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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANDREAS PFEIFFER and THOMAS BURTSCHKE

Appeal 2018-005539
Application 14/825,736
Technology Center 2600

Before JOSEPH L. DIXON, STEVEN M. AMUNDSON, and
MICHAEL T. CYGAN, *Administrative Patent Judges*.

CYGAN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1, 3–6, and 9–14. Appeal Br. 4. We have jurisdiction under 35 U.S.C. § 6(b). On January 21, 2020, Appellant's counsel presented arguments at an oral hearing.

We AFFIRM.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Bayerische Motoren Werke Aktiengesellschaft. Appeal Br. 2.

CLAIMED SUBJECT MATTER

The claimed invention generally relates to a lane departure prevention device in a driver assistance system. Appeal Br. 2. The device performs a warning and/or an intervention when the motor vehicle is too close to a defined boundary of a predetermined “lane.” *Id.* The lane is detected with the aid of environmental features such as road markings, guardrails, or road sides. Spec. ¶¶ 3, 5. A “normal” lane is defined by the centerline of the road on one side, and the shoulder of the road on the opposite side. *Id.* ¶ 18; Figure. The predetermined lane may instead be altered; for example, widening the lane by shifting a left boundary from its normal position at the centerline of the road to the left of the centerline (e.g., in the portion of the road marked for opposing traffic). *Id.* ¶ 20, Figure. This reduces interference by the system with the driver. *Id.* ¶ 20. The lane is distinct from the road markings themselves. *Id.* ¶ 20.

Independent claim 1 is illustrative:

1. A driver assistance system for assisting a driver of a motor vehicle when leaving a predetermined lane, the driver assistance system comprising:
 - a lane departure prevention device equipped with at least one lane detection unit and a warning and/or transversal control unit; and
 - a navigation system providing information about the defined driving situation, an actual type of road being traveled on, and a course of the road,wherein the lane departure prevention device performs a warning and/or a transverse intervention when the motor vehicle is too close to a defined boundary of the predetermined lane, the lane departure prevention device captures information about a defined driving situation of the motor vehicle, the lane

departure prevention device utilizes the captured information about the defined driving situation such that a currently predetermined lane is changed depending on the defined driving situation by shifting the defined boundary of the predetermined lane depending on the driving situation, and when the motor vehicle is traveling in a relatively winding road, the lane departure prevention device processes the information so as to allow driving on the relatively winding road according to an ideal trajectory by changing the currently predetermined lane to a widened lane which is widened only on an inside of a curve relative to the currently predetermined lane.

Appeal Br. 20 (Claims App.).

Independent claims 6 and 10 recite a method and a driver assistance system, each having limitations commensurate in scope with claim 1. *Id.* Dependent claims 3–5, 9, and 11–14 each incorporate the limitations of their respective independent claims. *Id.* Claims 2, 7, and 8 were cancelled during prosecution. Final Act. 2.

REFERENCE

Name	Reference	Date
Schmitz	US 2008/0258884 A1	Oct. 23, 2008

REJECTION

Claims 1, 3–6, and 9–14 are rejected under pre-AIA 35 U.S.C. § 103(a) as being obvious over Schmitz.

OPINION

Appellant first contends that Schmitz fails to teach the claimed “changing the predetermined lane into a widened lane” as recited in claim 1.

Appeal Br. 4–5. Appellant argues that Schmitz teaches that the warning time, not the predetermined lane, is lengthened. *Id.* at 5–6 (citing Schmitz ¶¶ 20–21). Appellant further argues that Schmitz teaches a warning threshold or warning time but not a lane having a width. *Id.* at 6–9; Reply Br. 2–7. Appellant further argues that it would be impermissible to change the principle of operation of Schmitz from changing the warning time to changing the travel lane. Appeal Br. 12–13. Appellant further argues that Schmitz does not teach changing the “marking” of the road. *Id.* at 9–12.

We are not persuaded by Appellant’s arguments. Appellant’s lane is defined by left and right boundaries such that the driver will be warned when the vehicle moves too close to either boundary. Spec. ¶¶ 3, 5, 18, 20. Schmitz also teaches left and right boundaries such that the driver will be warned. Schmitz ¶ 24, Fig. 3. The boundaries may be set to provide a narrow driving lane, using thresholds 212 and 214, or a wider driving lanes using thresholds 210 and 216. *Id.* Although Appellant argues that the thresholds in Schmitz are based on time, Schmitz clearly relates the time and distance. *Id.* ¶ 20 (“[t]he setting of the warning thresholds or warning times essentially takes place as follows . . . the warning threshold is expanded, i.e., moved in the direction of smaller values (distance, time)”); *see also* Hr’g Tr. 3. With respect to the road “markings,” they are the physical markings of the road that are not changed in either the claimed invention or in Schmitz. Ans. 6; Hr’g Tr. 5 (changing the road markings themselves would be “impossible”).

