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D E C I S I O N
of 22 September 2004

Case Number: T 1207/02 - 3.4.3

Application Number: 98113440.6

Publication Number: 0975000

IPC: H01J 5/54

Language of the proceedings: EN

Title of invention:

Electric lamp

Applicant:

Mass Technology (H.K.) Ltd.

Opponent:

-

Headword:

-

Relevant legal provisions:

EPC Art. 52(1), 54, 56, 123(2)

Keyword:

"Novelty - yes"

"Inventive step - yes"

Decisions cited:

-

Catchword:

-



Case Number: T 1207/02 - 3.4.3

D E C I S I O N
of the Technical Board of Appeal 3.4.3
of 22 September 2004

Appellant: Mass Technology (H.K.) Ltd.
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 16 May 2002
refusing European application No. 98113440.6
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: R. K. Shukla
Members: E. Wolff
J. P. B. Seitz

Summary of Facts and Submissions

I. This is an appeal against the decision of the examining division, posted 16 May 2002, to refuse European patent application Nr. 98 113 440.6 on the ground that independent claim 1 was not new having regard to document

D1: EP-A-0583 034

The examining division further considered that dependent claim 2 did not involve an inventive step having regard to documents D1 and

D2: FR-A-2 557 359

and also that none of the other dependent claims 3 to 10 involved an inventive step.

II. The appellant filed the notice of appeal and paid the appeal fee on 3 July 2002, requesting that the decision under appeal be set aside and a patent be granted on the pending documents. Oral proceedings were conditionally requested. The statement setting out the grounds of appeal was filed on 17 September 2002.

III. In response to a written communication issued by the Board on 2 July 2004, in which the Board expressed the preliminary view that the subject matter of claim 1 of the main request was not new having regard to document D1, and the subject matter of claim 2 did not involve an inventive step having regard also to document D2, the appellant filed a revised main request and a new auxiliary request.

IV. Oral proceedings took place on 22 September 2004. At the oral proceedings, the appellant filed a new main request of which the only independent claim, claim 1, reads as follows:

"1. An electric lamp, especially energy saving lamp, comprising a discharge tube (5), a lamp head (8) or socket extending into a rear cover (7) in which an electronic ballast (6) for operating the discharge tube (5) is arranged at least partly, said lamp head (8) having a first and second contact (83, 84) connected to the ballast, wherein the lamp head (8) comprises a screw plastic part (81) having a thread, said thread is covered at the external surface with a layer of conductive metal film (84) providing the first contact, a contact-point plastic part (82) connected to the end of the screw plastic part (81), and a metal contact-point (83) fixed at the center of the rear end of the contact-point plastic part (82) providing the second contact, and said conductive metal film (84) on the outer surface of the screw plastic part (81) covers an area in the range of 1000 to 3000 mm²."

V. The arguments put forward by the appellant may be summarised as follows.

The amendments which distinguish claim 1 of the main request from the corresponding claim rejected by the examining division were based, in particular, on Figure 2 of the drawings and the associated description, and on claim 6 of the application as originally filed, and were therefore allowable.

The invention was new and inventive since neither document D1 nor document D2 disclosed a lamp socket made from plastics material the threaded portion of which is covered by a conductive metal film. Moreover, document D1 pointed away from the invention because it taught that the coupling capacity of a high frequency lamp could be reduced by using a lamp socket made of plastics and provided with a contact in the form of a small metal band situated on the unthreaded portion of the lamp socket. The lamp of document D2 had a bayonet socket without a threaded portion, with an adhesive aluminium band being affixed to the inside of the socket.

Reasons for the Decision

1. The appeal is admissible
2. *Amendments (Article 123(2) EPC)*
 - 2.1 The substantive amendments which distinguish claim 1 of the main request from the corresponding claim as originally filed are:
 - (a) that the claim now expressly specifies that the lamp head (8) comprises a screw plastic part (81) having a thread, the external surface of which is covered with a layer of conductive metal film (84); and
 - (b) that the conductive metal film (84) on the outer surface of the screw plastic part (81) covers an area in the range of 1000 to 3000 mm².

2.2 The appellant argued that it is evident from Figure 2 of the drawings that in Figure 2 the reference numeral 84 pertaining to the metal film is clearly associated with the threaded part of the screw plastic part 81, and that therefore there can be no doubt that thread on the screw plastic part is covered by the metal film. The Board accepts this argument and agrees that the feature mentioned under 2.1 a) does not introduce any subject matter which extends beyond the contents of the application as filed.

2.3 The feature that the conductive film on the outer surface of the screw plastic part 81 covers an area of between 1000 and 3000 mm², was claimed in claim 6 as originally filed.

2.4 The remaining claims and the description were amended to adapt them to the amended claim 1 and do not introduce any new subject matter.

