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**Datasheet for the decision
of 2 February 2016**

Case Number: T 2086/13 - 3.3.10

Application Number: 03707697.3

Publication Number: 1471950

IPC: A61L9/14, B01D1/16, A61L9/00

Language of the proceedings: EN

Title of invention:
METHOD AND APPARATUS FOR EVAPORATING MULTI-COMPONENT LIQUIDS

Patent Proprietor:
S. C. Johnson & Son, Inc.

Opponent:
The Procter & Gamble Company

Headword:

Relevant legal provisions:
EPC Art. 100(b)
EPC R. 111(2)

Keyword:
Insufficiency of disclosure (yes) - all requests

Decisions cited:

G 0004/95

Catchword:



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Case Number: T 2086/13 - 3.3.10

D E C I S I O N
of Technical Board of Appeal 3.3.10
of 2 February 2016

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 19 July 2013
revoking European patent No. 1471950 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman P. Gryczka
Members: R. Pérez Carlón
T. Bokor

Summary of Facts and Submissions

- I. The appeal lies from the decision of the opposition division to revoke European patent No. 1 471 950.
- II. Notice of opposition had been filed on the ground of lack of novelty and inventive step (Article 100(a) EPC).
- III. This is the second appeal in relation to the opposition against European patent No. 1 471 950. The first appeal T 306/09 lay from the decision of the opposition division to maintain the patent in amended form on the basis of an auxiliary request, but not allowing higher-ranking requests. The opposition division did not admit into the proceedings the ground under Article 100(b) EPC, raised after the opposition period. Both parties appealed that decision.

The outcome of the first appeal was to set aside the decision of the opposition division and remit the case to the opposition division for further prosecution due to a substantive procedural violation, lack of inventive step of the then pending main request having not been sufficiently reasoned.

- IV. After said remittal, the opposition division admitted the ground of opposition under Article 100(b) EPC, decided that the claimed invention was not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art, and revoked the patent in suit.
- V. Claim 1 of the patent as granted, which represents the main request of the appellant (patent proprietor), reads as follows:

"A method of evaporating a multi-component liquid solution (20) comprising the steps of:

using a vibrating plate atomizer (10) positioned on a horizontal surface (12) to form a mist or cloud of small liquid droplets of the solution, and eject said mist or cloud of small droplets into the atmosphere; and allowing said droplets to fall back toward the surface (12);

said liquid solution (20) comprising a plurality of components having respective vapor pressures, whereby the vibrating plate atomizer (10) is configured to eject those droplets having the largest size to the height H;

characterized in that the component having the lowest vapour pressure is related to those droplets having the largest diameters such that

$$1.6 \times 10^{14} \times D_p^4 / [H \times P_v] \leq 1$$

where D_p is the diameter, in centimeters, of the largest diameter droplets, H is the height, in centimeters, to which said largest diameter droplets are ejected above the surface, and P_v is the vapor pressure, in Pa

$$(1.2 \times 10^{12} \times D_p^4 / [H \times P_v] \leq 1$$

where the vapour pressure is in millimeters of Hg) of the component having the lowest vapor pressure; and whereby the amount of unevaporated liquid that falls back upon said surface is minimized."

Auxiliary request I was filed under cover of a letter dated 12 January 2016. Claim 1 thereof contains all the features of claim 1 of the main request and, in addition, the following:

"wherein said multi-component liquid (20) comprises a multi-component liquid fragrance or a multi-component liquid insecticide."

Auxiliary request II was filed as auxiliary request III with a letter dated 12 January 2016. Claim 1 thereof contains all the features of claim 1 of the main request and, in addition, requires that:

"the temperature is in the range of 23-27°C and the height is in the range 5-20 cms"

During the oral proceedings before the board, which took place on 2 February 2016, the appellant filed a new request, labelled auxiliary request 3, whose claim 1 contains the features of claim 1 of auxiliary requests I and II.

Claim 1 of auxiliary request IV, which was filed as auxiliary request II with a letter dated 12 January 2016, reads as follows:

"A system comprising a multi-component liquid solution (20), and apparatus for evaporating said liquid solution comprising:

a housing (16) for supporting the apparatus on a surface (12);

a liquid reservoir (18) containing the multi-component liquid (20);

