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**Datasheet for the decision
of 3 July 2013**

Case Number: T 0300/10 - 3.2.03

Application Number: 01112296.7

Publication Number: 1160416

IPC: E21B 1/00, B25D 17/24

Language of the proceedings: EN

Title of invention:
Damper pressure control apparatus for hydraulic rock drill

Patent Proprietor:
FURUKAWA CO., LTD.

Opponent:
Sandvik Mining and Construction Oy

Headword:
-

Relevant legal provisions:
EPC Art. 123(2), 84, 54
EPC R. 80

Keyword:
"Admissibility - main request (yes)"
"Novelty - main and second auxiliary requests (no)"
"Amendment occasioned by ground for opposition - first and third auxiliary requests (no)"
"Amendments - extension beyond the content of the application as filed - first and third auxiliary requests (yes)"
"Clarity after amendment - first and third auxiliary requests (no)"

Decisions cited:
-

Catchword:
-



Case Number: T 0300/10 - 3.2.03

DECISION
of the Technical Board of Appeal 3.2.03
of 3 July 2013

Appellant:
(Patent Proprietor)

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Decision under appeal:

**Decision of the Opposition Division of the
European Patent Office posted 17 December 2009
revoking European patent No. 1160416 pursuant
to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman: G. Ashley
Members: V. Bouyssy
K. Garnett

Summary of Facts and Submissions

- I. European patent No. 1 160 416 (in the following "the patent") concerns a hydraulic rock drill with a damping piston and a damper pressure control apparatus. The patent as a whole was opposed on the grounds of Article 100(a) EPC for lack of novelty and inventive step.
- II. The opposition division revoked the patent on the grounds that the subject-matter of the claim as granted lacked novelty (Article 100(a) together with Articles 52(1) and 54 EPC) and that the first and second auxiliary requests did not meet the requirements of Article 123(2) EPC. The decision was posted on 17 December 2009.
- III. The appellant (proprietor) lodged an appeal against this decision on 15 February 2010, paying the fee for appeal on the same day. The statement setting out the grounds of appeal was received on 16 April 2010.
- IV. As its main request, the appellant requested with the grounds of appeal, *inter alia*, that the patent be maintained as granted.
- V. In response to the reply of the respondent (opponent), the appellant filed a new main request with its letter dated 2 September 2011, which request was said to substitute the previous main request on file.
- VI. The board issued a preliminary opinion, dated 17 October 2012, which was directed primarily to the appellant's original main request as filed with the

statement of grounds of appeal, since the board was not aware at that time of the appellant's new requests.

VII. The board summoned the parties to oral proceedings. The board issued a communication, on 24 April 2013, to clarify that the claims on file were the claims submitted with the appellant's letter dated 2 September 2011 and issued a second preliminary opinion, on 26 April 2013, directed to these claims.

VIII. In response to the second preliminary opinion of the board, with letter of 29 May 2013 the appellant requested maintenance of the patent on the basis of the main request (claim as granted), alternatively on the basis of the first and second auxiliary requests, all as filed with this letter.

IX. Oral proceedings before the board were held on 3 July 2013.

X. Requests

The appellant requested that the decision under appeal be set aside and the patent be maintained on the basis of the main request (claim as granted), alternatively of the first auxiliary request, both as filed with the letter dated 29 May 2013, alternatively on the basis of a new second auxiliary request, as filed during the oral proceedings, alternatively on the basis of the second auxiliary request as filed with the letter dated 29 May 2013 (i.e. now its third auxiliary request).

The respondent requested that the appeal be dismissed.

XI. Claims

(a) The sole claim of the main request (the claim as granted) reads as follows:

" A hydraulic rock drill, comprising:
a striking mechanism (3) for striking a tool (2, 4, 5, 6);
a transmission member (15) for transmitting a thrust (F1) toward a crushing object (R) to the tool (2, 4, 5, 6);
a damping piston (16, 17) provided at the rear side of the transmission member (15) for damping a reaction energy from the tool (2, 4, 5, 6) and the transmission member (15) by the frontward thrust by a damper pressure from a hydraulic pressure source (21);
characterized in that
a damper pressure control apparatus comprising damper pressure control means (22) for controlling said damper pressure (DPpr) applied to the damping piston (16, 17) from the hydraulic pressure source (21) depending upon the frontward thrust (F1) acting on a hydraulic rock drill is provided. "

