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D E C I S I O N
of 15 March 2006

Case Number: T 0510/03 - 3.4.02

Application Number: 93400571.1

Publication Number: 0559573

IPC: H01M 2/10

Language of the proceedings: EN

Title of invention:

Battery pack

Patentee:

SONY CORPORATION

Opponent:

Vivanco GmbH

Headword:

-

Relevant legal provisions:

EPC Art. 56

Keyword:

"Prior use - public (yes)"

"Inventive step - main, first and second auxiliary request (no)

- third auxiliary request (yes)"

Decisions cited:

-

Catchword:

-



Case Number: T 0510/03 - 3.4.02

D E C I S I O N
of the Technical Board of Appeal 3.4.02
of 15 March 2006

Appellant: Vivanco GmbH
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
5 March 2003 concerning maintenance of the
European Patent No. 0559573 in amended form.

Composition of the Board:

Chairman: A. Klein
Members: M. Rayner
J. Willems

Summary of Facts and Submissions

I. During the proceedings before the opposition division, the opposition of the first of the two opponents was withdrawn irrevocably. At the end of the proceedings, the decision of the opposition division was that, having regards to amendments made on the basis of the third auxiliary request presented to it by the patent proprietor, European patent 559 573 (application number 93 400 571.1, claiming a priority of 06.03.1992) meets the requirements of the Convention, the higher order requests do not. Appeals were lodged against this decision by both the patent proprietor and the second opponent (referred to hereinafter as the opponent).

II. The patent concerns a battery pack and, in the opposition and/or appeal proceedings, reference has been made, *inter alia*, to the following documents.

- D1 GB-A-1 487 604
- D4b Photographs of Vivanco battery pack BP1290
- D4c Photographs of packaged Vivanco battery pack BP1290
- D4d Affidavit of Mr Krause concerning Battery Pack BP1290 dated 16.09.1999
- D4e Vivanco catalogue
- D4f Delivery Notes for battery pack BP1290 dated 11.02.1992, 13.02.1992, 13.03.1992 and 18.02.1992
- D12 View of battery pack BP1290 in partially opened condition, submitted by the opponent with the letter of 16.01.2004

D13 Investigation dated 25.01.2006 of a Hama battery pack "CP 432" by Dr Bruls, submitted by the patent proprietor.

According to the decision under appeal, in considering inventive step, the division saw a rectangular battery pack with the terminals spaced well apart to be an improvement over what it considered the closest prior, namely document D1. The skilled person received no assistance in arriving at the invention from the remaining prior art. In a communication attached to a summons to oral proceedings, the division had remarked that the information on file appeared sufficient to support the conclusion that prior art pertaining to use of battery pack BP1290 had been available to the public before the priority date of the patent. Nevertheless, in the decision, this prior art was considered remote, despite having respective terminals at the corners of a substantially rectangular battery pack, because these terminals are not tubular and located in voids, but spring loaded strips in specially manufactured recesses outside the casing. Moreover, there are voids which are not utilised for the terminals. Accordingly even were battery pack BP1290 part of the prior art, it would lead away from the invention. The division therefore saw no reason further to investigate the alleged prior use. The division therefore reached a positive view on inventive step.

III. Consequent to auxiliary requests of both parties, oral proceedings were appointed by the board. In a communication attached to the summons, the board informed the parties that the patent proprietor had not given any strong indication why the submissions of the

opponent were incorrect in respect of the alleged prior use. During the oral proceedings, the patent proprietor requested that the patent be maintained as granted (main request) or, alternatively, on the basis of one of a first to seventh auxiliary request and the opponent requested that no patent be granted on the basis of the main or first or second auxiliary request.

