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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KWIN ABRAM, IVAN ARBUCKLE, KAMILLA
ISKENDEROVA, JAMES EGAN, and DENNIS SHAW

Appeal 2010-008503
Application 11/964,062
Technology Center 2800

Before JOHN A. JEFFERY, BRUCE R. WINSOR, and
TRENTON A. WARD, *Administrative Patent Judges*.

WARD, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-24. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

STATEMENT OF THE CASE

Appellants' claimed invention relates to exhaust systems deploying a passive valve and resonator assembly. *See generally* Spec. ¶¶ 8-9. Claim 1 is illustrative with certain disputed limitations italicized:

1. A vehicle exhaust system comprising:
a first exhaust component having a first inlet and a first outlet;
a second exhaust component positioned downstream of said first exhaust component, wherein said second exhaust component defines an internal cavity with a second inlet and a second outlet, said *internal cavity being at least partially packed with a high frequency absorption material*;
an inter-pipe connecting said first outlet with said second inlet;
and
a passive valve mounted within said inter-pipe.

THE REJECTIONS

(1) The Examiner rejected claims 1-11 and 13-24 under 35 U.S.C. § 103(a) as unpatentable over Wakamatsu (JP 2000-257418 A; published Sept. 19, 2000) and Peube (US 5,655,367; issued Aug. 12, 1997). Ans. 3-8.

(2) The Examiner rejected claim 12 under 35 U.S.C. § 103(a) as unpatentable over Wakamatsu, Peube, and Mukai (US 5,726,397; issued March 10, 1998). Ans. 8-9.

OBVIOUSNESS REJECTION OVER WAKAMATSU AND PEUBE

Claims 1, 2, and 5

The Examiner finds that Wakamatsu teaches every recited feature of claim 1 except a high frequency absorption material positioned within said internal cavity. Ans. 7-8. The Examiner cites Peube, in combination with Wakamatsu, as teaching or suggesting this limitation in concluding that the claim would have been obvious. *Id.*

Appellants argue that it would not have been obvious to combine Wakamatsu with Peube because Wakamatsu teaches away from the claimed invention. App. Br. 4. Specifically, Appellants argue that claim 1 requires a passive valve to be mounted in the inter-pipe, but Wakamatsu teaches

locating the valve between the converter 1 and the sub-muffler 2, not within an inter-pipe. App. Br. 5. Additionally, Appellants argue that Peube fails to teach using a high frequency absorption material in the second exhaust component. *Id.*

ISSUE

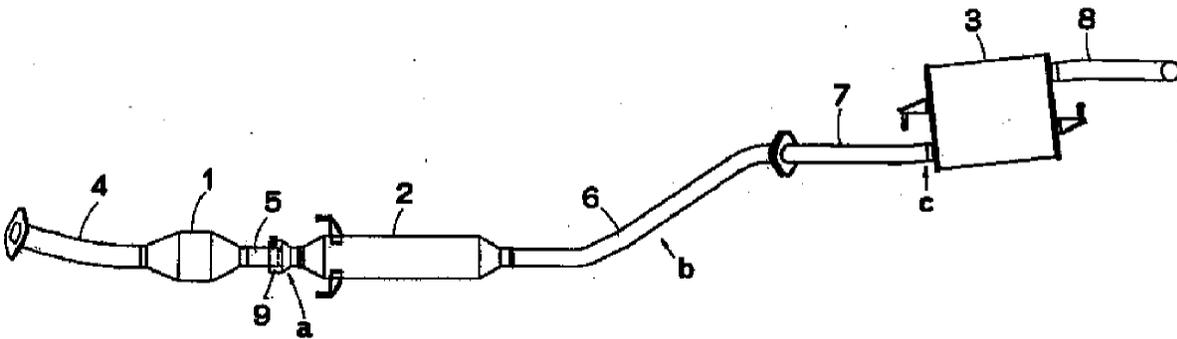
Under § 103, has the Examiner erred in rejecting claim 1 by finding that the cited references collectively would have taught or suggested that a passive valve mounted in an inter-pipe connecting said first outlet with said second inlet and a high frequency absorption material in the second exhaust component?

