Datasheet for the decision of 12 October 2023

Case Number: T 1702/21 - 3.2.01
Application Number: 14806482.7
Publication Number: 3089849
IPC: B24C5/02
Language of the proceedings: EN

Title of invention: ABRASIVE SLURRY DELIVERY SYSTEMS AND METHODS

Patent Proprietor: Flow International Corporation

Opponent: ANT Applied New Technologies AG

Headword:

Relevant legal provisions: EPC Art. 54, 56, 83, 123(2) RPBA 2020 Art. 12(4), 13(2), 15(1)
Keyword:
Added subject-matter - main request (yes) - auxiliary request I (no)
Amendment after summons - exceptional circumstances (no) - taken into account (no)
Sufficiency of disclosure - auxiliary request I (yes)
Novelty - auxiliary request I (yes)
Inventive step - auxiliary request I (yes)

Decisions cited:

Catchword:
Case Number: T 1702/21 - 3.2.01

DECISION
of Technical Board of Appeal 3.2.01
of 12 October 2023

Appellant: Flow International Corporation
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted on
27 August 2021 concerning maintenance of the

Composition of the Board:
Chairman P. Guntz
Members: A. Pieracci
V. Vinci
Summary of Facts and Submissions

I. An appeal was filed by the patent proprietor and by the opponent in the prescribed form and within the prescribed time limit against the decision of the opposition division maintaining the European patent No. 3 089 849 in amended form.

II. The opposition division found the patent as amended according to the main request not to fulfill the requirements of Article 123(2) EPC whereas the patent as amended according to auxiliary request I and the invention to which it relates were found to meet the requirements of the EPC.

III. In preparation for oral proceedings, the Board gave its preliminary opinion in a communication pursuant to Article 15(1) RPBA 2020, in which it indicated that both appeals were likely to be dismissed.

IV. With letter dated 12 September 2023 the opponent contested the preliminary opinion of the Board filing new objections and documents E4, E5 and E6.

V. With letter dated 5 October 2023 the patent proprietor contested the submissions of the opponent and the admittance of documents E4, E5 and E6 into the proceedings and filed a new auxiliary request IA subsequent to auxiliary request I.

VI. Oral proceedings before the Board took place on 12 October 2023. At the end of the oral proceedings the decision was announced. For further details of the proceedings reference is made to the minutes thereof.
VII. The final requests of the patent proprietor are:

that the appealed decision be set aside
and that the patent be maintained as amended
according to the main request,
or in the alternative, that the patent be
maintained on the basis of one of the sets of
claims according to auxiliary requests I, IA or II,
wherein the main request and auxiliary requests I
and II correspond to the requests filed in
opposition proceedings as re-filed with the
statement setting out the grounds of appeal, and
the auxiliary request IA was filed with the letter
dated 5 October 2023.

The patent proprietor also requested that documents
E4, E5 and E6, filed by the opponent with letter
dated 12 September 2023, not be admitted into the
appeal proceedings and that the ground for
opposition of insufficiency of disclosure be
disregarded or that the case be remitted to the
opposition division.

VIII. The final requests of the opponent are

that the appealed decision be set aside and that
the patent be revoked.

IX. The following documents are mentioned in the present
decision:

E1: WO 2013/037405 A1;

E2: EP 1 199 136 A1;
E3: EP 0 276 219 B1;

E4: G. Tebbing, "Wasserabrasivsuspensionsstrahlen im Bereich Reparatur und Zerlegetechnik unter Wasser", VDI Verlag GmbH Düsseldorf 1997, pages 37 and 50;


X. The arguments of the parties are dealt with in detail in the reasons for the decision.

XI. Claim 1 of the patent as amended according to the main request reads as follows (features added with respect to claim 1 of the patent as granted being underlined by the Board):

"A vessel assembly (120) configured to discharge a high pressure mixture of water and abrasives (54, 54') for admixture with a flow of high pressure water for generating an abrasive slurry, the vessel assembly comprising:

a storage chamber (56) to temporarily store abrasives (54, 54);

a discharge chamber (58) having an outlet (64) to selectively discharge the high pressure mixture of water and abrasives (54, 54') into the flow of high pressure water to mix therewith and generate the abrasive slurry;"
the vessel assembly (120) is characterized by a shuttle chamber (60) positioned downstream of the storage chamber (56) and upstream of the discharge chamber (58) to intermittently receive the abrasives (54, 54') from the storage chamber (56) and to intermittently supply the abrasives (54, 54') mixed with high pressure water to the discharge chamber (58), the shuttle chamber (60) including an inlet port (102) coupleable to a source of high pressure water (30) to intermittently receive the high pressure mixture of water and abrasives (54, 54') to be transferred to the discharge chamber (58), wherein a return line (106) is provided between the discharge chamber (58) and the shuttle chamber (60), and the return line (106) is adapted to return water or a mixture of water and abrasives to the shuttle chamber (60)."

