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D E C I S I O N
of 4 November 1998

Case Number: T 1147/97 - 3.4.2

Application Number: 93202066.2

Publication Number: 0580223

IPC: H01M 2/10, H01M 2/02

Language of the proceedings: EN

Title of invention:
Vehicle battery

Applicant:
General Motors Corporation

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 84, 54, 56

Keyword:
"Clarity (yes)"
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 1147/97 - 3.4.2

D E C I S I O N
of the Technical Board of Appeal 3.4.2
of 4 November 1998

Appellant: General Motors Corporation
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 22 July 1997 refusing European patent application No. 93 202 066.2 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: E. Turrini
Members: M. Chomentowski
M. Lewenton

Summary of facts and submissions

I. Following several communications wherein the examining division inter alia stated that it was not excluded that European patent application No. 93 202 066.2 (publication No. 0 580 223) might contain patentable subject-matter but objections were made against the text of the application, the applicant (appellant) requested with letter dated 18 December 1996 a decision based on the papers on file at that time:

Description: pages 1 to 9 as originally filed;

Claims: No. 1 filed with applicant's letter dated 1 October 1996;
Nos. 2 to 10 filed with applicant's letter dated 17 June 1996; and

Drawings: Sheets 1/2 and 2/2.-

The only independent claims, i.e. claims 1 and 7, read as follows:

"1. A vehicle battery comprising a battery case (12) for holding battery fluid, positive and negative plates and positive and negative battery terminals (20, 22); and a heat shield (30), formed in one piece, or formed from two pieces joined together, secured to the battery case in a substantially tight fit, such that the battery case and the heat shield are a substantially unitary rigid structure."

"7. A method of forming a vehicle battery as claimed in any one of the preceding claims comprising assembling a battery with the battery case (12); forming the heat shield (30) in one piece or in two pieces; and securing

the heat shield to the battery case in a substantially tight fit, such that the battery case and the heat shield form a substantially unitary rigid structure."

II. The European patent application was refused.

The examining division took the view that the claims lacked clarity because terms such as "in a substantially tight fit" or "a substantially unitary rigid structure", were relative terms, thus vague and did not allow the skilled reader to distinguish the claimed subject-matter from the prior art documents

D1: DE-U-8 521 248,

D2: DE-U-1 886 565,

D3: GB-A-2 250 375 or

D4: DE-A-3 009 467.

For this reason, the subject-matter of the claims lacked novelty having regard to any of D1, D2, D3 and D4.

III. The applicant (appellant) lodged an appeal against this decision.

He requests that the decision under appeal be set aside and that a patent be granted on the basis of the same patent application documents.

He argues in substance as follows in support of his request:

The terms used in claim 1 and claim 7, when they are not taken in isolation but in the context of the claims as a whole, are not vague. The skilled reader would

understand the meaning of the features of the claim and thus the subject-matter they define, if necessary by referring back to the description and drawings; for instance, the terms "in a substantially tight fit" and "a substantially unitary rigid structure" complete each other and result in an unambiguous definition of the arrangement. In any case, it is wrong to dismiss claims for lack of clarity because they are said not to be distinguished from the prior art, since this is a different requirement of the Convention. None of the cited documents discloses or renders obvious the arrangement or the method of the present claims 1 and 7, which are thus novel and involve an inventive step.

Reasons for the decision

1. The appeal is admissible.

2. In the opinion of the Board, the amendments of the claims having led to the present claims satisfy the requirement of Article 123(2) EPC) that a European patent application may not be amended in such a way that it extends beyond the content of the application as filed. The admissibility of the amendments has not been objected either.

3. *Clarity*

3.1 In the impugned decision, the objection of lack of clarity reads as follows:

"III. The application does not meet the requirements of Article 84 EPC, because Claims 1 and 7 are not clear.

