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Datasheet for the decision of 29 January 2009

Case Number: T 0058/06 - 3.2.03

Application Number: 97932899.4

Publication Number: 0951611

IPC: E21B 23/00, E21B 23/04, E21B 4/18

Language of the proceedings: EN

Title of invention:
Wellbore Tractor

Patentee:
Expro Americas, Inc

Opponent:
Western Well Tool, Inc.

Headword:
-

Relevant legal provisions:
EPC Art. 100(c), 84, 100(a), 54, 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Admissibility of evidence"
"Added subject-matter - (no) - after amendment"
"Clarity (yes) - after amendment"
"Novelty and Inventive step - (yes) - after amendment"

Decisions cited:
-

Catchword:
-

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Case Number: T 0058/06 - 3.2.03

D E C I S I O N
of the Technical Board of Appeal 3.2.03
of 29 January 2009

Appellant: (Patent Proprietor)	Expro Americas, Inc 580 Westlake Park Boulevard Suite 1500 Houston TX 77079 (US)
Representative:	Lucas, Brian Ronald Lucas & Co. 135 Westhall Road Warlingham Surrey CR6 9HJ (GB)
Respondent: (Opponent)	Western Well Tool, Inc. 1150 Tustin Ave. Anaheim, CA 92807 (US)
Representative:	Vossius & Partner Siebertstrasse 4 D-81675 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted 7 November 2005 revoking European patent No. 0951611 pursuant to Article 102(1) EPC 1973.**

Composition of the Board:

Chairman: U. Krause
Members: E. Frank
K. Garnett

Summary of Facts and Submissions

I. The appeal lies from the decision of the Opposition Division dated 18 October 2005 and posted on 7 November 2005, to revoke the European patent No. 0 951 611 pursuant to Article 102(1) EPC 1973.

II. The Appellant (Proprietor) filed a notice of Appeal on 6 January 2006, paying the appeal fee on the same day. The statement of grounds of appeal was submitted on 20 February 2006.

III. A communication pursuant to Article 15(1) RPBA was issued together with a summons to attend oral proceedings, and the Respondent subsequently filed a new document D8 on 29 December 2008. One day before the oral proceedings the Appellant submitted a new evidence D9. The oral proceedings were duly held on 29 January 2009.

IV. The Appellant requested that the decision under appeal be set aside and the patent be maintained on the basis of claims 1 to 11 according to the request filed with the grounds of appeal on 20 February 2006.

The Respondent (Opponent) requested that the appeal be dismissed.

V. The wording of claims 1 and 4 reads as follows:

"1. A method of pulling a component (101, 651, 302) which
is tubular string, cable, wireline or coiled tubing along a wellbore or like passage (134, 334, 484)

extending from the surface to an underground location deviated from the vertical so that gravity no longer provides the necessary force to move said component down and along said wellbore, which method comprises the steps of:

(1) connecting a wellbore tractor (100,600,300,400) comprising a body (109,657,327,450) and first anchoring means (123,634,311,483) mounted on said body, to said component and inserting said wellbore tractor and component into said wellbore;

(2) engaging the inner surface of said wellbore with said first anchoring means;

(3) moving said component relative to said first anchoring means when engaged with said inner surface;

(4) releasing said first anchoring means from said inner surface; and

(5) advancing said first anchoring means in the direction of travel of the component;

characterised in that

said first anchoring means comprise slips each mounted by a first arm pivoted at one end to a slip and its other end to an axially movable slip setting sleeve (127,147; 620,660;303;419,426) and by a second arm pivoted at one end to said slip and at its other end to a second sleeve (133,233;656;314) on said body, axial movement of said slip setting sleeve relative to said

body effecting radial movement of said slips, and in that

step (3) is by moving the body relative to said first anchoring means."

