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**Datasheet for the decision
of 11 February 2022**

Case Number: T 0760/19 - 3.2.08

Application Number: 08861511.7

Publication Number: 2217978

IPC: F16C41/00, F16C19/52,
G05B19/4093

Language of the proceedings: EN

Title of invention:

RFID SYSTEM AND BEARING COMPONENTS FOR ROLLING MILL

Patent Proprietor:

Corts Engineering GmbH & Co. KG

Opponent:

SMS group GmbH

Headword:

Relevant legal provisions:

EPC Art. 100(c), 56

Keyword:

Grounds for opposition - added subject-matter (no)
Inventive step - (yes)

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 0760/19 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 11 February 2022

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 14 January 2019
rejecting the opposition filed against European
patent No. 2217978 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairwoman P. Acton
Members: A. Björklund
Y. Podbielski

Summary of Facts and Submissions

I. The appeal was filed by the opponent (appellant) against the decision of the opposition division to reject the opposition filed against the patent in suit (hereinafter "the patent").

II. Oral proceedings before the Board were held by video conference on 11 February 2022.

III. The parties requests' relevant to the decision were as follows:

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

The respondent (patent proprietor) requested that the appeal be dismissed.

IV. Claim 1 of the **main request** (patent as granted) with reference signs added, reads:

P1 "A rolling facility comprising:
P2 a plurality of mill stands (10);
P3 a plurality of work rolls (14) adapted to be inserted into or removed from said plurality of mill stands (10) during a rolling campaign;
P4 a plurality of chock sets (20) holding bearings (12) adapted to support the plurality of work rolls (14) on the plurality of mill stands (10);

- P5 a plurality of liners (12, 18), with some of the liners (12) adapted for attachment on the plurality of chock sets (20) and other of the liners (18) adapted for attachment on housings (16) of the plurality of mill stands (10), with said plurality of liners (12, 18) engaging each other to limit movement of the plurality of work rolls (14) to a generally vertical direction,
- P6 with each of the plurality of chock sets (20) and liners (12, 18) being combined into a unique bearing assembly supporting the plurality of work rolls (14) at a remote facility
characterized by
- P7 a plurality of RFID tags (50) attached to the plurality of work rolls (14), the plurality of chock sets (20) and the plurality of liners (12, 18);
- P8 a controller (54) adapted to receive and to store information associated with each of the plurality of RFID tags (50),
- P9 said controller associating information relating to every component of the unique bearing assembly;
- P10 a RFID tag reader (52) attached to one of the plurality of mill stands (10) and adapted to interrogate one RFID tag (50) of the plurality of RFID tags (50) of the unique bearing assembly as said unique bearing assembly is inserted into one of the plurality of mill stands (10)

P11 wherein the controller (54) in communication with the RFID tag reader (52) is adapted to receive the information relating to the one RFID tag (50) and thereafter to access and use the associated information relating to every component of the unique bearing assembly to make a physical adjustment to a mill stand component so as to improve rolled product quality."

Claim 6 of the **main request** (patent as granted) with reference signs added, reads:

- M1 "A method of operating a rolling facility comprising:
- M2 attaching a RFID tag (50) to each of a plurality of work rolls (14), chock sets (20) and liners (12);
- M3 assembling a unique bearing assembly comprising a unique combination of components including one of the plurality of chock sets (20) and liners (12), said bearing assembly used to support one of the plurality of work rolls (14) within a mill stand (10), said assembling occurring at a site remote from the mill stand (10);
- M4 reading the plurality of RFID tags (50) associated with the unique bearing assembly and associating information relating to every component of the unique bearing assembly;
- M5 inserting the bearing assembly into the mill stand (10), wherein a RFID tag reader (52) is attached to the mill stand (10) and the reader (52) interrogates one of the RFID tags (50) of the unique bearing assembly during said inserting step;

- M6 using a mill stand controller (54) in communication with the RFID tag reader (52) to access the associated information relating to every component of the unique bearing assembly, wherein said information is used by the controller (54) to make a physical adjustment to a mill stand component so as to improve rolled product quality;
- M7 performing a rolling campaign using the mill stand (10);
- M8 upon completion of the rolling campaign, removing the unique bearing assembly from the mill stand (10);
- M9 returning the unique bearing assembly to the remote site;
- M10 reading the plurality of RFID tags (50) associated with the unique bearing assembly;
- M11 performing an operation upon one or more of the bearing assembly components, said operation changing a physical characteristic of said one or more of the bearing assembly components; and
- M12 updating information relating to said one or more of the bearing assembly components based on said performing an operation."

V. The following documents are relevant for the present decision:

- E1 US 2006/0042339 A1
- E3 WO 02/075271 A1
- E7 US 6,047,579 A

VI. The appellant's arguments, insofar as they are relevant to the decision, can be summarized as follows:

Article 100(c) EPC

The subject-matter of claims 1 and 6 extended beyond the application as filed in features P6, P10 and M5 respectively.

