Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 24 January 2019

Case Number: T 0936/17 - 3.2.03

Application Number: 10195813.0

Publication Number: 2466065

IPC: E21B43/10, E21B33/128, E21B17/00

Language of the proceedings: EN

Title of invention:
Well completion

Patent Proprietor:
Welltec Oilfield Solutions AG

Opponent:
Vinsome, Rex Martin

Headword:

Relevant legal provisions:
EPC Art. 100(a), 52(1), 54(2), 56

Keyword:
Novelty - main request (yes)
Inventive step - (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0936/17 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 24 January 2019

Appellant: (Patent Proprietor)	Welltec Oilfield Solutions AG Baarerstrasse 139 6300 Zug (CH)
Representative:	Hoffmann Dragsted A/S Rådhuspladsen 16 1550 Copenhagen V (DK)
Respondent: (Opponent 2)	Vinsome, Rex Martin Urquhart-Dykes & Lord LLP Cale Cross House 156 Pilgrim Street Newcastle upon Tyne NE1 6SU (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 10 April 2017 concerning maintenance of the European Patent No. 2466065 in amended form.**

Composition of the Board:

Chairman	G. Ashley
Members:	V. Bouyssy
	E. Kossonakou

Summary of Facts and Submissions

I. European patent No 2 466 065 (in the following: "the patent) concerns a completion assembly for running into a borehole in a formation, comprising a casing string and a drill pipe.

II. The patent as a whole was opposed by two opponents on the grounds of insufficient disclosure (Article 100(b) EPC), lack of novelty and lack of inventive step (Article 100(a) EPC).

III. The opposition division held that the ground for opposition of lack of inventive step prejudiced the maintenance of the patent as granted and as amended according to the first and second auxiliary requests before it, but that the patent as amended on the basis of the third auxiliary request before it met the requirements of the EPC.

IV. This interlocutory decision was appealed by the patent proprietor and opponents 1 and 2.

V. As all parties were thus both appellant and respondent, for the sake of simplicity they are referred to as patent proprietor and opponents 1 and 2.

VI. By letter dated 13 November 2017, opponent 1 withdrew its opposition and appeal and thus ceased to be party to the proceedings.

VII. In the communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA) of 3 September 2018, the Board indicated its preliminary opinion of the case.

VIII. By letter dated 8 November 2018, opponent 2 withdrew its appeal and hence has the status of respondent.

IX. Oral proceedings before the Board were held on 24 January 2019, for the course of which reference is made to the minutes. Only the patent proprietor attended the oral proceedings.

X. Final requests

The patent proprietor requested that the decision under appeal be set aside and the patent be maintained as granted (main request), alternatively as amended on the basis of one of the sets of claims of the first, second and third auxiliary requests filed before the opposition division.

Opponent 2 requested in writing that the decision under appeal be set aside and the patent be revoked.

XI. Claims of the appellant's main request (claims as granted)

Independent apparatus claim 1 as granted is directed to the following subject-matter (the feature numbering is introduced by the Board for ease of reference; it corresponds to the feature numbering in the appealed decision, as used by the parties):

1) A completion assembly (100) for running into a borehole (6) in a formation (7), comprising:
2) - a casing string (104) having a first end (105) and a second end (111), and
3) - a drill pipe (102) connected at a first end (103) with the casing string at the first end of the casing string,

4) wherein the casing string comprises:
4.1) - a plurality of tubular sections (101),
4.2) at least two sections being annular barrier sections (110) each comprising at least one annular barrier,
4.3) the annular barriers being arranged at a predetermined mutual distance,
4.4) each annular barrier comprising an expandable sleeve (116) surrounding a tubular part (4, 117),
4.5) the tubular part forming part of the casing string and
4.6) having an opening (118) for entry of pressurised fluid to expand the sleeve, and
4.7) - a second closed end, and
5) the assembly comprises a pressure creating device (119)
5.1) connected with a second end (112) of the drill pipe,
5.2) generating a casing fluid pressure within the drill pipe and within the casing string,
5.3) which casing fluid pressure is substantially greater than a formation fluid pressure.

Independent claims 11 and 16 define a completion method and a completion kit.

