BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

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

Datasheet for the decision of 20 March 2013

Case Number: T 0154/11 - 3.2.01

Application Number: 04014011.3

Publication Number: 1462344

IPC: B62D 25/04

Language of the proceedings: EN

Title of invention:
Motor vehicle body with a vertically oriented member and pillar embodying same

Patent Proprietor:
NISSAN MOTOR COMPANY LIMITED

Opponent:
Benteler Automobiltechnik GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 54(3)

Relevant legal provisions (EPC 1973):
EPC Art. 54(1), 56
EPC R. 27(1)b), 29(1)

Keyword:
"Novelty, inventive step (yes)"
"One-part form of claim 1 and indication of background art"

Decisions cited:
-

Catchword:
-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0154/11 - 3.2.01

D E C I S I O N
of the Technical Board of Appeal 3.2.01
of 20 March 2013

Appellant: (Opponent)
Benteler Automobiltechnik GmbH
Elsener Strasse 95
D-33102 Paderborn (DE)

Representative:
Ksoll, Peter
Bockermann Ksoll
Griepenstroh Osterhoff
Patentanwälte
Bergstrasse 159
D-44791 Bochum (DE)

Respondent: (Patent Proprietor)
NISSAN MOTOR COMPANY LIMITED
2 Takara-cho
Kanagawa-ku
Yokohama-shi Kanagawa 221-0023 (JP)

Representative:
Grünecker, Kinkeldey,
Stockmair & Schwanhäusser
Leopoldstrasse 4
D-80802 München (DE)

Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 15 December 2010 rejecting the opposition filed against European patent No. 1462344 pursuant to Article 101(2) EPC.

Composition of the Board:

Chairman: G. Pricolo
Members: W. Marx
D. T. Keeling

Summary of Facts and Submissions

I. On 18 January 2011 the appellant (opponent) lodged an appeal against the decision of the opposition division posted 15 December 2010 rejecting the opposition against European patent No. 1 462 344. The appeal fee was paid on the same date. The statement setting out the grounds of appeal was received on 15 April 2011.

II. In its decision the opposition division held that none of the grounds mentioned in Article 100(a) EPC 1973, referring to objections under Article 54 and Article 56 EPC 1973, prejudiced the maintenance of the European patent, having regard *inter alia* to the following documents:

D1: US 5,820,204;

D5: EP 0 816 520 A;

D6: EP 0 952 067 A.

III. In the oral proceedings, held on 20 March 2013, the appellant requested that the decision under appeal be set aside and that the European patent be revoked.

The respondent (patent proprietor), after having withdrawn its auxiliary requests 1 to 6 as filed with letter dated 20 February 2013, requested as sole request that the decision under appeal be set aside and the patent maintained in amended form on the basis of:

- Claims 1 to 54 as filed during the oral proceedings (Main Request)
- Description, columns 1 and 2 with addendum A as filed during the oral proceedings, and columns 3 to 20 of the patent as granted
- Drawings, figures 1 to 57 of the patent as granted.

IV. Claim 1 according to the respondent's sole request reads as follows (the numbering of features corresponds to the one used in the contested decision in respect of features **a)** to **g)**):

"A motor vehicle body comprising a vertically oriented member (7;167) having

a) a first portion joined to a roof side member and

b) a second portion joined to a floor side sill,

c) said vertically oriented member (7;167) having a predetermined energy absorption characteristic such that a lower structure portion (17) thereof extending to the second portion is more deformable than an upper structure portion (16) thereof extending to the first portion, and

d) the upper and lower structure portions (16;17) being distinguished by a transition point (15) which defines a boundary therebetween, wherein

e) the upper structure portion (16) comprises a higher strength and rigidity than the lower structure portion (17), wherein

f) strength and rigidity grow gradually from the lower end of the lower structure portion (17) toward the transition point (15) while

g) strength and rigidity of the upper structure portion (16) exceed those of the lower structure portion (17), wherein

h) strength and rigidity of the vertically oriented member (7;167) increase linearly along the upper structure portion (16) towards the first portion thereof."

Claim 54 according to the Main Request reads:

"Pillar, in particular front door latch pillar, for use as a vertically oriented member (7, 167) of a vehicle body, being made of light metal, in particular an aluminum and/or magnesium alloy, preferably casting, comprising a reinforcing rib structure, comprising vertical and/or transverse ribs and/or a cross-section which varies in the longitudinal direction adapted to impart the pillar a predetermined strength distribution along its length, and/or having a hole in the area of a door hinge mount site (22), and having the features attributed to the vertically oriented member (7,167) in at least one of the preceding claims 1 to 53."

