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# Datasheet for the decision of 27 June 2018

**Case Number:** T 1975/13 - 3.2.02

**Application Number:** 00941251.1

**Publication Number:** 1189536

**IPC:** A61B5/103

**Language of the proceedings:** EN

**Title of invention:**
SKIN IMAGING AND ANALYSIS METHODS

**Patent Proprietor:**
THE PROCTER & GAMBLE COMPANY

**Opponent:**
Henkel AG & Co. KGaA

**Headword:**

**Relevant legal provisions:**
RPBA Art. 12(4)
EPC Art. 54, 56

**Keyword:**
Late-filed evidence - submitted with the statement of grounds of appeal
Novelty - (yes)
Inventive step - (yes)

**Decisions cited:**

**Catchword:**

Europäisches Patentamt
European Patent Office
Office européen des brevets

**Beschwerdekammern**

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**Case Number: T 1975/13 - 3.2.02**

# D E C I S I O N
# of Technical Board of Appeal 3.2.02
# of 27 June 2018

| | |
|---|---|
| **Appellant:** (Opponent) | Henkel AG & Co. KGaA<br>Henkelstrasse 67<br>40589 Düsseldorf (DE) |
| **Representative:** | Henkel AG & Co. KGaA<br>CLI Patents<br>Z01<br>40191 Düsseldorf (DE) |
| **Respondent:** (Patent Proprietor) | THE PROCTER & GAMBLE COMPANY<br>One Procter & Gamble Plaza<br>Cincinnati, OH 45202 (US) |
| **Representative:** | Garratt, Peter Douglas<br>Mathys & Squire LLP<br>The Shard<br>32 London Bridge Street<br>London SE1 9SG (GB) |
| **Decision under appeal:** | **Decision of the Opposition Division of the European Patent Office posted on 18 July 2013 rejecting the opposition filed against European patent No. 1189536 pursuant to Article 101(2) EPC** |

**Composition of the Board:**

| | |
|---|---|
| **Chairman** | E. Dufrasne |
| **Members:** | S. Böttcher |
| | D. Ceccarelli |

## Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal against the decision of the Opposition Division, dispatched on 18 July 2013, on the rejection of the opposition against European patent No. 1 189 536.

II. Opposition had been filed against the patent as a whole and on the basis of Article 100(a) EPC (novelty and inventive step).

III. The Opposition Division held that the grounds for opposition mentioned in Article 100(a) EPC did not prejudice the maintenance of the patent unamended.

IV. The appellant requested that the decision under appeal be set aside and that the patent be revoked.
With its statement of grounds of appeal the appellant/ opponent filed new documents D4 to D7.

V. The respondent (patent proprietor) requested that the appeal be dismissed or, in the alternative, that the decision under appeal be set aside and that the patent be maintained on the basis of one of the first and second auxiliary requests filed with its letter dated 25 July 2014.
It further requested that documents D4 to D7 not be admitted into the proceedings.

VI. The parties were summoned to oral proceedings.

With a letter dated 24 April 2018 the appellant announced that it would not be attending the oral proceedings.

Oral proceedings were held on 27 June 2018 in the appellant's absence.

VII. The following documents are referred to in this decision:

D1: US 5 836 872

D2: JP 05-253210

D2b: English translation of D2

D4: US 5 005 975

D5: GB-A-2 147 421

D6: Y.H. Kwon, N. da Vitoria Lobos: "Age Classification from Facial Images", Computer Vision and Image Understanding, Vol. 74, No. 1 (April 1999), pages 1 to 21

D7: A. Green et al.: "Computer image analysis in the diagnosis of melanoma", Journal of the American Academy of Dermatology, December 1994, pages 958 to 964

VIII. Claim 1 of the patent as granted reads as follows:

"A method for locating one or more visual skin defects of a portion of a person comprising the steps of:
acquiring (412) a first digital image (518) of the portion of the person:
electronically analyzing (804) the first digital image (518) of the portion of the person to locate an area containing a skin defect;
electronically creating (806) a second digital image visually identifying the area containing the skin defect;
outputting (904) the second digital image; determining (808) a first numerical severity associated with the area containing the skin defect; said method being characterized by generating (812) a comparison between

the first numerical severity and a pre-determined value associated with a population of people."

IX. The appellant's arguments may be summarised as follows:

*Admissibility of documents D4 and D5*

D4 and D5 were family members of the two Japanese documents JP-A Sho 64-59145 and JP-A Sho 60-63030 referred to in D2.

