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Datasheet for the decision of 12 July 2024

Case Number: T 2343/22 - 3.5.05

Application Number: 14191361.6

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IPC: G05B19/042, G01J5/00, G05B19/418, G06T7/00, G05B19/04

Language of the proceedings: EN

Title of invention:
Target signature closed loop control system and method

Patent Proprietor:
Emhart Glass S.A.

Opponent:
Bottero S.p.A.

Headword:
Target signature control system/EMHART

Relevant legal provisions:
EPC Art. 56, 100(a), 111(1)
RPBA 2020 Art. 11, 12

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Keywords:

Inventive step - patent as granted (no): no credible technical effect in view of different claim construction
Admittance of claim amendments filed on appeal - auxiliary request 1 (yes): reasons of fairness
Remittal to opposition division - (yes): opposition division's incorrect claim construction amounts to "special reasons"

Decisions cited:

G 0001/19, T 1294/16

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Case Number: T 2343/22 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 12 July 2024

Appellant: (Opponent)	Bottero S.p.A. Via Genova, 82 12100 Cuneo (IT)
Representative:	Studio Torta S.p.A. Via Viotti, 9 10121 Torino (IT)
Respondent: (Patent Proprietor)	Emhart Glass S.A. Hinterbergstrasse 22 6330 Cham (CH)
Representative:	Ashton, Gareth Mark Baron Warren Redfern 1000 Great West Road Brentford TW8 9DW (GB)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 24 August 2022 rejecting the opposition filed against European patent No. 2874032 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chair	K. Bengi-Akyürek
Members:	K. Schenkel
	R. Romandini

Summary of Facts and Submissions

I. The appeal by the opponent lies from the decision of the opposition division to reject the opposition. The opposition division found that the invoked grounds for opposition under Articles 100(a) and 56 EPC as well as Article 100(b) EPC did not prejudice the maintenance of the opposed patent.

II. Oral proceedings were held before the board on 12 July 2024.

The parties' final requests were as follows:

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

- The respondent (patent proprietor) requested, as its **main request**, that the appeal be dismissed, i.e. that the patent be maintained as granted, or, in the alternative, that the patent be maintained in amended form on the basis of the claims of one of **first to eighth auxiliary requests**, all requests filed for the first time with the written reply to the statement of grounds of appeal.

At the end of the oral proceedings, the board's decision was announced.

III. Claim 1 of the **main request** reads as follows (numbering and underlining of the relevant text by the board):

(a) "A system for automatically adjusting the event timing of operations in cavities of a section of an

Individual Section, I.S., machine, comprising:

(b) a multipoint, multispectral glass container measurement system (96) that is configured to provide container pixel data information (98) indicative of certain measurements of hot glass containers (90, 92, 94) manufactured by the I.S. machine; and
(c) a controller configured to produce event timing signals (82) to operate the cavities of the section of the I.S. machine,
characterised in that the system further comprises:

(d) a signature extraction block (100) that is configured to mathematically transform container pixel data information into a reduced dimensional measured signature (102), the signature extraction block being arranged to produce reduced dimensional measured signatures (106, 108, 110) for each of the cavities in the section of the I.S. machine; and
(e) a section averaging block (112) that is arranged to average the reduced dimensional measured signatures (106, 108, 110) for each of the cavities in the section of the I.S. machine to produce a section average measured signature (70) that is provided to the controller,
(f) wherein the controller is configured to produce event timing signals (82) to operate the cavities of the section of the I.S. machine
(g) in response to the section average measured signature (70) and
(h) a preferred target signature (72)
(i) to automatically adjust the event timing of operations in the cavities of the section of the I.S. machine

(j) to diminish variations in the section average measured signature (70)."

