

**United States Court of Appeals for the Federal Circuit**

02-1048

(Serial no. 08/926,293)

IN RE CHARLES D. HUSTON and DARRYL J. CORNISH

Charles D. Houston, Thompson & Knight, L.L.P., of Austin, Texas, argued for appellants.

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Appealed from:           United States Patent and Trademark Office  
                                  Board of Patent Appeals and Interferences

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DECIDED: October 17, 2002

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Before MAYER, Chief Judge, DYK, and PROST, Circuit Judges.

Opinion for the court filed by Circuit Judge DYK. Dissenting opinion filed by Circuit Judge PROST.

DYK, Circuit Judge.

Charles D. Huston and Darryl J. Cornish (“appellants”) appeal the decision of the United States Board of Patent Appeals and Interferences (“Board”) affirming the final rejection of claims 1, 5-18, and 21-26 of U.S. Application Serial No. 08/926,293 (“the ’293 application”). Ex parte Huston, No. 00-0947 (Bd. Pat. App. & Int. July 31, 2001). Because the Board properly concluded that the claims are not entitled to the filing date of an earlier filed application and would have been obvious to one of ordinary skill in the art at the time of invention, we affirm.

## BACKGROUND

The claimed subject matter of the '293 application is directed to a method and apparatus for displaying an advertising message to a golfer on a screen based on the golfer's current position as determined by a global positioning satellite ("GPS") system. A GPS system is a constellation of satellites that circle the earth transmitting signals that are used to determine the location of a device receiving the signal.

Huston filed two earlier applications, U.S. Application Serial No. 07/804,368 ("the '368 application"), on December 10, 1991, and a continuation-in-part ("CIP") of the '368 application, United States Application Serial No. 08/313,718 ("the '718 application"), on September 22, 1994. The '718 application ultimately issued as U.S. Patent No. 5,364,093 ("the '093 patent"). Appellants contend that the application at issue, the '293 application, is entitled to the benefit of the filing date of the '368 application, making the effective filing date December 10, 1991, rather than December 30, 1994. The United States Patent and Trademark Office ("PTO") contends that the '293 application should benefit only from its own December 30, 1994, filing date.

The '093 patent<sup>[1]</sup> relates to a method and system for determining and displaying the approximate distance between a golf ball and a target on the golf course such as a golf cup or a hazard. The invention of the '093 patent utilizes a GPS receiver positioned near the golf ball to determine the position of the golf ball and, based on that position, calculates the distance to a golf cup or a hazard. The specification describes an embodiment of the invention that includes a bi-directional radio system capable of receiving error correction information and "other information." '093 patent, col. 4, ll. 63-65.

Claims 1, 5-18, and 21-26 of the '293 application are at issue on appeal. Claims 1, 21, and 24 are representative. Claim 1 provides:

1. A method for displaying an advertising message to a golfer on a golf course using the global positioning satellite system comprising the steps of:
  - positioning a remote global positioning satellite receiver on the golf course;
  - storing, a plurality of predetermined locations on the golf course;
  - determining, a position of the remote receiver on the golf course using the global

positioning satellite system; and  
displaying the advertising message to the golfer on the golf course based on the position of the remote receiver relative to the predetermined locations on the golf course.

'293 application, claim 1 (emphasis added).

Claim 21 adds the limitation of a differential correction means for determining and transmitting an error correction. The differential correction means enables the GPS system to calculate the location of the golfer more accurately. Claim 21 provides:

21. A system for displaying an advertising message to a golfer on a golf course using a global positioning satellite system comprising:

differential correction means positioned at a known location for receiving signals from the global positioning, satellite system, for determining an apparent location, and for transmitting a correction based on the difference between the known location and the apparent location;

global positioning receiver means transportable for accompanying the golfer during play of golf on the golf course for receiving signals indicative of the apparent position of the receiver means on the golf course using the global positioning satellite system and including a communication link for receiving corrections from the differential correction means, the global positioning receiver means being operable for determining an accurate position on the golf course based on the apparent position and the corrections;

storage means storing a plurality of predetermined accurate positions on a golf course;

means linked to said global positioning receiver means and said storage means for determining if the position of the receiver means coincides with one of the plurality of predetermined accurate positions; and

display means coupled to the global positioning receiver means for displaying the advertising message to the golfer if the position of the receiver means coincides with one of the predetermined accurate positions of the global positioning receiver means on the golf course.

'293 application, claim 21 (emphasis added).

Claim 24, which depends from claim 21, requires a communications link to receive and transmit the advertising message: "The system of claim 21, said communications link being operable for receiving an advertising message and for sending said received message to the display means for display." '293 application, claim 24.

#### PROCEEDINGS BELOW

The examiner rejected claims 1, 5-18, and 21-26 as obvious under 35 U.S.C. § 103(a), relying on

various combinations of eight references: U.S. Patent No. 5,056,106 to Wang et al. (“Wang”); U.S. Patent No. 5,095,430 to Bonito et al. (“Bonito”); U.S. Patent No. 5,095,430 to Fukushima et al. (“Fukushima”); U.S. Patent No. 5,326,095 to Dudley (“Dudley”); U.S. Patent No. 5,524,081 to Paul (“Paul”); U.S. Patent No. 5,664,948 to Dimitriadis et al. (“Dimitriadis”); Jeff Hurn, “GPS: A Guide to the Next Utility,” Trimble Navigation, 1989 (“Hurn”); and “RTCM Recommended Standards for Differential Navistar GPS Service,” Version 2.0, Jan. 1, 1990 (“RTCM”).

