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**Datasheet for the decision
of 13 March 2019**

Case Number: T 0315/15 - 3.2.05

Application Number: 09178912.3

Publication Number: 2196713

IPC: F16L13/14

Language of the proceedings: EN

Title of invention:

Device, method and kit of parts for forming a press-fit connection with a tube

Patent Proprietor:

Conex Universal Limited

Opponent:

Viega Holding GmbH & Co. KG

Relevant legal provisions:

EPC Art. 84, 123(2)
RPBA Art. 13(3)

Keyword:

Added matter (yes: main request; no: auxiliary request 1)
Clarity (no: auxiliary request 1)
Admissibility of the request (no: auxiliary request 2)

Decisions cited:

G 0001/99, G 0003/14, T 1715/08, T 1914/12



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Case Number: T 0315/15 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 13 March 2019

Appellant: Viega Holding GmbH & Co. KG
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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted
on 4 December 2014 concerning maintenance of the
European Patent No. 2196713 in amended form.**

Composition of the Board:

Chairman M. Poock
Members: O. Randl
J. Geschwind

Summary of Facts and Submissions

I. The opponent filed an appeal against the interlocutory decision of the opposition division on the amended form in which European patent No. 2 196 713 ("the patent") could be maintained.

The opposition division found that:

- the main request on file lacked novelty;
- the first auxiliary request lacked novelty or did not comply with the requirements of Article 123(2) EPC, depending on the interpretation of the claims;
- the second auxiliary request did not comply with the requirements of Article 123(2) EPC; but
- the third auxiliary request was allowable.

II. The oral proceedings before the board took place on 13 March 2019.

III. The appellant (opponent) requested that the decision under appeal be set aside and the patent be revoked.

The respondent (patent proprietor) requested that the appeal be dismissed (main request) or that the decision under appeal be set aside and the patent be maintained in amended form on the basis of auxiliary requests 1 or 2 filed during the oral proceedings.

IV. The independent claims of the main request read as follows (for claim 1, the feature references used by the board are added in square brackets):

"1. [**1-1**] Method of enabling an increased compression of an annular sealing (18) element in a press-fit connection,

[1-2] which annular sealing element (18) is configured to be at least partially accommodated in a housing provided on an inside of a bead (5;11;17) formed in a wall (2;8;14) of a socket for receiving an end section of a tube (13), including

[1-3] providing the wall (2;8;14) with sections ($S_{2a}, S_{2b}; S'_{2a}, S'_{2a}$ [sic]; S''_{2a}, S''_{2b}) on either side of the bead (5;11;17) that have an inside radius increasing towards the bead (5;11;17) in axial direction for every azimuthal position, wherein [1-4] a device for forming a press-fit connection with a tube (13) is provided and [1-5] the the [sic] device includes a socket for insertion of an end section of the tube (13),

[1-6] the socket being defined by a wall (2;8;14), wherein [1-7] the wall (2;8;14) includes at least one first section ($S_1; S'_1; S''_1$) extending in axial direction,

[1-8] the first section ($S_1; S'_1; S''_1$) including at least one annular bead (5;11;17) and two second sections ($S_{2a}, S_{2b}; S'_{2a}, S'_{2b}; S''_{2a}, S''_{2b}$),

[1-9] the bead (5; 11 ;17) providing a housing at least partially accommodating an annular sealing element (18)

[1-10] with a cross-section diameter with a maximum value D within the socket,

[1-11] wherein each second section ($S_{2a}, S_{2b}; S'_{2a}, S'_{2b}; S''_{2a}, S''_{2b}$) is located immediately adjacent the bead (5;11;17) and commences at a position along an axis of the socket at which a magnitude of a derivative of an outside radius of curvature of the wall (2;8;14) with respect to axial position has a local minimum,

wherein [1-12] each second section ($S_{2a}, S_{2b}; S'_{2a}, S'_{2a}$ [sic]; S''_{2a}, S''_{2b}) has, for every azimuthal position (Φ), an inside radius with a minimum at an axial position where the first and second section terminate, wherein

