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**Datasheet for the decision
of 26 October 2022**

Case Number: T 0530/20 - 3.2.04

Application Number: 06753628.4

Publication Number: 1904203

IPC: A63G7/00, B60R21/00, B60R22/00

Language of the proceedings: EN

Title of invention:
AMUSEMENT DEVICE SEAT ASSEMBLY

Patent Proprietor:
Vekoma Rides Engineering B.V.

Opponents:
Global IP Europe Patentanwaltskanzlei
Hards, Andrew

Headword:

Relevant legal provisions:
EPC Art. 56
RPBA 2020 Art. 12(3), 12(5)

Keyword:

Inventive step - (no)

Reply to statement of grounds of appeal - reasons set out
clearly and concisely (no)

Decisions cited:

G 0002/92

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0530/20 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 26 October 2022

Appellant: Hards, Andrew
(Opponent 2) c/o Global IP Europe Patentanwaltskanzlei
Pfarrstrasse 14
80538 München (DE)

Respondent: Vekoma Rides Engineering B.V.
(Patent Proprietor) Schaapweg 18
6063 BA Vlodrop (NL)

Representative: EP&C
P.O. Box 3241
2280 GE Rijswijk (NL)

Party as of right: Global IP Europe Patentanwaltskanzlei
(Opponent 1) Pfarrstrasse 14
80538 München (DE)

Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
2 January 2020 concerning maintenance of the
European Patent No. 1904203 in amended form.**

Composition of the Board:

Chairman A. de Vries
Members: J. Wright
T. Bokor

Summary of Facts and Submissions

- I. The appeal was filed by the appellant (opponent 2) against the interlocutory decision of the opposition division finding that, on the basis of the auxiliary request 1, the patent in suit met the requirements of the EPC.
- II. Opposition was filed by two opponents. Both were based, amongst other grounds on Article 100(a) EPC (inventive step). The opposition division decided that the patent as amended met all the requirements of the EPC.
- III. In preparation for oral proceedings, the Board set out its observations on the relevant issues in a communication.
- IV. Oral proceedings before the Board were duly held on 26 October 2022 in the absence of the duly summoned respondent-proprietor which had informed the Board in a letter dated 21 October 2022 that it would not attend.
- V. The appellant (opponent 2) requested that the decision under appeal be set aside and that the patent be revoked in its entirety.

The respondent (proprietor) requested that the appeal be dismissed i.e. maintenance in the form held to be allowable by the opposition division), or in the alternative, the cancellation of the decision under appeal and maintenance of the patent in amended form according to one of auxiliary requests 1 to 6 filed with its reply to the grounds of appeal of 21 September 2020.

The opponent 1, as party as of right, made no requests or submissions.

VI. The independent claims of the main request (as maintained) read as follows:

"1. Roller coaster provided with one or more roller coaster seat assemblies (1) adapted to carry one or more passengers, wherein each seat assembly comprises:

- (a) a seat (2), capable of accommodating a passenger, comprising a seating surface (2a), a back support (2b) with a back support surface (2e) and a headrest (2c);
- (b) a pivot axis (3) extending behind the headrest (2c) at a distance above the seating surface (2a) which pivot axis (3) is substantially parallel to the back support (2b) and substantially parallel to the seating surface (2a);
- (c) a bar construction (4) comprising a hip bar (4a) and one or more pivot arms (4b) formed integral with the hip bar, which bar construction (4) is pivotable about the pivot axis (3) from a raised position in which the hip bar (4a) is raised from the seating surface (2a) to allow a passenger to sit down in the roller coaster seat assembly, to a lowered position, in which
 - the hip bar (4a) is in the vicinity of the seating surface (2a), so as to extend over the lap and in front of the hips of a passenger,
- (d) a belt construction (5) connected to the back support (2b) and to the bar construction (4) comprising at least two shoulder straps (5a), further being provided with an adjustable length mechanism to allow for adaptation to the passenger in the lowered position of the bar construction such that the shoulder straps extend across the shoulders and upper part of the body of a passenger seated in the roller coaster, in which