(b) The sole claim of the first auxiliary request reads as follows (compared with the claim as granted, added features are in indicated bold, deleted features in strike-through):

" A hydraulic rock drill **(1)**, comprising:
a striking mechanism (3) for striking a tool (2, 4, 5, 6);

a transmission member (15) for transmitting a **frontward** thrust (F1) toward a crushing object (R) to the tool (2, 4, 5, 6);

a damping piston (16, 17) provided at the rear side of the transmission member (15) for damping a reaction energy from the tool (2, 4, 5, 6) and the transmission member (15) by the frontward thrust (**F1**) by a damper pressure from a hydraulic pressure source (21), **the damping piston (16, 17) including a front damping piston (16) and a rear damping piston (17);**

characterized in that

the hydraulic rock drill (1) further comprising a damper pressure control apparatus comprising damper pressure control means (22, **22a, 22b**) for controlling said damper pressure (DPpr) applied to the **front and rear** damping pistons (16, 17) from the hydraulic pressure source (21) depending upon the frontward thrust (F1) acting on a **the hydraulic rock drill (1) is provided, wherein:**

a forward floating force (F16) is applied to the front damping piston (16) by the damper pressure (DPpr), and a frontward damping force (F17) is applied to the rear damping piston (17) by the damper pressure (DPpr), and the forward floating force (F16) and the frontward damping force (F17) are controlled on the basis of the frontward thrust (F1) acting on the hydraulic rock drill (1), and when the forward floating force (F16) and the frontward damping force (F17) become a variable floating thrust (Fv16) and a variable damping thrust (Fv17), respectively, taking a variable thrust (Fv1) as a parameter, the damper pressure control means (22, 22a, 22b) maintains a relationship of the variable floating thrust (Fv16) < the variable thrust (Fv1) < the variable damping thrust (Fv17). "

(c) The sole claim of the second auxiliary request reads as follows (compared with the claim as granted, added features are in indicated bold):

" A hydraulic rock drill, comprising:
a striking mechanism (3) for striking a tool (2, 4, 5, 6);
a transmission member (15) for transmitting a thrust (F1) toward a crushing object (R) to the tool (2, 4, 5, 6);
a damping piston (16, 17) provided at the rear side of the transmission member (15) for damping a reaction energy from the tool (2, 4, 5, 6) and the transmission member (15) by the frontward thrust by a damper pressure from a hydraulic pressure source (21); **wherein the damper pressure is applied to the damping piston (16, 17) depending upon a thrust of a rock drill body for making damping and floating function** characterized in that
a damper pressure control apparatus comprising damper pressure control means (22) for **automatically** controlling said damper pressure (DPpr) applied to the damping piston (16, 17) from the hydraulic pressure source (21) depending upon the frontward thrust (F1) acting on a hydraulic rock drill is provided, **to maintain effective the damping function and floating function of the damping piston (16, 17) when the thrust (F1) of the hydraulic rock drill is varied.** "

(d) The claim of the third auxiliary request differs from the claim of the first auxiliary request in that it comprises the following additional features:

"the hydraulic rock drill (1) further comprises a rear damping piston fluid chamber (19); a front damping piston fluid chamber (20) communicated with the rear damping piston fluid chamber (19) via a fluid passage (18)"; and

"the forward floating force (F16) is derived as a product of a pressure receiving area of the front damping piston fluid chamber (20) and the damper pressure (DPpr), and the frontward damping force (F17) is derived as a product of a pressure receiving area of the rear damping piston fluid chamber (19) and the damper pressure (DPpr)".

XII. The following documents were cited during the opposition proceedings and are of relevance for this decision:

- D1: WO 00/08303 A1
- D2. WO 99/47313 A1
- D3: US 4,993,504 A1
- D4: WO 91/12934 A1

XIII. The arguments of the parties in the written and oral proceedings can be summarised as follows:

(a) Main request - Admissibility

The appellant submitted that this request, which was originally filed with the statement of grounds of appeal and later withdrawn in response to the reply of the respondent, was re-filed in reaction to the first preliminary opinion of the board. In particular, the

appellant stated that it understood this preliminary opinion in such a way that the board was inclined to allow the appellant's original main request and thus to maintain the patent as granted but to not admit any amendment to the appellant's case.

The respondent submitted that this late-filed request should not be admitted into the proceedings because there was no plausible justification for its late filing and because the respondent had not been able to prepare a full response to this request.