[1-13] the minimum radius of each second section ($S_{2a}, S_{2b}; S'_{2a}, S'_{2a}$ [sic]; S''_{2a}, S''_{2b}) is smaller than the inside radius at the axial position where the second section ($S_{2a}, S_{2b}; S'_{2a}, S'_{2a}$ [sic]; S''_{2a}, S''_{2b}) commences, and

[1-14] a depth of the bead (5;11;17), corresponding to a difference between an inside radius of the wall (2;8;14) at an axial position where the second section ($S_{2a}, S_{2b}; S'_{2a}, S'_{2a}$ [sic]; S''_{2a}, S''_{2b}) commences and a maximum inside radius of the wall (2;8;14) at an axial position where the bead (5;11;17) is provided, is at least equal to half the maximum value D,

[1-15] a difference between the minimum inside radius of the second section ($S_{2a}, S_{2b}; S'_{2a}, S'_{2a}$ [sic]; S''_{2a}, S''_{2b}) and the maximum inside radius of the wall (2;8;14) is larger than the maximum value D, characterized in that

[1-16] the sealing element is compressed using a tool including at least two co-operating jaws configured to envelop at least part of the first section ($S_1; S'_1; S''_1$), when placed around the device, such that compression of the annular sealing element (18) is due to a larger extent to downward movement of the bead (5;11;17) than to deformation of the bead (5;11;17) and [1-17] such that by a downward movement of the bead the inside opening angle of the bead is not increased."

Claim 1 of auxiliary request 1 differs from claim 1 of the main request by the insertion of the feature "without a deformation of the side walls of the bead the shape of the bead is not affected and" before "the inside opening angle of the bead is not increased".

Claim 1 of auxiliary request 2 differs from claim 1 of the main request in that feature 1-17 has been replaced by the feature "and wherein, seen in longitudinal

cross-section through a longitudinal axis of the socket, a tangent to an inside of the wall (2;8;14) is at an angle of 20 ° or less at every axial position within each second section (S2a,S2b;S'2a,S'2a;S"2a,S"2b)".

V. The appellant argued as follows:

(a) Main request: violation of Article 123(2) EPC

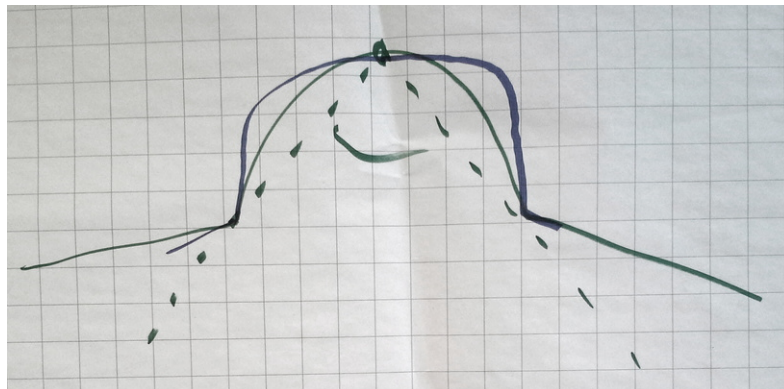
Claim 1 as amended results from two inadmissible intermediate generalisations.

The passage on page 7, lines 1 to 18, in particular, lines 12 to 18, of the original application, which allegedly forms the basis of the amendment, ends with the sentence: "This is achieved without affecting the shape of the bead, in particular without an increase in its inside opening angle." The word "this" refers to the end of the preceding sentence "... and therefore makes downward movement of the bead without deformation of the (side) walls of the bead possible". Thus, there is a direct link between the deformation of the side walls of the bead and the fact that the inside opening angle is not increased. The feature "no increase of the inside opening angle" is directly connected to the downward movement of the bead without deformation of the side walls. However, the feature that there is no deformation of the side walls of the bead is not found in claim 1. This constitutes the first inadmissible intermediate generalisation.

The second intermediate generalisation is also related to the sentence: "This is achieved without affecting the shape of the bead, in particular without an increase in its inside opening angle." The opening

angle may be one of the parameters defining the shape of the bead, but it is only disclosed together with the absence of any change in the shape of the bead. By isolating this feature, the respondent has gone beyond the original disclosure. Claim 1 of the main request does not exclude the case where the shape changes without any change in the opening angle.