An initial question was whether the Paul and Dimitriadis patents should be considered as prior art under 35 U.S.C. § 102(e) against the ’293 application.<sup>[2]</sup> The application that ultimately issued as Paul was filed May 2, 1994, and the application that ultimately issued as Dimitriadis was filed October 11, 1994. Thus, if the ’293 application were entitled to a filing date of December 10, 1991, the filing date of the ’368 application, then Paul and Dimitriadis would not be prior art under section 102(e). The examiner determined that appellants were not entitled to the benefit of the filing date of the ’368 application because the ’368 application did not disclose the currently claimed subject matter in the manner provided by the first paragraph of 35 U.S.C. § 112, as required by 35 U.S.C. § 120.<sup>[3]</sup> Specifically, the examiner determined that the ’368 application did not disclose the display of an advertising message to a golfer as set forth in the claims on appeal. The examiner accordingly considered the Paul and Dimitriadis patents to be prior art.

A brief description of the eight prior art references relied on by the examiner follows. Wang is directed to a method and apparatus that employs a spread-spectrum based radiolocation system. Wang, col. 1, ll. 13-14. The Wang system uses hand-held receiver units and fixed-position reference transmitters to determine distance and direction between a golfer and key locations on a golf course, for example, the distance and direction to a particular pin. *Id.*, col. 2, ll. 12-35. Fukushima teaches the use of a GPS system to locate the current position of a vehicle and “provide[s] a simplified navigation apparatus which is small in size, low in cost and easy to use.” Fukushima, col. 1, ll. 46-47. Dudley discloses a receiver positioned on a golf course used with tags positioned underground at predetermined locations on the golf course and displays advertising messages to a golfer (having the receiver) based on the golfer’s position relative to the predetermined location of the tags. Dudley, col. 2, ll. 4-41. Bonito

discloses marking a computer with a lighting pen to determine the distance between a golfer's location and a selected point. Bonito, col. 7, ll. 60-65. Paul discloses a golf information and management system that uses GPS to determine the position of a GPS receiver on a golf course, Paul, col. 5, ll. 41-43, 61-63, where a map of the course is stored at the base station, *id.*, col. 6, ll. 61-62, and displays advertising messages to a golfer, *id.*, col. 8, ll. 18-20. Dimitriadis teaches using GPS to locate the current position of a vehicle to provide location-specific advertising information, Dimitriadis, col. 2, ll. 61-67, wherein the GPS system determines the location of a GPS receiver, *id.*, col. 5, ll. 31-34, and where advertising messages may be presented when the vehicle passes a predetermined location such as a geographic landmark, *id.*, col. 3, ll. 19-28, col. 4, ll. 32-36. The Hurn article discloses using "differential correction" to calculate errors occurring during the transmission of a satellite signal and teaches that, given its ability to determine errors, differential GPS achieves more accurate measurements than conventional GPS. The Radio Technical Commission for Maritime Services ("RTCM") reference also discloses that differential GPS is a technique that significantly improves the accuracy of GPS.

The examiner made the following rejections:

- (1) claims 1, 5-7, 10, 12, 13, and 16-18 as being unpatentable under 35 U.S.C. § 103(a) over Wang in view of Fukushima and Dudley;
- (2) claims 8, 9, 14, and 15 as being unpatentable under 35 U.S.C. § 103(a) over Wang in view of Fukushima and Dudley and in further view of Bonito;
- (3) claims 11 and 21-26 as being unpatentable under 35 U.S.C. § 103(a) over Wang in view of Fukushima and Dudley and in further view of either Hurn or RTCM;
- (4) claims 1, 5-7, 10, 12, 13, and 16-18 as being unpatentable under 35 U.S.C. § 103(a) over Fukushima in view of Wang and either one of Paul or Dimitriadis;
- (5) claims 8, 9, 14, and 15 as being unpatentable under 35 U.S.C. § 103(a) over Fukushima in view of Wang and either one of Paul or Dimitriadis and in further view of Bonito, and
- (6) claims 11 and 21-26 as being unpatentable under 35 U.S.C. § 103(a) over Fukushima in view of Wang and either one of Paul or Dimitriadis and in further view of either Hurn or RTCM.

To rebut the examiner's obviousness findings, appellants filed a declaration under 37 C.F.R. § 1.132 from Rick Horne, Vice President of Operations of ProShot Golf, Inc., the exclusive licensee of Huston's '093 patent. Horne stated that, as of December 1991, it would not have been obvious to combine the Wang and Fukushima patents:

What is lacking from Wang and Fukushima is anything that would have taught, suggested, or motivated me or one of ordinary skill in the art in December 1991 to modify the golf course ranging system of Wang by adapting the GPS-vehicle positioning system of Fukushima to become a GPS-based or a differential GPS-based golf distance determining method and system as described and claimed in the present [application].

