

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KENNETH E. WILLIAMS

Appeal No. 1997-1397
Application 08/411,245¹

ON BRIEF

Before ABRAMS, STAAB and NASE, *Administrative Patent Judges*.

STAAB, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final

¹ Application for patent filed March 27, 1995. According to appellant, the application is a continuation of Application 08/260,278, filed June 14, 1994, now abandoned, which is a continuation-in-part of Application 07/965,326, filed October 23, 1992, now abandoned.

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rejection of claims 11-14, all the claims currently pending in the application. An amendment filed subsequent to the final rejection has not been entered.

Appellant's invention pertains to a seismic surveying method. Independent claim 11, a copy of which is found in an appendix to appellant's brief, is illustrative of the appealed subject matter.

The references of record relied upon by the examiner in support of a rejection under 35 U.S.C. § 103 are:

Clay, Jr. (Clay)	2,906,363	Sept. 29, 1959
Smith et al. (Smith)	3,221,297	Nov. 30, 1965
Farr et al. (Farr)	3,881,168	Apr. 29, 1975
Johnson et al. (Johnson)	4,758,998	Jul. 19,

1988

Claims 11-14 stand rejected under 35 U.S.C. § 112, second paragraph. In the examiner's view, the terms "many times greater" and "relatively short delay time" appearing in claim 11 "are relative terms and thus, indefinite" (answer, page 4).

Claims 11-14 stand further rejected under 35 U.S.C. § 103 as being unpatentable over Farr in view of Smith and further in view of Johnson and Clay.

The rejections are explained in the examiner's answer

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(Paper No. 12, mailed October 15, 1996).²

The arguments of appellant in opposition to the positions taken by the examiner in rejecting the claims are found in the brief (Paper No. 11, filed September 16, 1996).

The § 112, second paragraph, rejection

Considering first the standing rejection of the appealed claims under 35 U.S.C. § 112, second paragraph, the purpose of the second paragraph of 35 U.S.C. § 112 is to provide those who would endeavor, in future enterprise, to approach the area circumscribed by the claims of a patent, with the adequate notice demanded by due process of law, so that they may more readily and accurately determine the boundaries of protection involved and evaluate the possibility of infringement and dominance. *In re Hammack*, 427 F.2d 1378, 1382, 166 USPQ 204, 208 (CCPA 1970). This is not to say that a lack of precision

² The final rejection also included a rejection of claims 11-14 under 35 U.S.C. § 112, first paragraph, as being based on a specification that fails to comply with the enablement and descriptive support requirements of that paragraph. In that the examiner's answer does not contain a restatement of this rejection, we assume it to have been withdrawn. See *Ex parte Emm*, 118 USPQ 180, 181 (Bd. App. 1957).

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in claim language automatically renders a claim indefinite. However, definiteness problems often arise when words of degree are used in a claim. In such a case, it must be decided whether one of ordinary skill in the art would understand what is claimed when the claim is

read in light of the specification. *Seattle Box Co. v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 826, 221 USPQ 568, 574 (Fed. Cir. 1984).

The language of the claims questioned by the examiner is (1) the recitation in claim 11 that the vibrations are generated for a predetermined time period which is "many times greater" than the time required for vibrational wave energy to be reflected back to the earth's surface from the deepest subsurface earth formation of interest, and (2) the recitation in claim 11 that the recording of the seismic signals begins after a "relatively short delay time" that is approximately equal to the time required for vibrational energy to be reflected back to the earth's surface from the deepest

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subsurface earth formation of interest.

Appellant's specification states on page 5:

The vibrators should operate at each surface location for a long period of time at a constant frequency. How long would depend on the earth properties at a given site and the objectives of the survey. The vibration time would vary from about five minutes to over a half hour. Recording of the signal for the purposes of this invention would not begin until steady-state conditions have been reached, whereby enough time would have been allowed for the initial receipt of all desired signals from the

subsurface. This will usually be at least fifteen seconds, depending on the depth of all targeted objectives. Recording of the signal would begin and continue for a time sufficient to integrate the signal to be able to successfully image the faintest reflectors that are of interest in the survey. This may be as much as thirty minutes or more and would, again, depend on the objectives of the survey. [Specification, page 5.]

