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**Datasheet for the decision
of 27 June 2019**

Case Number: T 2001/15 - 3.2.07

Application Number: 05740437.8

Publication Number: 1635989

IPC: B24B5/42, B24B27/00

Language of the proceedings: EN

Title of invention:

IMPROVEMENTS IN AND RELATING TO THE GRINDING OF CYLINDRICAL SURFACES AND ADJOINING SIDE-WALLS

Patent Proprietor:

Fives Landis Limited

Opponent:

EMAG Holding GmbH

Headword:

Relevant legal provisions:

EPC Art. 123(2), 100(b), 83, 106(1), 56
RPBA Art. 12(2), 12(4), 13(1), 13(3)

Keyword:

Amendments - extension beyond the content of the application
as filed (no)

Sufficiency of disclosure - (yes)

Inventive step - (yes)

Decisions cited:

Catchword:



Beschwerdekammern
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Chambres de recours

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Case Number: T 2001/15 - 3.2.07

D E C I S I O N
of Technical Board of Appeal 3.2.07
of 27 June 2019

Appellant: Fives Landis Limited
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted on
3 August 2015 concerning maintenance of the
European Patent No. 1635989 in amended form.

Composition of the Board:

Chairman I. Beckedorf
Members: A. Beckman
V. Bevilacqua

Summary of Facts and Submissions

I. The patent proprietor and the opponent both filed appeals in due time and form against the decision of the opposition division maintaining the European patent No. 1 635 989 in amended form.

II. Opposition had been filed against the patent as a whole based on Article 100(a) EPC (lack of novelty and lack of inventive step).

The opposition division found that the subject-matter of claim 23 of the main request did not meet the requirements of Article 123(2) EPC. The patent was then maintained in amended form on the basis of the first auxiliary request filed during oral proceedings before the opposition division.

III. The following documents of the opposition proceedings are referred to in the present decision:

D5: DE 35 05 102 A1,

D6: US 4,603,514,

D12: EP 0 477 732 A1.

IV. The appellant-patent proprietor requested

that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of one of the sets of claims filed with letter dated 11 December 2015 as main request and as auxiliary requests 1 to 4, of which the main request and auxiliary request 1 were decided upon in the decision under appeal.

The appellant-opponent requested

that the decision under appeal be set aside and that the patent be revoked.

V. The Board issued a communication pursuant to Article 15(1) RPBA with its preliminary opinion on the above requests.

VI. Oral proceedings before the Board took place on 27 June 2019 during which the factual and legal situations were discussed with the parties.

For the course of the oral proceedings, reference is made to the minutes thereof.

The decision was given at the end of the oral proceedings.

VII. Independent **claim 1 according to the main request**, i.e. according to the patent as granted, reads as follows:

"A method of operating a grinding machine (68) including a grinding wheel (2) to grind a cylindrical surface (8) on a workpiece (4), the cylindrical surface being bounded at one or both ends with a radial flange or sidewall which also has to be ground to size, characterised in that the method comprises the steps of:-

(1) carrying out an angled plunge grind (C, I) at an angle of wheel advance selected so that the sidewall grind will be completed ahead of the cylindrical grind, (2) after the sidewall grind has been completed, standing off (D, J) the wheel from the sidewall, so that only the cylindrical circumferential surface of the wheel will make grinding engagement with the

workpiece at least at the start of the final part of the grind, and

(3) plunge grinding (E, K) the cylindrical surface of the workpiece to achieve the final diameter required of the cylindrical surface."

Independent **claim 23 according to the main request**

reads as follows (in bold the features introduced and in strike-through the features deleted with respect to claim 23 of the patent as granted):

"A grinding machine (68) and programmable computer based control system (100, 210) therefor, programmed to grind a cylindrical surface (222) bounded by at least one radial sidewall (224, 226) on a workpiece (212) by way of a series of plunge grinds, characterised in that the control system is programmed to control a grinding wheel (208) of the machine so as **to carry out an angled plunge grind (C, I) at an angle of wheel advance selected** to grind the ~~or each~~ sidewall to size before the adjoining cylindrical surface is ground to the correct diameter, ~~and~~ to cause the wheel to stand-off from the ground to size sidewall at least at the start of a final plunge grind of the diameter, **and to plunge grind the cylindrical surface of the workpiece to achieve the final diameter required of the cylindrical surface.**"

VIII. The opponent's arguments in the appeal proceedings can be summarised as follows and are dealt with in more detail in the reasons for the decision:

Amendments

The subject-matter of claim 23 according to the main request extends beyond the content of the application

as filed, since the feature "so that only the cylindrical circumferential surface of the wheel will make grinding engagement with the workpiece" is missing in claim 23. However, the missing feature is required for the definition of the invention according to claim 23, as can be taken from page 2, paragraph (2), of the application as originally filed.