V. The appellant argued, in so far as relevant to this decision, as follows:

The subject-matter of claim 1 was not new over document D5 which showed a support or "B-pillar" between front and rear door in a vehicle (column 3, lines 5 to 10), i.e. a vertically oriented member, showing all the features of claim 1 (see Figures 1, 6; column 3, line 42 to column 4, line 12; column 6, lines 39 to 56; column 8, lines 27 to 50 and 51 to 57). Feature **a)** did not specify strength, rigidity or length of the first portion, so a first portion could be identified in Figure 1 in D5 as a portion (with reference sign 11 in its upper part) extending up to the roof side member. Moreover, D5 showed a second portion 12 according to feature **b)**. Since the length of the upper structure portion was not further defined, and, as shown in Figure 1, there was a portion with a linear increase in strength and rigidity within center area 3a, also feature **h)** was known from D5.

Furthermore, D5 disclosed a lower structure portion represented by area 3c which was distinguished from the upper structure portion by a transition point according to features **c)** to **d)** having the energy absorption characteristic and strength and rigidity as specified by features **c)** and **e)** to **g)**. In particular, even the contested patent was silent about the length of the upper and lower structure portions and did not exclude that a further portion was joining the upper or lower structure portion, or that a further portion not showing specific strength characteristics formed part of the upper or lower structure portion (see claim 29 as granted: the upper structure portion comprises a portion without ribs; or granted claim 48: "a second portion of the lower structure portion", also distinguishing between the upper structure portion and the first portion; see also para. [0031]: upper structure portion having a reinforcement member "embedded in a peripheral wall 7b over at least a portion of the entire vertical length thereof").

In any case, the subject-matter of claim 1 was not inventive in the light of the common general knowledge of the skilled person, an engineer of vehicle body works, who knew the B-pillar and teaching of D5 according to which (see Figure 6) the steel profile of the B-pillar could be partially hardened by quenching to achieve a desired hardness distribution for maximum protection of the vehicle's occupant. In particular, the skilled person would gather from D5 that impact energy should be absorbed in the lower portion of the pillar and that the upper portion should resist deformation to protect the occupant's head, having in mind that vehicles differ in respect of their height. When learning from accident

studies that the upper area 3b in D5 was deformed and the head area was not sufficiently protected, the skilled person would rectify the decreasing bending moment in said area by providing a profile as applied already to the shoulder portion, and by applying his design rules he would arrive at the claimed subject-matter. Moreover, the skilled person knew from D1 (Figure 1 and column 4, lines 40 to 50) that the upper portion of the B-pillar retained its original configuration after a side impact, so he would adapt the hardening process for the upper structure portion in D5 accordingly.

Since the wording of claim 54 did not require that the pillar comprised the features of claim 1 but might comprise solely the features related to the vertically oriented member as defined in any of the dependent claims, e.g. dependent claim 4, the subject-matter of claim 54 was considered not new over late-published document D6. However, in case the board took the view that claim 54 comprised all features of claim 1 that related to the vertically oriented member, document D6 was not relevant any more.

D5 did not show a vertically oriented member made of light metal as claimed by the non-optional features of claim 54, so the subject-matter of claim 54 was new. However, choosing a light metal for the pillar in order to reduce vehicle weight was not considered inventive.

The one-part form chosen for claim 1 in combination with the amended description indicating the background art did not make clear which features were known from D5.

VI. The respondent's arguments relevant to the present decision were as follows:

The vertically oriented member in claim 1 was fully defined from the first portion joined to the roof side member up to the second portion joined to the floor side sill, and the claim language required that the upper structure portion included the first portion. In particular, claim 1 specified two margins of the upper structure portion, namely the transition point and the roof side member. It was clear from the overall content of the contested patent that the definition of claim 1 according to which the upper structure portion extended to the first portion did not imply that the upper structure portion finished where the first portion started. Thus, the "first and second portions" formed part of (and were not merely contiguous to) the "upper and lower structure portions". This was also clearly indicated in claims 48, 50 and 51 as granted. Therefore, claim 1 did not separate the vertically oriented member into four distinct portions, which would imply a first portion having an individual deformation characteristic different from that of the upper structure portion. Taking into account the full content of the patent in dispute, the vertically oriented member was a two-sectioned (not: a four-sectioned) member composed of the upper and lower structure portions.