Horne Decl. ¶ 15 (emphasis added).

In an office action dated November 26, 1997, the examiner considered the Horne declaration and found it unpersuasive: “The declaration of Rick Horne . . . is insufficient to overcome the rejection of claims 1, 3-18 and 21-26 based upon Wang et al. in view of Fukushima et al. and Dudley.”

The examiner issued final rejections of claims 1, 3-18, and 21-26 in a Final Office Action dated August 20, 1998.

Huston appealed to the Board. The Board held that all claims had been properly rejected “[s]ince at least one rejection of each of the appealed claims has been affirmed.” Huston, slip op. at 33.

First, the Board agreed with the examiner that Huston’s application was not entitled to the December 10, 1991, filing date of the ’368 application under 35 U.S.C. § 120 because it found that the ’368 application did not disclose the currently claimed element of “displaying an advertising message” to a golfer in a manner consistent with the first paragraph of section 112:

We agree with the examiner that the claimed subject matter under appeal is only entitled to the filing date of the instant application (i.e., December 30, 1994). While the appellants have claimed the benefit of two earlier-filed applications . . . the appellants are not entitled to the benefit of those earlier-filed applications under 35 U.S.C. § 120 since those earlier-filed applications do not disclose the currently claimed subject matter in the manner provided by the first paragraph of 35 U.S.C. § 112. Specifically, those earlier-filed applications do not disclose displaying an advertising message to a golfer as set forth in the claims under appeal.

Id., slip op. at 5 (emphasis added).

The Board then considered the Horne declaration and sua sponte found that it was “not entitled

to any weight,” because the declaration is

directed to whether or not it would have been obvious in December 1991 to a person having ordinary skill in the art to have combined the teachings of Wang and Fukushima in the manner set forth by the examiner in all the rejections before us in this appeal. However, since the issue in all the rejections before us in this appeal is whether or not it would have been obvious in December 1994 to a person having ordinary skill in the art to have combined the teachings of Wang and Fukushima, the Horne declaration and the appellants’ argument related thereto are not entitled to any weight.

Huston, slip op. at 15.

The Board determined the level of ordinary skill in the pertinent art. The Board found that “the person of ordinary skill in the art is not a golfer, a golf professional and/or golf course manager . . . . In our view, the applied prior art properly reflects the appropriate level and clearly demonstrates the level to be higher than a golfer, a golf professional and/or golf course manager.” Id.

Turning to the merits of the obviousness rejection of claim 1, the Board analyzed the prior art and determined that

the combined teachings of Wang, Fukushima, and Dudley would have made it obvious at the time the invention was made to a person having ordinary skill in the art to (1) replace Wang’s radiolocation system to determine distance from the hand-held receiver to key locations on the golf course with a GPS receiver to determine distance from the GPS receiver to key locations on the golf course based on Fukushima’s teaching that a GPS system presents a simplified navigation apparatus which is small in size, low in cost and easy to use; and (2) display advertising messages to the golfer on the golf course based on the position of the remote receiver based on Dudley’s teachings for the self-evident advantages thereof.

Id. at 16-17 (emphases added). Thus, the Board identified two key elements of claim 1: (1) the use of a GPS system on a golf course to determine the position of a golfer; and (2) the use of such system to transmit location-specific advertising messages to a golfer. The Board found the first element, the use of GPS on a golf course, obvious in light of the combination of Wang and Fukushima. Later in its opinion, the Board separately found that the use of GPS on a golf course was fully disclosed by a single prior art reference, the Paul patent. Indeed, the Board noted that “Paul is the closest piece of prior art (from the

prior art before us on appeal) to the claimed invention.” Id. at 22 n.6. The Board found the second element, positional advertising, obvious in light of Dudley’s teaching of positional advertising on a golf course using a radio frequency system (rather than GPS).

The Board accordingly affirmed the rejection of claims 1, 5-7, 10, 12, 13, and 16-18 as unpatentable over Wang in view of Fukushima and Dudley. Huston, slip op. at 17. The Board treated dependent claims 8, 9, 14, and 15 as standing or falling with their parent claims and affirmed the rejection of those claims as well.<sup>[4]</sup> Id. at 18.

The Board also sustained the rejection of claims 11, 21-23, 25, and 26 as unpatentable over Wang in view of Fukushima and Dudley in further view of either Hurn or RTCM:

The examiner determined . . . that the claimed subject matter would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine the teachings of Wang, Fukushima and Dudley as set forth in rejection (1) above and to further incorporate differential processing in the GPS system to increase accuracy as taught by either Hurn or RTCM. We agree.

Id. at 19-20. The Board did not sustain the rejection of claim 24 over Wang in view of Fukushima and Dudley in further view of either Hurn or RTCM (though, as noted below, it rejected that claim on alternative grounds). Id. at 18-19.