IV. The case of the patent proprietor can be summarised as follows.

The affidavit provided by Mr Krause, an employee of the opponent, does not show that the battery pack BP1290 according to Document 4a actually reflects the devices marketed in 1991. In the absence of originals, the photocopies of the delivery notes according to document D4f cannot be considered true copies and moreover provide no proof that the structure of the battery pack was totally identical to that shown in document D4a. The code 0392 on the Vivanco catalogue may mean the catalogue was printed sometime in March 1992, but there is no evidence the catalogue itself was made available to the public before 06.03.1992. Scrutiny of D4b and D4e reveals that the former shows a capacity of 1300mAh, whereas the latter has a capacity of 1200mAh. There are therefore undoubtedly discrepancies in the features of the differing battery packs presented and thus no certainty about the actual features of the battery packs referred to as BP1290 in document D4f. The battery packs may be different or contain batteries arranged differently. Thus the structure in a battery pack for a replacement battery of a video cameras may be different, only the distance between terminals

should not change. Therefore, the batteries packs demonstrated give no teaching pertinent to novelty.

Even if the board accepts battery pack BP1290 as state of the art within the meaning of Article 52(1) EPC, patentability would not be called into question. The opposition division is correct in its assessment that battery pack BP1290 differs from and leads away from the invention. Document D13 explains that Hama battery CP432, which is an equivalent battery pack to the battery pack BP1290, uses strip terminals attached to the casing of a battery pack within a recess at a sharp angle necessary for electrical contact. Moreover, although it is not required that the voids be entirely empty of wall material, the red triangle showing space "A" in document D12 reveals a void which is not used. Thus, this document cannot lead to tubular terminals at the corners of the battery pack as in the invention.

According to document D1, tubular terminals are admittedly provided, but they are at a different position, i.e. between the batteries and therefore do not offer the stability advantages of the invention because they are too close. There is no reason for the skilled person to change this position, and, if it were nevertheless done, the batteries would be outside the casing. According to the teaching of document D1, an additional support structure, a holder 22 where the battery pack is mounted, is needed and longitudinal insulating separators 11, 12 are provided. The battery pack plainly has a problem with wobble as a locking hook 24 is provided on holder 22 where the rear portion of the battery pack is inserted. All this is not

necessary in the case of the invention, which offers stability with minimal size.

Therefore, the invention resides in the use of a tubular terminal structure together with the location at corner voids, which offers a stable structure, not using holdings means, yet without wobble useful in many devices and not just one particular video camera. It must therefore be concluded that, in the light of document D1 and battery pack BP1290 (or CP432), an inventive step is present in the subject matter claimed in the main, first and second auxiliary requests.

In the case of the third auxiliary request, since the teaching of document D1 is not followed, there are voids in the middle of the battery pack permitting use of a groove between the secondary batteries. Battery pack BP1290 is different because the groove crosses and is above the secondary batteries. Accordingly, neither document D1 nor battery pack BP1290 can seriously call the inventive step of this subject matter into question.

V. The case of the opponent can be summarised as follows.

The geometric form of the BP1290 battery pack, or equivalent Hama battery pack CP432, has not changed and indeed, since the battery pack is for certain video cameras, cannot change, since otherwise it would no longer fit. This does not, however, exclude changing of capacity of the secondary batteries used in the pack over time. Further witnesses were offered by the opponent, as to the prior use, if deemed necessary by the board.

Battery pack BP1290 has cylindrical secondary batteries in a rectangular casing, four of which secondary batteries are parallel, and provides strip terminals in corner recesses on the same side in a void between the secondary batteries and casing. No inventive step is necessary to replace the strip terminals with tubular terminals, for example, as shown in document D1. As described in the patent, voids are produced in housing the first and second batteries, anode and cathode insertion holes slightly larger in diameter and approximately equal in length to the terminals are provided in the right and left voids. It is unrealistic to think that tubular terminals are somehow attached, as by fastening means or glue, inside the walls. Therefore wall material is not excluded in the voids around the holes, which amounts simply to a hole being formed or drilled at the corner of the housing and tubular terminals inserted. The outwardly open channels of the battery pack BP1290 containing the terminals and formed by the wall are equivalent as they intrude into space "A" in document D12, which space is bounded by secondary battery and casing corners. Therefore the idea taught is that of using the space created in the corners of a rectangular casing when cylindrical secondary batteries are located therein. Tubular terminals are, as such, known, for example, from document D1. There can be no inventive step involved in using such a simple equivalent terminal. Comments of the patent proprietor about the position of the terminals and the structure of the battery pack in document D1 miss the point, as the corner positioning and mechanical stability are all known from the BP1290 battery pack.

