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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 44

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte PAUL S. VAN LENTE, MARK L. ZEINSTRA, MICHAEL J. SUMAN, and WILLIAM S. DeVREE

Appeal No. 95-1726
Application 07/567,392[1]

HEARD: February 7, 1996

Before HAIRSTON, CARDILLO, and BARRETT, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 14 through 45 and 90 through 99.

[1] Application for patent filed August 14, 1990, entitled "Electrical Control System for Vehicle Options."

The disclosed invention relates to a transceiver that is trained to memorize the specific frequency and unique code of an existing garage door opening transmitter.

Claim 14 is illustrative of the claimed invention and it reads as follows:

14. A vehicle trainable transmitter for remotely actuating a garage door mechanism, said trainable transmitter comprising:

an antenna for receiving a first transmitted radio frequency control signal from a remote control for a garage door mechanism, said first control signal having a carrier frequency, and said antenna outputting said first control signal; and

a circuit coupled to said antenna for inputting said first control signal from said antenna, said circuit adapted to identify at least a carrier frequency between 290 MHz and 400 MHz and storing carrier frequency information representing an identified carrier frequency, and said circuit adapted to demodulate said first control signal, detect control signal information in the first control signal, and store the detected control signal information, and for generating and transmitting a second radio frequency control signal from said frequency information and said control signal information stored in said circuit, whereby said circuit stores said frequency and control signal information in a training mode and selectively generates a second control signal having the carrier frequency identified by said circuit and the control signal information detected by said circuit, said second control signal selectively transmitted to actuate the garage door mechanism without the remote control in a transmitting mode.

The references relied on by the examiner are:

Tolson	3,337,992	Aug. 29, 1967
Welles, II (Welles)	4,623,887	Nov. 18, 1986
Wood et al. (Wood)	4,631,708	Dec. 23, 1986
Inukai et al. (Inukai)	4,635,033	Jan. 6, 1987
Sanders et al. (Sanders)	4,754,255	June 28, 1988
Van Lente et al. (Van Lente)	4,953,305	Sept. 4, 1990 (filed May 27, 1987)

Claims 14 through 20 and 90 through 99 stand rejected under 35 U.S.C. § 103 as being unpatentable over Tolson in view of Welles and Wood.

Claims 21 through 27 stand rejected under 35 U.S.C. § 103 as being unpatentable over Tolson in view of Welles, Wood, Van Lente and Inukai.

Claims 28 through 40 stand rejected under 35 U.S.C. § 103 as being unpatentable over Sanders in view of Tolson, Welles and Wood.

Claims 41 through 45 stand rejected under 35 U.S.C. § 103 as being unpatentable over Sanders in view of Tolson, Welles, Wood, Van Lente and Inukai.

Reference is made to the briefs and the answer for the respective positions of the appellants and the examiner.

OPINION

We have carefully considered the entire record before us, and we will sustain the 35 U.S.C. § 103 rejection of claims 14, 15, 19 through 45 and 90 through 99, and reverse the 35 U.S.C. § 103 rejection of claims 16 through 18.

Factual findings

Every obviousness determination is based on the four factual inquiries of Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966): (1) the scope and content of the prior art; (2) the differences between the prior art and the claimed

invention; (3) the level of ordinary skill in the art; and (4) any secondary considerations. We consider all these factors before undertaking our obviousness analysis.

Scope and content of the prior art

There are no arguments of nonanalogous art. Thus, the references are within the scope of the art.

Tolson discloses that "[w]hile paths are shown . . . it will be apparent to those skilled in the art that energy paths E may equally well be of any other suitable nature, such as an ultrasonic sound beam, a radio signal, a light beam, and the like, provided that suitable transmitter transducer T and receiver transducer R are inserted in the energy path as shown in FIGURE 7" (column 3, lines 53-59).

Welles discloses a "universal" infrared remote control transmitter which can be trained to control several electronic products. The modulation schemes for infrared codes include the different types of gated frequency in Figures 1a-1g. "Typical carrier frequencies for infrared remote transmitters are 20 KHz to 45 KHz, with the majority at 38 KHz and 40 KHz" (column 3, lines 10-13). "The reconfigurable remote control in the learning process, must be able to receive, learn and repeat all of the schemes described with reference to FIGS. 1 and 2" (column 5, lines 1-3). Thus, Welles must find the carrier frequency for the gated carrier frequency modulation schemes and store this carrier

information for recontructing the control signal. Welles determines the carrier frequency using MAX_PULSES and MAX_TIME (see description columns 23-24) determined during a TAKE_IR_DATA procedure (columns 11-12). The carrier frequency is stored as a 16-bit pulse count number and is used to generate a carrier frequency (column 8, lines 55-68). Thus, Welles discloses identifying and storing a carrier frequency, albeit an IR carrier frequency.