*a liquid delivery system (28); and
an atomizer (22);*

said liquid delivery system (28) being arranged to convey the liquid from said reservoir (18) to said atomizer (22);

said atomizer (28) being constructed to form a mist or cloud of small liquid droplets and to eject said droplets into the atmosphere allowing them to fall back towards the surface;
whereby the vibrating plate atomizer (10) is configured to eject those droplets having the largest size to the height H; and
said multi-component liquid (18) comprising a plurality of components having respective vapor pressures; characterized in that
the component of the multi-component liquid having the lowest vapor pressure is related to those droplets having the largest diameter such that

$$1.6 \times 10^{14} \times D_p^4 / [H \times P_v] \leq 1$$

where D_p is the diameter, in centimeters, of the droplet having the largest diameter, H is the height in centimeters, to which said largest diameter droplets are ejected above the surface supporting the said housing (16), and P_v is the vapor pressure, in Pa

$$(1.2 \times 10^{12} \times D_p^4 / [H \times P_v] \leq 1$$

where the vapor pressure is in millimeters of Hg), of the component having the lowest vapor pressure."

Lastly, claim 1 of auxiliary request V, filed as auxiliary request IV with a letter dated 12 January 2016, contains all the features of claim 1 of auxiliary request IV and further requires that:

"the temperature is in the range of 23-27°C and the height H is in the range 5-20 cms"

VI. The arguments of the appellant relevant for the present decision were the following:

After the remittal ordered in decision T 306/09, the sole issue to be decided by the opposition division was inventive step. By admitting the fresh ground under Article 100(b) EPC the division thus committed a procedural violation.

Notwithstanding the above, the division used its discretion in an erroneous way, as this ground was not prima facie relevant.

Trying to carry out the claimed invention by evaporating a multi-component liquid solution by means of a vibrating plate atomiser, and confronted with a failure, the skilled person merely had to remove from said multi-component liquid solution its less volatile component. If the inequality were still not fulfilled, the skilled person should further remove the one before the less volatile compound. This process needed to be repeated until the resulting multi-component liquid solution could be used in said atomiser. Such a procedure did not represent an undue burden for the skilled person and, for that reason, the claimed invention was disclosed in a manner sufficiently clear and complete for it to be carried out.

At the oral proceedings before the board, the appellant requested that the inventor, Ms Schramm, be allowed to address the board with respect to technical questions. She should merely expand on what had already been submitted in writing.

VII. The arguments of the respondent (opponent) relevant for the present decision were the following:

The effect of decision T 306/09 concluding that there was a procedural violation by the opposition division was to render the first decision of the opposition division null and void. Therefore, after remittal, the division should deal with every outstanding issue, including that of admissibility of a new ground of opposition.

The ground under Article 100(b) EPC was so relevant that the opposition division revoked the patent in suit on that ground. For that reason, the division used its discretion to admit it into the proceedings in an appropriate manner.

The patent in suit did not contain any example and did not provide any guidance on which multi-component liquid solutions could be suitable for the claimed method. This information could only be gathered by trial and error, which amounted to an undue burden. For this reason, the claimed invention was not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

The appellant had not announced the presence of the inventor at the oral proceedings nor had it specified the subject-matter of her proposed oral submissions. The respondent was not prepared for such a situation and requested that the inventor not be allowed to make oral submissions before the board.

VIII. The final requests of the parties were the following:

- The appellant requested that the decision under appeal be set aside and the patent be maintained as granted, i.e. that the opposition be rejected

(main request) or, subsidiarily, that the patent be maintained in the form of one of auxiliary requests I, II, 3, IV or V, auxiliary requests I, II, IV and V having been filed with a letter dated 12 January 2016 and auxiliary request 3 having been filed during the oral proceedings before the board.

- The respondent requested that the appeal be dismissed.

IX. At the end of the oral proceedings, the decision was announced.

Reasons for the Decision

1. The appeal is admissible.

Procedural matters

2. At the oral proceedings before the board, the appellant requested permission for the inventor, Ms Schramm, to address the board concerning technical issues.

The respondent argued that, as the accompanying inventor had not been announced, it was not prepared for such a situation. It requested that the inventor not be allowed to address the board during the oral proceedings.

3. If a party wishes a technical expert to make oral submissions during oral proceedings, it should request permission, stating the name and qualifications of that expert, and specifying the subject-matter of the proposed oral submissions sufficiently in advance of the oral proceedings so that all opposing parties are able to prepare themselves in relation to such submissions

(G 4/95, OJ 1996, 421, Order).

The presence of Ms Schramm at the oral proceedings had not been previously announced, no permission for any oral submission had been granted, and the subject-matter of the proposed oral submissions had not been made known either to the board or the respondent before said proceedings. Since the preconditions set out in G 4/95 were not met, the board did not authorise Ms Schramm to make oral submissions before it.

Alleged procedural violation by admitting the fresh ground under Article 100(b) EPC into the opposition proceedings

4. This is the second appeal in relation to the opposition proceedings against European patent No. 1 471 950. The outcome of the first appeal T 306/09 was to set aside the decision of the opposition division and remit the case to the opposition division due to a substantive procedural violation.

