The opinion in support of the decision being entered today is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte MICHAEL PAUL WOLF, DAVID L. KREBIEHL, FORREST S. SEITZ, STANLEY K. SASAKI, and SCOTT B. LONG

Appeal 2007-1326
Application 10/237,067
Technology Center 3600

Decided: June 21, 2007

Before HUBERT C. LORIN, LINDA E. HORNER and ANTON W. FETTING, *Administrative Patent Judges.*

FETTING, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF CASE

This appeal from the Examiner's rejection of claims 106, 107, 109, 114-118, 120, 122, 127, 128, 135-140, 149-152, 154, 159-163, 165, 167, 172, 173, 180-185, and 194-205 arises under 35 U.S.C. § 134. Claim 119 and 164 are objected to, but not rejected. The remaining claims have been either cancelled or withdrawn from consideration. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6.

We AFFIRM.

The Appellants invented a model train operating, sound and control system. It has a two-way handheld remote control on which various commands may be entered, and a Track Interface Unit that retrieves and processes the commands. The Track Interface Unit converts the commands to modulated signals (preferably spread spectrum signals), which are sent down the track rails. The model train picks up the modulated signals, retrieves the entered command, and executes it. The process may also be reversed, so that operating information regarding the train is provided back to the user for display on the remote control. (Specification 5).

An understanding of the invention can be derived from a reading of exemplary claim 106, which is reproduced below.

> 106. A model train system comprising:
>
> one or more model trains, which receives a power signal via contact with a model train track rail;
>
> a track interface unit for bi-directional communication with said one or more model trains; and
>
> a communication circuit installed in said one or more model trains that communicates with said track interface unit in a bi-directional manner, the communication circuit communicating to the track interface unit information regarding a current speed of said one or more model trains, said communication circuit being configured to (i) receive an input communication signal and (ii) transmit an output communication signal generated without manipulation of said power signal.

This appeal arises from the Examiner's Non-Final Rejection, mailed March 3, 2006. The Appellants filed an Appeal Brief in support of the appeal on August 11, 2006, and the Examiner mailed an Examiner's Answer to the Appeal Brief on

September 15, 2006. A Reply Brief was filed on October 11, 2006. The Appellants presented oral arguments at a hearing on June 6, 2007.

PRIOR ART

The Examiner relies upon the following references as evidence of unpatentability:

Swensen	US 5,420,883	May 30, 1995
Young	US 5,441,223	Aug. 15, 1995
Olmsted	US 5,456,604	Oct. 10, 1995
Takasan	US 5,938,151	Aug. 17, 1999
Ireland	US 6,220,552 B1	Apr. 24, 2001 (filed Jul. 15, 1999)

REJECTIONS

Appellants seek review of the following Examiner's rejections.

Claims 106, 109, 114, 135-140, 194-198, 200, and 204-205 stand rejected under 35 U.S.C. § 103(a) as obvious over Young and Ireland.

Claims 107, 116-118, 120, 122, 127, 149-152, 154, 159, 161-163, 165, 167, 172, 180-185, 199, and 201-203 stand rejected under 35 U.S.C. § 103(a) as obvious over Young, Ireland, and Olmsted.

Claims 115, 128, 160, and 173 stand rejected under 35 U.S.C. § 103(a) as obvious over Young, Ireland, Olmsted, and Swensen.

ISSUES

All claims

The Examiner finds that Young discloses a model train system similar to that recited in the instant claims, including a track interface unit and a communication circuit installed in each train, that each train receives a power signal via contact with track rails, and that the communication circuit is configured to receive an input communication signal and process the command signal independently of the power signal. The Examiner finds that Young's structure does not include bi-directional communication features as required in the instant claims. (Answer 3).

To overcome this deficiency, the Examiner finds that Ireland discloses a model train system including a train communication circuit that is configured for bi-directional communications to generate and transmit feedback information by sending state information back from the train. Ireland shows that such train configuration for providing feedback information permits new capabilities - such as wheel synchronized chuffing sounds of a steam locomotive generated by an external sound system which is part of the track interface unit, and a function that is created to detect and alert a placement or removal of a train unit on the layout. (Answer 3-4).

The Examiner concludes that, in view of Ireland, it would have been obvious to one skilled in the art to modify the train system of Young to include a bi-directional communication so as to provide feedback state information from the train, as suggested by Ireland, for enhancing new and existing capabilities of the model track system. (Answer 4).