(b) Main request - Novelty

The appellant submitted that the subject-matter of the claim as granted was novel over D1 because D1 failed to disclose "a damping piston" and "a damper pressure control apparatus" in the sense of the claim. In particular, it could not be derived from D1 that the stabilizer piston 31 as shown in Figure 4 had a damping function. The claimed invention also differed from D1 in that the pressure applied to the piston was actively and purposively controlled to maintain an effective or satisfactory damping when the frontward thrust varied.

The respondent submitted that the subject-matter of the claim as granted lacked novelty over D1, in particular because the stabilizer piston and the pressure control apparatus as illustrated in Figure 4 anticipated the damping piston and the damper pressure control apparatus as defined in the claim.

(c) First and third auxiliary requests - Rule 80 EPC

The respondent submitted that the addition of the word "frontward" in line 3 and of the reference sign "F1" in line 7 of the claim was not occasioned by a ground of opposition.

The appellant acknowledged that these amendments had been made only to improve the clarity and comprehension of the claim.

(d) First and third auxiliary requests - Article 84 EPC

The respondent submitted that, in the final paragraph of the characterising portion of the claim, the added wording "taking a variable thrust (Fv1) as a parameter" lacked clarity. In particular, it was not clear what a "variable thrust" was and how it could be taken as a parameter.

The appellant submitted that it followed from the patent as a whole that the "variable thrust" was the variable "frontward thrust".

(e) First and third auxiliary requests - Article 123(2) EPC

The respondent submitted that the addition to the claim of features of the dual damping piston of Figure 2 amounted to an "intermediate generalization", so that this amendment contravened Article 123(2) EPC. In particular, in Figure 2, these added features were disclosed only in combination with a chuck driver

bushing as a transmission member and with a cylindrical rear damping piston having a fluid passage communication outside and inside thereof.

The respondent also submitted that, in the final paragraph of the characterising portion of the claim, the "variable thrust (Fv1)" could be read as being different from the "frontward thrust (F1)" and, in such a case, the features in the final paragraph of the characterising portion of the claim could not be derived from the application as filed.

The appellant submitted that all added features could be derived from the preferred embodiment as shown in Figure 2 of the application as filed, whereby it was clear that the further features of the transmission being a chuck driver bushing and of the rear damping piston being a cylindrical piston having a fluid passage communication outside and inside thereof were irrelevant for the application of the damping and floating forces, so that these further features could be omitted in the claim.

(f) Second auxiliary request - Novelty

The respondent submitted that the added features were so unclear that they were insufficient to distinguish the invention from the teaching of D1. In particular, the stabilizer piston 31 in Figure 4 of D1 had a floating function and, implicitly, also a damping function, and these floating and damping functions of the piston had to be maintained "effective" when the feed pressure was varied, since the pressure applied to the piston was automatically controlled depending upon

the feed pressure. Hence, the claimed subject-matter was not novel over D1.

The appellant submitted that the added features distinguished the invention from the teaching of D1 because, even though Figure 4 of D1 disclosed a stabilizer piston having a floating function and a control apparatus for controlling the pressure applied to the piston when the feed pressure was varied, it could not be derived from D1 that the piston had a damping function, still less that the control apparatus maintained a satisfactory damping function that was effective when the feed pressure varied.

Reasons for the Decision

1. The appeal is admissible.
2. Main request
 - 2.1 Admissibility of the request

The appellant's main request (maintenance of the patent as granted) in fact corresponds with its main request as originally filed with the grounds of appeal. However, with letter of 2 September 2011 and in reaction to the respondent's reply this original request was withdrawn and replaced by other requests. Unfortunately the board was unaware of these new requests and its first communication (of 17 October 2012) was directed to the originally filed requests. The board sought to clear up this confusion with its second and third communications (of 24 and 26 April 2013) which made it clear that the

valid requests of the appellant on file were those filed with the letter of 2 September 2011. Notwithstanding this, the appellant's response was to file a new main request, i.e. for maintenance of the patent as granted. The explanation for this was that the appellant thought from what the board said in its first communication that the board would not, or might not, allow it to amend its original requests as filed with the grounds of appeal.

