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D E C I S I O N
of 24 November 1999

Case Number: T 0584/98 - 3.2.4

Application Number: 92106859.9

Publication Number: 0510597

IPC: A47L 5/36

Language of the proceedings: EN

Title of invention:
Electric vacuum cleaner

Patentee:
Hitachi, Ltd.

Opponent:
Bosch-Siemens Hausgeräte GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56

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

Decisions cited:
T 0450/89, T 0677/91, T 0511/92, T 0013/84, T 0005/81

Catchword:
-



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Boards of Appeal

Chambres de recours

Case Number: T 0584/98 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 24 November 1999

Appellant:
(Opponent)

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Representative:

-

Respondent:
(Proprietor of the patent)

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Representative:

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Decision under appeal:

Decision of the Opposition Division of the
European Patent Office posted 11 May 1998
rejecting the opposition filed against European
patent No. 0 510 597 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: C. A. J. Andries
Members: R. E. Gryc
C. Holtz

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal, received at the EPO on 2 June 1998, against the decision of the Opposition Division, dispatched on 11 May 1998, on the rejection of the opposition against the European patent EP-B-0 510 597. The appeal fee was paid simultaneously and the statement setting out the grounds of appeal was received at the EPO on 21 September 1998.

II. The opposition was filed against the patent as a whole on the ground of lack of novelty and inventive step (Article 100(a) EPC) of the subject-matter of the claims mainly in view of the following prior art documents:

E1: DE-C-34 17 163 and

E2: DE-A-20 16 194.

The Opposition Division held that the ground for opposition did not prejudice the maintenance of the patent unamended and rejected the opposition.

III. With his statement setting out the grounds of appeal, the appellant filed the following additional document:

E5: JP-A-1-209032.

He contended that, since Claim 1 did not give any indication about the length of the duct connecting the electric blower chamber to the dust collector chamber, there was no reason not to consider as a duct the stepped portion between the corresponding chambers of

the apparatus disclosed in E2.

The appellant was, moreover, of the opinion that Claim 1 described the vacuum cleaner in an intermediate partially mounted state where it was not operational and that, in order to render the vacuum cleaner operational, the blowing assembly had to be connected to the corresponding opening of the duct. Then, in this operational state, the duct would no longer connect the dust collector chamber to the blower chamber as claimed in Claim 1 but to the blower assembly itself. Therefore, according to the appellant, if the state of the art shown on the single Figure of E2 were considered in the same mounted state as the vacuum cleaner claimed in Claim 1, it would anticipate it completely.

The appellant also contended that E5 disclosed in Figure 1 a vacuum cleaner comprising two chambers communicating with a duct having an entrance the area of which was smaller than that of the exit opening. In his opinion, the sole difference between said state of the art and the subject-matter of Claim 1 was that E5 did not disclose clearly that the duct was formed integrally with the structural body as claimed.

As regards E1, the appellant argued that, if the vacuum cleaner disclosed therein and the claimed apparatus were considered in the same mounting state, i.e. without the blower assembly, the dust collector chamber and the electric blower chamber were also connected together by a suction port having all the features of a duct with flared peripheral wall. Therefore, according to the appellant, the sole difference between the

subject-matter of Claim 1 and the vacuum cleaner disclosed in E1 would be that the claimed duct was integrally formed with the structural body and he was of the opinion that this difference could not alone provide an inventive step.

In reply, the respondent (patentee) contended that the recess stuffed with a cross-hatched member shown in E2 could not be considered as being a duct within the meaning of the invention and was a support to hold the cross-hatched member. Moreover, as the chambers had a common wall, nothing called for a duct between them. The respondent pointed out that in E2 the wall construction between the chambers was not described and that the concern of E2 was not noise reduction. The respondent was of the opinion that granted claim 1 was not rendered obvious by the available prior art since the problem underlying the invention was addressed in only one citation, namely E1, all the other citations, including E5, being silent on the noise issue. Therefore, according to him, a skilled person trying to find a solution to this problem would not refer to said citations and if, by coincidence, he were to consult them, he would find therein no hint about the improvement he was looking for.

IV. Oral proceedings took place on 24 November 1999.

The appellant contended that the subject-matter of Claim 1 was not new over E2. According to him, the function of the duct according to Claim 1 being to create a communication between two spaces and to muffle the noise with a small entrance opening, E2 disclosed a duct within the meaning of the invention between the

chambers of the described vacuum cleaner.

The appellant was also of the opinion that, for assessing novelty, the skilled person should concentrate solely on the structure of the body of the vacuum cleaner and that, for assessing inventive step, E1 could be taken as a starting point.