the connection (5b) of the belt construction (5) with the back support (2b) is adjustable, so that the belt construction (5) can be fixed to the back support (2b) in multiple positions with varying height, wherein the adjustable connection (5b) is designed as a slidable anchorage (5b) wherein that in the lowered position of the bar construction at least part of the pivot arm (4b) which is at the level of the upper body part and the head of the person seated in the seat assembly is located behind an imaginary plane (11) that extends tangent and substantially parallel with the back support surface (2e), such that the pivot arm (4b) can easily pass the passenger (8) and the back support (2b) when lowering or raising the bar construction (4), such that the bar construction does not take away the view of the passenger and does not limit the movements of the arms of the passenger".

"8. Roller coaster provided with one or more roller coaster seat assemblies (1) adapted to carry one or more passengers, wherein each seat assembly comprises: (a) a seat (2), capable of accommodating a passenger, comprising a seating surface (2a), a back support (2b) with a back support surface (2e) and a headrest (2c); (b) a pivot axis (3) extending behind the headrest (2c) at a distance above the seating surface (2a) which pivot axis (3) is substantially parallel to the back support (2b) and substantially parallel to the seating surface (2a); (c) a bar construction (4) comprising a hip bar (4a) and one or more pivot arms (4b) formed integral with the hip bar, which bar construction (4) is pivotable about the pivot axis (3) from a raised position in which the hip bar (4a) is raised from the seating surface (2a) to allow a passenger to sit down in the

roller coaster seat assembly, to a lowered position, in which

- the hip bar (4a) is in the vicinity of the seating surface (2a), so as to extend over the lap and in front of the hips of a passenger,

(d) a belt construction (5) connected to the back support (2b) and to the bar construction (4) comprising at least two shoulder straps (5a), further being provided with an adjustable length mechanism to allow for adaptation to the passenger in the lowered position of the bar construction such that the shoulder straps extend across the shoulders and upper part of the body of a passenger seated in the roller coaster, wherein the adjustable length mechanism is provided in the back support (2b) of the seat assembly (2), wherein that in the lowered position of the bar construction at least part of the pivot arm (4b) which is at the level of the upper body part and the head of the person seated in the seat assembly is located behind an imaginary plane (11) that extends tangent and substantially parallel with the back support surface (2e), such that the pivot arm (4b) can easily pass the passenger (8) and the back support (2b) when lowering or raising the bar construction (4), such that the bar construction does not take away the view of the passenger and does not limit the movements of the arms of the passenger".

Claim 1 of auxiliary request 1 reads as claim 1 of the main request. Claim 1 of auxiliary request 2 reads as for claim 8 of the main request.

Claim 1 of auxiliary request 3 reads as claim 1 of the main request except that after the words, *wherein the adjustable connection (5b) is designed as a slidable anchorage (5b)* the following words are added: "wherein the adjustable connection is an electrically operable

mechanism, provided with a sensor that determines whether or not the connection should be lowered or not".

Auxiliary request 4 reads as for the main request except that in feature (a) of independent claims 1 and 8, after the words *a back support (2b)*, the following wording is added: ", in which the back support (2b) of the seat (2) is provided with a lumbar support (2d)".

Auxiliary request 5 reads as for the main request except that in feature (b) of independent claims 1 and 8, after the words *a pivot axis (3)*, the following wording is added: "in the vicinity of the back support".

Auxiliary request 6 reads as for the main request except that in feature (d) of independent claims 1 and 8, after the wording *at least two shoulder straps (5a), further being provided with an adjustable length mechanism to allow for adaptation to the passenger*, the following wording is deleted: "*in the lowered position of the bar construction*".