Sanders is directed to a vehicle control system that uses tranmitters 30 and 31 and a microprocessor 38 (Figure 3) to control many features throughout the vehicle including the peripheral system output 69 (Figure 4) for opening a garage door. Sanders discloses that "the transmitter(s) 30 and/or 31 broadcast their signals on an infrared, RF, or other carrier to a Receiver 32" (emphasis added) (column 10, lines 2-5).

Wood discloses that coded carrier frequency signals can be either RF or light signals (column 2, lines 20-26).

Inukai discloses a heads-up display for vehicles (Figure 1), and Van Lente discloses a housing for a display (Figure 1).

Differences

Appellants argue "Welles II does not teach a system which is trainable to a radio frequency carrier signal of the type utilized for garage door opener mechanisms" (Brief, page 14).

Appellants argue that "Tolson does not disclose a trainable receiver, let alone a radio frequency trainable receiver" (Brief, page 13).

Appellants argue that

> Sanders et al. does not actually show or describe a garage door control, let alone disclose a transmitter which learns and stores the frequency and format of radio frequency signals transmitted from a different existent garage door opener remote control in a training mode for later retransmission to actuate a garage door opening mechanism (Brief, page 20).

Appellants argue that "Wood et al. does not disclose nor suggest a trainable transmitter which learns the frequency and format of the control signal from a remote control when receiving the signal from the base station" (Brief, page 16).

Appellants argue that "neither Van Lente et al. nor Inukai et al. discloses a trainable transmitter for learning a garage door opener remote control signal" (Brief, page 19).

Level of ordinary skill in the art

The references are found to be representative of the level of skill in the art. In re Oelrich, 579 F.2d 86, 91, 198 USPQ 210, 214 (CCPA 1978) ("the PTO usually must evaluate . . . the level of ordinary skill solely on the cold words of the literature"). Cf. Chore-Time Equip. v. Cumberland Corp., 713 F.2d 774, 779 n.2, 218 USPQ 673, 676 n.2 (Fed. Cir. 1983) ("We hold only that an invention may be held to have been either obvious (or nonobvious) without a specific finding of a

particular level of skill or the reception of expert testimony on the level of skill where, as here, the prior art itself reflects an appropriate level and a need for such expert testimony has not been shown.").

Secondary considerations

Evidence arising out of secondary considerations must always be considered, when present, as part of the obviousness determination. Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 1538-39, 218 USPQ 871, 879 (Fed. Cir. 1983); W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1555, 220 USPQ 303, 314 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). A "nexus" is required between the merits of the claimed invention and the evidence of secondary considerations if that evidence is to be given substantial weight in the obviousness decision. Stratoflex, 713 F.2d at 1539, 218 USPQ at 879. The term "nexus" is used to designate a legally and factually sufficient connection between the objective evidence and the claimed invention, such that the objective evidence should be considered in the determination of obviousness. Demaco Corp. v. F. Von Langsdorff Licensing Ltd., 851 F.2d 1387, 1392, 7 USPQ2d 1222, 1226 (Fed. Cir.), cert. denied, 488 U.S. 956 (1988). The burden is on appellants to establish the nexus. Ex parte Remark, 15 USPQ2d 1498, 1504 (Bd. Pat. App. & Int. 1990).

Appellants' evidence of secondary consideration consists of a declaration by Mark Zeinstra (Zeinstra declaration), a first declaration by Robert Ryan (first Ryan declaration), and a second declaration by Robert Ryan (second Ryan declaration).

The Zeinstra declaration begins by discussing the differences between IR and RF (Zeinstra declaration, paragraphs 5-11) and the undesirability of IR energy for trainable garage door openers (Zeinstra declaration, paragraphs 9-10). The rejection is based on providing a trainable RF transceiver; therefore, arguments about the unsuitability of IF are not persuasive. However, it is noted that appellants have admitted that it is possible to use IR or RF (specification, page 7, lines 1-2).

The Zeinstra declaration continues by discussing the need for the FCC to develop a new test procedure (Zeinstra declaration, paragraphs 12-13). While this is very interesting to note, appellants have not demonstrated how such tests relate to the claims on appeal.

The Zeinstra declaration concludes by stating that the Evans, Hidak, and Welles patents are not enabling for detecting RF signals of the type used for garage door openers (Zeinstra declaration, paragraph 14). Even if the Evans and Hidak patents were applied against the claims on appeal, and they were not, this statement is not entitled to any weight since more than a

mere statement is needed to demonstrate non-enablement of a reference.

