

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VOLKSWAGEN GROUP OF AMERICA, INC.,
Petitioner,

v.

EMERACHEM HOLDINGS, LLC,
Patent Owner.

Case IPR2014-01558
Patent 5,599,758

Before JAMES T. MOORE, SHERIDAN K. SNEDDEN, and
KRISTINA M. KALAN, *Administrative Patent Judges*.¹

MOORE, *Administrative Patent Judge*.

DECISION ON REMAND

¹ Judge Frederick McKelvey, who participated in the original decision, passed away and is unavailable to participate in this decision on remand, and is replaced by Judge Kalan.

I. Background

A final written decision in this matter was rendered January 22, 2016. Paper 59. Patent Owner filed a timely notice of appeal. Paper 64.

The United States Court of Appeals for the Federal Circuit affirmed the decision of the Board in part,² vacated in part,³ and remanded the proceeding to the Board for clarification. *EmeraChem Holdings, LLC v. Volkswagen Grp. of Am.*, 859 F. 3d 1341, 1343 (Fed. Cir. 2017).

A conference call was conducted October 3, 2017, during which the panel and the parties discussed different approaches for addressing the remand order from the Federal Circuit. Ex. 1059.⁴

Petitioner's counsel asserts that, because the Federal Circuit affirmed our decision that claim 17 was unpatentable as obvious over the combination of Campbell, Saito, and Stiles (*id.* at 4:23–11), that combination is proper. As a result, Petitioner urges that the Patent Owner should receive precisely what is asked for on appeal—a chance to address that combination vis-à-vis claims 3, 16, and 20. *Id.* at 5:16–22. Petitioner points to the Director's briefing to the Federal Circuit on rehearing, in which the Office urged an alteration to conform the opinion to the judgment. *Id.* at 6:23–7:12 (citing Ex. 1058, 7). More specifically, the Director's briefing urged:

Here, because the problem with the Board's reliance on Stiles was procedural, the appropriate action was for the Panel to remedy that problem with a procedural solution: remand the case,

² As to the finding that claims 1–2, 4–14, and 17–19 were unpatentable.

³ As to the finding that claims 3, 16, and 20 were unpatentable.

⁴ We observe that the transcript of the call incorrectly references our reviewing court in the case caption. . Ex. 1059, 1.

without restrictions, and direct the Board to afford EmeraChem adequate process. That would allow the Board to conduct the remand in such a way that could provide EmeraChem with an adequate opportunity to respond to the unpatentability theories based on Stiles. But to effectively instruct the Board to ignore prior art of record in the IPR and to uphold claims 3, 16, and 20 against what the Board regards as a significant patentability objection already in the record of the proceeding—Stiles—on remand goes too far; doing so gives EmeraChem a windfall by resolving the “Stiles issue” in its favor without considering the merits of that issue.

Ex. 1058, 7. We note that having been presented with this argument, the Federal Circuit declined to revise its decision.

Counsel for Patent Owner expressed the viewpoint that the Federal Circuit reversed our decision based on Stiles. Ex. 1059, 11:7–12:17. Patent Owner also observes that we were given specific instructions what to do on remand. *Id.* at 12:18–25. Patent Owner expressed the viewpoint that we can consider the sections of the briefing that is already present and then issue clarification. *Id.* at 14:14–18.

We have considered various ways to proceed in this case, including vacating the institution decision, conducting a new trial on claims 3, 16, and 20, or simply allowing supplemental briefing and/or limited additional evidence. Each approach has some advantages and disadvantages, but the one thing each has in common is that it strays from the direct instructions of our reviewing court. Accordingly, while we understand that proceeding on the existing record and briefing may not address all of the potential issues, we believe it hews most truly to the instructions of our reviewing Court—which Court declined to alter its opinion upon request of the Office.

Moreover, we have considered our reviewing Court's directives against the Petitioner's assertion of the primary public interest in this proceeding. Ex. 1059, 28:17–23. We find the Court's instructions to be controlling. Accordingly, we shall consider the record as it stands, and do so below.

