BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [X] To Chairmen
(D) [ ] No distribution

Datasheet for the decision of 16 September 2010

Case Number: T 1294/09 - 3.2.07

Application Number: 00928257.5

Publication Number: 1178878

IPC: B26D 5/00

Language of the proceedings: EN

Title of invention:
Automated product profiling apparatus

Patent Proprietor:
Formax, Inc.

Opponent:
Weber Maschinenbau GmbH Breidenbach

Headword:
-

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step (yes)"
"Disclosure of document with respect to momentary position during operation (cf. points 2.7.1 - 2.7.3)"
"Particular momentary position relied upon of no particular importance - all momentary positions of equal importance"

Decisions cited:
-

Catchword:
-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1294/09 **-** 3.2.07

D E C I S I O N
of the Technical Board of Appeal 3.2.07
of 16 September 2010

Appellant: (Opponent)	Weber Maschinenbau GmbH Breidenbach Günther-Weber-Strasse 3 D-35236 Breidenbach (DE)
Representative:	Grünecker, Kinkeldey Stockmair & Schwanhäusser Anwaltssozietät Leopoldstrasse 4 D-80802 München (DE)
Respondent: (Patent Proprietor)	Formax, Inc. 9150 191st Street Mokena Illinois 60448-0330 (US)
Representative:	Beier, Ralph v. Bezold & Partner Akademiestrasse 7 D-80799 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted 7 April 2009 concerning maintenance of European patent No. 1178878 in amended form.**

Composition of the Board:

Chairman: K. Poalas
Members: H.-P. Felgenhauer
E. Dufrasne

Summary of Facts and Submissions

I. The appellant (opponent) filed an appeal against the decision of the opposition division maintaining European patent No. 1 178 878 in amended form.

II. Claim 1 according to the main request filed during the oral proceedings reads (with amendments with respect to claim 1 as granted marked in bold, added by the Board) as follows:

"1. An automated system (10) for processing a **food** product (45) based on the acquisition of its surface profile, comprising:

a) a conveyor line (40, 95) along which the product (45) is conducted in sequence;

b) a profiling apparatus (15) having

b1) **at least two upper line lasers (75) disposed above the product (45) for illuminating the surface profile of the product (45),**

b2) **wherein the upper line lasers (75) are** adapted to illuminate the surface profile of the product (45) across a fixed plane transverse to the conveyance direction of the product (45),

b3) **wherein the upper liner lasers (75) are disposed on opposite sides of the product (45) projecting their overlapping beams onto and across the product (45);**

b4) **at least two lower line lasers (85) disposed below the product (45) for illuminating the surface profile of the product (45),**

b5) **wherein the lower line lasers (85) are** adapted to illuminate the surface profile of the product across a fixed plane transverse to the conveyance direction of the product (45),

b6) **wherein the lower line lasers (85) are disposed on opposite sides of the product (45) projecting their overlapping beams onto and across the product (45);**

b7) **said profiling apparatus (15) further having an upper camera (80) located above the product (45) for imaging the surface profile illuminated by the upper line lasers (75), and**

b8) **a lower camera (90) located below the product (45) for imaging the surface profile illuminated by the lower line lasers (85); and**

c) **a digital scale for weighing the product (45) and for providing weight information, said scale being included in the profiling apparatus (15),**

d) a controller (150)

d1) being connected to the cameras (80, 90),

d2) **said controller (150) being adapted** for determining the volume of the product (45)

d3) by acquiring and processing multiple visual images acquired by the cameras (80, 90) along the length of the product (45) as the product (45) is moved through the profiling apparatus (15),

d4) and is arranged to complete its processing of such visual images before processing of the product (45) in a product processor (20);

e) **further comprising the product processor (20),**

e1) **wherein the product processor (20) is a slicer adapted to cut slices of a particular weight,**

e2) said product processor (20) comprising a control system (180) for varying its processing operation on the product (45) based upon the volume of the product (45) **and the weight information provided by the scale,**

e3) **wherein the conveyor line (40, 95) conducts the product (45) in sequence between the profiling apparatus (15) and the product processor (20)."**

III. The following documents are referred to in the present decision:

D7: WO-A-91/08 439

D18: WO-A-99/06 796

D22a: JP-A-1 132 333

D22b: German translation of D22a

D23a: JP-A-7 184 534

D23b: German translation of D23a

IV. Concerning the facts relevant with respect to the present decision in the impugned decision it is indicated that the automated system according to claim 1 of auxiliary request 0 (claim 1 as granted) involves an inventive step in view of D18 considered in combination with general technical knowledge or i.a. D7 (grounds, no. 3.1.2).