XII. Cited evidence

(a) In their statements setting out the grounds of appeal, and in the replies to them, the parties relied among others on the following documents, which were filed in the opposition proceedings and are cited in the decision under appeal:

S1: Dreesen, D. S., "Analytical and Experimental Evaluation of Expanded Metal Packers for Well

Completion Service", SPE 22858, 1991

B1: "TAM Intervention Scab Liner Systems", TAM International, retrieved from the Internet http://www.tamintl.com/images/pdfs/brochures/Scab_Liner_Brochure.pdf, last modified 10 September 2009

(b) Opponent 2 also relied on the following documents filed with his statement of grounds of appeal:

A1: Snyder, D., "Production Results from a New Horizontal Completion Method in the Barnett Shale", AADE National Technical Conference, 2009;

A2: US 4,881,605 A1

A3: US 4,400,211 A1

A4: "Well Informed - Newsletter drilling and well", Statoil, December 2010

(c) The patent proprietor also relied on the following document filed with its reply to the statements of grounds of appeal of the opponents:

F1: Angell, P. et al., "Design, Development and Deployment of High Pressure Zonal Isolation Barriers (ZIBs)", presented at the SPE conference in Bergen, Norway, 2009

XIII. The arguments of the parties, insofar as relevant for the present decision, can be summarised as follows:

(a) Admission of A1 to A4 into the proceedings

The patent proprietor requested the Board not to admit documents A1 to A4 into the proceedings because they were filed too late and were *prima facie* no more relevant than the prior art documents already on file.

These documents consisted of a scientific paper (A1), two patent specifications (A2, A3) and an advertising newsletter (A4) and consequently the teaching of any such document could not be regarded as common general knowledge, as ruled in T 893/98.

(b) Public prior availability of A1 and A4

The patent proprietor argued that opponent 2 had not provided any evidence that documents A1 and A4 were publicly available before the filing date of the patent (17 December 2010). The mere fact that a document bore a date was no evidence that it had been made publicly available on that date.

(c) Main request - Novelty

The opponents submitted that the opposition division erred in deciding that the subject-matter of claim 1 was novel in light of S1. Figure 1 of S1 disclosed all the feature of claim 1, with the exception of features 4.4), 4.5) and 4.6). These features were disclosed in figure 2 of S1. Contrary to the opposition division's view, it was clear that figure 2 showed a modification of the arrangement of packers shown in figure 1, not an alternative arrangement. Thus, for the purpose of assessing novelty, it was permissible to combine the features of figure 1 with those of figure 2.

The patent proprietor argued that, as ruled by the opposition division, figures 1 and 2 of S1 concerned alternative arrangements of the packers and that figure 1 failed to disclose features 4.4), 4.5) and 4.6) of claim 1, while figure 2 failed to disclose feature 3), 4.7), 5.1), 5.2) and 5.3).

Opponent 1 also submitted that the opposition division erred in deciding that the subject-matter of claim 1 was novel in light of E3.

The patent proprietor argued that, as ruled by the opposition division, E3 did not disclose feature 3), 5.1), 5.2) and 5.3) of claim 1.

(d) Main request - Inventive Step

The patent proprietor submitted that the opposition division erred in deciding that the subject-matter of claim 1 was not inventive when taking figure 1 of S1 as starting point.

The opponents argued that, starting from figure 1 of S1, the claimed subject-matter was rendered obvious by common general knowledge or the teaching of B1 and that, starting from figure 2 of S1, it was rendered obvious by the teaching of B1.

Reasons for the Decision

1. Article 100(b) EPC

1.1 The opposition division ruled that the patent as granted disclosed the claimed invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

1.2 The opponents have not challenged this decision and the Board cannot find any reason to overturn it.

2. Admission of A1 to A4 and F1 in the proceedings

2.1 These documents were filed for the first time with the statement of grounds of appeal and the reply.

2.2 Documents A1 to A4 could arguably have been filed in the opposition proceedings. However, opponent 2 has filed these documents in reaction to the decision of the opposition division that claim 1 as granted is novel in light of S1 and E3. In addition, A1 to A4 allegedly document common general knowledge of the skilled person on well completion assemblies. Thus, the Board decided to admit these documents in the proceedings, irrespective of their relevance.

2.3 The patent proprietor filed document F1 with its reply to opponent 2's statement of grounds of appeal, in response to the allegation that claim 1 as granted lacks novelty in light of the teaching of S1 when supplemented by the common general knowledge documented in A2 and A3, and that of E3 when supplemented by the common general knowledge documented in A1 and A4. The Board decided to admit F1 into the proceedings. The contrary would have been against the principles of procedural fairness and equal treatment of the parties.

