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D E C I S I O N
of 13 June 1996

Case Number: T 0841/95 - 3.4.2

Application Number: 92110113.5

Publication Number: 0519390

IPC: B01L 3/02

Language of the proceedings: EN

Title of invention:

Method of aspirating and dispensing a liquid using a self-cleaning pipette tip

Applicant:

Johnson & Johnson Clinical Diagnostics, Inc.

Opponent:

-

Headword:

-

Relevant legal provisions:

EPC Art. 84

Keyword:

"Clarity of the claims (after amendments): yes"

Decisions cited:

-

Catchword:

Where a claim for an apparatus seeks to define the invention by reference to features of the use to which the apparatus is to be put, a lack of clarity can result. However, if the subject-matter of the application is an apparatus and it is not viable to define the apparatus in a way other than with reference to said use, an apparatus claim directed to a combination of apparatus and use defining unambiguously the apparatus can be clear (cf. the Guidelines, C-III.4.8a).



Case Number: T 0841/95 - 3.4.2

D E C I S I O N
of the Technical Board of Appeal 3.4.2
of 13 June 1996

Appellant: Johnson & Johnson Clinical Diagnostics, Inc.
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Decision under appeal: Decision of the Examining Division of the European
Patent Office posted 26 July 1995 refusing
European patent application No. 92 110 113.5
pursuant to Article 97(1) EPC.

Composition of the Board:

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

Summary of Facts and Submissions

I. European patent application No. 92 110 113.5 (publication No. 0 519 390) was refused on the grounds that the only submitted independent claim, reading as follows, lacked clarity:

"1. A self cleaning pipette tip to be used in aspirating and dispensing a liquid having a surface tension σ and a mass density ρ , the pipette tip comprising:

a wall shaped to define a confining chamber about an axis of symmetry; means in said wall defining an aperture fluidly connected to said chamber, said means including a terminal surface of said wall having a generally circular shape with a radius R_0 centered on said axis, characterized in that R_0 satisfies the equation

$$(I) R_0 < (\sigma/\rho g)^{1/2} \quad \text{where}$$

σ = the surface tension of the liquid, ρ = the mass density of the liquid and g = the gravitational constant of 980 cm/sec², the exterior shape of said wall as it extends from said terminal surface a distance that at least exceeds R_0 , being constantly changing such that the rate of change of the curve's distance z along said axis from said terminal surface with respect to the rate of change of the curve's distance r from said axis, follows the equation

$$(II) dz/dr < (\sigma^2 / (\rho g r^2)^2 - 1)^{1/2}$$

where dz/dr is the derivative of z with respect to r , which is the local slope of the exterior surface."

II. The Examining Division took the view that the expression "to be used in" did not limit the claimed product itself because no structural limitation was implied thereby; " σ " and " ρ " are variables which

concern only the liquid to be handled with the pipette tip; for the same pipette tip, the conditions of claim 1 will be met or not depending only on the liquid to be handled, i.e. its use; protection being sought for the pipette tip itself and not its use, this is not acceptable. Indeed, the claimed pipette tip cannot be regarded as different from an identical pipette tip just because of possible different conditions of use; in fact the invention does not concern a defined pipette tip geometry but the choice of conditions concerning a pipette tip geometry in function of conditions of its use and this constitutes a method. Therefore, claim 1 was not clear.

III. According to said decision, another independent claim, which reads as follows and which was part of the text of the patent application which had been officially accepted for grant of a patent in a former step of the examination procedure, was allowable:

"4. A method of aspirating and dispensing a liquid using a pipette tip comprising:
a wall shaped to define a confining chamber about an axis of symmetry; means in said wall defining an aperture fluidly connected to said chamber, said means including a terminal surface of said wall having a generally circular shape with a radius R_0 centered on said axis, characterized in that R_0 satisfies the equation

$$(I) R_0 < (\sigma/\rho g)^{1/2} \quad \text{and}$$

σ = the surface tension of the liquid, ρ = the mass density of the liquid and g = the gravitational constant of 980 cm/sec², the exterior shape of said wall as it extends from said terminal surface a distance that at least exceeds R_0 , being constantly changing such that the rate of change of the curve's distance z along said axis from said terminal surface

with respect to the rate of change of the curve's distance r from said axis, follows the equation

$$(II) \quad dz/dr < (\sigma^2 / (\rho g r^2)^2 - 1)^{1/2}$$

where dz/dr is the derivative of z with respect to r , which is the local slope of the exterior surface."

Moreover, according further to said decision, an independent claim could possibly also concern "a method of manufacture of a self cleaning pipette tip to be used in aspirating and dispensing a liquid having a surface tension σ and a mass density ρ ".