Sufficiency of disclosure

The meaning of the standing off the grinding wheel from the ground to size sidewall, i.e. step (2) in claim 1, is not disclosed in the contested patent in a manner sufficiently clear and complete for it to be carried out by a skilled person.

Combination of the teachings of D5 and D12 or the common general technical knowledge

The subject-matter of claims 1 and 23 of the main request lacks an inventive step in view of the teaching of document D5 as the closest prior art in combination with either the teaching of document D12 or with the common general technical knowledge of the person skilled in the art.

Likewise, and as a second line of objection to inventive step, the claimed subject-matter lacks an inventive step in view of the teaching of document D12 as the closest prior art in combination with either the teaching of document D5 or with the common general technical knowledge of the person skilled in the art.

IX. The patent proprietor's arguments in the appeal proceedings can be summarised as follows and are dealt with in more detail in the reasons for the decision:

Amendments

The subject-matter of claim 23 according to the main request is wholly within the scope of claim 23 as originally filed and the disclosure of the fifth paragraph on page 4 of the description as originally filed.

Sufficiency of disclosure

The meaning of the standing off the grinding wheel from the ground to size sidewall is clear from reading of claim 1 alone and further supported by the description of the patent in suit.

Combination of the teachings of D5 and D12 or the common general technical knowledge

Document D12 does not address angular plunge grinding, but rather transverse grinding. The skilled person starting from D5 and seeking to improve angular plunge grinding would not be led by the teaching of D12 or by its common general technical knowledge to the subject-matter of claim 1 or claim 23 in an obvious manner.

The second line of argument for objecting to inventive step of the claimed subject-matter should not be admitted into the proceedings.

Reasons for the Decision

1. Amendments - Article 123(2) EPC

1.1 The patent proprietor contests the finding of the impugned decision that the subject-matter of claim 23 of the main request extends beyond the content of the application as filed (impugned decision, point 13). The patent proprietor argues that claim 23 of the main request was considered to contravene Article 123(2) EPC on the basis that it did not include a feature present in method claim 1. This is the feature that the grinding wheel is caused to stand-off from the ground to size sidewall "so that only the cylindrical circumferential surface of the wheel will make grinding engagement with the workpiece" at least at the start of the final plunge grind.

1.2 The opponent argues that the disputed feature is neither explicitly nor implicitly present in claim 23, but required for the definition of the invention according to claim 23, as disclosed on page 2, paragraph (2), of the application as originally filed.

1.3 The Board disagrees with the opponent's argumentation, since page 2, paragraph (2), of the application as originally filed, relates to step (2) of the method as defined in claim 1 and, thus, is not construed as disclosing necessary features required for the definition of the invention according to system claim 23.

The Board shares the patent proprietor's view that the subject-matter of claim 23 is wholly within the scope of claim 23, as originally filed, and the disclosure of

the fifth paragraph on page 4 of the description, as originally filed.

As a consequence of that, the subject-matter of claim 23 of the main request does not extend beyond the content of the application as originally filed and, thus, meets the requirements of Article 123(2) EPC.

2. *Admittance into the proceedings of the objection under Article 100(b) and 83 EPC*

2.1 The opponent brings forward that the step of standing off the grinding wheel from the ground to size sidewall, i.e. step (2) in claim 1, is not disclosed in the contested patent in a manner sufficiently clear and complete for it to be carried out by a skilled person.

2.2 The patent proprietor puts forward that this objection was not included in the opponent's notice of opposition as a ground for opposition under Article 100(b) EPC. The patent proprietor argues that it did object to introduction of this ground of opposition during the oral proceedings before the opposition division and only submitted arguments responding to the objection at the hearing in case the opposition division decided to admit it (see impugned decision, point 14). Therefore, this late ground of opposition should not have been considered by the opposition division and should not be admitted into the appeal proceedings.

2.3 The Board notes in this respect that, although the patent proprietor asked during oral proceedings before the opposition division "not to admit this objection" (see impugned decision, under point 14) into the proceedings, according to the minutes of the oral proceedings before the opposition division, the patent

proprietor did not raise any objection to the opponent raising this issue for the first time only during the oral proceedings before the opposition division with regard to claim 1 of auxiliary request 1, but submitted arguments on the merits (see points 13 and 14 of the minutes; point 14 of the impugned decision).

