August 2016**

Case Number: T 1815/12 - 3.2.05

Application Number: 05803636.9

Publication Number: 1799437

IPC: B29C45/26, B29C45/27,
B29L11/00, B29D11/02, B29C33/00

Language of the proceedings: EN

Title of invention:
Apparatus for injection moulding an intraocular lens device

Patent Proprietor:
Bausch & Lomb Incorporated

Opponent:
Abbott Medical Optics Inc.

Headword:

Relevant legal provisions:
EPC 1973 Art. 54(1), 56
EPC Art. 54(3)
RPBA Art. 12(4)

Keyword:

Late-filed requests - admitted

Novelty - main request (no)

Inventive step - auxiliary requests (no)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

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Case Number: T 1815/12 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 12 August 2016

Appellant I: Bausch & Lomb Incorporated
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Decision under appeal: **Interlocutory decision of the Opposition**
Division of the European Patent Office posted on
13 June 2012 concerning maintenance of the
European Patent No. 1799437 in amended form.

Composition of the Board:

Chairman M. Poock
Members: P. Lanz
C. Heath

Summary of Facts and Submissions

- I. The appeals by the patent proprietor (appellant I) and the opponent (appellant II) are directed against the decision of the opposition division which held that, taking into account the amendments made by the patent proprietor during the opposition proceedings, European patent EP-B-1 799 437 and the invention to which it relates meet the requirements of the European Patent Convention.
- II. During the opposition proceedings, the opponent raised the grounds for opposition according to Article 100(a) EPC 1973 (lack of novelty and lack of inventive step).
- III. In preparation for the oral proceedings, the board of appeal sent out a communication under Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA) setting out the board's provisional opinion on the case. Regarding the question of inventive step, the board indicated that it should be discussed during the oral proceedings whether or not it would be obvious to a skilled person to provide first and second sub-runners in order to avoid knit lines in the optical parts of the moulded article and whether it could be expected that this would reduce undesirable optical characteristics.
- IV. By letter dated 28 July 2016 appellant I announced that it would not be attending the oral proceedings.
- V. Oral proceedings were held before the board on 12 August 2016 in the absence of appellant I.
- VI. Appellant I requests in writing that the decision under appeal be set aside and that the patent be maintained

as granted (main request) or be maintained in amended form based on the first auxiliary request, as filed with letter dated 22 October 2012, or the second or third auxiliary requests, as filed with letter dated 15 March 2013.

Appellant II requests that the decision under appeal be set aside and that the patent be revoked.

VII. The documents referred to in the appeal proceedings include the following:

D1: WO 2004/106045 A;

D2: WO 2004/010905 A;

D11: Excerpt from Engineered Materials Handbook, Desk Edition, ASM International, 1995;

E1: Excerpt from Beaumont: Runner and Gating Design Handbook, Tools for Successful Injection Molding, Hanser Publishers, Munich, 2004;

E2: Excerpt from Beaumont, Nagel, Sherman: Successful Injection Molding, Process, Design, and Simulation, Hanser Publishers, Munich, 2002;

E5: Excerpt from Rosato: Injection Molding Handbook, The Complete Molding Operation, Technology, Performance, Economics, Van Nostrand Reinhold Company, New York, 1998.

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

"Apparatus for injection molding an intraocular lens having first and second optics (12,14), said apparatus comprising:

- a) first optic cavity for forming said first optic (12);
- b) a second optic cavity for forming said second optic (14); characterised in that it further comprises,
- c) a first sub-runner (70a') in fluid communication with said first optic cavity; and
- d) a second sub-runner (70b') in fluid communication with said second optic cavity."

IX. The wording of independent claim 1 of the first auxiliary request is as follows:

"Apparatus for injection molding an intraocular lens having first and second optics (12,14), said apparatus comprising:

- a) first optic cavity for forming said first optic (12);
 - b) a second optic cavity for forming said second optic (14);
 - c) one or more haptic cavities extending between and in fluid communication with said first and second optic cavities, said one or more haptic cavities for forming one or more haptics extending between and interconnecting said first and second optics, respectively;
- characterised in that it further comprises,
- d) a first sub-runner (70a') in fluid communication with said first optic cavity to permit creation of a first flow front of a liquid lens material; and
 - e) a second sub-runner (70b') in fluid communication with said second optic cavity to permit creation of a second flow front of a liquid lens material, the first

flow front and the second flow front meeting in the one or more haptic cavities."

