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Datasheet for the decision of 24 January 2025

Case Number: T 0798/23 - 3.2.05

Application Number: 15165724.4

Publication Number: 2949452

IPC: B29C65/16, F21S41/29, F21S43/27

Language of the proceedings: EN

Title of invention:
Method of laser welding of an automotive light

Patent Proprietor:
Marelli Automotive Lighting Italy S.p.A.

Opponent:
Branson Ultraschall Niederlassung der Emerson Technologies GmbH & Co. OHG

Relevant legal provisions:
EPC Art. 100(a), 54(1), 123(2)
EPC R. 115(2)
RPBA 2020 Art. 15(3), 15(6)

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It can be changed at any time and without notice

Keyword:
Oral proceedings - held in absence of party
Grounds for opposition - lack of patentability (yes)
Added subject-matter - auxiliary request 1 (yes)
Novelty - auxiliary requests 2 to 4 (no)

Decisions cited:
T 0641/00

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Case Number: T 0798/23 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 24 January 2025

Appellant I: (Patent Proprietor)	Marelli Automotive Lighting Italy S.p.A. Via Cavallo, 18 10078 Venaria Reale (TO) (IT)
Representative:	Mitola, Marco Jacobacci & Partners S.p.A. Piazza Mario Saggin, 2 35131 Padova (IT)
Appellant II: (Opponent)	Branson Ultraschall Niederlassung der Emerson Technologies GmbH & Co. OHG Waldstr. 53 - 55 63128 Dietzenbach (DE)
Representative:	HWP Intellectual Property Ridlerstraße 35 80339 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 15 March 2023 concerning maintenance of the European Patent No. 2949452 in amended form.**

Composition of the Board:

Chairman	P. Lanz
Members:	T. Vermeulen
	M. Blasi

Summary of Facts and Submissions

I. Both the opponent and the patent proprietor filed an appeal against the interlocutory decision of the opposition division finding that European patent No. 2 949 452 as amended according to the second auxiliary request met the requirements of the European Patent Convention.

II. The opposition was filed against the patent as a whole on the basis of the grounds for opposition under Article 100(a) together with Article 54(1) EPC (lack of novelty) and Article 56 EPC (lack of inventive step), under Article 100(b) EPC and under Article 100(c) EPC.

III. In the decision under appeal, the opposition division came, inter alia, to the conclusion that the ground for opposition under Article 100(a) EPC together with Article 54(1) EPC prejudiced the maintenance of the patent as granted, and that the requirements of Article 123(2) EPC were not met in respect of claim 1 of the first auxiliary request. The opposition division in particular considered document EP 2 923 820 A1 (D2).

IV. With its statement of grounds of appeal the patent proprietor (appellant I) filed five sets of claims according to the main request and auxiliary requests 1 to 4.

V. The parties were summoned to oral proceedings, as requested. In a communication pursuant to Article 15(1) RPBA issued on 8 October 2024, the parties were informed of the board's provisional opinion on the issues of the case.

VI. By letter dated 23 January 2025 appellant I informed the board that it would not attend the oral proceedings and changed the order of auxiliary requests 3 and 4.

VII. Oral proceedings before the board were held on 24 January 2025 in the absence of appellant I.

VIII. Appellant I (patent proprietor) requested in writing that the decision under appeal be set aside and the opposition be rejected, implying that the patent be maintained as granted (main request) or, alternatively, that the patent be maintained in amended form on the basis of the claims of one of

- auxiliary requests 1 to 2 filed with its statement of grounds of appeal,
- auxiliary request 3 filed as auxiliary request 4 with its statement of grounds of appeal,
- auxiliary request 4 filed as auxiliary request 3 with its statement of grounds of appeal.

Appellant II (opponent) requested that the decision under appeal be set aside and that the patent be revoked.

IX. In the following, the parties are referred to as "patent proprietor" and "opponent", respectively.

X. Claim 1 of the patent proprietor's main request (patent as granted) has the following wording (the feature numbering used in the decision under appeal appears in square brackets):

"1. Method of manufacture of an automotive light (4) comprising the steps of:

- [**1.1**] *providing a container body (8) delimited by a first perimetral profile (20),*
- [**1.2**] *providing a lenticular body (24), internally delimited by a second perimetral profile (28) and externally by an outer edge (32) corresponding to said second perimetral profile (28),*
- [**1.3**] *mutually associating at least partially the respective first and second perimetral profiles (20, 28) of the container body (8) and of the lenticular body (24), the contact surface between said perimetral profiles (20, 28) defining a welding interface (48) which extends along a curve defined by a curvilinear abscissa (S),*
- [**1.4**] *providing at least one laser emitting device which emits a light beam or radiation having a characteristic emission spectrum,*

characterized in that it comprises the steps of:

- [**1.5**] *providing a plurality of fibres (44) which receive portions of the laser beam from the laser emitting device and direct them towards the welding interface (36) through the lenticular body (24),*

wherein [**1.6**] *the container body (8) acts as an absorbing element towards the light beam and the lenticular body (24) acts as a transmissive element of the light beam,*

- [**1.7**] *providing optical devices (52) for changing the divergence of the portions of laser beams outgoing from the fibres (44), so as to collimate them overall along at least one predetermined optical axis (X-X),*
- [**1.8**] *identifying at least one discontinuity (54) on the outer edge (32) of the lenticular body (24),*
- [**1.9**] *directing on a critical portion (64) of the welding interface (36) at least a first laser beam (60) emitted by a respective fibre (44) lying on an optical plane (P) incident with said critical portion (64) of the welding interface (36),*

- [**1.10**] *wherein said critical portion (64) is the portion of welding interface (36) corresponding, i.e. aligned, in a direction perpendicular to said welding interface (36), with said discontinuity (54),*
- [**1.11**] *wherein said discontinuity (54) constitutes a change in the distance (55) between the outer edge (32) and the welding interface (36),*
[**1.12**] *wherein the optical plane (P) identifies an angle of orientation (α) between 0 and 45 degrees with a plane (T) tangent to the critical portion (64) of the welding interface (36)."*

XI. Compared to claim 1 of the patent as granted, claim 1 of auxiliary request 1 has the following additional feature.

"[**1.13**] *wherein said angle of orientation (α) is seen in the direction of joining the first perimetral profile (20) and the second perimetral profile (28).*"

XII. Compared to claim 1 of the patent as granted, claim 1 of auxiliary request 2 has the following additional features.

"[**1.14**] *wherein in the presence of portions of the lenticular body (24) without discontinuity or change in the distance between the outer edge (32) of the lenticular body (24) and the welding interface (36), there is provided the step of directing at least one laser beam, emitted by a corresponding fibre (44), on a corresponding non critical portion (72) of the welding interface (36),*
[**1.15**] *said laser beam having a respective optical axis (Y) lying on a second optical plane (Z) incident with said non critical portion (72) of the welding interface (36),*

[**1.16**] *wherein the second optical plane (Z) identifies an angle of orientation (β) between 46 and 90 degrees with a plane (R) tangent to the non critical portion (72).*"

XIII. Compared to claim 1 of the patent as granted, claim 1 of auxiliary request 3 has the following additional features.

"[**1.17**] *wherein said optical devices (52) comprise a negative light guide (76) provided with an input (80) and an output (84), wherein the input (80) is facing said fibres (44) and the output (84) is facing said lenticular body (24),* [**1.18**] *wherein, the output (84) of the negative light guide is counter-shaped to the outer edge (32) of the lenticular body (24), so as to form a shaped coupling with the outer edge (32) of the lenticular body (24)*"

XIV. Compared to claim 1 of the patent as granted, claim 1 of auxiliary request 4 has the following additional feature.

"[**1.19**] *wherein said discontinuity (54) comprises a concave portion or a convex portion*"

XV. The parties' submissions may be summarised as follows.

Main request

- *Patent proprietor*

The subject-matter of claim 1 as granted was novel over document D2, since document D2 did not disclose features 1.8, 1.9, 1.10, 1.11 and 1.12.

Firstly, features 1.8 to 1.11 were linked to the common concept of discontinuity. The discontinuity mentioned in document D2 was related to the geometry of the external surface only of the lenticular body. The distance between the external surface of the lenticular body and the welding interface had no relevance at all with respect to the declared technical problem of document D2. On the contrary, in the wording of claim 1, the discontinuity had a precise meaning as defined by feature 1.11. It was a feature of the assembly of the lenticular body and the container body as a whole because a change in such a distance varied the energy focusing on the welding interface and could lead to a non-homogeneous irradiation of the weld bead. In other words, a discontinuity of the outer edge according to the teaching of document D2 which did not imply a change in the distance with the welding interface was not a discontinuity according to feature 1.11. Further, document D2 did not disclose the step of identifying a discontinuity by looking both at the outer edge of the lenticular body and the distance between said outer edge and the corresponding welding interface. The shape of the external surface was not monitored or compared with respect to the internal interface. Nor was the distance between the outer edge and the welding interface measured in document D2.