The aim of the invention was (see column 6, lines 10 to 16 in para. [0016], also para. [0017] or Figures 5 and 6) that the upper structure portion be less deformed inwardly into the passenger compartment during a side impact than the lower structure portion, thus minimizing interference with a seat occupant by keeping the head

portion of the pillar stiff and using the connection to the roof as a hinge. In order to obtain such energy absorption characteristic, strength and rigidity of the entire upper structure portion up to the upper end of the vertically oriented member joined to the roof side member had to exceed those of the lower structure portion.

D5 showed a center pillar having a "mountain-like" hardness and strength distribution comprising a highly hardened area 3a at the center portion and less hardened areas 3b, 3c at both sides thereof, i.e. strength was decreasing towards the upper and lower end (see e.g. column 2, lines 32 to 39; column 5, lines 30 to 36; column 12, lines 36 to 46), which was fundamentally different from the profile shown in Figure 6 of the contested patent. Since the contested patent as a whole taught that the first portion (corresponding to the upper end of the upper structure portion) formed part of the upper structure portion which extended between the upper end of the pillar and the transition point, features **a)** to **c)** required the combination of all portions in D5 which extended up to a roof side member (see Figure 1: areas 3a, 3b and 11) to be considered as the upper structure portion. But then D5 failed to disclose the deformation and strength characteristic as required by features **c)**, **e)** and **g)**, according to which the upper structure portion comprised a higher strength and rigidity than the more deformable lower structure portion. D5 also failed to disclose a transition point according to feature **d)** specifying a change in strength characteristic between upper and lower structure portion, so also feature **f)** was not derivable from D5.

Feature **h)** required a linearly increasing strength and rigidity along the upper structure portion towards the first portion thereof. However, D5 only showed a "mountain-like" profile with decreasing strength towards both ends. Moreover, D5 did not provide any hint that the pillar was configured to absorb impact energy in the lower portion while at the same time restricting deformation of the upper portion so that the roof portion served as a hinge as mentioned in the contested patent (see column 6). In particular, the hardness characteristic as indicated in Figure 6 of D5 would not lead to the strength distribution as claimed.

The teaching of D1 showing a yieldable center area was already contrary to D5 showing a hardened center area so that the skilled person would not combine these documents. Moreover, D1 did not disclose that the lower pillar portion was more deformable or comprised a lower strength and rigidity than the upper pillar portion. Therefore, even when combining those documents, the teaching of D1 did not prompt the skilled person to provide an upper structure portion with a strength and rigidity higher than the lower structure portion and linearly increasing towards the first portion. Moreover, the pillar in D1 was reinforced at its connection to the floor side sill and absorbed impact energy in the deformable center area, i.e. D1 showed a different principle than D5 or the patent in suit and used other means.

The formulation of claim 54 implied that all features of claim 1 were included except for the motor vehicle body.

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments*

Claim 1 according to the Main Request is the combination of claim 1 as granted and the second alternative recited in dependent claim 48 as granted, i.e. feature **h)**. Dependent claim 48 is now directed only to the first alternative of granted claim 48. Claims 2 to 47 and claims 49 to 54 are identical to the granted version.

The amendments fulfil the formal requirements of the EPC, which has not been contested by the appellant.

3. *Novelty of claim 1 (Article 54(1) EPC 1973)*

3.1 Claim 1 relates to a motor vehicle body and defines a vertically oriented member (i.e. a pillar of the vehicle) with reference to its structural configuration (features **a)** to **d)**) and deformation and material characteristics (features **c)** and **e)** to **h)**). As to the structural configuration, claim 1 specifies four portions (first portion, second portion, lower structure portion, upper structure portion) between a roof side member (joined to the first portion) and a floor side sill (joined to the second portion). According to the claimed material characteristics, strength and rigidity of the upper structure portion exceed those of the lower structure portion so that the lower structure portion is more deformable. Moreover, strength and rigidity of the lower structure portion grow gradually from its lower end toward the transition

point, and strength and rigidity of the vertically oriented member increase linearly along the upper structure portion towards the first portion thereof.

3.2 As admitted by the appellant, the wording of claim 1 does not exclude that a further portion not showing specific strength characteristics forms part of the upper or lower structure portion. Since according to feature **a)** the first portion is joined to the roof side member and feature **h)** specifies a linear increasing strength distribution "**along the upper structure portion towards the first portion thereof**", the board takes the view that claim 1 specifies, at least for the upper part of the vertically oriented member extending above the transition point, an upper structure portion which includes the first portion.