V. The facts, evidence and arguments essentially relied upon by the appellant can, as far as they are relevant to the present decision, be summarised as follows:

(a) The automated system as defined by claim 1 differs from the system according to D22a/D22b or D23a/23b (in the following only the translations D22b and D23b are referred to) in two unrelated aspects. The first aspect concerns the structure of the profiling apparatus which according to features b1) – b3) and b7) has at least two upper line lasers disposed on opposite sides of the product projecting their overlapping beams onto and across the product and an upper camera for imaging the product profile illuminated by the upper line lasers and according to features b4)– b6) and b8) also has at least two correspondingly disposed lower line lasers and a lower camera for imaging

the surface profile illuminated by the upper line. The second aspect concerns the provision of a digital scale for weighing the product and for providing weight information and the provision of a control system for varying the processing operation on the product based upon the volume of the product and the weight information provided by the scale according to features c) and e2).

(b) Concerning the first aspect it can be derived from the disclosure of D18 relating to a specific embodiment of a profiling apparatus with four scanning heads provided on a ring shaped carrier which can be rotated around the product to provide a surface profile of the product over 360°, that, at a certain moment during the rotation of the carrier, the known profiling apparatus can be considered as comprising two upper line scanning heads disposed on opposite sides of the product and, correspondingly, two lower line scanning heads. Since it is indicated in D18 that the ultrasonic scanning heads referred to as scanning means can be replaced by laser scanners the arrangement of at least two upper line lasers associated with one upper camera and of at least two lower line lasers associated with one lower camera is obvious. Since it is apparent that the scanning means derivable from D18 can, without inventive skill being required, be used in the profiling apparatus according to D22b or D23b, and since it is further known from D7 to arrange line lasers such that overlapping beams are projected onto and across the product, the profiling

apparatus as defined in claim 1 does not involve an inventive step.

(c) Starting from the apparatus according to D22b or D23b as closest prior art and considering D18 and D7 as further prior art the automated system according to claim 1 is thus rendered obvious.

VI. The facts, evidence and arguments essentially relied upon by the respondent can, as far as they are relevant to the present decision, be summarised as follows:

(a) The automated system as defined by claim 1 differs from the system according to D22b or D23b at least as far as it concerns the manner in which the upper line lasers and the upper camera and respectively the lower line lasers and the lower camera are arranged.

(b) The arrangement of the line lasers and the cameras according to claim 1 cannot be considered as being obvious in view of D18. Firstly, the scanning heads known from D18 are not disposed in fixed, specific positions relative to the product to be scanned but they are rotatable around said product. Secondly, there is no indication given in D18 leading to a replacement of the ultrasonic scanning heads used within the profiling apparatus according to D18 by line lasers and cameras as it is the case for the profiling apparatus defined in claim 1. Due to these fundamental differences between the profiling apparatus of the automated system of claim 1 and the one disclosed in D18 the person skilled in the art would have had no reason

to consider D18 in an attempt to improve the profiling apparatus of the automated system of D22b or D23b.

(c) Consideration of D7 would imply that three documents would be considered concerning a single aspect, namely the structure of the profiling apparatus, in the examination of inventive step. Furthermore it is not apparent for what reason the person skilled in the art, starting from D22b or D23b as closest prior art, would combine one of these documents with D18 and D7. This holds true in particular considering that each of these documents discloses its own scanning heads and a particular arrangement of these scanning heads. Both the scanning heads and their respective arrangements differ largely from document to document and no incentive is apparent for replacing the scanning heads and their arrangement as referred to in one document by the scanning heads and corresponding arrangements referred to in the other documents. Moreover even if such a replacement and rearrangement of scanning heads is considered it is not evident that such an approach could possibly lead in an obvious manner to the automated system as defined by claim 1.