II. Discussion

A. The Remand for Claims 3, 16, and 20

Our reviewing court has determined that the prior board panel violated the notice and opportunity to respond requirement of the Administrative Procedures Act, 5 U.S.C. § 554, 556, and 706. *EmeraChem*, 859 F. 3d at 1352. Specifically, the panel determined that the challenged claims were rendered obvious by the combination of Campbell (Ex. 1003A), Saito (Ex. 1008B), and Stiles (Ex. 1009A). Paper 59, 43–45. The panel relied on Stiles for its disclosure of limitations in dependent claims 3, 16, and 20 in the final written decision. *Id.*

On remand, the Federal Circuit presented a specific question to be answered by the Board: whether Saito discloses the dependent limitations in claims 3, 16, and 20. *Id.* We find that, based upon the evidence of record, Saito does not, alone, describe those limitations.

B. The Prior Decision

Familiarity with the prior decision is presumed. For ease of reference and context, Claim 1 recites:

1. A method of regenerating a devitalized absorber having nitrogen oxides absorbed therein or thereon, said method comprising the steps of:
 - providing a stream of regenerating gas comprising a reducing gas, said reducing gas having an effective amount for removing said

nitrogen oxides from said devitalized absorber, and an inert carrier gas; and

passing said stream of regenerating gas comprising an inert carrier gas and a component selected from the group consisting of hydrogen, carbon monoxide and mixtures thereof over said devitalized absorber comprising an alumina support with a platinum coating thereon and having nitrogen oxides absorbed therein or thereon for an effective time, at an effective temperature and at an effective space velocity to remove said nitrogen oxides from said devitalized absorber to form a regenerated absorber.

Ex. 1001, 9:28–44.

Claim 3 recites:

3. The method of claim 1 wherein said regeneration gas further comprises up to 10% carbon dioxide.

Id. at 9:47–48.

Claims 16 and 20 depend from claims 13 and 14. Those claims recite:

13. A method of regenerating a devitalized catalyst/absorber and having nitrogen oxides absorbed therein or thereon, comprising the steps of:

providing a stream of inert carrier gas containing an effectuating amount of a reducing agent selected from carbon monoxide, hydrogen gas and mixtures thereof said stream further characterized as containing at least carbon monoxide or carbon dioxide for removing said nitrogen oxides from said catalyst/absorber and restoring a carbonate form for said alkali or alkaline earth;

passing said gaseous stream over said exhausted catalyst/absorber comprising an oxidation catalyst specie selected from platinum, palladium, rhodium, cobalt, nickel, iron, copper, molybdenum or combinations thereof disposed on a high surface area support, said catalytic component being intimately and entirely coated with an absorber material selected from a hydroxide, carbonate, bicarbonate or mixture thereof of an alkali or alkaline earth or

mixtures thereof and having nitrogen oxides absorbed therein or thereon for an effective time, at a temperature in the range of 250° to 750° F. and at a GHSV in the range of 10 to 100,000 hr⁻¹ to remove said nitrogen oxides from said devitalized catalyst/absorber to form a regenerated catalyst/absorber.

14. The method of claim 13 wherein said inert carrier gas comprises nitrogen, steam or mixtures thereof.

Id. at 10:13–40.

16. The method of claim 14 wherein said inert carrier gas comprises steam.

Id. at 10:44–45

20. The method of claim 14 wherein said inert carrier gas comprises steam.

Id. at 10:53–54.

As regards claim 3, the prior panel stated:

Claim 3 calls for a regenerating gas comprising up to 10% carbon dioxide. According to Patent Owner, Saito describes the presence of carbon dioxide in the exhaust gas, but not the regeneration gas. Paper 29, page 33; Saito, Ex. 1008B, page 4:17. Overlooked, and not addressed by Patent Owner, is a description of the use of carbon dioxide in a reducing gas described by Stiles. Ex. 1009A, col. 5:52–55 (“[t]he absorbent . . . is regenerated for reuse by passing a gas containing . . . hydrogen in nitrogen; both carbon dioxide and water vapor can also be present”).

Paper 59, 44.

As regards claims 16 and 20, the prior panel stated:

Claims 16 and 20 require steam to be present in the carrier gas. Paper 29, pages 34–35. While agreeing that Saito describes

the use of steam in the exhaust gas, Patent Owner maintains that Saito does not describe the presence of steam in the regeneration gas. *Id.* Overlooked by Patent Owner is a teaching in Stiles that the regeneration gas can contain “water vapor.” Ex. 1009A, col. 5:55. What is clear from the record is that the regeneration gas can contain hydrogen, nitrogen, carbon dioxide, and water vapor per Stiles and hydrogen, ammonia, carbon monoxide, and hydrocarbons per Saito. Selection of a particular gas has not been shown to be beyond the skill in this art. In fact, we note that selection of a particular gas appears to be a function of the reduction process undertaken. Ex. 1009A, col. 1:58–63 (discussing use of ammonia in an SCR process).