The appellant argued that the length of the upper structure portion was not further defined so that a portion showing a linear increasing strength and rigidity as required by feature **h)** could be identified in D5 in the lower portion of area 3a. However, in the board's view, the features of claim 1 cannot be interpreted in isolation but in the context of the claimed subject-matter. Feature **h)** expresses (by using the term "thereof") that the first portion forms part of the upper structure portion, and in combination with feature **a)** claim 1 specifies that the upper structure portion extends up to the roof side member. The formulation of claim 1 might leave open whether the first portion forms only a small part of the upper structure portion or extends to a larger amount from the roof side member towards the transition point, and also feature **h)** might not require that strength and

rigidity increase linearly along the entire length of the upper structure portion. However, the upper structure portion which extends up to the roof side member as specified by features **h)** and **a)** has to exhibit the material characteristics according to feature **e)** and **g)** according to which the upper structure portion comprises a higher strength and rigidity than the lower structure portion.

3.3 Turning to document D5, neither an upper structure portion made up of areas 3a, 3b, 11 nor formed by a lower part of area 3a (which might show a linear increase in strength) represents an upper structure portion as specified by claim 1. The combination of areas 3a, 3b and 11 would define an upper structure portion which joins the roof side member as required by features **a)** and **h)**, but fails to show a higher strength than the lower structure portion as defined by features **e)** or **g)**. The lowest part of center area 3a in D5 might show a linear increase in strength as required by part of feature **h)**, but does not represent an upper structure portion extending up to the roof side member as required by the combination of features **a)** and **h)**.

3.4 Therefore, the subject-matter of claim 1 is considered new over D5.

4. *Inventive step, claim 1 (Article 56 EPC 1973)*

4.1 Document D5 is considered as representing the closest prior art and shows a B-pillar in a vehicle (column 3, lines 5 to 10). As regards the second portion according to feature **b)** and the lower structure portion as claimed (see features **c)** to **f)**), a lower structure portion might

be identified in D5 (see Figure 1) either by area 3c only, which would mean that the second portion is represented by portion 12, or by the combination of areas 3c and 12 when assuming that the second portion forms part of the lower structure portion. In both cases, the lower structure portion would fulfil the requirement of feature **f)** that strength and rigidity grow gradually from the lower end of the lower structure portion toward the transition point. The board also takes the view that a transition point as claimed by feature **d)** is known from D5. Even following the respondent's argument that the transition point specifies a change in strength characteristic between upper and lower structure portion, the distinction made in D5 between areas 3a and 3c (see column 8, lines 51 to 57: "the strength level of the other area 3c is more decreased than the strength level of central area 3a") relates to such a change in strength characteristic which defines a boundary or transition point between both areas as claimed.

As explained above, the subject-matter of claim 1 differs from the disclosure of D5 in that D5 does not show an upper structure portion as specified by the combination of features **a)**, **h)**, **e)** and **g)** which extends up to the roof side member and comprises a strength and rigidity which increase linearly towards the first portion thereof and at the same time exceed those of the lower structure portion.

4.2 The definition of the upper structure portion as defined in claim 1 provides the technical effect that impact energy is absorbed in the lower portion while at the same time the upper portion is less deformed inwardly into the passenger compartment during a side impact,

thus minimizing interference with a seat occupant and in particular with the occupant's head.

4.3 Therefore, the objective technical problem underlying the invention can be seen in providing a vertical oriented member or pillar connecting vehicle roof and floor with enhanced occupant protection in the upper area.

4.4 Document D5 and its teaching lead away from the solution claimed in claim 1. The upper structure portion which can be identified in D5 according to features **a)** and **h)** (i.e. areas 3a, 3b and 11 reaching up to the roof side member) shows a mountain-like strength distribution which decreases towards the first portion, and strength and rigidity even fall below the values of the lower structure portion, contrary to what is specified in features **e)** and **g)**. Moreover, according to D5 (see Figure 1 and column 7, lines 7 to 26), the central area where the concentrated input force is applied exhibits the highest strength level. Accordingly, the skilled person cannot find any hint in D5 that the strength and rigidity of the vertically oriented member should be higher at an upper portion, which is in correspondence with the upper part of the occupant's body.

Also a combination of documents D5 and D1 does not lead to the subject-matter of claim 1. The intention in D1 is to reinforce the connecting portion between pillar and floor side sill and to absorb the impact energy in the deformable center area by providing a strength discontinuity portion or a yieldable portion. The board follows the respondent's argumentation that already the teaching of D1 showing a yieldable center area is

contrary to D5 showing a hardened center area so that the skilled person would not combine these documents. Moreover, D1 does not disclose that the lower pillar portion is more deformable or comprises a lower strength and rigidity than the upper pillar portion. Therefore, even when combining those documents, the teaching of D1 does not prompt the skilled person to provide an upper structure portion with a strength and rigidity higher than the lower structure portion and linearly increasing towards the first portion.

