

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte SEIICHI NISHIMURA and TATSUYUKI MASUDA

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Appeal No. 1997-0736  
Application No. 08/384,916

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HEARD: MAY 18, 2000

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Before COHEN, STAAB and NASE, Administrative Patent Judges.

COHEN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the refusal of the examiner to allow claims 1, 3, 5, 7 through 11, 15, and 16, all of the claims remaining in the application, as amended (Paper No. 9) subsequent to the final rejection.

The invention addresses a V-type two-cycle crankshaft

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compression internal combustion engine. A basic understanding of the invention can be derived from a reading of exemplary claim 1, a copy of which appears in the APPENDIX to the main brief (Paper No. 12).

As evidence of obviousness, the examiner has applied the documents listed below:<sup>1</sup>

|  |           |          |
|--|-----------|----------|
| Morikawa<br>1991                       | 4,995,354 | Feb. 26, |
| Takahashi<br>1, 1992                   | 5,143,028 | Sep.     |
| Ito et al.<br>1993<br>(Ito)            | 5,183,013 | Feb. 2,  |
| Torigai et al.<br>4, 1993<br>(Torigai) | 5,207,190 | May      |
| Tanaka<br>1994                         | 5,361,731 | Nov. 8,  |

(filed Aug. 4, 1993)

The following rejections are before us for review.<sup>2</sup>

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<sup>1</sup> The Ito and Torigai documents are new references, applied for the first time in new grounds of rejection in the main answer (Paper No. 13).

<sup>2</sup> The listed rejections, the only rejections set forth in the main answer (Paper No. 13; pages 3 through 7), are indicated to be new grounds of rejection. While not stated by the examiner, these rejections obviously replace all of the rejections found in the final rejection (Paper No. 6).

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Claims 1, 3, 7, and 8 stand rejected under 35 U.S.C. §  
103 as being unpatentable over Tanaka in view of Ito.

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Claim 5 stands rejected under 35 U.S.C. § 103 as being unpatentable over Torigai in view of Ito.

Claim 9 stands rejected under 35 U.S.C. § 103 as being unpatentable over Tanaka in view of Ito, as applied to claims 1, 3, 7, and 8 above, further in view of Takahashi.

Claims 10, 11, 15, and 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Tanaka in view of Ito and Takahashi as applied to claim 9 above, further in view of Morikawa.

The full text of the examiner's rejections and response to the argument presented by appellants appears in the main and supplemental answers (Paper Nos. 13 and 20), while the complete statement of appellants' argument can be found in the main and reply briefs (Paper Nos. 12 and 14).

OPINION

In reaching our conclusion on the obviousness issues raised in this appeal, this panel of the board has carefully considered appellants' specification and claims, the applied teachings,<sup>3</sup> and the respective viewpoints of appellants and the examiner. As a consequence of our review, we make the determinations which follow.

Initially, we appreciate from a reading of the BACKGROUND OF THE INVENTION section of appellants' specification (page 1) that prior to the present invention it was known to employ an exhaust control valve in the exhaust port of a two-cycle internal combustion engine to vary the compression ratio of the engine. As expressed by appellants, "[f]or the most part" these exhaust valves have been limited to in-line types

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<sup>3</sup> In our evaluation of the applied teachings, we have considered all of the disclosure of each teaching for what it would have fairly taught one of ordinary skill in the art. See In re Boe, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966). Additionally, this panel of the board has taken into account not only the specific teachings, but also the inferences which one skilled in the art would reasonably have been expected to draw from the disclosure. See In re Preda 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

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of engines, because of the difficulty in providing a simple mechanism which will ensure that the exhaust control valves for both cylinder banks can be operated from a single servo motor in synchronism with each other.<sup>4</sup>

Independent claim 1 is drawn to a V-type two-cycle crankshaft compression internal combustion engine comprising, inter alia, first and second exhaust control valves each rotatably journaled in a respective one of the valve bores of a pair of cylinder banks, and a common actuator for actuating both of the first and second exhaust control valves simultaneously.

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<sup>4</sup> The inference that we draw from appellants' background information is that, when the present invention was made, it was known to include exhaust control valves in both cylinder banks of, for example, a V-type multiple cylinder engine, but that it was difficult to apply these valves to such an engine by virtue of having to use a complicated mechanism to operate the valves in both banks, in synchronism, from a single servo motor. Appellants have appended the patent to Ozawa to the main brief, a document of record in the application. Consistent with the above inference derived from the specification, the Ozawa patent seems to us to be fairly suggestive of a single servo motor for controlling exhaust control valves in a V-type engine configuration. We refer this document to the attention of the examiner in a remand, infra.