Regarding the manner of how the communication signals are being transmitted, the Examiner finds that in its last two lines of column 1 and the first seven lines of column 2, Young clearly indicates a preference toward the use of electromagnetic field to transmit communication signals because it would eliminate noise and connection problems that are associated with the use of electrical contacts for receiving communication signals. Accordingly, upon modifying Young's structure to include the informational feedback capability as the Examiner concluded, *supra*, it would have been obvious to one skilled in the art to use the same method of transmitting communication signals as preferred by Young, for transmitting the feedback information so as to achieve the expected advantages thereof, such as eliminating noise and connection problems. (Answer 4).

The Examiner further finds that it would *not* have been obvious to one skilled in the art to *not* combine Young and Ireland in this manner, i.e. it would not have been obvious to use the method of communication through electrical contacts with the tracks to transmit the feedback information, because Young teaches against such method, and further, such use of electrical contacts to transmit communication signals in Young would destroy the teaching of Young. (Answer 4-5).

The Appellants contend that none of the cited prior art, alone or in combination, disclose or suggest the combination of a model train which can communicate bi-directionally without manipulation of the power signal. They contend that Ireland discloses only model railroad detection equipment which expressly relies on manipulation of the power signal to create the output signal from the train. Accordingly, they conclude that the prior art combination suggests at best a system in which the train would transmit an output signal by manipulating the power signal as expressly taught by Ireland. (Appeal Br. 8-9).

The Appellants contend that the Examiner's proposed modification is wholly unsupported by the cited prior art, and utterly lacks the requisite motivation and enablement from the prior art to make a proper modification. The Appellants point out that the problems related to noise referenced by Young are specifically directed to a control signal received by the train. These problems are associated with picking-up an encoded control signal at a moving train through sliding contacts, whereby the encoded control signal can be lost, altered, etc., in the noisy environment. The Appellants compare this to Ireland, in which the communication from the train is based on a simple process by which the train "shorts" the track to create current pulses which can be easily detected by a fixed sensor, immune from the same aforementioned problems associated with any noise or movement at the pick-up point. (Appeal Br. 9-10; Reply Br. 4-7).

The Appellants conclude that although Young may suggest RF signaling to the train for "eliminating noise and connection problems," such a motivation is not relevant when transmitting signals from the train in the manner disclosed by Ireland. Young's motivation is disclosed as being related only to signals going to the train, without any evidence on the record that such noise/connection problems would likewise exist for signals transmitted from a train in the manner disclosed by Ireland. (Appeal Br. 10).

The Appellants further contend that converting the electromagnetic scheme of Young to function bi-directionally would face design problems that need to be overcome for converting a receive only device to a transceiver, entailing space considerations, power considerations, and receiver protection problems. Further, the code to transmit is substantially different than code for receiving and that Ireland has relatively simple responses or acknowledgements, whereas it is a big step in complexity and capability to go from yes vs. no or one-word answers (Ireland) to being able to answer in complete sentences (present invention). (Appeal Br. 10-13; Reply Br. 7-9).

The Appellants go on to argue that Young can not simply provide an output signal, similar to the received signal, on a return path from the engine because the Young engine is not capable of signal transmission using the difference between earth ground and track potential as used for the received signal. That is, the engine does not have access to the earth ground because it is floating on the track. Moreover, even assuming arguendo that the engine of Young could somehow be connected to earth ground, the Appellants contend that output signaling back to the base unit would be subject to a myriad of obstacles such as interference with the existing electromagnetic field used for the incoming signals to the trains and the inherent limitations of RF signaling in relation to a moving engine. (Appeal Br. 13-14; Reply Br. 9-12).

Thus, the Appellants conclude that Young does not enable how one would effect such a bi-directional scheme using electromagnetic signaling, and that neither Young nor Ireland suggest any possible means by which to overcome such obstacles and utilize the same electromagnetic incoming signal as an outgoing signal from the engine. (Appeal Br. 14).