XII. Claim 14 of the patent as amended according to the main request reads as follows (features added with respect to claim 14 of the patent as granted being underlined by the Board):

"A method of forming an abrasive slurry to be passed through a nozzle to generate an abrasive slurry jet, the method comprising: introducing abrasives into a storage chamber (56);
depressurizing a shuttle chamber (60) downstream of the storage chamber (56) to prepare the shuttle chamber (60) to receive the abrasives from the storage chamber (56);
transferring the abrasives from the storage chamber (56) to the shuttle chamber (60);
isolating the shuttle chamber (60) from the storage chamber (56);
introducing high pressure water into the shuttle chamber (60) to pressurize the shuttle chamber (60) while isolated from the storage chamber (56) to create a high pressure mixture of water and abrasives; transferring the high pressure mixture of water and abrasives from the shuttle chamber (60) to a discharge chamber (58) downstream of the shuttle chamber (60); and discharging the high pressure mixture of water and abrasives from the discharge chamber (58) into a flow of high pressure water to mix therewith and form the abrasive slurry,

wherein transferring the high pressure mixture of water and abrasives from the shuttle chamber (60) to the discharge chamber (58) occurs with substantially no differential pressure between the shuttle chamber (60) and the discharge chamber (58)."

XIII. Claim 1 of the patent as amended according to the auxiliary request I reads as follows (features added with respect to claim 1 as granted being underlined by the Board):

"A vessel assembly (120) configured to discharge a high pressure mixture of water and abrasives (54, 54') for admixture with a flow of high pressure water for generating an abrasive slurry, the vessel assembly comprising:
a storage chamber (56) to temporarily store abrasives (54, 54);
a discharge chamber (58) having an outlet (64) to selectively discharge the high pressure mixture of water and abrasives (54, 54') into the flow of high pressure water to mix therewith and generate the abrasive slurry;
the vessel assembly (120) is characterized by a shuttle chamber (60) positioned downstream of the storage chamber (56) and upstream of the discharge chamber (58) to intermittently receive the abrasives (54, 54') from the storage chamber (56) and to intermittently supply the abrasives (54, 54') mixed with high pressure water to the discharge chamber (58), the shuttle chamber (60) including an inlet port (102) coupleable to a source of high pressure water (30) to intermittently receive the high pressure water and intermittently pressurize the shuttle chamber (60) to create the high pressure mixture of water and abrasives (54, 54') to be transferred to the discharge chamber (58), wherein a return line (106) is provided between the discharge chamber (58) and the shuttle chamber (60), and the return line (106) is adapted to return water or a mixture of water and abrasives to the shuttle chamber (60), wherein a return valve (G) is provided within the return line to selectively enable water or a mixture of water and abrasive to return to the shuttle chamber (60)".

XIV. Claim 14 of the patent as amended according to the auxiliary request I reads as follows (features added with respect to claim 14 of the patent as granted being underlined by the Board, features deleted being striked through):

"A method of forming an abrasive slurry to be passed through a nozzle of an abrasive slurry jet cutting system (10) according to any one of claims 2 to 13, to generate an abrasive slurry jet, the method comprising: introducing abrasives into the storage chamber (56); depressurizing the shuttle chamber (60) downstream of the storage chamber (56) to prepare the shuttle chamber
(60) to receive the abrasives from the storage chamber (56);
transferring the abrasives from the storage chamber (56) to the shuttle chamber (60);
isolating the shuttle chamber (60) from the storage chamber (56);
introducing high pressure water into the shuttle chamber (60) to pressurize the shuttle chamber (60)
while isolated from the storage chamber (56) to create a high pressure mixture of water and abrasives;
transferring the high pressure mixture of water and abrasives from the shuttle chamber (60) to the discharge chamber (58) downstream of the shuttle chamber (60); and
discharging the high pressure mixture of water and abrasives from the discharge chamber (58) into a flow of high pressure water to mix therewith and form the abrasive slurry,
wherein transferring the high pressure mixture of water and abrasives from the shuttle chamber (60) to the discharge chamber (58) occurs with substantially no differential pressure between the shuttle chamber (60) and the discharge chamber (58)".

