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**Datasheet for the decision
of 2 August 2018**

Case Number: T 0017/16 - 3.2.08

Application Number: 08761637.1

Publication Number: 2167255

IPC: B21D41/02, B29C57/04

Language of the proceedings: EN

Title of invention:

METHOD AND TOOL FOR EXPANDING A PIPE END

Patent Proprietor:

Uponor Innovation AB

Opponent:

Virax, SAS

Headword:

Relevant legal provisions:

EPC Art. 123(2)

Keyword:

Amendments

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Catchword:



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Case Number: T 0017/16 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 2 August 2018

Appellant: Uponor Innovation AB
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 4 November 2015
revoking European patent No. 2167255 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairwoman P. Acton
Members: M. Alvazzi Delfrate
P. Schmitz

Summary of Facts and Submissions

- I. By its decision posted on 4 November 2015 the opposition division revoked European patent No. 2 167 255.
- II. The opposition division found all the requests then on file to contravene Article 123(2) EPC.
- III. The appellant (patent proprietor) appeal against that decision in the prescribed form and within the prescribed time limit.
- IV. Oral proceedings before the Board of Appeal were held on 2 August 2018.

The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the main request or one of auxiliary requests 1-6, all filed by letter of 11 March 2016.

The respondent (opponent) requested that the appeal be dismissed.

- V. Claims 1 and 8 of the **main request**, which corresponds to the main request considered by the opposition division, read as follows (amendments in respect of the granted claims highlighted):

"1. A method for expanding a pipe end with the aid of an expander tool (1), the expander tool (1) comprising a plurality of jaws (10) that are radially movable in relation to a center axis between a retracted and an outer expanded position, wherein said jaws (10) have outer jaw surfaces which are intended for engagement with the inner surface of the pipe end and which lie

adjacent to one another in the retracted position of the jaws (10) and have an at least generally circular arcuate shape in cross-section, and a piston (2) or cone with a tapered end for moving the jaws (10) between said positions, whereby the piston (2) or cone is moved in a reciprocating manner in the axial direction for expanding the pipe end gradually in stages, and the axial reciprocating movement of the piston (2) or cone is guided to rotate the jaws (10) to a certain extent in the circumferential direction after ~~each expansion stage~~ jaws (10) are moved apart and then returned to the retracted position."

"8. A tool for expanding a pipe end, the tool (1) comprising a plurality of jaws (10), which are radially movable in relation to a center axis between a retracted position and an outer expanding position and which, when retracted, are intended to be inserted into the pipe end, wherein the movable jaws (10) have outer jaw surfaces which are intended for engagement with the inner surface of the pipe end and which lie adjacent to one another in the retracted position of the jaws (10) and have an at least generally circular arcuate cross section, a piston (2) or cone with a tapered end for moving the jaws (10) between said positions, means moving the piston (2) or cone in a reciprocating manner in the axial direction for expanding the pipe end gradually in stages, and means for guiding the axial reciprocating movement of the piston (2) or cone to rotate the jaws (10) to a certain extent in the circumferential direction after ~~each expansion stage~~ jaws (10) are moved apart and then returned to the retracted position."

Claims 1 and 8 of **auxiliary request 1** read as follows (amendments in respect of the main request highlighted):

"1. A method for expanding a pipe end with the aid of an expander tool (1), the expander tool (1) comprising: a plurality of jaws (10) that are radially movable in relation to a center axis between a retracted and an outer expanded position, wherein said jaws (10) have outer jaw surfaces which are intended for engagement with the inner surface of the pipe end and which lie adjacent to one another in the retracted position of the jaws (10) and have an at least generally circular arcuate shape in cross-section, and a piston (2) or cone with a tapered end for moving the jaws (10) between said positions, whereby the piston (2) or cone is moved in a reciprocating manner in the axial direction for expanding the pipe end gradually in stages, and the axial reciprocating movement of the piston (2) or cone is guided to rotate the jaws (10) to a certain extent in the circumferential direction after insertion end of the tool is inserted into said pipe end, jaws (10) are moved apart and then returned to the retracted position, wherein the jaws (10) are contracted so that the outer diameter of the insertion end of the tool will be smaller than or essentially equal to the inner diameter of the pipe end to be expanded."

