Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GOPICHANDRA SURNILLA and GRANT ALAN INGRAM

Appeal No. 2004-0750
Application No. 09/992,223

HEARD: May 18, 2004

Before COHEN, ABRAMS, and McQUADE, Administrative Patent Judges.

ABRAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-19, which are all of the claims pending in this application.

We REVERSE.

BACKGROUND

The appellants' invention relates to a method for determining an amount of NOx stored in an exhaust gas aftertreatment device (claims 1-11), a method for controlling a lean-burn internal combustion engine (claims 12-14), and a system for controlling an internal combustion engine (claims 15-19). An understanding of the invention can be derived from a reading of exemplary claim 1, which appears in the appendix to the Brief.

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

Takeshima et al. (Takeshima)	5,437,153	Aug. 1, 1995
Deeba et al. (Deeba)	6,105,365	Aug. 22, 2000
Kubo et al. (Kubo)	6,263,666 B1	Jul. 24, 2001

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

(1) Claims 1-3 and 5-11 on the basis of Kubo.

(2) Claim 4 on the basis of Kubo in view of Takeshima.

(3) Claims 12-14 on the basis of Kubo in view of Takeshima.

(4) Claims 15-19 on the basis of Deeba in view of Kubo.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we refer to the Answer (Paper No. 8) for the examiner's reasoning in support of the rejections, and to the Brief

(Paper No. 7) and Reply Brief (Paper No. 10) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellants and the examiner. As a consequence of our review, we make the determinations which follow.

The appellants' invention is directed to a manner of determining an amount of NOx stored in an exhaust gas aftertreatment device in a lean-burn engine in order to calculate when the device must be purged of NOx in order for the engine to continue operating in the desired manner. As recited in claim 1, the amount of NOx stored in the treatment device is determined by the steps of "estimating NOx storage efficiency of the device based on a percent NOx capacity filled," and "calculating the amount of NOx stored in the device based on said estimated NOx storage efficiency of the device." It is the examiner's view that these steps would have been obvious[1] to one of ordinary skill in the art from the system described in Kubo, considering that although Kubo "fail[s] to

[1]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 or from the knowledge generally available to one of ordinary skill in the art and not from the appellant's disclosure. See, for example, Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1052, 5 USPQ2d 1434, 1439 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988).

specifically disclose that the NOx storage efficiency is based on a percent NOx storage capacity filled, instead of an available storage capacity," the Kubo system "is merely equivalent to the difference between 1 and a percentage NOx storage capacity filled defined by the pending application . . and thus is just a mirror image of Figure 2 in the pending application" (Answer, page 4). The appellant argues that this is not the case, and points out that as explained on pages 9-11 of the specification, the claimed system provides a number of advantages over systems such as that disclosed by Kubo, in particular, that it requires only one efficiency curve to be created, whereas Kubo's requires multiple curves.

For the reasons expressed in the appellants' Brief and Reply Brief and summarized below, it is our view that Kubo fails to establish a prima facie case of obviousness with regard to the subject matter recited in claim 1, and therefore the rejection of claims 1-3 and 5-11 cannot be sustained.

The examiner has admitted that Kubo does not disclose or teach either of the steps recited in the appellants' claim 1 but determines the point at which the aftertreatment device needs to be purged, that is, when the level of NOx reaches the maximum desired value, by a different method. Even if one were to assume, arguendo, that the Kubo system is the equivalent of the claimed system, as the examiner contends, the fact remains that it is different than the claimed system, and the examiner

has not adduced evidence which supports a conclusion that one of ordinary skill in the art would have found it obvious to practice the method recited in claim 1 in view of the Kubo disclosure. Of particular interest in this regard is the discussion of the differences between the two systems provided by the appellants on pages 13-18 of the Brief, which the examiner has rebutted only by stating that Kubo's "available NOx storage capacity" "is recognized in the art as equivalent to the 'NOx storage capacity filled' in the pending application" (emphasis added). In support of this assertion, the examiner merely takes "Official Notice" that "the selection of any of these known equivalents would be within the level of ordinary skill in the art," without presenting evidence to that fact. See Answer, page 14.

Thus, the examiner's positions regarding the alleged equivalency of the claimed system and that of Kubo, and that Kubo would have suggested the claimed system to one of ordinary skill in the art, are not supported by evidence.

Claim 4 depends from claim 1, and stands rejected as being unpatentable over Kubo in view of Takeshima, the latter being cited for teaching purging the device when the calculated level of NOx stored in the device is above a predetermined value. Be that as it may, Takeshima does not, from our perspective, overcome the deficiencies pointed out above with regard to the rejection of claim 1. This being the case, the rejection of claim 4 is not sustained.

We reach the same result with the rejection of claims 12-14 as being unpatentable over Kubo and Takeshima. The two steps discussed above with regard to claim 1 also appear in independent claim 12. Since we have found in the foregoing paragraphs that neither Kubo alone nor Kubo in concert with Takeshima would have rendered the steps in issue obvious to one of ordinary skill in the art, the rejection of claims 12-14 is not sustained.

Independent claim 15, which is directed to a system for controlling an internal combustion engine, recites a controller for operating the engine in accordance with the two steps recited in method claim 1. This claim has been rejected as being unpatentable over Deeba in view of Kubo. As explained on pages 9 and 10 of the Answer, Deeba is cited for disclosing a control system that includes all of the steps except the two from claim 1, and Kubo for the same proposition applied in the same manner with regard to these two steps, as was the case with claim 1. The examiner concludes that it would have been obvious "to have utilized the teaching by Kubo in the system of Deeba et al., since the use thereof would have provided a more accurate value of NOx storage efficiency for the device." No evidence has been offered in support of this conclusion. We will not sustain this rejection on the basis of the same reasoning advanced against the rejection of claim 1.

CONCLUSION

None of the rejections is sustained.

The decision of the examiner is reversed.

IRWIN CHARLES COHEN Administrative Patent Judge	)))))) BOARD OF PATENT
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