

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 37

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte YASUFUMI IKKAI,  
SATOSHI TAMAKI  
AND  
MASAKI TAGOME

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Appeal No. 2002-0470  
Application 08/612,211

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HEARD: July 10, 2002

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Before STAAB, McQUADE, and BAHR, Administrative Patent Judges.  
STAAB, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final rejection of claims 1-8, all the claims currently pending in the application.

This is the second appeal taken in this application. In Appeal Number 1999-1476, a merits panel of this Board reversed

Appeal No. 2002-0470  
Application No. 08/612,211

all of the examiner's rejections on procedural grounds and entered a new rejection of the appealed claims under 35 U.S.C. § 112, second paragraph. Appellants elected to go back before the examiner for further prosecution. That further prosecution resulted in the present appeal.

Appellants' invention pertains to a method of controlling a electric drive motor of a vehicle. A copy of the claims on appeal can be found in the appendix to appellants' main brief.

The references relied upon by the examiner in support of the rejections made in the final rejection are:

Hawkins et al. (Hawkins)	4,365,189	Dec. 21, 1982
Ichihara et al. (Ichihara)	5,161,634	Nov. 10, 1992
Toyoda et al. (Toyoda)	5,289,890	Mar. 1, 1994
Nakashima et al. (Nakashima)	5,471,384	Nov. 28, 1995
Koike et al. (Koike)	5,635,903	Jun. 3, 1997

Claims 1-3 and 6-8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by each of Ichihara, Nakashima, Hawkins and Toyoda.

Claims 4 and 5 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ichihara, Nakashima, Hawkins or Toyoda in view of Koike.

Reference is made to appellants' main and reply briefs (Paper Nos. 30 and 32) and to the examiner's answer (Paper No. 31) for the respective positions of appellants and the

examiner regarding the merits of these rejections.

The rejections under 35 U.S.C. § 102(b)

The rejection based on Ichihara

Ichihara teaches (Figure 7; column 5, lines 25-50) producing a target speed value S (block #40a) based on signals from change speed lever 11 (block #10a), backward/forward changeover switch 13 (block #20a), and accelerator lever 13 (block #30a). Ichihara then measures the actual speed value R (block #50a). Ichihara explains what happens next as follows:

At step #60a, the target value: S is compared with the actual value: R, taking a predetermined value: K into account. If the comparison results in  $S > R + K$ , a new target value is set by adding a correction value to the target value at step #70a. If  $S + K < R$ , a new target value is set by subtracting a correction value from the target value at step #80a. In other cases, i.e., if  $K \geq$  = absolute value (S-R), the target value is not changed. [Column 5, lines 35-43.]

The target speed is then sent to an electric motor controller 200 (Figure 6) where it is utilized to vary the amount of power supplied to the motor.

Ichihara does not disclose step (d) of claim 1. More particularly, Ichihara does not make the actual output torque of the vehicle drive motor substantially equal to the output torque of the vehicle drive motor ordered in accordance with the

Appeal No. 2002-0470  
Application No. 08/612,211

movement of the accelerator as called for in step (d) of claim 1 after the three conditions set forth in step (d) are satisfied. The three conditions are: (1) the actual vehicle moving condition becomes in compliance with a second vehicle drive mode, (2) a second vehicle drive mode is ordered by the operator for canceling a first vehicle drive mode, and (3) the output torque of the vehicle drive motor ordered in accordance with the movement of the accelerator is decreased to not more than a decreased actual output torque of the vehicle drive motor. Among other things, Ichihara does not consider the situation where the operator orders a second vehicle drive mode for canceling a first vehicle drive mode. On this basis, the rejection based on Ichihara will not be sustained.

The examiner's comments on page 6 of the answer regarding Ichihara have been considered. Like appellants, we do not consider the target speed of Ichihara, which is derived by the controller 100 based on signals from change speed lever 11, backward/forward changeover switch 13, and accelerator lever 13, to be comparable to one of appellants' drive modes (e.g., forward, reverse, neutral, park). Likewise, we do not consider changes in the target speed of Ichihara to be comparable to appellant's condition of an operator canceling a first drive mode

in favor of a second vehicle drive mode.

The rejection based on Nakashima

Nakashima teaches (Figure 16; column 9, lines 8-55) an output torque command calculating means 15 that combines signals from power performance switching means 18a, vehicle speed calculating means 12a, accelerator opening calculating means 13a, and drive mode means 21a to select an output torque map 16. The map is used to calculate the output torque for the drive motor 25.

