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**Datasheet for the decision
of 11 July 2024**

Case Number: T 1612/22 - 3.2.01

Application Number: 16179517.4

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G05D1/02

Language of the proceedings: EN

Title of invention:
FLOOR CONVEYOR

Patent Proprietor:
Toyota Material Handling Manufacturing Sweden AB

Opponent:
Crown Equipment Corporation

Headword:

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
Novelty - main request (no) - auxiliary request 1 (no)
Inventive step - auxiliary request 2 (yes)

Decisions cited:

Catchword:



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Case Number: T 1612/22 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 11 July 2024

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
10 May 2022 concerning maintenance of the
European Patent No. 3269679 in amended form.**

Composition of the Board:

Chairwoman S. Mangin
Members: J. J. de Acha González
S. Fernández de Córdoba

Summary of Facts and Submissions

- I. The appeals of the patent proprietor and of the opponent lie against the interlocutory decision of the Opposition Division, which found that the contested patent, as amended in accordance with the auxiliary request 2 filed during the oral proceedings, complied with the requirements of the EPC.
- II. The following documents are relevant for the present decision:
- E1:** JP 2015-170284 A;
 - E1a:** machine translation of E1;
 - E3:** Operating Instructions - S300 - Safety laser scanner, SICK Sensor Intelligence; published on 17 February 2016.; and
 - E6:** EP 2 678 748 B1.
- III. Oral proceedings before the Board were held on 11 July 2024 as a videoconference.

The appellant (patent proprietor) requested that the decision of the Opposition Division be set aside and that the patent be maintained as granted (main request) or, in the alternative, that the patent be maintained on the basis of one of the auxiliary requests 1 to 8 (main request and auxiliary request 1 as filed with the statement of grounds of the proprietor and auxiliary requests 2 to 8, as filed with the reply to the statement of grounds of the opponent).

The appellant (opponent) requested that the decision of the Opposition Division be set aside and that the patent be revoked.

IV. Claim 1 as granted (numbering according to the contested decision):

- 1.1 *Floor conveyor (1), comprising*
- 1.2 *a control unit (3), and*
- 1.3 *a sensor device (2),*
- 1.4 *wherein the control unit (3) is operable to control the travel functions of the floor conveyor (1),*
- 1.5 *wherein the sensor device (2) is arranged to be able to provide the control unit (3) sensor data,*
- 1.6 *wherein the sensor device (2) is arranged such that it can detect objects in a plane (4),*
- 1.7 *wherein the plane (4) is extending along a first side (13a) of the floor conveyor (1),*
- 1.8 *wherein the plane (4) comprises a stop section (30),*
- 1.9 *wherein the floor conveyor (1) is arranged such that if an object is detected in the stop section (30) the floor conveyor is stopped by control of the travel function from the control unit (3) upon receipt by it of a sensor data indicating the object being positioned in the stop section (30),*
- 1.10 *wherein the stop section (30) is also extending along a section of a second side (13b) of the floor conveyor, characterised in that*
- 1.11 *the stop section (30) further has an extension that can alter between a first configuration (30a) and a second configuration (30b),*
- 1.12 *wherein the first configuration (30a) the stop section (30) has a side that has an angled side (19) to the central symmetry line (15) of the floor conveyor (1) such that the stop section (30) discloses a wedge shape with a narrowing width away from the floor conveyor (1)*

in perpendicular direction to the central symmetry line (15),

- 1.13** *wherein the second configuration (30b) discloses a shape with a constant width perpendicular to the symmetry line (15) of the floor conveyor (1).*

Claim 1 of auxiliary request 1 differs from granted claim 1 in that it further includes the following feature:

- 1.14** *wherein the sensor device (2) is mounted at a predetermined distance (14) from the surface (6) on which the floor conveyor (1) is supported, wherein this distance (14) is sufficient for the sensor device (2) to detect objects on the first side (13a) and a section of the second side (13b), preferably also sufficient to detect an object on a section of the third side (13c) of the floor conveyor (1).*

Claim 1 of auxiliary request 2 differs from claim 1 of auxiliary request 2 in that it further includes the following feature:

- 1.15** *wherein the plane (4) comprises a further section (31) adjacent and outside the first configuration (30a) of the stop section (30) and when an object (40) is detected inside section (31), the floor conveyor (1) is configured to steer away from the object (40).*

