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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/166,636	06/24/2005	Michael J. Sinclair	312604.02	6705

27366 7590 01/31/2013

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EXAMINER	
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ART UNIT	PAPER NUMBER
3729	

MAIL DATE	DELIVERY MODE
01/31/2013	PAPER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHAEL J. SINCLAIR

Appeal 2010-006174
Application 11/166,636
Technology Center 3700

Before EDWARD A. BROWN, JAMES P. CALVE, and CARL M. DEFRANCO, *Administrative Patent Judges*.

BROWN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 15-20. App. Br. 2. Claims 1-14 have been withdrawn. *Id.* We have jurisdiction over this appeal under 35 U.S.C. § 6(b).

We reverse.

THE CLAIMED SUBJECT MATTER

Claim 15, reproduced below, is the sole independent claim on appeal and illustrative of the appealed subject matter:

> 15. A method of manufacturing an accelerometer, the method comprising:
> manufacturing a casing;
> installing an electret, a back plate and an electronic circuit in the casing;
> installing a diaphragm in the casing; and
> sealing the casing to isolate the diaphragm from external acoustic signals.

THE REJECTIONS

Appellant requests review of the following rejections:

1. Claims 15 and 17-19 are rejected under 35 U.S.C. § 103(a) as unpatentable over Tanabe (US 2003/0068055 A1; pub. Apr. 10, 2003) and Valderrama Reyes (US 2004/0255679 A1; pub. Dec. 23, 2004)

2. Claim 16 is rejected under 35 U.S.C. § 103(a) as unpatentable over Tanabe, Valderrama Reyes, and Varadan (US 5,366,664; iss. Nov. 22, 1994).

3. Claim 20 is rejected under 35 U.S.C. § 103(a) as unpatentable over Tanabe, Valderrama Reyes, and Nakagawa (US 4,281,222; iss. Jul. 28, 1981).

ANALYSIS

Rejection of claims 15 and 17-19 – Tanabe and Valderrama Reyes

Claims 15 and 18

Claim 15 is directed to a method of manufacturing an accelerometer comprising, *inter alia*, "installing a diaphragm in the casing" and "sealing the casing to isolate the diaphragm from external acoustic signals." We construe the claim terms "sealing" and "isolate" in view of Appellant's Specification to mean that the casing itself is sealed such that the diaphragm is isolated from external acoustic signals, so that the diaphragm is not affected by acoustic waves. *See* App. Br. 2; Spec. 12, ll. 23-25, Figs. 5, 6.

The Examiner found that Tanabe discloses a process of making an electret microphone comprising installing a diaphragm 10 in a casing 16 (shield case), and sealing the casing 16, but that Tanabe does not disclose sealing the casing to isolate the diaphragm from external signals. Ans. 3 (citing Tanabe, paras. [0027] - [0031]; fig. 2).

The Examiner also found that Valderrama Reyes teaches a process of making a microphone having an external high-resistant polymer casing and multiple lateral insulating layers to prevent interference from external acoustic noise. Ans. 3 (citing Valderrama Reyes, para. [0028]). The Examiner concluded that it would have been obvious to one of ordinary skill in the art to modify Tanabe's casing with Valderrama Reyes's teaching of an external high-resistant polymer casing and multiple lateral insulating layers to prevent interference from external acoustic noise in operation. Ans. 3.

Appellant contends that Valderrama Reyes does not disclose sealing a casing to isolate a diaphragm from external acoustic signals. App. Br. 3. Valderrama Reyes describes a sensor array 210 depicted in Figure 3, that includes microphone-type acoustic sensors 315, and states that "[t]he microphones have an *external* high-resistant polymer casing and multiple lateral insulating layers to prevent interference from external acoustic noise when in operation." Valderrama Reyes, para. [0028](emphasis added). Appellant contends that this reference to the polymer casing being "external" indicates that the insulating layers are within (internal to) the polymer casing, and thus do not seal the external polymer casing. App. Br. 4. Appellant also contends that persons skilled in the art would not interpret Valderrama Reyes as using a casing that is sealed because the microphone "is provided to capture a sound signal of a mill such that 'the sound signal produced by mill 100 is not altered.'" App. Br. 4 (citing Valderrama Reyes, para. [0029]). Appellant contends that sealing the casing would keep the microphone from capturing the actual sound signal and thus would destroy the functionality of Valderrama Reyes. App. Br. 4. Appellant also contends that persons skilled in the art "would recognize that the casing *must be open and not sealed* in order to receive the sound signal produced by mill 100 without alteration." *Id.* (emphasis added).