Inventive step

E1 disclosed a production unit. It disclosed how tools had information carriers which were identified and how this information was transmitted to a central control device. Its teachings applied also to a rolling facility.

E3 implicitly disclosed a rolling facility. This had liners with transponders for identification of individual liners, and wear information measured on and linked to these individual liners was used for adjusting parameters of the rolling facility.

E7 disclosed a pressing machine where a tag with information regarding the die assembly was attached to at least one die assembly member. This information was used for the set-up of the machine. Linking and communicating information from various tags was routine work for the skilled person and applying this to a rolling facility with a plurality of roll stands as well.

The subject-matter of claims 1 and 6 was obvious to the skilled person in view of these disclosures.

VII. The respondent's arguments, insofar as they are relevant to the decision, can be summarized as follows:

Article 100(c) EPC

Feature P6 had a basis in paragraphs [00003] in combination with [00059] and claim 8 of the application as filed.

Features P10 and M5 had a basis in paragraph [00078] of the application as filed.

Claims 1 and 6 did therefore not extend beyond the application as filed.

Inventive step

None of the documents E1, E3 or E7 rendered the subject-matter of claims 1 and 6 obvious to the skilled person.

E1 and E7 did not disclose a rolling facility or a method of operating a rolling facility. They did not disclose that more than one component had RFID tags, nor that information of components of assemblies were associated.

E3 disclosed a liner with an identification tag and a device for measuring the wear thereof. However, it did not disclose that these liners were part of unique bearing assemblies or that any other parts of the bearing assemblies had identification tags. Moreover, in this document, only a single component was identified by reading the tag, and not all components of a bearing assembly.

Reasons for the Decision

1. Article 100(c) EPC

1.1 Feature P6 of claim 1

The appellant submits that a support of a plurality of work rolls by a single bearing, as defined in feature P6, had no basis in paragraph [00059] of the application as filed.

However, the skilled person would not read feature P6 to define that a single bearing assembly supports a plurality of work rolls, since this is an interpretation which makes no technical sense in a rolling facility. They would rather read the feature to define that the chock sets and liners are combined into unique (i.e. the only one of a kind) bearing assemblies and that a respective pair of the plurality of unique bearing assemblies supports each of the plurality of work rolls.

This has a basis in claim 8, paragraphs [00003] and [00059] and figure 1 of the application as filed.

Claim 8 does indeed disclose that "each of the plurality of work rolls, chock sets and liners being combined into a unique bearing assembly at a remote facility" and thus could be considered as defining the work rolls as part of the bearing assemblies. However, as disclosed in paragraphs [00003] and [00059], it is the chock set and liner bearings, or liners, which constitute a bearing assembly and such bearing assemblies support the work rolls, as is also shown in Figure 1. The skilled person thus finds a disclosure of

a plurality of work rolls supported by unique bearing assemblies - as required by feature P6 - in the application as filed.

1.2 Feature P10 of claim 1 and feature M5 of claim 6

The appellant submits that paragraph [00078] of the application as filed disclosed the interrogation of one RFID tag of a given set and identification of each and every component within the bearing assembly only in conjunction with a specific method, namely with "a hand-off procedure". This was missing in claim 1, thus leading to an unallowable intermediate generalisation. Additionally, a method step could not be used as a support for a feature of a device as had been done in claim 1. Claim 6 concerned a method of operating a rolling facility and the introduction of steps from the "hand-off procedure" also lead to an extension beyond the content of the application as filed.

However, as pointed out by the respondent, the "hand-off procedure" is the insertion of a work roll set, (i.e. bearing assemblies and work rolls) into a mill stand. Paragraph [0078] explicitly discloses that a tag reader reads one RFID tag and that the controller is able to identify each and every component within the bearing assembly. This is a disclosure of a reader capable of reading one tag during insertion of a bearing assembly into a mill stand and of the method step of doing so. The term "hand-off procedure" does, therefore, not need to be introduced into the claim.

Furthermore, the procedure, or method step of insertion of bearing assemblies into a mill stand disclosed in this paragraph is part of the method of operating a

rolling facility. The above reasons therefore apply also to the method claim.

Features P10 and M5 thus have a basis in the application as filed.

2. Inventive step

The appellant's arguments that the subject-matter of claims 1 and 6 does not involve an inventive step is not convincing for the following reasons.

2.1 In view of E1

2.1.1 The appellant submits that E1 rendered the subject-matter of claims 1 and 6 obvious. This document disclosed a production unit with information carriers, and was not limited to the specific embodiment of a folding press. It disclosed a plurality of information carriers on the bending tools which allowed them to be identified and/or their position to be detected and transmitted to control devices.