IV. Claim 1 of the **auxiliary request 1** differs from claim 1 of the main request in that, at the end, the following wording has been added (board's numbering):

(k) wherein, in addition to the section average measured signature (70) being provided to the controller, the system is arranged to provide the reduced dimensional measured signatures (106, 108, 110) for each of the cavities in the section of the I.S. machine to the controller; and wherein the controller is arranged to provide both common event timing signals (82) to all of the cavities of the section of the I.S. machine based upon the section average measured signature (70) as well as unique cavity event timing signals (132, 134, 136) based upon the measured signatures for each of the cavities in the section of the I.S. machine to each of the cavities of the section of the I.S. machine."

Reasons for the Decision

1. Main request (patent as granted)

1.1 Background of the patent

The patent relates to the production of "glass containers" by means of a so-called "I.S. (individual section) machine" with several sections each including multiple cavities and in particular to the adjustment of the "event timing" of operating the cavities.

1.2 Claim construction

1.2.1 Feature (d): "reduced dimensional measured signature"

As argued by the appellant, the term "signature" is widely used in the context of authentication and/or data integrity to uniquely identify a person or data object. For this purpose, it indeed needs to have at least as many dimensions as persons or objects to be identified. However, the term may also be understood as characteristic data, reference being made to the adjective "signature". Considering the additional limitation "reduced dimensional", the board therefore understands a "reduced dimensional measured signature" according to **feature (d)** as referring to data characterising - not necessarily unequivocally - measured data of a container, i.e. the "container pixel data information", but with less data items or a "reduced dimension" respectively. From the latter it follows that it is indeed not necessarily possible to reconstruct the "container pixel data information" from the generated "reduced dimensional measured signature". But this is not necessary since the main purpose of the claimed subject-matter is not related to *distinguishing* between different glass containers but to obtain a measurement of characteristics for *producing* uniform glass containers. The appellant's arguments based on the alleged impossibility to identify unequivocally the original "pixel data information" have thus no bearing on a proper claim construction.

The board questions whether the decision under appeal correctly used the term "injection" in Reasons 3.3.1.6. "Injection" typically refers to a function that maps distinct element of a first group ("container pixel data information") to distinct elements of a second

group ("reduced dimensional measured signature"), i.e. not more than one element of the first group is mapped to a specific element of the second group. This is, in the case of a second group of data, typically not possible with a "reduced dimension" as also found by the opposition division concluding that a bi-univocal relationship (presumably meaning a one-to-one relationship) was impossible to achieve.

1.2.2 Feature (j): "variations in the section average measured signature"

Although the clarity of granted claims is not to be questioned in opposition proceedings, the board notes that it understands the variations according to **feature (j)** as referring to deviations as regards the "section average measured signature" itself, e.g. deviations between a current and previous "signature".

In that regard, the respondent argued that the "variations" referred to both, deviations between consecutive "section average measured signatures" and between a "section average measured signature" and the "preferred target signature".

1.2.3 Feature (g) "in response to the section averaged measured signature and a preferred target signature"

The wording "**in response to**" according to **feature (g)** expresses that something occurs as a reaction to an event but without being necessarily determined by the event in the sense that the event sets a sort of trigger. That means in the present case that the "controller" is supposed to produce the "event timing signals" as soon as the "section averaged measured

signature" and the "preferred target signature" are obtained by the controller.

The respondent argued that "in response to" meant that the "section averaged measured signature" and the "preferred target signature" were actually used to adjust the "event timing signals". This would be evident from the fact that, according to feature (j), the variations in the "section average measured signature" were reduced and therefore this signature had indeed to be used for the automatic adjustment of the "event timing of operations in the cavities of the section of the I.S. machine" according to feature (i). The skilled person would also know that both inputs had to be used to bring the "section average measured signature" towards the "preferred target signature". It was therefore clear that the control was done "in response to" the inputs using this information because it would be impossible to reduce the variations without taking into account the "section average measured signature" and the "preferred target signature". A different interpretation would be rather obscure.