He contended that, in E1, the problem to be solved was the reduction of noise, as according to the invention, that the suction port of the duct joining the chambers formed an entrance opening and had an area smaller than that of the exit opening and that the structural body of the vacuum cleaner of E1 was made in two parts according to the cleaner claimed in Claim 1. The appellant was of the opinion that the sole difference between the vacuum cleaner of Claim 1 and that of E1 was that according to the invention the duct was formed integral with the structural body. Since this construction was disclosed in E2 which pertained to the same technical field, the appellant considered that, for the skilled person, it was obvious to apply this constructive measure to the cleaner of E1. During the oral proceedings, the appellant also referred to the following document cited during the examining proceedings:

E6: EP-A-0 299 213

and contended that, with the relieving space (Entspannungskammer) between the separating wall 17 and the front of the blower 5, the same funnel effect would be obtained as with the construction according to the invention.

The respondent contradicted the contentions of the appellant and argued that the peripheral walls of the elements situated between the chambers according to E1 E2 and E5 did not conduct the flow of air and that in E1, there was no "entrance opening" within the meaning of Claim 1 but only holes which did not muffle the noise emissions of the blower, the intermediate element being not a duct but a grid. The respondent also contended that E6 was not concerned with the problem of reducing the noise emissions of the blower so that the skilled person would not have any reason to consult this document. Moreover, as the section of the passage between the two chambers was not described, it would not be possible to know whether said passage could be considered or not as a duct within the meaning of the invention.

- V. At the end of the oral proceedings, the appellant requested that the decision under appeal be set aside and that the European patent No. 0 514 804 be revoked.

The respondent requested that the appeal be dismissed and, alternatively, that the decision under appeal be set aside and the patent maintained on the basis of either the first or second auxiliary request, filed on 21 October 1999.

- VI. Claim 1 as granted reads as follows:

"An electric vacuum cleaner having a structural body (1) in which a dust collector chamber (32) for collecting dust and an electric blower chamber (48) accommodating an electric blower (6) are disposed, the duct through which the dust collector chamber (32) and the electric

blower chamber (48) communicate with each other being formed integrally with the structural body (1), characterized in that the duct (33) has an entrance opening connected to the dust collector chamber (32), an area of which is smaller than that of the exit opening connected to the electric blower chamber (48)".

Reasons for the Decision

1. Admissibility of the appeal.

The appeal is admissible.

2. *Main request (Claim 1 as granted)*

- 2.1 Interpretation of Claim 1

In view of the description and the drawings of the patent under appeal, the term "duct" used in Claim 1 must be interpreted as designating a tubular passage, i.e. a conduit, the surrounding and enclosing wall of which have the function of conveying a medium.

Moreover, the presence of a duct between the collector chamber and the blower chamber means implicitly that the two chambers are not contiguous to each other and just separated by a common wall but that they are situated at some distance from each other inside the body of the vacuum cleaner.

- 2.1.1 These interpretations were confirmed unequivocally by the respondent (patentee).

2.2 Novelty (Article 54 EPC)

According to established EPO Boards of Appeal case law, a very restrictive interpretation of disclosure has consistently been applied when examining novelty. Claimed subject-matter lacks novelty only if it is derivable as a whole directly and unambiguously from a prior art disclosure and if a "clear and unmistakable teaching" of the combination of all the claimed features (and not only the essential ones) could be found in said prior art disclosure (see for instance unpublished Decisions T 450/89, (section 3.11), T 677/91 (section 1.2) and T 511/92 (section 2.2)).

The body of the vacuum cleaner disclosed in E1 consists of a front subassembly 1 serving as dust collector chamber, a central subassembly 2 lodging a suction port 20 on the rear side of which the motor unit is fixed and a rear subassembly forming the blower chamber. The dust collector chamber and the blower chamber are separated by a perforated common wall, flared at its periphery, which constitutes the central part of the suction port 20. The chambers are not located at some distance from each other and nothing in this document, either in the description or in the figures, suggest that the function of the wide opened flared peripheral crown of the perforated wall separating the two chambers might be to guide the flow of air. Therefore, said wide opened flared crown cannot be considered as a duct within the meaning of the invention (see above section 2.1).

Moreover, E1 describes (see page 2, lines 120 and 121 and Figure 2) the central subassembly 2 as provided

with the suction port 20, however, there is neither an explicit nor an implicit disclosure that said element 20 may be formed integrally with the central subassembly 2, i.e. with the structural body of the vacuum cleaner. On the contrary the opposite seems to be represented on Figure 2.

In the embodiment described by E2, the two chambers of the cleaner are separated by a common wall comprising a central recess the function of which has not been described as being to convey the flow of air from one chamber to the other but appears on the unique Figure as a housing for a vibration suppressor supporting one extremity of the blower assembly. Moreover, the chambers being contiguous, the central recess of the separating wall also cannot be considered as a duct within the meaning of the invention.

The element disposed between the two chambers of the vacuum cleaner disclosed by E5 looks like the corresponding element of the vacuum cleaner shown in E1 but with a tubular peripheral wall instead of a conical one. However, the chambers are contiguous and the tubular element looks more like a support for the blower assembly than a duct within the meaning of the invention.

