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**Datasheet for the decision
of 20 June 2022**

Case Number: T 2238/19 - 3.2.03

Application Number: 13733668.1

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IPC: E21B47/02, E21B7/04, E21B44/00,
E02F5/18

Language of the proceedings: EN

Title of invention:

DIRECTIONAL DRILLING TARGET STEERING APPARATUS AND METHOD

Applicant:

Merlin Technology Inc.

Headword:

Relevant legal provisions:

EPC Art. 84, 123(2)
RPBA 2020 Art. 11

Keyword:

Claims - clarity (yes)
Amendments - extension beyond the content of the application
as filed (no)
Remittal - special reasons for remittal

Decisions cited:

Catchword:



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Case Number: T 2238/19 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 20 June 2022

Appellant: Merlin Technology Inc.
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 7 March 2019
refusing European patent application No.
13733668.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman C. Herberhold
Members: G. Patton
E. Kossonakou

Summary of Facts and Submissions

- I. The applicant (appellant) lodged an appeal against the decision of the Examining Division to refuse European patent application No. 13 733 668.1.
- II. According to the decision under appeal, the sets of claims filed by letter dated 24 January 2019 as the then main request and the then first auxiliary request did not fulfil the requirements of Article 123(2) EPC and the set of claims filed during the oral proceedings of 14 February 2019 as the then second auxiliary request did not fulfil the requirements of Article 84 EPC.

The decision under appeal further contains an *obiter dictum* relating to an objection of lack of novelty of the subject-matter of claim 1 of the then second auxiliary request vis-à-vis D1.

- III. With the statement setting out the grounds of appeal, the appellant maintained in the appeal proceedings the then main request and the then second auxiliary request underlying the decision under appeal.

The Board presented its preliminary, non-binding opinion on these requests by communication pursuant to Rule 100(2) EPC dated 2 July 2021.

In reaction, the appellant filed a new request by letter dated 25 October 2021.

- IV. In its letter dated 2 February 2022, the appellant requested that

the decision under appeal be set aside and the case remitted to the Examining Division for further prosecution on the basis of the set of claims filed by letter dated 25 October 2021 as **the main request**.

In the same letter, the appellant agreed with the Board's preliminary opinion provided in the communication dated 2 July 2021 that the request for reimbursement of the appeal fee on the basis of an alleged substantial procedural violation was not justified and that the case was to be remitted to the Examining Division for further prosecution in the event that a set of claims fulfilled the requirements of Articles 84 and 123(2) EPC.

- V. In the following, all references to the application documents as originally filed are understood to be to the published application (WO 2013/103706 A1). Amendments with respect to the originally filed claims are indicated below in bold for the features added and are struck through for the features deleted.

Independent claim 1 of the **main request**, compared to claim 1 as filed, reads as follows:

"An apparatus in a system **(10)** for performing horizontal directional drilling including a drill string **(86)** extending from a drill rig **(70)** to a boring tool **(60)** such that the boring tool **(60)** is steerable based on a roll orientation thereof, said system **(10)** including an arrangement for generating steering commands for guiding the boring tool **(60)** to a target position; **said steering commands including a vertical steering command and a horizontal steering command such that a steering command ratio between the vertical**

steering command and the horizontal steering command defines a desired steering direction for guiding the boring tool to the target; said the apparatus comprising:

a display (106) configured to, responsive at least in part to said steering commands, selectively indicate and automatically provide drill rig actuation commands to an operator, including each of a rotate command, a push command and a spin command ~~responsive at least in part to the steering commands;~~ wherein the push command and the rotate command are further responsive to said roll orientation of the boring tool."