"4. A wellbore tractor system (100,600,300,400) for use
in the method of claim 1, the system comprising:

a body (109,657,327,450) connectable to a component, the body having mounted on it anchoring means (123,634,311, 483) for selectively engaging the inner surface of the wellbore in a releasable manner;

means (190,655,309,491) for moving the component longitudinally relative to the anchoring means when engaged with the inner surface of the wellbore; and

means (122,632,326,447) for moving the anchoring means longitudinally with respect to the component, in the direction of travel thereof, after the anchoring means has been disengaged from the inner surface of the wellbore,

characterised in that

said body is movable relative to said anchoring means when engaged with the inner surface of the wellbore to effect movement of said component along the wellbore, and in that said anchoring means comprise slips each mounted by a first arm pivoted at one end to a slip and its other end to an axially movable slip setting sleeve (127,147; 620,660;303;419,426) and by a second arm

pivoted at one end to said slip and at its other end to a second sleeve (133,233;656;314) on said body, axial movement of said slip setting sleeve relative to said body effecting radial movement of said slips."

VI. The following evidence has been considered for the purposes of the present decision:

D1 = US 3 180 437 A
D3 = US 3 661 205 A
D4 = US 3 664 416 A
D5 = GB 2 241 723 A
D6 = US 3 797 589 A
D7 = US 4 040 494 A
D8 = US 4 463 814 A
D9 = SPE 117062 - "A New Record of Coiled Tubing Reach in Open Hole Horizontal Wells Using Tractor and Friction Reducer in Saudi Arabia History: A Case Study" by Bawaked et al.; SPE (Society of Petroleum Engineers) Saudi Arabia, Dhahran, Saudi Arabia, 29 to 30 March 2008.

VII. The parties submitted essentially the following arguments:

VII.1 Admissibility of documents

The Respondent argued that D8 explicitly referred to self propelled oil and gas well drilling in both vertical and horizontal directions, and thus had to be considered more relevant than D6, which merely concerned coal mining. Moreover, as for D9, this publication did not form prior art and thus had to be disregarded.

The Appellant argued that D6 as well as D8 did not address a tractor for moving equipment down a wellbore, but a drilling system to locally apply thrust on a drill bit, and thus D8 was not relevant and should not be admitted into the proceedings at such a late stage. The document D9 from the website of the Respondent was pertinent to wellbore tractors, since it described slips as providing advantages over the prior art for highly deviated wells, in particular when pulling coiled tubes.

VII.2 Amendments of claims and Clarity

The Respondent acknowledged that claim 9 of the application as filed generally described the "moving of a payload" by a wellbore tractor. However, this payload was always pushed at the front of the tractor and could be, e.g., a perforating gun: cf. page 10 of the application (as published) and figure 1A at the right. Thus, "moving" originally did not encompass pulling of components behind the tractor, and therefore the subject-matter of claim 1 was not disclosed in the application. Furthermore, claim 1 lacked clarity in that the wording "... along a wellbore... deviated from the vertical..." did not sufficiently teach the skilled person as to when a component will move downwards simply by gravity or it will require pulling.

Moreover, the Respondent argued that, rather than "connectable to" as now was described by claim 4, in the original specification the body of the wellbore tractor was actually connected to the component: cf.

pages 2,7,10, and 18 (as published). Thus, claim 4 was not derivable from the application.

Finally, the Respondent argued that claims 1 and 4 defined anchoring means which "comprised" slips. Thus, additional means between the slips and the wellbore were now also encompassed, whereas according to original page 1 (as published) the slips directly engaged the interior wall of a casing or wellbore. Moreover, according to the wording of claims 1 and 4, each of these slips were "mounted by" a slip arm pivoted "at" one end "to" the slip. Thus, due to this vague formulation, each slip could be mounted by means of this arm, but could also be mounted near to the slip arm. Thus, the slip arm could be pivotably connected directly to the slip, but could also be pivoted with respect to the slip, i.e. could also be indirectly connected to the slip by means of, e.g., rollers etc. in between the arm and the slip. However, the original specification only described that the slip arm was pivotably secured to the slip, which meant that the latter was directly connected to the arm: cf. pages 5 and 11, and figures (as published). A generalization of claims 1 and 4 to any indirect connection between slip arms and slips therefore was not derivable from the application as filed, and for this reason, the subject-matter of claims 1 and 4 were also not disclosed in the application.