An appellant who seeks to reintroduce a request which it has previously withdrawn in appeal proceedings may expect to run into difficulties. But in the present case it is clear that some confusion did arise as a result of the board's first communication. Given that the main request concerned the granted claim, the board considered that it did not raise any issue which either the board or the respondent could not reasonably be expected to deal with without adjournment of the oral proceedings. Indeed, the respondent had already set out arguments against the granted claim in its reply to the statement of grounds of appeal. Moreover, during the oral proceedings, the respondent's representative stated that he did not need an adjournment to deal with issues raised by this request.

The board, therefore, considered that it was appropriate to admit the appellant's main request into the proceedings, albeit that it was filed at a late stage.

2.2 Novelty over D1

2.2.1 The respondent and the opposition division were of the view that the subject-matter of the claim lacked novelty over D1.

2.2.2 D1 discloses, in Figure 4, an hydraulic rock drill comprising: a tool, i.e. the drill bit implicitly connected to the shank 29 via the drill string; a striking mechanism 30 for striking the tool; a feed motor 3, which is driven by hydraulic fluid fed by a hydraulic pressure pump 1; and a shank stabilizer 28 in the form of a sleeve-like piston 31 for adjusting the position of the rock drill shank 29 in relation to the intended (so-called optimal) impact point.

The board shares the view of the respondent and the opposition division that the rock drill shank 29 forms a "transmission member" in the sense of the claim, because the shank 29 is adapted "for transmitting a thrust toward a crushing object to the tool", as defined in the claim. More specifically, the shank 29 transmits the impact force from the impact piston 30 as well as the positioning force from the stabilizer piston 31 to the drill bit. This was not disputed by the appellant at the oral proceedings.

2.2.3 The appellant contends that the claim is novel over D1 because D1 discloses neither "a damping piston" in the sense of the claim, i.e. "for damping a reaction energy from the tool and the transmission member by the frontward thrust by a damper pressure from a hydraulic pressure source", nor "a damper pressure control apparatus" in the sense of the claim, i.e. "for

controlling said damper pressure applied to the damping piston ... depending upon the frontward thrust acting on (the) hydraulic rock drill", nor the feature that the pressure applied to the piston be actively and purposively controlled to maintain an effective or satisfactory damping when the frontward thrust varies.

2.2.4 Damping piston

Even though D1 does not expressly mention any damping function of the stabilizer piston 31, a skilled reader of D1 will recognize that, after impact, the sudden backward motion of the drill bit will be transmitted to the stabilizer piston 31 via the drill rod and the shank 29 and that, under this sudden backward thrust, the stabilizer piston 31 will inevitably move backwards in the pressure chamber behind the piston. The depth of the pressure chamber, as illustrated in Figure 4, is a clear indication that the piston 31 is designed to move backwards significantly if need be. The skilled reader would understand that this backward movement of the piston 31 is damped to some degree by compression of the pressurized fluid behind the piston 31. Thus, a part of the reaction energy will be damped and the remaining reaction energy will eventually be transmitted to the rock drill body. Hence, it is implicitly disclosed that the stabilizer piston 31 of D1 is adapted for damping, at least to some degree, the reaction energy of the tool after impact.

Moreover, the skilled reader will also recognize that the backward movement of the piston 31 will result in a sudden pressure increase in the pressurized fluid behind the piston and that, the fluid having low

compressibility, additional damping means, e.g. a pressure accumulator, must be present in the hydraulic system of D1 to smooth out this sudden pressure increase, as otherwise this pressure increase would result in damage to the hydraulic system and possibly also to the drill body. The fact that conventional hydraulic rock drills with a damping piston also comprise a pressure accumulator connected to the hydraulic supply line is well documented, for instance, in D3 (accumulator 6) and in D4 (accumulator 14). Thus, it is considered that the stabilizer piston 31 of D1 is implicitly adapted to hydraulically damp the return energy in an effective manner.

In addition, the expression "damper pressure" in the claim refers to the hydraulic fluid pressure applied to the piston. This term cannot distinguish the invention from D1, since the hydraulic fluid pressure fed behind the stabilizer piston 31 of D1 constitutes a "damper pressure".

Hence, the board shares the view of the respondent and the opposition division that the stabilizer piston 31 forms a "damping piston" in the sense of the claim.

