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Datasheet for the decision of 30 July 2015

Case Number: T 0507/14 - 3.2.08

Application Number: 07743572.5

Publication Number: 2023002

IPC: F16D69/04, F16D65/092

Language of the proceedings: EN

Title of invention:
PAD FOR DISK BRAKE

Patent Proprietor:
Nabtesco Corporation

Opponent:
VRI-Verband der Reibbelagindustrie e.V.

Headword:

Relevant legal provisions:
EPC Art. 123(2), 100(b), 56

Keyword:
Amendments - allowable (yes)
Sufficiency of disclosure (objections not admitted into the proceedings)
Inventive step - (yes)

Decisions cited:
G 0010/91

Catchword:

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Case Number: T 0507/14 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 30 July 2015

Appellant: (Opponent)	VRI-Verband der Reibbelagindustrie e.V. Robert-Perthel-Str. 49 50739 Köln (DE)
Representative:	Lecomte, Didier Lecomte & Partners Sàrl P.O. Box 1623 1016 Luxembourg (LU)
Respondent: (Patent Proprietor)	Nabtesco Corporation 9-18 Kaigan 1-chome Minato-ku Tokyo 105-0022 (JP)
Representative:	Müller-Boré & Partner Patentanwälte PartG mbB Friedenheimer Brücke 21 80639 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 18 December 2013 concerning maintenance of the European Patent No. 2023002 in amended form.**

Composition of the Board:

Chairman	T. Kriner
Members:	M. Alvazzi Delfrate
	I. Beckedorf

Summary of Facts and Submissions

I. By its decision posted on 18 December 2013 the opposition division found that European patent No. 2023002, in amended form according to auxiliary request 8 then on file, and the invention to which it related met the requirements of the EPC.

II. The appellant (opponent) lodged an appeal against that decision in the prescribed form and within the prescribed time limit.

III. Oral proceedings before the Board of appeal were held on 30 July 2015. For the course of the oral proceedings reference is made to the minutes.

IV. The appellant requested that the decision under appeal be set aside and that the patent be revoked.

The respondent's (patent proprietor's) main request was that the appeal be dismissed.

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

"1. A disc brake pad comprising:
a supporting member (12, 14) having a plurality of protruding parts (25);
a friction material piece (16) fixed to said supporting member (12, 14), said plurality of protruding parts (25) sticking out from a surface where said friction material piece (16) is fixed to said supporting member (12, 14), the protruding parts (25) having a height which is large enough to reach a frictional surface of said friction material piece (16), the protruding parts (25) being fixed to said friction material piece (16), characterized in that said friction material piece (16)

is made of sintered metal, the sintered metal being a copper alloy which is a copper-based material containing copper as a base material, said protruding parts (25) are made of a copper-based material containing copper as a base material which is a material similar to the material used in said friction material piece (16), and said friction material piece (16) is sintered onto said protruding parts (25) and said supporting member (12, 14),
wherein the protruding parts (25) are fixed to said supporting member (12, 14) by mechanical fixing means."

VI. The following documents played a role for the present decision:

E1: US -A- 4,278,153;
E2: DE -A- 102 57 353;
E3: EP -A- 0 621 415;
E4: US -A- 2,793,427;
E5: US -A- 4,456,578;
E6: GB -A- 2 030 665;
E7: US -A- 5,518,519;
E8: US -A- 3,534,464;
E9: EP -A- 0 902 210;
E10: EP -A- 0 508 423;
E15: US -A- 5,841,042; and
E16: DE -A- 197 12 812.

VII. The arguments of the appellant can be summarised as follows:

Amendments

The application as originally filed disclosed in paragraphs [0014] and [0018] the materials used for the friction material piece and for the protruding parts,

as well as the fact that the friction material piece was sintered onto the protruding parts and the supporting member. However, said paragraphs related to a particular embodiment comprising several other features that were not present in the claim. In particular, paragraph [0014] disclosed also that the friction material pieces were made of sintered metal in which a small quantity of additive, such as a metallic compound of iron or the like, or graphite, was dispersed. Moreover, not just any kind of material could be used for the supporting member, since the friction material piece was sintered onto it. For this purpose the application as originally filed disclosed in paragraph [0009] an iron-based material. Finally, in the embodiment to which paragraphs [0014] and [0018] referred the brake pad also comprised individual fixing holes 12a in the fixing portion of the reinforcing plates 14, friction material members with a cylindrical form, through holes 20a for inserting the protruding parts, protruding parts directed perpendicular to the support member and with furrows and ridges. Therefore, some features had been isolated from the original disclosure and inserted into the claim in a way which represented an inadmissible intermediate generalisation.