The Appellants then present a list of unexpected results, purporting to evidence non-obviousness, *e.g.*, an engine can transmit a packet at any time and not just when the power signal has been interrupted. This means an engine can talk directly to another engine (or other device). A corollary to this is that two devices in the present invention can perform bi-directional communications in the absence of a traditional power signal. Further, any object in the present invention equipped with a transceiver can initiate communications with any other element, or group of elements, in the system; the present invention can signal across AC or DC so as to have a much broader adaptability reach so that the present invention can provide a much larger bandwidth for its communications; the present invention can function as a true bidirectional communication system in which the trains can freely respond (not predetermined) and provide any array of information independently of the restrictions imposed by using track power, so that communication is truly bi-directional. (Appeal Br. 14-16).

The Appellants contend the non-obviousness is further exemplified by the tremendous market success related to the aforementioned bi-directional scheme and the features enabled thereby. For example, the Appellants contend that the assignee of the present application (Mike's Train House) has taken in sales of almost three million dollars since 2002 of its model train systems, and by the years taken to develop and cost upwards of four and a half million dollars in research and development. As a further indicia of non-obviousness, the Appellants point to technical publications that have noted the marked distinction between the present invention and that of Young in terms of effecting the bi-directional capability. (Appeal Br. 16-19).

Claims to integral signal formation

Regarding the limitation of dependent claims 198-205 of integral formation of the power and communication signals, the Examiner finds that since the input communication signal and power signal of Young are being transmitted as electrical currents through the same rail, they are inherently readable as being integrally formed, as broadly claimed. (Answer 5).

The Appellants contend that the input communication signal of Young is not an electrical current transmitted through the same rail as the power signal, but rather, is an RF signal between the track and earth ground, which generates an electromagnetic field which propagates along the track. Moreover, those signals are not disclosed as being received as integrally formed but are picked-up separately similar to that disclosed by Young. (Appeal Br. 20-21).

Thus, the issues pertinent to this appeal are

- Whether the rejection of claims 106, 109, 114, 135-140, 194-198, 200, and 204-205 under 35 U.S.C. § 103(a) as obvious over Young and Ireland is proper. In particular, this issue turns on whether communication with a track interface unit in a bi-directional manner, regarding a current speed of said one or more model trains, in a configuration to receive an input communication signal and transmit an output communication signal generated without manipulation of the power signal is shown by or would otherwise be an obvious variation of the combined teachings of Young and Ireland. With respect to some dependent claims, a subordinate issue is whether integral formation of the signals is shown or is otherwise obvious.
- Whether the rejection of claims 107, 116-118, 120, 122, 127, 149-152, 154, 159, 161-163, 165, 167, 172, 180-185, 199, and 201-203 under 35 U.S.C. § 103(a) as obvious over Young, Ireland, and Olmsted is proper. In particular, the Appellants make no separate contentions regarding these claims, and thus this issue turns on the conclusion regarding the rejection over Young and Ireland.
- Whether the rejection of claims 115, 128, 160, and 173 under 35 U.S.C. § 103(a) as obvious over Young, Ireland, Olmsted, and Swensen is proper.

In particular, the Appellants make no separate contentions regarding these claims, and thus this issue turns on the conclusion regarding the rejection over Young and Ireland.

FACTS PERTINENT TO THE ISSUES

The following enumerated Findings of Fact (FF), supported by substantial evidence, are pertinent to the above issues.

Ireland

01. Ireland is directed toward "the field of control systems for scale model railroad layouts, and specifically to improvements in elements of block occupancy and location detection methods that are employed on model railroads." (Ireland, col. 1, ll. 4-7).

02. Ireland describes the "capability of addressing or interrogating a particular device on the layout, detecting a predetermined coded response and then being able to determine its location is termed transponding. As for track occupancy detection, it is most common to use current conducted via the tracks to perform transponder detection." (Ireland, col. 2, ll. 30-35). "The acknowledgement pulses generated by a particular transponder device are defined to occur directly after, and to be time synchronized to, commands that a transponder recognizes arc [*sic*] addressed to its attention. These pulse responses are then an 'identification acknowledgement' that is prompted by the system. This directly links the detection of valid current pulses to the address of the command that has just been sent and thus allows the address of the responding transponder to be inferred." (Ireland, col. 2, ll. 42-50).