ANALYSIS

On this record, we find no error in the Examiner's obviousness rejection of claim 1. Appellants make three arguments regarding the Examiner's reliance upon Wakamatsu and Peube in rejecting claim 1 and we address Appellants' arguments *seriatim*.

First, Appellants argue that claim 1 requires a passive valve to be mounted in the inter-pipe, but Wakamatsu teaches locating the valve between the converter 1 and the sub-muffler 2, not within an inter-pipe. App. Br. 5. Wakamatsu teaches that the passive valve 9 in its muffler system can be arranged at position "a," "b," or "c" in the muffler system, as shown in Wakamatsu's Drawing 1 reproduced below. Wakamatsu, ¶ 19.

[Drawing 1]



Wakamatsu's Drawing 1 shows a diagram of an exhaust silencer system with a catalytic converter 1, submuffler 2, main muffler 3, valve motion 9, and exhaust pipes 5, 6, and 7. Wakamatsu, ¶ 10.

The Examiner finds that the claim 1 requirement of a passive valve in the inter-pipe is taught by Wakamatsu's passive valve 9 being positioned at location "b." Ans. 4 (citing Wakamatsu, ¶ 19). Appellants contend that Wakamatsu's teaching of the passive valve 9 at location "a" constitutes a teaching away on the grounds that Wakamatsu teaches that location "a" is very beneficial. App. Br. 4-5. Contrary to Appellants' arguments, Wakamatsu provides a graph in Drawing 6 of the exhaust air noise created with the passive valve 9 at all three locations (a, b, and c), and states that location "a" "serves as the minimum." Wakamatsu, ¶ 19. Wakamatsu does not teach that placing the passive valve 9 at location "b" or "c" renders the system inoperable or even unsatisfactory. As cited by the Examiner, Drawing 6 of Wakamatsu illustrates that there is a reduction in sound when the passive valve 9 is positioned in the inter-pipe at location "b." Ans. 9. Accordingly, we are not persuaded by Appellants' arguments that Wakamatsu teaches away from placing the passive valve in the inter-pipe.

Second, Appellants argue that Wakamatsu teaches away from placing absorption material in the second exhaust component because Wakamatsu teaches that the second exhaust component can be reduced to provide a weight savings. App. Br. 5 (citing Wakamatsu, ¶ 18). Wakamatsu teaches that the addition of submuffler 2 (mapped to the claimed first exhaust component) into the exhaust system reduces the requirements on main muffler 3 (mapped to the claimed second exhaust component) and, thus, a weight savings can be achieved in main muffler 3. Wakamatsu, ¶ 18. This does not amount to a teaching away with respect to placing absorption material in the main muffler, as Wakamatsu does not teach that a weight savings in main muffler 3 is required or necessary for the performance of the exhaust system in Wakamatsu. Accordingly, we are not persuaded by Appellants' arguments that Wakamatsu teaches away from placing absorption material in the second exhaust component.

Third, Appellants argue that Peube does not teach a "packed second exhaust component in a passive valve configuration" because Peube is directed to "an exhaust pipe that utilizes an actively controlled valve 14 between two lined sections of the pipe." App. Br. 5-6. Appellants' arguments regarding the passive valve configuration in Peube are unpersuasive because the Examiner does not rely upon Peube for this claim element, but instead relies upon passive valve 9 disclosed in Wakamatsu. *See Ans. 3-4.*

We therefore find that enhancing Wakamatsu's exhaust system with the high frequency absorption materials taught in Peube predictably uses prior art elements according to their established functions—an obvious improvement. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007).

Accordingly, we not persuaded that the Examiner erred in rejecting claim 1, and claims 2, and 5 not separately argued with particularity.

