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**Datasheet for the decision
of 9 December 2020**

Case Number: T 0499/17 - 3.5.05

Application Number: 09178980.0

Publication Number: 2332805

IPC: B61L29/30, B61L29/02

Language of the proceedings: EN

Title of invention:
Scanner arrangement

Patent Proprietor:
BEA S.A.

Opponent:
Pepperl + Fuchs GmbH

Headword:
Scanner arrangement / BEA

Relevant legal provisions:
EPC Art. 100(a), 56, 123(2), 123(3)
RPBA Art. 12(4)

Keyword:

Inventive step - (no) - obvious modification

Amendments - allowable (no) - intermediate generalisation

Amendments - broadening of claim (yes) - claim pertains to
different subject-matter



Beschwerdekammern

Boards of Appeal

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Case Number: T 0499/17 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 9 December 2020

Appellant:
(Patent Proprietor)

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Decision under appeal:

**Decision of the Opposition Division of the
European Patent Office posted on 22 December
2016 revoking European patent No. 2332805
pursuant to Article 101(3) (b) EPC.**

Composition of the Board:

Chair

A. Ritzka

Members:

N. H. Uhlmann

D. Prietzel-Funk

Summary of Facts and Submissions

- I. The appellant (patent proprietor) appealed against the decision of the opposition division to revoke European patent No. 2 332 805.
- II. In the course of the first-instance proceedings, the following document, inter alia, was referred to:

E8 DE 42 33 810
- III. The opposition division decided that the subject-matter of the claims of the main request and of auxiliary requests 1, 2 and 4 was not novel, and that auxiliary request 3 did not meet the requirements of Articles 84 and 123(2) EPC.
- IV. In its statement setting out the grounds of appeal, the appellant maintained the main request, re-submitted auxiliary requests 1 to 4 and submitted new auxiliary requests 5 and 6.
- V. In its reply, the opponent (respondent) submitted arguments in response.
- VI. The board summoned the parties to oral proceedings.
- VII. In a communication pursuant to Article 15(1) RPBA 2020, the board set out its provisional view of the case.
- VIII. In the course of the oral proceedings held on 9 December 2020 the appellant withdrew auxiliary request 5.
- IX. Final requests

The appellant requested that the decision under appeal be set aside and that the patent be maintained as granted, or in amended form on the basis of auxiliary

requests 1 to 4 underlying the decision under appeal or auxiliary request 6 submitted with the statement setting out the grounds of appeal.

The respondent requested that the appeal be dismissed.

X. Claim 1 of the patent as granted reads as follows (with numbering as used by the parties, the opposition division and the board):

"1.1 A sensor arrangement for scanning a scanning area (16, 36) comprising at least one scanner (10, 30, 42, 54) that will generate a scanning field (12)

1.2 which is defined between two legs spaced at a scanning angle (A) from each other,

1.3 and which scanner is adapted for controlling at least one blocking means (18, 38, 50) for a passageway (32, 56),

1.4 said passageway (32, 56) being delimited at least in its horizontal extension,

1.5 wherein the at least one scanner (10, 30, 42, 54) is disposed at a distance, as viewed in the passage direction (14), from said passageway (32, 56) and thus also from the controlled blocking means (18, 38, 50),

1.6 and that the scanning field (12) is directed towards the passageway

1.7 characterized in that the scanning field will extend through said passageway (32, 56),

1.8 where the scanner is a laser scanner (10, 30, 42, 54) emitting detection rays that are reflected by an object within the scanning field,

1.9 where the reflected signal is detected by the scanner (10, 30, 42, 54) and

1.10 that the sensor arrangement is adapted to determine the position of the object within one of predefined zones of the scanning area by evaluation of the propagation delay, and

1.11 where the blocking means is controlled depending on the zone in which the object is detected."

XI. Claim 1 of auxiliary request 1 is based on claim 1 as granted and further comprises the following features:

"where the blocking means is designed as a vertically or horizontally displaceable gate or door (50, 62) or as a vertically or horizontally pivotable barrier (18, 38)."

XII. Claim 1 of auxiliary request 2 is based on claim 1 as granted and further comprises the following features:

"where the scanning area (16, 36) is subdivided into first and second zones where said first zone is designed as an activation zone (20, 22, 40, 46) and said second zone is designed as a safety zone (24, 26, 34, 48, 58)."

XIII. Claim 1 of auxiliary request 3 is based on claim 1 of auxiliary request 2 and further comprises the following features:

"where the detection of an object in the activation zone triggers the opening of the blocking means, and where an object is detected in the safety zone closing of the blocking means is prevented or stopped or reopened."

