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Datasheet for the decision of 3 February 2017

Case Number: T 1155/14 - 3.2.03

Application Number: 05108056.2

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IPC: E21B1/00

Language of the proceedings: EN

Title of invention:
Rock breaking machine and lubricating method

Patent Proprietor:
Sandvik Mining and Construction Oy

Opponent:
Atlas Copco Rock Drills AB

Headword:

Relevant legal provisions:
EPC Art. 100(c), 100(a), 54(1), 56
RPBA Art. 13(1), 13(3)

Keyword:
Late-filed request - admitted (yes)
Amendments - added subject-matter (no)
Novelty - main request (yes)
Inventive step - main request (yes)

Decisions cited:

Catchword:

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Case Number: T 1155/14 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 3 February 2017

Appellant: (Patent Proprietor)	Sandvik Mining and Construction Oy Pihtisulunkatu 9 33330 Tampere (FI)
Representative:	WSL Patentanwälte Partnerschaft mbB Kaiser-Friedrich-Ring 98 65185 Wiesbaden (DE)
Appellant: (Opponent)	Atlas Copco Rock Drills AB 701 91 Örebro (SE)
Representative:	Rehse, Helen Valea AB Box 1098 405 23 Gothenburg (SE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 18 March 2014 concerning maintenance of the European Patent No. 1632636 in amended form.**

Composition of the Board:

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

Summary of Facts and Submissions

I. European patent No 1 632 636 (in the following: "the patent") concerns the lubrication of the tool of a rock breaking machine.

II. The patent as a whole was opposed on the ground of Article 100(c) EPC (unallowable amendment before grant) and on two grounds of Article 100(a) EPC (lack of novelty and lack of inventive step).

III. The opposition division decided that Article 100(c) EPC prejudiced the maintenance of the patent as granted, but that the patent as amended on the basis of the auxiliary request before it met the requirements of the EPC.

IV. This interlocutory decision was appealed by both the opponent and the patent proprietor.

V. With the summons to oral proceedings, the Board sent a communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA) indicating its preliminary opinion of the case.

VI. Oral proceedings before the Board were held on 3 February 2017.

VII. Requests

The patent proprietor requested that the decision under appeal be set aside and the patent be maintained in amended form on the basis of the set of claims filed as main request in the oral proceedings, alternatively on the basis of the set of claims filed as auxiliary request with the letter dated 19 December 2016.

The opponent requested that the decision under appeal be set aside and the patent be revoked.

VIII. Prior art

In the statement setting out the grounds of appeal, and in the reply to it, the parties relied among others on the following prior art documents which were filed in the opposition proceedings and are cited in the decision under appeal:

D1: US 5,060,761
D2: WO 03/053639 A1
D3: EP 1 321 245 A1

IX. Claims of the patent proprietor's main request

Independent machine claim 1 as granted is directed to the following subject-matter (the feature breakdown was introduced by the opponent and used by both parties):

(a) A rock breaking machine comprising:
(b) a body (17, 18);
(c) a percussion device (5, 12) for generating impact pulses in a tool (6, 13) that is connectable to the rock breaking machine;
(d) bearing members (19) for supporting the tool onto the rock breaking machine;
(e) a lubricating system for lubricating the bearing members (19), the lubricating system comprising at least one lubricant channel (23), and
(f) at least one lubricating device (24) for feeding lubricant along the lubricant channel to the bearing members of the tool;

(g) the lubricating device (24) comprising at least one lubricant container (25) and a transfer device (26) for feeding lubricant;
(h) the lubricant container (25) being arranged in the body (17, 18) of the rock breaking machine (3, 10); and
(i) wherein the volume of the lubricant container (25) is divided into a pressure space (28) and a lubricant space (29) by a dividing member (27), which is arranged to affect the volumes of the pressure space and lubricant space;
(j) the pressure space (28) is connected to a pressure medium channel (30), which allows pressurisation of the pressure space (28) by feeding pressure medium therein;
(k) lubricant is storable in the lubricant space (29);
(l) the pressure of the pressure medium acting in the pressure space (28) is arranged to pressurise the lubricant in the lubricant space (29) by means of the dividing member (27); and
(m) wherein the lubricant space (29) is connected to a transfer device (26), which is arranged to control the feed of lubricant from the lubricant space (29) into the lubricant channel (23),

characterised in that

(n) the percussion device (5, 12) is a hydraulic device to which pressure fluid is fed from a hydraulic circuit; and
(o) the pressure space (28) of the lubricant container (25) is connected to the hydraulic circuit of the percussion device for pressurising the pressure space (28).

Independent method claim 9 as amended reads as follows (compared to claim 9 as granted, the added passage is indicated in bold, the deleted passage in strike-through):

"9. A method of lubricating a tool of a rock breaking machine,

the rock breaking machine (3, 10) comprising a body (17, 18), a percussion device (5, 12) for generating impact pulses in a tool (6, 13) that is connectable to the rock breaking machine, bearing members (19) for supporting the tool onto the rock breaking machine, and a lubricating system for lubricating the bearing members (19);

the method comprising:

feeding lubricant from a lubricant container (25) along a lubricant channel (23) to the bearing members (19) of the tool by means of a lubricating device (24);

storing lubricant in a lubricant space (29) provided in the lubricant container (25) formed in the body (17, 18) of the rock breaking machine;

and supplying the pressure of pressurized medium into the pressure space (28) of the lubricant container (25), the pressure space being separated from the lubricant space (29) by means of a dividing member (27);

characterized by

pressurizing the lubricant in the lubricant space (29) by pushing the dividing member (27) towards the lubricant space (29) by means of pressure medium fed from ~~a~~ **the** hydraulic circuit of the hydraulic percussion device;

and batching a predetermined portion of lubricant into a lubricant channel (23) by the lubricating device (24)."