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We reverse the rejection of claims 1, 3, 7, and 8 under 35 U.S.C. § 103 as being unpatentable over Tanaka in view of Ito.

The Tanaka patent simply reveals a two-cycle crankcase compression internal combustion engine of the V-type (Fig. 1) having exhaust ports 36 in cylinder banks 15, 16 (column 3, lines 4 through 9).

The Ito document teaches a rotary type valve 54 journaled in an auxiliary exhaust port of a three cylinder inline type engine. However, the patentee (column 2, lines 63 through 66) indicates that "it should be readily apparent to those skilled in the art how the invention can be practiced in conjunction with engines having different cylinder numbers and different cylinder orientations." As shown in Fig. 4, a CPU controlled stepping motor actuator element 57 operates to open and close the exhaust control valves 54 for the respective three cylinder bores 25.

As we see it, the collective teachings of Tanaka and Ito

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would clearly have been suggestive of a separate control valve and actuator element for each bank of a V-type engine to one having ordinary skill in the art. However, akin to appellants' assessment (reply brief, page 2), we find that the references themselves provide no evidence at all in support of the examiner's conclusion that it would have been obvious to operate both valves simultaneously with gearing, presumably using a single actuator element therefor. It is for this reason that the rejection of claims 1, 3, 7, and 8 must be reversed.

We reverse the rejection of claim 5 under 35 U.S.C. § 103 as being unpatentable over Torigai in view of Ito.

The Torigai patent teaches a V-type internal combustion engine wherein the exhaust ports 68, 69 (Fig. 2) are seen to be disposed furthest from the valley between the pair of cylinder banks. The Ito document has been earlier discussed.

As was the circumstance discussed immediately above, we conclude that the evidence simply does not support a

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conclusion of obviousness. The combined Torigai and Ito teachings fail to provide a suggestion for a common actuator actuating both of first and second exhaust control valves in respective cylinder banks of a V-type engine. Accordingly, this rejection of claim 5 must be reversed.

We reverse the rejection of claim 9 under 35 U.S.C. § 103 as being unpatentable over Tanaka in view of Ito and Takahashi.

Dependent claim 9 incorporates the subject matter of claims 1, 7, and 8. Simply stated, the addition of the Takahashi disclosure does not overcome the noted deficiency of the combined teachings of Tanaka and Ito as regards the content of claim 1. Therefore, the rejection of claim 9 must be reversed.

We reverse the rejection of claims 10, 11, 15, and 16 under 35 U.S.C. § 103 as being unpatentable over Tanaka in

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view of Ito, Takahashi, and Morikawa.

The teaching in the added Morikawa patent does not overcome the deficiencies of the other applied prior art as regards the subject matter of claim 1. Thus, we are constrained to reverse the rejection of claims 10, 11, 15, and 16.

REMAND TO THE EXAMINER

We remand this application to the examiner to consider the combined teachings of the Ozawa patent in view of the Ito reference as to whether they would have been suggestive of substituting the alternative of a single rotary valve for the plurality of rotary exhaust control valves in a respective cylinder bank of a V-type engine (the Ozawa teaching; column 2, lines 59 through 66, and Figs. 7 and 8, for example) in

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light of the disclosure of a single exhaust valve for controlling a plurality of cylinders in one bank (the Ito teaching; Fig. 4) to yield first and second exhaust control valves for a V-type engine actuated by a common actuator, as required by appellants'

claim 1. As to features in the remaining claims, the examiner should consider the combined teachings of Ozawa and Ito with other known prior art.

In summary, this panel of the board has reversed each of the examiner's rejections of appellants' claims under 35 U.S.C. § 103 and remanded the application to the examiner to consider the matter discussed above.

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The decision of the examiner is reversed.

REVERSED AND REMANDED

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| IRWIN CHARLES COHEN         | ) | )               |
| Administrative Patent Judge | ) |                 |
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|                             | ) | BOARD OF PATENT |
| LAWRENCE J. STAAB           | ) |                 |
| Administrative Patent Judge | ) | APPEALS AND     |
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| JEFFREY V. NASE             | ) |                 |
| Administrative Patent Judge | ) |                 |

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