In response, the Examiner stated that, according to paragraph [0028] of Valderrama Reyes, "the microphone has [an] external high-resistance polymer casing (for sealing) to prevent interference from external acoustic noise when in operation[,]" and therefore the microphone that is produced by Tanabe "is sealed or cased by the external high-resistance polymer casing for preventing interference from external acoustic noise." Ans. 6.

We agree with Appellant that Valderrama Reyes' disclosure that the external high-resistant polymer casing and multiple lateral insulating layers prevent interference from external acoustic noise does not support the Examiner's finding that Valderrama Reyes discloses sealing the external polymer casing, much less to isolate the diaphragm from external acoustic signals so that the diaphragm is not affected by acoustic signals.
We also agree with Appellant that the Examiner has not articulated an adequate reason with a rational underpinning as to why one of ordinary skill in the art would have sealed the casing of Tanabe's microphone "to isolate the diaphragm from external acoustic signals." Like Valderrama Reyes' microphone, Tanabe's device is also a microphone. Tanabe states that "[w]hen the diaphragm electrode **10** is vibrated by air entering the frame **8**, the capacitance of the condenser changes with the vibration of the diaphragm electrode **10** to generate an electric signal." *See* Tanabe, para. [0031]. In Tanabe, air that enters the frame 8 through an opening in the case 16 affects the diaphragm electrode 10 to enable it to vibrate and the device to function as a capacitive microphone. Accordingly, we do not sustain the rejection of claim 15, and claims 17 and 19, which depend therefrom.

Rejection of claim 16 – Tanabe, Valderrama Reyes, and Varadan

Claim 16 depends from claim 15 and recites "sealing the casing comprises placing a plug in a hole of the casing." The Examiner relied on Varadan for teaching an electromagnetic shielding material (EMI/EMC) gasket for enclosing an opening to prevent interference from external acoustic noise. Ans. 4 (citing Varadan, col. 1, ll. 10-35). The Examiner concluded that it would have been obvious to modify the Tanabe electret

microphone, as modified by Valderrama Reyes, by providing Varadan's electromagnetic shielding material to prevent interference from external acoustic noise in operation. Ans. 4.

Appellant correctly contends that Varadan describes using an EMI/EMC gasket to surround an opening, which is not a disclosure of placing a plug in a hole of an enclosure. App. Br. 6. The Examiner did not make a finding that Varadan's gasket is used to prevent interference from external *acoustic* noise. Appellant also contends that persons skilled in the art would not apply Varadan's electromagnetic (noise) isolation techniques to the microphones of Tanabe and Valderrama Reyes, as the functionality of these microphones would be destroyed because air must be able to enter Tanabe's microphone for it to work, and Valderrama Reyes' microphone would not be able to capture the actual sound signal produced by the mill. *Id.* at 7. We agree that the Examiner did not articulate an adequate reason with a rational underpinning as to why one of ordinary skill in the art would have modified the microphone of either Tanabe or Valderrama Reyes in view of Varadan by sealing the casing by plugging a hole to prevent interference from external acoustic noise in operation. Accordingly, we do not sustain the rejection of claim 16.

Rejection of claim 20 – Tanabe, Valderrama Reyes, and Nakagawa

Claim 20 depends from claim 15 and recites "further comprising installing a dampening material that is in contact with the diaphragm before sealing the casing." The Examiner relied on Nakagawa for teaching a process of making an electret microphone including "a damping material (21) in contact with the diaphragm." Ans. 4 (citing Nakagawa, fig. 2).

Appellant contends that Nakagawa's dampening material 21 is not "in contact with" diaphragm 16 in Figure 2. App. Br. 2; *see also* Reply Br. 1-2. We agree. Figure 2 of Nakagawa shows that the back electrode 19 is positioned between the damper material 21 and diaphragm 16. The damper material 21 is spaced from, not in contact with, diaphragm 16, in Nakagawa's electret microphone. The Examiner's application of Nakagawa with respect to claim 20 does not cure the deficiencies of Tanabe and Valderrama Reyes discussed *supra* in regard to the rejection of claim 15. We do not sustain the rejection of claim 20.

DECISION

The Examiner's decision rejecting claims 15-20 is REVERSED.

REVERSED

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