4.1 In the decision contested in the first appeal proceedings, the opposition division made use of its discretion not to admit into the proceedings the ground of opposition under Article 100(b) EPC, which had been raised after the nine-month opposition period.

After the remittal ordered by T 306/09, the opposition division admitted said ground into the proceedings, and decided to revoke the patent on that ground.

4.2 The appellant argued that the admission by the opposition division of this ground represented a procedural violation. With decision T 306/09, the board remitted the case "for further prosecution", "further" meaning examining whether any request on file defined an

inventive subject-matter, given that the lack of inventive step have been decided by the opposition division with an insufficient reasoning, which the board had found not to comply with the requirements of Rule 111(2) EPC. Since this was the sole point found to be deficient by the board in T 306/09, the opposition division was only allowed to examine on remittal the question of inventive step and, consequently, not to "reopen" other issues such as the admissibility of the ground of opposition under Article 100(b) EPC. The appellant argued that "It is trite law that the findings of a lower tribunal will stand unless specifically overturned by a higher court".

- 4.3 The board cannot see any such limitation of the scope of the second opposition proceedings, i.e. the proceedings between the earlier and the present appeal. The appellant appear to argue implicitly that the parts of the first decision of the opposition division dealing with other issues beyond inventive step somehow became *res judicata*. In the opinion of the board, this would result in an untenable situation. In the present case, this would mean that some appeal grounds of the opponent put forward in its appeal of 31 March 2009 against the first decision would be disposed of either without any possibility for an appellate review (see e.g. the opposition ground of extension of subject-matter under Article 100(c) EPC), or if the first appeal decision T 306/09 were indeed considered as "the" appellate review, then such a decision is obviously not reasoned concerning this opposition ground, although it has been properly raised and reasoned in the first appeal. However, the deciding board had no obligation to consider any other issues for its decision on the finding of a substantial procedural violation, given that the first decision only had a single legal effect

(the maintenance of the patent in an amended form). This single legal effect had to be revoked as soon as one ground against it were found well founded, and the deciding board did not err when it did not decide on any other issue.

- 4.4 The board holds that the procedural situation is far simpler. With decision T 306/09, the board decided that the (first) decision of the opposition division was tarnished by a fundamental procedural violation, and had to be set aside. Given that the decision only had a single legal effect, it was then set aside in its totality, including the part related to the admission of the ground of opposition under Article 100(b) EPC. Therefore, during the opposition proceedings following the remittal ordered by T 306/09, none of the decided issues remained, but had to be decided again. The decision did no longer exist, and therefore had no longer any binding effect on the opposition division. In this manner the division was also not prevented from examining again the new opposition grounds.

Use of the opposition division's discretion to admit the ground of opposition under Article 100(b) EPC into the proceedings

5. The appellant further argued that, notwithstanding the arguments under the previous point, the ground under Article 100(b) EPC was not prima facie relevant and, for that reason, the division should not have admitted it into the proceedings.

The opposition division considered this ground not only prima facie relevant but so relevant as to revoke the patent in suit solely on this ground. For this reason alone, the division did not use its discretion to admit this fresh ground of opposition in an unreasonable

manner.

Sufficiency of disclosure:

6. Claim 1 of the main request is directed to a method of evaporating a multi-component liquid solution. The method requires a vibrating plate atomiser positioned on a horizontal surface. The atomiser ejects said liquid solution forming a cloud or mist of small droplets, which are allowed to fall back towards said surface, and it is configured to eject the droplets having the largest size to the height H.

The characterising portion of the claim requires a mathematical relationship among:

- the diameter **Dp** of the largest droplets (in cm)
- the height **H** at which these largest droplets are ejected (in cm), and
- the vapour pressure **Pv** of the least volatile component of the liquid (in Pa),

defined by the following inequality:

$$1.6 \times 10^{14} \times Dp^4 / [H \times Pv] \leq 1$$

which can be re-written as:

$$Pv \geq 1.6 \times 10^{14} \times Dp^4 / H$$

Thus, the inequality requires the vapour pressure of the component of the liquid having the lowest vapour pressure to be greater than or equal to a value that depends on the diameter of the largest droplets and on the height at which said droplets are ejected.

7. It has not been contested that, in order to carry out the claimed invention, the skilled person needs to choose and combine two physical entities, namely a vibrating plate atomiser and a multi-component liquid solution.

It has further not been contested that the patent in suit does not contain any working example disclosing a specific multi-component liquid solution and a specific vibrating plate atomiser suitable for the claimed method of evaporating.

