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Datasheet for the decision of 14 July 2009

Case Number: T 1153/06 - 3.2.06

Application Number: 98113408.3

Publication Number: 0903472

IPC: F01L 9/04

Language of the proceedings: EN

Title of invention:
Electromagnetically driven valve for an internal combustion engine

Patentee:
Toyota Jidosha Kabushiki Kaisha

Opponent:
FEV Motorentechnik GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 54
RPBA Art. 13(1)

Relevant legal provisions (EPC 1973):
EPC Art. 56, 84
EPC R. 67

Keyword:
"Main and first auxiliary request - lack of inventive step"
"Second auxiliary request - not admitted"
"Request for reimbursement of the appeal fee - rejected"

Decisions cited:
-

Catchword:

-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1153/06 - 3.2.06

D E C I S I O N
of the Technical Board of Appeal 3.2.06
of 14 July 2009

Appellant: (Opponent)	FEV Motorentechnik GmbH Neuenhofstr. 181 D-52078 Aachen (DE)
Representative:	Schulz, Björn Maxton Langmaack & Partner Postfach 51 08 06 D-50944 Köln (DE)
Appellant: (Patent Proprietor)	Toyota Jidosha Kabushiki Kaisha 1, Toyota-cho Toyota-shi Aichi-ken 471-8571 (JP)
Representative:	Winter, Brandl, Fürniss, Hübner Röss, Kaiser, Polte Partnerschaft Patent- und Rechtsanwaltskanzlei Alois-Steinecker-Strasse 22 D-85354 Freising (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted 22 June 2006 concerning maintenance of European patent No. 0903472 in amended form.**

Composition of the Board:

Chairman: P. Alting Van Geusau
Members: M. Harrison
R. Menapace

Summary of Facts and Submissions

I. With its decision of 22 June 2006, the opposition division found that European patent number 0 903 472 in its amended form met the requirements of the European Patent Convention (EPC).

In reaching its decision, the opposition division found that the right to priority only concerned the application as filed and was not applicable to granted claims and that it had "no reason to doubt" that priority was validly claimed from two applications, in particular because the drawings were the same. Further, the opposition found that the subject matter of the claims of the first auxiliary request was both novel and inventive compared to the disclosure in

E7: EP 0 793 004 A1.

II. The appellant/proprietor filed an appeal against this decision and requested maintenance of the patent as granted.

III. The appellant/opponent also filed an appeal against this decision and requested that the patent be revoked. Additionally, the appellant/opponent requested reimbursement of the appeal fee due to alleged substantial procedural violations by the opposition division.

IV. In its response dated 30 July 2007, the appellant/proprietor requested that the decision under appeal be set aside and that the patent be maintained in an amended form based on its new main request or

alternatively one of four auxiliary requests, or that the case be remitted to the department of first instance for further examination.

V. The Board issued a summons to oral proceedings followed by a communication stating its provisional opinion. The Board opined *inter alia* that claim 1 of the main request did not meet the requirements of Article 123(2) EPC and that it remained to be discussed whether the amendments made in the first auxiliary request fulfilled the requirement of Article 84 EPC 1973 in respect of clarity. Additionally, the Board stated that it did not concur with the line taken by the opposition division regarding the assessment of the right to priority, and that the priority of any claims under consideration, including any claim in a granted patent, had to be considered. Further, the request for reimbursement of the appeal fee might require further discussion to determine whether any substantial procedural violation had occurred or whether the opposition division merely adopted reasoning different to that expected by the opponent or indeed applied the law differently than seen by the opponent. Comments were also made concerning both novelty and inventive step of the subject matter of claim 1 of the main and first auxiliary requests in respect of E7.

VI. In its letter of 14 May 2009, the appellant/opponent stated that it would not attend oral proceedings and in its submission dated 15 June 2009 additional reasoning was supplied concerning the alleged substantial procedural violations.

VII. With its submission of 19 June 2009, the appellant/proprietor replaced all its requests by a new main request and four new auxiliary requests upon which maintenance of the patent in an amended form should be based.

