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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SAID EL FASSI and CLARA NOGUEIRA ALVES

Appeal 2019-000825
Application 13/637,529
Technology Center 3600

Before JENNIFER D. BAHR, DANIEL S. SONG, and JEREMY M. PLENZLER, *Administrative Patent Judges.*

BAHR, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 17–32. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART and enter a NEW GROUND OF REJECTION.

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Siemens S.A.S. Appeal Br. 1.

CLAIMED SUBJECT MATTER

Appellant's invention is directed to a "[m]ethod and system for managing specific events related to the movements of a guided vehicle." Spec. 1:2–3. Claim 17, reproduced below, is illustrative of the claimed subject matter.

> 17. A method for managing specific events, which comprises the steps of:
>
> detecting at least one specific event that could disturb a movement of a driverless automatically guided vehicle;
>
> performing a remotely controlled reversible switching from a normal driving mode to a remote driving mode of the guided vehicle following a detection of the specific event, the switching being remotely controlled by a remote-controlled device capable of performing a remote switching from the remote driving mode to the normal driving mode, wherein the normal driving mode is a driverless automatic driving mode without a driver on board the automatically guided vehicle and the remote-controlled device is disposed offsite from the driverless automatically guided vehicle;
>
> measuring in real-time and collecting of piloting data in the remote driving mode;
>
> communicating in real-time of the piloting data between a remote piloting module of the driverless automatically guided vehicle and a remote control station;
>
> processing in real-time the piloting data;
>
> performing in real-time a manual and remote piloting of the driverless automatically guided vehicle in the remote driving mode, on a basis of the piloting data; and
>
> performing the remotely controlled reversible switching from the remote driving mode to the normal driving mode at a reception of a signal marking the end of the specific event, and wherein an automatic pilot of the driverless automatically guided vehicle takes charge again of piloting the driverless automatically guided vehicle.

REFERENCES

The prior art relied upon by the Examiner is:

Florentin	US 2005/0119801 A1	June 2, 2005
Kumar	US 2009/0186325 A1	July 23, 2009

REJECTIONS

I. Claims 18–32 stand rejected under 35 U.S.C. § 102(b) as anticipated by Kumar.

II. Claim 17 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Kumar and Florentin.

OPINION

Claims 18–32

In contesting the Examiner's finding that Kumar anticipates the subject matter of independent claims 18, 24, and 28, Appellant's only argument is that the claims require structure that operates a vehicle "without the need of an operator on board the vehicle at any time (i.e., during normal operation or during remote operation)" and provides for a remote manual operation of the vehicle from offsite of the vehicle, but, "[i]n contrast, Kumar teaches an operator is on-board the train during all remote operations" or "requires an on-board conductor for operating the trains in the remote operation mode."[2] Appeal Br. 19–21. The Examiner, on the other hand, finds that Kumar discloses a driverless automatic driving mode without a driver on board the guided vehicle and a remote driving mode in

[2] Appellant uses the term "train" in the arguments, but, consistent with the claim language, we understand the arguments to be directed to operation of a "vehicle." *See* Appeal Br. 19–21; *id.* at 24–28 (Claims App.).

which the vehicle is controlled manually by a remote control station offsite of the vehicle. *See* Final Act. 3–5; Ans. 4 (relying primarily on Kumar, Fig. 30; ¶¶ 94, 220). Thus, the issue before us in reviewing this rejection is whether Kumar discloses structure for operating the vehicle in a remote driving mode manually (i.e., non-autonomously) from a remote control station offsite of the vehicle, or whether Kumar requires an on-board operator.

The Examiner finds that:

> Kumar explicitly discloses various exemplary embodiments of the disclosed remote piloting of a driverless and automatically guided vehicle. Kumar explicitly includes an embodiment without an operator onboard. Kumar explicitly includes describing the exemplary embodiments may be practiced with various types of computer configurations including local and remote computing environments that may be contained ***entirely*** within the locomotive, or adjacent locomotives in a consist, or ***off-board in wayside or central offices where wireless communication is used*** (*See at least* ¶*94*). By disclosing the invention may be ***entirely within an off-board wayside office***, Kumar is clearly indicating ***every disclosed feature may be encompassed in an off-board environment***.
>
> Additionally, for an ***entirely*** remote computing environment in an off-board wayside or central office, the operator is ***necessarily remote*** from the vehicle, i.e. "without a driver on board the automatically guided vehicle." The remote computing environment embodiment would be inoperable if an operator was still onboard the automatically guided vehicle, therefore, by necessity, for the remote computing environment embodiment to operate, the user must be located remotely.

Ans. 4.