3. Public prior availability of B1, A1 and A4

3.1 B1 is a commercial brochure. The opposition division ruled that it had been established to the requisite level of certainty that B1 was publicly available before the filing date of the patent (17 December 2010). The patent proprietor has not challenged this decision and the Board cannot find any reason to overturn it.

3.2 The patent proprietor contests that A1 and A4 were made publicly available before the filing date of the patent. A1 is a technical paper prepared for presentation at the AADE National Technical Conference and Exhibition in 2009. A4 is the December 2010 issue of the advertising newsletter "Well Informed - Newsletter drilling and well" from Statoil. The Board, having reviewed the evidence on file, shares the patent proprietor's concern. In fact, no evidence has been provided by opponent 2 to establish that A1 and A4 were indeed publicly available before 17 December 2010. Consequently, these documents have not been taken into consideration.

4. Main request - Novelty

4.1 The parties dispute whether the subject-matter of claim 1 as granted is novel in light of S1 and E3 (Articles 52(1) and 54(2) EPC). The Board agrees with the patent proprietor for the following reasons.

4.2 Novelty in light of S1

4.2.1 S1 discloses a completion assembly for achieving permanent zonal isolation in wellbores without the need for cementing the casings or liners, the assembly including expandable metal packers in tandem on the same casing/liner string (page 413, left column, paragraphs 1 to 3). Figures 1 and 2 of S1 show embodiments of this completion assembly.

4.2.2 The completion assembly shown in figure 1 comprises three thin-wall packers in the form of ductile metal tubes which are adapted to be expanded with internal pressure conducted by a working string connected to the top of the liner string (page 413, right column,

paragraph 1 to page 414, left column, paragraph 1; page 414, left column, paragraph 4). It is stated on page 414, right column, paragraph 5 that "normal workover pipe, drill pipe or tubing should readily conduct the hydraulic pressure needed to inflate thin-wall packers" (emphasis by the Board). This completion assembly comprises features 1), 2), 3), 4), 4.1), 4.2), 4.3), 4.7), 5), 5.1), 5.2) and 5.3) of claim 1, but not features 4.4), 4.5) and 4.6).

4.2.3 In the completion assembly shown in figure 2, the packers are thick-walled, self-anchoring packers with an external anchor and seal and an internal mandrel with a sliding seal (page 414, left column, paragraphs 4 and 7). Each packer comprises an expandable sleeve ("Packer Tube") surrounding a tubular part forming part of the casing string ("HP Tubing" and "Internal Mandrel") and having an opening for entry of pressurised fluid to expand the sleeve ("Inflation Ports or Valve with Relief"), as required by features 4.4), 4.5) and 4.6) of claim 1. It is stated on page 414, right column, paragraph 5 that "thick-wall packers can be inflated using one of the following: (1) High-strength, thick-wall tubing with premium connections; (2) A down hole pressure multiplier at the liner setting tool; (3) Propellants in sealed packers with a relief valve". This completion assembly comprises features 1), 2), 4), 4.1) to 4.6) and 5) of claim 1, but not features 3), 4.7), 5.1), 5.2) and 5.3).

4.2.4 Figures 1 and 2 and the relevant text passages of S1, on pages 413 and 414, must be considered in context of the teaching of S1, and it is clear to the skilled person that figures 1 and 2 disclose distinctive alternative embodiments of the expandable metal packers. In particular, as explained above, the thin-

wall packers and the thick-wall packers are expanded by using different means.

4.2.5 The Board is not persuaded by opponent 2's argument that the skilled person reading the afore mentioned text passage on page 414, right column, paragraph 5 would immediately understand that the thick-wall packers of figure 2 are adapted to be inflated by means of "high-strength, thick-wall tubing" in the form of a high-strength, thick-wall drill pipe. It is not correct to equate the "high-strength, thick-wall tubing" mentioned in the second sentence of paragraph 5 and the "normal workover pipe, drill pipe or tubing" mentioned in the first sentence of the paragraph, even using common general knowledge. The mere fact that A2 and A3 disclose a high-strength, thick-wall drill pipe does not imply that such a drill pipe is used to inflate the thick-wall packers of figure 2. In addition, A2 and A3 do not document common general knowledge of the skilled person in the relevant art of well completion. According to established case law, common general knowledge is normally to be found in basic handbooks, monographs, encyclopedias, textbooks and reference books, but not in patent specifications and scientific publications. A2 and A3 are patent specifications and thus do not normally disclose common knowledge. Opponent 2 has provided no reason why, by way of exception, the teachings of A2 and A3 may be considered to be common general knowledge.