VIII. During the oral proceedings, the appellant/proprietor requested that the decision under appeal be set aside and filed new main, first and a second auxiliary requests upon which maintenance of the patent in an amended form should be based, whereby these requests replaced all previous requests.

As announced in its letter of 14 May 2009, the appellant/opponent did not attend the oral proceedings, whereby its requests remained that the decision under appeal should be set aside, the patent should be revoked and the appeal fee should be reimbursed.

IX. Claim 1 of the main request reads as follows:

"An electromagnetically driven valve for an internal combustion engine having
- an armature (30) being an annular member made of a magnetic material and attached to an armature shaft (28) made of a non-magnetic material, said armature shaft (28) being coupled to a valve body (18) for reciprocal movement therewith between a first position and a second position;
- a first elastic member (26), coupled to said armature (30) to bias said armature (30) toward the second position, and

- a second elastic member (60), coupled to said armature (30) to bias said armature (30) toward the first position,
- wherein a neutral position of said armature (30) is defined between the first and second positions at the point where the forces applied from said first and second elastic members (26, 60) balance one another,
- a first core (34) including a first coil (42) therein and
- a second core (32) including a second coil (40) therein,
- wherein said first core (34) and said second core (32) are each an annular member made of a magnetic material,
- wherein said first and second cores (34, 32) are disposed on opposite sides of said armature (30) and are positioned so that, when said armature (30) is in the neutral position, said first and second cores (34, 32) are spaced apart from said armature (30), and
- wherein said valve body (18) is an exhaust valve for an internal combustion engine and said first coil (42) generates an electromagnetic force to attract said armature (30) toward the first position in which said exhaust valve is open, characterized in that said first core (34) is provided with a first protrusion (36) formed on the first core (34) and protruding a predetermined length toward said armature (30), thereby making a distance between said first core (34) and said armature (30) smaller than a distance between said second core (32) and said armature (30) when said armature (30) is located in the neutral position, said first protrusion (36) being annular and having a diameter slightly larger than an outer diameter of said armature (30), and an inner peripheral surface of said annular protrusion (36) faces an outer peripheral

surface of said armature (30) when the armature (30) is in the first position."

X. Claim 1 of the first auxiliary request is the same as that of the main request with the exception that the following wording:

"wherein said neutral position is at a central portion of a space defined between the first and second cores"

is added after the wording:

"so that, when said armature (30) is in the neutral position, said first and second cores (34, 32) are spaced apart from said armature (30),".

XI. Claim 1 of the second auxiliary request is the same as that of the first auxiliary request with the exception that the following wording is added at the end of the claim:

", wherein an attracting force that exceeds spring forces generated by the first elastic member (26) and the second elastic member (60) is generated, when the valve body is located at a critical position that is reached by the valve body due to urging forces of the first elastic member (26) and the second elastic member (60) during the valve opening operation of the valve body."

XII. The appellant/proprietor's arguments may be summarised as follows:

Main request:

Claim 1 of the main request met the requirements of Article 123(2) EPC since its features were disclosed in combination in claims 3 and 5, together with features taken from paragraphs [0028] to [0031] of the published application. The positional relationship of the peripheral surfaces of the armature and the annular protrusion was also clearly stated so that the requirements of Article 84 EPC 1973 were met. Although it was originally argued in written proceedings that E7 did not disclose the feature that the annular protrusion had a diameter slightly larger than the outer diameter of the armature due to incorrectly drawn Figure 1 therein, this argument was not maintained. The subject matter of claim 1 was thus novel over E7 in three respects:

(1) the armature shaft was made of a non-magnetic material, whereas in E7 it was not stated what material was used for the shaft;

(2) the first protrusion was formed on the first core, whereas in E7 the protrusion was a separate piece added to the core;

(3) in the neutral position there was a distance between the first core and the armature by means of the protrusion, and this was smaller than the distance of the second core to the armature, this distance being implicitly a vertical distance, whereas in E7 it was

stated only that distance from the armature to each core was 4 mm.

