

COMMISSIONER'S DECISION

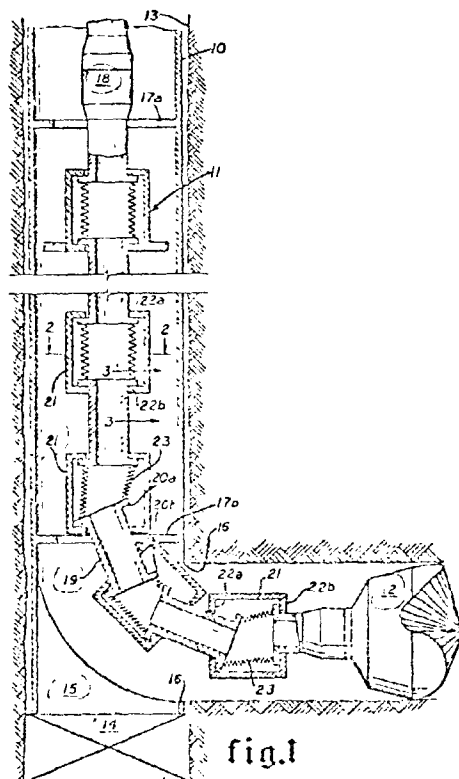
INSUFFICIENCY OF DISCLOSURE (Sec. 36) WELL DRILL

Apparatus to enable a hole to be drilled at 90° to the vertical initial bore is described in terms sufficient to meet the requirements of Section 36.

Final Action: Reversed

Patent application 253047 (Class 255-6), was filed on May 21, 1976 for an invention entitled "Method And Mechanisms For Drilling Transversely In A Well." The inventors are George H. Bull et al. The Examiner in charge of the application took a Final Action on May 25, 1979, refusing to allow it to proceed to patent.

The subject matter of this application relates to a well drilling apparatus and a method of drilling the well at right angles to the vertical well passage. A series of interconnected spool and cylinder assemblies allow the drill to rotate transversely to the vertical after the bottom of vertical cylindrical housing is closed with an arcuate guide. Figure 1 of the application is shown here.



Packer 14 holds the arcuate guide 15 to force drill 12 to the right angle position. Drill tubing string 18 drives the drill 12 via cylinders 21 and spools 19.

In the Final Action the Examiner rejected the application "due to insufficiency of the disclosure," and cited the following references:

Canadian Patents

226,752	Dec. 5, 1922	Granville
652,417	Nov. 20, 1962	Grimm

United States

2,441,881	May 18, 1948	Hays
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Each reference shows apparatus or an arrangement to enable a hole to be drilled at 90° to the vertical initial bore.

In the Final Action the Examiner stated, inter alia:

...

The disclosure of such conduit in this application is very brief and incomplete.

Applicant's conduit is made of a plurality of hollow spools (19), cylinders (21), coil springs (23) and O-rings (24).

For sealing of the conduit against leakage of the drilling fluid and for holding parts of the conduit together, applicant provides flanges, outwards from the spools and inwards from the cylinders. The O-rings are placed between the flanges of the neighbouring elements, and the springs hold the O-rings in compression.

It is held that the O-rings between the flanges will not be able to provide satisfactory sealing, especially at the change of the direction of drilling. The deformation (compression) of the O-ring is very small and pivoting of elements of the conduit will cause loss of contact between the flanges and the O-ring on one side of the conduit, and loss of pressure due to outflow of fluid. Such loss of pressure and leakage of drilling fluid will make operation of the hydrodrill impossible.

...

Section (36) of the Patent Act requires not only disclosure of the principle of the invention but also the best mode in which the applicant has contemplated the application of such principle. The disclosure must correctly and fully describe the invention. It is held that applicant has failed to satisfy the requirements of Section (36) of the Patent Act.

As to applicant's arguments in his letter of December 14, 1978 indicating that the elements of the conduit are not free to move, under load, axially, it is pointed out that applicant himself calls the conduit "a compressible and telescopic hydraulic fluid conduit (underlined by the examiner). Obviously elements such as the spools (19) or the cylinders (21) are not compressible. But a whole structure is compressible and "telescopic" so that the elements, under load, are free to move axially relative to each other. There is nothing disclosed that would prevent a cylinder to move relative to a spool if the force is high enough to overcome the force of the springs. The high pressure of the drilling fluid may add axial force to that of the springs in a straight conduit, but not at a part that is curved.

Furthermore, in the above letter, applicant states that "the elements (spools and cylinders) of the conduit means are not free to pivot relative to each other". In such a case, how can the conduit change the direction of drilling, which is the aim of this alleged invention? It is held that the spools and the cylinders must pivot relative to each other, as is shown in Fig. 1 of the drawings, to enable the conduit and therefore the turbodrill to change the direction from vertical to a horizontal.

...