4.2.6 Thus, as ruled by the opposition division, the completion assembly shown in figure 1 fails to disclose features 4.4), 4.5) and 4.6) of claim 1, while that shown in figure 2 fails to disclose features 3), 4.7), 5.1), 5.2) and 5.3) of the claim.

4.3 In conclusion, the Board shares the view of the patent proprietor that these assemblies do not anticipate the subject-matter of claim 1.

4.4 Novelty in light of E3

4.4.1 E3 discloses a completion assembly for achieving permanent zonal isolation in wellbores without the need for cementing the casings or liners. The assembly includes expandable sleeve members on the same casing/ liner string which are expanded by means of a hydraulic expansion tool (see claim 1 and the paragraph bridging pages 3 and 4; figure 4, tool 140, casing section 31, sleeve member 33; figures 6a to 6c, tool 190, cemented casing 160, liner 171, sleeve members 173u and 173l).

4.4.2 The Board shares the view of the patent proprietor that E3 fails to disclose the combination of features 3), 5.1), 5.2) and 5.3) of claim 1.

4.4.3 As mentioned on page 1, line 15 of E3, "oil, gas or water wells are conventionally drilled with a drill string". It is stated on page 24, paragraph 3 and page 25, paragraph 2 of E3 that the hydraulic expansion tool 140 as shown in figure 4 can be run into the casing string from surface by means of the drill pipe, whereby hydraulic fluid is pumped under pressure through the drill pipe and the tool to expand a sleeve member. Contrary to opponent 1's view, there is no disclosure in these text passages of feature 3).

4.4.4 As an alternative, E3 teaches with reference to figure 7 that all the sleeve members can be expanded at the same time by pressuring up the interior of the liner string from surface, without the need of a hydraulic expansion tool (page 29, point 3, lines 13 and 14;

figure 7, liner string 203, sleeve members 43a and 43b). The Board is not persuaded by the argument of the opponents that a skilled reader of this teaching would consider features 5.1) to 5.3) as implicitly disclosed. In particular, it is not inevitable that the drill pipe is used to pressure up the interior or through bore of the casing/liner string from the surface. In fact, it is generally known that this can be achieved directly, without using a drill pipe (see e.g. F1, page 19).

4.4.5 Opponent 2 alleges that it is common general knowledge that the interior of the casing string must be pressured up through a drill pipe and refers to A1 and A4 (page 12) to support this allegation. However, it has not been established that these documents form part of the relevant state of the art (see point 3.2 above). Moreover, A1 is a scientific paper while A4 is an advertising newsletter and such documents can be considered to show common general knowledge only in exceptional circumstances (see point 4.2.5 above); opponent 2 has not argued and the Board cannot recognise the presence of exceptional circumstances. Finally, opponent 2's allegation is contradicted by the teaching of F1 that annular barriers can be activated by pressuring up the interior of a casing string from the surface, without using a drill pipe.

5. Main request - Inventive Step

5.1 The parties agree that the completion assembly disclosed in figure 1 of S1 forms a realistic starting point for the assessment of inventive step. The Board shares this view.

5.2 As reasoned above, the subject-matter of claim 1 differs from this completion assembly by features 4.4), 4.5) and 4.6).

5.3 These distinguishing features enhance the sealing and anchoring properties of the annular barriers. Starting from figure 1 of S1, the problem objectively solved by the distinguishing features can be seen as how to improve the completion assembly in terms of reliability and safety (see e.g. paragraph 5 of the patent specification).

5.4 The Board is not persuaded that the skilled person, in the expectation of solving this problem, could and indeed would modify the completion assembly of S1 in view of the teaching of S1, or that of B1, so as to arrive at the claimed invention.