Dependent claims 2 to 8, 10 and 11 define preferred embodiments of the rock breaking machine of claim 1 and the lubricating method of claim 9 respectively.

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

(a) Admissibility of the patent proprietor's main request

Opponent's case:

The main request, filed for the first time in the oral proceedings, should not be admitted into the proceedings because it could already have been filed in the opposition proceedings.

Patent proprietor's case:

The new main request addresses the opponent's objection raised for the first time during the oral proceedings that, because of the indefinite article "a", the expression "fed from a hydraulic circuit of the hydraulic percussion device" in claim 9 as granted introduces added subject-matter.

(b) Main request - Article 100(c) EPC

Patent proprietor's case:

Contrary to the opposition division's view, method claim 9 does not introduce added subject-matter contrary to Article 123(2) EPC.

It is required in the penultimate feature of method claim 9 that the pressure medium, which is pressurising

the lubricant in the lubricant space by pushing the dividing member towards the lubricant space, is "fed from the hydraulic circuit of the hydraulic percussion device".

This feature is supported by the technical teaching in the application as originally filed, in particular in dependent claim 5 as originally filed.

Claim 5 as originally filed defines a preferred embodiment of the machine of claim 1 as originally filed, but not of the method of lubricating a tool of a rock breaking machine as defined in claim 11 as originally filed. However, it is readily apparent for a skilled reader of the application as filed that the machine of claims 1 to 10 and the lubricating method of claims 11 to 13 are closely related.

Paragraph 1 of the description as filed states that the invention relates to a rock breaking machine with certain given features. It is stated in paragraph 2 that the invention also relates to a method of lubricating a tool of a rock breaking machine having exactly the same features as mentioned in paragraph 1. This underlines the fact that the method of the invention is used in connection with the machine of the invention.

Even though, in the claims, the machine of the invention and the lubricating method of the invention are defined using different terms, the underlying inventive idea is the same. This is confirmed by paragraph 7 of the description as filed, where reference is made to "the basic idea of the invention", which is clearly common to the machine and the method.

Figure 4 illustrates "a lubricating system according to the invention" (page 5, lines 7 and 18), and it is clear that this lubricating system is a preferred embodiment of the machine of the invention and is meant to be used in the lubricating method of the invention. The opposite assumption is not plausible. The lubricating system shown in figure 4 corresponds to that defined in general terms in dependent claim 5.

The opposition division held (point 2 of the reasons) that "the description however does not disclose a rock breaking machine with a hydraulic percussion device (let alone a corresponding method), and therefore cannot be seen as a disclosure that this specific feature can be transferred from an apparatus claim to a method claim". However, this is irrelevant for assessing compliance with Article 123(2) EPC. For the reasons set out above, the skilled person would derive the subject-matter of claim 9 directly and unambiguously, using common general knowledge, from the whole of the description, claims and drawings as originally filed.

Opponent's case:

Method claim 9 results in the skilled person being presented with new information which is not directly and unambiguously derivable from that previously presented by the application as originally filed. The new information concerns the method step of pressurising lubricant in a lubricant space by pushing a dividing member towards the lubricant space by means of pressure medium "fed from the hydraulic circuit of the hydraulic percussion device".

This method step is not disclosed in any of method claims 11 to 13 as originally filed. Claim 5 as originally filed defines a preferred embodiment of the rock breaking machine of claim 1, comprising a percussion device that is a hydraulic device to which pressure fluid is fed from a hydraulic circuit and in which the pressure space of the lubricant container is connected to the hydraulic circuit of the percussion device for pressurising the pressure space. However, the subject-matter of method claims 11 to 13 is not related to that of machine claim 5.

It cannot be derived from the application as filed, let alone from paragraphs 1, 2 and 7 of the description, that the method of claim 11 is used to lubricate the tool of the machine of claim 1. On the contrary, it appears that the method is used to lubricate the tool of another machine. For instance, it is stated in paragraphs 2 and 4 and claim 11 that the method of the invention is a method "for lubricating a tool of a rock breaking machine", not for lubricating the tool of the rock breaking machine of the invention. Moreover, method claim 11 and machine claim 1 define different lubricating systems. Firstly, method claim 11 requires that the lubricant container be "formed in the body of the rock breaking machine", while machine claim 1 requires that the lubricant container be "arranged in the body of the rock breaking machine". Giving the words "formed" and "arranged" their plain and ordinary meanings, these features are different. Secondly, in contrast to machine claim 1 (see features (f) and (g)), method claim 11 does not mention that the lubricating system comprises a lubricating device comprising the lubricant container and a transfer device for feeding lubricant. In fact, method claim 11 does not even mention such a transfer device. Instead, it requires

the step of "batching a predetermined portion of lubricant into a lubricant channel by the lubricating device". Even though method claim 12 refers to "the transfer device (26)", this claim only defines a preferred embodiment of the method of claim 11, without any link to the machine of claim 1.

Figure 4 cannot provide any support for the contested feature in claim 9. Firstly, figure 4 does not show "the hydraulic circuit of the hydraulic percussion device". The circuit diagram symbols used in figure 4 are also used for pneumatic circuits. Secondly, the lubricating system shown in figure 4 cannot, at the same time, be part of the machine of the invention and be used in the method of the invention, simply because machine claim 1 and method claim 11 define different lubricating systems, as explained above.

