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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte THOMAS E. PILUTTI, DAVORIN D. HROVAT and ALI G. ULOSOY

_____

Appeal No. 96-3333
Application 08/295,194[1]

_____

ON BRIEF

_____

Before CARMICHAEL, LALL and DIXON, **Administrative Patent Judges.**

DIXON, **Administrative Patent Judge.**

DECISION ON APPEAL

This is a decision on appeal from the Examiner's final rejection of claims 2, 6 and 7, which are all of the claims pending in this application.

[1]Application for patent filed August 24, 1994.

BACKGROUND

The invention is directed to a method and apparatus of effecting brake steering of a vehicle to complement the steering of the road wheels. The position of the vehicle is sensed and compared to a designated position. The braking system of the vehicle is actuated independently of actuation of the braking system by a driver to effectuate changes in steering of the vehicle. The difference in braking forces applied to the road wheels produces a yaw in the vehicle. The change in yaw of the vehicle is computed and used in combination with cornering forces to control the differential braking forces applied to effectuate the steering change. The braking system operates to perform limited steering functions through intervention of the vehicle braking system which is imposed automatically and independently of the operator.

Independent claim 7[2] is reproduced as follows:

> 7. A method for effecting brake steering of an automotive vehicle for road use and having traction road wheels, driver-controlled dirigible road wheels, driver activated road wheel brakes including driver-activated brake controls, means for controlling said dirigible wheels to effect a desired steering angle that results in a lateral position designated by the driver and means for detecting actual lateral position of said vehicle relative to said road;

[2] We note 2 clear errors are present in the language of claim 7 which were presented at the original presentation of the new claim in the amendment filed on August 14, 1995. We have included these corrections to claim 7 as reproduced above. First, the phrase "designated by the driver" should be moved to modify "results in a lateral position" which is designated by the driver. Second, the last line of the claim should state "of said driver-controlled dirigible road wheels." These changes correspond to the changes made to claim 6 and the disclosed invention.

said method including the steps of computing braking forces at each of said road wheels when said brakes are applied;

comparing actual lateral position to said designated lateral position determined by said steering angle to create a lateral position error signal;

activating said driver-activated wheel brakes in response to said error signal independently of said driver activated brake controls;

computing yaw moment as a function of the difference in said braking forces;

computing rate of change of yaw and computing lateral vehicle acceleration required to change said actual lateral position of said vehicle including the step of computing cornering tire forces on said dirigible wheels as a function of the rate of change of yaw whereby braking forces are developed to effect steering intervention that complements driver steering of said driver-controlled dirigible road wheels.

The prior art references of record relied upon by the Examiner in rejecting the appealed claims are:

Ito et al. (Ito) 5,228,757 Jul. 20, 1993

Hattori et al., "Driving Control System for an Autonomous Vehicle Using Multiple Observed Point Information", Nissan Research Center, Nissan Motor Co. Ltd., issued in 1992. (Hattori)

Claims 2, 6 and 7 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ito in view of Hattori.

Rather than reiterate the conflicting viewpoints advanced by the Examiner and the appellants, we make reference to the briefs[3] and answer[4] for the details thereto.

OPINION

After a careful review of the evidence before us we disagree with the Examiner that claims 2, 6 and 7 are properly rejected under 35 U.S.C. § 103 and we will not sustain the rejection of claims 2, 6 and 7.

As a consequence of our review, we make the determinations which follow.

Turning to the rejection of claim 7, assuming arguendo that the examiner has made a proper showing regarding the motivation to combine the teachings of Ito and Hattori, we do not find all the claimed steps which are recited in the claim 7.

The Examiner recognizes appellants' argument concerning the lack of a teaching concerning the independent operation of the system with respect to the prior art requiring operator actuation which is altered by the operation of the system. (See answer at page 5, paragraph 4; brief at pages 5-7.) The Examiner states that the

[3] Appellants filed an appeal brief, March 25, 1996, (Paper No. 11). We will refer to this appeal brief as simply the brief. Appellants filed a reply brief on July 5, 1996, (Paper No. 13). We will refer to this reply brief as simply the reply.

[4] The Examiner responded to the brief with an examiner's answer mailed May 1, 1996, (Paper No. 30). We will refer to this examiner's answer as simply the answer. The Examiner mailed a letter on July 23, 1996, entering the reply and indicating that no further response by the examiner was deemed necessary.

appellants' argument concerning the independent operation is not persuasive because the Examiner questions the independent operation of the present invention. (See answer at pages 5-6.) Appellant addresses the Examiner's inquiry concerning the operation of the invention in the reply at pages 1-3. The Examiner did not respond to the clarification by appellant which addressed the operation of the claimed invention with respect to the actuation of the braking actuators independent of the operation of the driver actuated brake controls. Once the examiner has established a reasonable basis to question the obviousness of the claimed invention, the burden falls on the appellants to present persuasive arguments in response thereto. Appellants have traversed the Examiner's ***prima facie*** case of obviousness, in the brief and the reply, therefore the burden shifts back to the Examiner to rebut the appellants' arguments. The Examiner has not provided argument or clarification concerning the independent operation of the claimed invention. The Examiner has not shown in the teachings of Ito or Hattori nor provided a convincing line of reasoning as to how or why it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Ito and Hattori to achieve the invention as recited in the language of claim 7.