It is further noted that during oral proceedings before the opposition a decision on the issue of sufficiency of disclosure was actually taken on the basis of both parties' oral submissions (see impugned decision, point 14; and minutes of the oral proceedings, points 13 and 14). Furthermore, the patent proprietor provided a substantive answer to that issue in appeal proceedings (see letter of reply dated 8 June 2016, point 3.2).

In view of the decision taken by the opposition division on that issue and the reaction of the patent proprietor by initially responding to it, the Board considers that the issue of sufficiency of disclosure is in the proceedings as part of the review of the decision under appeal pursuant to Article 106(1) EPC.

3. *Sufficiency of disclosure (Article 100(b) and 83 EPC)*

3.1 According to a first line of the opponent's argumentation it is not possible to implement step (2) of claim 1 which involves "standing off the wheel from the sidewall, so that only the cylindrical circumferential surface of the wheel will make grinding engagement with the workpiece at least at the start of the final part of the grind" in particular when taking paragraph [0005] of the patent in suit into consideration, wherein the "stand-off may be achieved by axially displacing the wheel relative to the workpiece or the workpiece relative to the grinding

wheel by a small distance." The opponent argues that it is not possible that only the cylindrical surface of the grinding wheel, after being axially parallel displaced, engages with the workpiece. If the cylindrical surface should engage the workpiece after having been displaced in an axially parallel direction, the cylindrical surface must engage the workpiece already before being displaced and during its displacement.

According to a second line of the opponent's argumentation, when implementing a "standing off the wheel from the sidewall, so that only the cylindrical circumferential surface of the wheel will make grinding engagement with the workpiece at least at the start of the final part of the grind" the person skilled in the art would realise that material would remain at the sidewall of the workpiece. Thus, the sidewall could not be finished without performing an additional process step for removing the remaining material. However, the skilled person does not learn from the patent in suit how to remove the remainder to achieve a finished sidewall.

- 3.2 The Board disagrees and considers that the meaning of this feature is clear from the wording of claim 1 alone and the further supporting information provided in the description, in particular in paragraphs [0005] to [0006] and [0027] with reference to figure 4.

A typical grinding wheel used in the context of the patent in suit, namely crankshaft grinding (see paragraph [0001] of the patent specification), may have a diameter of 500 mm. It may be around 35 mm wide. The curved edge transition from its cylindrical surface to its side face may typically have a radius of around 5

mm. These dimensions are to be contrasted with a typical depth of stock material to be removed from the cylindrical surface of a bearing support surface or crankpin which is typically of the order of 0.5 mm. The person skilled in the art therefore recognises immediately that, following a stand-off step to separate the wheel from the sidewall of the workpiece, for all practical intents and purposes, only the cylindrical circumferential surface of the wheel will make grinding engagement with the workpiece at the start of a subsequent plunge grind of the cylindrical surface of the workpiece.

The skilled person would see the reference to "only the cylindrical surface of the wheel" making grinding engagement with the workpiece in the context of the patent in suit as meaning that, in contrast to the preceding angled plunge grind where both the sidewall and the cylindrical surface of the wheel are ground using both the side face and the cylindrical surface of the wheel simultaneously, the stand-off means that essentially only the cylindrical surface makes grinding engagement with the workpiece at the start of the final part of the grind. The skilled person would therefore have no difficulty in carrying out step (2) of claim 1.

As a consequence of that, the Board is not convinced by the opponent's objections with regard to lack of sufficiency of disclosure.

3.3 As far as the admittance of the opponent's second line of argumentation was objected by the patent proprietor as being a new line of attack, the Board considered it not necessary to take a decision on its admittance into the proceedings, since the second line of argumentation

is not convincing for the reasons given above under point 3.2.

4. *Admittance into the proceedings of the inventive step attack based on D12 chosen as closest prior in combination with either the common general technical knowledge of the person skilled in the art or with the teaching of D5*

4.1 In accordance with Article 12(2) RPBA "the statement of grounds of appeal and the reply shall contain a party's complete case. They shall set out clearly and concisely the reasons why it is requested that the decision under appeal be reversed, amended or upheld and should specify expressly all the facts, arguments and evidence relied on". And Article 12(4) RPBA provides that only submissions meeting said requirements shall be taken into account in assessing the appeal case.

Article 13(1) RPBA leaves it to the discretion of the Board to admit amendments to a party's case after it has filed its grounds of appeal or reply. Aspects to be looked at when exercising the discretion are according to Article 13(1) RPBA inter alia the complexity of the new subject-matter, the current state of the proceedings and the need for procedural economy.