*Admissibility of documents D6 and D7*

Both documents were novelty-destroying for the contested patent and therefore prima facie relevant.

*Novelty in view of D1*

In the impugned decision the Opposition Division had held that D1 did not disclose the step of "generating a comparison between the first numerical severity and a predetermined value associated with a population of people".
However, this step could be derived from column 2, lines 36 to 39, stating that quantitative analysis of visual features of lesions were used as a means for detecting evidence of pre-malignancy or malignancy. In order to assign a level of malignancy to an analysed lesion it was necessary to compare it with empirical values that were associated with a group of humans. Furthermore, column 25, lines 21 to 46, implicitly disclosed a comparison with values associated with a group of humans in order to classify the results of the lesion analysis.
The Opposition Division's decision did not appreciate D1 correctly, since D1 did disclose a comparison with

predetermined values associated with a group of persons, namely those with malignant lesions. In column 3, lines 25 to 29, D1 disclosed that quantitative feature analysis and tissue characterisation had commercial applications in non-medical areas such as the quantitative estimation of skin or hair.

*Novelty in view of D6*

D6 disclosed a method of age classification from facial images. The step of determining a first numerical severity associated with the area containing the skin defect was described in paragraph 6.3.2 (pages 13-15). According to this paragraph, a certain numerical limit value had to be achieved in order to to qualify a skin area as a wrinkle. In paragraph 7 (pages 16 and 17) it was shown that 15 images of babies, mid-aged adults and senior adults were correctly classified into the respective age group on the basis of information about ratios and wrinkles. This required that a numerical severity with respect to the wrinkles had to be assigned to the images and that these values had to be compared with given values for the respective age group. Consequently, the comparison between the numerical severity and a predetermined value according to claim 1 was disclosed in D6.

*Novelty in view of D7*

D7 disclosed a computer-based image analysis method for the diagnosis of melanoma. In the paragraphs headed "Imaging system" and "Segmentation of images" on page 959 the steps of acquiring a first digital image, electronically analysing this image and electronically creating a second image were described. The step of

determining a first numerical severity was described in the paragraph headed "Image analysis" starting on page 959. Table 1 included the predetermined values that were associated with a group of people, namely those having a melanoma and those having other pigmented lesions. The classification of the lesion was described in the paragraph headed "Lesion classification by means of image analysis" (page 962, left hand column). By comparing the numerical severity of a lesion with the predetermined value associated with the group of people having a melanoma, 16 out of 18 melanomas were correctly classified.

*Inventive step starting from D2*

D2 disclosed a wrinkle measuring system including a cast imaging apparatus and an image analysis device. Since wrinkles were a skin defect in the sense of the contested patent, D2 belonged to the same technical field as the patent.
In paragraph [0019] and in figure 3 (step S5) of D2b the method steps of electronically analysing the first digital image and creating a second digital image were described. The step of determining the wrinkle depth and the number of wrinkles as numerical severities was disclosed in paragraphs [0011] and [0012] of D2b. The step of comparing the numerical severity with a predetermined value associated with a group of people could be found in paragraph [0013] in combination with paragraphs [0024] to [0027] and figures 4 to 7 of D2b, which showed correlations between wrinkle parameters and the age of the assessed persons. Paragraph [0028] disclosed the step of comparison with the value of a single person, since the selection of an image which was typical for each age cohort required a comparison between the numerical severity of one image with a

predetermined value associated with a group of people. Hence, D2 could be regarded as the closest prior art.
Since the images of D2 were taken from a silicon resin cast and not directly from a part of the human body, the feature of acquiring a first digital image of a portion of a person was not disclosed in D2.
This feature simplified the analysis of the skin, since the intermediate step of creating a cast of the skin portion could be dispensed with. In paragraph [0005], citing the JP family members of D4 and D5, D2 already mentioned the use of images of the skin instead of images of a silicon cast in order to assess the depth of wrinkles. Hence, the skilled person would consider omitting the step of creating a cast and using direct images of the skin surface instead.
Furthermore, D4 and D5 disclosed the disadvantages and obstacles of making skin casts.
Therefore, claim 1 of the contested patent was not inventive over D2.