Claim 13 of the **main request**, compared to claim 30 of the application as filed, reads as follows:

"A method for use in a system (10) for performing horizontal directional drilling including a drill string (86) extending from a drill rig (70) to a boring tool (60) such that the boring tool (60) is steerable based on a roll orientation thereof, said system (10) including an arrangement for generating steering commands for guiding the boring tool (60) to a target position; said steering commands including a vertical steering command and a horizontal steering command such that a steering command ratio between the vertical steering command and the horizontal steering command defines a desired steering direction for guiding the boring tool to the target; said a method comprising: selectively ~~visually indicating~~ and automatically providing drill rig actuation commands to an operator, including, each of a rotate command, a push command and a spin command responsive at least in part to said steering commands; wherein the push command and the rotate command are further responsive to said roll orientation of the boring tool."

Reasons for the Decision

1. *Amendments*

1.1 According to the impugned decision, points 15 to 23, the insertion in claim 1 of the following features a):

a) said steering commands including a vertical steering command and a horizontal steering command such that a steering command ratio between the vertical steering command and the horizontal steering command defines a desired steering direction for guiding the boring tool to the target

led to an unallowable intermediate generalisation, since they originated from the passage of the original description (page 4, line 10, to page 5, line 5, reciting the features of claim 24) that, in one embodiment, further comprised in combination the following features b), which had been omitted from claim 1:

b) A display is configured to illustrate a steering indicator in an offset positional relationship from a target indicator based on the steering commands and the steering indicator graphically presents a modified desired steering direction, that is based on the desired steering direction, at least when the desired steering direction falls between the predetermined spaced apart roll positions, and the modified steering direction corresponds to a nearest one of the predetermined roll orientation positions such that the modified desired steering

direction angularly aligns with one of the predetermined spaced apart roll orientations.

These features b) were essential in the embodiment disclosed in order to solve the problem of displaying the information to the operator in an easy-to-follow way (see in this respect page 30, lines 2-9, of the original description). Thus, the omission of said features was not directly and unambiguously derivable from the original disclosure.

- 1.2 The Board, having duly considered the appellant's arguments and submissions, does not share the Examining Division's view for the following reasons.

The system according to the original application taken as a whole can enter a rotate mode, a push mode or a spin mode; see Figures 2, 3 and 4 with, respectively, the corresponding passages of the description. The claimed apparatus in the disclosed system is suitable for providing the operator with the drill rig actuation commands, i.e. rotate command, push command and spin command, for the operator to select and to enter the appropriate mode. The display of the claimed apparatus indicates the command to the operator, responsive at least in part to the steering commands that include a vertical steering command and a horizontal steering command. The above-mentioned added features a) are therefore intended to provide the appropriate information to the operator for guiding the boring tool to a target position (page 29, line 7, to page 30, line 9).

This is disclosed in the original description, for instance on page 23, line 1, to page 24, line 9, in combination with original Figure 5, and also in

accordance with the apparatus according to original claims 1 and 6 (see also concept 1 in combination with concept 6 on pages 31 and 32), wherein the steering command includes a vertical steering command and a horizontal steering command, and wherein the display is configured to switch between the spin command, the push command and the rotate command based on the vertical steering command and the horizontal steering command. A steering indicator graphically presenting a modified desired steering direction in accordance with the omitted features b) is not included and is not mandatory for the claimed provision of the commands. Hence, a basis for the insertion of above-mentioned features a) in claim 1 without features b) is given in the application as originally filed.

The embodiment on page 4, line 10, to page 5, line 5, with the omitted features b) referred to by the Examining Division relates to the system being in the rotate and push modes (Figures 2 and 3). Said omitted features are not present in the spin mode; see Figure 4 (page 20, line 15, to page 22, line 14).

Furthermore, the modified desired steering direction may not angularly align with one of the predetermined spaced-apart roll orientations; see page 19, lines 5-13.

Consequently, contrary to the finding of the impugned decision, the omitted features b) are not disclosed as essential in the application as originally filed.

1.3 The following features c) inserted in claim 1 (see point V above):

c) a display is configured to, responsive at least in part to said steering commands, selectively and automatically provide drill rig actuation commands to an operator, including each of a rotate command, a push command and a spin command

are based on page 29, lines 13-16, of the original description.

