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**Datasheet for the decision
of 21 April 2023**

Case Number: T 1346/19 - 3.2.08

Application Number: 12755633.0

Publication Number: 2682493

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F16F1/02, F16F1/06

Language of the proceedings: EN

Title of invention:
SPRING AND MANUFACTURING METHOD THEREOF

Patent Proprietor:
NHK Spring Co., Ltd.

Opponent:
Verband der Deutschen Federnindustrie e.V. (VDFI)

Headword:

Relevant legal provisions:
EPC Art. 54
RPBA 2020 Art. 13(2)

Keyword:

Novelty - (no)

Amendment after summons - cogent reasons (no)

Decisions cited:

Catchword:



Beschwerdekammern

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Chambres de recours

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Case Number: T 1346/19 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 21 April 2023

Appellant:

(Patent Proprietor)

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Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
26 February 2019 concerning maintenance of the
European Patent No. 2682493 in amended for**

Composition of the Board:

Chair

P. Acton

Members:

M. Foulger

Y. Podbielski

Summary of Facts and Submissions

- I. With the decision posted on 26 February 2019, the opposition decision decided that the patent, and the invention to which it related, according to the version of the then valid auxiliary request 5 met the requirements of the EPC.
- II. The patent proprietor filed an appeal against this decision.
- III. Oral proceedings took place before the Board on 21 April 2023. In the course of the oral proceedings the respondent filed document E2a'. The appellant did not object that this document forms part of the appeal proceedings.
- IV. The appellant (patent proprietor) requested that the decision under appeal be set aside and the opposition rejected such that the patent be maintained as granted (main request), or in the alternative that the patent be maintained in amended form according to auxiliary request 1 filed with the statement setting out the grounds of appeal or auxiliary request 4 filed with letter dated 21 March 2023.
- V. The respondent (opponent) requested that the appeal be dismissed and that the auxiliary request 4 not be admitted into the proceedings.
- VI. Claim 1 as granted reads as follows:

" **(F1.1)** A coiled spring comprising:
(F1.2) a composition consisting of, by mass %,
(F1.2.1) 0.5 to 0.7 % of C,

- (F1.2.2) 1.0 to 2.0 % of Si,
- (F1.2.3) 0.1 to 1.0 % of Mn,
- (F1.2.4) 0.1 to 1.0 % of Cr,
- (F1.2.5) not more than 0.035 % of P,
- (F1.2.6) not more than 0.035 % of S,
- (F1.2.7) and the balance of Fe and inevitable impurities;
- (F1.3) a structure including not less than 95 % of tempered martensitic structure by area ratio in a cross section of a wire material;
- (F1.4) a compressive residual stress layer formed from a surface to a depth of 0.35 mm to D/4,
 - (F1.4.1) in which D (mm) is a circle-equivalent diameter of a cross section,
 - (F1.4.2) the compressive residual stress layer having maximum compressive residual stress of 800 to 2000 MPa;
- (F1.5.1) a center portion with Vickers hardness of 550 to 700 HV in the cross section; and
 - (F1.5.2) a high hardness layer with greater hardness than the center portion by 50 to 500 HV from a surface to a depth of 0.05 to 0.3 mm,
- (F1.6) wherein the circle-equivalent diameter of the cross section of the wire material is 1.5 to 15 mm."

Auxiliary request 1

Feature F1.5.2 has been modified as follows: "a high hardness layer with greater hardness than the center portion by 50 to 500 HV from a surface to a depth of 0.05 to ~~0.3~~ mm,"

Auxiliary request 4

Feature F1.3 has been amended such that the spring contains not less than 98% of a tempered martensitic

structure.