Moreover, document D2 did not disclose feature 1.12. This feature had to be interpreted in the light of the description and the drawings of the contested patent. Figures 11a and 11b of the patent clearly showed the construction of the optical planes P and Z with respect to the planes T and R tangent to the critical portion 64 of the welding interface 36. It followed from the figures that both planes T and plane P were perpendicular to the critical portion. The description

clearly distinguished the first angle α between planes P and T at critical portions from the second angle β between planes Z and R at non-critical portions. The solution of document D2 corresponded to the plane arrangement at non-critical portions, not to the arrangement at critical portions taught by the patent. Unlike the opposition division's reasoning, the plane of the interface in the embodiment of Figure 18 of document D2 was not horizontal but inclined. So, even if its reasoning were followed, a plane perpendicular to the plane of interface would be parallel to or coincident with plane P, which meant that the angle α between planes P and T would be zero. And if the plane T were considered as horizontal or coplanar to the plane of the interface, the angle between plane T and the optical plane P would be much larger than 45 degrees. In any case, no optical planes were depicted in the schematic figures of document D2 nor were they to be found in the description. Hence, it was not possible to derive directly and unambiguously from document D2 a specific value of the angle claimed in feature 1.12.

- *Opponent*

The subject-matter of claim 1 as granted was not novel over document D2. The step of identifying the discontinuity did not contribute in any manner to the solving of the technical problem. Consequently, feature 1.8 did not contribute to solving the technical problem underlying the contested patent in any way. Features 1.10, 1.11 and 1.12 merely constituted geometric features; they were not technical features. For a technical understanding and a technical relation, the discontinuity had no relevance for performing feature 1.9. The laser beam must only meet the critical

portion, but it did not have to run through the discontinuity. Concerning feature 1.8, in the contested patent the discontinuity was related to the variability of the geometry of the lenticular body itself. It was a change in distance from the outer edge to the welding interface, i.e. the contact surface between the container body and the lenticular body, see feature 1.11. A change in the distance between the welding interface and the outer edge was also disclosed in document D2 by means of the surface discontinuities mentioned in paragraphs [0011] and [0014]. Moreover, in paragraph [0018] of document D2, it was indicated that the coupling surfaces were straight or curved. Hence, also in document D2, discontinuities were disclosed. How these discontinuities were identified was not relevant. Claim 1 did not require that the shape of the external surface was monitored or that there was a step of measuring or comparing. Furthermore, the angle range of feature 1.12 included the value of zero degrees. This meant that plane P was parallel to plane T, see dependent claims 4 to 6 as granted as well as paragraphs [0088] and [0089] of the contested patent. In such a case, the feature was realised by a fibre being arranged directly above the welding interface as shown, for example, in Figure 1 of the contested patent. The fibre did not have to be tilted within the plane. In cases where the angle was not zero degrees, there existed an intersecting line between plane P and plane T which was arranged directly above the welding interface. A fibre arranged directly above the welding interface as shown in Figure 1 of the patent would also comply with this condition. The contested patent explicitly covered the alternative arrangement that the fibres were not changed at all in the presence of a discontinuity. An inclination of the fibres in the plane P and/or T was not required by granted claim 1.

Further, there was no requirement that all of the critical portion must be covered by the first laser beam. If, in the embodiment shown in Figure 18 of document D2, the plane T tangent to the critical portion was drawn perpendicular to the welding surface, both the light guide 52 and the fibre 32 would be arranged in the plane T. As a result, the fibre 32 would be arranged in an optical plane identifying an angle of 0° with the plane T, in accordance with feature 1.12.

Auxiliary request 1

- *Patent proprietor*

Feature 1.13 was based on paragraphs [0058] and [0099] and on Figures 11a and 11b of the application as filed. It was acknowledged that the expression "*joining direction*" did not have any literal basis. Anyway, according to decision T 372/90, the features for which the skilled person could clearly derive the structure and function from the drawings could be used to define more precisely the subject-matter for which protection was sought. Therefore, the requirements of Article 123(2) EPC were met.

- *Opponent*

Paragraph [0058] of the application as filed defined that the assembly of the automotive light comprised the step of joining at least partially to each other the respective first and second perimetral profiles 20, 28. For example, the step was provided for arranging the lenticular body 24 to close the containment housing 12 of the container body 8 so as to join the respective first and second perimetral profiles 20, 28. According

to paragraph [0099] of the application as filed, the orientation of the optical plane P with the plane T allowed an optimal irradiation of the critical portion. From these passages, neither a definition of the direction of joining nor of the direction in which the angle of orientation α was seen could be concluded. Regarding the disclosure of Figures 11a and 11b of the application as filed, the angle α was the angle enclosed between the plane T and the plane P. Thus, it was measured in a plane perpendicular or normal to the optical planes T and P. A definition of a direction of joining could not be concluded from these figures. If at all, the direction of joining would be perpendicular to the welding interface. This direction was, however, arranged in the plane T and, thus, perpendicular to the plane in which the angle α was measured in Figures 11a and 11b. Additionally, nowhere in the application as filed the expression "*direction of joining*" was mentioned. Consequently, the requirements of Article 123(2) EPC were not met.