Should the Board consider that figure 4 discloses that the pressure space 28 of the lubricant container 25 is connected to, and fed from, the hydraulic circuit of the hydraulic percussion device 5, this feature would be disclosed only in combination with the further features that the rock breaking machine is a hydraulic impact hammer 3 and that the step of batching lubricant is carried out by a transfer device 26 comprising a push member 35 as shown in figure 4. Since these further features have not been incorporated in claim 9, the contested amendment would be an intermediate generalisation that contravenes Article 123(2) EPC.

(c) Main request – Novelty over D1

Opponent's case:

The subject-matter of claim 1 is anticipated by the hydraulic impact hammer disclosed in D1. Contrary to the patent proprietor's view, D1 discloses features (d), (h), (j), (l), (n) and (o) of claim 1.

With respect to feature (d), in the context of the patent, the term "bearing members" can be construed broadly as meaning a plurality of bearings, a plurality of different parts of a single bearing, or a plurality of parts of a single part of a bearing. It is explained in column 6, lines 60 to 63 of D1 that two parts of the chisel guide 14c are lubricated through two channels 20 and 21. These two lubricated parts form "bearing members" as required by feature (d).

Feature (h) requires that "the lubricant container is arranged in the body of the rock breaking machine". It is stated in paragraph 8 of the patent specification that this feature has the effect that, in cold conditions, the lubricant in the lubricant container does not become cold and stiff. Thus, feature (h) is realised when the lubricant container is arranged inside, alternatively, on, adjacent to, on an outer surface, or in the vicinity, of the machine or a component associated therewith, in a location subjected to heat or vibrations generated by the machine, allowing the lubricant in the lubricant container to remain fluid. This feature is clearly disclosed in D1. Firstly, it is stated in column 2, lines 48 to 54 of D1 that "the lubricating arrangement, composed essentially of the lubricant reservoir and the conveying unit, is preferably integrated in the striking mechanism,

fastened to the striking mechanism or at least disposed in the vicinity of the location to be lubricated, i.e. in the vicinity of the chisel guide". Secondly, it is stated in column 7, lines 67 to 68 of D1 that "the dot-dash lines around the region in FIG. 2 are to indicate that the associated components form a unit"; this passage implies that at least the striking mechanism 14, the conveying 1 and the lubricant reservoir 2 form a unit.

With respect to feature (j), the "pressure space" is anticipated by conveying chamber 1f in figure 1a of D1, whereby chamber 1f is pressurized by hydraulic fluid from pressure energy source 18 (which also furnishes the operating pressure to striking piston 14b).

With respect to feature (l), the pressure of the hydraulic fluid acting in the pressure space (i.e. the space below conveying piston 3 in figure la of Dl) is arranged to pressurize the lubricant in the lubricant space (conveying chamber 1f) by means of the dividing member (conveying piston 3).

With respect to feature (n), the percussion device 14b of Dl is a hydraulic device (column 1, line 17) to which pressure fluid is fed from the hydraulic circuit comprising pressure energy source 18.

With respect to feature (o), the pressure space (the space below conveying piston 3 in figure la) of the lubricant container of D1 is connected to the hydraulic circuit (pressure energy source 18) of striking piston 14b for pressurizing the pressure space.

The same arguments apply, *mutatis mutandis*, to the subject-matter of method claim 9.

Patent proprietor's case:

D1 fails to disclose features (d), (h), (j), (l), (n) and (o) of claim 1.

As acknowledged by the opposition division, D1 does not disclose a plurality of bearing members, as required by feature (d). In fact, D1 is totally silent in respect of any kind of bearing member. The single chisel guide 14c disclosed in D1 cannot anticipate the feature of a plurality of bearing members.

D1 discloses only one lubricant container, namely lubricant reservoir 2 (see drawings), which is preferably an exchangeable lubricant cartridge (column 4, lines 64 to 68). The conveying unit 1 shown in D1 does not form a "lubricant container" in the sense of claim 1. Rather, it is a hydraulic pump (column 5, line 33) which only forms a "transfer device" in the sense of features (g) and (m) of claim 1.

Regarding the lubricant reservoir 2 itself, this cannot be regarded as a "transfer device" as defined in features (g) and (m). Even though reservoir 2 comprises a chamber 2c which is filled with gas and serves "as a pre-tensioned compression gas cushion" (columns 6, lines 34 and 35), chamber 2c is not adapted to "control the feed of a lubricant from the lubricant space into the lubricant channel", and thus it cannot be a "transfer device" as required by feature (m).

The lubricant reservoir 2 of D1 does not comprise a pressure space connected via a channel to the hydraulic circuit of the percussion device, in order to pressurise the pressure space and the lubricant in the

lubricant space, as is required by features (j), (l) and (n). Instead, it is gas-filled chamber 2c that pressurises the lubricating grease 10 in the chamber 2b of the reservoir.

It is stated in column 2, lines 48 to 54 of D1 that "the lubricating arrangement, composed essentially of the lubricant reservoir and the conveying unit, is preferably integrated in the striking mechanism". This teaching, however, does not anticipate feature (h) of claim 1. The term "integrated" does not mean "arranged in", but merely "united", "joined", "combined" or "merged". In figures 1a and 1b of D1, which show a preferred embodiment of the lubricating arrangement, the lubricating reservoir 2 is fastened in a receptacle 1m arranged on the outer surface of conveying unit 1 (transfer device), which is disposed in the vicinity of the striking mechanism 14 (column 8, lines 1 to 4).