The Ryan declarations discuss the commercial success of the "univeral" garage door opener remote control in terms of intent to purchase amounts (first Ryan declaration, paragraph 3; second Ryan declaration, paragraph 3) and in increase in sales as compared to non-trainable garage door openers (first Ryan declaration, paragraphs 4-5). Mr. Ryan also states that promotional activity has been limited (first Ryan declaration, paragraph 6) and is not the result of specific marketing or preexisting sales agreements (second Ryan declaration, paragraph 5). Mr. Ryan has also noted that other companies did not bid to make a device based on specifications of the Prince device (second Ryan declaration, paragraph 6) and that there have been inquiries about licensing (second Ryan declartion, paragraph 8). While this is impressive evidence of commercial success of the device which was actually sold, the evidence is not commensurate in scope with the claims.

We believe the critical statement to the analysis is the following (first Ryan declaration, paragraph 7):

> Prince Corporation has thus experienced a dramatic increase in sales of garage door openers because of the universal garage door opener remote control's unique ability to learn the frequency and information from other RF garage door opener remote controls.

And, (second Ryan declaration, paragraph 4):

> Based upon my background, knowledge and experience in the industry, this success is the result of the Prince Universal Garage Door Opener Remote Control's unique ability to learn and generate any radio frequency garage door opener remote control signal . . . .

A major reason for the commercial success is the ability of the remote control as a "universal" remote to "learn" the many different control formats and codes of different remote controls. None of the claims recite this "universal" training capability. The claims are all directed to identifying the carrier frequency and detecting control signal information which may be a single known format, but this has not been shown to be what makes the transceiver commercially successful. Accordingly, the evidence is not commensurate in scope with the claims and is entitled to little weight.

Appellants argue (Brief, pages 29 and 30) that:

> The fulfillment of a long felt but unresolved need in the industry is also evidenced by the facts set forth in the Ryan declaration of Exhibit 3 where he notes in addition to the welcome acceptance of the product of the invention by auto companies, other competitors were unable even to provide quotes to the car companies for such a product (Paragraph 6), and that one of the major garage door opener companies requested a license under the technology (Paragraph 8). Such recognition by competitors is evidence of non-obviousness . . . .

The statements in the declaration that bids were not received from other companies, and that a competitor requested a license are evidence that there may have been some need for a trainable transceiver, but such statements fall far short of demonstrating

with evidence a "long felt but unresolved need in the industry." The record is completely devoid of evidence (e.g., records, reports, publications) demonstrating efforts by others to solve the trainable transceiver problem. More importantly, as noted, appellants have not made an evidentiary showing that the marketed transceiver (i.e., the Universal Garage Door Opener Remote Control) or the potentially licensable technology are reflected in the claimed invention.

Obviousness analysis

The examiner concludes that it would have been obvious to one of ordinary skill in the art to modify a trainable IR remote control transceiver such as Welles with the teachings of Tolson to produce a trainable RF transceiver for a garage door opener (Examiner's Answer, pages 3-4). We agree.

It was well known at the time of the invention to use RF instead of IR for a remote control. Tolson discloses that signals can be transmitted by a radio or light beam with an appropriate transmitter and receiver; the appropriate receiver would include an antenna and circuit for receiving the transmitted signals as recited in claim 14. Appellants disclose (specification, pages 6-7) (emphasis added):

> In the embodiment of the invention utilizing the transmitter 21, its coded radio frequency (RF) (or infrared) energy is transmitted as indicated by arrow A in Fig. 1 to a transceiver 50 (Fig. 9a) of a

> control module which may be mounted inside a rear view mirror 30 of the vehicle as illustrated in Fig. 1 or other suitable locations.

This supports Tolson's teaching that IR and RF are alternative ways to transmit garage door opener information. Thus, it would have been obvious to one of ordinary skill in the art that a trainable transmitter, such as Welles, could be designed to use RF signals in those environments where RF signals are required. It is well known that garage door openers transmit on coded RF (Brief, page 14).

The next differences to address are the limitations "to identify at least a carrier frequency between 290 MHz and 400 MHz and storing carrier frequency information representing an identified carrier frequency" (claim 14). Appellants acknowledge that the following is known (Brief, page 14):

> Systems for radio frequency control of garage door mechanisms in the United States use a transmitter which transmits a coded RF signal having one of any number of different carrier frequencies and a receiver which is tuned only to that carrier frequency and responsive only to the specific identification code. The underlying information present in the signal received by the garage door mechanism can only be processed after the carrier signal is demodulated. . . .

It is apparently admitted that garage door openers use RF carrier frequencies between 290 MHz and 400 MHz. Thus, one skilled in the art seeking to make a trainable RF garage door opener would have known that the transmitter had to detect and store carrier frequencies in the 290-400 MHz range, just as Welles teaches

identifying and storing a carrier frequency for an IR frequency signal in a trainable IR remote control.

We agree with the appellants that the carrier frequencies disclosed by Welles (column 3, lines 10-13) are for an IF system, but, as indicated supra, the skilled artisan would have known to select "at least a carrier frequency between 290 MHz and 400 MHz" (claim 14) as the carrier frequency[2] for a RF controlled remote control because these are the known frequencies for RF garage door openers in the United States.