In response to the Final Action the Applicant argued that the Examiner has failed to establish a prima facie case of inoperativeness. Also, that the basis, upon which the rejection was made under Section 36 of the Patent Act, was erroneously established by failure of the Examiner to consider what the disclosure teaches as a whole in combination with the simple schematic sketches used in the drawings of the application. An Affidavit from the inventors was also submitted as well as amended claims 1 to 14 of which claim 1 reads:

A method for conveying high pressure drilling fluid through a compressible and telescopic hydraulic fluid conduit to a turbodrill mounted on the end of the conduit and to apply axial forces to the drill comprising the steps of,

(a) lowering in the well to the desired depth an elongated cylindrical housing having a transverse opening adjacent the bottom thereof and an opening in the top thereof,

(b) positioning a compressible and telescopic hydraulic fluid conduit of axially aligned spools inter-connected with a cylindrical spring biasing means in the elongated cylindrical housing,

(c) supplying a high pressure hydraulic drilling fluid through a drill pipe string to the top of the compressible and telescopic hydraulic fluid conduit in the elongated cylindrical housing for operating the turbodrill means at the bottom thereof,

(d) extending the lower end of the compressible and telescopic hydraulic fluid conduit with the turbodrill means on the end thereof down into the elongated cylindrical housing, and

(e) extending said compressible and telescopic hydraulic fluid conduit lower end with the turbodrill means thereon out from the transverse opening in the elongated cylindrical housing for drilling transversely of the well at the desired depth under high compressive and torque loads.

The consideration before the Board is whether or not the requirements of Section 36 of the Patent Act have been complied with.

It was pointed out in the Final Action that the sealing of the elements of the conduit is of utmost importance during bending of the conduit and that the disclosure of such structure is incomplete and the disclosed system is inoperative. It adds that there is nothing "disclosed that would prevent a cylinder to move relative to a spool if the force is high enough to overcome the force of the springs...." According to the Applicant his disclosure adequately describes a flexible drill string comprising a plurality of spools and cylinders, wherein each cylinder connects two spools together with compression springs therein "strongly urging each spool flange firmly against rubber o-rings at the end of the cylinder...." He adds that the seven figures of drawings show a "schematic" view of the various parts, which, in his view, are adequate for illustrating the principles of construction and operation of the flexible drill string but that they are only illustrative. Obviously a much larger turning radius than shown would be required, or larger o-rings employed in actual use.

Section 36 of the Patent Act requires that the applicant shall "correctly and fully describe the invention" and its operation and use. Thus, the consideration here is whether the Applicant in drafting his specification has left out something which a competent person in the art should not be expected to read into

it or understand. This is clearly set out in Mineral Separation v Noranda Mines Ltd. (1947) Ex. C.R. 306 at page 317 wherein Thorson P. states:

When it is said that a specification should be so written that after the period of monopoly has expired the public will be able, with only the specification, to put the invention to the same successful use as the inventor himself could do, it must be remembered that the public means persons skilled in the art to which the invention relates, for a patent specification is addressed to such persons [underlining added].

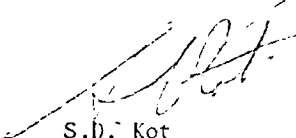
After careful review of the specification of this application we believe that it contains sufficient description to enable a person skilled in the art to make the invention. Because of the extremely high pressures required for this type of equipment we can understand the Examiner questioning the operability of o-ring sealing elements between the flexible components of the conduit. We agree with the Examiner that the sealing of the elements of the conduit is of great importance, but we do not agree with his analysis of the disclosure when he states that it is incomplete and that the disclosed system is inoperative. There is no doubt that the applicants sealing arrangement is capable of handling some pressure thereby enabling the device to be operated, as directed, by skilled persons in the art.

Further, an Affidavit from the inventors, stating that they have built a full sized embodiment of the right angled drilling mechanism described in this application, was received with the response to the Final Action. The Affidavit states that "the tests proved successful with no leakage of internal fluid while operating the drill through 90° in the hydraulic laboratory."

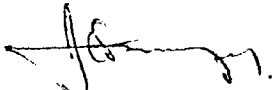
To summarize, we are not prepared to make a recommendation to the Commissioner of Patents which would justify a refusal of a patent on this application under Section 36 of the Patent Act.

We therefore recommend that the decision in the Final Action to refuse the application be withdrawn.


J.F. Hughes
Assistant Chairman
Patent Appeal Board, Canada


S.D. Kot
Member

I have carefully reviewed the prosecution of this application and considered the recommendation of the Patent Appeal Board. I concur with the reasoning and findings of the Board. Accordingly, I withdraw the Final Action and return the application to the Examiner for resumption of prosecution.



J.H.A. Gariépy
Commissioner of Patents

Dated at Hull, Quebec

this 27th. day of June, 1980

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