

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* ALBERT HÖGLUND, KIMMO HÄTÖNEN, and ANTTI SORVARI

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Appeal 2006-3245  
Application 10/383,224  
Technology Center 3600

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Decided: March 6, 2007

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Before ANITA PELLMAN GROSS, JENNIFER D. BAHR and LINDA E.  
HORNER, *Administrative Patent Judges*.  
HORNER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134 (2002) of the Examiner's final rejection of claims 1-10. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

## SUMMARY OF DECISION

We REVERSE.

### THE INVENTION

Appellants invented a method to detect anomalies in which the concept of normal behavior varies with time (Specification 1: [0001]). Claim 1, reproduced below, is representative of the subject matter on appeal.

1. A method for teaching an anomaly detecting mechanism in a system comprising observable elements, at least one of which has a periodic time dependent behaviour, the anomaly detecting mechanism comprising a computerized learning mechanism having an input space for defining input data comprising input data components, the method comprising the following steps:

assembling indicators indicating the behaviour of the observable elements and arranging the assembled indicators such that each indicator corresponding to each observable element is assigned to the same input data component;

teaching the learning mechanism such that the input data of the learning mechanism comprises the input data components which are based on the assembled indicators;

placing points which approximate the input data in the input space; and

incorporating a presentation of time into at least one input data component,

wherein the presentation of time is periodic, continuous and unambiguous within a period of the at least one element with periodic time-dependent behaviour.

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## THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

Hirvonen                    US 5,206,640                    Apr. 27, 1993

Article on "tide" downloaded from Encyclopedia Britannica Online, 29 November 2004 ("Tide Article").

The following rejections are before us for review.

1. Claims 1-3, 6-8, and 10 stand rejected under 35 U.S.C. §102(b) as anticipated by Hirvonen.
2. Claims 4, 5, and 9 stand rejected under 35 U.S.C. §103(a) as obvious in view of Hirvonen.

## ISSUE

Appellants contend Hirvonen does not teach or suggest incorporating a presentation of time into at least one input data component (Br. 9), treating time as a periodic variable (Br. 10), or making the features of the presentation of time "periodic, continuous, and unambiguous within a period of the at least one element with periodic time-dependent behaviour" (Br. 12). The Examiner found that Hirvonen teaches incorporating a presentation of time, i.e., the diurnal and monthly tidal variations, into at least one input data component, i.e., sea water level, where the tidal variations in sea water level are essentially sinusoidal, and thus are periodic and continuous, and where the tidal variations are unambiguous depending on the defined length of the "period" (Answer 4, 7). The issue before us is whether Appellants have shown that the Examiner erred in finding that Hirvonen

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anticipates the subject matter of claims 1-3, 6-8, and 10, and renders obvious the subject matter of claims 4, 5, and 9. More particularly, the issue before us is whether Appellants have shown that the Examiner erred in finding that Hirvonen discloses incorporating a presentation of time into at least one input data component where the presentation of time is periodic, continuous and unambiguous.

#### FINDINGS OF FACT

We find the following facts by a preponderance of the evidence:

Hirvonen discloses a system for detecting and positioning objects or objectives, both above and under sea-level (Hirvonen, col. 1, ll. 6-8).

The system of Hirvonen detects objects by measuring variations, signs, indications, disturbances or the like caused by the objects (Hirvonen, col. 1, ll. 17-19).

The system of Hirvonen uses anomaly detection methods to compare the measured state of the electric field of a conductive object to the states measured at corresponding points in a similar faultless object (Hirvonen, col. 4, ll. 47-50).

Hirvonen discloses using a three-dimensional model of the electric field in a surveillance area to position an object in the deep sea (Hirvonen, col. 12, ll. 43-45).

The system of Hirvonen gathers measured observations of disturbances in the electric field caused by a foreign object as it passes through the surveillance area and uses this data to calculate, from the three-dimensional model, in which

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part of the surveillance area the source of the disturbance is to be found (Hirvonen, col. 12, ll. 45-52).

The resistivity of the water between the electrodes is a threefold integral of the conductivity of the medium in that part of the surveillance area, where the boundary conditions are: water level, topography of the bottom, and conductivity of the water (Hirvonen, col. 12, ll. 53-59).

To simplify the calculation, Hirvonen teaches that an average depth of the water in the measured area can be used for the water level (Hirvonen, col. 12, ll. 66-69).

#### PRINCIPLES OF LAW

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 827 (1987).

“To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’ ” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).

To determine whether a *prima facie* case of obviousness has been established, one must consider the factors set forth in *Graham v. John Deere Co.*,

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383 U.S. 1, 17 (1966), *viz.*, (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; and (3) the level of ordinary skill in the art.<sup>1</sup>

In addition to the *Graham* factors, one must also consider whether a “teaching, suggestion, or motivation” exists to modify or combine the prior art teachings.

[T]he “motivation-suggestion-teaching” test asks not merely what the references disclose, but whether a person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims. From this it may be determined whether the overall disclosures, teachings, and suggestions of the prior art, and the level of skill in the art – i.e., the understandings and knowledge of persons having ordinary skill in the art at the time of the invention-support the legal conclusion of obviousness. (internal citations omitted).

*In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1337 (Fed. Cir. 2006).

