

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 40

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GUY PIGNARD and CLAUDE MABILE

Appeal No. 1997-1190
Application No. 08/427,972¹

ON BRIEF

Before PATE, McQUADE and GONZALES, Administrative Patent Judges.

GONZALES, Administrative Patent Judge.

DECISION ON APPEAL

¹ Application for patent filed April 21, 1995. According to appellants, this application is a continuation of Application No. 08/022,895, filed February 26, 1993, now abandoned.

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This is a decision on appeal from the examiner's final rejection of claims 1 through 11, 13, 14 and 16 through 29, all the claims remaining in the application.²

The subject matter on appeal is directed to an assembly and method for acquiring information relating to a drill string during a drilling operation. An understanding of the invention can be derived from a reading of exemplary claims 1 and 10, copies of which appear on pages 6 and 9, respectively, of appellants' supplemental reply brief (Paper No. 38, filed October 13, 1998).

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Jeter	4,027,282	May 31, 1977
Engebretson	4,472,884	Sep. 25, 1984
Bseisu et al. (Bseisu)	4,715,451	Dec. 29, 1987
Chevalier et al. (Chevalier)	4,806,115	Feb. 21, 1989

The following rejections are before us for review:

(1) claims 1 through 11, 13, 14 and 16 through 29 stand rejected under 35 U.S.C. § 112, first paragraph;

² Subsequent to the final rejection, the examiner renumbered claims 18 through 30 as claims 17 through 29, respectively (supplemental answer, page 2).

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(2) claims 1, 2, 4, 5, 9 and 10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Bseisu.³

(3) claims 3, 6, 8, 11, 14 and 16 through 29 stand rejected under 35 U.S.C. § 103 as being unpatentable over Bseisu in view of Jeter in combination with Chevalier; and

(4) claims 7 and 13 stand rejected under 35 U.S.C. § 103 as being unpatentable over Bseisu in view of Engebretson.⁴

The full text of the examiner's rejections and the responses to the arguments presented by appellants appear in the supplemental answer (Paper No. 37), while the complete statement of appellants' arguments can be found in the main brief, reply brief, and supplemental reply brief (Paper Nos. 32, 34 and 38, respectively).

OPINION

³ Claims 2 and 10 were not rejected under 35 U.S.C. § 102(b) as being anticipated by Bseisu in the final rejection. We do not understand why the examiner has not identified this rejection of claims 2 and 10 as a new ground.

⁴ In the final rejection, claims 28-30, now renumbered claims 27-29, were also rejected under 35 U.S.C. § 112, second paragraph. Renumbered claims 27 through 29 have been amended subsequent to the final rejection (see Paper No. 30, filed October 21, 1996). Since no mention of the 35 U.S.C. § 112, second paragraph, rejection has been made by the examiner in the supplemental answer, we presume that the examiner has withdrawn the final rejection of claims 27-29 on this ground. Ex parte Emm, 118 USPQ 180, 181 (Bd. App. 1957).

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In reaching our decision in this appeal, we have given careful consideration to appellants' specification and claims, and to the respective positions articulated by appellants and the examiner. As a consequence of our review we have reached the determination which follows.

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The Rejection of Claims 1 through 11, 13, 14 and 16 through 29
under 35 U.S.C. § 112, first paragraph

We will not sustain the examiner's rejection of claims 1 through 11, 13, 14 and 16 through 29 under 35 U.S.C. § 112, first paragraph.

At the outset, we note that in the final rejection (Paper No. 28) the examiner objected to the specification under 35 U.S.C. § 112, first paragraph, as failing to adequately teach how to make and/or use the invention and rejected all of the pending claims in the application under 35 U.S.C. § 112, first paragraph, "for the reasons set forth in the objection to the specification" (final rejection, page 5). At pages 7 and 8 of the supplemental answer, the examiner repeats the § 112, first paragraph, objection to the specification made in the final rejection, but at page 9 states:

Claims 1-11, 13, 14, and 16-29 are rejected under 35 U.S.C. § 112, first paragraph, because the best mode contemplated by the inventor has not been disclosed. Evidence of concealment of the best mode is based upon the same reason set forth in the objection to the specification.

Where claims are based on a specification which fails to adequately teach a person of ordinary skill in the art how to make and/or use the invention, the proper ground of rejection

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is lack of enablement under 35 U.S.C. 112, first paragraph, not failure to disclose the best mode.⁵ Upon review of the objection to the specification made in the final rejection, it is evident that the examiner considers the appealed claims to be based on a specification which fails to satisfy the enablement requirement, rather than the best mode requirement, in the first paragraph of § 112.⁶ Accordingly, we will treat the standing § 112, first paragraph, rejection as being based upon the examiner's conclusion that the underlying specification fails to adequately teach how to make and/or use the invention, i.e., failure of the specification to provide an enabling disclosure.