VII. In the present decision, reference is made to the following documents:

E2: DE 20314975 U1

E4: US 6,220,171 B1

VIII. The appellant-opponent 2's arguments can be summarised as follows:

The independent claims of the main request, auxiliary requests 1 and 2 lack inventive step over E2 in combination with E4. In particular, E4 discloses a belt

construction which is adjustable so that it can be fixed to a back support in multiple positions of different height and which forms a slidable anchorage as claim 1 of the main request and auxiliary request 1 require and moreover, an adjustable belt length mechanism in the back support as claim 8 of the main request and claim 1 of auxiliary request 2 require. The auxiliary requests 3 to 6 should not be admitted into the proceedings.

IX. The respondent-proprietor's arguments can be summarised as follows:

The independent claims of the main request and auxiliary requests 1 and 2 involve an inventive step over E2 in combination with E4. In particular, the skilled person would not combine E2 with E4 because E2 teaches to use a belt of a fixed length in a roller coaster.

The auxiliary requests 3 to 6 anticipate various objections of inventive step and added subject matter raised against the higher ranking requests.

Reasons for the Decision

1. The appeal is admissible.
2. Main request, claim 8, inventive step starting from E2 with E4
 - 2.1 In its communication, the Board considered that the skilled person would combine the teachings of E2 and E4 to solve a problem of better accommodating passengers of differing physique and that the subject matter of claim 1 was not rendered obvious by such a combination

whereas the subject matter of claim 8 was. The Board's observations on these matters were as follows:

"8. Main request, claim 1, inventive step starting from E2

8.1 E2 discloses a roller coaster provided with one or more roller coaster seat assemblies adapted to carry one or more passengers (see for example abstract, figure 1 and paragraph [0002]). It is not disputed that each seat assembly comprises a seat with a back support (Lehne 16), a back support surface and a head rest, a pivot axis (see figure 1, axis 9) and a bar construction, pivotable about the pivot axis, comprising a hip bar as claimed.

As best seen in figure 1, with the bar construction 3 lowered, part of the pivot arm at the level of the upper body and head of the seated person is behind an imaginary tangentially extending plane parallel with the back support's surface. The pivot arm can easily pass the passenger and the back support when lowering or raising the bar construction. Nor does it block the passenger's view (see paragraph [0013]) or limit the movements of their arms.

In the Board's view, E2 also discloses a belt construction connected to the back support and to the bar construction with two shoulder straps.

Although in figure 1, a safety harness 4 which engages the shoulders (Sicherungsgeschirr) is shown attached to the pivot axis 9, it can also be attached to the back support 16 (see paragraph [0041], last sentence). Figure 2 shows a front view of this harness. The safety harness, which includes the shoulder retaining parts 12

may be made of woven material (see paragraph [0033]). In the Board's view, this is a belt construction with two shoulder straps 12 and does not mean that the harness may merely partly comprise such material as the respondent-proprietor has argued.

However, the Board agrees with the respondent proprietor that E2 does not disclose an adjustable length mechanism in a belt construction connected to the bar construction. As explained in paragraph [0034] the harness has a fixed length. Although the opposition division pointed to an arrangement with an adjustable length part in paragraphs [0046] and [0047], with its belt clasp 34 and a strap part that can be pulled tight (straff gezogen werden), this length adjustable arrangement is only directly and unambiguously described in the embodiment of figure 6 in which the harness is attached to the front of the seat, rather than to the bar construction (see paragraph [0047]).

8.2 Therefore, the subject matter of claim 1 differs from E2 in that the belt construction is provided with an adjustable length mechanism and in that the connection of the belt construction with the back support is adjustable, so that the belt construction can be fixed to the back support in multiple positions with varying height. In the Board's view, both these differences have the effect of making the belt construction adaptable to different passengers (see published patent specification, paragraphs [0003] and [0018]). In the Board's view, the objective technical problem, which should not include pointers to the solution, can be expressed as how to improve the arrangement of E2 to better accommodate passengers of differing physique.

