



BL O/285/06

6 October 2006

## PATENTS ACT 1977

APPLICANT                      Schlumberger Holdings Limited

ISSUE                              Whether patent application number GB  
0327108.7 complies with section 1(1)

HEARING OFFICER              R C Kennell

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### DECISION

- 1     The invention is directed to optimizing the arrangement of shaped charges in a perforating gun for producing perforation tunnels in a subterranean formation for extracting well fluids. The charges extend only partially around the longitudinal axis of the gun and the gun is oriented in the well so as to prevent the charges from firing through a “water boundary” (more correctly a water barrier).
  
- 2     In my decision BL O/185/06 dated 7 July 2006 I found that claim 1 of the application, both as it then stood and as proposed to be further amended, lacked inventive step over the prior art cited by the examiner. I gave the applicant a period of two months to submit amendments to overcome my findings and the applicant duly filed a replacement set of claims on 31 August 2006, in which claim 1 now reads (emphasis added):

“A method usable in a subterranean well, the method comprising:  
selecting a shot density and a phase angle for a perforating gun based on a productivity;  
*based on a water boundary in the well*, removing an arcuate section from the phasing pattern while maintaining the shot density; and  
orienting the shaped charges *in accordance with the phasing pattern with the removed arcuate section.*”
  
- 3     This claim is not satisfactory. Insofar as I can construe it (since the meaning of the italicized wording is not clear), I cannot see that anything has been introduced which provides an inventive step over either of specifications US 2002/0096040 A1 (Barker) and US 4960171 (Parrott) cited by the examiner. As regards selecting a shot density and phase angle based on a productivity, Barker refers at paragraphs [0009] and [0010] to achieving “optimal inflow characteristics” by means of the phasing of the perforations whilst allowing for the maximum number of charges per foot, and Parrott is directed to optimizing flow rates by appropriate selection of shot density and charge phasing (see

e.g. col 1 lines 36-43). Further, each specification discloses the removal of an arcuate section from the phasing pattern whilst maintaining the shot density, and also (see paragraph 20 of my earlier decision) the orientation of the shaped charges.

- 4 The previous objection of lack of inventive step rested on the absence of a “water boundary” in either Barker or Parrott. However, the claim is now obscurely worded so that it no longer clearly requires the orientation of the gun to direct the shaped charges away from a water boundary. Arguably therefore it even lacks novelty over each of Barker and Parrott.
- 5 I cannot see that the situation would be assisted by incorporating any of the features from the remaining claims in the replacement set: claims 2 – 4 relate to conventional phasing patterns and claims 5 – 6 are not clear in that they define the orientation of the shaped charges by results to be achieved.
- 6 Although the applicant says (see letter dated 30 August 2006) it believes the new claims to be patentably distinguished from the cited prior art, no supporting explanation is provided for this. On the contrary, to my mind claim 1 does nothing at all to meet the findings in my decision and simply introduces obscurity as to the scope of the invention
- 7 After four rounds of examination and a hearing, the applicant has been unable to provide claims which are new and inventive over the cited prior art. Further, in view of the deficiencies noted above I do not think that the latest claims can be considered a serious attempt to overcome the findings in my earlier decision. I do not therefore consider it appropriate either to give a further opportunity to overcome these findings or to remit the application to the examiner for further prosecution of the matter. I therefore refuse the application under section 18(3) for failure to comply with the requirements of section 1(1).

### **Appeal**

- 8 Under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal must be lodged within 28 days.

**R C KENNELL**

Deputy Director acting for the Comptroller