It must be noted here that, in interpreting the feature of the "damping piston" in the light of the patent as a whole, it is still not possible to distinguish the claimed invention from D1. It follows from both the disclosure of the disputed invention and from the discussion in the patent of the prior art that the reaction energy of the tool after impact is hydraulically damped by virtue of the damping piston being hydraulically pressed against the transmission

member (in the patent see paragraph [0010] with Figure 9 showing a conventional dual damping piston; paragraphs [0025] and [0026] with Figure 10 showing a conventional single damping piston; paragraphs [0063] and [0064] with Figure 2 showing a dual damping piston of the invention; paragraph [0087] with Figure 7 showing a single damping piston of the invention). It is thus implicit that, in the disputed invention, the reaction energy is damped in the same manner as in D1, i.e. by compression of the pressurized fluid behind the piston as well as by means of additional damping means, e.g. a pressure accumulator, which is always present in such an hydraulic system.

2.2.5 Damper pressure control apparatus

It follows from the claim wording that the "damper pressure control apparatus" is a control apparatus comprising means for controlling the pressure applied to the damping piston on the basis of the actual frontward thrust, i.e. on the basis of the actual feed pressure. This understanding is confirmed by the teaching in the patent (see in particular paragraph [0040]). More specifically, the pressure applied to the piston is automatically controlled to maintain a predetermined relationship with the feed pressure (see the preferred relationship in Figure 4 and paragraph [0055]; paragraphs [0059] and [0060] for the control apparatus of Figure 5; paragraph [0072] for the alternative control apparatus of Figure 6).

D1 discloses that, during drilling, the pressure fed to the feed motor 3, i.e. the feed pressure, can be adjusted by means of a manual control lever and that,

in order to control drilling easily and effectively, a controlling arrangement regulates the hydraulic fluid pressure fed behind the stabilizer piston 31 in relation to the actual feed pressure, wherein a pressure ratio valve controls the pressure to the stabilizer piston so that a change in the feed pressure causes a change in the pressure to the piston, whereby this latter change has a constant relation to the change in the feed pressure in the normal drilling range (see claims 1 and 9; page 2, lines 10-28; page 7, line 36 to page 8, line 2 and page 8, lines 15-19 in combination with Figures 1 and 2; control lever 6, feed motor 3 and pressure ratio valve 18' in Figure 4). Thus, the pressure applied to the piston 31 is automatically regulated in relation to the feed pressure to maintain a predetermined relationship with the feed pressure. The predetermined relationship as shown in Figure 2 of D1 is also very similar to the preferred predetermined relationship in Figure 4 of the disputed patent.

Therefore, the board also shares the view of the respondent and the opposition division that the controlling arrangement of D1 forms a "damper pressure control apparatus" in the sense of the claim.

2.2.6 Purposive control

The appellant contends that the claimed invention differs from D1 in that the pressure applied to the piston is actively and purposively controlled to maintain effective or satisfactory damping when the frontward thrust varies.

In D1, the pressure applied to the stabilizer piston is actively controlled as feed pressure varies to position the shank at the desired optimum impact point and, as reasoned above, the stabilizer piston of D1 provides for some degree of damping as a side effect. Thus, in D1, the pressure applied to the piston is actively controlled when the frontward thrust varies, whereby some degree of damping is guaranteed. This anticipates the feature in the characterising portion of the claim, in particular because this feature does not specify how effective the damping should be.

2.3 Hence, the subject-matter of the claim of the main request lacks novelty over D1.

3. First auxiliary request

3.1 The claim as amended differs from the claim as granted essentially in that:

- the word "frontward" has been inserted in line 3 and the reference sign "F1" has been inserted in line 7; and
- a number of features of the preferred embodiment with a dual damping piston (as shown in Figure 2) have been added: see in particular the preamble and the last two paragraphs of the claim.

3.2 Rule 80 EPC

As acknowledged by the appellant, the word "frontward" in line 3 and the reference sign "F1" in line 7 of the claim have been added only to improve the clarity and comprehension of the claim. Thus, these amendments are

not occasioned by a ground of opposition, so that they do not meet the requirement of Rule 80 EPC.

3.3 Article 123(2) EPC

The appellant has added the features that the damping piston includes a front damping piston and a rear damping piston, that the damper pressure applies a floating force to the front damping piston and a damping force to the rear damping piston, whereby the floating force is smaller than the frontward thrust, which in turn is smaller than the damping force, and that the damper pressure control apparatus maintains this relationship of the forces when the frontward thrust varies.

In the application as filed (see Figure 2 and page 20, lines 16-24), these added features are disclosed only in combination with the further features:

- (i) that the transmission member is a chuck driver bushing (15) which is provided between the shank rod (2) and the front damping piston (16); and
- (ii) that the rear damping piston (17) is a cylindrical piston having a fluid passage (18) communication outside and inside thereof.