(d) Main request – Novelty over D3

Opponent's case:

The subject-matter of claim 1 is anticipated by the hydraulic impact hammer disclosed in D3. Contrary to the patent proprietor's view, D3 discloses features (h), (i), (j), (l) and (o) of claim 1.

The term "lubricant container" as used in claim 1 can be construed broadly as meaning any vessel that contains any amount of lubricant to ensure that the tool is lubricated sufficiently, and not only a relatively large amount of lubricant for lubricating the tool continually or repeatedly during the operation of the machine, as argued by the patent proprietor. This latter interpretation cannot be derived from the

claim wording, let alone from the patent as a whole. The dimension of the lubricant container is not defined in the claim. It is only stated in paragraph 31 of the patent specification that the container "can be dimensioned to achieve a sufficient lubricant pressure" and that the feed of lubricant "may take place continuously, periodically or by portions".

In figure 1 of D3, the supply cylinder 10 and the working cylinder 11 of supply pump 9 together form a "lubricant container" in the broad sense of claim 1. Its volume is divided into a pressure space 11 and a lubricant space 10 by a dividing member 12, which is arranged to affect the volumes of the pressure space and the lubricant space (features (i) and (k)). The pressure space 11 is pressurised by hydraulic fluid feed through a channel (see hydraulic fluid pump 2 and column 4, line 56 to column 5, line 11 of D3). The pressure of the hydraulic fluid acting in the pressure space 11 is arranged to pressurise the lubricant in the lubricant space 10 by means of dividing member 12. The pressure space 11 is connected to the hydraulic circuit of the percussion device 7 for pressurizing the pressure space. Features (j), (l) and (o) are therefore disclosed in D3.

Feature (h) is also disclosed in D3, for the reasons given with respect to D1. Further, it is stated in paragraph 28 of D3 that the dosing pumps 17 and 18 as well as the supply pump 9 can be integrated in one easily mountable unity which can be connected to the impact hammer and that similarly, the lubricant tank can be arranged to be fitted directly to that unity. This arrangement corresponds to the embodiment disclosed in paragraph 14 of the patent. In addition, it is stated in paragraph 28 of D3 that "it is often

rather simple and easy to install the arrangement according to the invention even in old impact devices".

Regarding the lubricant tank 15 shown in figure 1 of D3, this is not the "lubricant container" required in claim 1. Instead, it corresponds to the "lubricant tank" mentioned in paragraph 20 of the patent, "which is located outside the rock breaking machine and from which a necessary amount of lubricant can be fed into the lubricant space 29 for storage". Indeed, the lubricant tank 15 of D3 is used to provide the lubricant space 10 with a necessary amount of lubricant for storage until it is supplied to the bearing members via the dosing pumps 17 and 18.

The same arguments apply to the subject-matter of method claim 9.

Patent proprietor's case:

D3 fails to disclose features (h), (i), (j), (l) and (o) of claim 1.

The term "lubricant container" as used in claim 1 must be construed in light of the whole disclosure of the patent. It follows from the teaching in paragraphs 2, 5, 7, 9 and 13 of the patent specification that the lubricant container is used for storing lubricant. In addition, the term "batching" used in paragraph 6 and in method claim 9 makes it clear that the lubricant container must contain lubricant for a plurality of lubrication cycles. Otherwise the term "batching" would make no sense and a continuous lubrication would not be possible, since no permanent connection to a further lubricant reservoir is provided. To sum up, in the context of the patent, the term "lubricant container"

should be construed as meaning a reservoir which is filled with enough lubricant for carrying out several lubrication cycles. This term may not be broadly construed to mean any space or channel which is able to contain lubricant however minimal, as submitted by the opponent.

In D3, the lubricant tank 15 forms the "lubricant container" in the sense of the patent. This container does not realise any of features (h), (i), (j), (l) and (o) of claim 1. Supply cylinder 10 does not form a "lubricant container" in the sense of the patent because it is not filled with enough lubricant for carrying out several lubrication cycles. When pressurised medium is supplied by pump 2 to working cylinder 11, supply piston 12 inevitably moves to its undermost position, so that dosing pumps 17 and 18 supply the whole amount of lubricant contained in supply cylinder 10 to the bearings via dosing pumps 17 and 18. Thereafter, lubricant can be fed again to the dosing pumps 17 and 18 only after supply cylinder 10 has been re-filled with lubricant from the tank 15.

Finally, feature (h) is not disclosed in D3. The aim of this feature is to locate the lubricant inside the body of the machine to warm it up during the operation of the tool. In contrast, in figure 1 of D3, the lubricant container 15 is arranged outside of the machine body, so that the lubricant is not warmed up during the operation of the tool. Furthermore, feature (h) cannot be derived from paragraph 28 of D3. This paragraph only teaches the integration of the dosing pumps 17 and 18 as well as the supply pump 9 in one unity which can be easily connected to, or mounted on, the impact hammer, and to fit the lubricant tank 15 directly to the unity. In other words, it is only stated there that the dosing

pumps and the supply pump can form a separate unity (connectable to the impact hammer) and that the lubricant container 15 can be fitted to this separate unity. This is not the arrangement that is required by feature (h).

(e) Claim 1 as granted – Inventive step

Opponent's case:

Distinguishing feature (h) has the effect that the rock breaking machine as claimed is more compact than that disclosed in D3. Thus, starting from D3, the objective technical problem can be defined as how to obtain a more compact machine.