The first paragraph of 35 U.S.C. § 112 requires, inter alia, that the specification of a patent (or an application for patent) enable any person skilled in the art to which it pertains to make and use the claimed invention. Although the statute does not say so, enablement requires that the

⁵ The first paragraph of § 112 contains three separate and distinct requirements, namely the written description requirement, the enablement requirement and the best mode requirement. See In re Wilder, 736 F.2d 1516, 1520, 222 USPQ 369, 372 (Fed. Cir. 1984).

⁶ Failure to set forth any mode of carrying out the invention is actually an enablement problem. See In re Glass, 492 F.2d 1228, 1233, 181 USPQ 31, 35 (CCPA 1974)

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specification teach those skilled in the art to make and use the invention without "undue experimentation." In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). That some experimentation may be required is not fatal; the issue is whether the amount of experimentation required is "undue." Id. at 736-37, 8 USPQ2d at 1404.

Moreover, in rejecting a claim for lack of enablement, it is well settled that the examiner has the initial burden of producing reasons that substantiate the rejection. See In re Strahilevitz, 668 F.2d 1229, 1232, 212 USPQ 561, 563 (CCPA 1982); In re Marzocchi, 439 F.2d 220, 224, 169 USPQ 367, 370 (CCPA 1971). Once this is done, the burden shifts to the appellant to rebut this conclusion by presenting evidence to prove that the disclosure in the specification is enabling. See In re Doyle, 482 F.2d 1385, 1392, 179 USPQ 227, 232 (CCPA 1973), cert. denied, 416 U.S. 935 (1974); In re Eynde, 480 F.2d 1364, 1370, 178 USPQ 470, 474 (CCPA 1973).

Where different arts are involved in the invention, the specification is enabling if it enables persons skilled in each art to carry out the aspect of the invention applicable to their specialty. In re Naquin, 398 F.2d 863, 866, 158 USPQ

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317, 319 (CCPA 1968) ("When an invention, in its different aspects, involves distinct arts, that specification is adequate which enables the adepts of each art, those who have the best chance of being enabled, to carry out the aspect proper to their specialty."); Ex parte Zechnall, 194 USPQ 461, 461 (Bd. App. 1973) ("[A]ppellants' disclosure must be held sufficient if it would enable a person skilled in the electronic computer art, in cooperation with a person skilled in the fuel injection art, to make and use appellants' invention.").

The examiner argues that the specification lacks the necessary details of the rotating electric coupling 12, the connecting socket 8, the socket connector 15, the subs 4 and 10, the pin connector 6, and the processing installation 13 (supplemental answer, pages 7 and 8). On pages 9 through 13 of the main brief, appellants argue that the structure of the electric couplings and subs are well known to persons of ordinary skill in the art. In support, the appellants refer to the disclosures of the patents and publications cited in the amendment filed December 15, 1994 (Paper No. 11). Appellants further point to pages 13 and 14 of the

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specification for a description of how synchronization is achieved.⁷

We also note that the specification at page 2 refers to, inter alia, U.S. Patent No. 4,715,451 (the Bseisu patent) as teaching a known measuring system. Our review of Bseisu reveals that it discloses a system for measuring drillstem loading and behavior, including first and second subs 36 and 38 having mounted thereon various accelerometers and strain gages (col. 4, lines 20-54). The subs 36 and 38 generate signals which are transmitted to an above-ground receiver 116. The receiver 116 may include means for converting the signals to a form which may be analyzed by a digital computer to determine particular vibration modes of the drillstem (col. 5, lines 36-68).

Based on the evidence of record in this case, it appears that the structure of the electric couplings and subs are well known to persons of ordinary skill in the art and that appellants' specification would have been sufficient to enable a person or persons of ordinary skill in the art to assemble

⁷ Pages 13 and 14 disclose that when the surface installation receives a signal from the first sub, it sends an acquisition order to the second sub.

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and program the necessary hardware to obtain the claimed signal synchronization. The examiner has not articulated a reasonable explanation of why the scope of protection provided by the rejected claims is not adequately enabled by the disclosure.

For the above reasons, we will not sustain the examiner's rejection of claims 1 through 11, 13, 14 and 16 through 29 under 35 U.S.C. § 112, first paragraph, as being directed to a non-enabling disclosure.