Nakashima's method of calculating an output torque based on predetermined and pre-stored torque maps does not correspond to the method of claim 1 wherein the vehicle motor is controlled in the situation where an operator orders a second vehicle drive mode for canceling a first vehicle drive mode. In particular, the examiner has not pointed out, and it is not apparent to us, where Nakashima addresses making the actual output torque equal to the output torque ordered by the operator after the three conditions set forth in paragraph (d) of claim 1 are satisfied. On this basis, the rejection based on Nakashima will not be sustained.

The rejection based on Hawkins

Appeal No. 2002-0470  
Application No. 08/612,211

Hawkins teaches circuitry for controlling the direction of rotation of a reversible electric motor to eliminate jolting action caused by a sudden reversal of the motor. More particularly, Hawkins' circuitry functions such that

the current to the drive motor cannot be reversed to an opposite direction while the motor continues operation in a first direction. Once the motor slows to predetermined speed, which may approximate near-stop condition, the circuitry permits the voltage to operate in the opposite direction thereby reversing the motor. [abstract].

A detailed discussion of the operation of the control circuit of Hawkins is found at column 5, line 52, through column 6, line 66.

While the method of operation of Hawkins does involve an operator ordered change from a first drive mode to a second drive mode (e.g., change of the motor from forward to reverse), said method does not take into consideration the output torque ordered by the operator vis-à-vis the actual output torque of the drive motor in "locking out" the selected drive mode. Therefore, operation of the Hawkins circuitry does not respond to step (d) of claim 1, which requires making the actual output torque of the motor substantially equal to that ordered in accordance with the movement of the accelerator after, among other things, the output torque ordered in accordance with the accelerator is decreased to not more than the decreased actual output torque of the motor.

Appeal No. 2002-0470  
Application No. 08/612,211

Therefore, the rejection based on Hawkins also will not be sustained.

The rejection based on Toyoda

Toyoda teaches a drive unit for an electric vehicle comprising two drive motors, one of which provides high torque at low speeds and the other of which provides high torque at high speeds. A control circuit determines required output torque based on accelerator position, brake position, vehicle speed, and shift position sensor (see column 7). Torque is distributed to the two motors according to the characteristics of the motors (column 8, line 8, through column 9, line 5) or based upon a stored map (column 9, lines 6-20).

The method of Toyoda has little, if anything, in common with the method of claim 1. Among other things, there is no indication in Toyoda that motor control is based on the ordering by the vehicle operator of a second vehicle drive mode for canceling a first vehicle drive mode, as called for in paragraph (d) of claim 1. Accordingly, the rejection based on Toyoda likewise will not be sustained.

The rejection under 35 U.S.C. § 103(a)

Claims 4 and 5 depend from claim 1 and add that the method of claim 1 further comprises the steps of generating and

Appeal No. 2002-0470  
Application No. 08/612,211

canceling an alarm signal. Claims 4 and 5 stand rejected under

Appeal No. 2002-0470  
Application No. 08/612,211

35 U.S.C. § 103(a) as being unpatentable over Ichihara, Nakashima, Hawkins or Toyoda in view of Koike.

Koike's objective is "to provide a simulated sound generator for producing simulated sounds for an electric vehicle which are similar to sounds produced when gasoline-engine vehicles start, run and are accelerated and decelerated, thereby to let the driver and nearby pedestrians know operating conditions of the electric vehicle" (column 1, lines 45-50). Even if we were to agree with the examiner that Koike's simulated sound generator constitutes an "alarm" and that Koike's teachings would have suggested to one of ordinary skill in the art incorporating an alarm in each of Ichihara, Nakashima, Hawkins and Toyoda, the deficiencies of the primary references noted above would remain. Therefore, the standing rejection of claims 4 and 5 under 35 U.S.C. § 103(a) also is not sustainable.

Appeal No. 2002-0470  
Application No. 08/612,211

Summary

The examiner's rejections are reversed.

The decision of the examiner finally rejecting the appealed claims is reversed.

REVERSED

LAWRENCE J. STAAB	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
JOHN P. McQUADE	)	APPEALS AND
Administrative Patent Judge	)	INTERFERENCES
	)	
	)	
JENNIFER D. BAHR	)	
Administrative Patent Judge	)	

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Appeal No. 2002-0470  
Application No. 08/612,211

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