8.3 E2 with E4

E4 discloses a roller coaster seat assembly (see abstract). In the embodiment of figure 11 (see column 4, lines 7 to column 5, line 22) a shoulder strap 34 passes through a slot 41 in the seat back and can be pulled tight by moving an armature 54 downwards (column 5, lines 5 to 14). In the Board's view this is an adjustable length mechanism. However, E4 does not disclose fixing to the back support in positions with variable height because the straps are not fixed to the back support but to the movable armature which is not part of the back support. At most the straps only pass through the slot 41 at a fixed height in the back support. Therefore, whether or not E4's belt arrangement would be suitable for attaching to a bar construction, the Board is of the view that the combination of E2 with E4 would not lead the skilled person to the subject matter of claim 1 as a matter of obviousness.

[...]

9. Main request, claim 8 inventive step starting from E2

As explained for claim 1, E2 does not disclose a belt construction with an adjustable length mechanism, let alone one provided in the back support of the seat assembly. In the Board's opinion, similar to claim 1, the objective technical problem can be expressed as how to improve the arrangement of E2 to better accommodate passengers of differing physique (cf. published patent specification, paragraph [0018]).

9.1 E2 with E4

As has been explained in the discussion of claim 1, the Board considers E4 to disclose an adjustment mechanism. Moreover, the adjustment mechanism appears to be located in the back support of a seat assembly (see figure 11, armature 54. In the Board's view, in solving the objective technical problem the skilled person would combine E2 and E4 and arrive at the claimed length adjustment mechanism. In the Board's view, the skilled person has their mind set on finding a solution to the problem of accommodating different shaped passengers and they would abstract the idea of a length adjusting mechanism from E4 and incorporate it into E2's arrangement independently of how E4's belt is secured at its other end (to the seating surface).

Therefore, the Board is of the provisional opinion that the subject matter of claim 8 lacks inventive step".

2.2 In its letter of 14 October 2022 (see pages 2 to 5, with particular reference to E2, abstract and paragraphs [0005] and [0012]), the respondent-proprietor argued that E2 teaches not to use belts with a blocking mechanism on a roller-coaster but to use a belt construction with fixed length belts because adjustable belts can slip off from the passenger's shoulders and do not work in a looping roller-coaster arrangement. Therefore, it concluded, the skilled person would not change E2's fixed length belts in the light of E4's teaching. The Board disagrees.

2.2.1 E2, paragraph [0005], describes a prior art safety restraint device with two pre-tensioned retractable belt reels of the self-locking type as are known in car seat belts (aufrollbare flexible Haltegurten). Such

belts are inertia blocking so they lock when subjected to sudden tensile forces (Zugkräften). According to E2, a problem with such belts is that they do not lock in all orientations, particularly on looping rides (Überkopffahrt) and, moreover, the belts can easily be slipped off by the passenger. E2 paragraph [0012] teaches that its invention does not have these problems because of its belt construction / safety harness which is of fixed length and is mechanically stable and does not require inertia blocking mechanisms. Furthermore, adjustment to different body lengths can be achieved with different pivoting movements of the safety bar.

2.2.2 In the Board's view, the cited passages of E2 do not caution against using any belt with a blocking mechanism but rather against using inertia reel type belts because these do not always lock on a roller-coaster and can easily be slipped off. E4 does not disclose such inertia reel belts: It explains (see column 4, line 7 to column 5, line 41 with figures 10, 11 and 13 and 11) that E4's shoulder belts have a motorised retractor 35 that tensions the belts (column 4, lines 34 to 41), thus they are not of the inertia reel type. Once the passenger is strapped in the seat, the motor operates to progressively tension the belt by moving an armature 54 downwards, pulling the belt with it so that they gradually tighten over the passengers shoulders until a preset tension is reached (column 5, lines 3 to 14). Once this happens, the belts cannot be loosened during the ride (column 5, lines 29 to 36), thus they adopt a fixed length for the duration of the ride, preventing the passenger from slipping out, even on a looping ride.