Appellant disagrees with the Examiner's interpretation of paragraph 94 of Kumar. Appeal Br. 14. Appellant submits that paragraph 94 does not

disclose that an *operator* is remotely located, but only that computing devices for performing *some* processing are remotely located. *Id.* According to Appellant, "in a distributed computing environment, [as disclosed in paragraph 94 of Kumar,] there is usually a user that is using a client machine which is connected to a server that provides information, a database and other tools to the machine of the user." *Id.* at 15.

We find that Appellant has the better position with respect to the interpretation of paragraph 94 of Kumar. Even if all of the processing tasks are performed by computer equipment located off-board of the train, there must be control equipment on-board the train to receive information and/or commands from the off-board equipment and execute the actual control of the train equipment. Such on-board control could be performed either automatically (without the need for on-board manual action) or manually (i.e., with a human operator on-board). Paragraph 94 is silent as to whether a human operator is involved or where such operator might be located with respect to the distributed computing environments.

To the extent that the Examiner may also be relying on paragraph 220 and/or Figure 30 in support of a finding of remote, off-board manual (i.e., non-autonomous) control, such reliance is misplaced. Figure 30 and the accompanying description in paragraph 220 refer to providing "an operator input device . . . to allow the operator to take control of the powered system" and a display for an operator to view information related to operating conditions, but Kumar is silent as to where such operator, operator input device, or display are located.

Appellant cites several paragraphs of Kumar as disclosing or confirming that the operator is on-board. *See* Appeal Br. 12–13. Paragraphs

8–10 refer to operator being "*usually* aboard" (emphasis added) a powered vehicle. This seemingly leaves open the possibility that in some instances the operator is not on board, but is, at best, ambiguous as to whether Kumar's invention is applicable to situations in which an operator is not on-board the vehicle. Kumar's Paragraph 99 discloses an operator manually entering data into a locomotive via an onboard display, and paragraph 126 refers to "the on-board operator." Thus, Kumar expressly discloses an embodiment of the invention in which an operator is on-board the vehicle. Further, paragraph 159 discloses an operator viewing visual signals from wayside equipment "if operating in dark territory, or where information from wayside equipment cannot electronically transmit information to a train," thereby disclosing, at least implicitly, that the operator is on the train. Kumar also refers to "the operator and/or remote facility, or dispatch." *See, e.g.*, Kumar ¶ 126. This suggests that Kumar contemplates an on-board operator. However, Appellant does not direct our attention to any disclosure in Kumar indicating that Kumar's invention is necessarily limited to embodiments in which the operator is on-board.

Appellant asserts that Kumar's disclosure of the operator manually controlling the throttle, or other train controls, such as the locomotive horn or bell, means the operator is in the vehicle. Appeal Br. 13 (citing Kumar ¶¶ 166, 188, 207). However, we do not find, and Appellant does not specifically identify, in these paragraphs any explicit disclosure that operation of the throttle or other locomotive equipment by a human operator requires an operator on-board the train, rather than via remote control.

In sum, after reviewing the respective positions of the Examiner and Appellant, and the portions of Kumar relied on in support of those positions,

Appellant does not persuade us that Kumar explicitly requires an operator to be on-board the vehicle or limits manual (i.e., non-autonomous) operation to manual operation by an on-board operator. However, the Examiner also does not establish, by a preponderance of the evidence, that Kumar discloses, either expressly or by inherency, structure for operating the vehicle in a remote driving mode manually (i.e., non-autonomously) from a remote control station offsite of the vehicle sufficiently clearly to anticipate the subject matter of independent claims 18, 24, and 28. Accordingly, we do not sustain the Examiner's rejection of claims 18, 24, and 28, or claims 19–23, 25–27, and 29–32 depending therefrom, under 35 U.S.C. § 102(b) as anticipated by Kumar.

However, Kumar contains disclosure that is at least suggestive of the possibility of providing operational control by an operator located off-board the train, from a remote control station. For example, Kumar discloses that an operator is "*usually* aboard" the controlled vehicle, thereby suggesting that an operator may not always be aboard the vehicle. Kumar ¶¶ 8–10. Further, referring to Figure 3, Kumar discloses that "a driver or operator, and/or controller element, 51 is also provided," thereby leaving open the possibility that in some embodiments a driver or operator may not be provided on the train. Kumar ¶ 137 (boldface omitted). Additionally, although not relied on by the Examiner, Kumar illustrates, in Figure 37, outside of rail vehicle 653, "a master controller, remote control locomotive controller," or actuator 651, which "is normally used by the operator to command the locomotive." *See* Kumar ¶ 242. Kumar characterizes Figure 37 as depicting "the closed loop system integrated with a master control unit 651." *Id.* (boldface omitted). Thus, although Figure 37 may not necessarily

be definitive as to where the various elements of the closed loop control system are located relative to one another, it is at least suggestive of the possibility of having a remote control station and remote controller for permitting an operator to control the train from off-board the vehicle.