E6 discloses a vacuum cleaner having a dust collector chamber 2, a blower chamber 3 and an accessory storage chamber 10 which extends from the top of the body of the device partly into the blower chamber 3 and partly in the dust collector chamber 2 (see columns 2 and 3, respectively lines 46 to 50 and 5 to 7 and Figures 1 and 2). Said storage space narrows the transverse

section areas of the chambers 2 and 3 and creates between them a constricted passage of a certain axial length through which said chambers communicate with each other. Since this passage conveys the flow of air between chambers 2 and 3, it can be considered as a duct within the meaning of the invention (see section 2.1 above) and, on Figures 1 and 2, it appears to be formed integrally with the structural body of the vacuum cleaner. However, on the drawings, the section area of the entrance opening of this passage between chambers 2 and 3 appears to be about the same as the section area of the exit opening so that the subject-matter of Claim 1 is also new over E6.

Therefore, a vacuum cleaner comprising in combination all the features described in Claim 1 is disclosed by none of the documents E1, E2, E5 and E6 cited during the appeal proceedings and the subject-matter of Claim 1 is new within the meaning of Article 54 EPC.

2.3 The closest state of the art

Among all the documents cited during the proceedings, E6 is the sole one which describes a vacuum cleaner having a dust collector chamber and a blower chamber which are not contiguous to each other but separated by a (storage) space (see E6: Figures 1 and 2) and which communicate with each other not as usual through openings made in a common wall but through a duct within the meaning of the invention (see above section 2.1). Therefore, the Board considers that E6 describes the state of the art closest to the invention.

The subject-matter of Claim 1 differs from this state

of the art by the features of the characterising portion of the claim.

2.4 Problem and solution

Starting from the closest state of the art and taking into account the above-mentioned differences, the Board sees the problem as objectively determined (see in particular decision T 13/84, OJ EPO 1986, 253) as being to improve the structure of the body of the vacuum cleaner of E6 in order to reduce its noise emissions. Prima facie, the Board has no reason to doubt that the invention as claimed in Claim 1 effectively brings a solution to this problem.

2.5 Inventive step (Article 56 EPC)

2.5.1 When examining inventive step, it should be assessed first whether all the characteristics of the invention can be found in the state of the art. Moreover, an interpretation of the prior art documents as influenced by the problem solved by the invention while the problem was neither mentioned nor even suggested must be avoided, such an approach being merely the result of an a posteriori analysis (see decision T 05/81, OJ EPO 1982, 249).

2.5.2 In the present case, it should be remarked that, with the exception of E6, all the cited documents E1, E2 and E5 disclose vacuum cleaners having a dust collector chamber and a blower chamber located side by side on both sides of a common partition wall inside the body of the apparatus, these chambers communicating to each other through openings made in said common partition

wall and not through a duct as in E6.

Since the vacuum cleaners known from E1, E2 and E5 have no duct within the meaning of the present invention between their two chambers, the skilled person wishing to reduce the noise emissions of the device of E6 could not even get from the teachings of E1, E2 and E5 the idea or a hint to modify the shape of the duct.

Since, to solve the problem of noise emissions, the solution proposed usually in the state of the art, and more particularly in E1 which is concerned with this problem, is to mount the blower assembly on vibration isolators made of vibration-absorbing material (see for instance E1: column 4, lines 25 to 26 and also the drawings of E2 and E5), the skilled person wishing to improve the vacuum cleaner of E6 would be led away from the solution of the invention and directed to the use of improved isolators. By following the trend and the teaching of the state of the art, the skilled person would not even establish a correlation between the reduction of noise emitted by the blower and the shape of the duct between the blower chamber and the dust collector chamber.

Assuming nevertheless that he would make such a correlation, he would find absolutely no guidance in the state of the art and would have, a priori, no reason to reduce the area of the entrance opening of the duct relative to the area of the exit opening.

2.5.3 Consequently, the Board considers that to modify the shape of the duct between the two chambers of the vacuum cleaner according to E6 in order to arrive at

the subject-matter described in Claim 1 as granted does not follow plainly and logically from the state of the art disclosed in the documents E1, E2 and E5 cited during the appeal proceedings and thus implies an inventive step within the meaning of Article 56 EPC.

- 2.5.4 Choosing the embodiment according to document D1, as the closest prior art, in order to assess the inventive step, cannot lead to the claimed vacuum cleaner, particularly to the specific duct, for the same reasons as indicated in above sections 2.5.1 and 2.5.2.

3. *Conclusion*

The invention as described and claimed in the European patent under appeal meets the requirements of the EPC and the patent can be maintained as granted.

4. *Respondent's auxiliary requests*

Since the board has acknowledged the main request as allowable, there is no need to consider the respondent's auxiliary requests.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

G. Magouliotis

C. Andries