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D E C I S I O N
of 10 February 1995

Case Number: T 0889/93 - 3.5.2

Application Number: 89304923.9

Publication Number: 0361642

IPC: H01R 13/73

Language of the proceedings: EN

Title of invention:
Coupler terminal unit for speaker

Applicant:
PIONEER ELECTRONIC CORPORATION

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 56, 123(2)

Keyword:
"Erroneous presentation of prior art by the Applicant corrected"
"Inventive step - yes, after amendment"

Decisions cited:
T 0006/81, T 0022/83, T 0077/87

Catchword:
-



Case Number: T 0889/93 - 3.5.2

D E C I S I O N
of the Technical Board of Appeal 3.5.2
of 10 February 1995

Appellant: PIONEER ELECTRONIC CORPORATION
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Decision under appeal: Decision of the Examining Division of the European Patent Office dated 2 June 1993 refusing European patent application No. 89 304 923.9 pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: W. J. L. Wheeler
Members: A. G. Hagenbucher
C. Holtz

Summary of Facts and Submissions

I. The present appeal contests a decision of the Examining Division refusing the European patent application No. 89 304 923.9.

II. The reason given for the refusal was that the subject-matter of Claim 1 then on file did not involve an inventive step having regard to

D1: EP-A-259 199 and

D2: Patent Abstracts of Japan, Vol. 10, No. 313 (E-448) (2369), October 1986 and JP-A-61123386.

D3: US-A-3 510 937 was mentioned in the decision but not referred to in the Statement of Reasons.

III. In the appeal proceedings the Appellant filed new claims and amended the description and drawings.

Claim 1 reads now as follows:

"1. A coupler terminal unit (C') for a speaker unit which includes a speaker frame (2) and an attachment piece (3') extending radially outwardly from the speaker frame, the coupler terminal unit comprising a housing portion (C2') secured to the attachment piece by an eyelet member (5) and having upstanding side walls (4') and a bottom wall (4'a) defining an internal space with an opening opposed to the bottom wall; a pair of input terminals (4'A) which are implanted on the bottom wall, extend towards the opening and are spaced from each other such that the housing portion and the input terminals form a prescribed coupler socket structure; and a pair of terminal pieces (6') each being connected to one of the input terminals respectively, extending from each of the side walls; characterised in that the

bottom wall is provided with a penetration hole located between the input terminals and which communicates the internal space of the housing portion with the external space of the housing portion, and the eyelet member (5) being disposed in the penetration hole, having a diameter on the bottom wall smaller than the distance between the input terminals, and occupying a portion of the internal space of the housing portion at one end thereof in the vicinity of the bottom wall."

- IV. In the grounds of appeal the Appellant explained that the closest prior art was not D1 or D2 but the coupler terminal unit shown in the prior art Figures 1 and 2 of the present application.
- V. In a communication the Board agreed in this respect and invited the Appellant to cite a document reflecting this prior art. It was indicated that starting from the prior art according to Figures 1 and 2 of the application as originally filed the claimed subject-matter appeared to be obvious.
- VI. In reply thereto, the Appellant informed the Board that neither a document reflecting Figures 1 and 2 nor a sample made in accordance with these figures existed before the priority date of the present application. These figures were actually intended to represent a socket according to a white sample filed with that reply. In view of this white sample it was clear that Figures 1 and 2 of the application as originally filed were misleadingly over-simplified, because in the white sample no room was left in the bottom of the socket for an eyelet, contrary to the impression given by Figures 1 and 2 as originally filed. According to the Appellant it was clear that the subject-matter of the present application, for which a grey sample was filed, required

a complete redesign of the socket which could not then be designed to fit with existing plugs. Amended Figures 1 and 2 were filed in order to illustrate more correctly the white prior art sample.

VII. The Appellant requested that the decision of the Examining Division be set aside and a patent be granted on the basis of the following documents:

Claims: 1 to 4 received on 31 January 1995 with letter of 30 January 1995,
5 received on 15 March 1993 with letter of 12 March 1993.

Description: pages 1 and 5 as originally filed,
pages 2 and 6 received on 2 October 1992 with letter of 30 September 1992,
pages 3, 3A, 4 received on 31 January 1995 with letter of 30 January 1995, subject to amending on page 3, lines 17 and 18 to read: "The conventional coupler terminal unit for a speaker unit according to Figures 1 and 2 includes a speaker frame and an" as agreed on 2 February 1995 on the telephone.

Drawings: Figures 1 to 4 (one sheet) received on 31 January 1995 with letter of 30 January 1995.

Reasons for the Decision

1. The appeal is admissible.

2. The Appellant contended that the prior art Figures 1 and 2 of the application as originally filed were misleadingly over-simplified and should represent a prior art socket, a sample of which was filed during the appeal proceedings. The Board is not in a position to contradict this. In the new drawings, Figures 1 and 2 are more in agreement with the filed sample of the prior art. Since a skilled person is interested in technical reality (cf. Rule 27(1)(b)(c) EPC) it is the practice of the Boards of Appeal to allow, or require, erroneous statements about the prior art to be corrected and/or supplemented where necessary (cf. decision T 22/83 of 6 December 1985 and 11 December 1987, not published; T 77/87, OJ EPO 1990, 280; T 6/81, OJ EPO 1982, 183).