VII. In the annex to the summons for oral proceedings dated 16 April 2010 the Board i.a. referred to the disclosures of documents D18, D22b and D23b.

VIII. Oral proceedings before the Board were held on 16 September 2010.

(a) The appellant requested that the decision under appeal be set aside and that the patent be revoked.

(b) The respondent requested that the decision under appeal be set aside and that the patent be maintained on the basis of:

– claims 1 - 11 of the main request filed during the oral proceedings;

– amended description, columns 1 to 10, filed during the oral proceedings; and

– figures 1 to 7 of the patent as granted.

At the end of the oral proceedings the Board announced its decision.

Reasons for the decision

1. *Claim 1*

1.1 Claim 1 of the main request has been amended as can be derived from section II above.

The amendments of claim 1 concern the structure of the profiling apparatus (features b1) - b8)), the provision of a digital scale (feature c)) and the control system varying the processing operation on a product based on, besides the volume of the product, the weight information provided by the scale (feature e2)).

1.2 The appellant did, with respect to the final wording of claim 1, not maintain its objections with respect to the admissibility of the amendments.

The Board has convinced itself that amended claim 1 satisfies the requirements of the EPC (e.g. according to Articles 84 and 123(2) and (3) EPC).

2. *Inventive step*

With respect to claim 1 according to the main request filed during the oral proceedings, based on the submissions of the parties, the decisive issue to be dealt with is the question of whether the automated system for processing a food product according to this claim involves an inventive step starting from the automated system of D22b or D23b as closest prior art and considering the profiling apparatus according to D18 and furthermore D7 as additional prior art.

2.1 *Disclosure of D23b*

Both parties consented to D22b or D23b representing the closest prior art.

In the following D23b is considered as closest prior art taking into account that D22b discloses a similar automated system, which does not come closer to the one according to claim 1.

D23b discloses with respect to the subject-matter of claim 1 an automated system for processing a food product (fish or meat; cf. page 2, claim 1; paragraph [0007]) based on the acquisition of its surface profile,

comprising a conveyor line along which the product is conducted in sequence (claim 1; figure 1); a profiling apparatus having an upper line laser disposed above the product for illuminating the surface profile of the product (cf. paragraph [0008]; figure 1: upper line laser 4A), wherein the upper line laser is adapted to illuminate the surface profile of the product across a fixed plane transverse to the conveyance direction of the product (figures 2, 3), a lower line laser disposed below the product for illuminating the surface profile of the product (cf. claim 1; figure 1), said profiling apparatus further having an upper camera located above the product for imaging the surface profile illuminated by the upper line laser, and a lower camera located below the product for imaging the surface profile illuminated by the lower line laser (claim 1; paragraph [0008]; figure 1: upper camera 5A and lower camera 5B).

The automated system for processing a food product according to D23b further comprises a controller being connected to the cameras (paragraph [0008]; figure 1), said controller being adapted for determining the volume of the product by acquiring and processing multiple visual images acquired by the cameras along the length of the product as the product is moved through the profiling apparatus (paragraphs [0009] and [0010]), and is arranged to complete its processing of such visual images before processing of the product in a product processor (paragraphs [0009] to [0021]) and a product processor, wherein the product processor is a slicer adapted to cut slices of a particular weight (paragraphs [0004], [0013], [0014] and [0021] to [0023]; figure 1), said product processor comprising a control system for varying its processing operation on the

product based on the volume of the product (paragraph [0004]; figure 1), wherein the conveyor line conducts the product in sequence between the profiling apparatus and the product processor (paragraphs [0013], [0021] and [0021] to [0023]; figure 1).