Reasons for the Decision

1. *Main request - Novelty*

- 1.1 The subject-matter of granted claim 1 is not new in view of the floor conveyor disclosed in E1 (Article 54 EPC).
- 1.2 The Opposition Division is correct as regards the lack of novelty of the subject-matter of granted claim 1 over E1 and in view of the sensor 2 and its horizontal detection plane (see point 2.1.1 of the decision).
- 1.3 The patent proprietor essentially argued the same way as in the opposition proceedings. In particular, E1 failed to disclose features 1.10 and 1.12 of claim 1 as granted. Sensor 2 in E1 could not detect a section of the side of the vehicle (feature 1.10) because point P6 in figure 5 of E1 was not located on a side of the vehicle itself, but on the side of the bumper, which was not part of the vehicle. Feature 1.12 of claim 1 should be read as encompassing that the angled side of the stop section also extended to the second side and not generally requiring that a side of the stop section was angled with respect to the central symmetry line. In this sense, none of figures 2, 3 and 5 to 12 of E1 disclosed a wedge shape extending along one side the floor conveyor in E1.
- 1.4 The Opposition Division took due account of those arguments of the patent proprietor in its decision (see point 2.1.1 of the contested decision) and the Board adopts these arguments as its own (see Article 15(8) RPBA).

In particular, it is further noted that the horizontal detection plane of sensor 2 extends behind the vehicle body (first side of the conveyor) and to the side of the vehicle body (second side of the conveyor, feature 1.10); see paragraph [0023] of E1a).

Sensor 2 is undisputedly a single sensor. Furthermore, the bumper is part of a floor conveyor so that point P6 in figure 5 is located on a lateral side of the floor conveyor.

Feature 1.12 merely requires that the stop section (which extends along the first and second side of the conveyor in an unspecified size) has a side which has an angled side to the central symmetry line of the floor conveyor, forming a wedge shape with a narrowing width away from the conveyor in a direction perpendicular to the central symmetry line. However, the extension and length of said angled side remains unspecified and, contrary to the patent proprietor's view, need not be angled on both the first and second sides of claim 1. It should be noted that the side recited in feature 1.12 -...the stop section has a side... - could well be either the first side, the second side, or a combination of both, or any other side of the stop section as suggested by the opponent. This is the case in figures 7(d) and (e) of E1, as noted by the Opposition Division.

Accordingly, figures 7(a) to (i) show different configurations of the monitoring area A (different patterns of the area A, see paragraph [0052]), which is a stop section according to claim 1 (see paragraph [0003] of the patent), because it is an area in which the conveyor is subjected to an emergency stop when the sensor 2 detects an obstacle in the area A (see paragraph [0044] of the machine translation E1a).

The patterns in figures 7(d) and (e) correspond to features 1.12 and 1.13 of claim 1 in the same way as in figures 4 and 5 of the patent in suit.

2. *Auxiliary request 1 - Novelty*

2.1 The subject-matter of claim 1 is not new in view of the floor conveyor disclosed in E1 (Article 54 EPC).

2.2 The Opposition Division's assessment in the decision under appeal is also correct (see point 3.2).

2.3 Claim 1 differs from granted claim 1 in that it also includes the features of granted claim 8 (feature 1.14), namely:

"wherein the sensor device (2) is mounted at a predetermined distance (14) from the surface (6) on which the floor conveyor (1) is supported, wherein this distance (14) is sufficient for the sensor device (2) to detect objects on the first side (13a) and a section of the second side (13b), preferably also sufficient to detect an object on a section of the third side (13c) of the floor conveyor (1)."

2.4 The patent proprietor essentially argued again that sensor 2 did not monitor a first side and a section of a second side of the floor conveyor because there was no disclosure in E1 about the ~~of~~ sensor 2 and its mounting distance from the surface on which the conveyor was supported. This feature required a minimum height of the mounting position of the sensor from the floor in order to detect objects on the first side and a section of the second side.

2.5 The Board does not agree with the patent proprietor. The additional feature is also known from E1 (see figure 1(a) and paragraphs [0023] and [0025] of the machine translation E1a). Sensor 2 is mounted at a predetermined distance from the floor on which the conveyor runs and said distance is sufficient to detect obstacles behind the vehicle body (first side) and laterally of the vehicle body (section of a second side of the conveyor).

3. *Auxiliary request 2 - Novelty*

3.1 Irrespective of the admissibility of the novelty objection in view of E6, which was raised by the opponent for the first time with their grounds of appeal, the subject-matter of claim 1 of the auxiliary request 2 (version found allowable by the Opposition Division in its decision) is new in view of the conveyor disclosed in E6 (Article 54 EPC).