Auxiliary request 2

- *Patent proprietor*

Nowhere in document D2 a disclosure could be found of the use of fibres having different inclinations with respect to different (critical and non-critical) portions of the welding interface in order to weld a unique automotive light. Moreover, due to the different and mutually excluding inclinations of the optical plane P, there was no possible ambiguity in the interpretation of the scope of amended claim 1. The subject-matter of claim 1 of auxiliary request 2 was therefore novel over document D2.

- *Opponent*

With the amendment to claim 1, the welding interface must now have non-critical portions, i.e. portions where no discontinuity was present or, in other words, where the lenticular body had a constant thickness. The second optical plane incident with the non-critical portion could lie at an angle of 90 degrees with a plane tangent to the non-critical portion. Hence, the laser beam could be arranged directly above the welding interface. This corresponded to the intersecting line of planes Z and R in Figure 11b of the patent, which was thus arranged perpendicularly to the welding interface. An inclination of the laser beam within the plane was not defined in the claim or required by any of the other features. Thus, the newly incorporated arrangement in the non-critical portion corresponded to the arrangement of the laser beam in the critical portion, because, in Figure 11b of the patent, planes P and T also had an intersecting line perpendicular to the welding surface. Consequently, it was not decisive that an orientation of a laser beam changed in view of a critical portion or a non-critical portion. Maintaining the arrangement of the laser beams or fibres over the complete welding interface was disclosed in document D2. As shown for example in Figures 13 and 14 of document D2, the fibres were arranged perpendicularly to the welding interface over the complete welding interface. Consequently, the fibres were arranged on the intersecting lines of the claimed planes and, thus, also fulfilled the requirements of the additional features of claim 1 of auxiliary request 2. For the sake of completeness, claim 1 of auxiliary request 2 did not require that a non-critical portion was identified. In conclusion, the

subject-matter of claim 1 of auxiliary request 2 was not novel over document D2.

Auxiliary request 3

- *Patent proprietor*

Despite what was disclosed in paragraph [0085] of document D2, the additional feature 1.18 was not known from that document. In fact, document D2 only related to the possibility to avoid an interference between the negative light guide and the lenticular body. Paragraph [0085] of document D2 clarified that the partial counter-shaping was limited to corresponding portions in proximity or substantially in contact. It followed from paragraph [0099] of the contested patent that the additional feature 1.18 provided a complete counter-shaping. Therefore, the counter-shaping introduced by feature 1.18 was useful in order to allow a complete contact and matching between opposing surfaces in order to use the negative light guide as a presser device, while in document D2 only a partial counter-shaping was provided in order to avoid an interference contact between said opposing surfaces. Typically, the light guide was a metal body while the lenticular body was a glass or plastic one. A partial or incorrect counter-shaping would thus imply a damage on the lenticular body and a rejection of the automotive light. In terms of geometry, feature 1.18 was stricter than the embodiment of paragraph [0085] of document D2. The subject-matter of claim 1 according to auxiliary request 3 was therefore novel over document D2.

- *Opponent*

In paragraphs [0081] and [0082] of document D2, both alternatives of light guides were mentioned, including a negative light guide. The negative light guide 52 comprised an input 56 and an output 60, wherein the input 56 received light from the fibres and the laser radiation coming from the output 60 was directed through the lenticular body, i.e. the second light guide 64, to the welding interface (cf. paragraphs [0068] and [0072] of document D2). Considering that claim 1 did not exclude that the output of the light guide was partially counter-shaped, it followed from Figures 13 and 14 and paragraph [0085] of document D2 that the output of the negative light guide 52 was counter-shaped to the outer edge of the lenticular body 24 as in feature 1.18. Hence, the subject-matter of claim 1 according to auxiliary request 3 lacked novelty over document D2.

Auxiliary request 4

- *Patent proprietor*

The additional feature 1.19 was not disclosed, claimed or shown by document D2. The opposition already recognised the novelty of this additional feature in its preliminary opinion set out in the communication accompanying the summons for oral proceedings. The subject-matter of claim 1 according to auxiliary request 4 was therefore novel over document D2.