Claims 3 and 4

With respect to claim 3, Appellants argue that Peube fails to teach that the first and second exhaust components 13a, 13b comprise first and second resonators. App. Br. 6. The Examiner finds that Appellants' Specification states that "mufflers and resonators include acoustic chambers that cancel out sound waves carried by the exhaust gases." Ans. 11 (citing Spec. ¶ 3). Because the exhaust components 13a and 13b disclosed in Peube cancel out sound waves carried by exhaust gases, the Examiner finds that these exhaust components 13a and 13b are resonators. *Id.* It is noted that Appellants argue that the Peube's exhaust components 13a and 13b are not resonators, but Appellants fail to provide any distinction or definition as to what is required by the resonators recited in claim 3 that is not present in the exhaust components 13a and 13b disclosed in Peube. *See* App. Br. 6-7. We therefore see no error in the Examiner's position that Peube teaches a first and second resonator and sustain the Examiner's rejection of claim 3, and claim 4 not separately argued with particularity.

Claim 6

Appellants argue that neither cited reference teaches or suggests that the second exhaust component is defined by a pipe diameter and that the passive valve is mounted within the inter-pipe at a distance from the second inlet of the second exhaust component that is at least four times said pipe diameter, as required by claim 6. App. Br. 7. The Examiner finds that

configuring the distance to be at least four times said pipe diameter would have been an obvious design choice because such a modification would have involved a mere change in the size of a component. Ans. 5.

Additionally, the Examiner finds that Appellants' Specification fails to provide any disclosure or supporting data to show any criticality of the relationship of the valve location and pipe diameter. Ans. 12. In view of Appellants' failure to provide any support that the passive valve distance is anything more than an obvious design choice, we see no error in the Examiner's findings.

Similar to the arguments for claim 1, Appellants additionally argue that the rejection of claim 6 is improper because Wakamatsu teaches away from placing valve 9 at location "b." App. Br. 8. We are not persuaded by Appellants' argument for the same reasons stated above for claim 1. Accordingly, we sustain the Examiner's rejection of claim 6.

Claims 7 and 8

Appellants argue that Peube does not teach or suggest that the flow path comprises a sole flow path through the second exhaust component, as required by claim 7. App. Br. 8. Specifically, Appellants argue that Peube discloses a pipe having two lined portions 13a, 13b separated by an unlined portion that receives an actively controlled valve 14. *Id.*

The Examiner finds that the exhaust component 13b in Peube provides a sole flow path through the component 13b. Ans. 12. Appellants' arguments with respect to the unlined portion between exhaust component 13a and exhaust component 13b are irrelevant, because the Examiner does not rely upon this unlined portion, but instead relies upon the portion internal

to exhaust component 13b. *See* Ans. 6 (citing Peube col. 5, ll. 5-21). We therefore sustain the Examiner's rejection of claims 7 and 8.

Claim 9

Similar to the arguments for claim 1, Appellants additionally argue that the rejection of claim 9 is improper because Wakamatsu teaches away from placing valve 9 at location "b." App. Br. 8-9. We are not persuaded by Appellants' teaching away argument for the same reasons stated above for claim 1. Accordingly, we sustain the Examiner's rejection of claim 9.

Claims 10 and 11

Appellants argue that Peube does not teach or suggest a perforated section within the internal cavity wherein the high frequency absorption material is positioned to contact at least a portion of the perforated section, as required by claims 10 and 11. App. Br. 9. Specifically, Appellants argue that Peube fails to teach a tube extending through 13b which includes a perforated section. *Id.*

Contrary to Appellants' arguments, the Examiner cites to the disclosures in Peube that state that the absorption material in exhaust component 13b is "held in place by a meshing or a perforated metal sheet," and Figure 3 in Peube illustrates that the perforated sections are shown to be in contact with the pipe extending through exhaust component 13b. Ans. 13 (citing Peube, col. 5, ll. 15-21). Therefore, we see no error in the Examiner's position that Peube teaches or suggests a perforated section within the internal cavity wherein the high frequency absorption material is

positioned to contact at least a portion of the perforated section.

Accordingly, we sustain the Examiner's rejection of claims 10 and 11.