Primarily, the invention involved feature (3), whereby, even on this basis alone, the subject matter of claim 1 involved an inventive step when starting from E7. The problem to be solved by this feature was stated in paragraph [0016] of the patent, according to which it was possible to use equal exciting currents to achieve the same operating characteristics irrespective of whether the valve was being opened or closed. E7 on the other hand disclosed a valve where the magnetic attraction force was disclosed as being already operative before the armature had reached the neutral position and whereby more energy was supplied to one side. E7 would thus require a complicated control system. The solution in claim 1 was not obvious since it allowed the valve to be controlled such that only when the armature reached the neutral position did the exciting current need to be supplied to the attracting magnet. E7 did not even teach using a vertical distance between the armature and the protrusion in its neutral position and the different operating characteristics that were possible in the patent could be seen by comparing Figure 4 of E7 with Figure 8 of the patent.

Due to features (1) and (2), the armature itself could also be formed of a single material whereby any effects on the magnetic attraction force due to attachment of the annular protrusion, as in E7, were avoided. Such a solution was also not taught by E7.

First auxiliary request:

The first auxiliary request was based on paragraph [0032] of the patent and met the requirements of Article 123(2) EPC. Whereas E7 disclosed a reduction in force soon after reaching the neutral position, the claimed device allowed a steadily increasing force to be applied, whereby it was now explicitly defined that the neutral position was located centrally between the first and second magnetic core, which together with the distance of the armature from the protrusion defined an arrangement specifically adapted to the use of similar exciting currents in each core but producing the desired attraction force at the required time.

Second auxiliary request:

The terminology added was based on Figure 8 where the critical position during valve opening was at position "D". The term "critical position" was clear and it corresponded to the position at which the kinetic energy resulting from the movement of the valve and armature after release by the upper core and taking into account the overshoot in the damped system was balanced by the spring force resisting further movement. This was clear to a skilled person when considering Figure 8 and the natural dynamics of a sprung system and such a critical position was well known generally.

XIII. The appellant/opponent's arguments may be summarised as follows:

No new requests should be allowed during oral proceedings, since the appellant/proprietor had already

had its chance to respond to the objections made in the written proceedings.

Reimbursement of the appeal fee was justified. The opposition division had only made a cursory examination of the priority documents and had not even exercised due care in doing this, since it had failed to recognise the obvious difference in the Figures of the priority application compared to those of the filed application. Not only was the opposition division legally wrong in its assessment of priority, but it had as a result of its assessment ignored several further difference which were mentioned in the oral proceedings and which affected priority. This had led to relevant state of the art not being considered and forcing the opponent to file an appeal. This was a substantial procedural violation.

Further, the opposition division had judged clearly unallowable requests as being allowable, and in its judgement on inventive step had only used the idea of a "could-would" approach and not a "problem-solution" approach even though this latter had been argued in writing and during the oral proceedings. Also, the minutes of oral proceedings were wrong, because ways of forming cores had been mentioned which were known from the cited prior art and the opponent had stated that a skilled person merely had to make a selection from known variants to arrive at the claimed subject matter. Since this was missing in the decision, the decision was also not reasoned.

Reasons for the Decision

1. *Main request*

1.1 *Admittance*

1.1.1 The claims of the main request filed during oral proceedings were drafted to overcome objections made under Article 123(2) EPC by the Board during oral proceedings. In accordance with Article 13(1) of the Rules of Procedure of the Boards of Appeal (RPBA), the Board exercised its discretion to allow the appellant/proprietor to change its case by filing the request, since the amendments clearly overcame the objections raised, the subject matter to be considered was not made more complex as a result of the amendment and the procedural economy was not adversely affected since the amendments were made early in proceedings and all previous requests were withdrawn.