Appellant further contends that Schmitz does not disclose or suggest “a **widened lane which is widened only on an inside of a curve** relative to the currently predetermined lane.” Appeal Br. 13. The Examiner

acknowledges that “Schmitz does not explicitly show that the lane is widened only on an inside curve.” *Id.* (quoting Final Act. 5). The Examiner then states, “[h]owever, paragraphs 0021-0022 suggest[] that the right and left boundaries may be adjusted independently of each other.” *Id.* (quoting Final Act. 5). The Examiner then states “Schmitz shows that in some embodiments there is not room for adjusting the lane in a right direction. In those cases the left (inside of the lane) is adjusted depending on whether or not an object is detected in proximity to the vehicle.” *Id.* (quoting Final Act. 5). Appellant contends that the Examiner has not showed support in Schmitz for the latter statement. *Id.*

We are not persuaded by Appellant’s arguments, and agree with the Examiner’s reasoning as being grounded in the disclosure and teachings of Schmitz. Schmitz discusses operation on “a rural road in which there is no lane on the right side (trench, alley, or the like).” Schmitz ¶ 22. Schmitz determines the difference between a rural road and a highway by the number of lanes on the road and/or the curvature of the lane. *Id.* ¶ 17. Schmitz teaches that on such rural road having no lane on the right side, the warning time is expanded on the left side if no foreign objects are detected on that side. *Id.* ¶ 22. The Examiner further cites Schmitz’s teaching that widening may occur on either side of a lane, independently. Final Act. 5; Ans. 9–10. We agree that this is supported by Schmitz, as best illustrated by Figure 4 in which the threshold is expanded only on the side in which there is another traffic lane having no foreign objects detected therein. Schmitz Fig. 4, ¶ 25. We agree that the Examiner has sufficiently explained how the cited teachings of Schmitz would suggest to one having ordinary skill in the art an

expanded left-side boundary on a winding (high curvature) rural road, as recited in claim 1.

With respect to Appellant's argument of hindsight,

[a]ny judgment on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper.

In re McLaughlin, 443 F.2d 1392, 1395 (CCPA 1971). Here, the Examiner has shown Schmitz to teach an expanded left-side threshold, reaching into an adjacent driving lane having no obstacles on a winding rural road, and to teach that one side may be expanded into an adjacent driving lane having no obstacles. Accordingly, we are not persuaded that the Examiner's determination includes any knowledge gleaned only from Appellant's disclosure, and therefore are not persuaded that the rejection improperly relies upon hindsight reconstruction.

For the above reasons, we are not persuaded of error in the rejection of claim 1, or the rejection of claims 6 and 10 argued on the same reasoning as for claim 1. Appeal Br. 15. Appellant argues against the rejection of claim 11 for the same reasons as well. Appeal Br. 17–18. Accordingly, we sustain the Examiner's rejection of claims 1, 6, 10, and 11.

With respect to claims 3 and 12, Appellant argues that Schmitz does not disclose or suggest application to "relatively straight roads." Appeal Br. 16. The Examiner cites to Schmitz Figures 3 and 4 as showing sections of relatively straight roads, and to Schmitz paragraphs 21–22 as discussing examples of a vehicle travelling along a highway, which is interpreted as a relatively straight road. Ans. 11–12. We agree with the Examiner's

characterization of Schmitz, and are not persuaded of error in the rejection of claims 3 and 12. Accordingly, we sustain the rejection of claims 3 and 12.

With respect to claim 4, Appellant argues that the sections of Schmitz cited by the Examiner do not teach using “**information about the defined driving situation, a type of driver, and a currently set vehicle driving mode**” to do anything. Appeal Br. 16–17. The Examiner finds Schmitz to teach

information about the defined driving situation (highway or rural road shown in paragraph 0021), a type of driver (sleepy, inattentive in paragraphs 0020, 0023), and a currently set driving mode (sporty, relaxed shown in paragraph 20) are all used to determine how to change the currently predetermined lane (paragraphs 0020-0023).

Ans. 12. We agree with the Examiner’s characterization of Schmitz, and are not persuaded of error in the rejection of claim 4. Accordingly, we sustain the rejection of claim 4.

With respect to claims 5, 9, and 14, Appellant argues that Schmitz does not take risk collision data into account when limiting the currently predetermining lane to the driver’s own lane, or preventing the widening of the currently predetermined lane. Appeal Br. 17. Appellant admits that Schmitz discloses that when no vehicle is detected in an adjacent lane, a warning threshold is not modified. *Id.* The Examiner cites Schmitz for teaching that if foreign objects are detected, the driver’s lane is narrowed.

Ans. 13–14. We agree with the Examiner’s characterization of Schmitz, and are not persuaded of error in the rejection of claims 5, 9, and 14.

Accordingly, we sustain the rejection of claims 5, 9, and 14.

With respect to claim 13, Appellant argues that Schmitz does not show a wider lane when the motor vehicle is operated in a comfort mode,

Appeal 2019-005539
Application 14/825,736

making arguments similar to those presented against claims 1 and 4. For the same reasons expressed in sustaining the rejection of claims 1 and 4, we are not persuaded of error in the rejection of claim 13. Accordingly, we sustain the rejection of claim 13.

CONCLUSION

For the above-described reasons, we affirm the Examiner's rejection of claims 1, 3–6, and 9–14 as being obvious under pre-AIA 35 U.S.C. § 103(a).

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).

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	References/Grounds	Affirmed	Reversed
1, 3–6, 9–14	103(a)	Schmitz	1, 3–6, 9–14	

AFFIRMED