VII. The following documents are relevant for this decision:

E2 - Alleged public prior use by Mubea Motorkomponenten GmbH:

E2a: Production drawing No. A 266 053 0120

E2a': Drawing dated 9 February 2005, "Z. Nr. : DC M266 V36K", File V36K.VFK

E2b: Laboratory report A-333/16_K

E2b': Laboratory report 1154-17_3

E2b": Laboratory report dated 28 April 2018 from Steinbeis-Transferzentrum Für Federtechnologie, Bauteilverhalten und Prozess

E2c: Delivery note of Mubea Motorkomponenten GmbH dated 17 December 2007

E2d: Invoice of Mubea Motorkomponenten GmbH dated 18 December 2007

E2e: Delivery note of Mubea Motorkomponenten GmbH dated 17 January 2008

E2f: Invoice of Mubea Motorkomponenten GmbH dated 18 January 2008

VIII. The appellant essentially argued the following:

a) Admission of E2b' and E2b"

These documents were filed late after the expiry of the 9 month opposition period. The opposition division should not have admitted these documents into the proceedings. These documents should therefore not be part of the appeal proceedings.

b) Main Request - Novelty

The subject-matter of claim 1 was new. The alleged public prior use was not proven beyond reasonable doubt.

c) Auxiliary Request 1

The subject-matter of claim 1 of this request was also new because the respondent had not provided any evidence regarding the hardness at a depth of 0.05mm.

d) Auxiliary request 4

This was filed in response to the Board's communication and should therefore be admitted into the proceedings.

IX. The respondent essentially argued the following:

a) Admission of E2b' and E2b"

These documents were *prima facie* relevant and the opposition division had correctly admitted them into the proceedings. Moreover, the impugned decision was based on these documents which meant that in order to review the decision, these documents would have to be considered.

b) Main Request - Novelty

The public prior use was proven and moreover showed all features of claim 1.

c) Auxiliary Request 1

The hardness was measured at the surface. It was not possible to measure at a depth of 0.05mm because of the size of the indenter. In any case the hardness would

not vary considerably between the surface and 0.05mm.

d) Auxiliary Request 4

This request was filed after the summons to oral proceedings had been issued. The Board's communication did not raise any new issues and therefore this request should not be admitted into the proceedings.

Reasons for the Decision

1. Admission of E2b' and E2b" into the proceedings

The appellant considers that these documents should not have been admitted into the proceedings by the opposition division and requests that these documents no longer be admitted into the proceedings.

The admittance was discussed during the oral proceedings before the opposition division (minutes 2.3.2.4 - 2.3.2.6). Moreover, the Board considers that the opposition division used the correct criterion, i.e. *prima facie* relevance in order to arrive at its decision.

Furthermore, the impugned decision is at least partly based on these documents and therefore with regard to the purpose of the appeal proceedings to review the appealed decision, it is necessary for the Board to take these documents into consideration.

On this basis, the Board decided to refuse the request to exclude E2b' and E2b" from the proceedings.

2. Novelty with respect to the alleged public prior use

2.1 Public availability

The appellant contested that the spring sample used in E2b, E2b' and E2b" was the same as that delivered as shown in documents E2c, E2d and E2e. Moreover, the appellant pointed out that the drawing E2a was not a publically available document.

The appellant submitted that the subject of the test reports E2b, E2b' and E2b" was a spring sample from 2005 (see E2b, page 1, "Bezeichnung"). The drawing E2a was however dated 2007. This implied that the spring of E2b was not the same as that shown in E2a. In response, the respondent replied that the amendment from 2 July 2007 in drawing E2a was "Zeichnung mit neuen Layout erstellt". This was essentially a redrawing of an existing drawing which the respondent handed over during the oral proceedings before the Board (document E2a'). E2a' had the same file number, V36K, as printed on all the other documents relating to the prior use and was dated 9 February 2005.

The Board concurs with the respondent that a comparison between documents E2a' and E2a shows that E2a is in effect a redrawing of E2a'. This is apparent not only from the identical file number, but also from the identical diagram showing the performance of the spring. It is correct - as pointed out by the appellant - that the values under "Ausgaben" in E2a' are slightly different from the respective values in E2a. However, these values are the output of calculations based on the inputs under "Eingaben" and do not represent any measured entity of the spring. The values under "Eingaben" are undisputedly the same in both documents.

As E2a and E2a' show a spring with the same dimensions and the same spring characteristic the Board concludes that it is the same spring shown in both documents.