2.5 For the foregoing reasons the Board is satisfied that the amendments that have been made comply with the requirements of Article 123(2) EPC)

3. *Novelty*

3.1 Document D1 discloses a lamp which, in the words of claim 1 and using the reference numerals of document D1, comprises a discharge tube (8), a lamp head or socket (1,2,3,5) extending into a rear cover (6) in which an electronic ballast for operating the discharge tube (8) is arranged at least partly, said lamp head (1,2,3,5) having a first and second contact (1, 2) connected to

the ballast, wherein the lamp head (1,2,3,5) comprises a screw plastic part (3) having a thread, a contact-point plastic part (5) connected to the end of the screw plastic part (3), and a metal contact-point (1) fixed at the center of the rear end of the contact-point plastic part (5) providing the second contact.

3.2 The lamp claimed in claim 1 of the application in suit differs from the lamp disclosed in document D1 in that in the claimed lamp the thread has its external surface covered with a layer of conductive metal film with an area in the range of 1000 to 3000 mm².

3.3 The subject matter of claim 1 is therefore new.

4. *Inventive step*

4.1 Document D1 concerns energy saving lamps operating at high frequencies (of the order of 10kHz - c.f. document D1, column 1, line 54) and designed for use in the same applications in which traditionally incandescent lamps were used. In energy saving lamps described as known in document D1, the lamp cap carries the external electric contacts of the lamp, with one of the contacts being located at the end of the lamp cap, and the second contact extending over substantially the entire surface area of the lamp cap shell. In order to reduce the size of the lamp, the electric ballast that is provided in the lamp housing is at least partly located in the lamp cap. This, it is explained, causes comparatively strong capacitive coupling (document D1, column 2, lines 15 to 20) between the electric contacts and the ballast. In order to reduce this coupling capacitance, document D1 proposes replacing the metal lamp cap of the prior art

with a socket made of plastics material on which the second contact is formed as a narrow metal band encircling the socket near its lower end and extending over only a comparatively small portion of the lamp cap (document D1, column 2, lines 40 to 47). It is also apparent from Figures 1 to 3 of the drawings in document D1, that the metal band (2) forming the second contact is located in a matching recess of the socket. Where a socket of greater mechanical strength is required, document D1 provides as an alternative for the threaded part of the socket to be formed as a separate metal part. This metal part is attached to the insulating material on which the band forming the second contact is located, but is electrically insulated from that band (see Figure 1B and column 3, lines 30 to 46).

4.2 Compared to the nearest prior art as represented by document D1, the objective problem addressed by the claimed invention is to provide an electric lamp with a socket which is relatively easy to manufacture, which has a high accuracy and uniformity and which ensures good electric contact.

4.3 The solution provided by the invention as claimed in claim 1 lies in forming the socket including the threaded part of plastics material, thereby ensuring high accuracy and good uniformity, and covering the external surface of the threaded part with a layer of conductive metal film, thereby ensuring that the accuracy of the plastics moulding of the threaded portion is retained while providing a large contact area on the socket. Sockets formed in this way have the added benefit of being cheap and easy to manufacture.

- 4.4 There is no suggestion in document D1, which is concerned with reducing the size of the second contact in order to reduce the coupling capacity (see paragraph 4.1 above), that the threaded portion providing the second contact could be formed in the manner claimed, that is by using a screw plastic part of which between 1000 to 3000 mm² are covered by a metal film. That is, according to the invention as claimed, at least a significant part of the external surface of the thread is covered with a layer of conductive metal film, thereby combining the advantages of the high accuracy of threads moulded from plastics material with the large contact surface provided by metal sockets of the kind described as prior art in the application itself.
- 4.5 Document D2 discloses a gas discharge lamp having a bayonet socket having a strip of aluminium attached to its inside surface. The stated purpose of this strip is to ensure satisfactory ignition of the lamp even at low temperatures (page 1, lines 6 to 9). Thus, document D2 does not provide any indication whether and if so how the device disclosed in document D1 would need to be modified in order to arrive at the claimed invention.
- 4.6 The Board accordingly considers that the invention claimed in claim 1 of the main request is not obvious with regard to document D1, whether taken on its own or in combination with document D2.
5. For the foregoing reasons, in the judgement of the Board the subject matter of claim 1 of the main request is new as required by Articles 52(1) and 54 EPC, and

involves an inventive step as required by Articles 52(1) and 56 EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to grant a patent with the following documents:

Claims: 1 to 10 as presented at the oral proceedings

Description: column 1 as presented at the oral proceedings,
columns 2 3 and 4 as published

Figures: 1 to 7 as published

The Registrar:

The Chairman:

M. Patin

R. K. Shukla