1. Regarding claims 1 and 7, as far as the term "in a substantially tight fit" is concerned, the Applicant

should take into account that this term is vague. The fact that a tight fit is provided merely indicates that a contact between the battery case and the shield is provided. Such a contact is also present in the disclosure of D1 to D4. How tight is this contact is a relative matter. The qualification "substantially" does not help to render the abovementioned definition a distinguishing feature with respect to the shield of D1 to D4. Since the feature (= "tight fit contact between battery and shield") is considered as **not clear**, it is not possible to base the difference between the claimed subject-matter and the teaching of D1 to D4 on the definition "tight fit"."

3.1.1 Incidentally, it is to be noted that, in paragraph IV of the impugned decision, there were further objections relating as well to the meaning of some terms designating features in the claims of the application as to their derivability from the same prior art documents.

3.2 Firstly, it is necessary to determine the meaning of the terms of the claims and, for this, a convenient way consists in consulting reference dictionaries available to any skilled reader. Thus, from Webster's Ninth New Collegiate Dictionary, Merrian Wester Inc., Springfield, Massachusetts, USA, 1987, pages 1234 and 467, the meanings for the adjective "tight" and for the substantive "fit" which are derivable and which correspond to the present context read inter alia "fixed very firmly in place" or "firmly set", and "the degree of closeness between surfaces in an assembly of parts", respectively. Thus, the Board can agree to the arguments in the statement of grounds of appeal that, if the fit between the battery case and the heat shield were not a tight fit, then the combination of battery case and heat shield could not possibly form a unitary rigid structure, so that the terms such as

"substantially tight fit", read in each of the claims 1 and 7 as a whole, and in particular in the expression "secured to the battery case in a substantially tight fit, such that the battery case and the heat shield are a substantially unitary rigid structure", are not vague. Moreover, as also convincingly stressed by the appellant, in the present context, these terms are made more understandable, if necessary, by the information in the whole specification. Thus, the definition of the subject-matter of said claims is neither ambiguous nor contradictory to the content of the description in the present application.

3.3 Moreover, the Board can also agree to the arguments in the statement of grounds of appeal with respect to Article 84 EPC. This article requires that the claim shall define the matter for which protection is sought, and that they shall be clear, concise and be supported by the description. Indeed, a claim which unambiguously defines the matter for which protection is sought is clear, even if said matter is already comprised in the state of the art, i.e. is not distinguished from prior art items, and thus is not new.

Yet, Article 84 EPC does not require that the claim shall be sufficiently distinguished from the prior art. Incidentally, such a requirement can indeed be derived from the two-part form of the claims suggested by Rule 29(1) EPC. However, according to this Rule, this is to be done only "wherever appropriate", and, with four different prior art documents cited against the novelty of present claim 1 and which can be used as starting point for the present invention, this two-part form can be considered as not indispensable and thus as not "appropriate".

3.4 Therefore, present claim 1 is considered as satisfying the requirement of clarity of Article 84 EPC.

4. *Novelty*

4.1 D1 (see the whole document) concerns a vehicle battery comprising a battery case (B) for holding battery fluid, positive and negative plates and positive and negative battery terminals; and a shield for thermally isolating the battery case (B).

As convincingly argued by the appellant, contrary to present claim 1, no thermal shield secured to the battery case in a substantially tight fit, such that the battery case and the thermal shield are a substantially unitary rigid structure, is mentioned in D1. An improvement of, inter alia, mechanical solidity, which is mentioned for the structure of D1 (see page 2, lines 18 to 21; see also claim 8), is however only related to the mechanical solidity of the isolation of said thermal shield because of the material thereof or by means of some support ("Abstützung") of said thermal shield with respect to the battery case, and not related to the solidity of the arrangement formed by the thermal shield and the battery case. A concern about tight fit or about unitary rigid structure for the battery case with the thermal shield, i.e. an implicit disclosure of corresponding features of the whole arrangement, is not derivable either, and this is insofar understandable as, in D1 (see page 1, line 11 to page 2, line 16), it is intended to improve the thermal protection of batteries even for batteries with flanges, and not the rigidity of an arrangement comprising a battery case with a thermal shield.