For a skilled person attempting to solve this problem, feature (h) is an obvious solution. D1 teaches that, giving consideration to the high viscosity of the lubricant (column 1, lines 49 to 54), "the lubricating arrangement, composed essentially of the lubricant reservoir and the conveying unit, is preferably integrated in the striking mechanism, fastened to the striking mechanism or at least disposed in the vicinity of the location to be lubricated, i.e. in the vicinity of the chisel guide" (column 2, lines 48 to 54), that "the dot-dash lines around the region in FIG. 2 are to indicate that the associated components form a unit" (column 7, lines 67 and 68) and that "conveying unit 1 should be arranged with respect to striking mechanism 14 so that the path traversed by the lubricant between conveying chamber 1f (see FIG. 1a) and chisel guide 14c (FIG. 2) is short" (column 8, lines 1 to 4). In light of this teaching it would be straightforward for the skilled person to arrange the lubricant reservoir 2 of D3 in the body of the

hydraulic hammer 1 in order to make the hammer more compact and thereby guarantee lubrication at low ambient temperatures. In so doing he would arrive at feature (h). In addition, it is disclosed in D2 that feature (h) is a well-known measure in the art.

In conclusion, the subject-matter of claim 1 lacks an inventive step.

The same arguments apply, *mutatis mutandis*, to the subject-matter of method claim 9.

Patent proprietor's case:

As explained in paragraph 8 of the patent specification, feature (h) has the effect that the lubricant in the lubricant container, which is arranged in the machine body, warms up according to the operating temperature of the machine, thus allowing effective lubrication of its tool even in cold conditions. Thus, starting from D3, the technical problem solved by feature (h) can be defined as how to guarantee effective lubrication even in cold conditions.

The opponent argues that feature (h) allows for a more compact machine than in D3. However, this further effect is not achieved by all claimed embodiments. In fact, in D3, the arrangement of lubricant container 9 in the body of the hydraulic hammer 1 would rather result in a more bulky body.

In light of the teaching of D1, the skilled person would consider modifying the lubricating system of D3 to shorten the path traversed by the lubricant between the dosing pumps 17 and 18 and the bearing members 5

and 6 of the tool 4 (figure 1 of D3). In particular, he would consider arranging the unit formed by pumps 17, 18 and 9 (paragraph 28 of D3) on the outer surface of the hydraulic hammer 1, so that supply channels 19 and 20 could be omitted. This is not, however, the claimed arrangement.

D2 discloses a hand-held striking hammer with a device for lubricating the crankshaft and the percussion mechanism of the hammer, but it does not disclose features (d) to (g) and (m) to (o) of claim 1. Thus, D2 cannot direct the skilled person towards the invention.

The claimed subject-matter thus involves an inventive step.

Reasons for the Decision

1. Admissibility of the patent proprietor's main request

1.1 The patent proprietor's current main request was filed in the oral proceedings before the Board. The set of claims differs from that of the main request filed with the statement of appeal grounds dated 26 November 2014 only in that, in the penultimate feature of method claim 9, the wording "fed from a hydraulic circuit of the hydraulic percussion device" has been recast as "fed from ~~a~~ **the** hydraulic circuit of the hydraulic percussion device" (emphasis by the Board).

1.2 This amendment is in response to the opponent's objection under Article 100(c) EPC that, due to the indefinite article "a", the expression "a hydraulic circuit of the hydraulic percussion device" in claim 9 as granted could refer to any hydraulic circuit, not necessarily to the hydraulic circuit of the hydraulic

percussion device, as disclosed in dependent claim 5 as originally filed.

1.3 This objection was raised for the first time in the oral proceedings before the Board. Contrary to the opponent's submission, it appears that this objection was not mentioned in the notice of opposition dated 23 June 2008. In any event, even if it were, this would not imply that this objection would automatically be considered in the appeal proceedings. Article 12(2) RPBA requires that the opponent's reply to the grounds of appeal shall contain its complete case and in particular "all the facts, arguments and evidence relied on".

1.4 The amendment in the penultimate feature of method claim 9 clearly overcomes all outstanding objections under Article 100(c) EPC without introducing any new issues (see point 2 below).

1.5 For these reasons, the Board decided to admit the patent proprietor's main request into the proceedings and to consider it, in accordance with Article 114(2) EPC and Article 13(1) and (3) EPC.

2. Main request - Article 100(c) EPC

2.1 Method claim 9 differs from method claim 11 as originally filed - apart from minor editorial amendments - by the additional feature that, when pressurising the lubricant in the lubricant space, the pressure medium used to push the dividing member towards the lubricant space and thus pressurise the lubricant in the lubricant space is "fed from the hydraulic circuit of the hydraulic percussion device" (see penultimate feature of claim 9).

2.2 This additional feature was added before grant and slightly reworded in the appeal proceedings (see point 1.1 above).

2.3 When read in the context of claim 9, the additional feature means that the percussion device is a hydraulic device and that the pressure space of the lubricant container is connected to, and fed with pressure fluid from, the hydraulic circuit of the percussion device for pressurising the pressure space. This corresponds to the additional feature of claim 5 as originally filed. Thus, method claim 9 corresponds essentially to the combination of method claim 11 and machine claim 5 as originally filed.

2.4 This amendment does not introduce added subject-matter extending beyond the content of the application as originally filed, for the following reasons.

2.4.1 For a skilled reader of the application as filed it is immediately apparent that the rock breaking machine according to the invention and the lubricating method according to the invention are technically closely inter-related.