The reference to the major edge in the first auxiliary request adds nothing inventive over battery pack BP1290 because the voids are the same and also at corners of the major edge. A plurality of cylindrical batteries is present in battery pack BP1290, where the connectors are introduced into the terminals from one terminal end. Therefore, no inventive step can be seen in the subject matter of claim 1 of the second auxiliary request.

It must therefore be concluded that the subject matter of the main and first and second auxiliary requests cannot be considered to involve an inventive step within the meaning of Article 56 EPC.

The opponent did not wish to pursue any case against the third auxiliary request.

VI. The claims according to the Main and First to Third Auxiliary Requests of the patent proprietor are worded as follows. The second auxiliary request corresponds to the request upon which maintenance of the patent was decided by the opposition division. The wording of the Fourth to Seventh Auxiliary Requests is not given as no decision thereupon was necessary (see Section 5.1 of the reasons).

Main Request

1. A battery pack having at least one re-chargeable secondary battery (2,3) housed within a substantially rectangular battery casing (1), comprising:
a substantially tubular-shaped anodic terminal (4);
a substantially tubular-shaped cathodic terminal (5);

said secondary battery being adapted for storing electrical energy supplied thereto via said anodic terminal and said cathodic terminal and for outputting the stored electrical energy via said anodic terminal and said cathodic terminal;

wherein said substantially tubular-shaped anodic and cathodic terminals are each provided within said battery casing in voids (10,11) remaining when said secondary battery is housed in said battery casing; characterised in that the respective voids (10, 11) within which are located said anodic terminal (4) and said cathodic terminal (5) are disposed at respective corners at one end (1c) of the battery casing said respective corners being located at a common edge of said end.

First Auxiliary Request

1. A battery pack having at least one re-chargeable secondary battery (2,3) housed within a substantially rectangular battery casing (1), comprising:

a substantially tubular-shaped anodic terminal (4);

a substantially tubular-shaped cathodic terminal (5);

said secondary battery being adapted for storing electrical energy supplied thereto via said anodic terminal and said cathodic terminal and for outputting the stored electrical energy via said anodic terminal and said cathodic terminal;

wherein said substantially tubular-shaped anodic and cathodic terminals are each provided within said battery casing in voids (10,11) remaining when said secondary battery is housed in said battery casing; characterised in that the respective voids (10,11) within which are located said anodic terminal (4) and

said cathodic terminal (5) are disposed at respective corners at one end (1c) of the battery casing said respective corners being located at a common edge of said end, and in that said common edge is the major edge of said end (1c) of the battery casing (1).

Second Auxiliary Request

1. A battery pack having a plurality of re-chargeable secondary batteries (2,3) housed within a substantially rectangular battery casing (1), and provided in parallel relation to one another in said battery casing (1), said battery pack comprising:

a substantially tubular-shaped anodic terminal (4);
a substantially tubular-shaped cathodic terminal (5);
said secondary batteries being adapted for storing electrical energy supplied thereto via said anodic terminal and said cathodic terminal and for outputting the stored electrical energy via said anodic terminal and said cathodic terminal;

wherein said substantially tubular-shaped anodic and cathodic terminals are each provided within said battery casing in voids (10,11) remaining when said secondary batteries are housed in said battery casing; and in that said secondary batteries (2,3) each have the shape of a cylinder the axis of which is parallel to the axes of the substantially tubular-shaped anodic and cathodic terminals (4,5) and in that the respective voids (10,11) within which are located said anodic terminal (4) and said cathodic terminal (5) are defined between respective secondary batteries and the corresponding corners at one terminal end (1c) of the battery casing, said corners being located at a common major edge of said end.