The Appellant argued that the patent addressed wellbore tractors for highly deviated wells. It was well known in the art and also derivable from page 1 of the application, that for deviations of about 70^0 or more from the vertical, the pushing of pieces of electric

cables or flexible metal tubings was not possible anymore and would lead to frictional problems or helical jams. Therefore, pulling equipment down a highly deviated wellbore according to claim 1 was derivable from the original specification. This is also consistent with the ordinary meaning of the English word "tractor", which implies pulling (cf. shorter Oxford English Dictionary).

As regards claim 4, the Appellant argued that the tractor was not part of the tubing string, since it served to move the latter. The tractor therefore was "connectable to" tubing, coils, or pipes which were previously taken to an oil rig and then screwed together in situ.

Moreover, in the Appellant's view, the term "slips" in claims 1 and 4 was well known in the oil industry, and thus anchoring means comprising such slips were derivable from the application as filed. Furthermore, "pivoted to" or "pivoted at" was common English, and the small circles of slip "123" shown in figure 1B indicated that the slips were actually pivotably secured to slip arms. This was also derivable from the original specification on page 5 (as published). Moreover, "mounted by" meant in fact attached, and "pivoted" that the slips and arms had to have a pivot, i.e. that they had to be pivotally connected together. If the arms of such a simple structured three-bar linkage were not secured to the slip, then the question arose as to how the linkage otherwise could be expanded or contracted, and thus claims 1 and 4 were not generalized, but rather met the "economy of language".

VII.3 Novelty and Inventive step

The Respondent argued that claims 1 and 4 differed from the closest prior art D5 or D8 in that another type of anchoring means were provided, and thus the novelty of claims 1 and 4 was not disputed by the Respondent. D5 actually concerned a wellbore tractor, and a large variety of anchoring means were suggested on page 28 of D5. Moreover, D8 disclosed in particular in column 1 that the drilling system of D8 had to be able to propel itself within the drillhole, i.e. function as a "tractor" for pipe segments. Starting form D5 or D8 the underlying problem was thus how to ensure better clamping of the anchoring means during the movement of the apparatus. It therefore would have been obvious for the skilled person faced with this problem to consider D3 or D4, which both taught simple and easily engageable and disengageable slip-type anchoring systems for frequent and relatively rapid movement, and to replace thus the anchoring means of D5 or D8 thereby arriving at the subject-matter of claims 1 and 4. Finally, claims 1 and 4 were also obvious in the light of D1,D6 or D7, the disclosure of them being comparable to that of D8, in combination with the advantageous anchoring means of D3 or D4. Therefore claims 1 and 4 were not inventive.

The Appellant argued that document D5 formed the nearest prior art, since it was the only disclosure which dealt with the problem of the invention of the patent, namely to introduce flexible strings in highly deviated wells by means of a pulling tractor. D1,D6,D7 and D8 were not relevant, since they concerned thruster devices for drilling and therefore no movement

along the wellbore, but rather the applying of a localized force onto the drillbit was taught therein. Moreover, the disclosure of D3 and D4 led away from a wellbore tractor, since the anchoring means of D3 and D4 were only set when a well tool was temporarily secured in a well bore and the apparatus did not move. Furthermore, the documents on file did not disclose slips which, when set, still enabled the body of the apparatus to be moved relatively thereto. Thus, based on the prior art on file, claims 1 and 4 were not obvious.

Reasons for the Decision

1. The appeal complies with the provisions of Articles 106 to 108 EPC and of Rule 99 EPC and is, therefore, admissible.

2. *Admissibility of evidence*

Since document D9 was published after the date of filing of the patent, it does not constitute prior art in the sense of Article 54(2) EPC and had thus to be disregarded. As for D8, filed one month before the oral proceedings, this document explicitly describes a system for drilling holes in horizontal directions encountered in oil and gas drilling: cf. D8; column 2, lines 2 to 26. Therefore the Board considered D8 prima facie more relevant than the earlier filed and broadly similar document D6, because D6 rather relates to coal mining. The Board thus exercised its discretion under Article 13(3) RPBA to admit the document D8 to the proceedings at that late stage.