4.2 Concerning D2 to D4, the impugned decision in substance only contains the statement that the reasoning concerning D1 also applies to D2 to D4, i.e., that the content of these documents is also novelty-destroying. The following is to be noted in this respect:

4.2.1 D2 (see the whole document) concerns a vehicle battery comprising a battery case (10a) for holding battery fluid, positive and negative plates and positive and negative battery terminals (10d, 10e); and a thermal shield (12; 12, 13), formed in one piece (12), or formed from two pieces (13) joined together; the thermal shield (12; 12, 13) is secured to the battery case (10).

However, contrary to present claim 1, there is no indication in D2 that the thermal shield in the known system is secured to the battery case in a substantially tight fit, such that the battery case and the heat shield are a substantially unitary rigid structure. Well-fitting securing ("Durch das passende Einsetzen") with corresponding contact of the surfaces ("Flächenauflagen") result indeed, according to D2 (see page 2, last paragraph to page 3, fourth line), in an improvement of the noise due to vibrations ("Klappern") and of the mechanical solidity ("mechanische Versteifung") in particular of the battery case. However, these statements do not call to mind the idea of a shield secured to the battery case in a "substantially tight fit", such that the battery case and the heat shield are "a substantially unitary rigid structure", corresponding to a battery case fixed very firmly in place with respect to the thermal shield.

4.2.2 D3 (see the whole document) concerns a vehicle battery comprising a battery case (1) for holding battery fluid, positive and negative plates and positive and negative battery terminals (6, 7); and a heat shield (3), formed in one piece (3), secured to the battery case (1) such that the battery case (1) and the heat shield (3) are a substantially unitary structure. Indeed, the structure known from D3 (see page 2, lines 3 to 6; page 2, line 34 to page 3, line 7 and page 3, lines 27 to 31; the Figure) is mentioned as

being such as to enable the battery and its shielding arrangement to be handled as a one-piece assembly; in this respect, projections (4) in the side of the heat shield (3) engage corresponding recesses (5) in walls of the battery casing (1), this enabling the heat shield (3) to be secured to the battery casing (1), whereby the heat shield is made integral with the battery casing and making it very easy to mount them onto and dismount them from an automobile.

However, it is to be noted that, contrary to present claim 1, it is not mentioned in D3 that the heat shield (3) is secured to the battery case (1) in a tight fit. On the contrary, according to D3 (see page 2, line 36 to page 3, line 3) the battery case is "put" in the heat shield (1). Moreover, the known arrangement is not mentioned as being rigid; it is integral and can be handled as one piece, for instance to mount it onto or dismount it from a car, but it is not derivable that there is a need for a resulting substantially unitary rigid structure, as in present claim 1. From the further indication (see claim 1 and page 3, lines 4 to 7) that the heat shield (3) and the battery case (1) remain detachable from each other, it is derivable that the arrangement of the projection (4) and the recess (5) is not intended to provide a heat shield secured to a battery case in a substantially tight fit, such that the battery case and the heat shield are a substantially unitary rigid structure.

In this respect, it is to be noted that it is not derivable that the "detachable cover (2)" of the battery case (1) of the known arrangement (see claim 2) can contribute to the rigidity of said arrangement. Moreover, one of the aims of the arrangement of D3 (see page 2, lines 7 to 9 and the Figure) is to prevent thermal convection of outside air between battery case (1) and the shield, i.e. in the space (B) between

battery case and heat shield which is closed from the exterior; thus, it is derivable from the general structure of the arrangement with a space (B) and with opposed projections (4) and cavities (5) in said space, on the one hand, and the feature that said arrangement is detachable, on the other hand, that, when "putting" the battery case (1) into the heat shield (3) or taking it out thereof, the heat shield (3) must be such that the projections (4) and the walls of the shield (3) which carry them can be moved towards or away from the recesses (5) of the battery case (1) and therefore does not result in a substantially unitary rigid structure of the walls of the arrangement.

