

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TATEO AOYAMA and MASAHIRO UCHIDA

Appeal No. 97-1017
Application No. 08/391,421¹

HEARD: August 5, 1999

Before CALVERT, ABRAMS and BAHR, *Administrative Patent Judges*.

ABRAMS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the decision of the examiner finally rejecting claims 1-7, 13-15 and 19-37. Claims 8-12, 16-18, 38-51, 56 and 57 have been allowed and claims 52-55 have been canceled.

¹ Application for patent filed February 16, 1995.

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The appellants' invention is directed to an induction control system for supplying a charge to an engine combustion chamber. The claims on appeal have been reproduced in an appendix to the Brief.

THE REFERENCES

The references relied upon by the examiner to support the final rejection are:

Miyano et al. (Miyano) 1987	4,664,076	May 12,
Hashimoto et al. (Hashimoto)	5,119,784	Jun. 9, 1992
Mitobe et al. (Mitobe) 1993	5,273,014	Dec. 28,

THE REJECTIONS

The following rejections stand under 35 U.S.C. § 103:

- (1) Claims 1-7, 13-15 and 19-27 on the basis of Mitobe and Miyano.
- (2) Claims 28 and 29 on the basis of Mitobe and Hashimoto.
- (3) Claims 30-37 on the basis of Mitobe, Hashimoto and Miyano.²

² This is a new rejection presented for the first time in
(continued...)

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The rejections are explained in the Supplemental Examiner's Answer (Paper No. 17).

The appellants' arguments in response to the positions taken by the examiner can be found in the Briefs (Papers Nos. 11, 16 and 18).

OPINION

The test for obviousness is what the combined teachings of the prior art would have suggested to one of ordinary skill in the art. See, for example, ***In re Keller***, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In establishing a *prima facie* case of obviousness, it is incumbent upon the examiner to provide a reason why one of ordinary skill in the art would have been led to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. See ***Ex parte Clapp***, 227 USPQ 972, 973 (Bd. Pat. App. & Int. 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole

²(...continued)
the Supplemental Examiner's Answer (Paper No. 17).

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or from the knowledge generally available to one of ordinary skill in the art and not from the appellants' disclosure. See, for example, **Uniroyal, Inc. V. Rudkin-Wiley Corp.**, 837 F.2d 1044, 1052, 5 USPQ2d 1434, 1052 (Fed. Cir.), *cert. denied*, 488 U.S. 825 (1988).

It is the examiner's view that Mitobe discloses all of the subject matter recited in independent claim 1 except for the limitation of "a single fuel injector injecting fuel into only the other of said outlet sections [of the intake passage means] downstream of the flow control valve for providing the entire fuel requirements of said combustion chamber." However, it is the examiner's position that this is taught by Miyano, and that it would have been obvious to one of ordinary skill in the art to modify the Mitobe system to meet the terms of the claim, in view of Miyano. We do not agree.

While the outlet sections (22 & 24) of Mitobe and their associated throttle valve (28) and flow control valve (34) have much in common with the system recited in claim 1, the reference utilizes two fuel injectors, rather than the claimed single injector. In Mitobe, a first fuel injector (40)

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located in the same outlet section as the flow control valve provides fuel for low speed operation, and a second fuel injector (44) located in a common chamber upstream of the outlet sections is activated to add fuel during operation in the high speed range. Miyano teaches an intake system having only one outlet section and in which a single fuel injector located in that outlet section provides all of the fuel during both low and high speed operations, and it is upon this teaching that the examiner's rejection focuses. However, the mere fact that the structure disclosed in a reference could be modified does not make such modifications obvious unless the prior art suggests the desirability thereof. See ***In re Gordon***, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). To eliminate the upstream injector in Mitobe would be contrary to this patent's teaching that under high speed conditions fuel should pass through both outlet sections, and would, in our view, destroy the essence of the Mitobe invention. We thus fail to perceive any teaching, incentive, or suggestion in either of these references that would have

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led one of ordinary skill in the art to combine them in the manner proposed by the examiner.

It is our conclusion that the combined teachings of Mitobe and Miyano fail to establish a *prima facie* case of obviousness with regard to the subject matter of claim 1, and we will not sustain the rejection of claim 1 or, it follows, of claims 2-7 and 13-15, which are dependent therefrom.

Independent claim 19 recites an induction control system whose basic components are like that of claim 1, but omits the requirement for a single fuel injector and adds

said intake passage means including a common section upstream of said first and second outlet sections and which is served by first and second inlet sections tuned to provide tuning efficiency at a different engine running condition and further including a second throttle valve for controlling the effective tuning of the intake passage means.