03. Ireland identifies a need for bi-directional communication with model trains as being the "[k]ey to employing computer automation, [requiring] a method of detecting both block occupancy of a track section and also detecting and identifying the rolling stock that is actually in the block. This ensures that the computer program does not need to consider an infinite set of possible layout states, error conditions or inferred locations of rolling stock, since it can monitor the exact state of the layout at any time. Notably, operators tend to move locomotives and rolling stock around the layout after derailments or coupling breaks or other actions, in a manner that the real railroads cannot do. The model railroader can simply pick up and move rolling stock from one location to another, creating havoc with a system that can't make a positive identification of rolling stock and its location. Practical computer enhancements need positive identification of rolling stock and its location." (Ireland, col. 2, ll. 13-26).

04. Ireland identifies a further need for bi-directional communication as the capability "to read state information back from rolling stock or locomotives or even devices with fixed connections to the track. It is possible to receive sound synchronization information from steam locomotives moving on the layout, so a surround sound unit can create realistic wheel synchronized chuff sounds. A function can be created that detects the placement of a new unit on the layout that is not being controlled or addressed by any user, to search for its control address and then alert the layout supervisor. This feature can also detect the removal from layout control of a controlled unit due to derailment or human intervention." (Ireland, col. 3, l. 63 - col. 4, l. 7).

05. Thus, as found by the Examiner, Ireland discloses a model train system including train communication circuit that is configured for bi-directional communications to generate and transmit feedback information by sending state information back from the train. Ireland shows that such train configuration for providing feedback information permits new capabilities - such as wheel synchronized chuffing sounds of a steam locomotive generated by an external sound system which is part of the track interface unit, and a function that is created to detect and alert a placement or removal of a train unit on the layout. The Appellants do not dispute these findings.

Young

06. Young is directed toward a controller for model trains on a train track that "transmits control signals between a rail of the track and earth ground, generating an electromagnetic field which extends for several inches around the track. A receiver in the locomotive can then pick up signals from this electromagnetic field." (Young, col. 1, ll. 60-66).

07. Young describes the benefits of its invention as eliminating "the need for control signals to be picked up by electrical contact with the tracks, thus eliminating noise and connection problems. In addition, by using an electromagnetic field only along the track, the extent of the field generated is limited, thus limiting the power required to generate the field and avoiding transmitter licensing requirements. The electromagnetic field can be concentrated by this method to where the

receiver on the locomotive actually is. In addition, the electromagnetic field is transmitted along wires connected to the track to control switches for operating devices along the train track layout. Such devices could include lights, flags, track switches for changing track direction, etc." (Young, col. 1, l. 67 – col. 2, l. 12).

08. Young states that the invention "preferably includes a microprocessor in a locomotive, with a receiver/demodulator providing received signals to the microprocessor. A manual switch coupled to the locomotive allows it to be put into a program mode. In this program mode, for instance, address information is sent along the track and received by the train and stored in its memory as the address of that locomotive. In this way, each locomotive can be programmed with a different address to which it will respond during normal "run" operation. In addition, switch controllers can be addressed in the same way." (Young, col. 2, ll. 13-25).

09. Young describes that its "[b]ase unit 14 transmits an RF signal between the track and earth ground, which generates an electromagnetic field indicated by lines 22 which propagates along the track. This field will pass through a locomotive 24 and will be received by a receiver 26 inside the locomotive an inch or two above the track. The electromagnetic field will also propagate along a line 28 to a switch controller 30. Switch controller 30 also has a receiver in it, and will itself transmit control signals to various devices, such as the track switching module 32 or a moving flag 34 or a device 31. (Young, col. 3, ll. 12-22).

10. Young describes that its "receiver/demodulator 60 receives the RF signals from the hand-held remote unit. These are provided to a microprocessor 62, which puts the commands in the proper form for transmission to the trains and then provides them to a modulator 64. Modulator 64 performs FM modulation and provides these signals through a driver 66 between earth ground 68 and a rail 70 of the track. FIG. 5 illustrates in another view the electromagnetic field 22 generated between track rail 70 and earth ground 68. In the preferred embodiment, the signal used is a 455 Khz frequency shift keyed (FSK) signal at 5 volts peak-peak. This signal creates a field detectable within a few inches of the track. The field will propagate along the track, and be detected by a receiver 26 in a train locomotive 24. (Young, col. 3, ll. 50-65).