3.2 Features 1.11 to 1.13 of claim 1 were under dispute.

The opponent argued that the conveyor in figures 15A to 17C and the corresponding description (paragraphs [0098] to [0117]) of E6 disclosed the disputed features. In doing so, they interpreted "*can alter*" in feature 1.11 as encompassing a floor conveyor having merely the capability to configure, or reconfigure, the stop section to take any desired suitable shape, such as those recited in features 1.12 and 1.13. Accordingly, as the boundaries of each zone in a multiple zone configuration may be programmably (and/or reprogrammably) entered into the controller, the conveyor of said embodiments of E6 could well be programmed and re-programmed in accordance with features 1.12 and 1.13.

- 3.3 According to the established case law of the Boards of Appeal, the interpretation of a claim should be carried out through the eyes of a person skilled in the relevant technical field, in a manner that makes technical sense and by a mind that is willing to understand and not desirous of misunderstanding (see Case Law of the Boards of Appeal of the EPO, 10th edition 2022, II.A.6.1).
- 3.4 In the present case, the opponent's interpretation of "*the stop section further has an extension that can alter between a first configuration and a second configuration*", which encompasses the conveyor's ability to be reprogrammed to a different configuration for the stop section, is too broad. In particular, having regard to the other features of claim 1, it is clear to the skilled person that the different configurations are already present in the conveyor in such a way that switching from one to the other takes place without the need for programming (and/or reprogramming) the stop section. Features 1.2 to 1.10 indicate that the floor conveyor comprises a sensor device for detecting objects in a plane comprising a stop section, so that if objects are detected in that section, the conveyor is stopped by the control unit. Features 1.11 to 1.13 further specify that the stop zone can be changed between the specified first configuration and second configuration. The interpretation of the opponent of feature 1.11 merely equates to the possibility of changing the stop section in the conveyor by programming. Features 1.12 and 1.13, and also 1.11, would therefore have no limitation at all in the claim, since the definition of the stop section can always be changed by modifying the

control software. Features 1.11 to 1.13 are limiting features to the skilled reader of claim 1.

Since the embodiments according to figures 15A to 17C do not disclose the claimed alteration of the stop sections and since the step present in the outside perimeter of the stop sections 300 and 302 depicted in figure 16A is not a wedge shape in the sense of feature 1.12, the embodiments of document E6 referred to by the opponent do not disclose features 1.11 to 1.13 of claim 1.

4. *Auxiliary request 2 - Inventive step*

4.1 The subject-matter of claim 1 of the auxiliary request 2 is not rendered obvious by the combination of E6 with common general knowledge, E1 or E3 or by the combination of E1 with E6 (Article 56 EPC).

4.2 Starting from E6 and taking into account point 3.4 above, the subject-matter of claim 1 differs from the conveyor of E6 by virtue of features 1.11 to 1.13.

4.2.1 From this starting point, the opponent argued that, since the condition for altering between stop zone configurations was not specified in the claim, the change was made without any technical considerations. In the absence of such considerations, the objective technical problem could be formulated as to selectively allowing objects to approach closer to the floor conveyor without stopping the vehicle, thereby reducing the number of braking interventions.

It would be obvious to a person skilled in the art, and bearing in mind the common general knowledge, to program an alteration of the stop zones into the

controller as discussed in paragraphs [0045] and following of E6, thereby allowing an object to selectively move closer to the floor conveyor. In this regard, the provision of a wedge shape in the stop zones 300, 302 allowed a closer approach to an object in a forward lateral region of the floor conveyor. The provision of the wedge shape represented merely an arbitrary choice from a variety of possible solutions which could not be considered inventive.

In order to solve the problem posed, the skilled person would also consult E1, which taught how to reduce braking interventions by modifying the detection area A as a function of the driving situation of the conveyor (reference was, inter alia, to the abstract of E1). Accordingly, when implementing the solution disclosed in E1 in the controller of E6 by replacing the stop zones 300, 302 with the altering monitoring area A described in E1, the person skilled in the art would arrive at a stop section comprising features 1.11 to 1.13 of claim 1. In particular, when entering a narrow space or when determining a steering input to the left or to the right, the stop section should change from a first configuration having a wedge shape to a second configuration having a shape with a constant width perpendicular to the central line of symmetry of the vehicle (see Figures 11(a) and (b), 13(a) and (b) and 14(a) and (b)). The solution shown in E1 was technically compatible with the conveyor of E6.

Likewise, the person skilled in the art would consider the disclosure in E3 in order to solve the posed objective technical problem. Figures 3 and 4 on pages 18 and 19 of E3 taught how to vary the configuration of the stop zones as a function of the conveyor speed according to features 1.12 and 1.13 of claim 1.

4.2.2 Even when considering the objective technical problem formulated by the opponent above, the opponent's arguments do not show why the skilled person would be motivated to solve this problem exactly as suggested by features 1.11 to 1.13.