1.1.2 The appellant/opponent had requested that the appellant/proprietor not be allowed to change its case by filing new requests in oral proceedings, since it had already had an opportunity to do so during written proceedings. However, the appellant/opponent's request does not alter any of the circumstances as to why the Board exercised its discretion as it did.

1.2 *Article 123 EPC and Article 84 EPC 1973*

Independent claim 1 is based on claim 3 as filed, whereby an option within claim 3 has been selected such that the protrusion is defined as being on the first core. The features of claim 5 as filed (which was

dependent on claim 3) have also been included. The wording at the end of claim 3 as filed concerning the protrusion facing side and its relationship to the armature has been included and modified using as a basis the description of the valve and armature, whereby all the functionally interrelated features thereof which are disclosed in combination in the first embodiment in paragraphs [0028] to [0031] have been added. The features introduced into claim 1 thereby also limit claim 1 as granted.

Thus the requirements of Article 123(2) and (3) EPC are met and the Board also finds that the amendments introduced into the claim do not give rise to a lack of clarity (Article 84 EPC 1973).

1.3 *Novelty*

In agreement with the analysis of the appellant/proprietor, E7 discloses (see e.g. Figure 1 and the description of same in column 2, line 51 to column 3, line 29 and column 4, lines 3 to 24), using references to E7 in parentheses:

an electromagnetically driven valve (2) for an internal combustion engine (1) having
- an armature (12) being an annular member (see Figure and description in column 4, lines 16 to 21) made of a magnetic material and attached to an armature shaft (4), said armature shaft (4) being coupled to a valve body (6) for reciprocal movement therewith between a first (lower, valve-open) position and a second (upper valve-closed) position;

- a first elastic member (14), coupled to said armature (12) to bias said armature toward the second position, and
- a second elastic member (13), coupled to said armature (12) to bias said armature toward the first position,
- wherein a neutral position of said armature (12) is defined between the first and second positions at the point where the forces applied from said first and second elastic members (14, 13) balance one another (see e.g. column 5, lines 17 to 19),
- a first core (10') including a first coil (11') therein and
- a second core (10) including a second coil (11) therein,
- wherein said first core (10') and said second core (10) are each an annular member made of a magnetic material,
- wherein said first and second cores (10', 10) are disposed on opposite sides of said armature (12) and are positioned so that, when said armature (12) is in the neutral position, said first and second cores (10', 10) are spaced apart from said armature (12 - see e.g. column 5, lines 17 to 19), and
- wherein said valve body (6) is an exhaust valve for an internal combustion engine (see e.g. column 3, lines 54 to 56) and said first coil (11') generates an electromagnetic force to attract said armature (12) toward the first position in which said exhaust valve is open, and wherein said first core (10') is provided with a first protrusion (19) on the first core (10') and protruding a predetermined length toward said armature (12 - see e.g. Figure 1), said first protrusion (19) being annular and having a diameter

slightly larger than an outer diameter of said armature (12 - see column 4, lines 13 to 24, whereby it should be noted that the word "kleiner" in E7 is an obvious error, since the armature (12) must descend within the annular protrusion (19) requiring that the inner diameter of the annular protrusion is not smaller than, but larger than, the outer diameter of the armature), and an inner peripheral surface of said annular protrusion (19) faces an outer peripheral surface of said armature (12) when the armature (12) is in the first position.

The following three features of claim 1 are thus not known from E7:

(1) The armature shaft is made of a non-magnetic material. No material is stated for the armature shaft 4 of E7.

(2) The first protrusion is "formed" on the first core. In E7 the protrusion 19 is a separate piece arranged on the core 10'.

(3) The first protrusion protrudes a predetermined length toward said armature, thereby making a distance between said first core and said armature smaller than a distance between said second core and said armature when said armature is located in the neutral position.

In E7 it is stated that the neutral position of the armature is 4 mm from each core (see column 5, lines 16 to 21). Although not defined explicitly, the claim in this regard is interpreted as implying the presence of a "vertical" distance between the end of the protrusion

and the armature, since the claim also states that the protrusion protrudes "a predetermined length toward said armature".