Third Auxiliary Request

1. A battery pack having plural re-chargeable secondary batteries (2,3) housed within a substantially rectangular battery casing (1), and provided in parallel relation to one another in said battery casing (1), said battery casing having the shape of a barrel roof with a front side (1c), a back side (1d), a first flat surface (1a) and a second flat surface (1b) having its corners rounded, said battery pack comprising:

- a substantially tubular-shaped anodic terminal (4);
- a substantially tubular-shaped cathodic terminal (5);

said secondary batteries being adapted for storing electrical energy supplied thereto via said anodic terminal and said cathodic terminal and for outputting the stored electrical energy via said anodic terminal and said cathodic terminal;

wherein said substantially tubular-shaped anodic and cathodic terminals are each provided within said battery casing in voids (10,11) remaining when said secondary batteries are housed in said battery casing; characterised in that said secondary batteries (2,3) have the shape of cylinders the axes of which are parallel to the axes of the substantially tubular-shaped anodic and cathodic terminals (4,5), in that the respective voids (10,11) within which are located said anodic terminal (4) and said cathodic terminal (5) are disposed at respective corners at the front side (1c) of the battery casing, said respective corners being located at a common edge of said front side, and in that the battery pack further comprises an inverted insertion inhibiting groove (7) for guiding the battery pack in the correct vertical position and in the

correct fore-and-aft position during attachment of the battery pack to an outside equipment, said inverted insertion inhibiting groove being formed in said battery casing (1) in a void (9) between the plural secondary batteries (2,3).

Reasons for the Decision

1. The appeal is admissible.
2. *Prior Use - Battery Pack BP1290*
 - 2.1 The board considers correct the preliminary position of the opposition division that the information on file suffices to support the conclusion that battery pack BP1290 had been available to the public by prior use before the priority date of the patent. This is because the invoices provided according to document D4f for four different customers before the priority date of the patent identify the battery pack by number. This is confirmed by the affidavit D4d of Mr Krause, which recites that battery pack BP1290 had been sold since 1991 and had not been modified. Moreover, the catalogue D4e from 1992 shows battery pack BP1290.
 - 2.2 The presentation of copies of the invoices does not cause the board to doubt their authenticity, especially as they are consistent with the affidavit of Mr Krause and there is no other allegation that they are not authentic. Moreover, even if the exact date of availability of the 1992 catalogue according to document D4e is not available, it also fits in with the invoices and the affidavit. The board also understands

that there may be minor changes of capacity of the secondary cells in the battery pack during the production cycle, but accepts, consistent with the affidavit of Mr Krause, the submission of the opponent that the structure of battery pack BP1290, i.e. the terminal spacing, cannot have changed, otherwise it would no longer have fitted the video camera. Accordingly, the board reached the view that documents D4b, D4c, D12 and D13 show the structure of battery pack BP1290, which, consistent with the statement of Mr Krause, had not changed. It was not necessary for the board itself to hear further witnesses to corroborate the affidavit of Mr Krause, or to remit the case to the opposition division for this purpose, which was already satisfied as to the prior use.

3. *Patentability of the subject matter of claim 1 of the Main, First and Second Auxiliary Requests*

3.1 Battery pack BP1290 (or equivalent Hama CP432), as shown in documents D4b and D4c, is a rectangular rechargeable battery pack with terminals at the corner.

3.2 Claim 1 in dispute includes a feature that terminals are each provided within the battery casing in "voids" remaining when the battery is housed in the casing. During the oral proceedings it became clear that, according to the patent in dispute, these voids, in reality, were not devoid of all material except the terminals, but in fact can contain wall or other a material, in fact the tubular terminals are pushed into holes more or less of their size. Voids 10 and 11 are shown in Figure 3 of the patent in dispute. The voids are therefore of a conceptual nature and denote that

corner section of a substantially rectangular casing which is not filled by the, for example cylindrical, section of a battery. The space "A" discussed in documents D12 and D13 is included in such a void. According to document D13, an inward ridge at the corner of the battery casing intrudes into the space "A". The board observes that the recess into which a contact of a video camera or charger is introduced is defined by the outward surface of this ridge and that Figure 3 of document D13 therefore also indicates that part of the recess is in the space "A". The board therefore sees a consistency with and considers correct the position of the opponent that as shown in document D12 use is made of the space created in the corners of a rectangular casing when cylindrical secondary batteries are located therein. Therefore, the opponent is also correct in arguing use is made of the void, so that the feature as claimed is met in principle by the battery pack BP1290. While both the patent in dispute and the battery pack BP1290 use the void, novel subject matter of the claim is nonetheless provided by the tubular terminals as opposed to the known strip terminals in an outwardly open recess in the wall.