The board is not convinced by these arguments for the following reasons:

According to the method of claim 1, the images taken from the hot glass containers, i.e. the "container pixel data information", are transformed into a "reduced dimensional measured signature" which in the end is averaged to produce the "section average measured signature". All of these pieces of information stem from the original images of the "hot glass containers", contain at least as much information as the "section average measured signature" and are possible input data for reducing the variations in the

"section average measured signature". The use of the "preferred target signature" is moreover not mandatory since the "variations" according to feature (j), as confirmed by the respondent, also refer to variations between consecutive "section averaged measured signatures". Thus, there is no compelling technical reason to use the last element of this processing chain, i.e. the "section average measured signature" or the "preferred target signature" in the steps of features (i) and (j).

The board therefore concludes that feature (g) also includes the case that the generation and provision of the "section averaged measured signature" and the "preferred target signature" are merely trigger events for the execution of the steps according to features (i) and (j) but are not necessarily used for the "automatic adjustment of the event timing of operations".

1.3 Inventive step (Articles 100(a) and 56 EPC)

1.3.1 Document **D1** also relates to optimising the manufacturing of glass containers by means of an I.S. machine (abstract).

1.3.2 Regarding **features (a), (c) and (f),** the I.S. machine includes a plurality of sections each of which comprises mechanisms with molds, i.e. cavities (paragraph [0003]). The invention relates in particular to the automatic optimisation of the timing of events occurring in the I.S. machine and thus in the cavities including the generation of timing signals (paragraphs [0002] and [0039]).

1.3.3 As in **feature (b)**, images or, in other words, "container pixel data information" are taken from the hot glass containers by means of a camera which may be sensitive in the infrared and visible spectrum (paragraphs [0030] and [0035]).

1.3.4 As to **feature (d)**, the images of the containers are provided first to a "product location module" and then to an "outline detection module" which uses "edge detection" which, in the board's view, in fact reduces the dimension of the pixel data and thus generates a "signature" (paragraphs [0030] and [0031]). The board disagrees with the patent proprietor's view that feature (d) ("feature 1.3" in the appealed decision) was not disclosed in D1 because the measurements generated (e.g. by modules 126, 128 and 130) were merely separate and specific analytic measurements, but not a "reduced dimensional measured signature" derived from a mathematical transformation.

The proprietor argued that the measurements lacked sufficient distinguishing information to be considered a "signature" according to the opposed patent, as many containers would have the same measurement. According to the board, claim 1 does not specify the degree of distinctiveness of the "signature" and does not exclude data which are put together by several pieces of information like the "combined report data 136" (see paragraph [0032]). As already set out in point 1.2.1 above, a "signature" can be *any* data somehow characterising *other* data. Claim 1 does not further specify the "mathematical transformation" for generating the "signature" either. The methods employed by the "product location module 116", the "outline detection module 120", the "horizontal/vertical distribution determination module 126/128" or the

"diameter determination module 130" in D1 are thus considered "mathematical transformation" within the meaning of present claim 1. As to the property "reduced dimensional", the board considers that the "edge detection" carried out by the "outline detection module 120" in the system of D1 (at least) implicitly reduces the dimensions of the (image) data.

1.3.5 With respect to **features (g), (h) and (i),** a controller takes into account "desired target setpoints" and "container measurements" and generates adjustments to the process to bring the "container measurements" as close as possible to the "target setpoints" or, in other word, to reduce the variations of the "container measurements" (paragraph [0037]). The "reduced dimensional measured signature", which corresponds to the "container measurements" in the system of D1 after preprocessing based on "edge detection", is however taken into account without "averaging" as done in feature (g).

1.4 The system of claim 1 thus differs from the system of D1 in that

(e) a section averaging block is arranged to average the reduced dimensional measured signatures for each of the cavities in the section of the I.S. machine to produce a section average measured signature that is provided to the controller,

(g) wherein the controller is configured to produce the event timing signals in response to the section average measured signature, and

(j) the event timing of operations in the cavities is

automatically adjusted to diminish variations in the section average measured signature.