Applying this teaching to a rolling facility did not involve an inventive activity and the subject-matter of claims 1 and 6 was obvious to the skilled person.

2.1.2 The appellant has not provided any reasons as to why the teaching of E1 would incite the skilled person to attach a plurality of RFID tags to a plurality of chocks, liners and work rolls of a rolling facility.

Furthermore, as pointed out by the respondent, the text passage cited from paragraph [0001] of E1 does not disclose that the reading of one information carrier on

one component would allow a controller to access and use information related to further components.

Therefore, E1 does not contain any teaching which would prompt the skilled person to provide a rolling facility with a RFID tag reader adapted to interrogate one of a plurality of RFID tags of a unique bearing assembly and with a controller in communication with the reader which is adapted to receive the information relating to the one RFID tag and thereafter access and use the associated information relating to every component of the unique bearing assembly as required by features P10 and P11 of claim 1 respectively to perform the corresponding method step of features M5 and M6 of claim 6 when operating a rolling facility.

The subject-matter of claims 1 and 6 is therefore not obvious in view of E1.

2.2 In view of E3

2.2.1 The appellant submits that E3, page 3, paragraph 3, disclosed a liner for a rolling facility with a readable identification tag and a system for measuring the wear of this plate. A rolling facility with features P1 to P5 was thus implicitly disclosed. As described on page 4, paragraph 5, or claims 13 and 14, wear measuring data of the unique liners identified by their identification tags were stored on a computer. This data could be used for adjusting the parameters of the rolling facility.

The subject-matter of claim 1 thus differed from the rolling facility of E3 only in that chocks and liners were combined to unique bearing assemblies. This did, however, not involve an inventive step. The same

reasoning applied also to the subject-matter of claim 6 which did also not involve an inventive step.

- 2.2.2 These arguments are not convincing. E3 discloses that liners have identification tags such that they can be identified and that data relating to their wear can be used for setting parameters of the rolling facility. However, as the respondent correctly pointed out, E3 does not disclose that any identification tags are attached to chock sets or work rolls as required by features P7 and M2. It also does not disclose a reader adapted to interrogate one of a plurality of RFID tags of a unique bearing assembly and a controller in communication with the tag reader adapted to receive the information relating to the tag and thereafter to access and use the information relating to every component of the unique bearing assembly as required by features P10 and P11, respectively M5 and M6. There were no arguments as to why the skilled person should modify the rolling facility of E3, or the method of operating the rolling facility of E3 to include all of these distinguishing features.

The subject-matter of claims 1 and 6 is therefore not obvious in view of E3.

- 2.3 In view of E7

- 2.3.1 The appellant submits that the press machine disclosed in E7 was analogous to a mill stand of a rolling facility. Column 1, lines 35 to 64 of this document further disclosed identification tags on the specific die assembly to allow the proper configuration of the press machine and these tags were readable by the press machine as disclosed in column 3, lines 11 to 32. Column 7, lines 41 to 45 disclosed that at least one

tag assembly was associated with the die assembly, thus a die assembly having more than one tag was disclosed.

The subject-matter of claim 1 thus essentially differed from the press machine of E7 in feature P11, which solved the problem of improving the product quality.

The linking and transfer of data from various tags with the pressing machine was within the normal skills of the skilled person. Applying this idea to a pressing machine, or analogously, to a rolling facility having more than one stand was trivial and not inventive.

The skilled person would thus arrive at the subject-matter of claim 1 without involvement of an inventive step. The same reasoning applied to the subject-matter of claim 6 which also did not involve an inventive step.

2.3.2 These arguments are not convincing.

E7 discloses a press machine. While both pressing and rolling are metal working techniques, E7 does not disclose the features of the rolling facility defined in features P1 to P6, nor has the appellant put forward convincing reasons as to why the skilled person would transfer any teaching from the press machine of E7 to a rolling facility.

Furthermore, even if E7, column 7, lines 41 to 45, discloses a tag module associated with the die assembly and arranged for secured attachment to at least one of the die assembly members, this is not a disclosure of more than one tag associated with the die assembly or that information on this tag would contain information linked to other components. Neither this passage, nor

any of the other cited passages, contains a teaching which renders obvious a plurality of RFID tags attached to a plurality of work rolls, a plurality of chock sets and a plurality of liners as required by feature P7, nor a RFID tag reader adapted to interrogate one of the plurality of RFID tags of a unique bearing assembly and a controller in communication with the tag reader adapted to receive the information relating to the one RFID tag and thereafter to access and use the associated information relating to every component of the unique bearing assembly as required by features P10 and P11.

The subject-matter of claim 1 is therefore not obvious in view of E7. The same reasons apply *mutatis mutandis* for the subject-matter of claim 6, which is also not obvious in view of E7.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairwoman:



H. Jenney

P. Acton

Decision electronically authenticated