11. Young describes its "circuitry inside of a train 24 running on track 16. A receiver demodulator circuit 26 picks up the electromagnetic field signals, and provides them to a data input of a microcontroller 84. The receiver is preferably an FM receiver chip such as the MC3361 manufactured by Motorola. The microcontroller is preferably a 16C84 microprocessor. The microprocessor controls a triac switching circuit 86. One side of the triac switches are connected to the train tracks through leads 88 which pick up power physically from the track. When activated by control signals from microcontroller 84 on lines 90, the triac switching circuit 86 will provide power to train motor 92, which moves the wheels of the train." (Young, col. 4, ll. 45-58).

12. Thus, as found by the Examiner, Young discloses a model train system similar to that recited in the instant claims, including a track interface unit and a communication circuit installed in each train, that each train receives a power signal via contact with track rails, and that the communication circuit is configured to receive in an input communication signal and process the command signal independently of the power signal. The Appellants do not dispute these findings.

PRINCIPLES OF LAW

Claim Construction

We begin with the language of the claims. The general rule is that terms in the claim are to be given their ordinary and accustomed meaning. *Johnson Worldwide Assocs. v. Zebco Corp*., 175 F.3d 985, 989, 50 USPQ2d 1607, 1610 (Fed. Cir. 1999). In the USPTO, claims are construed giving their broadest reasonable interpretation.

> [T]he Board is required to use a different standard for construing claims than that used by district courts. We have held that it is error for the Board to "appl[y] the mode of claim interpretation that is used by courts in litigation, when interpreting the claims of issued patents in connection with determinations of infringement and validity." *In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320[, 1322] (Fed. Cir. 1989)*; accord *In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023 (Fed. Cir. 1997)* ("It would be inconsistent with the role assigned to the PTO in issuing a patent to require it to interpret claims in the same manner as judges who, post-issuance, operate under the assumption the patent is valid."). Instead, as we explained above, the PTO is obligated to give claims their broadest reasonable interpretation during examination.

In re Am. Acad. of Sci. Tech Ctr., 367 F.3d 1359, 1369, 70 USPQ2d 1827, 1834 (Fed. Cir. 2004).

Obviousness

A claimed invention is unpatentable if the differences between it and the prior art are "such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103(a) (2000); *In re Kahn*, 441 F.3d 977, 985 (Fed. Cir. 2006) (citing *Graham v. John Deere Co*., 383 U.S. 1, 13-14, (1966)). In *Graham*, the Court held that that the obviousness analysis begins with several basic factual inquiries: "[(1)] the scope and content of the prior art are to be determined; [(2)] differences between the prior art and the claims at issue are to be ascertained; and [(3)] the level of ordinary skill in the pertinent art resolved." 383 U.S. at 17. After ascertaining these facts, the obviousness of the invention is then determined "against th[e] background" of the *Graham* factors. *Id*. at 17-18.

The Supreme Court has provided guidelines for determining obviousness based on the Graham factors. *KSR Int'l v. Teleflex Inc*., 127 S. Ct. 1727, 82 USPQ2d 1385 (2007). "A combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. *Id.* at 1731, 82 USPQ2d at 1396. "When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability." *Id*. For the same reason, "if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond that person's skill." *Id.* "Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Id.* at 1732, 82 USPQ2d at 1397.

ANALYSIS

Claims 106, 109, 114, 135-140, 194-198, 200, and 204-205 rejected under 35 U.S.C. § 103(a) as obvious over Young and Ireland.

Claims 106, 109, 114, 135-140, and 194-197

We note that the Appellants argue claims 106, 109, 114, 135-140, and 194-197 as a group. Accordingly, we select claim 106 as representative of the group.

Claim 106 is directed toward a bi-directional communication system for model trains in which the communication signal is generated without manipulating the power signal. Young essentially describes this, except that Young transmits in only one direction (FF 06 - 11). On the other hand, Ireland describes bi-directional communication system for model trains in which the communication signal is generated by manipulating the power signal. Thus the question we are presented with is whether one of ordinary skill would have modified Young to have bi-directional communication based on the teachings of Ireland.

As the Examiner found, Young describes a system with one or more model trains, which receives a power signal via contact with a model train track rail; a track interface unit for directional communication with said one or more model trains; and a communication circuit installed in said one or more model trains that communicates with said track interface unit, said communication circuit being configured to receive an input communication signal generated without manipulation of said power signal (FF 12).