"8. A tool for expanding a pipe end, the tool (1) comprising a plurality of jaws (10), which are radially movable in relation to a center axis between a retracted position and an outer expanding position and which, when

retracted, are intended to be inserted into the pipe end, wherein the movable jaws (10) have outer jaw surfaces which are intended for engagement with the inner surface of the pipe end and which lie adjacent to one another in the retracted position of the jaws (10) and have an at least generally circular arcuate cross section,

a piston (2) or cone with a tapered end for moving the jaws (10) between said positions, means for moving the piston (2) or cone in a reciprocating manner in the axial direction for expanding the pipe end gradually in stages, and

means for guiding the axial reciprocating movement of the piston (2) or cone to rotate the jaws (10) to a certain extent in the circumferential direction after jaws (10) are moved apart and then returned to the retracted position, wherein the jaws (10) are contracted so that the outer diameter of the insertion end of the tool will be smaller than or essentially equal to the inner diameter of the pipe end to be expanded."

Claims 1 and 8 of **auxiliary request 2** read as follows (amendments in respect of the main request highlighted):

"1. A method for expanding a pipe end with the aid of an expander tool (1), the expander tool (1) comprising: a plurality of jaws (10) that are radially movable in relation to a center axis between a retracted and an outer expanded position, wherein said jaws (10) have outer jaw surfaces which are intended for engagement with the inner surface of the pipe end and which lie adjacent to one another in the retracted position of the jaws (10) and have an at least generally circular arcuate shape in cross-section, and

a piston (2) ~~or cone~~ with a tapered end for moving the jaws (10) between said positions, whereby the piston (2) ~~or cone~~ is moved in a reciprocating manner in the axial direction by means of an electric motor (3) and the power of the electric motor (3) is transferred to move the piston (2) by using a gearbox (4), wherein the piston (2) is moved in a reciprocating manner in the axial direction for expanding the pipe end gradually in stages, and the axial reciprocating movement of the piston (2) ~~or cone~~ is guided to rotate the jaws (10) to a certain extent in the circumferential direction after ~~jaws (10) are moved apart and then returned to the retracted position~~ each expansion stage."

"8. A tool for expanding a pipe end, the tool (1) comprising a plurality of jaws (10), which are radially movable in relation to a center axis between a retracted position and an outer expanding position and which, when retracted, are intended to be inserted into the pipe end, wherein the movable jaws (10) have outer jaw surfaces which are intended for engagement with the inner surface of the pipe end and which lie adjacent to one another in the retracted position of the jaws (10) and have an at least generally circular arcuate cross section, a piston (2) ~~or cone~~ with a tapered end for moving the jaws (10) between said positions, an electric motor (3) and a gearbox (4), wherein the power of the electric motor (3) is by using a gearbox (4) transferred to move the piston (2) ~~means moving the piston (2) or cone~~ in a reciprocating manner in the axial direction for expanding the pipe end gradually in stages, and

means for guiding the axial reciprocating movement of the piston (2) ~~or cone~~ to rotate the jaws (10) to a certain extent in the circumferential direction ~~after jaws (10) are moved apart and then returned to the retracted position~~ each expansion stage."

Auxiliary requests 3-6 also comprise the feature whereby the jaws rotate in the circumferential direction after they are moved apart and then returned to the retracted position.

VI. The appellant's arguments may be summarised as follows:

The fact that the jaws rotated in the circumferential direction after they were moved apart and then returned to the retracted position was derivable from the whole application as originally filed.

From paragraphs [0001] and [0033] it emerged that the movement of the jaws occurred after each expansion stage.

From paragraph [0030], which stated that by moving forwards the piston "engaged" with the jaws, it was clear that there was a gap between the jaws and the piston, so that initially the piston moved forwards without expansion of the jaws.

The function of said gap, to avoid problems with dirt and allow lubrication, was clear to the person skilled in art.