With the profiling apparatus according to D23B a surface profile of a product is scanned via an upper line laser cooperating with an upper camera and a lower line laser cooperating with a lower camera (cf. page 13, section "ZEICHENERKLÄRUNG" and figure 1).

According to D23b the processing operation is varied on the product, based upon its volume (cf. paragraph [0004]) and, under the assumption that the specific weight of the product, i.e. fish, is constant, also on its weight (cf. paragraphs [0021] and [0023]).

2.2 *Distinguishing features*

2.2.1 The automated system according to claim 1 thus differs according to a **first group of distinguishing features** from the system according to D23b with respect to the structure of the profiling apparatus in that at least two upper line lasers are disposed above the product for illuminating the surface profile of the product (feature b1)), wherein the upper line lasers are adapted to illuminate the surface profile of the product across a fixed plane transverse to the conveyance direction of the product (feature b2)), wherein the upper liner lasers are disposed on opposite sides of the product projecting their overlapping beams onto and across the product (feature b3)), in that at least two lower line lasers are disposed below the

product for illuminating the surface profile of the product are provided (feature b4)), wherein the lower line lasers are disposed on opposite sides of the product projecting their beams onto and across the product (feature b5)), wherein the lower line lasers are disposed on opposite sides of the product projecting their overlapping beams onto and across the product (feature b6)).

2.2.2 The automated system according to claim 1 furthermore differs from the system according to D23b according to a **second group of distinguishing features** in that a digital scale for weighing the product and for providing weight information is comprised, said scale being included in the profiling apparatus (feature c)) and in that the product processor has a control system for varying its processing operation on the product based on the weight information provided by the scale (part of feature e2)).

2.2.3 The first group of distinguishing features thus concerns the structure of the profiling apparatus (features b1) - b8)) and the second group of distinguishing features concerns the provision of weight information (feature c)) and the control of the product processor using thereby, in addition to the use of the volume known as in D23b, the weight information provided by the scale (part of feature e2)).

2.3 The discussion with respect to inventive step is solely focused on whether the automated system according to claim 1 involves an inventive step due to the presence of the first group of distinguishing features.

2.4 *Effects of the distinguishing features*

2.4.1 It is common ground that the first group of distinguishing features has the effect that more profile data are provided and that a better resolution of the camera image is provided (patent in suit, column 8, lines 38 - 50).

2.5 *Problem*

Based on the effect of the first group of distinguishing features referred to above the objective technical problem to be considered starting from the automated system according to D23b can be seen as improving the profiling apparatus such that the surface profile can be imaged with higher quality (cf. patent in suit, column 8, lines 38 - 50).

2.6 *Solution*

It is evident and undisputed that this problem is solved by the automated system according to claim 1 comprising a profiling apparatus as defined by the first group of distinguishing features (cf. section 2.2.1).

2.7 *Obviousness*

As discussed at the oral proceedings there may be various solutions to the problem indicated above (section 2.5).

Concerning the question of whether the automated system according to claim 1 involves an inventive step however

only the solution as defined by the subject-matter of claim 1 is relevant.

2.7.1 According to the appellant it is evident for the person skilled in the art, considering the disclosure of D18 relating to a specific embodiment for a profiling apparatus in addition with the arrangement of line lasers as disclosed in D7, that the profiling apparatus of the automated system according to D23b can be improved in the manner defined in claim 1 by the first group of distinguishing features (features b1) and b8)) without inventive skill being involved.

Concerning D18 the appellant refers to the profiling apparatus, referred to in that document as scanning device 11 - described in connection with figures 1 - 3 which comprises four scanning heads mounted on a ring shaped carrier which can be rotated around the product to provide a surface profile of the product over 360° (cf. D18, page 12, line 24 - page 13, line 31).

According to the appellant the person skilled in the art observing the profiling apparatus of D18 in operation becomes aware of the fact that, at a certain moment during the rotation of the carrier with the scanning heads, the latter come into a position at which the known profiling apparatus can be considered as comprising two upper line scanning heads disposed on opposite sides of the product and, correspondingly, two lower line scanning heads.