The Board then turned to the examiner’s alternative rejection of the claims. The Board sustained the examiner’s rejection of claims 1, 5-7, 10, 12, 13, and 16-18 as being unpatentable under 35 U.S.C. § 103(a) over Fukushima in view of Wang and either Paul or Dimitriadis. As noted, the Board found that the application was not entitled to the benefit of the earlier filing date, and, therefore, Paul and Dimitriadis, which were both filed between 1991 and 1994, were properly considered as prior art under 35 U.S.C. § 102(e). The Board sustained the rejection:

[T]he examiner reached the conclusion . . . that it would have been obvious at the time the invention was made (i.e., December 30, 1994) to a person having ordinary skill in the art to have utilized Fukushima’s apparatus for a golfer on a golf course so that the position of the GPS receiver on the golf course would be determined using a global positioning satellite system in view of Wang’s teachings and to display advertising messages at predetermined geographic locations of the GPS receiver in view of the teachings of either Paul or Dimitriadis. We agree.

Huston, slip op. at 26. The Board noted that “Paul specifically teaches . . . that the broadcasts from the base unit to a cart can include notices from the clubhouse, weather alerts, advertising, leader board updates, etc.” Id. at 27. The Board further found that claims 1, 5-7, 10, 12, 13, and 16-18 stand or fall together, id., and that dependent claims 8, 9, 14, and 15 stand or fall with their parent claims, id. at 28, and accordingly sustained the rejection as to these claims.

The Board then sustained the examiner’s rejection of claims 11 and 21-26 as unpatentable over Fukushima in view of Wang and Paul and in further view of either Hurn or RTCM:

The examiner determined . . . that the claimed subject matter would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine the teachings of Fukushima, Wang and either Paul or Dimitriadis . . . and to further incorporate differential processing in the GPS system to increase accuracy as taught by either Hurn or RTCM. We agree.

Huston, slip op. at 29. The Board noted that “the applied prior art clearly teaches the benefits (e.g., greater accuracy) of ‘differential GPS’ over ‘GPS.’” Id. at 29-30.

The Board sustained the rejection of claim 24 as being unpatentable over Fukushima in view of Wang and Paul and in further view of either Hurn or RTCM:

In our view, Paul clearly teaches his communication link being operable for receiving an advertising message and for sending the received message to the display means for display and thus the appellants’ argument fails to establish any error in the examiner’s rejection of claim 24 based upon Fukushima in view of Wang and Paul and further view of either Hurn or RTCM.

Huston, slip op. at 31-32.

The Board concluded that “[s]ince at least one rejection of each of the appealed claims has been affirmed, the decision of the examiner is affirmed.” Id. at 33.

Huston timely appealed. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

#### STANDARD OF REVIEW

“The ultimate determination of whether an invention would have been obvious under 35 U.S.C. § 103(a) is a legal conclusion based on underlying findings of fact.” In re Kotzab, 217 F.3d 1365, 1369, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000). We review the Board’s ultimate conclusion of obviousness without deference, and we review the Board’s underlying factual determinations for substantial evidence. In re Gartside, 203 F.3d 1305, 1316, 53 USPQ2d 1769, 1776 (Fed. Cir. 2000). The scope and content of the prior art are reviewed for substantial evidence. Id.

## DISCUSSION

### I

The first question is whether substantial evidence supports the Board’s determination that the proper date for the obviousness analysis is December 1994, rather than December 1991, the filing date of the ’368 application. We hold that it does.

Appellants contend that they are entitled to the benefit of the December 10, 1991, filing date of the ’368 application. In order “[t]o gain the benefit of the filing date of an earlier application under 35 U.S.C. § 120, [a later-filed application] must comply with the written description requirement of 35 U.S.C. § 112.” Lockwood v. Am. Airlines Inc., 107 F.3d 1565, 1571, 41 USPQ2d 1961, 1965-66 (Fed. Cir. 1997). The examiner concluded that “[t]he instant application has a filing date of 12/30/94 with respect to the display of advertising messages based on position since there is no support for such in the earlier-filed, related parent files.” The Board agreed:

We agree with the examiner that the claimed subject matter under appeal is only entitled to the filing date of the instant application (i.e., December 30, 1994). While the appellants have claimed the benefit of two earlier-filed applications . . . the appellants are not entitled to the benefit of those earlier-filed applications under 35 U.S.C. § 120 since those earlier-filed applications do not disclose the currently claimed subject matter in the manner provided by the first paragraph of 35 U.S.C. § 112. Specifically, those earlier-filed applications do not disclose displaying an advertising message to a golfer as set forth in the claims under appeal.

Huston, slip op. at 5 (emphasis added).

We agree with the examiner and with the Board. The ’368 application did not disclose the

location-specific transmission of advertising messages to a golfer using GPS. The specification states that the invention of the '368 application relates to "a method and apparatus which could accurately and quickly determine the position of a ball and the distance between the ball and features on the hole being played, such as the golf cup on the green, the preceding cart, or a hazard . . . ." The disclosure further describes the purpose of the invention as "determining the approximate distance between a golf ball and a target on the golf course such as the golf cup. In particular, the method and apparatus use a global positioning satellite receiver positioned near the golf ball to determine the approximate location of the golf ball." The specification further describes "option buttons" that allow the player to access "tips" (e.g., caddie hints), "drinks," and "more" respectively. . . . The "more" menu allows the player to access other options, such as a scorecard where the player can enter scores for the round for each player or food service. If desired, the scores can be transmitted over the radio network and downloaded to base station 12 for handicap input and is particular[ly] useful during tournaments. The "drink" button allows the player to order drinks . . . .