- X. Compared with the first auxiliary request, the characterising portion of independent claim 1 of the second auxiliary request is amended as follows:

"characterised in that it further comprises, one primary runner (72) from which only one first and one second sub-runners (70a', 70b') branch off and extend to said first and second optic cavities, respectively,

d) said first sub-runner (70a') being in fluid communication with said first optic cavity to permit creation of a first flow front of a liquid lens material in said first optic cavity; and

e) said second sub-runner (70b') being in fluid communication with said second optic cavity to permit creation of a second flow front of a liquid lens material in said second optic cavity, the first flow front and the second flow front only meeting in the one or more haptic cavities."

- XI. In comparison with the second auxiliary request, the characterising portion of independent claim 1 of the third auxiliary request comprises following additional feature:

"wherein first and second injection gates (70a', 70b') are defined at the juncture of said first optic cavity and said first sub-runner (70a'), and at the juncture of said second optic cavity and said second sub-runner (70b'), respectively, said first and second injection gates (70a", 70b") each tapering inwardly into said first and second optic cavities, respectively."

XII. Appellant I's written submissions may be summarised as follows:

Main request - novelty

Document D1 described a mould core for a multiple-staged intraocular lens comprising a pair of lens cavities which were in fluid communication with each other through haptic cavities. The mould core of document D1 further comprised a material flow gate in communication with at least one mould cavity, i.e. one of the lens and haptic cavities. However, there was no indication or disclosure in document D1 that the flow gate may, according to an alternative embodiment, be in communication with both optic cavities via separate sub-runners, as defined in independent claim 1 of the main request, which was therefore new over document D1.

First, second and third auxiliary requests - inventive step

It was noted that a skilled person would clearly differentiate between mould cavities and sub-runners, as indicated in the textbook excerpts on file.

Document D2 was directed to a mould system for forming a dual optic lens system. The lens material was introduced into the mould system via an input channel 542 shown in Figure 26. As could be taken from Figure 26 in conjunction with Figures 30 and 31, the input channel was connected to the mould cavity at a position which was intended to form the first and second apexes (112, 116) of the finished lens system shown in Figures 3 to 12. Consequently, document D2 failed to disclose first and second sub-runners as defined in independent claim 1 of the first auxiliary request. None of the

further prior art documents on file provided any suggestion in that respect so that the subject-matter claimed was also inventive over the prior art.

This was all the more true for the apparatus claims of the second and third auxiliary requests, which were limited further by providing more details on the design of the runner system and by specifying the flow fronts to meet in the haptic cavities only. The taper of the injection gates defined in claim 1 of the third auxiliary request was clearly not obvious in view of document D2, where any weakness or predetermined breaking point between the haptic cavity and the lens had to be avoided.

XIII. Appellant II's arguments presented in writing and during the oral proceedings were essentially as follows:

Admissibility - auxiliary requests

The second and third auxiliary requests were late-filed and thus inadmissible.

Main request - novelty

On the issue of novelty of the subject-matter of claim 1 of the main request, particular reference was made to the claims of document D1: claim 1 distinguished between lens cavities and haptic cavities, with the lens cavities being referred to in Figure 2 by reference numbers 34 and 36 and the haptic cavities being referred to by reference numbers 38, 40 and 42. Claim 3 was specifically directed to the lens cavities and stated that "*said material flow gate is in direct communication with at least one of said lens cavities*",

which was the same as saying that the material flow gate was in direct communication with one or more (i.e. both) of the lens cavities. Document D1 therefore disclosed a first sub-runner in fluid communication with the first optic cavity and a second sub-runner in fluid communication with the second optic cavity. The subject-matter of claim 1 of the main request was thus not new.