Additionally, the feature according to which the protruding parts stuck out from a surface of the supporting member was intended to prevent the formation of cracks in the friction piece. According to paragraph [0016] this was possible only when the protruding parts were perpendicular to the support member. Since this essential feature was not included in the claim, a further deficiency in respect of Article 123(2) EPC or, in the alternative, in respect of sufficiency of disclosure was present.

Sufficiency of disclosure

The patent in suit did not disclose what was intended by materials "similar" to each other. Moreover, it gave no concrete example of the sintered copper alloy to be used for the friction material piece. Therefore, the disclosure of the patent was insufficient. In view of their relevance these objections should be taken into consideration.

Inventive step

E1 represented the most relevant prior art and disclosed a disc brake pad with all the features of present claim 1, except that the protruding parts were fixed to the supporting member by mechanical fixing means. The object to be achieved by means of this distinguishing feature was to provide a brake pad with enhanced bond strength of the friction material. It was known to the person skilled in the art that mechanical fixing provided a strong bond. Therefore, it was obvious to achieve said object in accordance with the claimed invention starting from E1.

Additionally, the subject-matter of claim 1 was also obvious starting from E2 or E3. In respect of E2 the claimed brake pad was distinguished by the choice of the sintered copper alloy for the friction piece, a feature well known to the person skilled in the art as documented by E4, E5, E6, E7, E8, E10, E15, E16 and E1, and by the use of mechanical fixing means, which was rendered obvious by the common general knowledge of the person skilled in the art or by E9. In respect of E3 the claimed brake pad was distinguished by the choice of a sintered copper alloy for the friction piece,

which could not justify an inventive step for the reasons given above, and by the use of a plurality of protruding parts instead of the basket of E3, which was rendered obvious by E1 or E2.

VIII. The arguments of the respondent can be summarised as follows:

Amendments

The application as originally filed disclosed in paragraphs [0014] and [0018] the copper-based materials used for the friction material piece and for the protruding parts as well as the fact that the friction material piece was sintered onto the protruding parts and the supporting member. These features were not linked to the other features of the same embodiment, which related either to specific configurations of the disc brake pad or to different purposes. In particular, the additive served to improve the friction coefficient at high temperatures, while the material chosen for the friction material piece and for the protruding parts provided an improved bonding. Moreover, the description, in particular paragraph [0024], made it clear that the choice of the material for the support member was not limited to iron-based materials.

The feature that the protruding parts stuck out from a surface of the supporting member was already disclosed in originally filed claim 1.

Sufficiency of disclosure

No consent was given to the introduction of the fresh ground of opposition under Article 100(b) EPC in appeal proceedings. As to the objections of insufficient

disclosure relating to the post-grant amendments, they could have been submitted in the opposition proceedings and were not prima-facie relevant. Hence, they should be disregarded.

Inventive step

E1 represented the most relevant prior art. However, it did not disclose that the protruding parts were fixed to the supporting member by mechanical fixing means. Moreover, the friction material pieces of E1 were not made of a copper alloy but of a mixture of metal powders. The object to be achieved starting from E1 was to provide a brake pad with enhanced bond strength of the friction material and freedom of choice of the materials. In E1 the friction material was sintered into the cups 12. An interlayer could be used if the strength of the bond was to be enhanced. Therefore, the person skilled in the art had no reason to mechanically fix the protruding parts of E1 to the cups, i.e. the support members, to achieve this object. Accordingly, the subject-matter of claim 1 involved an inventive step starting from E1.

The same was true when starting from the less relevant documents E2 and E3. Starting from E2, which explicitly taught to weld the protruding parts to the support, the person skilled in the art would have no reason to mechanically fix said protruding part. In particular E9 did not suggest the claimed invention, because it taught a single protruding part, which was formed together with the friction material by integral moulding and not by sintering. As to E3, it did not disclose a plurality of protruding parts, but a single one in the form of a basket. The person skilled in the art had no reason to modify this arrangement and use a

plurality of protruding parts in accordance with claim 1.

Reasons for the Decision

1. Amendments

1.1 During the examination and opposition proceedings claim 1 was amended inter alia by the addition of the features according to which

the friction material piece is made of sintered metal, the sintered metal being a copper alloy which is a copper-based material containing copper as a base material, the protruding parts are made of a copper-based material containing copper as a base material which is a material similar to the material used in said friction material piece, and the friction material piece is sintered onto the protruding parts and the supporting member.

It is undisputed that these features are disclosed in paragraphs [0014] and [0018] of the application as filed. However, the appellant objects that these features are taken in isolation from the description, where they were disclosed solely in combination with a number of other features. Whether the omission of said other features constitutes an unallowable intermediate generalisation is discussed hereafter.