In respect of the "opening angle" as defined by the respondent, the appellant noted that there was no unique definition known to the skilled person. The respondent's definition implicitly assumes that the bead must be circular, which is not required in claim 1. It is not clear where the central reference point should be located if the bead had some asymmetrical shape. The shape of the bead can also be changed without changing the opening angle:



Two different beads having the same inside opening angle
(Sketch by the appellant's representative before the board.)

(b) Auxiliary request 1: clarity

Feature 1-17 makes claim 1 unclear.

Clarity is not a ground for opposition but has to be examined *ex officio* when amendments based on the

description are made. An additional argument concerning a lack of clarity cannot be late and has to be examined. There is no reason to reject the objection on the grounds of it being filed late. Moreover, the clarity of feature 1-16 was already criticised in the statement of grounds of appeal.

There is no unique definition of the opening angle in the patent, nor would the common general knowledge of the skilled person fill this gap. The definition presented by the respondent is an arbitrary choice and has no basis in the patent. This is a fundamental problem of clarity that cannot be rectified by asserting that, whatever the precise definition of the opening angle is, the skilled person would know what is meant. For a given compression, it is possible to find definitions of the angle according to which the angle would increase or decrease upon compression.

Although feature 1-16 was present in the claims as granted, the insertion of feature 1-17 also makes this feature unclear and thereby makes it accessible to the scrutiny of the board in view of decision G 3/14.

(c) Auxiliary request 2: admissibility

This auxiliary request was filed at a very late stage of the appeal proceedings without any good reason. Considering that clarity objections can always be raised if features are taken from the description (see G 3/14), the respondent should have anticipated such objections. A lack of clarity objection was already raised in the statement of grounds of appeal. Therefore, there was a clear incentive to file this request earlier. The appellant's submission of 9 February 2019 was another possible trigger for the

filing of the request. The respondent should have filed the request at least a few days before the oral proceedings. Also, the auxiliary request is problematic because it infringes the principle prohibiting *reformatio in peius*. Thus, the request is clearly inadmissible.

VI. The respondent argued as follows:

(a) Main request: violation of Article 123(2) EPC

The amendments do not constitute an inadmissible intermediate generalisation.

It is important to distinguish different terms used in the patent. The word "compression" is used exclusively to describe the elastic deformation of the sealing ring, whereas the word "shape" exclusively describes the general geometrical characteristic of the element under consideration (see paragraphs [0006]: "rectangular trapezium"; [0026]: "jaws ... with an inside profile imparting a non-circular cross-sectional shape"; [0028]: "hexagonal shape [of] sections of the socket wall"; [0033]: "stepped shape"; [0034]: "unround shape"; [0043]: "cylindrical in shape"; [0059]: "the shape of the second sections ... [is] essentially frusto-conical.") It is clear that a "shape" is not a "form" in the patent. When the shape is changed, the general characteristic of the element changes, e.g. from a circular to an elliptic shape. Paragraph [0028] discloses the real function of the shape (see column 5, lines 13 to 18). There the shape is chosen so that the sealing ring cannot be dislodged. An element may undergo deformation without changing its overall geometric characteristic (i.e. its "shape").

Paragraph [0028] states that "downward movement of the bead without deformation of the (side) walls of the bead [...] is achieved without affecting the shape of the bead, in particular without an increase in its inside opening angle". As was explained in the reply to the appeal, there are different shapes in different planes. Figure 6 shows one such plane.