XIV. Claim 1 of auxiliary request 4 is based on claim 1 of auxiliary request 2 and further comprises the following features:

"where the blocking means is designed as a vertically or horizontally displaceable gate or door (50, 62) or as a vertically or horizontally pivotable barrier (18, 38)."

XV. Claim 1 of auxiliary request 6 is based on claim 1 of auxiliary request 1. The following wording has been added at the beginning of claim 1:

"Arrangement comprising, a passageway, a blocking means for said passageway (32, 56),".

Additionally, "said" has been added in front of "at least one blocking means" and "for a passageway (32, 56)" has been replaced by ", where".

Reasons for the Decision

1. The patent in suit pertains to a sensor arrangement comprising a laser scanner. The scanner scans an area and is adapted to control blocking means for a passageway. The blocking means are controlled based on the detection of objects in the area.
2. Document E8 discloses, inter alia, a machine with a plunger which can be moved downwards. A scanner scans the area under the plunger. If an object is detected the plunger is prevented from moving downwards.

Main request

3. Articles 100(a) and 56 EPC
- 3.1 The board is using the feature numbering of claim 1 shown in section 6 of the decision under appeal (see section X. above).
- 3.2 Document E8 incontestably discloses a sensor arrangement for scanning a scanning area comprising at least one scanner that will generate a scanning field which is defined between two legs spaced at a scanning angle from each other (**features 1.1 and 1.2** of claim 1).
- 3.3 E8 discloses a plunger 31 which can be in an upper position (as depicted in Figures 1 and 2). When the plunger is in this position, an operator can enter the space 13 under the plunger (column 1, lines 28 to 31 and column 3, lines 44 to 46) from either side (column 4, lines 29 to 36). Thus it is possible for a person to walk through this space. Furthermore, the space is delimited in a horizontal direction by the dimensions of the plunger and the outer frame of the machine.

When the plunger moves downwards, no body parts of the operating person can be situated in the space 13 (column 3, lines 17 to 21). In other words, the space under the plunger is then blocked.

In general, E8 relates to relatively large machines, such as moulding machines (column 1, lines 21 to 23 and 28 to 31).

The scanner 12 ("Rotationslichttaster") is adapted to control not only the machine as a whole but also the plunger 31 specifically (column 1, lines 59 to 63; column 5, lines 16 to 41 and lines 52 to 58; column 4, lines 54 to 59).

The appellant argued that "the section referenced by the Board of Appeal does not disclose that such a detection leads to a stop of the downward movement of the plunger" and that the rotary scanner was deactivated in the case of a descending plunger. The board notes that claim 1 merely requires that the "scanner is adapted for controlling at least one blocking means for a passageway". Claim 1 does not require any movement of the blocking means to be stopped or the blocking means to be completely and permanently controlled by the scanner.

Furthermore, column 3, lines 35 to 43 of E8, to which the appellant refers, pertains to the description of prior-art machines not comprising a rotary sensor. The machine as described and claimed in E8 comprises a rotary scanner 12 which is activated again when a body part of a person crosses the light curtain 11 (column 5, lines 30 to 34). When activated, the rotary scanner would stop the plunger upon detecting an object in the space 13 and prevent the object, or indeed a person, from being crushed.

For these reasons, document E8 discloses **features 1.3, 1.4, 1.6 and 1.7.**

- 3.4 E8's scanner 12 evidently has to be positioned at a distance from the plunger 31 to prevent the plunger destroying the scanner when moving downwards (**feature 1.5**).

The appellant argued that the sensor was not disposed in the passage direction but "transverse to the passage direction". The respondent argued at the oral proceedings that the figure on page 4 of the appellant's letter did not correctly represent the teaching of E8.

The board holds that Figure 1 of E8 is a perspective view which does not precisely show the positions of elements along the axis of the three-dimensional space. Thus the figure on page 4, which is a top view, cannot be derived precisely from Figure 1. Furthermore, Figure 2 of E8, which illustrates the same subject-matter as Figure 1 (E8, column 3, lines 1 to 3), clearly shows that the sensor 12 is positioned, as viewed in the direction 27 (from left to right), in front of items 13, 30 and 31.

The appellant further argued that according to Figure 1 of E8 the rotary light scanner should have a limited range so that detections outside the space of the plunger cannot prevent the start of the machine, and that for this reason it would absolutely go against the idea of E8 to dispose the sensor in the passage direction.