5.5 S1 addresses the objective problem and teaches that, "to prevent packer movement, the concept of the expanded metal packer was expanded to include the following possible adaptations: (1) Permanent inflation of a packer using cement, liquid, or vapor injected into the packer through a check valve. (2) Propellant inflation of a permanently sealed packer. (3) A self-anchoring external fixture that would remain firmly anchored to the formation or outer casing as the internal packer pressure was reduced." (page 414, left column, paragraphs 2 and 3). It is stated in S1 that the first two adaptations are compatible with thin-wall packers and that the third adaptation corresponds to the thick-wall packers shown in figure 2 (page 414, left column, paragraph 4). Opponent 2 submits that, in the first adaptation, the presence of the check valve implies the presence of a wall for delimiting the space to be inflated, hence an expandable sleeve surrounding

a tubular part forming part of the casing string and having an opening for entry of pressurised fluid, as required by features 4.4), 4.5) and 4.6), and that, when adapting the packers of figure 1 accordingly, the skilled person would still inflate the packers by applying hydraulic fluid pressure from within the drill pipe as required by features 5.1) to 5.2), since this is taught in S1 (page 414, right column, paragraph 5, first sentence).

The Board is not convinced for the reasons submitted by the patent proprietor. When modifying the packers shown in figure 1 of S1 to obtain "permanent inflation of a packer using cement, liquid, or vapor injected into the packer through a check valve", the skilled person would not inevitably arrive at permanently inflatable packers having features 4.4), 4.5) and 4.6) of claim 1, still less to inflate such packers by injecting fluid through the drill pipe. Such a modification would only be possible with the benefit of hindsight. Instead, each modified packer could comprise an expandable tubular part forming part of the casing string and surrounding an annular cavity formed inside the casing string, whereby the inflating cement, liquid or vapor is injected from the surface via an internal control line. Alternatively, the modified packer could be an inflatable collar attached to the exterior surface of the casing string, the check valve being disposed outside the casing string to allow injection of cement, liquid or vapor from the surface via an external control line. In fact, permanently inflatable packers having features 4.4), 4.5) and 4.6) are shown in figure 2 of S1 and they correspond to the third adaptation taught in S1, not to the first adaptation. As ruled by the opposition division, S1 does not include any hint

to replace the packers of figure 1 by those shown in figure 2.

5.6 Opponent 2 also argues that, when modifying the packers shown in figure 1 of S1 to achieve "permanent inflation of a packer using cement, liquid, or vapor injected into the packer through a check valve", the distinguishing features would be rendered obvious by B1 which discloses anchor-less inflatable casing annulus packers on a tubular part which is run-in on the end of a drill pipe.

The Board is not persuaded by this argument, for the reasons submitted by the patent proprietor. Starting from the completion assembly shown in figure 1 of S1, the skilled person would not consider B1 because it is concerned with a remote problem of well intervention, not one of well completion. More precisely, B1 discloses intervention scab liner systems utilizing two or more inflatable packers for isolating sections of producing wells, or for isolating casing leaks or perforations in producing wells. Thus, it is unrelated with the problem of well completion addressed in S1, namely that of sealing and anchoring a casing string in a wellbore without the use of cement. Further, even if the skilled person were to consider B1, this document could not lead him to the distinguishing features because it does not provide any details on the construction of the inflatable packers.

5.7 In conclusion, the Board is not convinced by opponent 2's argument that the subject-matter of claim 1 lacks an inventive step when starting from figure 1 of S1 (Articles 52(1) and 56 EPC).

5.8 In the communication pursuant to Article 15(1) RPBA the Board expressed its preliminary opinion on the alternative line of attack when taking figure 2 of S1 as starting point as follows:

> *"12.2 The Board shares the view of the patent proprietor that Figures 1 and 2 of S1 disclose alternative embodiments (see point 11.2 above). At present, the embodiment in Figure 1 of S1 appears to be the most promising and relevant starting point for the assessment of inventive step, rather than the embodiment in Figure 2 of S1. In particular, the packers of Figure 2 are not adapted to be expanded by means of hydraulic pressure from within the drill pipe. Thus, the Board intends to limit the discussion only to attacks which start from Figure 1."*

The Board has reviewed the factual and legal situation and sees no reason to depart from this preliminary opinion. Consequently, this alternative line of attack was not considered further.

5.9 The above reasoning applies *mutatis mutandis* to the subject-matter of independent claim 11 as well as that of independent claim 16. Claim 11 concerns a completion method using the completion assembly of claim 1. Claim 16 concerns a kit for making a completion assembly as defined in claim 1.

6. For the reasons set out above, the grounds for opposition raised by opponent 2, namely those of lack of novelty and lack of inventive step, do not prejudice the maintenance of the patent as granted.

7. In light of this conclusion there is no need to consider the first, second and third auxiliary requests of the patent proprietor.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is maintained as granted.

The Registrar: The Chairman:

C. Spira G. Ashley

Decision electronically authenticated