The date of E2a' is consistent with the sample date of documents E2b, E2b' and E2b". Moreover it has the same file number (V36K) as shown on the ticket in E2b, E2b', E2b". Thus, the Board is persuaded that the spring shown in E2a was available to the public. It is correct as argued by the appellant that the drawing E2a was not in itself publically available, however through the availability of the spring, the technical information from the drawing was equally made available to the public.

The appellant further argued that the reports E2b, E2b', E2b" were prepared by Muhr und Bender KG which was a member of the respondent's organisation. Their objectivity was therefore doubtful. Moreover, the scope of analysis "Es soll nachgewiesen werden, dass das Gefüge ausschließlich aus angelassenem Martensit besteht" was to provide predefined results. E2b, E2b', E2b" did not fulfill the criteria of an "independent and objective expertise."

The Board notes that the mere fact that a member of the respondent's organisation performed the reports cannot in itself cast any doubt on their results. Similarly, the description of the purpose of the report does not put into question the results obtained since it is necessary to give a description of what has to be measured by a laboratory when commissioning a study. Thus the Board does not see any objective reason to doubt the reports E2b, E2b', E2b".

Therefore, the Board is persuaded that the spring with

the file number V36K and shown in the E2 documents, was publically available before the priority date of the patent.

2.2 Feature 1.2.7

The appellant argued that feature F1.2.7 wherein "the balance of Fe and inevitable impurities" was not disclosed.

This is not convincing because the material in E2a is given as OT 70/ 80T-FV which is a spring steel. This is also consistent with the composition given in E2a for the other components C, Si, Mn, Cr, V, Ni, P, and S. In a steel the balance is always made up of iron. Thus, feature F1.2.7 is unambiguously known from E2a.

2.3 Feature 1.3

The appellant further argued that feature 1.3 was not shown in drawing E2a and no conclusion could be drawn as to the spring's precise structure because this would depend on the heat treatment of the spring which is not disclosed in E2a. This is also not convincing because E2b' states that the structure could be seen as "homogener angelassener Martensit" (homogenous tempered martensite). Moreover, E2b' states (page 3, second paragraph) that no further structures could be identified. This can only lead to the conclusion that the spring contained not less than 95 % of tempered martensitic structure by area ratio as required by feature F1.3.

The Board thus finds that the feature F1.3 was known from the public prior use E2.

2.4 Feature F1.5.2

The appellant argued that the respondent had not filed any hardness test for a depth of less than 0.05mm e.g at 0.025mm thus it was not known how the hardness varied in this area. The Board did not find this argument convincing because, as argued by the respondent, the hardness cannot be measured so close to the surface. It is common knowledge that, to measure Vickers hardness, it is necessary to use a diamond indenter and the hardness is then calculated from the size of the impression. Clearly, at the very edge of a sample (i.e. 0.05mm from the edge) the hardness will be influenced by the lack of support for the material at the edge of the sample and no reliable measurement is possible. Moreover, it is unlikely that the hardness would change between the surface and a depth of 0.05mm and the appellant has not provided any convincing argument to this respect.

Thus, this feature is also known from E2.

3. Auxiliary Request 1

Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that high hardness layer was limited to a depth to 0.05mm. Given the reasoning above relating to the main request, the subject-matter of claim 1 is likewise known from E2.

Therefore, the subject-matter of claim 1 of auxiliary request 1 is not new.

4. Auxiliary Request 4

This request was filed after the notification of a

summons to oral proceedings before the Board. According to Article 13(2) RPBA 2020 such an amendment to the party's case shall not be taken into account unless there are exceptional circumstances which have been justified with cogent reasons by the party.

In the present case, the appellant argued in the letter of 21 March 2023, that the amendment was due to the Board's interpretation of feature F1.3. In their communication according to Article 15(1) RPBA, the Board did not however give an interpretation different from that of the impugned decision. Thus, there was no new interpretation of the feature that justified filing new requests.

The Board did not admit auxiliary request 4 into the proceedings.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chair:



C. Moser

P. Acton

Decision electronically authenticated