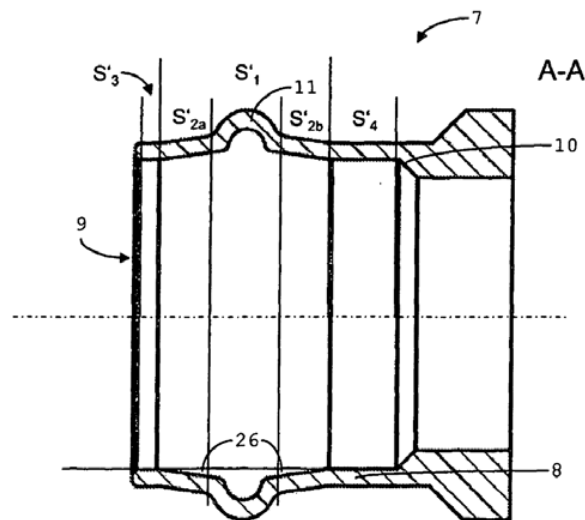
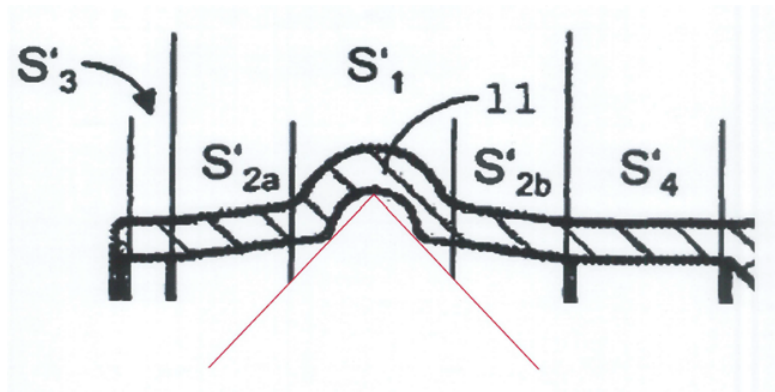


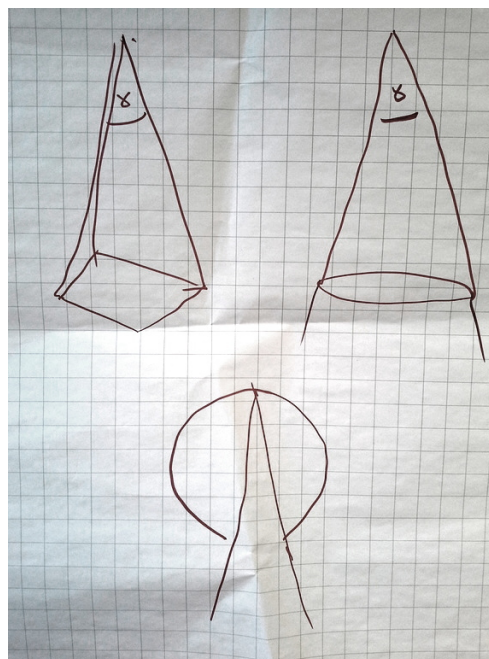
Fig. 6

The jaws of the crimping tool apply force on the first and second sections. The shape of the bead is circular. The only way this shape can be changed is by increasing the opening angle. Without increasing the angle, the shape of the bead is not affected. Thus, there is no intermediate generalisation because there is no technical information missing.

When asked by the board how the term "opening angle" was to be understood, the respondent submitted the following drawing, based on Fig. 6 of the patent:



According to the respondent, there is no specific definition in the patent, but the person skilled in the art (and any person willing to understand) would understand this to be the opening angle of the bead, by analogy to the case of a cone, a pyramid or an eyeball (see the sketches below).



Sketches made by the respondent's representative in the oral proceedings.

(b) Auxiliary request 1: clarity

The claims are covered by the description and are clear.

The objection that the appellant raised against the clarity of the "opening angle" feature was filed late and should not be taken into account. The appellant had three opportunities to raise the objection (for instance, it is not mentioned in the clarity objections raised in the written submissions dated 9 February 2016) but chose to do so only in its last written submission.

The expression "opening angle" would be clear to the skilled person, as explained for the main request. Also, claim 1 only refers to a change in the opening angle, not to absolute values. Even if there is no single specific definition, the skilled person would understand what the feature means.

(c) Auxiliary request 2: admissibility

The request was not filed late because the preliminary opinion of the board did not retain the clarity objections raised by the appellant. As the further clarity objection raised by the appellant in its last written submission was itself filed late, there was no need for the respondent to file an auxiliary request overcoming this objection right away. The incentive to file such a request was generated by the board's decision to admit this late-filed objection.

In respect of the principle prohibiting *reformatio in peius*, the present case falls within the exceptions to this principle defined by decision G 1/99 because the

refusal of the amendment would lead to the revocation of the patent.

The amendment consists in the combination of granted claims, which could not surprise the appellant.

Thus, auxiliary request 2 should be admitted.