First and second auxiliary requests - inventive step

Document D2 could be considered a suitable starting point for assessing the inventive merits of claim 1 of the first and second auxiliary requests, which structurally differed from document D2 in the provision of first and second sub-runners designed for the first and second flow fronts to meet in the one or more haptic cavities (only). The technical effect of these features was described at column 2, lines 27 to 32 and at column 7, lines 46 to 48 of the patent specification as providing a method and an apparatus for injection moulding an intraocular lens that avoided undesirable optical characteristics by having flow fronts that met in the haptic cavities. It was already known from handbook D11, page 301, middle column, to provide several sub-runners for injecting the material into the mould. According to document D11, their configuration influenced where knit lines were created due to the meeting of flow fronts. These locations were known to have a different molecular orientation which caused undesirable optical characteristics. The layout of the runner system belonged to the common general knowledge of a moulding engineer who could rely on computer programs to optimise the mould filling process. Hence, providing the mould of document D2 with first and second sub-runners in order to locate the knit lines

not in the optical cavities but in the first and second haptic cavities was obvious in view of the common general knowledge as set out for example in handbook D11. The subject-matter of claim 1 of the first and second auxiliary requests was thus not based on an inventive step.

Third auxiliary request - inventive step

Claim 1 of the third auxiliary request was limited further by specifying that, at the juncture of the optic cavity and the respective sub-runner, the injection gates were each tapering inwardly into the respective optic cavities. The subject-matter claimed therefore differed from document D2 in the following features:

(a) first and second sub-runners designed for the first and second flow fronts to meet in the one or more haptic cavities only, and

(b) first and second injection gates each tapering inwardly into said first and second optic cavities, respectively.

No synergistic effect was apparent from these differing features so that their possible inventive merits had to be assessed independently of each other.

The technical effect of differing feature (a) was to prevent undesirable optical characteristics caused by the creation of knit lines in the optical cavities. Hence, the first partial problem to be solved was to avoid undesirable optical characteristics of the lens.

The technical effect of differing feature (b) was to facilitate the runner breaking off from the intraocular lens after the moulding step. The second partial problem to be solved was to allow for a smooth break-off of the runner from the moulded lens in order to reduce or eliminate gate vestiges on the resultant lens device.

As set out above for the higher-ranking auxiliary requests, the solution to the first partial problem was obvious in view of the common general knowledge as explained for example in handbook D11.

Taking account of the teaching of handbook E5, the solution to the second partial problem could equally not render the claimed subject-matter inventive: on page 185, point 2 it was set out that tapering gates (referred to as "pinpoint gates") were generally known and provided for if a close, easy and smooth break-off of the runner from the moulded part was required. This gate design and its advantages thus formed part of the common general knowledge of a person skilled in that art.

For these reasons, the subject-matter of claim 1 of the third auxiliary request was not based on an inventive step.

Reasons for the Decision

1. Main request - novelty

1.1 Both parties are in agreement that document D1 is to be considered as prior art under Article 54(3) EPC which has to be taken into account in deciding on novelty. However, regarding the disclosure of document D1, the

parties' views essentially differ on whether or not document D1 shows a first sub-runner in fluid communication with the first optic cavity and a second sub-runner in fluid communication with the second optic cavity.

1.2 In that respect, the board makes particular reference to the wording of claims 1 to 3 of document D1:

"1. A mold core for a multi-stage intraocular lens, comprising: a plurality of lens cavities; a plurality of haptic cavities in communication with said lens cavities; and a material flow gate in communication with at least one mold core cavity, wherein said mold cavity is selected from the group consisting of said lens cavities and said haptic cavities.

2. The mold core according to claim 1, further comprising a gasket surrounding said lens cavities and said haptic cavities.

3. The mold core according to claim 2, wherein said material flow gate is in direct communication with at least one of said lens cavities."

It is noted that, in the context of document D1, the terminology "material flow gate" refers to the runner for the melt (cf. Figures 2 and 5A and the corresponding passages of the description). In the judgement of the board, the wording of claim 3 as cited above unambiguously discloses to a skilled reader an arrangement in which each of the two lens cavities is in direct communication with the runner system, which, in turn, implies the presence of a first sub-runner in fluid communication with the first optic cavity and a second sub-runner in fluid communication with the

second optic cavity. The disclosure of the other features in document D1 is not disputed. Consequently, the subject-matter of claim 1 lacks novelty over document D1, Article 54(1) EPC 1973 in conjunction with Article 54(3) EPC.