*Inventive step starting from D1*

The subject-matter of claim 2 lacked an inventive step over D1 in combination with D2.
D1 did not disclose the feature of the predetermined value being an age-specific value, a geographic-specific value or an ethnic-specific value. In order to solve the problem of concretising the use of the device of D1 in the field of cosmetics, the skilled person would have considered D2, which taught the provision of age-specific reference values.

X. The respondent's arguments may be summarised as follows:

*Admissibility of documents D4 and D5*

D4 and D5 could and should have been cited in the Notice of Opposition, as they were family members of respective Japanese documents referred to in D2.
Furthermore, D4 and D5 could not be considered prima facie highly relevant since their teaching was in contradiction to the teaching of D2. In fact, D2 taught away from D4 and D5, and D4 and D5 each also taught away from D2.
It followed that D4 and D5 should not be admitted into the appeal proceedings.

*Admissibility of documents D6 and D7*

D6 related to age classification from facial images, which was a different problem, so it could not be considered highly relevant.
D7 was similar to D1 but no more relevant.
Furthermore, the filing of documents D6 and D7 could not be regarded as occasioned by the impugned decision of the Opposition Division.
The appeal procedure did not have the purpose of providing a second chance to oppose the patent.
These documents should therefore not be admitted.

*Novelty in view of D1*

D1 did not disclose a comparison with a predetermined value associated with a population of people, since any comparison was made between data from the image and a priori information concerning a probability that a lesion having particular spectral features was malignant.

*Novelty in view of D6*

D6 addressed a problem that was very different from the one solved by the present invention, namely how to reduce the subjective character of the location of skin defects and enable better communication regarding those defects to the person. The reduced subjectivity was achieved by using the numerical severity, while enhanced communication was achieved by comparing the severity with a population of people.
In paragraph 6.3.2 of D6 referred to by the appellant, a value of five snakelets was mentioned as a possible threshold for identifying a skin area as a wrinkle. However, D6 did not disclose the comparison of this threshold value with a reference value associated with a group of people. D6 rather applied the label "senior" to an image based on the information whether there were wrinkles.
The presence or absence of wrinkles could not be regarded as a binary value concerning the numerical severity of a skin defect.
D6 was not novelty-destroying.

*Novelty in view of D7*

D7 related to computer image analysis in the diagnosis of melanoma and was similar in content to D1. However, it did not disclose the step of "electronically creating a second image". The section headed "Segmentation of images" referred to by the opponent merely described the identification of regions in the image corresponding to a lesion or to skin, but not the creation of a second image of the area containing the skin defect.
Moreover, like D1, D7 did not disclose a comparison with a predetermined value associated with a population of people.

*Inventive step starting from D2*

Neither paragraph [0013] nor any of paragraphs [0024] to [0028] of D2b disclosed a comparison of a numerical severity with a predetermined value associated with a population of people. Since D2 related to a tool for performing academic studies and concerned only the classification of wrinkle depths in different age cohorts, there was no reason to add the final step of comparing with a predetermined value.
Furthermore, the use of casts was described in D2 as being essential in order to obtain an accurate measurement of wrinkle depths. Omitting the casts would lead to different results, as there would be no shadow the length of which could be measured.
Hence, the subject-matter of claim 1 was inventive over D2.

*Inventive step starting from D1*

The reasons set out in the discussion of D1 and D2 also applied to the inventive step attack starting from D1.

## Reasons for the Decision

1. The appeal is admissible.

2. *The invention*

The invention relates to a method for locating visual skin defects on the basis of digital images of a skin portion.
The method includes electronically analysing a first

digital image, electronically creating a second image of an area containing a skin defect, identifying the skin defect and determining a numerical severity of the area containing the skin defect. According to the description (page 10, lines 2 to 6), examples of skin defects are wrinkles, follicular pores, inflamed red spots, hyperpigmented spots or naevi. The numerical severity associated with a skin defect can be the colour content relative to the colour content of the surrounding skin area, or the number of pixels covered by the skin defect (page 10, line 31, to page 11, line 3).
The method further includes comparing the numerical severity with a predetermined value associated with a population of people.

3. *Admissibility of D4 to D7*

The Board observes that D4 and D5 are family members of the Japanese documents referred to in D2 in a section concerning some prior-art methods and systems for skin analysis (paragraph [0005] of D2b).

D6 is a scientific paper directed to a method of age classification from facial images. On the basis of a computed wrinkle index, images of babies and young adults are distinguished from images of seniors.