Therefore, when it was stated in paragraph [0036] that the expander head started to expand, no expansion of the jaws was meant but merely a forward movement of the piston.

Since it was clear to the person skilled in the art that the gap had to be dimensioned such that rotation occurred before the expansion stage, the application disclosed that rotation of the jaws took place only after they had been expanded and retracted as required by the claim.

If the Board did not agree with this position, the claim could also be interpreted as requiring only that part of the rotation took place with the jaws in the retracted position. This was a consequence of the presence of the gap as shown in Figures 4f and 4g.

Thus, the main request and auxiliary request 1 complied with the requirements of Article 123(2) EPC.

VII. The respondent's arguments may be summarised as follows:

Claim 1 of the main request had been amended to recite that the axial reciprocating movement of the piston or cone was guided to rotate the jaws to a certain extent after they had been moved apart and then returned to the retracted position. Thus, according to the claim the rotation of the jaws took place only after they had been expanded and returned to the retracted position.

It was accepted that this could be achieved by means of a gap of appropriate dimensions between the piston and the jaws. However, the application as filed did not disclose such a gap, let alone its dimensions. The term "engages" in paragraph [0030] did not provide a clear and unambiguous disclosure of said gap. Moreover, paragraphs [0036]-[0037], which explicitly referred to an expansion of the head, described exactly the

contrary of what was now claimed, namely that rotation took place during expansion or retraction of the jaws.

Thus, the main request did not comply with the requirements of Article 123(2) EPC.

The same applied to auxiliary request 1.

Reasons for the Decision

1. Main request

- 1.1 According to claim 1, "the piston (2) or cone is moved in a reciprocating manner in the axial direction for expanding the pipe end gradually in stages, and the axial reciprocating movement of the piston (2) or cone is guided to rotate the jaws (10) to a certain extent in the circumferential direction after jaws (10) are moved apart and then returned to the retracted position" (emphasis added).

The claim describes how rotation is activated and defines its timing. Thus, the Board agrees with the interpretation of the claim given by the respondent (and primarily by the appellant), according to which rotation of the jaws takes place only after they have been expanded and returned to the retracted position.

- 1.2 According to paragraph [0033] and to originally filed claim 1 (and granted claim 1), rotation takes place "after each expansion stage". However, as made clear by paragraph [0001], the wording "expansion stage" does not refer to the expansion of the jaws but to the

expansion of the pipe. Hence, paragraph [0033] does not disclose whether or not rotation occurs during expansion or retraction of the jaws.

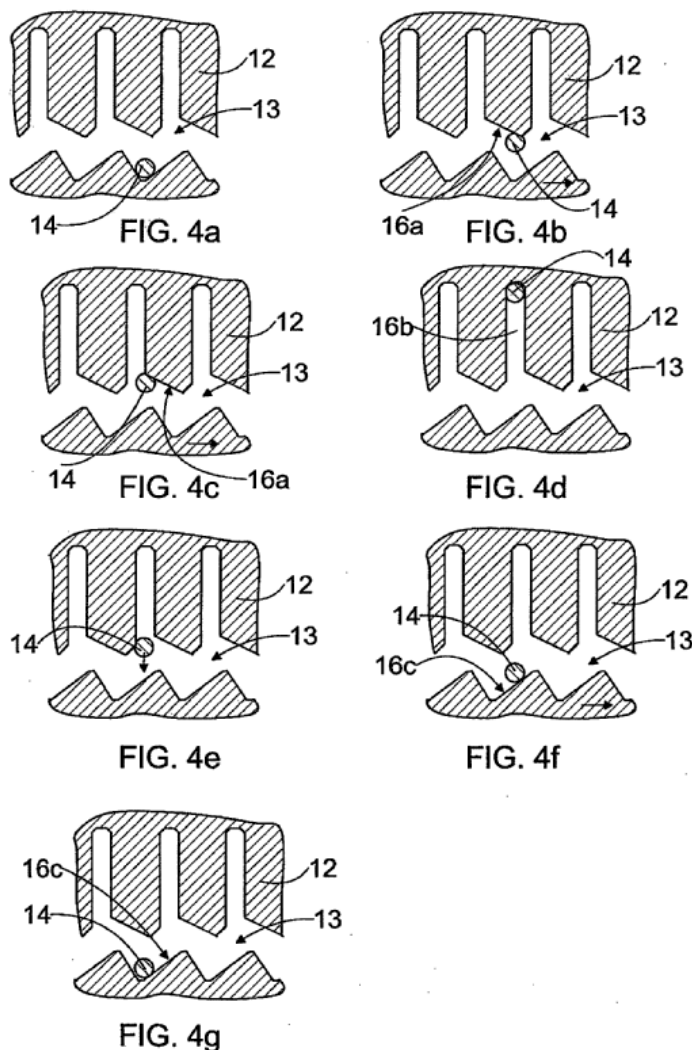
The appellant submitted that rotation without expansion or retraction of the jaws was the result of the presence of a gap between the piston (in the withdrawn position) and the jaws. It is undisputed that the gap is not explicitly mentioned in the application.