With respect to the use of the trainable transmitter in a vehicle, we conclude that it would have been obvious to use or mount such a trainable transmitter in a vehicle in view of the well-known use and mounting of remote controls in a vehicle. A garage door opener would be useless if it could not be used and mounted in a vehicle. Appellants are reminded that the clip on a conventional garage door opener housing is "adapted to be mounted to a vehicle" (claim 90). Appellants' arguments that "the vehicle is manufactured with the accessory installed therein" (Brief, page 23), and that the trainable transceiver is "an integral part of a vehicle accessory" (Brief, page 24) are not commensurate in scope with the invention found in claim 90.

[2] Compare Wood's teaching (column 2, lines 20-26) that a coded carrier frequency signal can be either RF or light.

In view of the teachings and suggestions of the applied references,[3] we are not convinced by the appellants' argument (Brief, page 24) that the examiner had to resort to impermissible hindsight to demonstrate the obviousness of the subject matter set forth in claims 14 and 90. Since we have also found the evidence of unobviousness offered by appellants to be unconvincing as noted supra, the section 103 rejection of claims 14 and 90 is sustained. The section 103 rejection of claims 15 and 91 through 99 is sustained because appellants have chosen in their grouping of the claims (Brief, page 9) to let these claims stand or fall with claims 14 and 90.

The section 103 rejection of claims 16 through 18 is reversed because we agree with the appellants' argument (Brief, page 17) that "the patents do not show or suggest providing a system wherein a reference signal frequency is varied until it matches the carrier frequency of a signal from a remote control to identify the carrier frequency of the remote control signal" (emphasis added).

Claims 19 and 20 have been grouped with claims 16 through 18, but we will still sustain the section 103 rejection of claims 19 and 20 because they depend from claim 14, and not

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[3] It is permissible to apply the references in a slightly different manner from the way they were applied by the examiner. See In re Bush, 296 F.2d 491, 131 USPQ 263 (CCPA 1961).

claim 16, and because appellants have not presented any separate patentability arguments for them.

Turning to claim 21, we are not further persuaded of the nonobviousness of the subject matter claimed therein merely because the references to Van Lente and Inukai do not disclose a trainable transceiver. Appellants are well aware of the fact that these two references were not cited for such a feature. See In re Keller, 642 F.2d 413, 426, 208 USPQ 871, 882 (CCPA 1981). Nor are we convinced of the nonobviousness of the claimed subject matter because of the "many diverse references" (Brief, page 19) applied by the examiner. The applied references should be judged not by their number, but by what they would have meant to a person of ordinary skill in the field of the invention. See In re Gorman, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). Appellants' argument (Brief, page 19) that the claimed display is used to "facilitate training of the transmitter" is not commensurate in scope with the invention set forth in claim 21. In view of the lack of any convincing arguments concerning the patentability of claim 21, we agree with the examiner that it would have been manifestly obvious to one of ordinary skill in the art to house the Welles remote control in such a manner as to provide reflected information to the driver of a vehicle all as taught by Van Lente and Inukai. The section 103 rejection of claim 21 is sustained. The section 103 rejection of claims 22

through 27 is likewise sustained because appellants have chosen in the grouping of the claims to let these claims stand or fall with claim 21.

As indicated supra, the reference to Sanders discloses a microprocessor based vehicle control system that controls the opening of a garage door. The one-button transmitter 31 in Figure 3 of this reference is part of a keyless entry system. Appellants' arguments (Brief, pages 19 through 21) concerning claim 28 are directed to a keyless entry system, but such a system is not found in this claim. In any event, we find that Sanders presents overwhelming evidence that it is well known in the art to have both the garage door opener and the keyless entry under the control of the same microprocessor. We find that it would have been obvious to one of ordinary skill in the art to incorporate a coded keyless entry system and a host of other vehicle commands as taught by Sanders into the remote control of Welles. The 35 U.S.C. § 103 rejection of claim 28 is sustained. The 35 U.S.C. § 103 rejection of claims 29 through 40 is sustained because appellants have chosen to let these claims stand or fall with claim 28.

The 35 U.S.C. § 103 rejection of claim 41 is sustained for all of the reasons expressed supra in connection with claims 21 and 28. The 35 U.S.C. § 103 rejection of claims 42 through 45 is sustained because of appellants' grouping of the claims.

DECISION

The decision of the examiner rejecting claims 14 through 45 and 90 through 99 under 35 U.S.C. § 103 is affirmed as to claims 14, 15, 19 through 45, and 90 through 99, and is reversed as to claims 16 through 18. Accordingly, the decision of the examiner is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

KENNETH W. HAIRSTON)
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Appeal No. 95-1726
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