D7 relates to computer image analysis in the diagnosis of melanoma.

D4 to D7 were filed by the appellant with its statement of grounds of appeal.

Under Article 12(4) RPBA, everything presented by the appellant with the statement of grounds is in principle

to be taken into account in the appeal proceedings. However, the Board has the power to hold inadmissible facts and evidence which could have been presented in the first-instance proceedings.

The Board is aware that these documents could have been filed in the opposition proceedings, in particular since claim 1 of the main request was not amended during the first-instance proceedings.

However, it is apparent to the Board that documents D4 and D5 were filed in an attempt to support the objection as to lack of inventive step in the subject-matter of claim 1 in view of D2. In detail, the appellant cited two passages in D4 and D5 relating to particular obstacles to making skin casts.
Since the Opposition Division held that the subject-matter of claim 1 did not lack an inventive step over D2, the Board considers the appellant's filing of D4 and D5 to be a legitimate attempt to improve its position in appeal.

Similarly, it appears that the appellant filed D6 and D7 in an attempt to improve its position in view of the impugned decision, in which the Opposition Division held that neither D1 nor D2 anticipated the subject-matter of claim 1. In the Board's view, the filing of two further documents in order to pursue a further objection as to lack of novelty is a justified reaction to the reasons given by the Opposition Division.

Consequently, documents D4 to D7 are admitted into the proceedings.

4. *Novelty over D1*

D1 relates to a method of visualising and analysing pigmented cutaneous lesions.

It is common ground that D1 discloses the features of the preamble of claim 1.

For instance, it can be derived from column 20, lines 26 to 33, of D1 that morphologic and spectral features of lesions are determined and represented as a set of quantitative parameters including for example lesion asymmetry, border irregularity, colour or diameter. Although the term "severity" is not explicitly mentioned in D1, at least the parameters colour and diameter, which are also mentioned in the present patent, can be regarded as numerical severity values in the sense of claim 1.
In addition, page 25, lines 22 to 38, discloses that the quantitative features of the lesions may be used to classify the lesions into one or more classes, if some a priori information is available about how these features correlate with microscopic pathologic features of the lesions. In that way it would be possible to estimate the probability that a given lesion is pre-malignant or malignant.
Thus, this passage at least implicitly describes a parameter such as the colour or size of a given lesion being compared with a predetermined value associated with a class of lesions.

The appellant argued that the classification method of D1 evidently involved a comparison with predetermined values associated with a group of persons, namely those with malignant lesions.

However, in the Board's view, it cannot be clearly and unambiguously derived from D1 that the empirical data

forming the basis for the a priori information used for the classification scheme is associated with a group of people. In particular, there is no link between this a priori information and the particular person from whom the information may derive. Furthermore, it is also clear that not all people with malignant lesions are considered to form the a priori information.
Hence, D1 does not disclose the step of "generating a comparison between the first numerical severity and a pre-determined value associated with a population of people".

Consequently, D1 does not anticipate the subject-matter of claim 1.

5. *Novelty over D6*

D6 is directed to a method of age classification from facial images, wherein the presence or absence of wrinkles is detected. After having zoomed into an image of a face, a wrinkle pattern test is performed (section 6.3.2 on pages 13 to 15). A geometrical analysis of wrinkle pieces, so-called snakelets, is performed in order to determine whether they lie on multiple curves. For this purpose, evidence is calculated using a line segment joining a pair of snakelets and the orientation of the snakelets with respect to this line. If this calculation reveals that there are multiple curves, i.e. if the computed evidence exceeds a preset threshold, the corresponding skin region is classified as wrinkled. Age judging is then performed by combining the wrinkle information with facial feature ratios. For instance, if there are wrinkles in an image and the ratios are adult-like, the label "senior" is applied to it (page 16, right-hand column).

Although wrinkles can be regarded as skin defects, there is no disclosure of the determination of a numerical severity associated with an area containing those wrinkles. Consequently, D6 also does not disclose the comparison between a numerical severity and a predetermined value associated with a population of people.

The appellant argued that the computed evidence that had to exceed a certain threshold in a region with multiple curves could be considered a numerical severity and that the assignment of an image to one of the age groups inevitably required the comparison of these numerical wrinkle values with predetermined values for each age group.