4.2.3 D4 (see the whole document) concerns a vehicle battery comprising a battery case (1b; 2b) for holding battery fluid, positive and negative plates and positive and negative battery terminals; and a thermal shield ("Ummantelung") (2e; 3e) formed in one piece (2e, 3e), or formed from two pieces joined together (see claim 2), secured to the battery case.

It is to be noted that the thermal shield of D4 (see page 2, penultimate and last paragraphs) is provided ("versehen wird") around the battery case, whereby said thermal shield follows substantially the shape of the battery case ("shließt sich im wesentlichen der vorgegebenen Form der Autobatterie").

However, for the embodiment shown in Fig. 2 and whereby the thermal shield ("Ummantelung") (2e; 3e) is formed in one piece (2e), there is no derivable information that the thermal shield is secured to the battery case in a substantially tight fit, such that the battery case and the heat shield are a substantially unitary rigid structure.

Moreover, for the embodiment of claim 2 of D4, whereby the thermal shield is formed in two pieces, the only information in said document (see in particular page 3, fourth paragraph) is that the second piece of said thermal shield is such as to be easily removable from and fittable again on the battery case ("ohne Mühe entfernt und wiedereingebaut werden kann"), and this goes against the idea of "tight fitting".

Incidentally, it is to be noted that the embodiment illustrated by Fig. 3 of D4 (see page 4; see also page 3, third and fourth paragraphs) is derivable as having a thermal shield in one piece ("Styropor Ummantelung in einem Stück"), whereby the thermal shield is pressed ("gedrückt") against the battery case. However, this embodiment necessitates at least a second part, i.e. pressing means which can comprise a rubber ribbon and also corresponding rivetting means, and is thus not directly a thermal shield in one piece. Moreover, this embodiment comprises at least three pieces (shield, ribbon, rivets), and is not a two-piece shield as in the second alternative form comprised in present claim 1.

In any case, D4 is directed to the thermal protection of car batteries and there is no information, even implicit, about a need for a substantially rigid structure.

4.3 The further prior art documents are less relevant.

4.4 Therefore, the subject-matter of present claim 1 does not form part of the state of the art and is thus new in the sense of Article 54 EPC.

5. *Inventive step*

As set forth here above, a vehicle battery comprising a battery case for holding battery fluid, positive and negative plates and positive and negative battery terminals; and a heat shield, formed in one piece, or formed from two pieces joined together, secured to the battery case in a substantially tight fit, such that the battery case and the heat shield are a substantially unitary rigid structure, is not known from the documents of the state of the art. In particular, it was not known to provide tight fit securing between the heat shield and the battery case, i.e. fixing them very firmly to each other, in order to obtain a substantially unitary rigid structure, and no need for such constructional features was derivable either. Therefore, since the skilled person was not prompted by the state of the art to provide said particular features, the subject-matter of present claim 1 is not obvious and, consequently, it involves an inventive step in the sense of Article 56 EPC.

6. Therefore, present claim 1 is patentable in the sense of Article 52(1) EPC and, since present claim 7 expresses the same invention in method terms, it is also patentable for the same reasons.

7. Thus, a patent can be granted on the basis of the present claims, with the present description to be adapted to said claims.

Order

For these reasons, it is decided:

1. The decision under appeal is set aside.

2. The case is remitted to the examining division with the order to grant a patent on the basis of:

Description: pages 1 to 9 as originally filed (and to be adapted);

Claims: No. 1 filed with applicant's letter dated 1 October 1996;
Nos. 2 to 10 filed with applicant's letter dated 17 June 1996; and

Drawings: Sheets 1/2 and 2/2.

The Registrar:

P. Martorana

The Chairman:

E. Turrini