1.1.1 Indeed paragraph [0014] discloses also that the friction material pieces are made of sintered metal in which a small quantity of additive, such as a metallic

compound of iron or the like, or graphite, is dispersed.

The purpose of this addition is to obtain a high friction coefficient even at high temperatures (paragraph [0014]). By contrast, the purpose of the features introduced by the amendment under consideration is to enhance the bond strength while offering greater freedom with respect to the materials (paragraphs [0023] and [0024]).

In view of these two different functions the person skilled in the art recognises without any doubt from the application as originally filed that the characteristics added to claim 1 are not closely related to the presence of a small quantity of additive. Accordingly, the fact that this additive is not mentioned in the claim does not constitute an inadmissible intermediate generalisation.

1.1.2 It is true that, as pointed out by the appellant, not just any kind of material can be used for the supporting member, since the friction material piece is sintered onto it. However, although the sole material explicitly mentioned is an iron-based material (paragraph [0009]), the application as filed discloses that, due to the mechanical fixing of the protruding parts and the choice of materials for the friction material and the protruding parts, more freedom of choice is given for the material of the supporting member (paragraphs [0023] and [0024]). In other words it makes clear that it is not necessary to use an iron-based material for the supporting member. Therefore, also in this respect no inadmissible intermediate generalisation can be seen.

1.1.3 Lastly, the person skilled in the art immediately recognises that the individual fixing holes 12a in the fixing portion of the reinforcing plates 14, the cylindrical form of friction material members, the through holes 20a for inserting the protruding parts, the direction of the protruding parts and the provision of furrows and ridges on the protruding parts are constructional details of the brake pad with no relation to the function of the features introduced into the claim by the amendment in question, which pertain to the choice of materials for the frictional member and the protruding parts. Accordingly, no added subject-matter is introduced by the fact that these details have not been added to the claim together with the features in question.

1.1.4 Accordingly, the amendments under consideration do not represent an inadmissible intermediate generalisation.

1.2 The feature according to which the protruding parts stick out from a surface of the supporting member was already present in claim 1 as originally filed, which was silent as to the direction of the protruding parts. Therefore, no amendment and, as a consequence, no possible added subject-matter exists in this respect.

2. Sufficiency of disclosure

2.1 The objections in respect of sufficiency of disclosure have been raised for the first time in appeal proceedings.

2.2 A first group of objections, namely those relating to the selection for the protruding parts of a material "similar" to that of the friction material piece and to

the direction of the protruding parts "sticking out" from a surface of the supporting member (this objection was raised as an alternative to the objection of added subject-matter in respect of the same feature), would apply in the same way to claim 1 as granted, which already comprised these features. Therefore, raising these objections equates to raising the ground of opposition under Article 100(b) EPC against the patent as granted.

However, fresh grounds for opposition may be considered in appeal proceedings only with the approval of the patentee (G10/91, OJ EPO 1993, 420, point 3 of the Opinion). Since this approval has not been given in the present case, the first group of objections cannot be taken into consideration.

2.3 The situation regarding the objection relating to the sintered copper alloy to be used for the friction material piece is different, since this feature was introduced into the claim by an amendment during the opposition proceedings. Hence, raising this objection does not equate to raising a fresh ground of opposition against the patent as granted but rather to questioning, under Article 101(3) EPC, the compliance of the amended patent with the requirements of the EPC. Accordingly, the consideration of this objection does not require the approval of the patent proprietor.

Nonetheless, since this objection could (undisputedly) have been raised already during the opposition proceedings, its consideration is subject to the discretionary power of the Board (Article 12(4) RPBA).

There is no reason which justifies the delay in submitting this objection, given that the claims under

consideration were submitted some four months in advance of the oral proceedings before the opposition division.

Moreover, the objection is prima facie not persuasive, because sintered copper alloys, inter alia for use in brake pads, are well known to the person skilled in the art (see also appellant's letter of 7 April 2014, page 7, point 5.2.1), so that his common general knowledge would enable him to choose a material for the friction piece.

Under these circumstances, the Board decided not to admit this objection into the proceedings.

3. Inventive step

3.1 It is common ground that E1 represents the most relevant prior art and that it discloses a disc brake pad (10) comprising a supporting member (cup 12) having a plurality of protruding parts (reinforcement material 26) and a friction material piece (frictional material 22) fixed to the supporting member, the plurality of protruding parts sticking out from a surface where said friction material piece is fixed to the supporting member (see Figures 2 and 3), the protruding parts having a height which is sufficient to reach a frictional surface of the friction material piece (see Figures 2 and 3), the protruding parts being fixed to the friction material piece, wherein the friction material piece is made of sintered metal (column 5, lines 9 to 12). The friction material piece is sintered onto the protruding parts (column 5, lines 41 to 43).