The board agrees that the light scanner 12 has a limited range and that detections outside the plunger space should not prevent the start of the machine. However, the board is not convinced that the position of the sensor 12 as indicated in Figure 2 would make these functions impossible, and the appellant did not provide any specific arguments in this regard.

Finally, the board agrees with the respondent that the sensor 12 cannot be positioned directly in the plunger's path, but at a certain distance, to avoid mechanical contact due to inevitable tolerances.

Consequently, the board considers that document E8 discloses feature 1.5.

3.5 Regarding **feature 1.10**, E8 discloses two zones determined by the sensor by evaluation of the propagation delay (column 2, lines 8 to 11): one zone covering the space 13 and corresponding to the rays 19

to 26 up to the small dots (Figure 1) and another one beyond that point (column 4, lines 17 to 24). Moreover, claim 1 does not set out any specific distinction between the scanning field and the scanning area.

The appellant argued that the scanning area was an area of interest within the scanning field, and put forward two lines of argument:

- (a) The description gave a clear definition of the terms "scanning field" and "scanning area", referring to paragraphs 13 and 31.
- (b) The patent referred to "a laser scanner based on the echo-runtime principle"; accordingly, the scanning field was potentially indefinite. Thus the scanner would only work usefully if an area of interest was defined within the scanning field.

3.6 The board is not convinced.

Argument (a) is not persuasive, because definitions given only in the description do not have any limiting effect on the claimed subject-matter.

With regard to argument (b), the board agrees that the scanning field of a laser scanner is potentially indefinite. However, it does not follow from this that "the detections in the outermost area of the scanning field are ignored", "the detection status outside this (scanning) area is then ignored, as it never changes" or that detections above a certain distance are "not regarded as detections". On the contrary, claim 1 explicitly states that reflections in the scanning field are detected: "the scanner is a laser scanner (10, 30, 42, 54) emitting detection rays that are reflected by an object within the scanning field, where the reflected signal is detected by the scanner".

3.7 Regarding **feature 1.11**, when an object is detected inside the space 13 of E8's machine, the downward movement of the plunger is stopped (see section 3.3 above) or the start of the machine is prevented, but when an object is detected outside this space (column 4, lines 17 to 24) no such stopping or preventing takes place. In other words, the machine behaves differently depending on the zone in which the object is detected.

The appellant argued that "upon detection of an object in the second zone, a different decision can be made at "no-detection" event of the second zone".

The board does not agree that a skilled person would understand the term "control" in the context of claim 1 in this way. Specifically, claim 1 is silent with regard to any actions upon "no-detection" of an object. As claimed, first an object is detected (features 1.8 and 1.9), then the position within one of the predetermined zones is detected (feature 1.10), and subsequently "the blocking means is controlled depending on the zone in which the object is detected". The same sequence takes place in E8's machine, as explained above.

Claim 1 does not require a detection status (detected / not detected) for each zone to be established and used for controlling the blocking means. The appellant is correct that in E8 the detection status in the second zone is irrelevant to the behaviour of the machine. However, the behaviour of E8's machine is influenced, i.e. is controlled, differently when an object is detected in the space 13 from when it is detected outside this space. This is specifically what feature 1.11 calls for.

3.8 Regarding **features 1.8 and 1.9**, the board agrees with the appellant that document E8 does not disclose, explicitly or implicitly, a laser scanner. However, E8

discloses a scanner emitting detection rays that are reflected by an object within the scanning field, where the reflected signal is detected by the scanner (column 2, lines 1 to 23).

The respondent argued that document E8 disclosed a laser scanner, either implicitly or by way of reference to document DE-OS 40 02 356.

The board disagrees. E8 refers to the general term "Lichttaster". At the filing date of E8 and of the patent in suit, not only laser scanners but other types of light scanner were generally known. Thus E8 does not implicitly disclose the specific term "laser scanner".

Turning to publication DE-OS 40 02 356, E8 refers to it only in connection with run-time measurement methods. Furthermore, this publication discloses a specific arrangement with two laser diodes.

3.9 In summary, the board holds that document E8 does not disclose a laser scanner, but discloses all the other features of the subject-matter of claim 1.

3.10 With regard to inventive step, the board holds that laser scanners were generally known at the filing date of the patent in suit. The skilled person would modify E8's machine without any effort using a laser scanner, in particular in view of the teaching of document DE-OS 40 02 356, to which E8 refers.

