

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte DONALD B. NAGY

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Appeal No. 96-2307  
Application No. 08/293,630<sup>1</sup>

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ON BRIEF

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Before THOMAS, HAIRSTON and KRASS, Administrative Patent Judges.  
HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 10.

The disclosed invention relates to a method of calibrating or diagnosing multiple engine exhaust gas analyzers responsive to constituent gases. The method includes the steps of providing a blended span gas comprising a known mixture of a zero gas with the constituent gases, and simultaneously supplying to all of the analyzers at least one sample of a selected division of the

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<sup>1</sup> Application for patent filed August 22, 1994.

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blended span gas for obtaining simultaneous readings of the multiple analyzers for calibration or diagnostic purposes.

Claim 6 is illustrative of the claimed invention, and it reads as follows:

6. In a method for calibrating or diagnosing multiple engine exhaust gas analyzers responsive to HC, NOx, CO and CO2 constituent gases, the steps of:

providing a blended span gas comprising a known mixture of a zero gas with said constituent gases; and

simultaneously supplying to all of said analyzers at least one sample comprising a selected division of said blended span gas for obtaining simultaneous readings of the multiple analyzers for calibration or diagnostic purposes.

The references relied on by the examiner are:

Rankine et al. (Rankine)	3,854,876	Dec. 17, 1974
Barcellona et al. (Barcellona)	4,498,496	Feb. 12, 1985
Kimura et al. (Kimura)	5,333,487	Aug. 2, 1994

Claims 1 through 10 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kimura in view of Rankine and Barcellona.

Reference is made to the briefs and the answers for the respective positions of the appellant and the examiner.

#### OPINION

We have carefully considered the entire record before us, and we will reverse the obviousness rejection of claims 1 through 10.

We agree with the examiner (Answer, page 3) that "Kimura et al. teach (col. 1, lines 11-24) use of individual (constituent) gas sensors<sup>2</sup> coupled to an engine exhaust line, but not calibration." We also agree with the examiner (Answer, pages 3 and 4) that "Barcellona et al. teach (Abstract; Figs. 1, 3-6) mixing zero gas  $T_z$  with a second gas source  $T_s$  to provide a plurality of different proportions of calibration gases in a 'sequential' (Abstract, line 4 from last) manner to calibrate 'analyzers for exhaust gases from internal combustion engines' (col. 1, lines 8-9)." Figure 1 of Barcellona more specifically illustrates an apparatus wherein a zero gas provided to connector 11 and a span gas provided to connector 12 are mixed in varying amounts in mixing chamber 50 after passing through capillary tubes 40. Valves 31 control how much of each gas passes through the capillary tubes 40. Outlet 61 is to an analyzer of exhaust gases from an internal combustion engine (column 4, lines 14 through 17). Barcellona indicates (column 4, lines 47 through 50) that the Figure 1 apparatus is used for calibration of an exhaust gas analyzer. The constituent gases of the exhaust gases

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<sup>2</sup> The admitted prior art in Figures 3A and 3B teaches "use of individual (constituent) gas sensors [14, 12, 42, 44 and 20] coupled to an engine exhaust line," and calibration.

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and the manner of supplying the zero gas and span gas to the analyzer(s) for calibration purposes are not disclosed in Barcellona.

Rankine discloses a method for calibrating Claus chemical process analyzers VIII and IX (Figure 2) that are responsive to carbon dioxide and sulphur dioxide, respectively. The Rankine process comprises the steps of providing a blended calibration gas comprising a known mixture of a zero gas (e.g., nitrogen or air) with the noted constituent gases (i.e., carbon dioxide and sulphur dioxide), and serially supplying to the analyzer units VIII and IX samples of the blended calibration gas for obtaining a series of serial readings of the multiple analyzers for calibration or diagnostic purposes (column 9, lines 19 through 61).

It is the examiner's position (Answer, pages 3 and 4) that:

As to claims 1, 2, 6 and 7; it would have been obvious to provide a blended gas comprising a known mixture of constituent gases to calibrate Kimura's individual sensors because Rankine et al. (col. 7, lines 3-24; col. 9, lines 19-29; Figs. 1, 2) teach supplying a mixture of "carbon dioxide and sulphur dioxide" (col. 9, line 27) to a carbon dioxide analyzing unit VIII and sulphur dioxide analyzing unit IX (col. 7, lines 13-19) that are both positioned in series, and are located downstream of a combustion unit (Figs. 1, 2). While Rankine et al. does utilize a zero gas ("nitrogen" on lines [sic, line] 25 of col. 9) in the blend ("mixture of nitrogen, ... sulphur dioxide" on line 27 of col. 9), Rankine does not expressly

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(although he possibly does) mix the "zero gas" (col. 9, line 26) (i.e. nitrogen) with a "carbon dioxide and sulphur dioxide" (col. 9, line 27) blend to produce the "nitrogen, carbon dioxide and sulphur dioxide" (col. 9, line 27) mixture. It would have been obvious to mix a blend (Rankine's "carbon dioxide and sulphur dioxide" mixture; or Kimura's "blended gas comprising a known mixture of constituent gases" referred to above) with a zero gas because Barcellona et al. teach (Abstract; Figs. 1, 3-6) mixing zero gas  $T_z$  with a second gas source  $T_s$  to provide a plurality of different proportions of calibration gases in a "sequential" (Abstract, line 4 from last) manner to calibrate "analyzers for exhaust gases from internal combustion engines" (col. 1, lines 8-9).

Appellant argues (Reply Brief, pages 4 and 5) that:

In essence, the Examiner apparently wants to ignore Barcellona and the admitted prior art which provide separate span gases, and instead substitute the concept of a blended span gas drawn from a non-analogous process [Rankine]. Then the Examiner apparently wants to reinstate a portion of Barcellona . . . to create a division of the blended span gas as required by claims 1-5 and 6-10, and sequential samples of the blended span gas and divisions thereof as required by claims 1-5. However, nothing in the art would lead one of ordinary skill to draw upon a non-analogous process in that manner. Moreover, nothing in the art would lead one of ordinary skill to select portions of differing processes in the manner apparently adopted by the Examiner; such could be done only with the hindsight benefit of appellant's disclosure.

We agree. In the absence of impermissible hindsight, the examiner's line of reasoning fails to convince us that the skilled artisan would have arrived at appellant's claimed

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invention based upon the disparate teachings of the applied prior art. Thus, the obviousness rejection of claims 1 through 10 is reversed.

DECISION

The decision of the examiner rejecting claims 1 through 10 under 35 U.S.C. § 103 is reversed.

REVERSED

JAMES D. THOMAS	)	
Administrative Patent Judge	)	
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	)	
	)	BOARD OF PATENT
KENNETH W. HAIRSTON	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
	)	
	)	
	)	
ERROL A. KRASS	)	
Administrative Patent Judge	)	

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APPLICATION NO. 08/293,630

APJ HAIRSTON

APJ KRASS

APJ THOMAS

DECISION: **REVERSED**

Typed By: Jenine Gillis

**DRAFT TYPED:** 23 Dec 98

**FINAL TYPED:**