The subject matter of claim 1 is thus new compared to E7 and thus the requirement of Article 54(1) EPC is fulfilled.

1.4 *Inventive step*

1.4.1 Starting from E7 as the closest prior art, the problem to be solved by the features of claim 1 differing from E7 must be determined. In this regard, feature (3) and features (1) and (2) do not solve a common problem, but individual problems.

The appellant/proprietor argued that the main problem to be solved over E7 was solved by feature (3), and that this was the problem given in the patent at paragraph [0016]. According to this paragraph, an electromagnetically driven valve should be provided "which achieves appropriate operating characteristics in accordance with operating conditions of an internal combustion engine at the time of opening or closing a valve body, while providing an electromagnetically driven valve that achieves substantially the same operating characteristics regardless of whether the valve body moves in the valve opening direction or in the valve closing direction when a pair of electromagnets are substantially supplied with an equal exciting current".

However, since claim 1 does not define anything about the forces applied to the armature by either the first

or the second elastic members, nor a control system for supplying current of any level at any particular moment in time, nor specific distances between the various components, let alone the size and specific structure of the cores themselves, the features given in claim 1 do not solve this problem. The problem given by the appellant is thus only a problem which might be solved when the electromagnetically controlled valve is constructed in a specific way (e.g. with a particular size and shape of magnetic core and coil) and operated by a control system in a particular manner involving, not least, appropriate timing of the excitation current.

The Board thus finds that, starting from the electromagnetically controlled exhaust valve E7, the objective problem to be solved by feature (3) is merely that of providing a suitable displacement/force characteristic to the valve arrangement.

1.4.2 E7 states in column 4, lines 40 to 44 that many embodiments of the protruding element are possible and that it is of relevance only that the remote effect ("Fernwirkung") of the particular switched magnetic core is raised. This remote effect in E7 is present in order to increase the magnetic attraction effect of the lower core in the direction of the magnetic field when supplying the same energy to the core (see column 4, lines 6 to 12). Thus, for a skilled person, it is obvious to provide a vertical distance between the protrusion and the armature in the neutral position as the "remote effect" is all that is required and the skilled person would thus arrange the protrusion to extend any suitable distance for this purpose, thus also at a distance from the armature, in accordance

with the particular circumstances and characteristics required. Also, when considering the force/distance curve F_{EM9} in Figure 4, it is evident that the attractive force increases up to and beyond the neutral position at 4 mm, and then sinks again, whereby a remote effect extending to an armature position below the neutral position (i.e. closer to the lower magnet 10') is provided.

Feature (3) thus adds nothing inventive to the subject matter known from E7.

1.4.3 Feature (2) merely defines that the protrusion is "formed on the core". Although E7 only discloses a protrusion 19 arranged on the core, rather than being formed on the core, from a skilled person's general knowledge it is evident that a component may be formed either in one piece, or by separate elements of the component being otherwise attached together depending on the particular circumstances involved. Should for example cost not be an issue, a single piece core of complicated shape may be cast and machined, thereby providing more reliability in that there is less chance of the protrusion and the core becoming separated during operation in an engine environment. However, such is merely a well known cost/benefit relationship and not something involving an inventive step, because the advantages and disadvantages of such a measure are well understood. Also, nothing about the function of the protrusion 19 or the core in E7 implies that separate parts must be used.

Feature (2) thus adds nothing inventive to the subject matter known from E7.

The appellant/ proprietor's argument that a protrusion formed on the core allows a single material to be used such that effects on the resulting magnetic field by attachment of the elements together is avoided, may indeed be correct, but this argument does not alter the fact that it is obvious to form the protrusion on the core instead of forming it by attaching two pieces together should this be desired, because a skilled person anyway has to adapt the excitation energy required to any particular set-up of springs/cores/protrusion as a matter of normal implementation of such a valve, without this requiring any inventive skill.