2.4.2 In the application as filed, the rock breaking machine defined in claim 1 and in paragraphs 1 and 5 of the description and the rock breaking machine used in the method defined in claim 11 and in paragraphs 2 and 6 are essentially the same. Claim 1 defines the technical means of the lubricating system involved in carrying out the lubricating method of claim 11, and it is apparent that the lubricating method of claim 11 relates to the use of the lubricating system of the machine of claim 1.

2.4.3 This understanding is confirmed by paragraph 7 of the description as filed, which describes the features of the lubricating system according to "the basic idea of the invention". It is clear that this lubricating system is that which has been previously defined, i.e. that of "the machine according to the invention" (paragraphs 1 and 5) as well as that of "the method according to the invention" (paragraphs 2 and 6). This is confirmed by the fact that the teaching of paragraph 7 is in conformity with the definition of the machine in paragraph 5 and claim 1 as well as with that of the method in paragraph 6 and claim 11.

2.4.4 In addition, figure 4 illustrates a preferred embodiment of the "lubricating system according to the invention" (page 5, lines 7 and 18 as filed). It is clear that this lubricating system is a preferred embodiment of the lubricating system as described before in paragraphs 1, 2 and 7, which forms part of the machine "according to the invention" and is used in the method "according to the invention". In the lubricating system shown in figure 4, pressure medium is fed from the hydraulic circuit of the hydraulic percussion device 5 (via the channel 30) to pressurise the pressure space 28 and thus push the dividing member 27 towards the lubricant space 29 to pressurise the lubricant provided therein (page 7, lines 24 to 27; page 8, lines 12 to 15). This preferred embodiment of the lubricating system corresponds to that defined in general terms in dependent claim 5 for a machine. In this respect, in the schematic diagram of the pressure medium circuit in figure 4, the standard symbol in the form of a solid equilateral triangle ▲ is used to indicate that the pressure medium is a hydraulic fluid and to show in which direction it flows. Thus, contrary

to the opponent's view, for a skilled reader it is readily apparent that figure 4 shows the hydraulic circuit of a hydraulic percussion device 5.

2.4.5 The skilled reader thus recognises without any doubt that the additional feature of dependent claim 5 describes the lubricating system according to the invention and that it may be combined with the other features disclosed in the general context of method claim 11 without creating any new subject-matter, including an objectionable intermediate generalisation.

2.4.6 In particular, there is no need to require further that the lubricant device is defined to comprise "a transfer device, which is arranged to control the feed of lubricant from the lubricant space into the lubricant channel" (see claim 1 as originally filed), because this is already implicit from the feature of claim 11 that the lubricating method comprises the step of "batching a predetermined portion of lubricant into a lubricant channel by the lubricating device". There is also no need to require that the lubricant container is "arranged in the body of the rock breaking machine" (claim 1 as originally filed), because claim 11 already requires that the lubricant container is "formed in the body of the rock breaking machine".

3. Main request - Novelty over D1

3.1 D1 discloses an automatic lubricating arrangement for the chisel of a hydraulic striking mechanism (see e.g. claim 1).

3.2 The parties dispute whether or not D1 discloses the following features of claim 1:
d) bearing members for supporting the tool onto the

rock breaking machine;

h) the lubricant container is arranged in the body of the rock breaking machine;

j) the pressure space is connected to a pressure medium channel, which allows pressurisation of the pressure space by feeding pressure medium therein;

l) the pressure of the pressure medium acting in the pressure space is arranged to pressurise the lubricant in the lubricant space by means of the dividing member;

n) the percussion device is a hydraulic device to which pressure fluid is fed from a hydraulic circuit;

o) the pressure space of the lubricant container is connected to the hydraulic circuit of the percussion device for pressurising the pressure space.

3.3 Feature (n) is clearly disclosed in D1 since the striking mechanism 14 is a hydraulic hammer (column 5, line 22; column 6, lines 45 to 55; hydraulic circuit in figure 2, in particular energy pressure source 18).

3.4 However, D1 fails to disclose any of features (d), (h), (j), (l) and (o), for the following reasons.

3.5 As ruled by the opposition division, D1 discloses a chisel guide 14c, but not a plurality of "bearing members" as required in feature (d).

3.6 In figures 1a, 1b and 2 of D1, the "lubricant container" can only be lubricant reservoir 2: it is divided into a pressure space 2c and a lubricant space 2b by the dividing member 2a, wherein lubricant space 2b contains lubricating grease 10. The conveying unit 1 is a hydraulic pump (column 5, line 33 and figures 1a

and 1b) which forms a "transfer device" as required in features (g) and (m). Contrary to the opponent's view, conveying unit 1 cannot, at the same time, form the "transfer device" and be part of the "lubricant container".

3.7 The pressure space 2c of lubricant reservoir 2 is a gas cushion serving as a pre-tensioned compression spring. It is neither pressurised through a pressure medium channel, nor fed with pressure medium, nor connected to the hydraulic circuit of the hydraulic hammer for pressurising the pressure space, as required by features (j) and (o). In addition, even though the pressure space 2c pressurises the lubricant 10 in the lubricant space 2b by means of the dividing member 2a (column 6, lines 35 to 39), the lubricant 10 is not pressurised by "the pressure of the pressure medium acting in the pressure space", as required by feature (l). Thus, pressure space 2c does not realise features (j), (l) and (o).

3.8 Feature (h) of claim 1 requires that the lubricant container is "arranged in the body of the rock breaking machine". The ordinary meaning of this feature is that the lubricant container is positioned inside the body of the rock breaking machine. This interpretation is in conformity with the teaching in the description and drawings of the patent (see paragraphs 8, 9 and 14 and figures 3, 8 and 9).