The application as filed does not provide any indication that the added features, which have been isolated from this specific combination, are not functionally or structurally linked with these further features (i) and (ii).

The appellant submitted that the added features were taken from Figure 2 and that features (i) and (ii) were

clearly irrelevant for the application of the damping and floating forces. For instance, D1 shows that the shank rod can be used as a transmission member, in place of the chuck driver bushing as defined by feature (i).

However, the only information which can be gleaned from the application as filed is that features (i) and (ii) are always present when using a dual damping piston. This holds for the invention (see Figure 2 and page 20, lines 16-24) as well as for the prior art described in the application (see Figure 9 showing a conventional dual damping piston and page 2, lines 11-22, in particular the chuck driver bushing 110 and the cylindrical rear damping piston 112 with the fluid passage 113).

Thus, the skilled reader cannot derive directly and unambiguously from the application as filed that the hydraulic rock drill as now claimed may achieve the object of the invention, independently of features (i) and (ii). Hence, these amendments amount to a combination of features not disclosed in the original application, contrary to Article 123(2) EPC.

3.4 Article 84 EPC

In the final paragraph of the characterising portion of the claim, the added wording "... taking a variable thrust (Fv1) as a parameter ... " is unclear. In particular, it is not clear what a "variable thrust" is and how it can be taken "as a parameter". Moreover, the claim also defines a "frontward thrust (F1)" and it is not clear whether and, if so, how the "variable thrust

(Fv1)" differs from the "frontward thrust (F1)". All this only becomes clear when reading the definition of the parameter Fv1 which is given in the description, see paragraphs [0061], [0062] and [0084] to [0086]. However, Article 84 EPC requires that the claim be clear when taken alone. Hence, the claim as amended does not meet the requirements of Article 84 EPC.

3.5 In conclusion, the first auxiliary request does not meet the requirements of Rule 80 and Articles 123(2) and 84 EPC, so that it cannot be allowed.

4. Second auxiliary request

4.1 Rule 80 and Article 123(2) EPC

The amendments meet the requirements of Rule 80 EPC as they are intended to provide novel subject-matter over D1. They also meet the requirements of Article 123(2) EPC as they can be derived from the general teaching in the application as filed, see page 15, lines 9 to 15 and page 16, lines 5 to 12.

4.2 Novelty over D1

4.2.1 As explained above (see point 2.2.5), D1 discloses that the hydraulic pressure is applied to the stabilizer piston 31 depending upon the actual feed pressure, or frontward thrust, so that the shank 29 is effectively positioned at the desired optimum impact point. Hence, the piston 31 has a "floating function" in the sense of the claim.

Moreover, as reasoned above (see point 2.2.4), it is considered that the hydraulic pressure which is applied to the stabilizer piston 31 guarantees a certain degree of damping, i.e. provides a damping function.

Hence, D1, in addition to the features of the claim as granted, also discloses the added feature that "the damper pressure is applied to the damping piston depending upon a thrust of a rock drill body for making damping and floating function".

4.2.2 Furthermore, as explained above (see point 2.2.5), D1 expressly discloses that the control apparatus automatically controls the hydraulic pressure which is applied to the stabilizer piston 31 depending upon the actual feed pressure, to guarantee the floating function of the piston 31 when the feed pressure is varied. At the same time, a certain degree of damping by the piston 31 is also present.

Hence, the control apparatus of D1 discloses the added feature that the pressure applied to the piston is controlled "to maintain effective the damping function and floating function of the damping piston when the thrust of the hydraulic rock drill is varied". In this respect, the wording "to maintain effective the damping function ... of the damping piston" is so vague and undefined that it cannot distinguish the invention from the teaching of D1, in particular as the damping function of the piston 31 may be considered to be relatively effective or satisfactory.

4.3 Hence, the subject-matter of the claim lacks novelty over D1.

5. Third auxiliary request

5.1 The claim of the third auxiliary request differs from the claim of the first auxiliary request only in that the features of the front and rear damping piston fluid chambers have been added.

5.2 For the reasons set out above with respect to the first auxiliary request, the third auxiliary request also does not meet the requirements of Rule 80 and Articles 123(2) and 84 EPC, so that it cannot be allowed.

Order

For these reasons it is decided that:

The appeal is dismissed

The Registrar

The Chairman:

C. Spira

G. Ashley