Reasons for the Decision

Appeal of the patent proprietor

1. Added subject-matter of claim 1 of the patent as amended according to the main request (Article 123(2) EPC)

1.1 The patent proprietor contests the finding of the opposition division (see the impugned decision, page 4,
second paragraph - page 5, fourth paragraph) that the feature added to claim 1 as granted, namely:

"wherein a return line (106) is provided between the discharge chamber (58) and the shuttle chamber (60) and the return line is adapted to return water or a mixture of water and abrasives to the shuttle chamber (60)"

is contrary to the requirements of Article 123(2) EPC since the feature of the "return valve G" mentioned in paragraph [0036] of the patent as granted and corresponding to the paragraph bridging pages 16 and 17 of the application as originally filed and published (WO 2015/094492) has not been introduced in claim 1.

1.2 The patent proprietor argues that the functionality of the return line is fully described by the features added to claim 1 and that the valve is not essential but simply an example in the specific case. Furthermore, the use of the term "intermittently" in claim 1 implies the function of the return line without the need of introducing the feature of the valve in the claim.

1.3 The Board is not convinced by the arguments of the patent proprietor.

1.4 The passage considered as a basis for the amendment of the main request (page 16, last paragraph to page 17 first paragraph of WO 2015/094492), reads:

"Additionally, a return line 106 may be provided between the discharge chamber 58 and the shuttle chamber 60 at return port 107 to enable water or a mixture of water and abrasives to return to the shuttle chamber 60 during the discharge chamber 58 filling
process, as represented by the arrows labeled 108. A return valve G is provided within the return line 106 for this purpose, namely to selectively enable water or a mixture of water and abrasives to return to the shuttle chamber 60. With the pressure differential across the transfer valve B minimized or substantially eliminated, the high pressure mixture of water and abrasives 54' in the shuttle chamber 60 may be readily transferred to the discharge chamber 58, as illustrated by the arrow labeled 110 in Figure 2C."

1.5 As indicated by the opponent the return line 106 is only disclosed with the return valve G which is structurally and functionally inextricably linked to it; a direct and unambiguous disclosure of the return line without a return valve is not present.

1.6 Therefore the patent proprietor’s argument that the return valve is just an example cannot be followed. The same applies to the argument that the return valve G is allegedly not necessary. What is relevant is not whether a feature is necessary or not but rather whether the amended combination of features can be derived directly and unambiguously from the original disclosure of the patent application, which is indicated in the case law as the "golden rule" (see Case Law of the Boards of Appeal (CLB), tenth edition, 2022, II.E.1.1). Features disclosed in combination may only be left out if they are neither structurally nor functionally inextricably linked to the features incorporated into the claim (see CLB, supra, II.E. 1.9.2).

1.7 Furthermore the term "intermittently" in claim 1 does not relate to the return line and the argument of the patent proprietor in this regard is not convincing.
1.8 The Board is therefore not convinced by the arguments of the patent proprietor that the decision of the opposition division with regard to added subject-matter of the main request is not correct.

Appeal of the opponent

2. Admittance into the proceedings of the objections raised by the opponent in its reply to the communication of the Board pursuant to Article 15(1) RPBA 2020

2.1 In reply to the communication of the Board pursuant to Article 15(1) RPBA 2020 the opponent has submitted for the first time in the proceedings a number of objections, such as:

- added subject-matter of claim 1 and 14 of auxiliary request I due to the absence of valve B in the claims,

- clarity of claim 14 of auxiliary request I,

- identification in E1 of feature (a) of claim 1 of auxiliary request I (see point 6.1 below) with the support of the common general knowledge as substantiated by documents E4, E5 and E6 filed together with the letter dated 12 September 2023,

- inventive step of the subject-matter of claim 1 of auxiliary request I starting from E1 in combination with E3 and the common general knowledge as substantiated by documents E4, E5 and E6,