It is stated in D1 that "the lubricating arrangement, composed essentially of the lubricant reservoir and the conveying unit, is preferably integrated in the striking mechanism, fastened to the striking mechanism or at least disposed in the vicinity of the location to be lubricated, i.e. in the vicinity of the chisel

guide" (column 2, lines 48 to 51) and that "the dot-dash lines around the region in figure 2 are to indicate that the associated components form a unit" (column 7, lines 67 to 68).

When read in context, these two passages do not necessarily imply that the lubricant container is arranged in, i.e. positioned inside, the body of the striking mechanism, i.e. the rock breaking machine of D1. The expression "integrated in the striking mechanism" does not mean that the lubricating arrangement is "arranged in the body" of the striking mechanism, but merely that the lubricating arrangement and the striking mechanism are arranged into one whole unit and not separate units. This interpretation is consistent with the teaching in column 7, line 67 to column 8, line 4 of D1 that, in figure 2, the lubricant reservoir 2, the conveying unit 1 and the striking mechanism 14 "form a unit", whereby "in particular, conveying unit 1 should be arranged with respect to striking mechanism 14 so that the path traversed by the lubricant between conveying chamber 1f (see FIG. 1a) and chisel guide 14c (FIG. 2) is short".

3.9 The rock breaking machine of claim 1 thus differs from that disclosed in D1 by features (d), (h), (j), (l) and (o).

4. Main request - Novelty over D3

4.1 D3 discloses an arrangement for lubricating the bearing surfaces between a tool of a hydraulic impact device and the impact device, the arrangement comprising a supply pump and at least one channel leading to the space between the bearing surfaces for supplying lubricant (see e.g. claim 1).

4.2 The parties dispute whether or not D3 discloses the following features of claim 1:

h) the lubricant container is arranged in the body of the rock breaking machine; and

i) the volume of the lubricant container is divided into a pressure space and a lubricant space by a dividing member, which is arranged to affect the volumes of the pressure space and lubricant space;

j) the pressure space is connected to a pressure medium channel, which allows pressurisation of the pressure space by feeding pressure medium therein;

l) the pressure of the pressure medium acting in the pressure space is arranged to pressurise the lubricant in the lubricant space by means of the dividing member; and

o) the pressure space of the lubricant container is connected to the hydraulic circuit of the percussion device for pressurising the pressure space.

4.3 The Board shares the opponent's opinion that D3 discloses features (i), (j), (l) and (o). Since, in figure 1 of D3, the check valve 14 prevents lubricant from flowing back to the lubricant tank 15, the supply cylinder 10 and the working cylinder 11 of the supply pump 9 together form a "lubricant container" in the broad sense of claim 1. As in the claimed invention (column 6, lines 47 to 53 in the patent specification), the supply cylinder 10 is connected to a lubricant tank 15 which is located outside the supply pump 9 and from which the necessary amount of lubricant can be fed (here via the check valve 14). The supply cylinder 10 forms the "lubricant space" of the lubricant container, while the working cylinder 11 forms its "pressure space". The supply piston 12 is a "dividing member"

which divides the lubricant container into the pressure space 11 and the lubricant space 10 (feature (i)). Lubricant space 10 is connected to dosing pumps 17 and 18, which are arranged to control the feed of lubricant from the lubricant container into the lubricant channels 19 and 20. Pressure space 11 is connected to the hydraulic circuit of the hydraulic percussion device 7 to thereby pressure the lubricant in lubricant space 10 by means of dividing member (column 4, line 56 to column 5, line 3 of D3).

4.4 The patent proprietor argues that cylinders 10 and 11 cannot form the "lubricant container" in the sense of claim 1 because cylinder 10 is emptied each time the impact hammer is started and thus it does not hold enough lubricant for several lubrication cycles.

However, in the context of claim 1, the term "lubricant container" has a clear technical meaning. According to its ordinary meaning, it defines a receptacle designed to hold a quantity of lubricant. This broad interpretation is technically sound in the context of the claim. In particular, the amount of lubricant stored within the container must be sufficient to complete a lubrication cycle; it does not have to hold a quantity of lubricant allowing continuous or repeated lubrication of the tool during the operation of the machine. Since claim 1 imparts a clear and technically sound teaching to the skilled reader, there is no reason for consulting the description and the drawings of the patent to give the term "lubricant container" the narrower meaning for which the patent proprietor argued. In addition, this narrower meaning is not supported by any teaching in the patent specification. In particular, it is explained in paragraph 31 that "the feed of lubricant may take place continuously,

periodically or by portions" (emphasis by the Board). In conclusion, the term "lubricant container" must be construed broadly. The same applies to the term "lubricant space". The supply cylinder 10 of D3 contains enough lubricant for a single lubrication cycle and thus forms a lubricant space of a lubricant container in the broad sense of claim 1.

Secondly, even if the term "lubricant container" was construed as defining a container that holds enough lubricant for completing several lubrication cycles, as argued by the patent proprietor, it would still not distinguish the claimed machine from that disclosed in D3. D3 teaches that, each time the impact hammer is started, a predetermined amount of lubricant flows from the supply cylinder 10 via the dosing pumps 17 and 18 to the bearings, and thereafter, when the impact hammer is stopped again, negative pressure is generated in the supply cylinder 10, which results in the same amount of lubricant flowing from the lubricant tank 15 to the supply cylinder 10 (paragraph 18). It cannot be derived from D3 that the totality of the lubricant stored in the supply cylinder inevitably flows to the bearings via the dosing pumps. On the contrary, it is stated in D3 that the amount of lubricant effectively supplied by the dosing pumps can be adjusted (claim 4 and paragraph 22).