Appellants argue the steering and sensing performed by the claimed invention.

(See brief at page 6, paragraph 3; answer at page 6, paragraph 2.) Again the examiner questions the operation of the claimed invention, rather than address the teachings of Ito or Hattori. The Examiner does state that "at least claim 2 of the Ito et al. reference . . . discloses that the vehicle is **automatically corrected and guided by automatically adjust[ing] the braking forces of the left and right wheels of the vehicle without the help of the driver**" (See answer at page 6 (emphasis in original)). We disagree with the Examiner. We do not find any teaching in the Ito reference at claim 2 regarding "without the help of the driver." From a complete review of Ito, it is clear, as appellant has argued throughout the brief, that Ito merely teaches the modification of the braking actuated by the operator to "provide a stable vehicle behavior **during** braking by minimizing undesired influence of parameter changes." (See Ito at Col.3, lines 42-51[5]; Col.6, lines 34-36; Col. 11, lines 1-3; Col. 12, lines 1-3; Col. 13, lines 1-3; Col. 14, lines 8-11.) Therefore, Ito teaches a control system which independently compensates the actuation by the operator, but not "activating said

driver-activated wheel brakes in response to said error signal independently of said driver-

[5] We note that Ito parenthetically mentions use of a "driver's input to an accelerator pedal" which would be independent of a user's actuation of the braking by an operator, but Ito does not elaborate upon this teaching. We do not comment further on the use of the accelerator since it has not been presented in the administrative record.

activated brake controls" as recited in the language of claim 7. If there is no actuation by the operator in the system of Ito, then there can be no compensation, but the claimed invention compensates the steering independently of any actuation by the operator.

The Examiner has responded to appellants' argument regarding the combination of Ito and Hattori. (See answer at page 7, paragraph 1.) We agree with the Examiner that the teachings of Ito and Hattori are properly combined, but we do not find that the combination of the teaching of Ito and Hattori meet the limitations of the language of claim 7 concerning the independent operation of the braking controls to effectuate steering correction of the vehicle without a required actuation by the operator of the vehicle, as discussed above. The combination of the compensation of Ito with the autonomous sensing and steering/driving of Hattori would not have provided the skilled artisan with the compensation of steering of a vehicle having an operator and independent compensation of steering using the braking system where the steering is compensated independent of the actuations by the operator.

We find that the examiner has not met the burden of setting forth a ***prima facie*** case of obviousness in rejecting claims 2, 6 and 7. Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in

the art." ***In re Keller***, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

In regard to the 35 U.S.C. § 103 rejection, the Examiner has failed to set forth a ***prima facie*** case. It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the express teachings or suggestions found in the prior art, or by implications contained in such teachings or suggestions. ***In re Sernaker***, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983). "Additionally, when determining obviousness, the claimed invention should be considered as a whole." ***Para-Ordnance Mfg. v. SGS Importers Int'l, Inc.***, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995), ***cert. denied,*** 117 S.Ct. 80 (1996) ***citing W. L. Gore & Assocs., Inc. v. Garlock, Inc.***, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), ***cert. denied***, 469 U.S. 851 (1984).

The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." ***In re Fritch***, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), ***citing In re Gordon***, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). We note that

none of the references addresses the problem that is being solved by the appellants' invention, which is controlling the steering of the vehicle using the braking system of the vehicle independent of driver actuation of the braking controls.

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied prior art references, and to the respective positions articulated by the appellant and the Examiner . Upon evaluation of all the evidence before us, it is our conclusion that the evidence adduced by the examiner is not sufficient to establish a ***prima facie*** case of obviousness with respect to claim 7. Claim 6 contains similar limitations with respect to activating the wheel brakes independently of the driver- actuated brake controls. Accordingly, we will not sustain the examiner's rejection of claims 6 and 7 under 35 U.S.C. § 103.

Since all the limitations of independent claims 6 and 7 are not suggested by the applied prior art, we cannot sustain the examiner's rejection of appealed claim 2 which depends therefrom, under 35 U.S.C. § 103.

CONCLUSION

To summarize, the decision of the examiner rejecting claims 2, 6 and 7 under 35 U.S.C. § 103 is reversed. The decision of the examiner is reversed.

REVERSED

JAMES T. CARMICHAEL Administrative Patent Judge	)	
PARSHOTAM S. LALL Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JOSEPH L. DIXON Administrative Patent Judge	)	

vsh

Donald J. Harrington
Brooks & Kushman
1000 Town Center
Twenty Second Floor
Southfield, MI 48075