- novelty of the subject-matter of claim 14.
2.2 The admittance of the above objections into the proceedings, which represent an amendment of the opponent's case in the sense of Article 12(4) RPBA 2020, is subject to the provision of Article 13(2) RPBA 2020. According to Article 13(2) RPBA 2020 any amendment to a party's appeal case after notification of a summons to oral proceedings shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

2.3 The opponent argued that the above objections were prima facie very relevant and that the patent in suit could not be left unexamined in this respect. The relevance of the objections is however not a criterion foreseen by the legislator as providing exceptional circumstances in the sense of Article 13(2) RPBA 2020 (see also CLB, supra, V.A.4.5.8.1). Otherwise any amendment could be presented at any time for the mere reason that it has the potential to change the outcome of the case. This would not only be unfair to the other party but would also run counter to the objective of Articles 12 and 13 RPBA, to have all relevant aspects of the appeal case submitted at the very beginning of the appeal proceedings. The above argument of the opponent for admitting the late filed objections into the proceedings can therefore not be followed.

2.4 The opponent also argued that documents E4, E5 and E6 had been filed to show the common general knowledge of the person skilled in the art. This justification however does not provide exceptional circumstances for submitting new objections based on the alleged common general knowledge for the first time.
into the proceedings after receipt of the Board's preliminary opinion. No other exceptional circumstances exist, since the Board, as acknowledged by the parties, has not introduced any new element into the proceedings with its preliminary opinion.

2.5 The opponent further argued that the objection of lack of novelty of the subject-matter of claim 14 was the consequence of the proper interpretation and construction of the claim and should thus be admitted. The Board notes that whereas submissions concerning the interpretation of the law are not to be considered as an amendment of the party's case in the sense of Article 12(4) RPBA 2020 (see the Supplementary publication 1, OJ EPO 2020, page 218, first sentence of the Explanatory Remarks) an objection of lack of novelty which had never been raised before in the proceedings is clearly an amendment to the party's case and is thus subject to the requirements of Article 13(2) RPBA 2020.

2.6 In the absence of any exceptional circumstance the Board decided not to take into account the above objections pursuant to Article 13(2) RPBA 2020.

3. Added subject-matter of claim 1 of the patent as amended according to auxiliary request I (Article 123(2) EPC)

3.1 In claim 1 of auxiliary request I the following features have been added with respect to claim 1 of the main request:

"wherein a return valve (G) is provided within the return line to selectively enable water or a mixture of
water and abrasive to return to the shuttle chamber (60)."

3.2 The opposition division found that claim 1 fulfils the requirements of Article 123(2) EPC (see the appealed decision, page 5, penultimate paragraph to page 6, last paragraph).

3.3 This is contested by the opponent which argued that the amendment made causes an unallowable intermediate generalization.

3.4 The opponent argued that in the description of the opposed patent the return line 106 is distinct from the other lines such as the line with the valve B connecting the discharge chamber 58 and the shuttle chamber 60. This is however not to be derived from the claim.
According to the opponent what has been originally disclosed is a return line which is connected via port 107 to shuttle chamber 60 and via port 78, to which line 76a is also connected, to discharge chamber 60. Since the claim is not limited to this specific structural configuration other undisclosed realizations are also covered by the claim.
To support its argument the opponent also referred both in writing and at the oral proceedings to hypothetical examples which would be covered by the claim as amended according to auxiliary request I, but which were originally not disclosed in the application as filed.

3.5 The Board shares the view of the opponent that the finding of the opposition division that the features not introduced in claim 1 are not essential for the invention (see the appealed decision, page 6, sixth and eighth paragraph) is not conclusive for assessing
whether subject-matter has been added; however the Board is not convinced by the opponent's arguments that subject-matter has been added as a result of the amendments made.

3.6 As argued by the patent proprietor, the last paragraph on page 14 of the application as originally filed indicates that the high pressure water supply line 76 may have one or more branches 76a, 76b, which means that line 76a could be omitted and this would also then correspond to one of the hypothetical examples submitted by the opponent.

3.7 The opponent argued that independently from this argument the vessel assembly of the patent in suit has been described with reference to Figures 2A to 2C in which both branches 76a and 76b are present, and a realization of the vessel assembly without both branches has not been disclosed.