1.4.4 According to feature (1), the armature shaft is made of non-magnetic material. In E7 the material is not stated. However, any magnetic effect caused by the material of the shaft placed centrally within the core would be minimal at best and would, as with feature (2), be accounted for by the skilled person when implementing the valve and obtaining the desired valve characteristics. Further, no significance is given to this feature in the patent, in particular no significance in respect of a relationship to feature (2) nor to any problem that such feature (1) might solve.

1.4.5 As a consequence, the subject matter of claim 1 does not involve an inventive step and therefore does not fulfil the requirement of Article 56 EPC 1973.

1.4.6 Although the appellant/proprietor argued that, based on e.g. column 6, lines 11 to 17 in E7, the magnetic attraction force was already active on the armature

before reaching the neutral position and thus different to that in the invention, the Board does not find this argument convincing because the claim does not define at which point in time excitation energy is applied; the arrangement in the claim also allows the excitation energy to be applied to the core/protrusion side earlier than the point at which the neutral position is reached.

Similarly, whilst E7 discloses in column 4, lines 35 to 40, that the current need not be raised excessively, this does not anyway imply that a current is required which is necessarily larger on one core than the other, in particular since column 4, lines 6 to 9 states that with the same current the magnetic field extends further. Even if a different current were used, such as mentioned in column 6, lines 33 to 36 as providing an adjustment for the particular case in question, this does not alter the underlying teaching of E7 found in column 4, lines 43 and 44 that only the remote effect is of importance. This latter teaching is also confirmed in column 6, lines 36 to 40 where (with the arrangement of E7) it is noted that supply of equal excitation energy shows improved functionality.

2. *First auxiliary request*

2.1 The amendment made in the first auxiliary request is taken from the description in paragraph [0034] of the published application (paragraph [0032] of the patent). In the specific context of the combination of features defined in claim 1, the Board finds that the requirements of Article 123 EPC are thus met, as are the requirements of Article 84 EPC 1973.

2.2 The feature introduced into claim 1 by way of this request however merely defines that the neutral position is at a central portion of a space defined between the first and second cores. This is also precisely the position described in E7 (see column 5, lines 17 to 19). The inclusion of this feature does not therefore alter the conclusion reached with respect to claim 1 of the main request, i.e. that its subject matter does not involve an inventive step as required by Article 56 EPC 1973, for the same reasons as have been given in respect of that request.

The first auxiliary request is therefore not allowable.

3. *Second auxiliary request*

3.1 The features included by way of the second auxiliary request are, according to the appellant/proprietor, allegedly derivable from Figure 8 in combination with the explanation of same in the description, whereby in particular paragraph [0067] of the published application explains that the critical position during opening is marked as point D and that this is due to the urging forces of the upper and lower springs.

3.2 The Board concludes that the requirements of at least Article 84 EPC 1973 are not clearly met by the terminology used, since the expression "critical position" is not explained more than by mere reference to what is quoted with the same words in the description, and as shown on a graph at a certain point. However nowhere is it explained what particular point constitutes the "critical" position in a functional

manner such that a skilled person will recognise what point this will be in any particular situation beyond purely the point D in Figure 8. Nor is there any evidence to suggest that the term "critical position" has a generally understood meaning in the art, let alone that such a term is generally understood to have one meaning within the field of electromagnetically operated valves. The mere fact that a position is reached which is due to the balance of forces due to kinetic energy and spring forces, and that this is as such well known, does not alter this conclusion.

Since the request was based on the description, was very late-filed (during oral proceedings) and was not clearly allowable at least with respect to Article 84 EPC, the Board exercised its discretion under Article 13(1) RPBA not to admit the request.

3.3 Since there are no requests in proceedings which meet the requirements of the EPC, the patent must therefore be revoked.

4. *Request for reimbursement of the appeal fee*

4.1 In accordance with Rule 67 EPC 1973, reimbursement of the appeal fee may be made where the Board deems the appeal allowable, if such reimbursement is equitable by reason of a substantial procedural violation. Since the appeal of the appellant/opponent is allowable, the matter of whether a procedural violation took place needs to be decided.