Further, Florentin evidences that it was known in the art for a human operator to guide a vehicle remotely. *See* Florentin, Figs. 1, 2a; ¶¶ 6, 35. Thus, considering Florentin's teachings in combination with Kumar, it would have been obvious to one of ordinary skill in the art to modify Kumar to provide structure for remotely controlling the guided vehicle manually (i.e., non-autonomously), in a remote driving mode, from a remote control station disposed offsite from the vehicle, and wherein the autonomous driving mode in the flow chart in Kumar's Figure 30 is a driverless automatic driving mode, because such a modification is nothing more than the mere application of a known technique to a piece of prior art ready for the improvement. *See KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 417 (2007).

Thus, pursuant to 37 C.F.R. § 41.50(b), we reject independent claims 18, 24, and 28, as well as dependent claims 19–23, 25–27, and 29–32, under 35 U.S.C. § 103(a) as unpatentable over Kumar and Florentin, incorporating the remainder of the findings and reasoning set forth by the Examiner on pages 3–11 of the Final Action, which Appellant has not specifically challenged.

Claim 17

In rejecting claim 17, the Examiner determined it would have been obvious to modify Kumar by including "the feature of comparing times at which video image data in the piloting data is captured with a time at which

the video image data is displayed on a screen during the remote driving mode" to compensate for a time lag between a display of the piloting data and the collection of the piloting data, "as taught by Florentin, to account for wireless transmission delays." Final Act. 14–15; *see* Florentin ¶ 35. Appellant does not contest the Examiner's findings regarding Florentin or identify any deficiency in the Examiner's reasoning in making the combination. *See* Appeal Br. 9–19.

Appellant's only argument contesting this rejection is that Kumar does not teach operating the train without the need of an operator on-board the train. *Id.* at 19. For the reasons set forth above, the Examiner does not establish, by a preponderance of the evidence, that Kumar discloses, either expressly or by inherency, structure for operating the vehicle in a remote driving mode manually (i.e., non-autonomously) from a remote control station offsite of the vehicle. However, as discussed above, Kumar does contain disclosure that is at least suggestive of the possibility of providing manual control by an operator located off-board the train, from a remote control station. Further, Florentin evidences that it was known in the art for a human operator to guide a vehicle remotely. *See* Florentin, Figs. 1, 2a; ¶¶ 6, 35. Thus, considering Florentin's teachings in combination with Kumar, it would have been obvious to one of ordinary skill in the art to modify Kumar to remotely control the guided vehicle manually (i.e., non-autonomously), in a remote driving mode, from a remote control station disposed offsite from the vehicle, and wherein the autonomous driving mode in the flow chart in Kumar's Figure 30 is a driverless automatic driving mode, because such a modification is nothing more than the mere

application of a known technique to a piece of prior art ready for the improvement. *See KSR*, 550 U.S. at 417.

Therefore, we sustain the Examiner's rejection, but we designate the rejection as a new ground pursuant to 37 C.F.R. § 41.50(b) because our decision is based on findings and reasoning that differ somewhat from that set forth by the Examiner.

DECISION

The Examiner's decision rejecting claims 18–32 under 35 U.S.C. § 102 is REVERSED.

We reject claims 18–32 under 35 U.S.C. § 103(a) as a NEW GROUND OF REJECTION.

The Examiner's decision rejecting claim 17 under 35 U.S.C. § 103(a) is AFFIRMED, but we designate the rejection a new ground pursuant to 37 C.F.R. § 41.50(b).

FINALITY OF DECISION

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). 37 C.F.R. § 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review." 37 C.F.R. § 41.50(b) also provides:

> When the Board enters such a non-final decision, the appellant, within two months from the date of the decision, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:
>
> (1) *Reopen prosecution*. Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be

> remanded to the examiner. The new ground of rejection is binding upon the examiner unless an amendment or new Evidence not previously of Record is made which, in the opinion of the examiner, overcomes the new ground of rejection designated in the decision. Should the examiner reject the claims, appellant may again appeal to the Board pursuant to this subpart.
>
> (2) *Request rehearing*. Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. The request for rehearing must address any new ground of rejection and state with particularity the points believed to have been misapprehended or overlooked in entering the new ground of rejection and also state all other grounds upon which rehearing is sought.

Further guidance on responding to a new ground of rejection can be found in the Manual of Patent Examining Procedure § 1214.01.

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

CONCLUSION

In summary:

Claims Rejected	Basis	Affirmed	Reversed	New Ground
18–32	§ 102(b) Kumar		18–32	
17	§ 103(a) Kumar, Florentin	17		17
18–32	§ 103(a) Kumar, Florentin			18–32
Overall Outcome			17–32	17–32

AFFIRMED-IN-PART; 37 C.F.R. § 41.50(b)