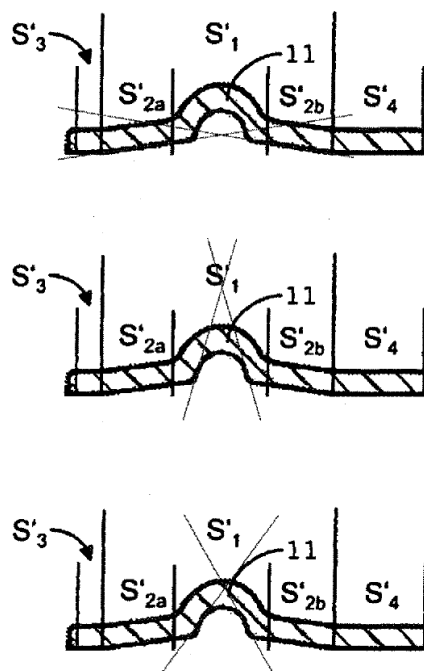
Reasons for the Decision

1. Main request
- 1.1 Interpretational issues
- 1.1.1 "shape of the bead"

The patent does not define what is to be understood by the "shape" of the bead. Consequently, the term is understood according to its general meaning of "external form or contour" (see the corresponding entry of the Oxford English Dictionary). The way in which the term is used in the patent is consistent with this definition. The board cannot see any basis for limiting the term to mean the "general characteristic" of the element being considered (such as its ring-likeness etc.). Quite to the contrary, the mere change in the inside opening angle of the bead is said to affect the shape of the bead (see paragraph [0028] of the patent, and in particular col. 5, lines 10 to 12), although it does not necessarily change the "general characteristic" of the bead. To put it differently, a ring-like bead does not lose its ring-like character just because the inside opening angle of the bead is somewhat altered.

1.1.2 "opening angle"

It is undisputed that the patent does not define the expression "opening angle". The definition offered by the respondent (see point VI.(a) above) is a possible and technically meaningful definition, but there is no indication in the patent that this is what is meant. The analogy drawn with cones and pyramids is not helpful, because in these geometries the definition of the opening angle appears to be unambiguous. In the case of a bead, however, several different ways of defining an internal opening angle can be envisaged, as is illustrated in the appellant's last written submission dated 8 February 2019:



In light of the above, the skilled person trying to understand what is meant by the reference to the "opening angle" in feature 1-17 of claim 1 and considering the overall disclosure of the patent would not reach an unambiguous interpretation of this feature

but would understand that the patent leaves the precise interpretation of this feature open.

1.2 Compliance with Article 123(2) EPC

According to features 1-16 and 1-17, which were not part of original claim 1 but are said to be based on the original description, "the sealing element is compressed using a tool including at least two co-operating jaws configured to envelop at least part of the first section ..., when placed around the device, such that compression of the annular sealing element ... is due to a larger extent to downward movement of the bead ... than to deformation of the bead ... and such that by a downward movement of the bead the inside opening angle of the bead is not increased".

The opposition division found this feature to be based on column 5, lines 8-12, of the opposed patent (equivalent to page 7, lines 15-18, of the original application, to which the division should have referred). This passage reads, in its immediate context:

"In contrast to a chamfered inside edge of the base of the bead, each second section commences at a position along an axis of the socket at which a magnitude of a derivative of an outside radius of the wall with respect to axial position has a local minimum. It is thus adjacent and not below the base of **the bead or bases of the beads, and therefore makes downward movement of the bead without deformation of the (side) walls of the bead possible. This is achieved without affecting the shape of the bead, in particular without an**

increase in its inside opening angle. Thus, the suitability of the housing for preventing the sealing element from being dislodged when the tube is inserted is unaffected." (Highlighting by the board.)

The highlighted passage conveys the idea that there is a downward movement of the bead without deformation of the side walls of the bead and without a modification of the shape of the bead, such as an increase in its inside opening angle.

Feature 1-17 of claim 1 expresses the requirement that the downward movement of the bead does not lead to the inside opening angle being increased. Claim 1 does not explicitly require the absence of deformation of the side walls, nor is there any explicit requirement that the shape of the bead not be modified.