2. *First auxiliary request - inventive step*

2.1 In the field of injection moulding the term "runner" denotes the channels in the mould for delivering the liquid plastic from the injection unit nozzle to the part-forming cavities. Generally, the runner carries the melt to the cavities, however, without forming part of the moulded article. In that respect, reference is made to documents E1, sections 5.2.3. and 5.2.4, and E2, section 5.3.2, page 118, which provide an exact definition and typical examples of runner systems.

2.2 Based on this understanding of the term "runner", biasing elements 108 and 120 as shown for example in Figure 11 of document D2 form part of the injection moulded article; therefore, channels 560, 562, 522 and 524 (cf. Figures 30 and 34) belong to the part-forming cavity which a skilled person would clearly distinguish from the runner system. For a skilled reader, channels 560, 562, 522 and 524 do not clearly and unambiguously constitute first and second sub-runners.

Hence, the subject-matter of claim 1 differs from the content of document D2 in the features of a first sub-runner in fluid communication with the first optic cavity to permit the creation of a first flow front of a liquid lens material and a second sub-runner in fluid communication with said second optic cavity to permit creation of a second flow front of a liquid lens

material, the first flow front and the second flow front meeting in the one or more haptic cavities.

- 2.3 According column 2, lines 27 to 32 and column 7, lines 46 to 48 of the patent specification, the technical effect of these distinguishing features lies in the provision of an apparatus for injection moulding an intraocular lens that prevents undesirable optical characteristics caused by the creation of knit lines in the optical cavities.

In view of that, the objective technical problem to be solved is to avoid undesirable optical characteristics of the lens.

- 2.4 Turning to the solution proposed in claim 1 of the first auxiliary request, reference is made to handbook D11, page 301, middle column, which exemplifies the common general knowledge of a person skilled in the art of designing injection moulds. According to document D11, it is common practice to provide several (sub-)runners for injecting the material into the mould. Their configuration determines where knit lines are created due to the meeting of the flow fronts. These locations are known to have a different molecular orientation, which causes not only mechanical weakness but also undesirable optical characteristics. The layout of the runner system belongs to the common general knowledge of a moulding engineer who could rely on computer programs to optimise the mould filling process. Hence, providing a mould for producing an intraocular lens with first and second sub-runners in order to locate the knit lines not in the optical cavities but in the first and second haptic cavities has to be considered an obvious possibility in view of the common general knowledge as set out in handbook

D11. The subject-matter of claim 1 of the first auxiliary request is not based on an inventive step, Article 56 EPC 1973.

3. *Admissibility of the second and third auxiliary requests*

3.1 With its reply to appellant II's statement setting out the grounds of appeal, appellant I submitted a second and a third auxiliary request. Appellant II argues that these auxiliary requests were late-filed and thus inadmissible.

3.2 The board notes that the present second auxiliary request corresponds to the auxiliary request considered allowable by the opposition division in the impugned decision, a finding which appellant II now challenges with its appeal (cf. grounds of appeal, point 3). For this reason alone it is not apparent that the second auxiliary request, which forms the subject of appellant II's appeal, could be considered late-filed.

3.3 Turning to the third auxiliary request, it is observed that this request was filed with appellant I's reply to appellant II's statement setting out the grounds of appeal, i.e. at the initial stage of the appeal proceedings. Under Article 12(4) RPBA, a board of appeal has the discretion to refuse to admit such a request if it could have been presented (or was not admitted) in the first-instance proceedings. Appellant II did not put forward any specific argument in that respect. Moreover, from the course of the first-instance proceedings it is not immediately apparent that appellant I should have filed the third auxiliary request at an earlier stage. In this context it is noted that during the opposition proceedings appellant

II decided not to challenge the allowability of the (higher-ranking) second auxiliary request (then auxiliary request 4; cf. page 3 of the minutes of the oral proceedings, penultimate paragraph), but did so only in its statement setting out the grounds of appeal (cf. grounds of appeal, point 3). In view of that, appellant I's filing of a further limited third auxiliary request is to be considered an immediate and appropriate reaction to appellant II's first submissions against the substance of the second auxiliary request in its statement setting out the grounds of appeal.

For these reasons, the second and third auxiliary requests are admitted into the appeal proceedings under Article 12(4) RPBA.