3.11 The appellant argued that the type of scanner, the evaluations depending on two different zones and the control of the blocking means "cannot be evaluated in an isolated way".

The board is not convinced. As explained in sections 3.3 to 3.8 above, document E8 discloses the detecting of objects in two zones using run-time measurements and the control of the blocking means. In the board's view,

using a laser scanner does not necessitate any changes to these functions.

- 3.12 For these reasons, the board holds that the subject-matter of claim 1 does not involve any inventive step. Hence the main request is not allowable.

Auxiliary request 1

4. Patentability

4.1 Claim interpretation

Feature 1.3 of claim 1 reads:

"and which scanner is adapted for controlling at least one blocking means for a passageway".

The opposition division held that the claimed sensor arrangement (explicitly) comprises the scanner, but the blocking means and the passageway do not belong to this arrangement. The board agrees.

The appellant argued that "the sensor arrangement includes the blocking means as the position of the scanner with regard to the passageway and the blocking means is essential as it defines the passageway to be blocked and the orientation of the scanner. The passageway and the blocking means, therefore, are intrinsically part of the claim".

The board is not persuaded by this argument. Both the language of claim 1 (e.g. "arrangement for scanning", "adapted for controlling at least one blocking means for a passageway" and "arrangement is adapted to determine the position of the object") and that of the description (e.g. "sensor arrangement for a vertically displaceable gate" in paragraph 28) indicate that the sensor arrangement does not comprise the blocking means and the passageway. While, in general, it may be possible to define claimed subject-matter by means of

reference to external features, this does not imply that those features are comprised in the claimed subject-matter.

4.2 The features added to claim 1 specify the blocking means further. Thus they do not form part of the claimed sensor arrangement and do not add further distinguishing features. Consequently, the subject-matter of claim 1 does not involve an inventive step.

4.3 The appellant argued that a barrier, door or gate, as claimed in claim 1 of auxiliary request 1, influenced the scanner "in a way that the scanner is supposed to be suitable to control a barrier or door in the claimed manner" and that a "door control includes an active control of the door in an opening or closing process. In the least it is necessary to control the door or barrier in a way that it is permanently switched on and can be influenced in this state by the control of the scanner (opened / closed / halted)".

The board is not convinced. As set out above in section 3.3, E8's scanner is adapted to stop the plunger from moving downwards, i.e. to halt it.

4.4 The appellant argued that E8 disclosed cyclic control, which was not suitable for controlling a door.

The board agrees with the respondent that E8's cyclic control does not contradict the subject-matter of claim 1.

4.5 The appellant further submitted that E8's scanner was suitable for preventing the downward movement of the plunger while an object was under the plunger. However, it was not suitable for stopping the plunger if an object entered the space while the plunger was moving downwards. In this last case, E8's light curtain 11 would stop it.

The board notes that claim 1 does not specifically refer to the situation when the door is moving downwards. Additionally, as explained in section 3.3 above, the scanner is indeed activated when a body part of a person crosses the light curtain 11.

- 4.6 The board holds that the specific type of blocking means as claimed (barrier, door or gate) does not have any impact on the position and orientation of the scanner as defined in features 1.5 and 1.6.

Auxiliary request 2

5. Patentability

- 5.1 Claim 1 further specifies that "the scanning area is subdivided into first and second zones where said first zone is designed as an activation zone and said second zone is designed as a safety zone".
- 5.2 Document E8 discloses two zones (see sections 3.5 and 3.6 above).
- 5.3 While the technical limitations intended by designing a zone as an activation zone or safety zone are not fully clear, E8's first zone mentioned in sections 3.5 and 3.6 comes under the notion of "safety zone" because detection of an object in this zone results in safety measures being implemented, i.e. the plunger being stopped. Furthermore, the detection of an object in the second zone in E8 does not prevent activation of the machine, which qualifies it as an "activation zone" in the sense of claim 1.
- 5.4 The appellant argued that in E8 the detecting of an object in the zone outside the plunger did not lead to any control action.

This argument is not convincing for the reasons given above in the last paragraph of section 3.7.

5.5 The board notes that features from the description which are not actually claimed cannot distinguish the subject-matter claimed from the prior art. In particular, claim 1 does not specify any dependency between the "activation zone" or "safety zone" and the control of the blocking means.

5.6 For these reasons, claim 1 does not comprise further distinguishing features. Hence the subject-matter of claim 1 does not involve an inventive step.

Auxiliary request 3

6. Amendments

6.1 The following features were added to claim 1 of auxiliary request 2:

"where the detection of an object in the activation zone triggers the opening of the blocking means, and where an object is detected in the safety zone closing of the blocking means is prevented or stopped or reopened".