4.5 D3 does not however disclose feature (h). It is stated in paragraph 28 of D3 that "the dosing pumps 17 and 18 as well as the supply pump 9, ... can be integrated in one unity in such a way that all the pumps intended for supplying lubricant in connection with the impact device form an easily mountable unity which can be connected to the impact device" and that "in this way, it is often rather simple and easy to install the

arrangement according to the invention even in old impact devices". This passage does not disclose that cylinders 10 and 11 of supply pump 9, which together form a lubricant container in the sense of claim 1, are arranged in, i.e. positioned inside, the body of the hydraulic hammer. The closing sentence of paragraph 28, namely that "in this way, it is often rather simple and easy to install the arrangement according to the invention even in old impact devices", must be read in the above context, with the consequence that it does not disclose feature (h).

4.6 The rock breaking machine of claim 1 thus differs from that of D3 by feature (h).

5. Main request - Inventive step

5.1 The parties agree that the hydraulic impact hammer disclosed in D3 forms the most promising and most relevant starting point for the assessment of inventive step. The Board shares this view.

5.2 Distinguishing feature (h) has the effect that the lubricant in the lubricant container can warm up according to the operating temperature of the rock breaking machine, thus allowing effective lubrication of the tool even in cold conditions, since warm lubricant flows easier than cold, stiff lubricant (see paragraph 8 of patent specification).

5.3 Starting from D3, the technical problem objectively solved by feature (h) can thus be formulated as how to ensure effective lubrication of the tool, and thus prevent damage to the bearings, when working in cold conditions (see paragraph 6 of patent specification).

5.4 The opponent alleges that feature (h) results in that the machine is more compact than in D3. However, as argued by the patent proprietor, it is not credible that this effect is achieved over the whole scope of claim 1. In fact, the wording of the claim does not exclude that, if the body of the hammer 1 of D3 were modified to enclose the lubricant container formed by cylinders 10 and 11 of supply pump 9, it would become more bulky. Thus, this alleged effect cannot be used for formulating the objective technical problem.

5.5 The claimed solution to the problem of effective lubrication in cold conditions is not part of common general knowledge of the skilled person and is neither disclosed nor suggested in the cited prior art documents.

5.6 Using common general knowledge, a skilled person would rather use a lubricant having the correct viscosity at low temperatures and/or provide means for warming it up before or while operating the hydraulic hammer of D3. This, however, could not lead to the claimed machine.

5.7 D1 does however address the technical problem of effective lubrication of the tool of a hydraulic impact hammer at low ambient temperatures (column 1, lines 63 to 68). D1 teaches, among other things, that (in the terms of claim 1) the transfer device (1) should be arranged with respect to the rock breaking machine (14) so that the path to be traversed by the lubricant from the transfer device to the tool is relatively short (column 2, lines 43 to 48 and claim 2). More precisely, D1 teaches that the lubricant container (2) and the transfer device (1) are preferably integrated in, or fastened to, the rock breaking machine (14), or at least disposed in the vicinity of the tool to be

lubricated (see point 3.8 above). In figures 1a and 1b of D1, the lubricant container 2 is an exchangeable cartridge releasably fastened to a receptacle 1m which is arranged on the outer surface of the transfer device 1 (column 8, lines 45 to 48).

In the light of this teaching, the skilled person would recognise that, when in D3 the dosing pumps 17 and 18 and the supply pump 9 form a detachable unit (paragraph 28 of D3), lubrication could be improved at low ambient temperatures by arranging this unit on the outer surface of the hydraulic impact hammer 1. The skilled person would have no practical difficulty in modifying the machine of D3 accordingly and, after doing so, would arrive at a lubricant container arranged on the outer surface of the body of the rock breaking machine, thereby providing a short path for the lubricant.

However, he would not obtain a lubricant container which is arranged in the body of the machine, as required by feature (h) of the claim.

5.8 D2 contains no information which would point towards the claimed solution of the problem stated under point 5.3 above. Firstly, D2 does not address the problem of lubricating the tool of a hydraulic impact hammer at low ambient temperatures. Instead, D2 is concerned with the lubrication of the crankshaft and the percussion mechanism of a hand-held striking hammer. Secondly, even though it is stated in page 4, lines 3 to 5 of D2 that "in a particularly advantageous specific embodiment of the present invention, the lubricant receptacle is fastened in exchangeable fashion on or in a housing of the hammer", this passage defines a preferred embodiment of the hand-held striking hammer disclosed in D2 which, as ruled by the opposition

division, is not compatible with the hydraulic impact hammer disclosed in D3.

5.9 In conclusion, when starting from D3, the subject-matter of claim 1 involves an inventive step in accordance with Article 56 EPC.

6. The above reasoning applies also to the subject-matter of method claim 9. In particular, neither D1 nor D3 discloses the feature of claim 9 that the lubricant container is "formed in the body of the rock breaking machine" and, starting from the lubricating method of D3, this feature is not rendered obvious by the teachings of D1 and D2.

7. The description has been brought into conformity with the amended claims.

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

9. In light of this conclusion there is no need to consider the auxiliary request of the patent proprietor.

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 as amended in the following version:
   - claims 1 to 11 of the main request filed in the oral proceedings before the Board,
   - description pages 2, 4 and 6 filed in the oral proceedings before the Board and description pages 3 and 5 of the patent specification, and
   - the drawings of the patent specification.

The Registrar: The Chairman:

C. Spira G. Ashley

Decision electronically authenticated