However, the Board notes that the evidence value that is calculated by the formula on page 14 is used only to determine whether there are multiple curves in the image or not, depending on whether the evidence value exceeds a threshold. Hence, this computed evidence only conveys whether there is a skin defect, i.e. wrinkles, in a particular region or not.
However, apart from the detection of the presence or absence of wrinkles by this test, there is no evaluation of the severity of the wrinkles, i.e. the claimed step of "determining a first numerical severity associated with the area containing the skin defect" cannot be derived from D6.

Furthermore, the classification of the images in one of the three age groups is based solely on whether there are wrinkles or not (see page 16, right-hand column). Hence, contrary to the appellant's assertion, there is no comparison of numerical wrinkle values with predetermined values.

As a consequence, D6 does not anticipate the subject-matter of claim 1.

6. *Novelty over D7*

D7 relates to computer image analysis in the diagnosis of melanoma. For that purpose digital images of lesions are captured from a video tape of the skin portion to be analysed (see page 959, section headed "Imaging system"). From these images the analysis software extracts features relating to the size, colour, shape and boundary of the lesions, and these features are correlated with clinical and histologic characteristics of skin tumours in order to classify the lesion as a melanoma or other pigmented lesion.

The Board considers that D7 at least does not disclose the step of "electronically creating a second digital image visually identifying the area containing the skin defect".

In particular, contrary to the appellant's assertion, this step cannot be derived from the section headed "Segmentation of images" on page 959. That section is concerned with identifying the regions in the images that belong to a lesion by means of a colour analysis; but it does not mention the creation of a second image visually identifying the areas of the (first) images that contain lesions.

At least for this reason, the subject-matter of claim 1 does not lack novelty over D7.

7. Inventive step

7.1 The appellant raised the objection that claim 1 lacked an inventive step over D2.

D2 discloses a system for measuring wrinkle depths. For this purpose casts of skin surface areas are created. Hence, wrinkles or fine lines that are present on this skin area are transformed into raised areas on the cast. These raised areas are illuminated with obliquely incident light in order to create shadow regions, and images are taken from these shadow regions. By using an image processor to measure the area and length of the shadow regions, the depth of the wrinkles can be accurately determined.

It is not disputed by the appellant that D2 does not disclose the step of "acquiring a first digital image of the portion of the person" of claim 1.

However, the Board cannot concur with the appellant's argument that the omission of the skin cast would be obvious for the skilled person. In D2, the use of casts is described as being essential in order to achieve the desired accuracy of the depth measurement, in particular if the depth of individual fine lines is to be assessed (D2b, paragraphs [0006] and [0007]). This measurement consistently relies on the shadows of the raised areas which occur upon illumination of the cast. In images of real skin portions the wrinkles and fine lines would not appear as raised areas and therefore would not cast a shadow.

Although documents D4 and D5 describe the use of images of the skin instead of casts, D2 also points out (see paragraph [0005] of D2b) that with images of real skin

surfaces the required accuracy could not be achieved. In order to achieve this accuracy D2 teaches to use skin casts, irrespective of the obstacles and disadvantages of the manufacture of these casts as mentioned in D4 and D5.

Hence, in the Board's opinion, the skilled person would not consider incorporating the use of images of real skin portions in the method described in D2, since this would be contrary to the teaching of that document.

At least for that reason, the subject-matter of claim 1 is inventive over D2.

7.2 The appellant raised the objection that the subject-matter of claim 2 lacked an inventive step over D1 in combination with D2. Hence, the appellant considered that D1 disclosed all the features of claim 1.

However, as mentioned above, the Board is of the opinion that D1 does not disclose the step of "generating a comparison between the first numerical severity and a pre-determined value associated with a population of people" of claim 1.

This feature has the effect that the skin defect can be assessed as being more or less severe than an average skin defect of a specific group of people.

The problem to be solved by this feature can be considered as how to provide a skin analysis method that allows for better individual results.

The solution to this problem as defined in claim 1 is not obvious for the skilled person, since D2 does not address the problem of providing a more individualised

way of assessing skin defects, especially not as regards melanomas.

Thus, the subject-matter of claim 1 involves an inventive step in view of D1 and D2.

8. Since the subject-matter of claim 1 of the main request is novel and not obvious having regard to the cited prior art, the grounds under Article 100(a) EPC which formed the basis for the opposition do not prejudice the maintenance of the patent as granted.

**Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar: The Chairman:

S. Lichtenvort E. Dufrasne

Decision electronically authenticated