6.2 The appellant submitted that this amendment was based on the last paragraph on page 3 of the description as filed.

6.3 The opposition division held that this amendment was not allowable under Article 123(2) EPC as it was an impermissible intermediate generalisation.

6.4 The board endorses the division's finding.

6.5 The appellant argued that this paragraph stated "several zones allow a subsequent placement" (underlined in the statement of grounds) and that the placement and the consequences of the

detection within a zone "are clearly independent of each other".

- 6.6 The board is not persuaded. This paragraph, or indeed the entire application as filed, does not refer to any "subsequent placement". Furthermore, it is apparent that the actions mentioned in the last two lines of claim 1 (triggering, preventing etc.) are functionally closely linked with the positions of the two zones as described in the second sentence of the paragraph (page 3, lines 24 to 26).

Furthermore, the amended features are not only a clarification, but set out the specific functions of the two zones.

- 6.7 Based on the board's argument in the preliminary opinion "the teaching of the paragraph makes sense technically only if the zones are indeed positioned as described in the second sentence of the paragraph", the appellant submitted that the features from the second sentence then implicitly belonged to the wording of claim 1.

The board disagrees. That the teaching makes sense technically only in combination merely illustrates the functional relationship between the positions and the actions, and does not mean that the actions imply the positions.

- 6.8 The appellant argued that the current wording is not more general than the paragraph in the description.

This argument is not convincing. Given that claim 1 pertains to a scanner arrangement, it is evident that the information regarding the positions of the zones plays an important role.

- 6.9 For these reasons, claim 1 does not meet the requirements of Article 123(2) EPC.

Auxiliary request 4

7. Patentability
- 7.1 Claim 1 comprises the features added to claim 1 of auxiliary requests 1 and 2.
- 7.2 As set out above with regard to auxiliary requests 1 and 2, these features do not distinguish the subject-matter of claim 1 from the disclosure of document E8. Moreover, E8's machine anticipates these features in combination.
- 7.3 E8 discloses the behaviour when an object is detected in the activation zone (see section 5.3 above).
- 7.4 Claim 1 does not comprise "activating a door or barrier" or a similar feature.
- 7.5 Consequently, the subject-matter of claim 1 does not involve an inventive step.

Auxiliary request 6

8. Admission

This request was filed for the first time with the statement setting out the grounds of appeal. However, the amendments made do not give rise to a fresh case, and the request qualifies as a fair attempt to overcome the objections of the opposition division as detailed in the impugned decision.

Thus auxiliary request 6 is admitted into the proceedings under Article 12(4) RPBA 2007.

9. Amendments

- 9.1 The respondent submitted that claim 1 relating to an "arrangement comprising, a passageway, a blocking means for said passageway, a sensor arrangement for scanning a scanning area comprising at least one scanner"

extended the protection conferred by the patent, contrary to the provision of Article 123(3) EPC.

9.2 The board agrees with the respondent because claim 1 relates to an arrangement which was not claimed in the patent as granted.

9.3 The appellant argued that all the features of claim 1 as granted were identically present in the amended claim 1 and only further restrictions were made, thus the original scope was only restricted.

The board does not accept this argument. The amended wording does not merely restrict the scope of claim 1, because an arrangement is claimed which was not in the patent as granted, i.e. something different is claimed. In particular, protection is sought for an arrangement comprising a passageway, a blocking means and a sensor arrangement, while claim 1 as granted merely referred to a sensor arrangement.

9.4 For these reasons, claim 1 does not meet the requirements of Article 123(3) EPC.

Procedural aspects

10. The appellant submitted in the statement setting out the grounds of appeal that the feature "laser scanner" had not been discussed in the opposition proceedings, but the decision was based on it, thus the right to be heard appeared to have been violated.

The board is of the opinion that the right to be heard as defined in Article 113(1) EPC was respected. During the oral proceedings, the opposition division announced its opinion that the subject-matter of claim 1 of the main request was not novel (minutes of the oral proceedings, at 12:00). Clearly this implied that document E8 disclosed a "laser scanner", and the appellant had the opportunity to comment in the further

course of the oral proceedings if they so wished.
Furthermore, the right to be heard does not include a right to be presented with detailed arguments before a decision is taken.

Conclusion

The appeal cannot be successful because none of the appellant's requests is allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chair:



K. Götz-Wein

A. Ritzka

Decision electronically authenticated