Id. at 45.

C. The Findings on Remand

The question presented on remand is whether Saito, Ex. 1008B (corrected) describes the presence of up to 10% carbon dioxide in the regenerating gas, as in claim 3, or the presence of steam in the regenerating gas, as in claims 16 and 20.

Returning to the Petition, Petitioner contended that Saito described “1 to 15 vol. % of carbon dioxide gas” in the exhaust gas. Pet. 41 (citing Ex. 1008, 4). Petitioner also contended that Saito described that the exhaust gas contains “1 to 15 vol. % of water vapor,” and temperature is “150 to 800° C, and in particular 200 to 700° C.” *Id.* at 44 (citing Ex. 1008, 4).

Patent Owner, on the other hand, observed that Saito uses two catalyst beds and regenerates each catalyst bed independently of each other. PO Resp. 21, 24. By the use of valving, Patent Owner argued, the reducing agent is introduced into the catalyst bed through which exhaust gas is not flowing. *Id.* (citing Ex. 1008B, 3, right column).

We observe that Saito Figure 1 illustrates the valves (reference numerals 3 and 4) and separate fluid paths:

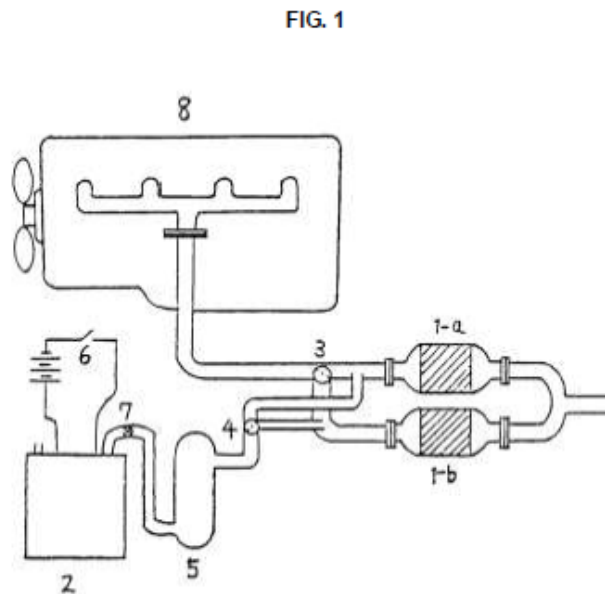


Figure 1 is a schematic diagram of an engine and catalytic exhaust

The valves in Saito are said to introduce the regeneration gas into the catalyst bed through which the exhaust is not flowing. Ex. 1008B, 3, right hand column, first paragraph. Dr. Crocker so testifies. Ex. 2006, ¶ 24.

Dr. Farrauto did so as well during his cross-examination. Ex. 2003, 175:4–10.

During the conference call counsel for Petitioner urged that Saito:

discloses two embodiments. One where there's a low oxygen content and one where there's a high oxygen content. When there is a high oxygen content, they shut off one of the beds and only put hydrogen through. But it says when the content is low or it's zero or substantially low, then you can use the exhaust as the carrier gas.

Ex. 1059, 25:25–26:9.

We do not find Saito to say that the exhaust can be the carrier gas. In particular, Saito itself states that the method includes stopping the flow of the exhaust gas. Ex. 1008B, 3, left hand column, l. 4. Hydrogen is introduced to the catalyst bed “through which the exhaust is not flowing.” *Id.*, right hand column, ll. 4–8.

As a consequence, and as instructed by our reviewing court, we clarify our findings of the decision rendered January 22, 2016. We expressly find that the evidence of record as presented by the petition does not establish that Saito describes the dependent limitations of claims 3, 16, and 20.

Given the stated limited purpose of the remand and our reviewing court’s viewpoint in the last paragraph of the decision, we appear to be somewhat constrained from providing, and therefore decline to provide, further proceedings in this matter as discussed above.

We therefore conclude that the Petitioner did not carry its burden of proof as regards claims 3, 16, and 20 in the instant proceeding.

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