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**D E C I S I O N**  
of 7 October 1997

**Case Number:** T 0869/95 - 3.2.3

**Application Number:** 88109696.0

**Publication Number:** 0295705

**IPC:** F21M 3/10

**Language of the proceedings:** EN

**Title of invention:**  
Projector-type head lamp for vehicles

**Patentee:**  
Nissan Motor Co., Ltd., et al

**Opponent:**  
Robert Bosch GmbH  
Hella KG Hueck & Co.  
Bayerische Motoren Werke Aktiengesellschaft

**Headword:**  
-

**Relevant legal provisions:**  
EPC Art. 52(2), 83, 100(a), (b)

**Keyword:**  
"Patentable inventions - discoveries (no)"  
"Disclosure - sufficiency (no)"

**Decisions cited:**  
G 0009/91, G 0010/91, G 0001/95

**Catchword:**  
-



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Boards of Appeal

Chambres de recours

Case Number: T 0869/95 - 3.2.3

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.3  
of 7 October 1997

**Appellant 1:**  
(Opponent)

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**Appellant 2:**  
(Opponent)

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**Appellant 3:**  
(Opponent)

Bayerische Motoren Werke Aktiengesellschaft  
Patentabteilung AJ-3  
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**Representative:**

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**Respondent:**  
(Proprietor of the patent)

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Yokohama-shi  
Kanagawa-ken (JP)

**Representative:**

Grünecker, Kinkeldey,  
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**Decision under appeal:**

Decision of the Opposition Division of the  
European Patent Office posted 27 September 1995  
rejecting the opposition filed against European  
patent No. 0 295 705 pursuant to Article 102(2)  
EPC.

**Composition of the Board:**

**Chairman:** C. T. Wilson  
**Members:** H. Andrä  
L. C. Mancini

## Summary of Facts and Submissions

- I. European patent application No. 88 109 696.0, filed on 16 June 1988 and published on 21 December 1988 under publication No. 0 295 705, was granted on 7 April 1993.

Claim 1 as granted reads as follows:

"A projector-type head lamp for vehicles, comprising: a reflector (10) having an inside reflective surface of a predetermined geometrical shape and provided with a light source (30) at one of the foci (F1) thereof; a shade (16) disposed near the other focus (F2) of said reflector (10) and which is intended to shape the light beam reflected at said inside reflective surface; and a lens means (32) for converging the light beam shaped by said shade (16) and having a focal plane near the other focus (F2) of said reflector (10); said light source (30) being a discharge lamp having a single colour temperature; wherein the intermediate point between the anode and cathode of said discharge lamp (30) is disposed at said one focus (F1) of said reflector (10) and has a brightness distribution having a spatially continuous, substantially football-like shape."

The term "and has a brightness distribution..." in Claim 1 has obviously to be amended to "and the discharge lamp has a brightness distribution...".

The patent was opposed by the Appellants 1, 2 and 3 (Opponents 1, 2 and 3) who all requested revocation of the patent on the ground of absence of inventive step. Appellant 3 requested revocation of the patent additionally on the ground of Article 100(b) EPC.

The oppositions were supported by the following documents:

- D1: DE-A-2 461 918
- D2: FR-A-2 550 847
- D3: US-A-4 100 594
- D4: US-A-4 513 357
- D5: "Lexikon der Feinwerktechnik", Deutsche Verlags Anstalt Stuttgart, vol. 13, pages 263, 289 and 290 and vol. 14, pages 34 and 269 to 271.
- D6: EP-A-0 219 137
- D7: DE-C-3 523 029
- D8: AT-A-342 711
- D9: DE-A-3 334 459
- D10: DE-A-3 519 627

III. By decision taken at the oral proceedings of 8 May 1995 and issued in writing on 27 September 1995 the Opposition Division rejected the oppositions.

The Opposition Division held that the information contained in the application as originally filed is sufficient to enable a person skilled in the art to carry out the invention. It was further pointed out that it was not obvious to use a discharge lamp in a projector-type headlamp to solve the underlying problem, in particular since a normal discharge lamp does not deliver light of a single wave-length but a spectrum having peaks in a certain wave-length range.

IV. On 13 November 1995 the Appellant 1 filed an appeal against the decision paying the appeal fee on the same day. The Statement of Grounds of Appeal was received on 18 January 1996.

On 17 November 1995 the Appellant 2 filed an appeal against the decision paying the appeal fee on the same day. The Statement of Grounds of Appeal was received on 5 January 1996.

On 11 October 1995 the Appellant 3 filed an appeal against the decision paying the appeal fee on the same day. The Statement of Grounds of Appeal was received on 18 January 1996.

The Appellants argue that the subject-matter of the patent has not been sufficiently disclosed in order to enable the skilled person to execute the invention. Furthermore, they hold that the patent in suit relates to a discovery not protectable under Article 52(2) EPC and that its subject-matter does not involve an inventive step pursuant to Article 56 EPC.