2.7.2 The Board accepts that, as can be derived from figure 2, it is true that while the carrier rotates with the scanning heads the latter come, among other positions,

in a momentary position in which two upper line scanning heads are disposed on opposite sides above the product and, correspondingly, two lower line scanning heads are disposed on opposite sides below the product.

2.7.3 The Board however cannot follow the conclusion drawn by the appellant with respect to the number of scanning heads and their above mentioned momentary position, namely that the person skilled in the art finds this position with two upper and two lower scanning heads advantageous and for that reason implements it in the profiling apparatus of D23b, taking into account that the scanning heads according to D18 need, as indicated, not be ultrasonic scanning heads as described but could also be laser scanners (page 17, lines 10 - 12).

For the Board it has not been convincingly shown that the person skilled in the art would, among the many positions the scanning heads assume during a rotation of the carrier around 360°, consider the momentary position at which two scanning heads are above and two below the product as a particular one and indeed as one which, replacing the single upper line laser and the single lower line laser mounted in a fixed position relative to a product to be scanned of the profiling apparatus according to D23b, leads to an improvement of the known profiling apparatus.

Firstly there is no hint in D18 that any momentary position the scanning heads occupy during the rotation of the carrier, and thus also the one relied upon by the appellant, is of a particular importance, making one single momentary configuration more important than

the other ones such that the attention of the skilled person would be attracted to it.

Secondly the purpose of the arrangement of the four scanning heads on a carrier rotating during operation disclosed in D18, namely to provide a first and a second 360° degree scan of a product (page 13, lines 4 - 31), is a clear indication that all momentary positions of the four scanning heads are of equal importance since a 360° scan of the product is to be obtained.

Finally it has not been demonstrated why the person skilled in the art would have only retracted those features concerning the provision of scanning heads from the entire arrangement according to D18.

2.7.4 Thus even if, contrary to an argument of the respondent, the person skilled in the art is considered as taking the profiling apparatus according to D18 into account in an attempt to improve the quality of the images obtained from the profiling apparatus of D23B, this document could not have led to the profiling apparatus of D23b being modified in a manner making obvious the structure of the profiling apparatus as defined within claim 1 by the first group of distinguishing features.

2.7.5 This holds true also considering the further argument of the appellant according to which D7 would have given an indication concerning the provision of upper and lower line lasers arranged such that their beams overlap onto and across the product as defined by features b3) and b6).

According to the embodiment of D7 referred to (cf. page 7, lines 8 - 18; figure 3), four line lasers are provided to scan an object. Each of these line lasers projects a beam onto and across the product under a different angle. Beams of adjacent line lasers can overlap (cf. page 6, lines 27 - 35; figure 3). This overlap however does not serve the purpose to yield a better resolution in the camera image as it is the case for the profiling system of the apparatus of claim 1 (cf. column 8, lines 38 - 43) since according to D7 (page 7, lines 8 - 18) each camera is provided with a filter such that only light of the associated line laser having a particular wavelength, different from the light of the other line lasers, can pass through.

Thus already for this reason consideration of the profiling apparatus of D7 in connection with the profiling apparatus according to D18 could not have led to the profiling system of the automated system according to claim 1.

2.7.6 Consequently the arguments given by the appellant cannot be considered as showing convincingly that the profiling apparatus of the automated system according to claim 1 is obvious considering, next to the profiling apparatus according to D23b as starting point, the profiling apparatuses according to D18 and possibly D7 as further prior art in an attempt to improve the quality of the images obtained by the profiling apparatus of the automated system of D23b. As can be derived from the above likewise the arguments of the appellant, according to which consideration of the further prior art as given by D18 and D7 leads to the

subject matter of claim 1 being obvious, are not convincing.

2.7.7 Consequently the Board finds that the automated system as defined by claim 1 meets the requirements of Article 56 EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent on the basis of:

- claims 1 - 11 of the main request filed during the oral proceedings;

- amended description, columns 1 to 10, filed during the oral proceedings; and

- figures 1 to 7 of the patent as granted.

The Registrar: The Chairman:

G. Nachtigall K. Poalas