- *Opponent*

The additional feature 1.19 was also disclosed by document D2. To this end, document D2 defined curvatures as discontinuities in paragraph [0011] and, thus, convex or concave portions. Such curvatures were also illustrated in each of Figures 12, 14, 16 and 17 of document D2. Hence, the subject-matter of claim 1 according to auxiliary request 4 lacked novelty over document D2.

Reasons for the Decision

Continuation of the proceedings in the absence of the patent proprietor

1. The oral proceedings took place in the absence of the patent proprietor, who had been duly summoned but who had informed the board that it would not attend the oral proceedings.

2. According to Rule 115(2) EPC and Article 15(3) RPBA, the board is not obliged to delay any step in the proceedings, including its decision, by reason only of the absence of a party duly summoned at the oral proceedings.

3. Accordingly, the board decided to continue the proceedings in the absence of the patent proprietor and to treat the patent proprietor as relying on its written case. Hence, the board was in a position to announce a decision at the conclusion of the oral proceedings, as foreseen by Article 15(6) RPBA.

Main request (patent as granted)

(a) Claim interpretation

4. Feature 1.8 of claim 1 as granted concerns the step of identifying at least one discontinuity on the outer edge of the lenticular body. The term *discontinuity* is defined by feature 1.11 of claim 1: it constitutes a change in the distance between the outer edge and the welding interface. Claim 1 does not include a starting point for determining such a change in distance. Paragraph [0060] and claims 9 and 10 of the contested patent give two examples of a discontinuity: a concave portion ("*a reduction of the distance between the outer edge* [...] *and the second perimetral profile*") and a convex portion ("a*n increase of the distance between the outer edge* [...] *and the second perimetral profile*"). A further definition of the term is provided in paragraph [0075] and claim 11 of the contested patent: the angular variation of the lines perpendicular to the surface or outer edge of the lenticular body which generates a distance between adjacent irradiated zones x1 and x2 such that, between them, the irradiation on the welding interface is less than 25% of the peak value. Against this background, the wording "*a change in the distance*" is understood as an expression of a *changing* distance, i.e. a portion of the outer edge along which the distance to the welding interface actually changes.

5. As regards the term *identifying* in feature 1.8 of claim 1 as granted, no explanation whatsoever is provided in the contested patent. The board agrees with the opposition division and the opponent that the term has a broad meaning and merely entails that the existence of a discontinuity is discovered or noticed.

6. The *critical portion* of feature 1.9 of claim 1 as granted is defined in feature 1.10 as the portion of the welding interface aligned with the discontinuity in a direction perpendicular to the welding interface. Hence, it is itself a *surface* confined to the area of the welding interface where the corresponding outer edge has a discontinuity. As it forms part of the welding surface, the critical portion also "*extends along a curve defined by curvilinear abscissa (S)*" (feature 1.3).

7. The optical plane P is defined in feature 1.9 by being "*incident with said critical portion (64)*" and by requiring "*a respective fibre (44) lying on*" the plane. The term *incident* is understood here in a broad manner as denoting any intersection between two planes. As to the second requirement, it is construed as expressing that the (optical) axis of the optical fibre extends in plane P. This is in accordance with the description of the contested patent in paragraphs [0076], [0088] and [0089]. The plane P is thus a plane containing the optical axis of the fibre and intersecting the surface defined as the critical portion. It is noted that the inclination of the plane P with respect to the critical portion of the welding interface is not specified by the claim wording.

8. Unlike the optical plane P, the second plane T mentioned in feature 1.12 of claim 1 as granted is not incident but "*tangent to the critical portion*". With the normal meaning of the term *tangent*, this implies that the plane T *touches* the surface defined as the critical portion at a single point or line. In the case of the flat surface (as it appears in the embodiment of Figures 11a and 11b of the contested patent) such an

interpretation would make little technical sense. It is also at variance with the information contained in this particular embodiment, namely that plane T *intersects* the welding interface at its axis of symmetry and extends perpendicular thereto. In point 22 of the reasons for the decision under appeal, the opposition division construed the requirement of feature 1.12 in the sense that plane T was tangent to the *curve* defined in feature 1.3, i.e. the curve that substantially follows the shape of the contact surface between the lenticular body and the container body. This appears to be a technically sensible interpretation. It should be born in mind, however, that there are several ways to draw a plane tangent to a curved line in the three-dimensional space. The board is unable to discern any element of the claim wording that dictates the inclination of the plane T relative to the critical portion of the welding interface.