The specification continues:

the packet radio system 20 is conventional, and includes modem 34, radio interface 36, and radio 38 (including an antenna, not shown). The radio system 20 is bi-directional in that it can receive error correction and other information as well as transmit present position back to the base station 12."

'093 patent, col. 4, ll. 60-65 (emphasis added).

Relying on In re Stryker, 435 F.2d 1340, 1341-42, 168 USPQ 372, 373 (CCPA 1971), appellants argue that the '368 application discloses the "genus" of transmitting "information," and that the '293 application is directed to the particular "species" of transmitting "advertising information." While the specification discloses the transmission of distance information and help messages to a golfer based on the golfer's position as determined by GPS, it does not in fact disclose the transmission of generic "other information" to a golfer based on the golfer's position as determined by GPS. Thus, even if advertising could be viewed as a subset of "other information," the transmission of "other information" based on position as determined by GPS was not disclosed, and in particular the transmission of positional

advertising was not disclosed. “Entitlement to a filing date does not extend to subject matter which is not disclosed, but would be obvious over what is expressly disclosed. It extends only to that which is disclosed.” Lockwood, 107 F.3d at 1571-72, 41 USPQ2d at 1966. Huston’s parent application disclosure fails to support the presently claimed “displaying an advertising message” based on position, and the effective filing date is therefore December 30, 1994.

It follows that the Board properly considered the Paul and Dimitriadis patents as prior art under 35 U.S.C. § 102(e). Paul has an effective filing date of May 2, 1994, and Dimitriadis has an effective filing date of October 11, 1994.

It also follows that the Board properly rejected the Horne declaration. In his declaration, Horne repeatedly referred to December 1991 and made clear that he was addressing whether it would have been obvious in December 1991 to combine the Wang and Fukushima prior art references:

What is lacking from Wang and Fukushima is anything that would have taught, suggested, or motivated me or one of ordinary skill in the art in December 1991 to modify the golf course ranging system of Wang by adapting the GPS-vehicle positioning system of Fukushima to become a GPS-based or a differential GPS-based golf distance determining method and system as described and claimed in the present U.S. Application Serial No. 08/366/994.

Horne Decl. ¶ 15 (emphasis added).

Contrary to the examiner’s assertion, the use of spread spectrum code modulated signals in Wang does not suggest that a GPS-based system, such as the system in Fukushima, could be successfully substituted for the ground-based system of Wang. Spread spectrum code modulated signals were well-known in December 1991 and were simply one available technique for multiple access communications.

Horne Decl. ¶ 16 (emphasis added).[\[5\]](#)

Thus, we find that substantial evidence supports the Board’s determination of the effective filing date and its rejection of the Horne declaration.

## II

The second question is whether the Board's obviousness determinations should be sustained.

## A. Claim 1

In essence, the Board conducted its obviousness determination in two steps, corresponding to the two key elements it identified in claim 1. First, it identified a set of references that taught the use of a GPS system on a golf course to determine the location of a golfer.<sup>[6]</sup> Second, it identified prior art that taught the transmission of positional advertising, *i.e.*, the display of an advertising message to the golfer on the golf course based on the position of a remote receiver relative to predetermined locations on the golf course.

## 1. The use of a GPS system on a golf course

The Board found the use of a GPS system on a golf course obvious in light of the combination of the Wang and Fukushima patents:

[I]t would have been obvious at the time the invention was made (i.e., December 30, 1994) to a person having ordinary skill in the art to have modified Wang's system to utilize a global positioning satellite receiver on the golf course to determine the position of the remote receiver on the golf course using a global positioning satellite system in view of Fukushima's teachings.

Huston, slip op. at 14.

Appellants argue that there was no motivation or suggestion to combine Wang and Fukushima, that the proposed modification would change the operating principle of the claimed invention, that there was no reasonable expectation of success in view of the teachings of Wang, and that the claim limitations were not taught or suggested by the proposed combination. We need not address these arguments because, later in its opinion, the Board identified a single piece of prior art, Paul, that fully disclosed the use of GPS on a golf course to determine the position of a golfer. Noting that Paul "is the closest piece of prior art (from the prior art before us on appeal) to the claimed invention," Huston, slip op. at 22 n.6, the Board fully described the teachings of Paul:

Paul teaches (see abstract) a golf information and management system utilizing the Global Positioning System . . . . A golf cart 12 or player receives the signals from the four satellites, compares the clocked signals and an on-board computer reads the clocked signals and determines the position, in three dimension[s], of the receivers (velocity of the receivers is also available). There is a fixed base location 8 on the golf course that also receives the satellite signals and transmits a differential correction signal, via another channel, to the golf cart or player, where the computer determines the position of the cart or player to within a yard. The computer may be pre-loaded with golf course information, such as pin position, hazard positions, etc., where the computer via a graphical display 18 communicates to the player exact distances to the pre-loaded known physical features of the golf course, and displays information needed by the player to determine his next shot, including a video presentation of a golf pro's suggestions. In addition, the cart may communicate with the base station where the base station can track each cart or player on the course.