Said passage does not require the switch between the spin command and each of the push command and the rotate command to be based on a threshold value of magnitude of each of the vertical steering command and the horizontal steering command (contrary to the definition in claim 6 / concept 6 as filed).

1.4 The following features d) inserted in claim 1 (see point V above):

d) the push command and the rotate command are further responsive to said roll orientation of the boring tool

are essential in order to achieve feature c) that a display is configured to selectively and automatically provide drill rig actuation commands to an operator, including each of a rotate command, a push command and a spin command.

As a matter of fact, in order to provide the proper actuation command to the operator on the display, the actual roll orientation of the boring tool must necessarily be taken into consideration. This appears clearly from the original Figure 5 and the corresponding original description (page 23, line 1, to page 24, line 9) which discloses that, if the boring

tool is not aligned with the target on the basis of the steering commands (step 506; spin command not to be displayed), one of either the rotate command or the push command can only be displayed depending on whether or not the roll orientation angle of the boring tool is aligned with the direction with which steering is needed based on the steering commands (step 512). This means that, according to the application as originally filed, the provision of the appropriate rotate, push and spin commands need be **responsive not only** to the steering commands but also to **the actual roll orientation of the boring tool**, in accordance with features d) inserted in claim 1.

The same is true for claim 13.

- 1.5 In view of the above, claim 1 of the main request fulfils the requirements of Article 123(2) EPC. The same applies *mutatis mutandis* to claim 13 (see point V above).

Dependent claims 2-12 of the main request are based on original claims 2-12, respectively.

- 1.6 As a result, the main request fulfils the requirements of Article 123(2) EPC.

2. *Clarity*

- 2.1 According to the impugned decision, points 33 to 37, the expressions "*rotate command*", "*push command*" and "*spin command*" lack clarity.

The Examining Division considered that the difference between the spin and the rotate commands and their effect on the boring tool was unclear and that the link

between the vertical and horizontal steering commands and said rotate, spin and push commands was also unclear. The claim was silent about how to derive the latter ones from the former ones.

2.2 Having also considered the appellant's relevant submissions, the Board does not share the finding of the impugned decision for the following reasons.

In view of the disclosure of the original application taken as a whole, in particular Figures 2 to 4 and their corresponding description:

- the "rotate mode" (or "roll command mode") consists in rotating the boring tool without pushing it;
- the "push mode" consists in pushing the boring tool without rotating it; and
- the "spin mode" consists in spinning (or rotating) the boring tool while pushing it.

The operator receives drill rig actuation commands, i.e. one of "rotate command", "push command" or "spin command", so as to enter the corresponding modes.

The rotate mode is used to rotate the drill string so as to adjust the roll orientation, i.e. the bevelled face on the drill head.

The push mode is used to advance and deflect the boring tool in a desired direction using the bevelled face on the drill head.

The spin mode is used to advance straight forward (see also original Figure 5).

The passages (P1 to P5) cited by the appellant according to the impugned decision, point 35, are consistent with the above definitions.

The link between the vertical and horizontal steering commands and the rotate, spin and push commands appears clearly from original Figure 5 and the corresponding original description, page 23, line 1, to page 24, line 9.

2.3 As a result, the clarity objections raised in the decision under appeal are not convincing (Article 84 EPC).

3. *Remittal*

The decision under appeal contains an *obiter dictum* (chapter III) on an objection of lack of novelty of the subject-matter of claim 1 of the then second auxiliary request over the disclosure of D1.

This objection is, however, not directly transposable to claim 1 of the main request. Furthermore, other documents were considered relevant for novelty and/or inventive step in the course of the examination proceedings; see the communication dated 12 September 2018.

Thus, since the patentability of the claimed subject-matter of the main request has not been dealt with in the decision under appeal, the Board considers this to constitute special reasons for remitting the case to the Examining Division for further prosecution (Article 11 RPBA 2020).

The appellant agreed with remitting the case to the Examining Division.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Examining Division for further prosecution.

The Registrar:

The Chairman:



C. Spira

C. Herberhold

Decision electronically authenticated