3. *Amendments of claims and Clarity*
(Articles 100 (c), 123(3) and 84 EPC)

3.1 *Claim 1*

The method claim 1 is in the first place based on the subject-matter of claims 1 and 9 as originally filed. Compared to claim 9 as filed, in the preamble of claim 1 the wording "moving a payload" has been replaced by "pulling a component". The Board agrees with the Appellant that the term "tractor" alone in claim 1 as filed implies pulling, because of its inherent meaning. Moreover, the skilled person would also readily recognize in particular from page 1 of the application, lines 1 to 25 (as published), that for highly deviated wells the described wirelines, cables, coiled tubing and tubular strings have to be pulled, since otherwise frictional problems or jams occur. Thus, in the view of the Board, the limitation of the action of "moving a component" in original claim 1, to the action of "pulling a component" in present claim 1 is derivable from the application as filed. This component has been further specified in claim 1 as "tubular string, cable, wireline or coiled tubing": cf. page 1 of the application, lines 4 and 5 (as published).

Furthermore, the wellbore or like passage in the preamble of claim 1 has been defined as being "... deviated from the vertical so that gravity no longer provides the necessary force to move said component down and along said wellbore..." which is derivable from page 1 of the application, lines 6 to 16 (as

published). Thus, in the Board's view, the term "... deviated from the vertical ..." is clearly to be read as being explained by the subsequent wording according to which all such deviations from the vertical are addressed, where gravity alone no longer provides the necessary moving force down and along the wellbore. This is also supported by the description: cf. page 1, lines 11 to 16 (as published), corresponding to paragraph [0003] of the patent.

Finally, at the beginning of its characterising portion, claim 1 contains the additional features "said first anchoring means comprise slips each mounted by a first arm pivoted at one end to a slip and its other end to an axially movable slip setting sleeve and by a second arm pivoted at one end to said slip and at its other end to a second sleeve on said body, axial movement of said slip setting sleeve relative to said body effecting radial movement of said slips, and in that...". This is generally based on claim 4 as filed which describes anchoring means including, i.e. "comprising" a sleeve and wellbore slipping feet, i.e. "slips". Thus, in the Board's view, it is derivable from the original claim 4 that the first anchoring means comprise slips. Apart from that, the Board agrees with the Appellant that slips are well known in the art, and the absence of any express statement about their intended use, namely to engage an interior wall of a casing or wellbore, does not generalize claim 1 in respect of the description as filed (cf. page 1, line 29 (as published)), the latter thus also forming a basis for anchoring means comprising slips.

As regards the type of connection between the slip and slip arms, in the Board's view, claim 1 clearly describes slips which are each pivotally attached to the ends of a first and second arm. Moreover, contrary to the Respondent's view, the English expressions "secured to" (cf. page 5 of the application, lines 32 to 35 (as published)) and "connected to" (cf. page 11, lines 12 to 17 (as published)) cannot exclude an indirect connection, i.e. an additional intermediate means between two parts to be connected. Thus, in the view of the Board, the description on page 5 and 11 as filed serves as a general basis for both direct or indirect connections between the slip and its two respective slip arms, as is claimed in claim 1. A three-bar linkage, having arms which are directly connected to the slip, is readily derivable from the figures, e.g. from figure 1B, where pivots in the form of small circles are shown.

To conclude, the subject-matter of claim 1 is based on claims 1, 4 and 9, and in particular on pages 1, 5 and 11 and figure 1B, of the application as filed, is also limited over the granted claim 1, and therefore complies with Articles 100(c) and 123(3) EPC. Moreover, since claim 1 is considered sufficiently clear and is also supported by the description, claim 1 thus complies with 84 EPC.

3.2 *Claim 4*

The apparatus claim 4 is based on claim 1 of the application as filed. In the preamble of claim 4 the wording "a body connected to the component" at lines 7 and 8 of claim 1 (as published) has been replaced by

"... connectable to ...". However, the Board agrees with the Appellant that the skilled person would readily recognize from the disclosure of the application as filed that the tractor does not form part of, e.g., a tubing string, since tubing, coils, or pipes have to be taken previously to the oil rig, and then are screwed together and connected to the tractor at the drilling site. Moreover, if according to claim 1 and the specification as filed (cf. in particular page 2, lines 14 and 15; page 7, line 16; page 10, lines 13 and 14; and page 18, lines 1 and 2 (as published)) the tractor system is described as being connected to, e.g., a tubular string, such a tractor system then inevitably must be suitable for connection beforehand, i.e. is also "connectable to" this component.