Id., at 22-23 (emphases added). Thus, the only limitation of claim 1 lacking in Paul was positional advertising," i.e., the transmission of location-specific advertising based on the position of a golf cart relative to predetermined locations on a golf course. Id.

Thus, the Board recognized that a single piece of prior art fully taught the use of a GPS system on a golf course to determine a golfer's position. As a result, appellants' arguments challenging the Board's combination of Wang and Fukushima to show that the use of GPS on a golf course was obvious are baseless in view of Paul.<sup>[7]</sup>

We note that the Board's decision could have been clearer, in that it could have simply cited Paul as prior art teaching the use of GPS on a golf course, rather than combining Wang and Fukushima to establish that premise. Nonetheless, the Board's reasoning can be readily discerned, and the fact that the Board found the use of GPS on a golf course obvious in light of the combination of Wang and Fukushima, rather than in light of Paul itself, does not compel reversal.

We conclude that the Board did not err in concluding that the use of a GPS system on a golf course to determine the position of a golfer would have been obvious in light of the prior art at the time of invention.<sup>[8]</sup>

## 2. Positional advertising

The only remaining question as to claim 1 is whether it would have been obvious to one of

ordinary skill to combine a system that uses GPS on a golf course with the transmission of positional advertising. The Board found that this missing element is disclosed in Dudley:

Dudley teaches the use of a golf information system which automatically provides golfers with reference position and distance information from a number of points on a particular golf course hole. . . . Dudley discloses that the system can further be used to display advertising messages and to provide golf course management features such as monitoring golf cart usage and speed of play. Dudley teaches that various types of information besides position and yardage could also be outputted by his system including advertising messages to be displayed at preselected times and that the look-up table contained in EPROM 90 and RAMs 92 and 94 for microcontroller 88 can also include advertising messages which are activated by particular tags 24.

Huston, slip op. at 12 (emphasis added). The Board noted that:

[I]t would have been obvious at the time the invention was made (i.e., December 30, 1994) to a person having ordinary skill . . . to display advertising messages to the golfer on the golf course based on the position of the remote receiver in view of Dudley's teachings.

Id. at 14, and further noted:

In our view, [it] . . . would have [been] obvious at the time the invention was made to a person having ordinary skill in the art to . . . display advertising messages to the golfer on the golf course based on the position of the remote receiver based on Dudley's teachings for the self-evident advantages thereof.

Id. at 16-17 (emphasis added).

To establish obviousness, the Board must do more than identify the elements in the prior art. There must also be "some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead the individual to combine the relevant teachings of the references." In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988) (emphasis added). "The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) (emphasis added).

Appellants complain that the Board did not specifically find a suggestion or motivation to combine the references in the prior art, except through its reliance on common knowledge and common sense. They urge that In re Lee, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002), requires that we vacate and remand to the Board. We disagree.

Lee involved a situation in which the Board relied on its “general knowledge to negate patentability.” In re Lee, 277 F.3d at 1345, 61 USPQ2d at 1435. In such circumstances we held that such “knowledge must be articulated and placed on the record.” Id. The court further explained “that ‘deficiencies of the cited references cannot be remedied by the Board’s general conclusions about what is ‘basic knowledge’ or ‘common sense.’” Id. at 1344, 61 USPQ2d at 1434-35 (quoting In re Zurko, 258 F.3d 1379, 1385, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001)) (citation omitted).

Here we confront quite a different situation. Despite the Board’s passing reference to “common knowledge and common sense,” Huston, slip op. at 7, the Board in fact has not relied on its own general knowledge. Rather, it has found the motivation in the prior art references themselves. Its conclusions are cryptic, but they are supported by the record. The Paul reference indeed is quite specific in describing the disadvantages of the radio frequency system used in Dudley:

The system uses embedded radio frequency (RF) tags to “mark” a course. The RF tags are detected by a cart mounted unit which then displays yardage to pin and yardage to hazards on an alphanumeric screen. The system has the following limitations: the screen is not dynamic, the system provides limited information beyond simple yardage differentials, and the entire information content is based on relative position and not actual location on the course. The golf course operator must commit to an extensive survey and installation of related markers and equipment before the system can be demonstrated.

Paul, col. 2, ll. 41-51. Thus, Paul provides the motivation to substitute a GPS system for the radio system of Dudley. Under such circumstances the Board’s decision must be affirmed despite its failure to specifically cite the Paul reference for this purpose.

As the Supreme Court stated,

While we may not supply a reasoned basis for the agency’s action that the agency itself has not given,

SEC v. Chenery Corp., 332 U.S. 194, 196 (1947), we will uphold a decision of less than ideal clarity if the agency's path may reasonably be discerned." Colorado Interstate Gas Co. v. FPC, 324 U.S. 581, 595 (1945).

Bowman Transp., Inc. v. Arkansas-Best Freight Sys., Inc., 419 U.S. 281, 285-86 (1974). See also Greyhound Corp. v. ICC, 668 F.2d 1354, 1362-63 (D.C. Cir. 1981) ("[T]his court has recognized judicial indulgence toward administrative action to the extent of affirming an order when an agency's path, though convoluted, can be discerned.") (quoting Midwestern Gas Transmission Co. v. FERC, 589 F.2d 603, 615 (D.C. Cir. 1978) (per curiam)). This is a situation where the Board's "path may reasonably be discerned." In short, we find that substantial evidence supports the Board's determination that there is a sufficient motivation to combine Dudley with a GPS system on a golf course, and hold that the Board's reasoning is sufficient. [9]

Accordingly, we uphold the Board's decision and affirm the Board's obviousness rejection of claim 1.