The Rejection of Claims 1, 2, 4, 5, 9 and 10 under 35 U.S.C. § 102(b) as being anticipated by Bseisu

The § 102 rejection rests, at least in part, on the examiner's determination that Bseisu meets the limitations in independent claims 1 and 10 relating to the synchronized acquisition of measuring signals (see, for example, pages 10 and 11 in the supplemental answer). In this regard, claim 1 requires the claimed processing installation to comprise "means for processing of said measurement signals so that acquiring of said measurement signals from said first and

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second measuring means is synchronized in time." Similarly,
claim 10 requires the step of:

[P]rocessing and recording, by the surface installation, at least one measurement signal supplied from each of the first and second measuring means during rotation of the drill bit, while synchronizing in time acquisition of [the at] least one measurement signal supplied from the first measuring means and the at least one measurement signal supplied from the second measuring means.⁸

Bseisu discloses a drillstem loading and behavior measurement method and system including spaced apart subs [36, 38] disposed at the upper end of the drillstem and connected to each other and to a power or conventional swivel [17] and having strain gages [e.g., 74 and 76] and accelerometers [e.g., 80, 82, 84] mounted thereon in such a way as to measure axial loading, axial vibration, torsional loading, torsional vibration and bending modes of the drillstem during operation. Accelerometers are mounted on respective ones of the subs at a distance

⁸ Based on the underlying disclosure, we understand the recitation in independent claims 1, 10 and 16 that the acquisition of the measurement signals from said first and second measuring means is synchronized in time to mean that receipt of a measurement signal from a first measuring means causes the surface installation [13] to send an acquisition order for a measurement signal to the second measuring means. Depending on the length of the linking lines and on the processing rate of the surface installation, the synchronization precision is on the order of one millisecond or less. See, specification, pages 13 and 14.

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from each other sufficient to determine vibration waveforms in axial, torsional and bending modes. See, Abstract. As described by Bseisu in reference to Figure 2:

The strain gages 74 and 76 and the accelerometers 80, 82 and 84 are provided with suitable signal conductors which are trained along a shank 83 of the sub 38 within a protective sleeve 90 and then through a longitudinal groove 92 which extends through the Kelly 34 and along the outer surface of the sub 36, protected by a sleeve 94, and through a suitable passage in the flange 40 to a signal conditioning amplifier and radio transmitter unit, generally designated by the numeral 100. The transmitter unit 100 is provided with one or more FM radio transmitters 102 disposed on support means 104 and disposed for beaming output signals to a receiving antenna 106 mounted on a support characterized by opposed depending legs 108 and 110 which are secured to the frame 21. The antenna 106 is connected to a suitable signal transmitting cable 114 which transmits the signals generated by the strain gages and accelerometers by way of the transmitter unit 100 to a receiver 116. The receiver 116 may include means for converting the signals to a form which may be analysed by digital computer. In this way, certain kinds of computer processing may be carried out to determine particular vibration modes of the drillstem. Spectral analysis of the signals received by the various accelerometers and strain gages may be carried out to identify particular frequencies. Such analyses could also be correlated with downhole measurements taken by conventional measurement-while-drilling (MWD) tools. Accordingly, with some level of interpretive skill, surface measurements taken by the system of the present invention can be correlated with certain formation characteristics, for example. (Col. 5, lines 36-68).

Bseisu also discloses that:

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The location of interaction between the drillstem 20 and the wellbore casing 22 or other downhole structure may be determined by measuring torsional vibrations and axial vibrations which exhibit a particular phase relationship. The actual location downhole of the interaction between the drillstem and the casing, for example, can be determined using the parameters including longitudinal and torsional wave speed in steel . . . The time difference between the arrival of an axial wave peak at the surface as measured by the strain gages 62 and 64 [mounted on sub 36] as compared with the arrival of a torsional wave peak as measured by the torque strain gages 74 and 76 [mounted on sub 38] can be used to determine the location of the casing-drillstem interaction since the longitudinal wave speed and torsional wave speed can be calculated for a particular material such as steel wherein the modulus of elasticity and the density of the material are known. (Col. 6, lines 48-67).

It is the examiner's position that the above quoted passages in Bseisu describe a "process of synchronization, since it is anticipated that such correlation of measurements should have included correlation of at least two sets of signals both in the same phase and time intervals" (supplemental answer, pages 10 and 11).