3.8 The Board disagrees. The reference to the possibility of having only one branch is clearly to be derived from the above statement at page 14 of the original application explicitly referring to the embodiment depicted in the drawings.

3.9 Furthermore, the fact that it is not indicated in the claim that the return line 106 is connected via port 107 to the shuttle chamber 60 does also not provide the person skilled in the art with additional technical information. As the return line 106 is claimed to be provided between the discharge chamber 58 and the shuttle chamber 60 to return water or a mixture of water and abrasives to the shuttle chamber 60, it has to be implicitly connected somehow to the shuttle
chamber 60 and this has to happen, directly or indirectly, through a port.

3.10 That the amended claim would then also cover the possibility of the connection of the return line to another line of the vessel assembly instead of being directly connected to the shuttle chamber at port 107 as shown in the figures does not provide the person skilled in the art with any additional and undisclosed technical teaching. As argued by the patent proprietor the functionality of the return line and the technical teaching that it is provided between the discharge chamber and the shuttle chamber to return water or a mixture of water and abrasives to the shuttle chamber is not inextricably linked to the specific configuration of port 107 shown in the drawings of the application as originally filed. In fact the technical effect provided by the return line is not dependent on the specific realization of the port.

3.11 The Board is thus not convinced by the arguments of the opponent that the person skilled in the art is provided with a new teaching by the amendment made and that subject-matter has been added contrary to Article 123(2) EPC.

4. Added-subject matter of claim 14 of auxiliary request I (Article 123(2) EPC)

4.1 The opponent contested the finding of the opposition division that claim 14 does not provide added subject-matter with respect to the application as originally filed, since claim 14 corresponds to the combination of claims 25 and 28 as originally filed with the addition that the abrasive jet cutting system is according to one of claims 2 to 13 (see the appealed decision, page
12, first paragraph). The opponent argues that, since the reference to claim 2 was not in the original method claim, subject-matter has been added.

4.2 The objection of the opponent is not convincing since it has not been indicated in the statement of grounds of appeal or in the reply to the proprietor's appeal how the reference to an abrasive slurry jet cutting system according to any one of claims 2 to 13 in the method claim provides the person skilled in the art with an originally undisclosed technical teaching.

4.3 The objection of the opponent, that the opposition division, by indicating that valve G provides a pressure balance, identifies an embodiment which was not originally disclosed, is not relevant to the issue of added subject-matter of claim 14, since in claim 14 valve G is not present.

4.4 The Board is thus not convinced by the argument of the opponent that claim 14 does not fulfil the requirements of Article 123(2) EPC.

4.5 The further objections against claim 14 under Article 123(2) EPC regarding i.a. the absence of valve B were not to be admitted in the proceedings (see points 2.1 to 2.3 above).

5. Sufficiency of disclosure of auxiliary request I (Article 83 EPC)

5.1 The opponent contests the finding of the opposition division, that the person skilled in the art would realize that there is a mistake in paragraph [0048] and in figure 2c of the patent specification which would not prevent him to put the claimed invention into
practice (see the impugned decision, page 14, last paragraph). The opponent contests that the example of the invention considered by the opposition division to support sufficiency of disclosure is as such not part of what was originally disclosed in the application as originally filed.

5.2 The Board notes that it is established jurisprudence of the Boards of Appeal that an objection of lack of sufficient disclosure presupposes that there are serious doubts substantiated by verifiable facts. The burden of proof is upon the opponent to establish on the balance of probabilities that a skilled reader of the patent, using his common general knowledge, would be unable to carry out the invention (see CLB, supra, II.C.9, first two paragraphs).

5.3 Independently from the fact whether there is a mistake in the opposed patent, as found by the opposition division (see appealed decision, page 14, last two sentences) or whether different functionalities have been shown in the same figures so that no mistake has been made, as argued by the patent proprietor or whether in the description a non-working example is described, the Board is of the opinion that the opponent has not discharged its burden of proof of showing that a person skilled in the art would not be in the position of putting the claimed invention into practice by supporting the teaching of the patent with the common general knowledge since a convincing argument in this regard has not been submitted. The requirement of sufficiency of disclosure relates in fact to the invention as claimed and any doubts about the realization of examples discussed in the description is not necessarily conclusive in this regard.
5.4 The Board is thus not convinced by the arguments of the opponent that the opposition division erred in finding that the claimed invention is sufficiently disclosed.