As the Examiner found, Ireland describes a system with one or more model trains, which receives a power signal via contact with a model train track rail; a track interface unit for bi-directional communication with said one or more model trains; and a communication circuit installed in said one or more model trains that communicates with said track interface unit in a bi-directional manner, the communication circuit communicating to the track interface unit information regarding a current state of said one or more model trains, said communication circuit being configured to (i) receive an input communication signal and (ii) transmit an output communication signal (FF 05).

We will point out that although claim 106 recites that the current speed is communicated, the Examiner's findings are that it is the current state that is communicated by Ireland (FF 04 & 05). The Appellants have not included this difference among their contentions in either their Appeal Brief or Reply Brief, but we will nevertheless further note that the principal function of the controller in both Ireland and Young is to control speed, and therefore, one of ordinary skill would have immediately envisaged speed as the prototypical exemplar of the state communicated by Ireland.

Certainly, on its face, Ireland provides several reasons that a person of ordinary skill would have desired bi-directional communication, e.g. to read the locations of rolling stock and to read the state of locomotives (FF 03 & 04). These reasons would have applied with equal force to the model railroad in Young.

Also, "The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." (See *KSR supra*). Thus, the combination of the familiar radio frequency communication with bi-directional communication is likely to be obvious because it in itself produces no more than bi-directional radio communication.

The Appellants contend, however, that neither reference suggests combining bi-directional communication with an input communication signal generated without manipulation of said power signal. However, the Examiner has presented the combination of Young and Ireland as the basis for the rejection, and the combination of Young's input communication signal generated without manipulation of said power signal with Ireland's bi-directional communication clearly meets these claim limitations. Thus we do not find this argument persuasive.

The Appellants next contend that neither Ireland nor Young provides the motivation for the combination. But clearly, Ireland provides several reasons that the practitioner of Young's model railroad would have for bi-directional communication. The Appellants never quite address this; they only state that a practitioner of Ireland would not have been motivated to adopt Young's technique. They only say that one starting with Young would never have a reason for bi-directional communication. But Ireland clearly provides such reasons. Thus we do not find this argument persuasive.

Next we come to the Appellants' argument that adding bi-directionality to Young is simply beyond the expertise of one of ordinary skill. The Appellants expound a litany of horribles that such a practitioner would have to overcome. The Appellants argue that designing a transceiver, accommodating the limited space, providing power and protecting the receiver are beyond the skill of a person of ordinary skill. But the person of ordinary skill would be a designer, not an operator of a model train. Both Ireland and Young demonstrate the technologically high level of complexity and diversity required of one of ordinary skill.

The level of ordinary skill in the pertinent art is a factual inquiry. The level of skill to beneficially practice an invention with several discrete subcomponents, all of which would be of concern to an ordinary artisan, necessarily requires skill in each of the subcomponents and the skill to harmonize their operation. The ordinary artisan must have a higher level perspective, as he must first decide one subcomponent, and depending on the decision, decide another subcomponent. Further, designing an optimal technologically diverse invention requires knowledge of the technology and systems engineering. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1362-63, 80 USPQ2d 1641, 1646-47 (2006). Thus, such a person would have the perspective to recognize these problems and a knowledge of the relevant technologies, such as component packaging, transceiver design, and electric power design.

And further, Young's receiver in the train illustrates both that these problems are foreseeable, and the manner in which many of these problems might be resolved. As to the contention that it would be particularly difficult to return Young's signal via the track, claim 106 does not recite such a requirement. As to the Appellants' contention that Young suggests interference problems with bi-directional communication, the Appellants do not contend that solutions to such interference were unknown at the time of the invention, but only that it would have been difficult to solve the problem. Therefore, although these technological problems might be difficult, the very fact that Young was able to show such a person how to solve many of the issues and the high level of technological design competence such a person would necessarily exhibit would render these issues resolvable by such a person of ordinary skill. Thus we do not find this argument persuasive.

As to the Appellants' list of unexpected results, we have considered these, but we note that the Appellants have made no showing that the results arise from causes commensurate in scope with the very broad scope of claim 106. Thus we do not find this argument persuasive.

Thus, the Examiner has shown that the combination of Young and Ireland describe the limitations of claim 106, and that one of ordinary skill would have combined Young and Ireland to form the claimed subject matter.

Claims 198, 200, and 204-205

We note that the Appellants argue claims 198, 200, and 204-205 as a group. Accordingly, we select claim 198 as representative of the group.