Paragraph [0030], to which the appellant referred, discloses that "the tool is expanded by moving the piston 2 forwards from its withdrawn position, whereby the tapered end of the piston 2 engages with bevelled surfaces on the jaws 10 and forces the jaws 10 apart". However, this sentence can be taken as describing merely a mechanical interaction between the piston and the jaws, without specifying that the piston moves from a position detached from the jaws to a position where it engages the jaws, which would imply the presence of said gap.

Nor is there any evidence that said gap would be implicit for the person skilled in the art in order to avoid problems with dirt and allow lubrication.

Indeed paragraphs [0036]-[0039], which refer to Figures 4a to 4g (reproduced below) and describe the rotation mechanism, state explicitly that the lowest point in groove 13 for pin 14 (which is carried by the piston) shown in Figures 4a and 4g is the "unexpanded starting point" of the expander head (paragraph [0039]) and that from said starting point, when the expander head "starts to expand", pin 14 is pushed upwards in groove 13. Thus, the head is continuously expanded starting from the position of the pin shown in Figure 4a

(unexpanded starting point) to Figure 4d (point of maximum expansion) and continuously retracted from Figure 4d to Figure 4g. By contrast, rotation starts only once pin 14 hits upper sloping wall 16a, as seen in Figure 4b. Since the only elements of the head which expand are the jaws, the person skilled in the art would have no reason to assume that some rotation, let alone the whole rotation as required by claim 1, takes place with the jaws in the retracted position.



1.3 Therefore, claim 1 of the main request does not meet the requirements of Article 123(2) EPC.

2. Auxiliary request 1

Auxiliary request 1 contravenes the requirements of Article 123(2) EPC for the same reasons as explained for the main request.

3. Auxiliary request 2

Auxiliary request 2 does not comprise the feature which has been objected to for the main request. Instead, the alternative relating to the cone (in "piston (2) or cone") has been deleted and the feature has been added whereby the piston is moved in a reciprocating manner in the axial direction by means of an electric motor and the power of the electric motor is transferred to move the piston by using a gearbox, wherein the piston is moved in a reciprocating manner in the axial direction.

This feature is disclosed in the application as filed, paragraph [0027]. Therefore, the requirements of Article 123(2) EPC are satisfied.

The respondent did not raise any Article 123(2) EPC objection to this request, but only argued lack of novelty and lack of inventive step.

The opposition division did not take any decision on Article 100(a) EPC. Thus, the Board has decided to remit the case for further prosecution.

4. Further remarks

For the sake of completeness the Board points out that auxiliary requests 3-6 would not be allowable for the same reasons as explained for the main request and auxiliary request 1, since they also comprise the feature whereby the axial reciprocating movement of the piston or cone is guided to rotate the jaws to a certain extent in the circumferential direction after they are moved apart and then returned to the retracted position.

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 for further prosecution.

The Registrar:

The Chairwoman:



C. Moser

P. Acton

Decision electronically authenticated