5.5 In view of the above the request of the patent proprietor to disregard the ground for opposition of insufficiency of disclosure or to remit the case to the opposition division does not need to be addressed.

6. Novelty of the subject-matter of claim 1 of auxiliary request I (Article 54 EPC)

6.1 The opponent contests the finding of the opposition division that document B1 does not disclose the following features of claim 1:

(a) (a discharge chamber having an outlet) to selectively discharge the high pressure mixture of water and abrasive into the flow of high pressure water to mix therewith and generate abrasive slurry,

(b) wherein a return line is provided between the discharge chamber and the shuttle chamber, and the return line is adapted to return water or a mixture of water and abrasive to the shuttle chamber,

and notes that feature (c) of claim 1, not mentioned in the decision of the opposition division, namely:

(c) wherein a return valve is provided within the return line to selectively enable water or a mixture of water and abrasive to return to the shuttle chamber,
is also to be found in E1.

6.2 With respect to feature (a) the opponent maintains the argument brought forward in opposition proceedings, indicating that since E1 discloses an abrasive water jet cutting system according to E2 and since feature (a) is shown in E2, this feature is also implicit in E1.

6.3 It is noted that the reference to E2 in E1 (E1, page 1, second paragraph) is meant to illustrate the problem which arises in the system of E2, which is indicated as an example of known prior art; however it is not indicated to which extent the system of E1 corresponds to that of E2.

6.4 Since the opponent has failed to indicate in the statement of grounds of appeal or in the reply to the proprietor's appeal where in E1 feature (a) is to be found, apart from referring to E2, the Board shares the view of the opposition division (see the appealed decision, page 8, second paragraph, last sentence) that feature (a) is not directly and unambiguously derivable from E1.

6.5 The new line of argument that the skilled person would supplement the teaching of E1 with their common general knowledge as shown in D4 to D6 was not to be admitted into the proceedings (see points 2.1 to 2.4 above).

6.6 The Board, thus at least for this reasons, is not convinced by the arguments of the opponent that the opposition division erred when finding the subject-matter of claim 1 to be novel with respect to E1.
7. Inventive step of the subject-matter of claim 1 of auxiliary request I (Article 56 EPC)

7.1 E1 in combination with E2

7.1.1 The opponent argues that the subject-matter of claim 1 is not inventive since the features (b) and (c) are known from E1 and feature (a) does not provide an inventive step. According to the opponent the person skilled in the art needing to find a way to deliver the mixture of water and abrasives to the nozzle 8 from the outlet 26 of the discharge chamber 22 of E1 (see figures 1 and 4 of E1) would discharge the high pressure mixture of water and abrasive into a flow of high pressure water to mix therewith and generate abrasive slurry and then discharge the abrasive slurry through the nozzle 8.

7.1.2 According to the opponent the person skilled in the art would do so because this is the way the flow is discharged through the nozzle in document E2 to which E1 itself refers. This would also be hinted to in document E1 by the passage in page 14, lines 11 to 12, reading:

"D.h. Zumindest ein Zweig des Strömungsweges der Hochdruckleitung 6 führt durch den Druckbehälter."

("I.e. At least one branch of the flow path of the high-pressure line 6 passes through the pressurised container", translation by the Board).

7.1.3 The Board does not share the argument of the opponent and concurs with the patent proprietor that this analysis is not correct for the following reasons.
The Board is not convinced that the problem identified by the opponent as the need of finding a way to deliver the mixture of abrasive and water to the nozzle of E1 is properly posed. In page 14, lines 14 to 16 of E1 it is indicated that

"Durch den Auslass 26 strömt das Wasser mit dem mitgeführten Abrasivmittel aus und fließt dann zu der Austrittsdüse 8"

("The water flows out through the outlet 26 with the abrasive conveyed with it and then flows to the outlet nozzle 8", translation by the Board),

so that the person skilled in the art derives that a way of delivering the mixture of abrasive and water to the nozzle (8) is in fact disclosed in E1, i.e. with a conduit directly from the outlet 26 to the nozzle 8.

7.1.4 The person skilled in the art therefore does not need to consider other prior art to put the invention of E1 into practice, but simply follow the teaching derivable from E1 itself. The fact that in page 14, lines 11 to 12, it is said that at least one branch of the flow path of the high pressure line 6 runs through the discharge chamber has to be taken at face value, and without previous knowledge of the invention this passage does not lead the person skilled in the art to the claimed subject-matter.