V. In the communication dated 16 January 1997 the Board expressed the provisional opinion that the subject-matter of Claim 1 did not seem to relate to a discovery as such in the sense of Article 52(2) and (3) EPC, but that it was questionable whether the disclosure of the invention satisfied the requirement of Article 83(100(b)) EPC.

VI. The Appellants 1, 2 and 3 request that the patent be revoked. They argued essentially as follows:

Starting out from the prior art ((D2), (D3), (D7) or (D9)) only a single step was required to arrive at the subject-matter of Claim 1, that is to substitute a discharge lamp such as known in vehicle headlamps from (D1), (D4), (D6), (D8) or (D10) for the light source in the known projector-type headlamp. According to the Opposition Division, the solution of the inherent problem is regarded as a surprising effect. Moreover, since the Respondent cannot explain the occurrence of

the effect which automatically turns up in the protected combination, the claimed subject-matter has to be regarded as a discovery which is not patentable pursuant to Article 52(2) EPC.

Having regard to the issue of the disclosure of the invention, the following is set out:

Light from a light source that does not emit light of only a single wave-length is split up into the different basic colours when passing through a simple lens. A light source appropriate for vehicle projector headlamps has to emit white light which is always a superimposition of light of the different basic colours. This applies also to discharge lamps which do not have a continuous spectrum but a line spectrum and emit light of different wave-lengths. It cannot be explained why by the mere use of a discharge lamp instead of an incandescent lamp with a projector-type headlamp an iridescent zone near the light-dark limit of a luminous intensity pattern projected frontward should not occur. It has to be taken into consideration that also the configuration of the lens, the shade and the reflector have an essential effect on the existence of iridescent zones which is demonstrated in (D2). No definition of these elements which would be required for achieving the alleged effect is, however, offered.

The patent in suit has to be revoked for non-compliance with Article 83 EPC.

VII. In support of his request for maintenance of the patent as granted, the Respondent (Patentee) argued in the written and oral proceedings essentially as follows:

Having regard to the objection under Article 52(2)(a) EPC it is emphasised that the invention relates to the installation of a discharge lamp into a projector type

headlamp for vehicles, the headlamp comprising a reflector, a shade and lens means. The invention consists, therefore, clearly of technical features and cannot be regarded as a discovery. Whilst the indication in column 4, lines 21 and 22, of the patent in suit that the "light source 30 is a monochromatic one of 4 000°K in colour temperature" is indeed improper, it is clearly expressed that the light source 30 does not have a continuous spectrum as does an incandescent lamp but a line spectrum and that, for example, a metal halide lamp, a sodium lamp or a high pressure mercury lamp can be used.

The spectrum of a high intensity discharge lamp depicted on Graph I which was filed with the letter of 12 October 1994 shows peaks of the light intensity in the range of about 510 to 590 nm. In the range of more than 600 nm which represents reddish light amounts, the intensity is drastically reduced as compared to the spectrum of the light intensity of the halogen lamp. The reddish light is mainly the reason for recognition of an iridescent zone by the human eye.

The object of the invention to eliminate an iridescent zone in a projector type headlamp is solved by including a discharge lamp into the projector type headlamp. It is clear that the skilled person will make use of a reflector type which is appropriate for solving the inherent problem. He will also select a discharge lamp of the type having a low light emission in the range above 600 nm. It is therefore clear that the invention as originally disclosed can be carried out by the skilled person.

## Reasons for the Decision

1. The appeal is admissible.
2. *Article 52(2) and (3)(100(a)) EPC*

The issue of Article 52(2) EPC which in the Statement of Grounds of Opposition had not been set out as a ground on which the opposition is based, was addressed in the oral proceedings of 8 May 1995 before the Opposition Division by the Appellant 1 (see page 4 of the minutes). It was not, however, referred to in the decision under appeal so that it is not clear whether this issue has effectively been allowed into the proceedings by the Opposition Division.

In the oral proceedings before the Board, the Respondent gave his consent to this issue being discussed by the parties (see G 9/91, G 10/91 and G 1/95).

According to the Appellants, the Opposition Division has based the patentability of Claim 1 exclusively on the effect that an iridescent zone developed near the light-dark limit of the luminous intensity pattern of a projector-type headlamp can be avoided.

Further according to the Appellants, as the Respondent does not offer an explanation as to why this effect occurs and as the effect of the protected combination takes place automatically, Claim 1 relates to a discovery in the sense of Article 52(2)(a) EPC.

Claim 1 is directed to a projector-type headlamp for vehicles comprising a reflector provided with a light source, a shade intended to shape the light beam



reflected by the reflector and a lens means for converging the light beam, the light source being a discharge lamp.

It follows from the above indication of the features contained in Claim 1 that the claim is not directed to a technical effect constituting a discovery per se, but to a technical instruction concerning a technical apparatus, that is a projector-type headlamp and its components. The provisions of Article 52(2) EPC concerning inter alia discoveries exclude patentability of the subject-matter or activities referred to in that provision only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such (Article 52(3) EPC). Since Claim 1 does not concern a discovery as such as outlined above, its patentability cannot be excluded under Article 52(2) and (3) EPC.