An even stricter criterion is applied to amendments sought to be made after oral proceedings have been arranged. According to Article 13(3) RPBA these amendments "shall not be admitted if they raise issues which the Board or the other party or parties cannot reasonably be expected to deal with without adjournment of the oral proceedings." Thus, the parties' right to be heard and/or procedural economy take precedence over other considerations.

4.2 In its communication according to Article 15(1) RPBA, the Board already indicated that the mentioning of a list of documents is considered unsubstantiated and does not constitute the party's complete case within the meaning of Article 12(2) RPBA. The relevant part of said communication reads as follows:

"As far as the opponent in the statement of grounds of appeal mentions a list of documents (D5, D12, D5+D12, D5+D13, D12+D5, D12+D6, D12+D13, D13+D5, D13+D6, D13+D12) as obvious teachings leading to the claimed subject-matter (see point 3 thereof, third complete paragraph on page 4/4), this general and unsubstantiated submission does not constitute the party's complete case within the meaning of Article 12(2) RPBA and, thus, does not contribute to the scope of the opponent's appeal case."

In its reply to the Board's communication the opponent did neither provide any substantiated arguments nor any comments on the preliminary opinion of the Board.

As a matter of fact, even after having been informed by said communication about the Board's preliminary opinion, the opponent refrained from presenting any substantiated argumentation on the lack of inventive step attack based on D12 as the closest prior art in combination with the general technical knowledge of the person skilled in the art or with the teaching of D5 until the day of the oral proceedings.

Thus, in the Board's view, the patent proprietor had every reason to believe that lack of inventive step was no longer pursued in the appeal proceedings starting from D12 as closest prior art. Therefore, it cannot be

expected that the patent proprietor would have foreseen the objection of lack of inventive step based on the combination of the teaching of D12 with the teaching of D5 or the common general technical knowledge and had prepared counter-arguments in this respect.

4.3 Considering all the circumstances of the present case, the Board concludes that admitting into the proceedings an unsubstantiated line of argument for objecting to inventive step of the claimed subject-matter did not only substantially add to and considerably change the complexity of the matter to be discussed and decided upon, but would be contrary to the need to procedural economy. Moreover, the patent proprietor's right to be heard with regard to said new lack of inventive step attack would have been respected only if the oral proceedings were adjourned in order to allow the patent proprietor adequate consideration of the opponent's objection.

4.4 Consequently, applying Article 13(1) and (3) RPBA, the Board did not admit into the appeal proceedings the respondent's new line of attack and did not allow the respondent to further present its new lack of inventive step attack based on the combination of the teaching of D12 as the closest prior with the teaching of D5 or the common general technical knowledge of the person skilled in the art.

5. *Inventive step - Article 56 EPC*

5.1 The opponent contests that the subject-matter of claims 1 and 23 of the main request involves an inventive step starting from D5 as closest prior art in combination with either the teaching of D12 or with the common

general technical knowledge of the person skilled in the art.

The opponent argues that D5 relates to an angled plunge grind to grind both a sidewall and an adjoining cylindrical surface, from which the subject-matter of claim 1 differs only in standing off the wheel from the sidewall after the sidewall grind has been completed.

The distinguishing features had the technical effect that the sidewall would not be inadequately stressed by the grinding wheel when grinding the cylindrical surface of the workpiece.

The technical problem could then be seen in avoiding friction at the finished sidewall during grinding of the cylindrical surface of the workpiece.

However, it would be an obvious solution for the skilled person, on the basis of its common general knowledge, to stand off the wheel from the sidewall, after the sidewall has been ground completed, to avoid friction, damage or overheating between them. To support the above objection, the opponent further referred to D12 which clearly discloses standing off the wheel from the sidewall after grinding of the sidewall is completed (column 5, lines 29-35 and 44-49; trajectory of the grinding wheel in relation to the workpiece in figure 5).

Therefore, modifying the angled plunge grind of a sidewall and a cylindrical surface as known from D5 in the claimed manner would have been self-evident to a person skilled in the art or obvious in view of the teaching of D12.

5.2 The Board cannot share this view for the following reasons.

Both parties agree that D5 does not disclose the features of step (2) of claim 1 of standing off the wheel from the sidewall after the sidewall grind has been completed.

These distinguishing features have the technical effect that the angled plunge grind is used to complete the sidewall grind whilst carrying out part of the cylindrical grind. The wheel is then stood off from the sidewall so that the cylindrical surface grind can be completed without damaging the finished sidewall. Thus, each surface, namely sidewall and adjoining cylindrical surface, is plunge ground to a finish in separate steps so that plunge grinding and grind parameters, such as grinding wheel speed and rate of infeed for example, during the final part of each grind can be optimised for each surface.