4. *Second auxiliary request - inventive step*

4.1 Compared with the first auxiliary request, claim 1 of the second auxiliary request contains the additional feature of one primary runner from which only one first and one second sub-runners branch off and also the limitation that the first and second flow fronts meet in the one or more haptic cavities only.

4.2 In the judgement of the board, the added reference to a primary runner from which one first and one second sub-runners branch off, does not limit the subject-matter of the claim in substance. The wording "first and second sub-runners" implies the existence of a primary runner from which they branch off. This is in line with the skilled person's technical understanding that a runner delivers the liquid plastic from the injection nozzle to the part-forming cavities, which requires the presence of a primary runner branching out into sub-

runners (cf. paragraph 2.1 above). Hence, the reference to a primary runner from which one first and one second sub-runners branch off merely makes explicit what is already implicitly present in claim 1 of the first auxiliary request. It can therefore not render the claimed subject-matter inventive.

- 4.3 Furthermore, despite the addition of the word "only" at the end of the feature of the first and second flow fronts meeting in the one or more haptic cavities, the reasons justifying the lack of inventive step of the subject-matter of claim 1 of the first auxiliary request 1 still apply to claim 1 of the second auxiliary request.

Consequently, the subject-matter of claim 1 of the second auxiliary request is not based on an inventive step, Article 56 EPC 1973.

5. *Third auxiliary request - inventive step*

- 5.1 In comparison with the second auxiliary request, claim 1 of the third auxiliary request is limited by specifying that, at the junctures of the optic cavity and respective sub-runner, the injection gates each taper inwardly into the respective optic cavities. The subject-matter claimed therefore differs from document D2 in the following features:

(a) first and second sub-runners designed for the first and second flow fronts to meet in the one or more haptic cavities only, and

(b) first and second injection gates each tapering inwardly into said first and second optic cavities, respectively.

5.2 Following established case law (cf. Case Law of the Boards of Appeal of the European Patent Office, 8th Edition, 2016, I.D.9.2.2), a combination of features is to be viewed differently from a mere aggregation of features. Partial problems are defined if the claim features are juxtaposed but not functionally interdependent, i.e. do not mutually influence each other to achieve a technical success over and above the sum of their respective individual effects, in contrast to what is assumed in the case of a combination of features. What has to be established for an aggregation of features is whether or not each of these features is separately obvious in the light of the prior art.

The latter applies to present claim 1 of the third auxiliary request, for which no synergistic effect is put forward or apparent. Hence, the potential inventive merits of the differing features (a) and (b) have to be assessed independently of each other.

5.3 The technical effect of differing feature (a) is to prevent undesirable optical characteristics caused by the creation of knit lines in the optical cavities. The first partial problem to be solved is to avoid undesirable optical characteristics of the lens (cf. column 2, lines 27 to 32 and column 7, lines 46 to 48 of the patent specification).

The technical effect of differing feature (b) is to facilitate the runner breaking off from the intraocular lens after the moulding step. The second partial problem to be solved is to allow for a smooth break-off of the runner from the moulded lens in order to reduce or eliminate gate vestiges on the resultant lens device

(cf. column 3, lines 5 to 7 and column 7, lines 26 to 30 of the patent specification).

- 5.4 As set out above for the first and second auxiliary requests, the solution to the first partial problem is obvious in view of the common general knowledge as explained for example in handbook D11.

Taking into account the teaching of handbook E5, the solution to the second partial problem is equally not capable of rendering the claimed subject-matter inventive: according to page 185, point 2 of document E5, tapering gates (referred to as "pinpoint gates") are generally known and provided for if an easy, smooth and close break-off of the runner from the moulded part is required. This gate design as well as its advantages thus form part of the common general knowledge of a person skilled in that art.

- 5.5 It follows that each of the differing features (a) and (b) is separately obvious in the light of the prior art and the common general knowledge. Consequently, they cannot render the subject-matter of claim 1 of the third auxiliary request inventive. This finding is not altered by appellant I's argument that any predetermined breaking point between the haptic cavities and the lenses of document D2 had to be avoided, since, according to the contested claim, the tapering gates are not provided between the haptic cavities and the lenses but between the sub-runners and the lenses.

Based on these considerations, the requirements of Article 56 EPC 1973 are not met.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



K. Götz-Wein

M. Poock

Decision electronically authenticated