Both parties agreed that the diameter of the largest droplets D_p and the height H depend not only on the atomiser, but also on the liquid, as they also vary with its density and its surface tension.

The skilled person, trying to perform the claimed invention, is then confronted with the problem of choosing a multi-component liquid solution fulfilling the requirements of the claim.

8. The appellant argued, however, that the changes in D_p and H deriving from the nature of the liquid were negligible and that in fact the sole variable of the inequality to which any attention should be given was P_v , which could vary by various orders of magnitude. The appellant acknowledged that a certain degree of trial and error was required to perform the invention and to find the adequate multi-component liquid solution, but argued that the skilled person, after a failure, will immediately be led to working embodiments by iteration.
9. Even though a reasonable amount of trial and error is permissible when it comes to sufficiency of disclosure, the skilled person has to have at its disposal, either

in the specification or on the basis of common general knowledge, adequate information leading necessarily and directly towards success through the evaluation of initial failures.

In the present case, however, the skilled person can only determine by mere trial and error which methods of evaporating a multi-component liquid solution fulfil the inequality required by claim 1. The patent in suit does not provide any teaching on which embodiments could be suitable for the claimed invention or any other guidance which could lead the skilled person towards success.

In fact, the dependency of the variables H and D_p , both on the atomiser and the multi-component liquid solution it contains, makes any prediction difficult. The appellant has not provided any indication on which type of liquid compositions would be suitable for the claimed method other than referring to "liquid fragrances or liquid insecticides" without any further information as to their components. The appellant did not rely, either, on information which could belong to the general technical knowledge of the skilled person at the date of filing, and which could lead that person towards the appropriate type of composition for a particular atomiser. The appellant further acknowledged that the inequality of claim 1 would not be fulfilled by many multi-component liquid compositions on a defined vibrating plate atomiser.

Under these circumstances, the skilled person, confronted with every possible vibrating plate atomiser and every possible multi-component liquid solution, can only find, by trial and error, whether a particular combination of multi-component liquid solution and atomiser fulfilled the inequality of claim 1. In the

opinion of the board, this amounts to an undue burden.

The board thus concludes that the claimed invention is not sufficiently disclosed for it to be carried out by a person skilled in the art and that the ground under Article 100(b) EPC precludes the maintenance of the patent as granted.

10. The appellant argued that, even when confronted with a failure, the skilled person would be led to success immediately. If a multi-component liquid solution in a particular vibrating plate atomiser were not to fulfil the inequality of claim 1, the skilled person would recognise that its least volatile component should be left out. If the inequality were still not fulfilled, the one before the least volatile compound should also be removed. This process simply needed to be repeated until a liquid solution could be used in a specific atomiser.

However, even assuming, as alleged by the appellant, that the skilled person only had to remove from a multi-component liquid solution its least volatile component(s) until the inequality is fulfilled, that person would need to start by testing every conceivable composition on every possible atomiser in order to carry out the invention throughout the whole scope of the subject-matter claimed. This level of trial and error amounts to an undue burden for the person skilled in the art.

11. The appellant argued that the respondent had failed to provide examples which could show a lack of accuracy of the inequality of claim 1.

However, the objection explained above does not arise

from a lack of accuracy of the inequality but hinges on whether the skilled person had sufficient information in order to select those multi-component liquid solutions suitable for the claimed invention on a specific vibrating plate atomiser.

12. The subject-matter of claim 1 of auxiliary request I is restricted as it requires the multi-component liquid solution to comprise a multi-component liquid fragrance or a multi-component liquid insecticide. The appellant argued that any issue concerning the selection of the liquid solutions suitable for the claimed method should be overcome by the restriction in claim 1 to these specific types.

However, the amount of multi-component liquid fragrances and insecticides at the disposal of the skilled person is vast. Confronted with them, the skilled person does not have any teaching which could lead him to those suitable for the claimed method for the reasons already explained (see point 9 above).

The board thus concludes that the subject-matter of claim 1 of auxiliary request I is not described in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art, with the consequence that this request is not allowable.

13. The appellant acknowledged that the arguments with respect to the sufficiency of the disclosure of the patent in suit applied in the same manner to claim 1 of auxiliary requests II, 3, IV and V.

The board thus concludes that the subject-matter of claim 1 of these requests is not described in a manner sufficiently clear and complete for it to be carried out

by a person skilled in the art, with the consequence that these requests are also not allowable.

Order

For these reasons it is decided that:

1. The appeal is dismissed.

The Registrar:

The Chairman:



C. Rodríguez Rodríguez

P. Gryczka

Decision electronically authenticated