

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MOHINDER S. CHATTHA,
SOMASUNDARAM SUBRAMANIAN, and
WILLIAM L.H. WATKINS

Appeal No. 95-2734
Application 07/952,060¹

ON BRIEF

Before JOHN D. SMITH, GARRIS, and WEIFFENBACH, Administrative Patent Judges.
GARRIS, Administrative Patent Judge.

¹ Application for patent filed September 28, 1992.

DECISION ON APPEAL

This is a decision on an appeal from the final rejection of claims 1² through 20 which are all of the claims in the application.

The subject matter on appeal relates to a catalyst for promoting oxidation-reduction reactions with the exhaust gas of an internal combustion engine, to a corresponding process for so treating such exhaust gas and to a process for making the aforementioned catalyst. This subject matter is adequately illustrated by independent claims 1, 6, and 18, which read as follows:

1. A catalyst for promoting oxidation-reduction reactions with the exhaust gases produced by an internal combustion engine comprising:

tungsten oxide;

a basic metal oxide having a Ph_{pzc} [sic, pH_{pzc}] greater than that of tungsten oxide;
and

a noble metal wherein at least 51 weight percent of the total weight of the basic metal oxide is present as a separate layer in juxtaposed relation to the tungsten oxide.

6. A catalyst for promoting oxidation-reduction reactions with the exhaust gases produced by an internal combustion engine comprising:

a composite oxide comprised of:

a refractory inorganic oxide;

² In claim 1, the capitalization of pH is in error and should be corrected in any further prosecution that may occur.

tungsten oxide in juxtaposed relation with the refractory inorganic oxide;
and

a basic metal oxide having a pH_{pzc} greater than tungsten oxide, wherein no more than 35 weight percent of the total weight of the basic metal oxide is present in the refractory inorganic oxide; and

arrayed on the composite oxide a noble metal.

18. A process for making a catalyst for promoting oxidation-reduction reactions with the exhaust gases produced by an internal combustion engine comprising:

providing a refractory inorganic oxide deposited on a monolithic substrate;

contacting the refractory inorganic oxide with a tungsten containing compound and calcining to make a tungsten oxide treated material;

contacting the tungsten oxide treated material with a basic metal precursor and calcining to make a basic metal oxide treated material, wherein the basic metal oxide has a pH_{pzc} greater than tungsten oxide and the refractory inorganic oxide contains no more than 35 weight percent of the total weight of the basic metal oxide; and

contacting the basic metal oxide treated material with a noble metal containing compound and calcining.

The reference relied upon by the examiner in the rejections before us is set forth below:

Wyatt et al. (Wyatt)

4,500,650

Feb. 19, 1985

Claims 1, 3 through 6, 9, 11 through 16, and 18 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Wyatt.

Claims 1 through 20 stand rejected under 35 U.S.C. § 103 as being obvious over Wyatt.

The claims on appeal have been grouped and argued separately as indicated on page 2 of the Brief and will be so considered in the opinion below.

Opinion

For the reasons which follow, we will sustain only the § 103 rejection of claims 1 through 5, 12 through 14, and 17 as being obvious over Wyatt.

Wyatt discloses a three-way catalyst for treating exhaust gases produced by an internal combustion engine which includes a monolithic substrate having thereon a refractory oxide layer (also called the washcoat), tungsten oxide, and a platinum group metal (e.g., see lines 39 through 61 in column 1). Further, patentee teaches that the refractory oxide layer may be made from a variety of compounds including oxides of barium and the lanthanides (e.g., see lines 54 through 56 in column 1). In this latter regard, the paragraph bridging pages 7 and 8 of the appellants' specification reveals that barium oxide and lanthanum oxide are basic metal oxides having pH_{pzc} values greater than that of tungsten oxide as required by the appealed claims.

Thus, the Wyatt catalyst may include each of the ingredients defined by the appealed claims. Additionally, this catalyst may be prepared by depositing and firing

the ingredients in several different ways including the deposition and firing of the washcoat followed by the deposition and firing of the tungsten and platinum group metals (e.g., see lines 4 through 16, especially lines 11 through 16, in column 2). This last mentioned preparation technique would result in a separate refractory oxide layer having the here claimed juxtaposed relation to tungsten oxide.

In light of the foregoing, it is our opinion that a catalyst corresponding to that of appealed claim 1 would have been obtained by picking and choosing from Wyatt's disclosure of many suitable refractory oxide compounds, a barium oxide or a lanthanum oxide specifically as a washcoat material and by picking and choosing from patentee's several catalyst-preparation techniques, the specific technique discussed above. Because the catalyst under consideration is the consequence of picking and choosing rather than clear and unequivocal direction from the Wyatt reference, we cannot sustain the examiner's § 102 rejection of appealed claim 1 or of appealed claims 3 through 5 and 12 through 14 which include all of the claim 1 limitations. In re Arkley, 455 F.2d 586, 587, 172 USPQ 524, 526 (CCPA 1972). Nevertheless, we are confident that it would have been obvious for one with ordinary skill in the art to have made these selections notwithstanding the large number of selection combinations embraced by patentee's disclosure. Merck & Co. v. Biocraft Labs., Inc., 874 F.2d 804, 808, 10 USPQ2d 1843, 1846 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989).

We cannot agree with the appellants' basic position that Wyatt would not have suggested the claim 1 feature of a basic metal oxide present as a separate layer in juxtaposed relation to the tungsten oxide. Patentee explicitly teaches forming a refractory oxide washcoat in the form of a layer from compounds which correspond to the here claimed basic metal oxide. Moreover, as a result of patentee's previously mentioned deposition and firing technique, this oxide layer would be separate and in juxtaposed relation to the tungsten oxide deposited thereon.³ Finally, it is our perspective that this catalyst preparation technique would necessarily result in all of the barium oxide or lanthanum oxide being present as the separate layer, thereby satisfying the "at least 51 percent" requirement of the appellants' claim 1.

For the above stated reasons, we will sustain the examiner's § 103 rejection over Wyatt of independent claim 1 and of nonargued dependent claims 2 through 5. We will also sustain the § 103 rejection over Wyatt of process claims 12 through 14 and 17 which correspond to catalyst claims 1 through 5.

As previously explained, the § 102 rejection of claims 1, 3 through 5, and 12 through 14 cannot be sustained. In addition, we also cannot sustain either the § 102 rejection of claims 6, 9, 11, 15, and 18 or the § 103 rejection of claims 6 through 11, 15,

³ Appealed claim 1 does not require that the ingredients therein be arranged in any particular order and therefore encompasses a catalyst wherein the tungsten oxide is deposited on the separate basic metal oxide layer.

Appeal No. 95-2734
Application 07/952,060

16, and 18 through 20. This is because Wyatt contains no teaching or suggestion of the feature required by all these claims where “no more than 35 weight percent of the total weight of the basic metal oxides” is present in the refractory inorganic oxide. In Wyatt’s catalyst, 100 percent of the barium oxide or lanthanum oxide would be present in the refractory oxide layer because these are the compounds from which the layer is made. Furthermore, it is clear to us that Wyatt contains no teaching or suggestion concerning the specific steps and sequences of the catalyst making process defined by appealed claim 18 notwithstanding the examiner’s unembellished position to the contrary.

In summary, we sustain the examiner’s § 103 rejection of claims 1 through 5, 12 through 14, and 17 but do not sustain any of the other rejections before us on this appeal.

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

Appeal No. 95-2734
Application 07/952,060

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

John D. Smith)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
Bradley R. Garris)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
)	
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Appeal No. 95-2734
Application 07/952,060

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