3. *Articles 83 and 100(b) EPC*

3.1 According to column 2, line 53 to column 3, line 9 of the patent in suit, the problem to be solved comprises the aspects of providing a projector-type headlamp adopting a simple optical system with an ideal luminous intensity distribution pattern, avoiding an iridescent zone near the light-dark limit of the projected luminous pattern and eliminating the influence of any brightness distribution of the light source on the bright zone of a projected luminous intensity distribution pattern.

3.2 The skilled person intending to execute the invention receives from Claim 1 inter alia the information that the light source is a discharge lamp having a single colour temperature and that the discharge lamp has a brightness distribution having a spatially continuous,

substantially football-like shape. Since the claim does not specify how to arrive at such a brightness distribution, the skilled person will consult the description.

In column 4, lines 21 to 27 of the description of the patent, the following is set out:

"This light source 30 is a monochromatic one of 4 000°K in colour temperature and has no continuous spectrum as an incandescent lamp. So, the use of an single lens 32 as convex lens will not cause any coloured light zone near the light-dark limit of the luminous intensity distribution pattern."

According to basic laws of physics, discharge lamps of the type indicated in the patent in suit, that is metal halide lamps, sodium lamps or high pressure mercury lamps (see column 4, lines 47 to 49), emit light of different wave-lengths which means that they are not monochromatic light sources. Indeed, the above-cited passage of the patent has been denoted by the Respondent as "improper", that is it misleads the skilled person as to the selection of an appropriate type of discharge lamp.

- 3.3 With the letters of 20 June 1994 and 12 October 1994, received on 21 June 1994 and 13 October 1994, respectively, the Respondent submitted a diagram designated "Graph I" showing the spectrum of a high-intensity discharge lamp and of a halogen lamp. In the spectrum of the discharge lamp a number of peaks appear mainly within the range of 500 to 600 nm wave-length whereas the spectrum of the halogen lamp is continuous.

Having regard to the iridescent zone of a projected luminous intensity pattern which according to the patent is to be avoided, it is the physical phenomenon

of dispersion which leads to chromatic aberrations and thus to the appearance of the iridescent zone along the light-dark limit of the projected luminous intensity pattern. Dispersion is caused by the fact that the refractive index of a substance has different values for the different wave-lengths whereby every wave-length corresponds to a different colour of the spectrum (see (D5) vol. 13, catchwords "chromatische Aberrationen" on page 146 and "Dispersion" on pages 171 and 172).

Pursuant to these physical laws, the light emitted by the high-intensity discharge lamp with the line spectrum shown on the Respondent's diagram "Graph I" as well as the light emitted by the particular discharge lamps indicated in column 4, lines 47 to 49, of the patent will cause a coloured light zone near the light-dark limit of the luminous intensity distribution pattern, when passing through a single lens. This is due to the fact, as outlined above, that for the different wave-lengths in the spectrum of the discharge lamp, including those corresponding to the maxima, the lens has effectively different values of the refractive index.

Thus, the disclosure of the patent in column 4, lines 24 to 27 does not correspond with well-established physical laws and it follows therefrom that the solution to the underlying problem to eliminate the said iridescent zones has not been disclosed in the patent application and the patent, respectively.

- 3.4 The further argument of the Respondent in support of a sufficient disclosure of the invention that the diagram "Graph I" shows peaks of light intensity in the range of about 510 to 590 nm and that in the range of more than 600 nm which represents reddish light amounts,

these amounts are drastically reduced as compared to the spectrum of the light of the halogen lamp which leads essentially to the disappearance of the iridescent zone, is not convincing.

The object of the patent is to eliminate the said iridescent zone that is to extinguish the zone completely. The solution to this object has not been disclosed as expounded in section 3.3 above.

There is also no disclosure whatsoever relating to the elimination of a partial colour range, namely the reddish light of the spectrum as addressed in the Respondent's letter of 25 June 1996, page 2, paragraph 3. Moreover, the discharge lamp disclosed in the patent as being appropriate, that is a high pressure mercury lamp, exhibits peaks in the spectrum range above 600 nm so that an elimination of the reddish light which has been cited by the Respondent as the main reason for recognition of an iridescent zone by the human eye when passing through a single lens, does not occur. Thus, with such a discharge lamp neither the reddish light amounts above the range of 600 nm nor those parts of the spectrum below 600 nm can be eliminated.

Further considerations relating to the elimination of the reddish light amounts are, however, superfluous since even the reduction of only those colours that are in particular responsible for the recognition of an iridescent zone has no basis of disclosure in the patent.

3.5 Summarising, the Board comes to the conclusion that the European patent does not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 100(b)).

Independent Claim 1 cannot, therefore, be maintained. Claims 2 and 3 being dependent on Claim 1 fall with the independent claim.


4. In these circumstances, the issue of inventive step as the further ground of opposition put forward is without object.

### Order

For these reasons it is decided that:

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

The Registrar:



N. Maslin

The Chairman:



C. T. Wilson