From the above it follows that, starting from document D5, it was not obvious for the skilled person to modify the vertically oriented member as specified in claim 1. A pillar comprising an upper structure portion bordering the roof side member which shows a strength and rigidity linearly increasing towards the roof side and higher than strength and rigidity of the lower structure portion would not be an obvious choice, because the relevant prior art either favours a decrease of strength in the upper pillar portion (see D5) or mentions a discontinuity or yieldable portion at a predetermined position of the lower part of the center pillar (see D1) without mentioning further details on the strength distribution in the upper part. Therefore, in the board's view, the skilled would not arrive at the claimed subject-matter without hindsight.

4.5 Consequently, the subject-matter of claim 1 according to the Main Request is considered to be inventive (Article 56 EPC 1973).

5. *Claim 54*

5.1 The appellant argued that document D6 was novelty-destroying to the subject-matter of claim 54 because the reference in claim 54 to "at least one of the preceding claims 1 to 53" would mean that only the features of one of those preceding claims (e.g. of claim 4) could be included as a further limitation of claim 54. However, any dependent claim that is referred to in claim 54 includes all the features of the preceding independent claim, i.e. claim 4 includes all the features of claim 1. Thus the board agrees with the respondent's view that the formulation of claim 54 ("having the features attributed to the vertically oriented member in at least one of the preceding claims 1 to 53") implies that at least all the features relating to the vertically oriented member defined in claim 1 are included. Therefore, all features **a)** to **h)** relating to the vertically oriented member form part of the subject-matter of claim 54; the only feature of claim 1 not included in claim 54 is the "motor vehicle body" of claim 1. Document D6 (which is only relevant for novelty, as it forms part of the state of the art under Article 54(3) EPC), does not disclose e.g. a linear increase of strength and rigidity at all as required by feature **h)**, so the subject-matter of claim 54 is new over D6.

5.2 Moreover, as argued above with respect to claim 1, a vertically oriented member having an upper structure portion as defined by features **a)**, **h)**, **e)** and **g)** is neither known nor rendered obvious by the cited prior art. Since the pillar according to claim 54 has a vertically oriented member including these features, its

subject-matter likewise involves an inventive step (Article 56 EPC 1973).

6. *Formal requirements (Rules 27(1) b) and 29(1) EPC 1973)*

The appellant argued that the one-part form chosen for claim 1 in combination with the amended description indicating D5 as background art did not make clear which features were known from D5.

Form and content of claims are addressed in Rule 29(1) EPC 1973, requiring casting of claims in the two-part form comprising a characterising portion only "where appropriate". In present claim 1, four "portions" as structural features of the vertically oriented member are further defined by features specifying the material characteristics so that the boundary and extension of said portions only become clear when considering the features altogether. This is, in particular, true with respect to the "upper structure portion" which is specified by feature **h)** in conjunction with features **a)**, **e)** and **g)** as argued above. Since the proper understanding of the feature "upper structure portion" relies on those features taken together, a two-part form where the characterizing portion is represented by feature **h)** would give a wrong impression. For this reason, the two-part form of claim 1 is not considered appropriate in the present case.

Moreover, the board is of the opinion that document D5 is correctly and adequately summarised in the amended description. The board notes that there is no obligation under Rule 27(1) b) EPC 1973 that a clear correlation to the features as claimed has to be given when indicating

the background art in the description. Rule 27(1) b) EPC 1973 just requires that the description shall "indicate the background art which, as far as is known to the applicant, can be regarded as useful to understand the invention". In the board's view, the amended description as provided by the respondent fulfils this requirement.

7. Independent claim 1 according to the sole Main Request, together with its dependent claims 2 to 53 and claim 54, the duly revised description and the figures of the patent as granted can, therefore, form the basis for maintaining the patent in amended form.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to maintain a patent on the basis of the following documents:
   - claims 1 to 54 according to the Main Request filed during the oral proceedings;
   - description, columns 1 and 2 with addendum A as filed during the oral proceedings, and columns 3 to 20 of the patent as granted; and
   - drawings, figures 1 to 57 of the patent as granted.

The Registrar: The Chairman:

A. Vottner G. Pricolo