The amendment of Figures 1 and 2 coupled with an amendment of page 4, penultimate paragraph, line 3 ("like" amended to read "corresponding") serves only to remove an inaccuracy in the representation of the state of the art and does not affect the disclosure of the invention per se. It is, consequently, not objectionable under Article 123(2) EPC.

The other amendments made to the claims and description comply with the requirements of Article 123(2) EPC. Claim 1 finds its basis in the original claims in conjunction with Figures 3 and 4 (which have not been amended).

3. None of the cited documents D1 to D3 nor the prior art shown in Figures 1 and 2 of the present application discloses all the features of the subject-matter defined in Claim 1. Hence, its subject-matter is novel.

4. *Closest prior art and problem*

The closest prior art is the coupler terminal unit represented by new Figures 1 and 2 of the present application and filed as a white sample during the appeal proceedings. This coupler terminal unit has all the features indicated in the preamble of Claim 1. It has the following disadvantages:

- (a) The socket of the housing portion is positioned radially outwardly of the eyelet securing it to the attachment piece, so that it may protrude a relatively long way and therefore interfere with other nearby components, e.g. when installed in a vehicle, and may be subjected to vibration and damage.
- (b) The open housing receives, as a close sliding fit, a plug in order to make an electrical connection. When the plug is being inserted, an appreciable downward force on the terminal pins is transmitted to the base of the housing at a position radially outwardly offset from the eyelet, thus generating a torque which will tend to rock the housing relatively to the attachment piece and may eventually cause the eyelet to wear loose. The housing is mounted in cantilever fashion on the end of the attachment piece and the downward force transmitted through the terminal pins will deflect the attachment piece and may lead to permanent deformation.

Hence, the problem underlying the subject-matter of Claim 1 is seen in designing a coupler terminal unit with improved fastening of the housing portion to the attachment piece so that the coupler terminal unit is less likely to be deformed and to interfere with nearby components.

5. This problem is solved by the features specified in the characterising part of Claim 1. Providing the eyelet through the bottom wall of the housing, between the two terminal pins, ensures that the resultant line of action of the downward forces applied to the terminal pins when the plug is inserted into the housing, passes directly through the centre of the eyelet. Consequently, no torque will be produced, tending to twist the housing relatively to the attachment piece. The attachment piece will thus only receive the downwardly directed force, which it is best able to withstand, and since the housing may now be arranged closer to the speaker frame compared with the prior art solution in Figures 1 and 2, the moment of the force tending to deflect the attachment piece downwardly may also be reduced.
6. The prior art represented by the new Figures 1 and 2 of the present application differs significantly from the claimed subject-matter. The most striking feature concerns the amount of space available in the prior art socket which leaves no room in the bottom of the socket for the eyelet. This prior art socket requires a complete redesign of the socket for placing the eyelet between the input terminals in the socket which could not then be designed to fit the existing plugs, which would also have to be redesigned. It would not be obvious to a person skilled in the art, starting from the prior art shown in Figures 1 and 2, to make such extensive modifications as would be needed to arrive at the claimed solution.

7. D1 relates to a coupling unit of the kind having an open housing containing a pair of terminal pins but according to the introduction the object of that prior art solution is to avoid screws or rivets which require special equipment and time consuming installation. D1 proposes the use of integral resilient clips. Thus problems with conventional rivets or eyelets are recognised but the document teaches away from re-positioning a rivet or eyelet. In fact, it is not possible to see how the housing of D1 could be secured by means of an eyelet through its bottom wall, as the bottom wall is not flat and does not abut against any other flat part to which it could be riveted by an eyelet.

8. D2 discloses an insulating board fixed to an installation base. It is not said how the one is fixed to the other and it can only be surmised that the projecting unnumbered head shown in the drawings of D2 is the head of a rivet. This projecting head is not positioned between the upstanding parts of the two represented terminals. The terminals are not designed for receiving simultaneously a common plug but for individually receiving receptacles. D2 is concerned with the problem of deformation in a longitudinal and lateral direction of the insulating board. This problem is overcome by supporting the base by means of position determining ribs. There is therefore nothing in D2 which suggests positioning a rivet on a resultant line of force applied to a terminal pin or pins upon application of a respective receptacle or plug. The terminals are not within an open topped housing so that D2 is not concerned with positioning a rivet or eyelet for fixing an open topped housing.

9. D3 was cited during the examining proceedings in order to show that speaker units having an attachment piece which extends radially outwardly from a speaker frame are known. This known terminal assembly includes a clip adapted to be mounted on a lug carried on a spider and which is thus fixed with a frame. The terminal assembly further includes an insulating board which is centrally secured to the clip by a rivet. There is no housing with upstanding side walls. The terminals are oriented in parallel with the insulating mounting board so that the force conditions are not comparable to those of the present subject-matter.

10. The Board, therefore, comes to the conclusion that the subject-matter of Claim 1 cannot be derived in an obvious manner from the prior art according to Figures 1 and 2 of the present application and D1 to D3, taken individually or together. It must accordingly be seen as involving an inventive step as required under Article 52(1) and 56 EPC.

11. In the opinion of the Board, independent Claim 1, together with dependent Claims 2 to 5 are allowable. The description has been adapted to the wording of these claims.

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 in the form requested by the Appellant (see paragraph VII above).

The Registrar:



M. Kiehl

The Chairman:



W. J. L. Wheeler