It is settled case law of the Boards of Appeal that the question to be answered is whether the person skilled in the art would have done so, and not whether they could have done so (see Case Law of the Boards of Appeal of the EPO, 10th edition, 2022, I.D.5).

In the present case, there is no hint or motivation in the common general knowledge to solve the problem posed in the manner claimed. Even if, in view of the disclosure in E6 regarding the selection of different areas of the detection zones based on factors such as the desired speed of the conveyor, the skilled person would be prompted to alter the configuration of the stop zone 300, 302 between two configurations according to feature 1.11, they would still lack a hint to change between a wedge-shaped configuration and a constant width configuration according to features 1.12 and 1.13.

As regards the disclosure of the different configurations of the stop section A, E1 teaches how to modify the stop section A for different situations and applications. However, E1 does not specifically disclose the reason for the wedge shape present in the examples for the different shaped stop sections A shown in the figures. Accordingly, there is a lack of teaching in E1 that would lead one skilled in the art to modify the stop section of E6 to adopt the shape as

shown in the figures of E1 and, in addition, to provide an alteration of the section while retaining the additional further action zones of the scanned zone disclosed in E6.

The Opposition Division is therefore correct, that the opponent's arguments are based on hindsight.

As regards the combination of E6 with E3, the patent proprietor is correct. E3 does not disclose an alteration between a first and a second configuration in accordance with features 1.12 and 1.13 because all of the configurations shown in figures 3 and 4 of E3 include the wedge shape and none include a shape having a constant width perpendicular to the symmetry line of the conveyor. Consequently, none of E6 and E3 exhibits feature 1.13.

4.3 Starting from E1 and having regard to the points 1 and 2 above, it is common ground that the subject-matter of claim 1 differs from the conveyor of E1 by virtue of feature 1.15.

4.3.1 The opponent formulated the objective technical problem to be solved in view of this difference as how to reduce the braking interventions of the floor conveyor of E1, while avoiding collisions with objects. Faced with this problem, the skilled person would consult E6, which taught that an obstacle 76 sensor could be used to define various zones around the vehicle with different actions (stop, no steering, steering away, hugging zones...; see paragraphs [0098] et seq. and figures 15A to 17C). In particular, feature 1.15 was disclosed in the embodiment of figures 16A to 16C by the steer away zones 316 and 318. Moreover, it was apparent to the skilled person that by providing the

steer away zones outside of the stop zones 300, 302, braking interventions were reduced and collisions were avoided by using a steering correction as an initial collision avoidance measure prior to stopping the conveyor. Accordingly, the skilled person had sufficient motivation to implement the steer away sections disclosed in E6 outside the altering stopping area A of E1 in an obvious manner.

In doing so, the skilled person would recognise that the altering stopping area A could be adjusted within the steer away zone to provide an improvement over the fixed stop zones 300, 302 of E6 - E6 disclosing that the detection zones could be changed by reprogramming, which indicated the compatibility of its steer away zones with fixed or variable zones. The skilled person would therefore keep the variable stopping area A of E1 in view of the advantageous ability to minimise braking interventions, taking into account the driving conditions, and program the controller to further derive the steer away zones 316, 318 of E6, outside of the monitoring area A, in order to further reduce braking interventions.

- 4.3.2 By the same token as in the combination of E6 with E1, E6 also lacks a pointer or motivation which teaches the skilled person to implement into the detecting field of sensor 2 in E1 a steer away section beyond the stop section A by taking in isolation the steer away section disclosed within the detecting area for obstacle sensor 76 in E6. The preferred embodiment of E6 referred to by the opponent already discloses a specific solution to the problem posed by the opponent by merely having a detection zone divided into various action zones. Specifically, by providing the steer away zones, braking interventions are already reduced, while object collisions are avoided, when having only a fixed stop

zone within the detection area. Accordingly, E1 and E6 provide different solutions to the problem posed by the opponent, either by modifying the stopping zone A in E1 or, alternatively, by providing steer away zones outside the fixed stopping zones in E6. Consequently, and as argued by the Opposition Division and the patent proprietor, the person skilled in the art would take either the complete solution proposed in E1 or E6, but would certainly not combine features of both solutions in an obvious manner without any indication to do so.

The opponent's reasoning in this respect is also based on hindsight and the grounds given in the contested decision are also correct (see point 4.3.1 of the Opposition Division's decision).

5. It follows from the foregoing that none of the appeals is allowable.

Order

For these reasons it is decided that:

The appeals are dismissed.

The Registrar:

The Chairwoman:



M. Schalow

S. Mangin

Decision electronically authenticated