9. The range "*between 0 and 45 degrees*" of feature 1.12 of claim 1 as granted includes the end values *0* and *45*. With the lower end value of zero degrees, the plane P effectively coincides with the plane T. This option is explicitly foreseen by the contested patent (see paragraph [0081] and claim 4).

(b) Novelty over document D2

10. It is undisputed that document D2, which constitutes prior art under Article 54(3) EPC, discloses features 1.1 to 1.7 of claim 1 as granted.

11. As regards features 1.8 and 1.11 of claim 1 as granted, the opposition division referred to claim 17 and paragraphs [0011], [0014], [0016], [0064], [0079], [0094] and [0104] of document D2. The board agrees

that, in order to "*bypass surface discontinuities of the lenticular body 24*" (paragraph [0079]) and to provide "*for the step of estimating a possible deviation affecting the beam of laser radiation due to any surface discontinuity of the lenticular body 24*" (paragraph [0094] and claim 17), there must be some sort of awareness of the discontinuities on the outer edge of the lenticular body prior to positioning and directing the laser beam of document D2 so that it irradiates the welding interface. Further support for this conclusion can be found in paragraphs [0084] and [0085] of document D2, which disclose that the output of the optical device (the first light guide 52) is arranged substantially in contact with the (outer edge of the) lenticular body and is at least partially counter-shaped relative to the corresponding portion of the lenticular body. It follows from the above that at least the outer geometry of the lenticular body of document D2, including any discontinuities, is known when operating the laser to weld the automotive light in accordance with the prior-art method. It also follows from the definition of surface discontinuities in paragraph [0011] of document D2 ("*fittings, ribs, grooves, prominences, curvatures or the like*") that the discontinuities of document D2 entail a local change in thickness of the lenticular body, i.e. a change in distance with the welding interface, in the same manner as the concave and convex portions mentioned in paragraph [0060] of the contested patent (see point 4. above). Moreover, Figures 11, 12 and 14 of document D2 illustrate a lenticular body 24 which continuously changes in thickness along a substantial part of its perimeter. The board concludes that features 1.8 and 1.11 are disclosed by document D2.

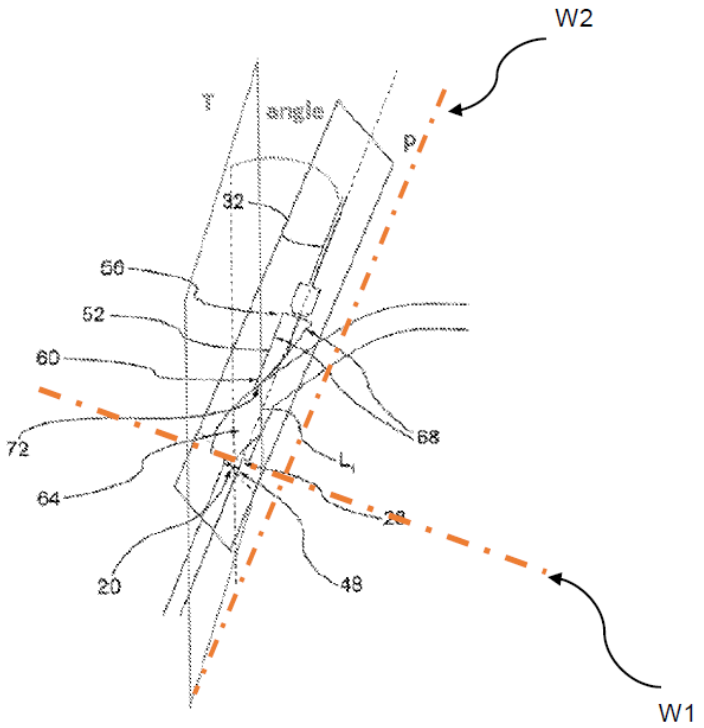
12. The patent proprietor objected that the method of document D2 did not identify a discontinuity by looking both at the outer edge of the lenticular body and the distance between the outer edge and the corresponding welding interface. However, such a measure is not reflected by the claim wording. The claimed method does not include a step of detecting the welding surface, nor does it require monitoring or comparing the course of the external surface with respect to the internal surface of the lenticular body, let alone measuring any relative distance.

13. As to the opponent's argument that feature 1.8 did not contribute to solving the technical problem of document D2 and that features 1.10, 1.11 and 1.12 were not technical features, the board refers to the well-established approach of treating potentially non-technical features under the umbrella of inventive step (see e.g. T 641/00, OJ EPO 2003, 352, Reasons 4).