2.2.3 As best seen in figure 13, this adopted length is appropriate to the passenger's size, tightly fitting

both children and adults alike. Thus, it will be immediately evident to the skilled person that E4's belts function very differently from the inertia reel belts E2 describes as disadvantageous. Moreover, the skilled person would see from the cited passages of E2, with their pointer to using belts of fixed length (paragraph [0012]), that by adopting a fixed length during the ride, E4's belts would be eminently compatible with E2's seat assembly. Nor, in the Board's view, would E2's teaching in paragraphs [0012] and [0043] that the rotational displacement of the safety bar adapts the safety arrangement to different body sizes, dissuade the skilled person from combining E2 and E4's teaching. It may well be that the skilled person will realise that E2 offers some adaptation to different sized passengers by pressing the safety bar down until it touches the passenger's thighs, and that this may tighten the belts across their upper bodies (paragraph [0043]). However, objectively, a belt of adjustable length offers an additional improvement in how passengers of differing physique are accommodated. Nor does it interfere with the operation of the bar of E2. In solving the objective technical problem developed by the Board in its communication (better accommodating passengers of differing physique), the fact that E2 already goes some way in accommodating different passengers will not stop the skilled person from looking to E4 for a further improvement.

- 2.2.4 The Board is also not convinced by the respondent-proprietor's argument that, if the skilled person were to combine E2 with E4, they would replace E2's entire restraint mechanism with that of E4. The argument boils down to a repeat of the argument that E2's teaching is not compatible with that of E4's - so the skilled person would use one or the other but not a combination

of both. For the reasons already discussed, the Board does not find this convincing. Rather, as has already been explained, with the skilled person's eyes focused on the prize of better accommodating passengers of different physique, they would simply replace E2's fixed length belt attachment to the seat back with E4's adjustable length mechanism located in the seat-back. Thus they would arrive at the subject matter of claim 8 as a matter of obviousness.

2.3 For these reasons, the main request fails.

3. Auxiliary request 1

Auxiliary request 1 deletes claim 8 but retains claim 1 of the main request. As the Board explained for the main request in its communication and above (see sections 2.1 and 2.2 of this decision), the objective technical problem for claim 1 is the same as for claim 8 and the skilled person would combine the teachings of E2 and E4 in the hope of solving it. In its communication in preparation for the oral proceedings, the Board gave a provisional opinion (see above) that this combination would not, however, lead to the subject matter of claim 1. Rather, the Board then considered that E4 disclosed an adjustable length mechanism which, contrary to how the appellant-opponent 2 argued, was not achieved by *fixing the belt to the back support in multiple positions with varying height with the adjustable connection designed as a slidable anchorage*. In this regard, the Board noted that the straps were fixed to the movable armature 54 (see figure 11) rather than to the back support. The Board has now revised this provisional opinion for the reasons that follow.

Considering again the embodiment of E4, figure 11 and figure 13, it is true that the belt construction, with its pair of belts 28, is attached to an armature 54. As explained in column 5, lines 5 to 14, the motor can drive the armature downwards via a worm drive 52, pulling the belt construction with it, so that it can adopt multiple positions of varying height. This is best seen in figure 13: depending on the person being accommodated, the armature 54 secures the belts 28 at various heights relative to the back support. The remaining questions are whether the belt construction is *fixed* to the back support and whether this connection is a *slidable anchorage*. The Board now considers that both questions must be answered in the affirmative. During the ride, the drive locks, so the armature to which the belts 28 are attached can no longer move relative to the back support (column 5, lines 29 to 38). Thus the belt construction is indeed *fixed* to the back support. Moreover, as best seen in figure 13, the armature 54 slides up and down within the seat back, so it forms a slidable anchorage for the belt construction as claimed.

Thus, the obvious combination of E2's roller coaster and seat assembly with the belt attachment of E4 would lead the skilled person to all the features of claim 1. Therefore, auxiliary request 1 must fail.