A. Claims 21 and 24

We also affirm the rejection of claims 21 and 24. The Board properly concluded that the additional features of claims 21 and 24 were obvious in light of the prior art. Claim 21 adds the limitation of a differential correction means for determining and transmitting an error correction. The Board agreed with the examiner that it would have been obvious to incorporate differential processing in a GPS system to increase accuracy as taught by either Hurn or RTCM:

The examiner determined that the claimed subject matter would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine the teachings of Wang, Fukushima and Dudley as set forth . . . above and to further incorporate differential processing in the GPS system to increase accuracy as taught by either Hurn or RTCM. We agree.

Huston, slip op. at 19-20. The Board further noted that "the applied prior art clearly teaches the benefits (e.g., greater accuracy) of 'differential GPS' over 'GPS.'" Id. at 20. We agree. See Hurn at 58-59 ("GPS is by far the most accurate global navigation system ever devised. But even its incredible accuracy can be boosted using a technique called 'differential GPS.' With it, GPS can achieve measurement accuracies of better than a meter. . . . Differential GPS measurements can be much more accurate than standard GPS measurements.").

Claim 24, which depends from claim 21, requires a communication link to receive and transmit the advertising message. The Board sustained the examiner's rejection of claim 24:

In our view, Paul clearly teaches his communication link being operable for receiving an advertising message and for sending the received message to the display means for display and thus the appellants' argument fails to establish any error in the examiner's rejection of claim 24 based upon Fukushima in view of Wang and Paul and further view of either Hurn or RTCM.

Huston, slip op. at 31-32. We agree with the Board that the additional limitation of a communications link is disclosed in Paul and therefore affirm this rejection.

#### CONCLUSION

Because we find that the invention of claim 1 would have been obvious to one skilled in the art in December 1994 in view of Wang, Fukushima, and Dudley; that claim 21 would have been obvious in light of Wang, Fukushima, and Dudley, and either Hurn or RTCM; and that claim 24 would have been obvious in light of Fukushima, Wang, and Paul and either Hurn or RTCM, we affirm.

#### COSTS

No costs.

#### AFFIRMED

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## United States Court of Appeals for the Federal Circuit

02-1048

(Serial No. 08/926,293)

IN RE CHARLES D. HUSTON and DARRYL J. CORNISH

PROST, Circuit Judge, dissenting-in-part.

I respectfully dissent from that part of the majority opinion affirming the Board's rejection of claim 1 as unpatentable under 35 U.S.C. § 103(a). The majority concludes that substantial evidence supports the Board's determination that sufficient motivation existed to combine Dudley with a GPS system on a golf course, stating, "this is a situation where the Board's 'path may reasonably be discerned.'" Ante at 21 (quoting Colo. Interstate Gas Co. v. FPC, 324 U.S. 581, 595 (1945)). Rather than discerning the Board's path, however, I respectfully submit that the majority has charted an analytical course of its own. Because "we may not supply a reasoned basis for the agency's action that the agency itself has not given," Bowman Transp., Inc. v. Arkansas-Best Freight Sys., Inc., 419 U.S. 281, 285-86 (1974) (citing SEC v. Chenery Corp., 332 U.S. 194, 196 (1947)), I dissent. I would remand that portion of the Board's decision holding claim 1 of the '293 application unpatentable as obvious so that the Board could fully set forth the reasons why one of ordinary skill in the art would have been motivated to select and combine the relevant prior art references.

The Board sustained the examiner's rejection of claim 1 as obvious on two specific, alternative grounds. Under both of these stated rationales, the Board concluded that the combination of Fukushima and Wang taught the use of a GPS system to determine the location of a receiver on a golf course. Ex

parte Huston, No. 00-0947, slip op. 14, 26 (Bd. Pat. App. & Int. July 21, 2001). The Board then cited Dudley and, alternatively, Paul or Dimitriadis as teaching the display of advertising messages based on the receiver's position. Id. The Board found the motivation to combine these two sets of references in the prior art itself. According to the Board, "the combined teachings of Wang, Fukushima and Dudley would have made it obvious at the time the invention was made to a person having ordinary skill in the art" to (1) replace Wang's radiolocation system with GPS, because Fukushima taught the advantages of GPS's simplified, inexpensive navigation system, id. at 16-17; and (2) display advertising messages to a golfer on the course based on the position of the receiver, because Dudley taught "the self-evident advantages" thereof, id. at 17. Similarly, the Board found appellants' argument that insufficient motivation existed to combine Fukushima, Wang, and either Paul or Dimitriadis "unpersuasive for the reasons expressed above in our discussion of" the examiner's rejection under Wang, Fukushima, and Dudley. Id. at 26-27. Additionally, the Board noted that Paul specifically taught the broadcasting of advertisements to golf carts, id. at 27.