4.2 The appellant/opponent alleges that the opposition division had not exercised due care when performing its

analysis of the priority documents and had made a legal error, and that this had led to several differences being ignored even though these were mentioned in oral proceedings, whereby relevant state of the art had not been considered.

The Board does not however find that a substantial procedural violation occurred. The conclusion as to which documents were to be considered as the state of the art was primarily the result of the opposition division's interpretation of the law regarding how the validity of priority should be determined. Thus, although in item 4.1 the decision under appeal states that a claim to priority is only relevant to the application as filed and not to the claims under consideration, this is not a procedural violation but an error in law caused by a misinterpretation of the relevant provisions. The opposition division's finding that priority was also validly claimed was then indeed based on its comparison of the filed application with the priority documents. The decision was thus also reasoned, even if the appellant/opponent disagrees with the reasoning. Moreover, the opposition division did not state that only because the drawings were the same was priority judged as being valid, but that it "had no reason to doubt" that the claim to priority was valid "in particular" because it found the drawings were the same. Again, as regards the foregoing, this was the assessment of priority made by the opposition division on its understanding of the subject matter to be considered and the provisions involved, and as such relates to a matter of judgement rather than being attributable to a procedural violation as alleged by the appellant/opponent.

4.3 In regard to the further allegation of the appellant/opponent that the opposition division allowed requests which, in the view of the appellant/opponent, were clearly unallowable, this is also a matter of judgement by the opposition division. It is thus irrelevant procedurally whether the appellant/opponent had a different opinion on the allowability of these requests.

4.4 The appellant/opponent further alleges in this regard that the opposition division used a "could-would" approach and not a "problem-solution" approach, even though the appellant/opponent had argued using a "problem-solution" approach. However, first the Board notes that in item 5.1 of the decision (see e.g. pages 16 and 17 thereof), which concerns inventive step of the subject matter of claim 1, the opposition division not only analyses the prior art and identifies the difference compared to the prior art, but then states that "This feature solves the problem underlying...", followed by a detailed analysis of why, with respect to that problem, it was considered not obvious for a skilled person to arrive at the subject matter of the claim in light of further prior art. The subsequent mention of "a could/would consideration" on pages 18 and 19 in no way detracts from this approach, and the opponent is wrong in suggesting that it does. A "could-would" explanation or "could-would approach" as mentioned in the minutes of oral proceedings before the opposition division (see e.g. page 4) is indeed often used as an integral part of a problem-solution approach to explain why something "could" be done whilst finding a lack of teaching as to why it "would" be done.

Nothing in this regard therefore gives rise to a procedural violation.

4.5 Lastly, although the appellant/opponent argues that the minutes of oral proceedings were wrong, because specific ways of forming cores had allegedly been mentioned which were known from the cited prior art and that it had allegedly been stated that a skilled person merely had to make a selection from known variants to arrive at the claimed subject matter, this allegation is not borne out by the minutes. The minutes indicate, on pages 3 and 4 for example, upon which reasons and based upon which documents the opponent had argued, whereby arguments relating to the design and manufacture of a core (yoke) had indeed been noted. The fact that the minutes do not contain a word-for-word recitation of what the appellant/opponent alleges was said, is not relevant and not required. And, in as far as the decision is concerned, the use of integral protrusions is dealt with in the decision on inventive step (see e.g. page 17, first bullet point), also in relation to specific prior art documents. From the decision it is evident that such a consideration was taken into account by the opposition division but, for the reasons given in the decision, was found not to lead to a lack of inventive step when starting from e.g. E7. The decision was therefore reasoned and thus, also on this matter, no procedural violation has occurred, contrary to the submissions of the appellant/opponent.

4.6 Since no substantial procedural violation occurred, the appeal fee is not to be reimbursed.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

3. The opponent's request for reimbursement of the appeal fee is rejected.

The Registrar: The Chairman:

M. Patin P. Alting van Geusau