4. Auxiliary request 2

Claim 1 of auxiliary request 2 reads as for claim 8 of the main request. Therefore, it fails for the same reasons as the main request.

5. Admittance of auxiliary requests 3 to 6

5.1 Article 12(3) RPBA 2020 requires that the statement of grounds of appeal and the reply shall contain a party's complete appeal case. Article 12(5) RPBA 2020 states that the Board has discretion not to admit any part of a submission by a party which does not meet the requirements in paragraph 3.

5.2 In its communication (see point 10.3), the Board noted the following with regard to auxiliary requests 3 to 5:

Auxiliary requests 3 to 5 add various features to claim 1 of the main request. In its reply to the appeal (see last page), the respondent-proprietor has neither indicated the basis of the amendments, nor explained why these requests might succeed for inventive step should claim 1 of the main request fail. In this regard, the requests appear not to be substantiated. Therefore, their admittance may need to be discussed, Articles 12(3) and 12(5) RPBA 2020.

5.2.1 In the respondent-proprietor's reply to the communication (letter of 14 October 2022, page 5) filed shortly before the oral proceedings, it did not explain why the Board's preliminary assessment (lack of substantiation) might have been wrong. Rather it merely provided some substantiation for these requests for the first time. This constitutes an amendment to its case (Article 13(1) RPBA 2020). In accordance with Article 13(2) RPBA, such an amendment shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned. The respondent-proprietor has provided no such reasons. Therefore,

this late filed substantiation will not be taken into account by the Board.

5.3 Auxiliary request 6

5.3.1 In its communication the Board commented on this request as follows:

Auxiliary request 6 deletes from the independent claims as maintained the feature that the arrangement allows adaptation to the passenger with the bar construction in the lowered position. In this regard, the claims are therefore broader than those maintained by the opposition division. In the Board's view, for reasons of the prohibition of reformatio in peius, such a broadening is inadmissible (see CLBA, V.A.3.1 and G 2/92, order point 2)[.]

5.3.2 In the respondent-proprietor's reply to the communication (letter of 14 October 2022, page 5), it argued that the feature *in the lowered position of the bar construction* was redundant, and thus did not broaden the claim. The Board disagrees.

In its original granted claim 1 context, the now deleted feature (in the lowered position) qualified that the adaptation to the passenger is allowed to happen in the lowered position of the bar construction. Whether or not it might be implicit that this adaptation only effects the passenger when the bar is in its lowered position, the independent claims 1 and 8 now allow for the adaptation to be effected in positions other than when the bar is lowered. Thus they are broader in scope than the independent claims as maintained. Such a broadening would be contrary to the

principle of prohibition of *reformatio in peius*, since the proprietor is a non-appealing party.

- 5.3.3 The Board also notes that auxiliary request 6 was not substantiated by the respondent-proprietor in its reply to the appeal. At most the respondent-proprietor said (last page) that auxiliary request 6 *limited* the independent claims of the main request by amendment - which is clearly not the case with regard to the deleted feature.
- 5.4 Since none of auxiliary requests 3 to 6 were substantiated as part of the respondent's reply to the appeal and late filed substantiation was not taken into account and auxiliary request 6 furthermore runs contrary to the principle of *reformatio in peius*, the Board decides not to admit auxiliary requests 3 to 6 into the proceedings.
6. The Board concludes that the decision was wrong to find that the patent as amended according to the main request met the requirements of the EPC as claim 8 lacks inventive step. Therefore it must set the decision aside. Moreover, the respondent-proprietor's auxiliary requests 1 and 2 fail for lack of inventive step, Article 56 EPC. Its remaining auxiliary requests 3 to 6 were not admitted into the proceedings, Article 114(2) EPC. Therefore, the Board must revoke the patent.

Order

For these reasons it is decided that:

1. **The decision under appeal is set aside.**
2. **The patent is revoked.**

The Registrar:

The Chairman:



G. Magouliotis

A. de Vries

Decision electronically authenticated