Here, it is the examiner's position that it would have been obvious to one of ordinary skill in the art to add such tuned inlet sections to the Mitobe system in view of the teachings of Miyano.

Like the claimed invention, Mitobe has an intake passage means comprising first and second outlet sections divided by a wall, with a throttle valve in one section and a flow control

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valve in the other. Mitobe does not disclose the first and second tuned inlet sections upstream of the intake passage that are required by this claim. Miyano discloses a single outlet section (7) controlled by a throttle (12), and which communicates with a port opening to a cylinder. Upstream of the outlet section are a first intake passage (9) that is tuned for low speed operation and a second intake passage (8) that is tuned for high speed operation (column 2, lines 10-47). A second throttle valve (13) controls the tuning by opening or closing the high speed intake passage.

We agree with the examiner that it would have been obvious to add to the Mitobe system, upstream of the second set of fuel injectors, first and second inlet sections tuned to provide tuning efficiency at a different engine running condition, as well as a second throttle valve to control the effective tuning, as required by claim 19. Explicit suggestion for doing so is found in Miyano's statement that this enhances the charge efficiency (column 1, lines 5-16). In our view, such a modification would have no detrimental effect upon the operation of the Mitobe system, but would

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simply place additional structure upstream, in the same manner as does the appellants' invention.

It therefore is our conclusion that the combined teachings of Mitobe and Miyano establish a *prima facie* case of obviousness with regard to the subject matter recited in claim 19, and we will sustain the rejection of this claim.

The common plenum chamber added by claim 20 is disclosed in Miyano, as is the teaching of tuning by providing different lengths for the inlet sections, as required by claim 21. A teaching of originating the first and second inlet sections in a common plenum chamber and positioning a main throttle valve therein, as is set forth in claim 22, is provided by Miyano. The argument advanced by the appellants with regard to the automatic control of the throttle valve and the flow control valve actually relies upon the basic combination recited in independent claim 19 for patentability, and therefore is not persuasive with regard to claim 23 inasmuch as we have sustained the rejection of claim 19. Claims 24-27 have been grouped by the appellants with claim 23 (Brief, page 12), and fall therewith.

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Independent claim 28 also is directed to the basic structure recited in claim 1, absent the single fuel injector. As in claim 1, the system comprises intake passage means terminating at port openings, but in claim 28 there is the additional limitation of "said port openings comprising three valve seats." This claim stands rejected on the basis of Mitobe and Hashimoto. In Mitobe the intake passage means terminates in port openings comprising only two valve seats. Hashimoto is directed to a multi-valve engine. It discloses three intake valves for each cylinder and teaches that

[i]ntake and exhaust performance of an internal combustion engine can be improved by increasing what is referred to as a "valve area." The term "valve area" refers to the total cross-sectional area occupied by intake and exhaust valves in a combustion chamber of each cylinder of the engine. For this reason, a multi-valve internal combustion engine is typically provided with more than one exhaust valve as well as a plurality of intake valves. Column 1, lines 13-21.

We share the examiner's view that, in view of Hashimoto, it would have been obvious to provide the Mitobe intake system with a third valve. We are not persuaded otherwise by the arguments presented by the appellants, for the claim merely

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requires the presence of a third valve and is not specific as to where it should be located.

The teachings of Mitobe and Hashimoto thereby establish a *prima facie* case of obviousness with regard to the subject matter of claim 28, and we will sustain this rejection.

However, we reach the opposite conclusion with regard to claim 29, which adds to claim 28 the requirement that two valves be served by the first outlet section and the third valve by the second outlet section. As argued by the appellants, such a placement of the valves is not taught by the references, and therefore a *prima facie* case of obviousness is lacking and the rejection cannot be sustained.

Nor will we sustain the rejection of claims 30 through 37, for adding Miyano to the other two references does not, in our view, overcome the valve placement problem which arises with respect to claim 29, from which the remaining claims are dependent.

We have carefully considered all of the appellants' arguments as they apply to the rejections which we have sustained. While we have not commented specifically upon all

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of them, our position with regard to each should be apparent from the explanations which accompany our decision.

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SUMMARY

The rejection of claims 1-7 and 13-15 on the basis of Mitobe and Miyano is not sustained.

The rejection of claims 19-27 on the basis of Mitobe and Miyano is sustained.

The rejection of claim 28 on the basis of Mitobe and Hashimoto is sustained.

The rejection of claim 29 on the basis of Mitobe and Hashimoto is not sustained.

The rejection of claims 30-37 on the basis of Mitobe, Hashimoto and Miyano is not sustained.

The decision of the examiner is affirmed-in-part.

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

AFFIRMED-IN-PART

IAN A. CALVERT)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
NEAL E. ABRAMS)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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)	
JENNIFER D. BAHR)	
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