Claims 13 and 17

With respect to claims 13 and 17, Appellants present arguments similar to those presented for claims 10 and 11. App. Br. 9-10. We are not persuaded by Appellants' arguments for the same reasons stated above for claims 10 and 11. Accordingly, we sustain the Examiner's rejection of claims 13 and 17.

Claim 14

Appellants argue that Peube does not teach or suggest a pipe that occupies a portion of the internal cavity leaving a remaining portion, and wherein the remaining portion of the internal cavity is completely packed with a high frequency absorption material to provide the packed second exhaust component. App. Br. 10. Specifically, Appellants argue that Peube teaches a pipe 8 that includes an unlined portion. App. Br. 9.

Appellants' arguments are contrary to the Examiner's findings because, as noted above, the Examiner does not rely upon the unlined portion of pipe 8 in Peube but instead cites the exhaust component 13b as teaching the second exhaust component. As shown in Figure 3 of Peube, and found by the Examiner, the remaining portion of internal cavity not occupied by the pipe is filled with high frequency absorption material. Ans. 14 (citing Peube Fig. 3). Accordingly, we sustain the Examiner's rejection of claim 14.

Claim 15

With respect to claim 15, Appellants present arguments similar to those presented for claim 1. App. Br. 10-11. We are not persuaded by Appellants' arguments for the same reasons stated above for claim 1. Accordingly, we sustain the Examiner's rejection of claim 15.

Claim 16

With respect to claim 16, Appellants present arguments similar to those presented for claim 13. App. Br. 11. We are not persuaded by Appellants' arguments for the same reasons stated above for claim 13. Accordingly, we sustain the Examiner's rejection of claim 16.

Claim 18

With respect to claim 18, Appellants present arguments similar to those presented for claim 1. App. Br. 11. We are not persuaded by Appellants' arguments for the same reasons stated above for claim 1. Accordingly, we sustain the Examiner's rejection of claim 18.

Claims 19 and 20

With respect to claims 19 and 20, Appellants present arguments similar to those presented for claims 10 and 13. App. Br. 11-12. We are not persuaded by Appellants' arguments for the same reasons stated above for claims 10 and 13. Accordingly, we sustain the Examiner's rejection of claims 19 and 20.

Claim 21

With respect to claim 21, Appellants present an argument regarding the lack of a teaching of resonators in Peube similar to the argument presented for claim 3. App. Br. 12. We are not persuaded by Appellants' arguments for the same reasons stated above for claim 3.

Additionally, Appellants argue that Peube fails to teach configuring the passive valve at a predetermined distance from the second exhaust component. *Id.* The Examiner finds that the valve taught or suggested in Peube is provided for manufacturing purposes at a predetermined fixed distance from exhaust component 13b. App. Br. 15. We are not persuaded of error in the Examiner's findings; thus, we sustain the Examiner's rejection of claim 21.

Claim 22

With respect to claim 22, Appellants present arguments similar to those presented for claims 1 and 6. App. Br. 12-13. We are not persuaded by Appellants' arguments for the same reasons stated above for claims 1 and 6. Accordingly, we sustain the Examiner's rejection of claim 22.

Claim 23

With respect to claim 23, Appellants present arguments similar to those presented for claim 1. App. Br. 13. We are not persuaded by Appellants' arguments for the same reasons stated above for claim 1. Accordingly, we sustain the Examiner's rejection of claim 23.

Claim 24

With respect to claim 24, Appellants present arguments similar to those presented for claims 7 and 8. App. Br. 14. We are not persuaded by Appellants' arguments for the same reasons stated above for claims 7 and 8. Accordingly, we sustain the Examiner's rejection of claim 24.

OBVIOUSNESS REJECTION OVER
WAKAMATSU, PEUBE, AND MUKAI

Appellants argue that claim 12 is allowable over Wakamatsu, Peube, and Mukai because Mukai fails to remedy the deficiencies of Wakamatsu and Peube argued by Appellants with respect to the rejection of claim 1. App. Br. 14. We are not persuaded that the Examiner erred in rejecting claim 12 for the reasons stated above for claim 1.

ORDER

The Examiner's decision rejecting claims 1-24 under § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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