## ANALYSIS

Claims 1 and 10 recite, “incorporating a presentation of time into at least one input data component, wherein the presentation of time is periodic, continuous

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<sup>1</sup> Although *Graham* also suggests analysis of secondary considerations such as commercial success, long felt but unsolved needs, failure of others, etc., Appellants presented no such evidence of secondary considerations for the Board’s consideration.

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and unambiguous within a period of the at least one element with periodic time-dependent behaviour.” Claim 6 similarly recites, “at least one input data component comprising a presentation of time, wherein the presentation of time is periodic, continuous and unambiguous within the period of the at least one element with periodic time-dependent behaviour.”

As stated *supra*, Hirvonen discloses a system for detecting and positioning objects, such as vessels, above and under sea-level by measuring disturbances in the electric field within a surveillance area caused by the objects and comparing these measurements to the electric field in the surveillance area without vessels. The “uninhabited” surveillance area is considered “normal,” and the vessels are considered anomalies as they pass through the surveillance area.

Hirvonen teaches using a three-dimensional model of the electric field in the surveillance area to locate the position of an object. The resistivity of the water between the electrodes is a threefold integral of the conductivity of the medium in that part of the surveillance area, where the boundary conditions are: water level, topography of the bottom, and conductivity of the water.

The Examiner found that Hirvonen’s use of water level as a boundary condition is an observable element having a periodic time dependent behavior because sea water level is an inherently periodic variable (Answer 3-4, citing to the Tide Article for evidence of diurnal and monthly tidal variations). As such, the Examiner found that Hirvonen inherently discloses incorporating a presentation of time into at least one input data component. We disagree.

The system of Hirvonen gathers measured observations of disturbances in the electric field caused by a foreign object as it passes through the surveillance area and uses this data to calculate, from the three-dimensional model, in which part of the surveillance area the source of the disturbance is to be found. Hirvonen is thus concerned with the value of the water level at the time the object passes through the surveillance area. What matters in Hirvonen's calculation is the value of the sea-water level itself, not the time at which any given sea-water level occurs. We do not see any suggestion, teaching, or motivation in Hirvonen to present the input data of the water level as a presentation of time.

The water level input may be a time-dependent variable, but for purposes of Hirvonen's calculation, it is merely a single value. In fact, to simplify the calculation, Hirvonen teaches that an average depth of the water in the measured area can be used for the water level. Thus, Hirvonen suggests using a single value of an average depth regardless of time, such that the water level is a constant.

Even if we were to accept the Examiner's finding that because sea water level is an inherently periodic variable, Hirvonen discloses incorporating a presentation of time into at least one input data component, Hirvonen would still not anticipate the claims. Claims 1, 6, and 10 all recite that the presentation of time is "periodic, continuous, and unambiguous." The Examiner found that the diurnal and monthly tidal variations in sea water level are essentially sinusoidal (Answer 7). The Examiner took the position that this sinusoidal representation would be "unambiguous" within a period of the tide if the "period" were defined as less than a full cycle (Answer 7).

It is not necessarily the case, however, that the sinusoidal presentation of time of the tide is unambiguous. As explained by Appellants, with reference to Figure 4B in the Specification, the sine wave is not an unambiguous presentation of time because two events could occur at different times but have identical presentations of time (Specification 8: [0039]). Hirvonen does not expressly disclose a presentation of time with a period defined as less than a full cycle, as suggested by the Examiner, and Hirvonen does not otherwise make clear that defining the tidal period as less than a full cycle is necessarily present in the system described in Hirvonen. Instead, the Examiner describes a mere possibility of making the defined period less than a full cycle, and such a mere possibility is an insufficient basis for a finding of anticipation by inherency.

Further, we find no teaching, suggestion, or motivation in Hirvonen for presenting tidal variations over time in a manner to avoid ambiguity, because Hirvonen is not concerned with the time at which the sea water achieved a certain level. Hirvonen does not take into account ambiguity, because the time at which the sea reached a certain level is not a factor in Hirvonen's calculation. Rather, as explained *supra*, Hirvonen is interested merely in the value of the water level. As such, Hirvonen does not provide a teaching, suggestion, or motivation for "incorporating a presentation of time into at least one input data component wherein the presentation of time is periodic, continuous and unambiguous within a period of the at least one element with periodic time-dependent behaviour" as recited in independent claim 1 and does not provide a teaching, suggestion, or motivation for "at least one input data component comprising a presentation of

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time, wherein the presentation of time is periodic, continuous and unambiguous within a period of the at least one element with periodic time-dependent behaviour" as recited in independent claim 6. Because there is no teaching, suggestion, or motivation in Hirvonen that would have led one having ordinary skill in the art to the invention recited in independent claims 1 and 6, it follows that dependent claims 4, 5, and 9 are not rendered obvious in view of Hirvonen.

#### CONCLUSIONS OF LAW

We conclude that the Examiner erred in rejecting claims 1-3, 6-8, and 10 under 35 U.S.C. § 102(b) as being anticipated by Hirvonen, and erred in rejecting claims 4, 5, and 9 under 35 U.S.C. § 103(a) as being obvious in view of Hirvonen.

#### DECISION

The decision of the Examiner to reject claims 1-10 is not sustained.

REVERSED

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