In our view, this disclosure provides a reasonable set of guidelines for what appellant intends to cover by the recitations (1) and (2) mentioned above. For example, the "many times greater than" language of recitation (1) means that the period for generating vibrations should continue for a time sufficient to successfully image the faintest reflectors of interest (e.g., anywhere from about five minutes

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to thirty minutes or more, depending on the properties of a given site and the objectives of the survey). Further, the "relatively short delay time" of recitation (2) means that the time delay for recording signals would be sufficient to reach steady state conditions (e.g., usually at least fifteen seconds). While the claim language is broad in not stating the specific time period for generating signals and the specific time delay period, that breadth does not

make the claims indefinite. *See, for example, In re Miller*, 441 F.2d 689, 693, 169 USPQ 597, 600 (CCPA 1971) (breadth does not automatically render a claim indefinite).

In light of the above, the rejection of claims 11-14 under 35 U.S.C. § 112, second paragraph, will not be sustained.

The § 103 rejection

In rejecting the appealed claims under 35 U.S.C. § 103, one of the differences of the appealed claims over Farr

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acknowledged by the examiner is that the claims call for the step of generating vibrations into the earth and the step of detecting the resulting earth movements to be carried out at the surface of the earth, whereas in Farr one of the generating and detecting steps is carried out at the surface and the other is carried out at a subsurface location in a well bore. The examiner considers, however, that Smith teaches that it is well known in the seismic prospecting art to use vibrating means and geophones that are both located at the surface of the subterranean formation under investigation. Based on this teaching, the examiner concludes that it would have been obvious to one of ordinary skill in the

art to modify Farr by locating both the oscillators and the detectors thereof at the surface of the earth rather than one at the surface and the other in the well bore, the motivation being "[to] provide a cost savings (no need to drill a well) and a corresponding mobility for the prospecting system" (answer, page 6).

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We do not agree.

Farr, the examiner's primary reference, is concerned with producing a log of traveltime and compression wave velocity as *a function of depth of the well* (column 3, lines 4-10). To this end, seismic waves between oscillators and detectors, one located in the well bore and the other located at or near the top of the well, are measured (abstract). Constant frequency seismic waves produced by the oscillators are detected by the detector *as the distance between the oscillator and the detector is varied* (column 4, lines 3-7). Having a traveltime log *that varies as a function of depth*, it is known to geophysicists how to accurately determine certain useful information about the subsurface features at the location of the well (column 5, lines 43-62).

In the present instance, Farr's basic objective of producing a log of traveltime and compressive wave velocity as *a function of depth* would have dissuaded the ordinarily

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skilled artisan from locating both the detector and the oscillators at the surface because it then would not have been possible to obtain the type of readings of interest to Farr. In view of the fact that the examiner's proposed modification of Farr's apparatus would render it unsuitable for its intended purpose, it cannot be said that it would have been obvious to one of ordinary skill in the art. *Ex parte Rosenfeld*, 130 USPQ 113, 115 (Bd. App. 1961).

We have carefully considered the teachings of Smith, Johnson and Clay, but do not believe their collective teachings to be sufficient to persuade one of ordinary skill in the art to go against the clear objectives of Farr by providing both the oscillators and detectors thereof at the surface, as proposed by the examiner. Accordingly, we are unable to sustain the examiner's § 103 rejection of claims 11-14.

Summary

The standing rejection of claims 11-14 under 35 U.S.C. § 112, second paragraph, is reversed.

The standing rejection of claims 11-14 under 35 U.S.C. §

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103 is also reversed.

Accordingly, the decision of the examiner is reversed

REVERSED

NEAL E. ABRAMS)	
Administrative Patent Judge)	
)	
)	
LAWRENCE J. STAAB)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
JEFFREY V. NASE)	
Administrative Patent Judge)	

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