The board cannot endorse the argument according to which the requirement that the inside opening angle not be increased implicitly requires the shape of the bead not to change. This argument is based on a particular interpretation of the expression "inside opening angle" for which there is no basis in the patent (see point 1.1.2 above). For instance, if one of the definitions proposed by the appellant is used, a flattening of the apex of the bead does not result in a modification of the inside opening angle. Moreover, even if the respondent's interpretation is adopted, deformations of the bead could be imagined that do not lead to an increase in the opening angle (such as deformations of the side walls by which the circular section of the bead is transformed into a more triangular section).

Thus, the requirement that the opening angle of the bead not change does not implicitly require the shape of the bead not to change. As a consequence, the subject-matter of claim 1 does not have sufficient basis in the original application. It involves an inadmissible intermediate generalisation.

Consequently, the main request cannot be allowed.

2. Auxiliary request 1

2.1 Admissibility

Auxiliary request 1 corresponds to former auxiliary request 1, which was filed in response to the statement of grounds of appeal, with the exception of the replacement of "effected" by "affected" in claims 1 and 8. This amendment constitutes the correction of an obvious error. As a consequence, the board admitted the request into the proceedings.

2.2 Compliance of feature 1-17 with Article 84 EPC

Claim 1-17 ("such that by a downward movement of the bead the inside opening angle of the bead is not increased") was not part of the granted claims but was taken from the description. It is, therefore, open to clarity objections (see decision G 3/14 of the Enlarged Board of Appeal, published in OJ EPO 2015, A102).

2.2.1 Admissibility of the late-filed objection

The board cannot endorse the argument that a board of appeal has to examine *ex officio* the clarity of claims amended by incorporating features that are taken from the description. It is also questionable whether a

further clarity objection merely constitutes a new argument that has to be admitted in accordance with decision T 1914/12 and the jurisprudence of the Enlarged Board of Appeal on which it is based. However, the board is satisfied that the clarity objection raised by the appellant in its written submission dated 9 February 2016 constitutes a reaction to the communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA), and in particular, to the definition of the opening angle proposed in point 5.1.8 of that communication. The reaction was filed within the time limit defined by the board (one month before the oral proceedings, see point 7) and cannot, therefore, be considered to be late-filed. As a consequence, the objection cannot be dismissed as inadmissible.

2.2.2 Clarity of feature 1-17

As explained in point 1.1.2, the patent does not provide an unambiguous definition of what is meant by "opening angle". The skilled person trying to determine what exactly is covered by the claim would be at a loss. As the feature under consideration is part of the characterizing features and, therefore, decisive for delimiting the claimed subject-matter over the state of the art, claim 1 does not clearly define the matter for which protection is sought. Thus, claim 1 does not comply with the requirements of Article 84 EPC.

As a consequence, auxiliary request 1 has to be dismissed.

3. Admissibility of auxiliary request 2

Auxiliary request 2 differs from auxiliary request 1 in that feature 1-17 has been replaced by the features of claim 4 as granted.

This amendment, although contrary to the principle prohibiting *reformatio in peius*, would be admissible in application of decision G 1/99 of the Enlarged Board of Appeal (OJ EPO 2001, 381).

However, the board has decided not to admit this request for the following reasons.

The objection which led to the dismissal of auxiliary request 1 was raised for the first time in the appellant's last written submission dated 8 February 2019. As explained in point 2.2.1 above, this objection was a legitimate reaction to the communication pursuant to Article 15(1) RPBA and filed within the time limit set by the board. Therefore, this objection was not filed late. The respondent could and should have reacted to this objection by filing an appropriate auxiliary request. This should have been done as soon as possible, at the latest a few days before the oral proceedings, so the appellant and the board could prepare themselves to deal with this request in the oral proceedings. The respondent filed its request only after the board had dismissed auxiliary request 1. The amendment is such that the scope of the claimed invention has shifted in a very significant way. This could not have been expected by the appellant or the board. As the amendment raises issues which the board and the appellant could not reasonably be expected to deal with without an

adjournment of the oral proceedings, the request is not admitted in application of Article 13(3) RPBA.

4. Conclusion

As neither the main request nor auxiliary request 1 comply with the requirements of the EPC and auxiliary request 2 is not admitted into the proceedings, there is no allowable request on behalf of the respondent. Consequently, the patent cannot be maintained.

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:



I. Aperribay

M. Poock

Decision electronically authenticated