IV. The appellant (applicant) lodged an appeal against this decision and filed in particular a main request comprising 9 claims, whereby claim 1 differs from claim 1 having formed the basis of the decision under appeal only by substituting the words "suitable for use" for "to be used" in the beginning of the claim, claim 4 is a second independent claim identical with the claim which had been mentioned as allowable in said same decision, and the third and last independent claim, i.e. claim 7, reads as follows:

"7. A method of manufacture of a self cleaning pipette tip to be used in aspirating and dispensing a liquid having a surface tension σ and a mass density ρ , the method comprising forming the pipette tip with: a wall shaped to define a confining chamber about an axis of symmetry; means in said wall defining an aperture fluidly connected to said chamber, said means including a terminal surface of said wall having a generally circular shape with a radius R_0 centered on said axis, characterized in that R_0 satisfies the equation

$$(I) \quad R_0 < (\sigma/\rho g)^{1/2} \quad \text{where}$$

σ = the surface tension of the liquid, ρ = the mass density of the liquid and g = the gravitational constant of 980 cm/sec², the exterior shape of said

wall as it extends from said terminal surface a distance that at least exceeds R_0 , being constantly changing such that the rate of change of the curve's distance z along said axis from said terminal surface with respect to the rate of change of the curve's distance r from said axis, follows the equation

$$(II) \quad dz/dr < (\sigma^2 / (\rho g r^2)^2 - 1)^{1/2}$$

where dz/dr is the derivative of z with respect to r , which is the local slope of the exterior surface."

- V. The appellant requested that the decision under appeal be set aside, that a patent be granted on the basis of, in particular, the main request, and that oral proceedings be organized if said main request were not accepted. Moreover, it submitted the following arguments in support of its main request:

It is a pipette tip which is the subject-matter of the present application and it is best protected by a product claim. It is not viable to define the pipette tip in a way other than with reference to the liquid to be aspirated and dispensed; the shape of the pipette tip is defined by the parameters of the liquid to enable the pipette tip to be self-cleaning. For the same pipette tip, the conditions of present claim 1 will be met or not depending only on the liquid to be handled, i.e. the pipette tip will have the shape defined by the parameters of the liquid and thus be suitable for aspirating and dispensing said liquid, or not. Therefore, the product claim is clear.

In order to provide suitable protection for the invention, two independent method claims, corresponding in scope to the product claim, are included, which concern a method of use and a method of manufacture.

Reasons for the Decision

1. The appeal is admissible.

2. *Main request*

2.1 Allowability of the amendments

Present claim 1 differs from claim 1 having formed the basis of the decision under appeal and which had not been objected having regard to unallowable extension of subject-matter only by substituting the words "suitable for use" for "to be used" in the beginning of the claim, thereby reading "suitable for use in aspirating and dispensing a liquid". With respect to this amendment, it is to be noted that, according to indications in a part of the Guidelines referred to in the decision under appeal (see paragraph C-III-4.8, and more in particular the first sentence), if a claim commences with such words as: "Apparatus for carrying out the process etc....", this must be construed as meaning merely apparatus suitable for carrying out the process. Thus, no difference of meaning results from this amendment. Indeed, a device "to be used" in aspirating and dispensing a liquid is implicitly "suitable for use" in aspirating and dispensing a liquid. Moreover, present independent claim 4 is identical with a main claim having been found allowable by the Examining Division, and present independent claim 7 corresponds to a claim for a method of manufacture which had been mentioned as allowable in the decision under appeal. The Board being satisfied in this respect, it is considered that the claims have not been amended in such a way that the European patent

application contains subject-matter which extends beyond the content of the application as filed (Art. 123(2) EPC).

2.2 Unity of invention

Lack of unity of invention has not been objected by the Examining Division. Thus, since the claims of the present main request are correctly based on the original disclosure, the appellant's arguments concerning the unity of invention are accepted (Art. 82 EPC).

2.3 Clarity and conciseness of the independent claims

2.3.1 The Examining Division has argued that, in fact, the invention does not concern a defined pipette tip geometry but the choice of conditions concerning a pipette tip geometry in function of conditions of its use and this constitutes a method. It is to be noted that the present main request also comprises method claims, in particular the independent claims 4 and 7. Claim 4 is identical with the claim which the Examining Division had officially mentioned as being allowable. Claim 7 is of the same type as the claim which had been suggested as allowable in the decision under appeal. Therefore, since no clarity deficiency has been detected, the Board of appeal is satisfied that these claims 4 and 7 are clear in the sense of Article 84 EPC.

2.3.2 However, as convincingly argued by the appellant, it is a pipette tip which is directly derivable as being the subject-matter of the present application (see for instance the drawings); such a pipette tip being a product, the appellant's argument that it is best protected by a product claim can already be accepted

for reasons of consistency. Moreover, although a method of using such a pipette tip or a method of manufacture of such a pipette tip are also derivable from the application and even if categories of claims others than product claims can contribute to provide an adequate protection for the invention, it is the applicant's right and responsibility to define the protection which it considers adequate (Art. 113(2) EPC). Indeed, the pipette tip as such can be deprived of protection if no submitted corresponding product claim can satisfy the requirements of the Convention, that in particular the claims shall be clear, i.e. that they adequately define the matter for which protection is sought (Art. 84 EPC). The following is to be noted in this respect:

2.3.2.1 It is directly derivable from the whole application that the pipette tip geometry is in function of conditions of its use and, in particular, " σ " and " ρ " are variables which concern only the liquid to be handled with the pipette tip, i.e. its use. For the same pipette tip, the conditions of claim 1 will be met or not depending only on the liquid to be handled, i.e. its use. Indeed, as objected by the Examining Division having regard to a claim which did not substantially differ in meaning from the present claim 1, said claim does not comprise structural limitations of the features or parts of the pipette tip. However, as convincingly argued by the appellant, it is not viable to define the pipette tip in a way other than with reference to the liquid to be aspirated and dispensed; the shape of the pipette tip is defined by the parameters of the liquid to enable the pipette tip to be self-cleaning. For the same pipette tip, the conditions of present claim 1 will be met or not depending only on the liquid to be handled, i.e. the pipette tip will have the shape defined by the

parameters of the liquid and thus be a self cleaning pipette tip suitable for aspirating and dispensing said liquid, or not. Thus, for any given liquid, two same pipette tips meet the same conditions, or not. Therefore, there is no ambiguity in this sense.

- 2.3.2.2 In this respect, it is to be noted that, in the decision under appeal, it is referred, "if necessary", to the Guidelines, and in particular to paragraph C-III-4.8a. According to said paragraph of the Guidelines, where a claim for an apparatus seeks to define the invention by reference to features of the use to which the apparatus is to be put, a lack of clarity can result. This implies that lack of clarity does not automatically arise in such a case.

Moreover, in said same paragraph of the Guidelines, a claim reading "A box for storing magnetic cassettes on end, characterised in that the stored cassettes project beyond the upper edges of the box to facilitate removal" is mentioned as being unclear since, though directed to a box, it defines not a box per se but its relationship to the cassettes. In this sense, this concerns present claim 1, wherein there is a relation between parameters of the pipette tip such as dimensions or shapes thereof, on the one hand, and parameters of the liquid, on the other hand. However, according to said same paragraph of the Guidelines, such a claim for a box for storing cassettes must either make clear the size of the box, if desired by defining the size of the cassettes, or must be directed to a combination of box and cassettes, e.g. "A storage box containing magnetic tape cassettes on end...". Yet, contrary to this example cited in the Guidelines, it is not possible in the present case to define the same parameter (for instance the size) for the pipette tip and the liquid, because there can be seen no adequate

same parameter for a pipette tip, which substantially keeps its shape, and a liquid, which is fluid.

Moreover, the second condition mentioned in said paragraph of the Guidelines is met in the present claim, which indeed is directed to a combination of pipette tip and liquid. Thus, already for this reason, no lack of clarity results.

2.3.2.3 Incidentally, it is to be noted that present claim 1, where the apparatus, i.e. the pipette tip is defined by reference to features of the use to which said pipette tip is to be put, does not differ substantially from other types of claims wherein features of a device are determined, for instance implicitly, by the use to which said device is to be put. An example is indeed also derivable from another paragraph of the Guidelines (see C-III-4.8) which, as mentioned here above, is also referred to in the decision under appeal and wherein a claim reading "A hook for a crane" implies e.g. particular dimensions and strength in the hook, i.e. features of the use to which the hook is to be put. However, there is no indication in the Guidelines that such a claim should lack clarity.

2.3.2.4 Therefore, present claim 1 is clear in the sense of Article 84 EPC.

2.3.3 Incidentally, it is to be noted that claims 1, 4 and 7 concern different categories of claims and, thus, they satisfy the requirement of conciseness of Article 84 EPC.

2.3.4 It is to be noted that some of the dependent claims, in particular the dependent method claims, do not refer back correctly to corresponding independent claims, and that this shall have to be corrected.

2.4 Novelty and inventive step

As mentioned here above, it is derivable from the communications of the Examining Division and from the decision under appeal that the subject-matter of each of present claims 4 and 7 is novel in the sense of Article 54 EPC and involves an inventive step in the sense of Article 56 EPC. No objection concerning the patentability of an apparatus claim has been made during the examination procedure. Since in particular the method of claim 4 of aspirating and dispensing a liquid using a pipette tip wherein all the mentioned features concern the pipette tip itself and no particular feature concern the method itself has been declared to involve an inventive step, it is derivable that, in the view of the Examining Division, the pipette tip with its device features was not obvious having regard to the prior art and, thus, the subject-matter of present claim 1 also involves an inventive step in the sense of Article 56 EPC. The Board being satisfied in this respect, the independent claims 1, 4 and 7, as well as claims 2, 3, 5, 6, 8 and 9 as dependent, are considered allowable (Art. 52(1) EPC).

2.5 Since the appellant's main request is allowable, it is not necessary to consider the text of the claims of its auxiliary requests or to take into account its auxiliary request for oral proceedings.

Order

For these reasons it is decided that:

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 the claims Nos. 1 to 9 filed with appellant's letter of 18 September 1995 (notice of appeal and statement of grounds of appeal), with the dependent claims, the description and, if necessary, the drawings to be adapted.

The Registrar:

P. Martorana

The Chairman:

E. Turrini