14. Regarding features 1.9 and 1.10 of claim 1 as granted, both the embodiments of Figures 15, 16 and Figures 17, 18 of document D2 show an optical fibre 32 directing a laser beam to the welding interface 48 through a portion of the lenticular body 24 having a reduced thickness. This is not disputed by the patent proprietor. Based on the board's view on features 1.8 and 1.11, it follows that also features 1.9 and 1.10 are disclosed by the embodiments of Figures 15, 16 and Figures 17, 18 of document D2.

15. As set out in point 8. above, the board understands feature 1.12 of claim 1 as granted in a broad manner. The patent proprietor's argument that the tangent plane T *must* be perpendicular to the plane of the welding interface so that, in the cross-sectional view of

Figure 18 of document D2, it is inclined to the vertical plane (see the dotted lines W1 and W2, respectively, in the patent proprietor's annotated drawing reproduced below) cannot be followed.



But even if it were assumed that the reference plane T lied perpendicular to W1 (and, thus, parallel to W2) in the cross-sectional view of the drawing above, a corollary of this argument would be that, in the example of Figure 18 of document D2, planes P and T would be coincident and, hence, the angle of orientation α would be zero degrees, which corresponds to the lower limit of the range defined in feature 1.12. Likewise, the angle between plane P and the vertically orientated plane T shown in the drawing above, which was considered by the opposition division to be tangent to the curve of the welding surface mentioned in feature 1.3 (see page 20 of the decision under appeal), would also be substantially smaller than 45 degrees. The board concludes that the embodiment of

Figures 17, 18 of document D2 also discloses feature 1.12.

16. The patent proprietor is correct when arguing that the drawings of document D2 are schematic and do not disclose the exact orientation of the optical fibre 32 with respect to the welding interface. Nevertheless, the board is of the view that the range "*between 0 and 45 degrees*" of feature 1.12 is so broad (see point 9. above) and the possible arrangements of planes P and T are so numerous (see points 7. and 8. above) that there will always be a plane P, containing the optical axis of the fibre 32 and intersecting the surface of the critical portion, that is positioned relative to a plane T tangent to the curve of the contacting surface in the claimed manner, irrespectively of whether that plane T is vertical, perpendicular to the welding surface or otherwise inclined. As a consequence, also in the embodiment of Figures 15, 16 of document D2, where the optical fibre is positioned over a portion of the lenticular body 24 with reduced thickness, the axis X-X can be considered to lie on a plane P that intersects the critical portion (somewhere out of the plane of the cross-sectional view of Figure 16) and forms an angle of 45 degrees or less with a plane tangent to the critical portion.

17. Therefore, the subject-matter of claim 1 as granted is not novel in view of document D2 (Article 54(1) and (3) EPC). The opposition division was thus correct in its finding that the ground for opposition under Article 100(a) EPC together with Article 54(1) EPC prejudices the maintenance of the patent as granted. The patent proprietor's main request is not allowable.

Auxiliary request 1

18. The claims of auxiliary request 1 filed with the statement of grounds of appeal are identical in wording to those of the first auxiliary request underlying the decision under appeal.

19. The patent proprietor argued that paragraphs [0058] and [0099] as well as Figures 11a and 11b of the application as filed constitute the basis for the additional feature 1.13 of claim 1.

20. Paragraph [0058] concerns the assembly of the automotive light. The first and second perimetral profiles 10, 28 are described as at least partially joined to each other. A direction of joining is, however, not mentioned. Nor is there any reference to the angle of orientation between the optical plane P and the plane T. Paragraph [0099] mentions the angle, but not the direction. Figure 11a is a perspective view of an enlarged detail of an automotive light during welding. A discontinuity is depicted by the reference sign 54 and a critical portion of the welding interface by the reference sign 64. But the drawing does not include a reference frame from which the orientation of the critical portion relative to the remaining (and likely curved) welding interface would be apparent. Thus, even assuming that the direction of joining is perpendicular to the parts composing the moulds (as is argued by the patent proprietor), it remains uncertain where that direction would lie with respect to the enlarged detail of Figure 11a. The same applies to the view of Figure 11b. Thus, it must be concluded that there is no direct and unambiguous disclosure in the

application as filed of the amendment to claim 1 of auxiliary request 1.

21. For the reasons set out above, the requirements of Article 123(2) EPC are not met. Auxiliary request 1 is not allowable.

Auxiliary request 2

22. The claims of auxiliary request 2 filed with the statement of grounds of appeal are identical in wording to those of the second auxiliary request which the opposition division held allowable in the decision under appeal.