As for the anchoring means according to the characterising part of claim 4, which comprise in addition slips and first and second arms pivotally attached to these slips, reference is made to point 3.1 above.

Therefore claim 4 also meets the requirements of Articles 100(c), 123(3), and 84 EPC.

4. *Novelty and Inventive step*
(Article 100(a) EPC, see Articles 54 and 56 EPC)

The Respondent did not dispute the novelty of claims 1 and 4, and also the Board has no reason to doubt that its subject-matter is novel. As to inventive step, the Board agrees with the Appellant that document D5 forms the closest prior art with respect to the subject-

matter of claims 1 and 4, since D5 in fact describes a wellbore tractor: cf. abstract, and in particular page 1, line 5 to page 2, line 3; figures 1, 2A, 2B, 6A, and 6B. Moreover, the parties agreed that the subject-matter of claims 1 and 4 differs from the disclosure of D5 in that in any event a slip-type anchoring means in the form of a three-bar linkage is provided. In the parties' view, by considering this difference, the technical problem has to be deduced in the light of the technical effects of the anchoring means during the movement of the wellbore tractor. The Board agrees with this, since the anchoring means cannot be regarded as a feature which is independent from the effects of its intended use, i.e. the moving of a tractor along the wellbore as defined by both of claims 1 and 4.

Thus, the problem underlying this distinguishing feature can be seen in the provision of a better traction force for the tractor.

The documents D3 and D4 (cf. abstracts and figures) concern an apparatus for temporarily securing a well tool in a wellbore. Although expandable slip-type anchoring means are described by D3 or D4, the latter are merely designed to fixedly hold an instrument, e.g. a measuring probe, in position at a predetermined depth of the well, without any movement of this instrument along the wellbore as soon as the anchoring means are set against the wall of the bore-hole. Thus, starting from the wellbore tractor of D5, the skilled person would not consider D3 or D4 in order to solve the problem stated above, since no transfer of traction forces onto the bore-hole by means of their anchoring

system, when moving their technically remote apparatus along the bore-hole, is addressed therein.

Furthermore, reference is also made (cf. abstracts; figures) to the documents D1, D6, D7 and D8. However, contrary to the Respondent's view, and as for D1 also contrary to the decision of the Opposition Division, these documents are not considered to be relevant, since they apparently do not concern wellbore tractors as claimed in claims 1 and 4. Rather, drilling systems are provided which require that both considerable torque and also thrust are locally transmitted by means of the therein described anchor assemblies: cf. in particular D8: column 1, lines 1 to 39; column 2, lines 20 to 43; and figures 4, 5 and 9. Even if, as was argued by the Respondent, e.g., D8 was taken as nearest prior art, since inevitably pipes are also slowly pulled behind the drilling tool assembly of D8, the skilled person then would have to look for an anchoring means which not only improved the transfer of traction forces when moving, but also sustained the extreme torque and thrust which are locally applied during drilling. For this reason, having regard to D3 and D4, their apparatus and anchoring systems then would be even more remote from D8 than from D5, and thus would also not be considered by the skilled person.

The subject-matter of claims 1 and 4 therefore fulfills the requirements of novelty and inventive step.

5. *Adaptation of the description - procedural matters*

Since the claims have been considerably restricted with respect to the anchoring means, a corresponding

thorough revision of the description is therefore required and the Opposition Division will have to inform the Appellant pursuant to Article 101(1) EPC to adapt the description in accordance with Article 84 EPC.

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 with the order to maintain the patent on the basis of:

- Claims, No.:
1 to 11 as filed with the grounds of appeal received on 20 February 2006, with letter of 16 February 2006;

- Drawings, figures:
1A to 6D as granted,

- and a suitably adapted description.

The Registrar The Chairman

A. Counillon U. Krause