In our opinion, the examiner's interpretation of the reference is speculative at best. We find no specific teaching in Bseisu that the correlation of signal analysis relied on by the examiner involves the synchronized acquisition of measurement signals as called for in claims 1

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and 10. Accordingly, we will not sustain the standing 35 U.S.C. § 102 rejection of independent claims 1 and 10, or of dependent claims 2, 4, 5 and 9, as being anticipated by Bseisu.

The Rejection of Claims 3, 6, 8, 11, 14 and 16 through 29 under 35 U.S.C. § 103 as being unpatentable over Bseisu in view of Jeter in combination with Chevalier

We will also not sustain the standing 35 U.S.C. § 103 rejection of claims 3, 6, 8, 11, 14 and 16 through 29 as being unpatentable over Bseisu in view of Jeter in combination with Chevalier.

Claims 3, 6, 8 and 17 through 25 are dependent, directly or indirectly, on claim 1 and contain all of the limitations of claim 1. Claims 11, 14 and 26 through 29 are dependent, directly or indirectly, on claim 10 and contain all of the limitations of that claim. Independent claim 16 also requires the claimed processing installation to comprise means for processing of said measurement signals so that acquiring of said measurement signals from said first and second measuring means is synchronized in time as does claim 1. In addition,

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claim 16 also calls for a memory for storing synchronously the acquired signals from the sensors of the first and second measuring means.

Jeter discloses an apparatus for transmitting information from subsurface sensors to the earth surface using pressure pulses created in a fluid stream being pumped down the bore of the pipe string and wall stress pulses in the pipe string. The fluid pressure and pipe wall stress pulses represent symbols in a numerical system having a base corresponding to the number of different distinguishable pulses used in transmission (col, 3, lines 22-27 and 35-41). Because signals generated in the drill string wall and in fluid travel at different speeds to the surface, Jeter teaches means for synchronizing the display of the detected signals so that they can be presented and viewed or evaluated with the time relationships in which they were created down hole. The means for synchronizing involves the placement of penmotor writing points relative to other writing points and the direction of chart movement such that signals received at various times will, due to chart movement, arrive at a particular display point or reference line with the time relationships with which

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they were generated down hole. See col. 6, lines 11-23. It is the examiner's position that:

It would have been obvious to one of the [sic] ordinary skill in the art at the time the invention was made having Jeter's teaching available to him to have further synchronized the signals receiving [sic] from each of the different sensors of Bseisu et al so that the signals generated by the sensors can be correlated and evaluated with the appropriated [sic] time relationship. (Supplemental answer, page 12).

The examiner cites Chevalier for its teaching of an electrically conducting ring [8] and contact [9] (supplemental answer, page 14).

Appellants argue that Jeter merely suggests compensation for different signal transmission speeds and has nothing to do with the acquisition in timed sequence of data from first and second measuring means.

We agree with appellants that neither Jeter nor Chevalier supplies the "means for processing of said measurement signals so that acquiring of said measurement signals from said first and second measuring means is synchronized in time" which we found lacking in Bseisu in our discussion of the § 102 rejection of claims 1 and 10, supra.

Since all of the limitations of claims 3, 6, 8, 11, 14 and 16 through 29 would not have been suggested by the applied

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prior art, we will not sustain the rejection of those claims under 35 U.S.C. § 103 over Bseisu in view of Jeter and Chevalier.

The Rejection of Claims 7 and 13 under 35 U.S.C. § 103 as being unpatentable over Bseisu in view of Engebretson

The examiner cites Engebretson as evidence that a magnetic field sensor was well known in the art. Since Engebretson does not cure the deficiency in Bseisu noted supra., we will not sustain the standing 35 U.S.C. § 103 rejection of dependent claims 7 and 13.

In summary and for the above reasons, the decision of the examiner:

to reject claims 1 through 11, 13, 14 and 16 through 29 under 35 U.S.C. § 112, first paragraph, is reversed;

to reject claims 1, 2, 4, 5, 9 and 10 under 35 U.S.C. § 102(b) as being anticipated by Bseisu is reversed;

to reject claims 3, 6, 8, 11, 14 and 16 through 29 under 35 U.S.C. § 103 as being unpatentable over Bseisu in view of Jeter in combination with Chevalier is reversed; and

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to reject claims 7 and 13 under 35 U.S.C. § 103 as being unpatentable over Bseisu in view of Engebretson is reversed.

The decision of the examiner is reversed.

REVERSED

WILLIAM F. PATE, III)	
Administrative Patent Judge)	
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JOHN P. McQUADE)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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JFG:clm

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