7.1.5 This is so, in particular due to the further information provided at the same page, lines 14 to 16, clearly stating that the water with the abrasives flows out of the discharge chamber through the outlet 26 and then flows to the outlet nozzle 8 without any reference to a high pressure line.
7.1.6 Independently from the above, the Board also concurs with the patent proprietor that, since E1 refers to E2 only to indicate that there are problems which are overcome by the invention of E1, the person skilled in the art starting from E1 would not revert to the teaching of E2.

7.1.7 The Board is thus not convinced by the argument of the opponent that the subject-matter of claim 1 is rendered obvious by the combination of the teachings of E1 with E2.

7.2 E1 in combination with E3

7.2.1 The opponent contests the finding of the opposition division that the person skilled in the art would not combine the teaching of E1 with that of E3 since E3, although disclosing a return line with a valve, does not disclose a shuttle chamber and there is no motivation in E3 for a person skilled in the art to introduce the return line with a valve disclosed in E3 into E1 (see impugned decision, page 10, second paragraph).

7.2.2 The opponent argues that document E1 shows that abrasive material is transferred from a first (shuttle) chamber to a second (discharge) chamber and that water or water with abrasive material is transferred from the second (discharge) chamber to the first (shuttle) chamber by the same line thus exercising both functions. Since the transfer from the first (shuttle) chamber to the second (discharge) chamber is slow, the person skilled in the art would need to improve that transfer and would then use the solution to that
problem shown in E3, thus introducing a separate return line in E1.

7.2.3 The Board is not convinced at least because the argument of the opponent that document E3 discloses a return line with a valve as a solution to the problem formulated by them, i.e. to improve the slow transfer of abrasive from a first chamber to a second chamber, remains unsubstantiated.

7.2.4 The opponent also argued that the person skilled in the art would discharge the high pressure mixture of water and abrasive from the output 26 of the discharge chamber of E1 into the flow of high pressure water when looking for a way to deliver the mixture of abrasive and water to the nozzle of E1 since such a by-pass solution is shown in E3.

7.2.5 The Board is not convinced, since as indicated above the problem is not correctly formulated because in E1 a way to deliver the mixture of abrasive and water to the nozzle is already disclosed and there is no reason for the person skilled in the art to modify it. Furthermore it is not apparent where the person skilled in the art would derive in E3 the hint to extract from the example of E3 the specific set of features indicated by the opponent.

7.2.6 A combination of E1 with the common general knowledge as exemplified by E4 to E6 (and potentially with E3) has only been submitted after the summons for oral proceedings and was not to be admitted into the oral proceedings (see points 2.1 to 2.4 above).
7.2.7 The Board is thus not convinced by the argument of the opponent that the opposition division erred in finding that the combination of the teachings of E1 and E3 does not render obvious the subject-matter of claim 1.

8. Inventive step of the subject-matter of claim 14 of auxiliary request I (Article 56 EPC)

8.1 E1 in combination with E2

8.1.1 Since claim 14 comprises the feature of

"discharging the high pressure mixture of water and abrasives from the discharge chamber into a flow of high pressure water to mix therewith and form the abrasive slurry"

which corresponds to the distinguishing feature (a) of claim 1 (see point 6.1 above), which the Board considers to render non obvious the subject-matter of claim 1 with respect to the combination of the teachings of E1 and E2, the same applies to the subject-matter of claim 14.

8.2 E1 in combination with E3 and the common general knowledge

8.2.1 The opponent argued that the subject-matter of claim 14 is not inventive in view of E1 considered as the closest prior art in combination with the teaching of E3 taking into account the common general knowledge in analogy to claim 1. Since this objection has not been admitted against claim 1 and is thus not successful, the same applies to claim 14.
8.3 The Board is thus not convinced by the argument of the opponent that the opposition division erred in finding that the subject-matter of claim 14 is based upon an inventive step.

9. Conclusions

Since the Board is not convinced by the arguments of the parties of the incorrectness of the appealed decision, both appeals have to be dismissed.

Order

For these reasons it is decided that:

The appeals are dismissed.

The Registrar: The Chairman:

A. Voyé P. Guntz

Decision electronically authenticated