The majority does not affirm the Board on either of these two grounds. Instead, it concludes that "Paul provides the motivation to substitute a GPS system for the radio system of Dudley." The majority concedes that the Board never "cite[d] the Paul reference for this purpose," and the majority's sole support for its conclusion is a passage from the Paul reference that does not appear in the Board's opinion. Ante at 21. Nevertheless, the majority maintains that its opinion does nothing more than "discer[n]" the Board's "cryptic" conclusions, id. at 20-21. With all due respect, I cannot agree that the Board's conclusions as to the combination of Paul and Dudley are "cryptic"—they are nonexistent. As this court held in In re Sang-Su Lee, 277 F.3d 1338, 1345-46, 61 USPQ2d 1430, 1435 (Fed. Cir. 2002), "review of administrative decisions must be made on the grounds relied on by the agency. 'If those grounds are inadequate or improper, the court is powerless to affirm the administrative action by substituting what it considers to be a more adequate or proper basis.'" Id. (quoting SEC v. Chenery Corp., 332 U.S. 194, 196 (1947)). Where, as here, the Board's stated grounds for affirming the examiner's rejection of claim 1 as unpatentable are clearly insufficient, this court, in my view, is compelled to remand.

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[1] Both the appellant and the Board erroneously cited the '093 patent, rather than the '368 application, when discussing whether the '293 application should benefit from the December 10, 1991, filing date. See 35 U.S.C. § 120 (2000) (priority for benefit of filing date derives from earlier filed application). Because there is no material discrepancy between the patent and the application, however, there is no need to remand to the PTO.

[2] Section 102(e) provides: “A person shall be entitled to a patent unless—(e) the invention was described in—(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent . . . .” 35 U.S.C. § 102(e) (2000).

[3] Section 120 provides:

An application for patent for an invention disclosed in the manner provided by the first paragraph of section 112 of this title in an application previously filed in the United States . . . which is filed by an inventor or inventors named in the previous application shall have the same effect, as to such invention, as though filed on the date of the prior application, if filed before the patenting or abandonment of or termination of proceedings on the first application . . . .

35 U.S.C. § 120 (2000).

[4] In filing an appeal to the Board, an applicant must group the claims according to the arguments to be presented, 37 C.F.R. § 1.192(c)(7) (2002), or argue the patentability of each claim separately. Here, appellants did not separately argue these claims.

[5] Horne made additional references to December 1991: “The spread spectrum code modulation communication technique used in Wang was known long before December 1991 and was simply one available technique for multiple access communications.” Horne Decl. ¶ 10 (emphasis added). “The structure of GPS transmissions and the use of GPS as a position-fixing system were known long before December 1991 and were also well-known as of August 1990 when Wang was filed with the U.S. Patent Office.” Horne Decl. ¶ 12 (emphasis added). “In December 1991, as represented by Wang and Fukushima, GPS-based positioning systems, ground-based positioning systems, and direct sequence spread spectrum code modulated communication protocols were all known.” Horne Decl. ¶ 14 (emphasis added).

[6] See Graham v. John Deere Co., 383 U.S. 1, 17 (1966) (setting out the central factors relevant to an obviousness inquiry).

[7] Appellants admit that Paul discloses all of the claimed features of the invention in claim 1, with the exception of positional advertising: “The Board’s reading of Paul is essentially correct, except for its characterization of Paul as ‘prior art.’ . . . [T]he parent ’093 patent discloses the essential features of Paul discussed by the Board except for the specific broadcast messages.” (Appellants’ Br. at 41.)

[8] We also find no error in the Board’s determination of the level of ordinary skill in the art. Appellants contend that the Board erred by not more precisely identifying the level of ordinary skill in the art, and argue that the Board should have found a person with ordinary skill to be “a golfer, golf professional and/or golf course manager.” (Appellants’ Br. at 37.) But appellants have not shown how a different, more precise definition of the pertinent art would have changed the result.

[9] The dissent suggests that the majority opinion relies on a combination of references different from the combination relied upon by the Board. That is not correct. We sustain the Board based on its combination of the Wang and Fukushima references together with Dudley. We rely on the Paul reference (cited by the Board itself as the “closest prior art,” Huston, slip op. at 22 n.6) for only two purposes, first, to reject appellant’s contention that the Board could not properly combine Wang and Fukushima to find the use of GPS on a golf course obvious (since Paul itself demonstrates that very combination as noted by the Board, Huston, slip op. at 22-23), *i.e.*, in rebuttal of an argument by appellant concerning the obviousness of a previously cited combination of reference. Second, we cite Paul as a source of motivation to combine Wang, Fukushima, and Dudley. The Board’s cryptic finding of a motivation to combine may be affirmed because it was supported in the record, even though the record reference was not quoted, just as a district court’s factual finding may be sustained if supported by record evidence not specifically cited by the district court, *see generally Applewood Landscape & Nursery v. Hollingsworth*, 884 F.2d 1502 (1st Cir. 1989) (citing a series of cases holding that “[a]s long as such ‘brief’ and ‘pertinent’ findings are made and ‘the record as a whole supports the district court’s findings of fact,’ we can affirm its result.”).