23. In point 27 of the reasons for the decision under appeal, the opposition division held that document D2 did not disclose a method which differentiated the orientation of the laser beam depending on whether the relative distance between the outer edge of the lenticular body and the welding interface changed or not. The board concurs with this view. Particularly in the embodiments of Figures 15, 16 and 17, 18, it cannot be determined with certainty whether the portions of the lenticular body 24 *without* surface discontinuities would be irradiated in the same way as the critical portions of the lenticular body, one of which is shown in a cross-sectional view in Figure 16 and Figure 18, respectively. Without such information, it cannot be concluded that feature 1.16 is directly and unambiguously disclosed by these embodiments.

24. In point 27 of the decision under appeal, the opposition division also referred to the welding equipment shown in Figures 13, 14 of document D2. The optical fibres in this embodiment are all directed in

the same (vertical) direction towards the welding interface. The board is unable to see any (even slight) inclination of the light guide portions shown in Figure 13 of document D2, as suggested by the opposition division. In agreement with the opponent, it must be concluded that the fibres in these figures are arranged on the intersecting lines of planes P and T and planes Z and R, respectively, in a similar way as in Figure 11b of the patent. Hence, also the additional features 1.14 to 1.16 are disclosed in document D2. But even if assuming that the opposition division were correct and one of the optical fibres were indeed orientated towards the welding interface with a small inclination, Figures 13 and 14 of document D2 would still disclose all features of claim 1 of auxiliary request 2 because the broad meaning of features 1.9 and 1.12 as set out in points 7. and 8. above equally applies to the similarly worded features 1.15 and 1.16 (see also the reasons given in point 16. above).

25. The board can therefore not share the opposition division's view. The subject-matter of claim 1 of auxiliary request 2 is not novel over document D2 (Article 54(1) and (3) EPC). Auxiliary request 2 is not allowable.

Auxiliary request 3

26. The claims of auxiliary request 3 are identical in wording to those of the fourth auxiliary request filed before the opposition division with letter dated 10 November 2022. These claims were not considered by the opposition division in its decision under appeal because it held the higher-ranking second auxiliary request allowable.

27. The board shares the opponent's view that feature 1.17 is disclosed by document D2. Paragraph [0081] of document D2 gives an example of a first light guide 52 comprising "*at least a pair of walls 68 facing each other and mirror-wise inclined relative to an optical axis X-X of the first light guide 52, so as to define a compartment 42 starting with the input 56 and ending with said output for the propagation of the light beam in lobes Li*". Paragraph [0082] of document D2 then specifies in connection with the embodiment of Figures 15 and 16 that "*said compartment 42 may be hollow and said walls 68 may be reflective of the light beam incident on them (figures 15-16)*". This corresponds to the definition of a negative light guide provided in paragraphs [0014] and [0097] of the contested patent.

28. The patent proprietor did not dispute that document D2 disclosed a negative light guide, but contended that its output was counter-shaped to the outer edge of the lenticular body in the sense of feature 1.18. The board disagrees. In the words of paragraph [0085] of document D2, "*said output 60 is at least partially counter-shaped relative to the corresponding portion of the lenticular body 24 which is arranged in proximity and/or substantially in contact with*". It may be that, as the patent proprietor argues, a complete counter-shaping in the sense of an uninterrupted contact is not foreseen in the prior-art arrangement. However, the board concurs with the opponent that such a solution is not required by the wording of feature 1.18 either.

29. In view of the above, document D2 discloses all features of claim 1 of auxiliary request 3 so that its subject-matter is not novel in the sense of Article 54(1) and (3) EPC. Auxiliary request 3 is not allowable.

Auxiliary request 4

30. The claims of auxiliary request 4 are identical in wording to those of the third auxiliary request filed before the opposition division with letter dated 10 November 2022. Also these claims were not considered by the opposition division in its decision under appeal.

31. Additional feature 1.19 of claim 1 of auxiliary request 4 limits the discontinuity defined in feature 1.11 as constituting "*a change in the distance (55) between the outer edge (32) and the welding interface (36)*" to the extent that it must comprise a concave or a convex portion. The board observes that all embodiments shown in Figures 12, 14, 16 or 17 of document D2 disclose a lenticular body 24 with a curved outer edge. Having regard to paragraph [0011] of document D2, in which curvatures are mentioned as examples of surface discontinuities of the light-transmissive polymer body, the board concludes that feature 1.19 is disclosed in combination with the other claim features at least in the context of the embodiments of Figures 15, 16 and 17, 18 of document D2.

32. Since document D2 discloses all features of claim 1 of auxiliary request 4, the subject-matter of that claim lacks novelty in the sense of Article 54(1) and (3) EPC so that also auxiliary request 4 is not allowable.

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:

D. Hampe P. Lanz

Decision electronically authenticated