1.5 No credible technical effect of the distinguishing feature

1.5.1 It is established case law of the Boards of Appeal that an inventive step can only be acknowledged if a solution underlying a claim produces a credible technical effect over the whole scope of that claim (see e.g. **G 1/19**, Reasons 82 and 124; **T 1294/16**, Reasons 26.2).

1.5.2 Since, following the above claim interpretation (cf. point 1.2.3 above), "in response to" in feature (g) corresponds to a *trigger* for the automatic adjustment of the "event timing" and not to an *input* for it, the generation of the "section average measured signature" does not generate a technical effect over the whole scope claimed, since it is not used later on. To begin the automatic adjustment after obtaining the "section average measured signature" and the "preferred target signature" only specifies a point in time for performing the respective adjustment without leading to a different automatic adjustment and does not provide a technical effect either. Feature (j) admittedly refers to diminishing the variations of the "section average measured signature" but this effect cannot be credibly deduced from the technical features of claim 1 since the "section average measured signature" is not necessarily taken into account for calculating the actual adjustment of the "event timing signals". Therefore and contrary to the opposition division's view, the above distinguishing features likewise cannot credibly "optimise the control of a section of containers" (see appealed decision, Reasons 3.4.5,

first paragraph).

1.5.3 The respondent argued that the technical effect of the distinguishing features was stated in feature (j), namely to "diminish variations in the section average measured signature", otherwise those features would not correspond to a method according to claim 1.

The board emphasises again that the claimed effect for determining the objective technical problem needs to be credibly achieved. The alleged effect of diminishing the variations of the "section average measured signature" is certainly an aim for the claimed "controller" which is "configured to produce event timing signals [...] to automatically adjust [...] to diminish variations of the section average measured signature". However, without any indication that the "section average measured signature" or one of the other data leading to that signature is used as a basis for producing the "event timing signals", the claimed effect remains at least uncertain. In that regard, the board furthermore agrees with the opposition division that even if the claimed section control was indeed "based on the average signature" this "would not necessarily diminish the variations between containers within a same section" essentially arguing that the variations of individual containers cannot be diminished based on averaged data (see appealed decision, Reasons 3.4.5, third paragraph).

1.6 In the absence of a credible technical effect, no inventive contribution can be attributed to the distinguishing features. Consequently, having regard to document D1, the system of claim 1 lacks an inventive step.

1.7 In view of the above, Articles 100(a) and 56 EPC prejudice the maintenance of the patent as granted.

2. Auxiliary request 1 - Admittance (Article 12 RPBA)

2.1 Since the opposition was rejected, the appealed decision was only based on the patent as granted (i.e. the present main request). Auxiliary request 1 therefore constitutes an "amendment" which may be admitted only at the discretion of the board (Article 12(4) RPBA).

2.2 Feature (k) specifies, *inter alia*, that the "event timing signals" are provided "based on" the respective input data. This amendment now removes the basis for the board's claim construction (see point 1.2.3 above) that essentially led to the negative assessment of inventive step for the main request.

2.3 The appellant did not object to the admittance of auxiliary request 1.

2.4 In view of the above and for reasons of fairness towards the respondent, auxiliary request 1 has been admitted into the proceedings. As to the admissibility of the other auxiliary requests on file, no conclusions are drawn by the board.

3. Remittal (Article 111(1) EPC; Article 11 RPBA)

3.1 The board's fundamentally different construction of the term "in response to" in claim 1, compared to the opposition proceedings, had a significant impact on the technical effect attributed to the distinguishing features of claim 1 as granted and eventually on the assessment of inventive step.

3.2 This different claim construction renders the findings of the opposition division moot. Furthermore, it cannot be held against the respondent, since it was the board which raised it for the first time.

3.3 From this it follows that "special reasons" within the meaning of Article 11 RPBA are present in these proceedings.

3.4 The case is therefore remitted for further prosecution to the opposition division on the basis of "auxiliary request 1".

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division for further prosecution.

The Registrar: The Chair:

B. Brückner K. Bengi-Akyürek

Decision electronically authenticated