According to E1 the sintered metal of the friction material piece is a copper-based material containing

copper as a base material (claim 3; column 5, lines 9 to 12 and column 6, lines 2 to 9). The protruding parts can be made of an alloy which comprises copper and other copper metals compatible with the sinterable components of the friction material piece (column 5, lines 21 to 24 and claim 3). Accordingly, they are also made of a copper-based material containing copper as a base material. Hence, the material of the protruding parts may be regarded as a material similar to the material used in the friction material piece.

3.2 Starting from the brake pad of E1, the object underlying the claimed invention is to provide a brake pad with enhanced bond strength of the friction material while offering greater freedom in the choice of the materials (see paragraphs [0023] and [0024]).

This object is achieved by the brake pad of claim 1, wherein the protruding parts are fixed to the supporting member by mechanical fixing means. In this way the supporting parts (and the friction material joined to them) can be fixed to the supporting members more strongly than in E1, where they are sintered together and held by the cup which constitutes the supporting member (see column 6, lines 12 to 16 and claim 12).

3.3 It is true that mechanical fixing to provide a strong bond is known to the person skilled in the art. However, in E1 the protruding parts represented by the reinforcement material 26 are not conceived as elements to be fixed to the supporting elements independently of the friction material piece but rather as parts belonging to this piece. Actually, in the method of E1 the protruding parts and the friction material form a "frictional module" 14 which is then joined with the

supporting members by sintering (claim 12). Therefore, the person skilled in the art seeking to achieve the object above would not have mechanically joined the protruding parts to the supporting members. E1 itself discloses instead a completely different solution for enhancing the strength of the joint in case of incompatible materials, namely the use of an interlayer (column 6, lines 20 to 27).

Therefore, it was not obvious to arrive at the claimed invention starting from E1.

3.4 The same applies when starting from E2 or E3, which are less promising starting points.

3.4.1 E2 discloses a disc brake pad comprising a supporting member (1,2) having a plurality of protruding parts (4), a friction material piece (3) fixed to said supporting member, said plurality of protruding parts sticking out from a surface where said friction material piece is fixed to said supporting member, the protruding parts being fixed to said friction material piece. The protruding parts are made of a copper-based material containing copper as a base material (paragraph [0016]).

However, E2 does not specify the material of the friction material piece. Accordingly, it does not disclose that the friction material piece is made of sintered metal, the sintered metal being a copper alloy which is a copper-based material containing copper as a base material, and that the friction material piece is sintered onto said protruding parts and said supporting member. As a further consequence, it does not disclose that the protruding parts are made of a material

similar to the material used in said friction material piece.

Furthermore, E2 does not disclose that the protruding parts are fixed to said supporting member by mechanical fixing means (rather they are preferably welded, see paragraph [0009]).

Finally, although a plurality of protruding parts is disclosed in E2, this document does not disclose that more than one of these parts have a height which is sufficient to reach a frictional surface of the friction material piece (see paragraph [0018]).

No prior art renders it obvious to provide the brake pad of E2 with these distinguishing features. In particular, E9 does not teach a plurality of protruding parts with a height sufficient to reach the frictional surface and to which the friction material is sintered, but rather a single bolt which does not reach the frictional surface and to which the friction material is moulded (see claims 3 and 4, drawings and paragraph [0013]).

3.4.2 E3 discloses a disc brake pad comprising:
a supporting member (10) having a protruding part in the form of a basket ("Korb" 113), a friction material piece (11, 111) fixed to said supporting member, the protruding part sticking out from a surface where the friction material piece is fixed to said supporting member, the protruding part having a height which is sufficient to reach a frictional surface of the friction material piece, the protruding part being fixed to said friction material piece (Figure 7), inter alia by mechanical fixing means (claim 1).

However, E3 discloses only one protruding part per friction material piece.

Moreover, E3 does not disclose that the friction material piece is made of sintered metal, the sintered metal being a copper alloy which is a copper-based material containing copper as a base material, and the protruding parts are made of a copper-based material containing copper as a base material which is a material similar to the material used in said friction material piece, and said friction material piece is sintered onto said protruding parts and said supporting member.

Also in this case, the prior art does not render it obvious to modify the brake pad of E3 in accordance with claim 1. In particular, it does not suggest the addition of further protruding elements fixed by mechanically fixing means to the supporting member, which would require a different system of fixation of the friction material than the basket used by E3.

3.5 Therefore, the subject-matter of claim 1 involves an inventive step.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

V. Commare T. Kriner

Decision electronically authenticated