The objective technical problem to be solved can therefore be seen in providing an alternative and optimised way of angle plunge grinding of a sidewall and an adjoining cylindrical surface, wherein damage of the sidewall during the final approach of the wheel to complete the cylindrical surface grind is prevented (see paragraph [0006] of the patent in suit).

The skilled person faced with this problem would find the claimed solution neither in its common general knowledge, nor in D12, contrary to the opponent's view.

5.2.1 D5 and D6 (D6 is a US patent belonging to the same patent family as German publication D5) disclose an angled plunge grind for grinding both a sidewall and an

adjoining cylindrical surface simultaneously, involving moving the grinding wheel along a path E which takes it directly into the contour of the angle. However, contrary to the opponent's argumentation, D5 and D6 do not indicate that the grinding wheel is spaced from or stand off the sidewall SP between angled grind E and the following plunge grind F parallel to the sidewall (see figure 4), because instead of standing off the wheel "... traverse grinding is effected subsequent to Step E thereby to grind the cylindrical portion CP of the work W into finish dimensions." (see D5, page 11, lines 5-8, and D6, column 4, lines 59-63).

In addition, D5 and D6 do not address the underlying problem of the poor sidewall finish achieved when using an angled plunge grind to grind a sidewall and an adjoining cylindrical surface to a finish simultaneously. Therefore, the Board considers that D5 and D6 do not prompt or motivate the skilled person, on the basis of its common general knowledge, to introduce after completion of the sidewall grind any stand off step of the wheel between step E and step F.

Hence, the Board is not convinced that standing off the wheel from the sidewall after the sidewall grind has been completed is a measure which is self-evident for the skilled person in order to solve the underlying problem.

5.2.2 D12 also does not contain any teaching suitable to cast doubts on inventive step.

As a matter of fact, D12 is not concerned with angled plunge grinding, but instead it relates to an angular grinding wheel which is designed and used to carry out **traverse grinding**. As the side surface Ws and the

adjacent cylindrical surface Wc1 are ground separately according to the method of D12 and the cylindrical surface Wc1 is spaced axially from the side surface Ws by a groove visible in Fig. 5, it is consecutive that the grinding wheel is moved axially away from the side surface after grinding thereof has been completed, during its transition to the starting point of the grind of the cylindrical surface. However, D12 does not contain any teaching for angle plunge grinding and no such grinds are suggested by D12.

Because of this difference the person skilled in the art seeking for an alternative and optimised way of angle plunge grinding of a sidewall and an adjoining cylindrical surface would not be motivated to apply the teaching of D12 to solve the above mentioned problem.

Even when consulting D12, without hindsight of the claimed invention, the skilled person would not find any discussion on the merits of grinding both a sidewall and an adjoining cylindrical surface simultaneously, wherein damage of the sidewall during the final approach of the wheel to complete the cylindrical surface grind is prevented.

- 5.3 Since claim 23 comprises essentially the corresponding distinguishing features to method claim 1, the Board's above reasoning with regard to inventive step of claim 1 applies, *mutatis mutandis*, to the subject-matter of claim 23.
- 5.4 Hence, the opponent failed to persuade the Board that the combination of the teaching of D12 or of the common general knowledge with the teaching of D5 would lead the skilled person to the subject-matter of claim 1 and 23 of the main request in an obvious manner.

6. *Description*

6.1 The opponent argues that, when adapting the description to the main request, D12 should be cited as background art in the patent specification.

6.2 The Board, noting that D5, which represents the closest prior art, is discussed in paragraph [0003], considers mentioning of D12 in the patent specification in addition to D5 is neither occasioned by a ground for opposition nor otherwise necessary for adapting the description to the main request (Rules 100(1) and 80 EPC).

7. *Conclusion*

It follows from the above, that the patent proprietor has convincingly shown the incorrectness of the opposition division's decision that the subject-matter of claim 23 of the main request did not meet the requirements of Article 123(2) EPC and that, taken into account the objections raised by the opponent, the patent as amended meets the requirements of the EPC. Hence, whereas the opponent's appeal is not founded, the patent proprietor's appeal is allowed.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent as amended in the following version:

Description:

Column 1 to 7 received during oral proceedings of
27 June 2019

Claims:

No. 1 to 24 filed by letter dated 11 December 2015
as main request

Drawings:

Fig. 1 to 17 of the patent specification.

The Registrar:

The Chairman:



G. Nachtigall

I. Beckedorf

Decision electronically authenticated