Claim 198 is as follows:

> 198. The model train system of claim 106, wherein the received input communication signal and power signal are integrally formed.

The Appellants contend that the input communication signal of Young is not an electrical current transmitted through the same rail as the power signal, but rather, is an RF (radio frequency) signal between the track and earth ground, which generates an electromagnetic field which propagates along the track. Moreover, those signals are not disclosed as being received as integrally formed but are picked-up separately similar to that disclosed by Young. (Br. 20-21).

As is immediately perceived upon reading claim 198, the claim is broader than argued by the Appellants. The claim neither further characterizes the input communication signal, such that Young's RF signal would not read on it, nor does the claim further characterize the phrase "integrally formed," such that Young's integral formation of the signals where the signals enter the track do not read on it. First, the phrase "integrally formed" is ambiguous and is susceptible to multiple interpretations. It might mean either having the attribute of being made integral by their original formation, or it might mean continuing to be integral at the time they are received. There is clearly no requirement in the claim that the signals be integral when received at the train, as compared with when received at the track. As to whether the claim meets the broader construction between these two interpretations, since both signals are propagated along the same wire from Young's controller, there can be little dispute that the signals are made integral at the time of their formation.

Thus, the Examiner has shown that the combination of Young and Ireland describes the limitations of claim 198, and that one of ordinary skill would have combined Young and Ireland to form the claimed subject matter.

Claims 107, 116-118, 120, 122, 127, 149-152, 154, 159, 161-163, 165, 167, 172, 180-185, 199, and 201-203 rejected under 35 U.S.C. § 103(a) as obvious over Young, Ireland, and Olmsted.

The Appellants argue these claims for the same reasons as those rejected over Young and Ireland (Br. 21-22), and accordingly, these claims fall with the claims rejected over Young and Ireland.

Claims 115, 128, 160, and 173 rejected under 35 U.S.C. § 103(a) as obvious over Young, Ireland, Olmsted, and Swensen.

The Appellants do not separately argue these claims, and accordingly, these claims fall with the claims rejected over Young and Ireland.

CONCLUSIONS OF LAW

The Examiner has shown that the combination of Young and Ireland describes the limitations of claims 106 and 198, which are representative of claims 106, 109, 114, 135-140, 194-198, 200, and 204-205, and that one of ordinary skill would have combined Young and Ireland to form the claimed subject matter. Accordingly we sustain the Examiner's rejection of claims 106, 109, 114, 135-140, 194-198, 200, and 204-205 under 35 U.S.C. § 103(a) as obvious over Young and Ireland.

Since the Appellants argue the Examiner's rejection of claims 107, 116-118, 120, 122, 127, 149-152, 154, 159, 161-163, 165, 167, 172, 180-185, 199, and 201-203 under 35 U.S.C. § 103(a) as obvious over Young, Ireland, and Olmsted for the same reasons as those rejected over Young and Ireland, these claims fall with the claims rejected over Young and Ireland. Accordingly we sustain the Examiner's rejection of claims 107, 116-118, 120, 122, 127, 149-152, 154, 159, 161-163, 165, 167, 172, 180-185, 199, and 201-203 under 35 U.S.C. § 103(a) as obvious over Young, Ireland, and Olmsted.

Since the Appellants do not separately argue the Examiner's rejection of claims 115, 128, 160, and 173 under 35 U.S.C. § 103(a) as obvious over Young, Ireland, Olmsted, and Swensen, these claims fall with the claims rejected over Young and Ireland. Accordingly we sustain the Examiner's rejection of claims 115, 128, 160, and 173 under 35 U.S.C. § 103(a) as obvious over Young, Ireland, Olmsted, and Swensen.

DECISION

To summarize, our decision is as follows:

- The rejection of claims 106, 109, 114, 135-140, 194-198, 200, and 204-205 under 35 U.S.C. § 103(a) as obvious over Young and Ireland is sustained.
- The rejection of claims 107, 116-118, 120, 122, 127, 149-152, 154, 159, 161-163, 165, 167, 172, 180-185, 199, and 201-203 under 35 U.S.C. § 103(a) as obvious over Young, Ireland, and Olmsted is sustained.
- The rejection of claims 115, 128, 160, and 173 under 35 U.S.C. § 103(a) as obvious over Young, Ireland, Olmsted, and Swensen is sustained.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

AFFIRMED

JRG

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