- 3.3 As is apparent from the foregoing, while the board agrees with the opposition division that battery pack BP1290 has respective terminals at the corners of a substantially rectangular battery pack, it does not agree that voids according to the claim in dispute have not been used. In particular, based on the submissions of the parties, it does not agree with the implication that the terminals are within the battery casing in a space devoid of wall material. Consequently the board considers battery pack BP1290 to represent the closest

prior art. Speculation of the division about other possible locations for terminals in this battery pack is not relevant in this context.

- 3.4 In considering inventive step, a question arises as to exactly what problem might be considered solved by the novel subject matter. The advantages of stability and lack of wobble are provided by the rectangular casing and terminal positioning at the corners and not by tubular terminals in the wall material as opposed to strips in the wall recesses. Therefore, although according to the teaching of document D1, the rounded form of the battery pack and the holding of batteries therein may, following the line of argument of the patent proprietor, give rise to problems with wobble and stability, such problems are not the problem addressed starting from the BP1290 prior art. Therefore, the line of argument of the patent proprietor failed to convince the board on inventive step. The patent proprietor did not dispute that tubular terminals are generally known, such as from the specific example shown in document D1. Therefore the only problem actually solved is that of using a different known terminal type. The board considers correct the view of the opponent that the novel subject matter amounts to no more than an obvious equivalent well within the knowledge of the skilled person to use as appropriate. Although, arguments along the lines of "Why should the skilled person modify the existing battery pack?" may have a role to play in assessing contribution to inventive step for different structures, they are not persuasive when applied, as in the present case, to choice of differing routine means well within the knowledge of the skilled person, relating say to

fastening or terminal means. Even trying to help the patent proprietor's case by postulating it may be that some further problem is solved by tubular terminals - for example, improving electrical contact, there is no persuasive argument on inventive step because, if so, this is obvious as a well known property of the terminals per se. Accordingly, the board reached the view that the subject matter of claim 1 of the main request cannot be considered to involve an inventive step within the meaning of Article 56 EPC.

- 3.5 The further features introduced in the auxiliary requests do not introduce any inventive step into the subject matter of the claims concerned. While it is true that the recesses provided by battery pack BP1290 open also outwardly towards opposite narrow sides, the contacts are inserted from the end face and the corners concerned are at a common major edge. Plural cylindrical batteries are also used and the definition of the voids is met by the known battery pack as explained above.

The board therefore concluded that the subject matter of claim 1 according to the main, first or second auxiliary request cannot be considered to involve an inventive step within the meaning of Article 56 EPC.

4. *Third Auxiliary Request*

- 4.1 The subject matter recited in claim 1 can be found in the documents as filed and constitutes a restriction of the granted claim. The board did not therefore see any formal objection to the claim as amended. The respondent did not pursue its case against the third

auxiliary request, so the board was not presented with any substantive reason to challenge the argument of the patent proprietor that neither document D1 nor the BP1290 battery pack could render obvious the inverted insertion inhibiting groove as claimed. The dependent claims can likewise be considered to involve an inventive step because of their dependence.

4.2 The third auxiliary request of the patent proprietor therefore succeeds in the appeal proceedings.

5. *Fourth to Seventh Auxiliary Requests*

Since the third auxiliary request of the patent proprietor succeeded, it was not necessary to consider in the present decision the fallback positions according to the third to seventh auxiliary requests.

6. *Amendment of the Description*

It remains necessary for the patent proprietor to adapt the description to the amended 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 maintain the patent in amended form with claims 1 to 10 of the third auxiliary request, filed with letter of 28 October 2005, drawings as granted and a description to be amended.

The Registrar

The Chairman

M. Kiehl

A. G. Klein