

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

META PLATFORMS, INC.,

Petitioner,

v.

JAWBONE INNOVATIONS, LLC,

Patent Owner.

Patent No. 7,246,058

Filing Date: May 30, 2002

Issue Date: July 17, 2007

Inventor: Gregory C. Burnett

Title: DETECTING VOICED AND UNVOICED SPEECH USING
BOTH ACOUSTIC AND NONACOUSTIC SENSORS

PATENT OWNER'S PRELIMINARY RESPONSE

Case No. IPR2023-01352

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EXHIBIT LIST

Exhibit No.	Description of Document
2001	Transcript of the Deposition of David J. Anderson, taken February 3, 2023

I. INTRODUCTION

On August 31, 2023, Meta Platforms, Inc., (“Meta” or “Petitioner”) filed a Petition requesting *inter partes* review of Claims 1-5 (“Challenged Claims”) of U.S. Patent No. 7,246,058 (the “’058 Patent,” Ex. 1001). Paper 1 (“Petition” or “Pet.”). The Declaration of David V. Anderson (Ex. 1003) accompanied the Petition. On September 11, 2023, the Board issued a Notice of Filing Date Accorded for the Petition and set the time for filing patent owner’s preliminary response. Paper 3.

The Board should deny Meta’s Petition because it has failed to show that its combination renders obvious any claims of the ’058 Patent. Meta’s combination fails to disclose many of the key limitations of the independent claims, including the voicing sensor and correlation limitations. In particular, Meta misapprehends its primary reference, Meisel, which relies on a push-to-talk button to detect speech, instead conflating Meisel’s throat microphone (which merely distinguishes between voiced and unvoiced consonants) with the claimed voicing sensor. Meta entirely ignores Meisel’s push-to-talk based design. But Meisel’s approach to speech recognition relies on its push-to-talk to delineate speech and non-speech period, and fundamentally differs from the voicing sensor-based noise suppression claimed in the ’058 Patent.

In addition to its failure to show that various limitations are disclosed, Meta’s alleged motivations do not hold up to any degree of scrutiny. Among other issues,

Meisel's usage of a push-to-talk button renders Meta's proposed changes to Meisel's throat microphone nonsensical.

II. THE '058 PATENT

The '058 Patent' describes systems and methods for detecting voiced and unvoiced speech in acoustic signals using physiological information. '058 Patent, Abstract. Previous methods "for classifying voiced and unvoiced speech have relied mainly on the acoustic content of microphone data, which is plagued by problems with noise and the corresponding uncertainties in signal content." '058 Patent, 1:34-37.

In contrast to previous methods which rely on acoustic data, the '058 Patent utilizes a voicing sensor which receives non-acoustic physiological information. *Id.*, 3:10-15 (discussing "non-acoustic sensor to enable detection of voiced speech in any environment"). While many different sensors may be usable as the voicing sensor, the invention requires a "sensor that is able to detect human tissue motion associated with speech and is unaffected by environmental acoustic noise." *Id.*, 3:61-63.

In particular, the '058 Patent receives acoustic signals at two microphones. *Id.*, 1:16-9, 2:38-47. The system also receives physiological information from the voicing sensor. *Id.*, 5:26-31, 5:46-65. By correlating the acoustic signals with the physiological information, the system can determine when a signal contains voiced speech. *Id.* The system also determines whether there is unvoiced speech by

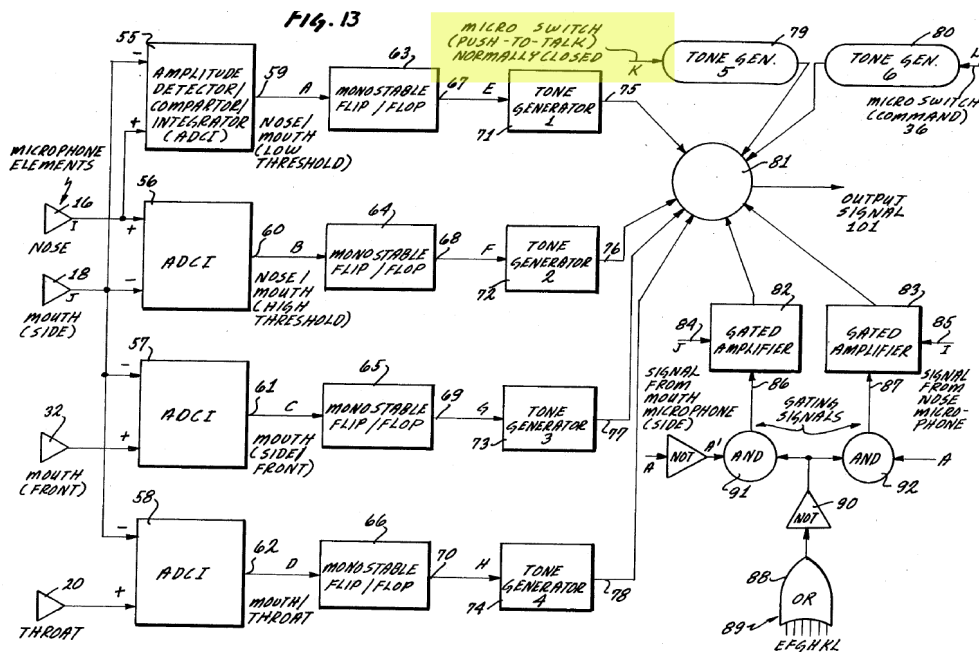
generating difference parameters between the acoustic signals received at the two microphones. *Id.*, 7:52-8:48. When those parameters exceed a gain threshold, the signal is identified as unvoiced speech. *Id.* And when the parameters are beneath the threshold, the signal is identified as noise. *Id.*

III. THE RELEVANT ALLEGED PRIOR ART

A. Meisel (U.S. Patent No. 4,718,096)

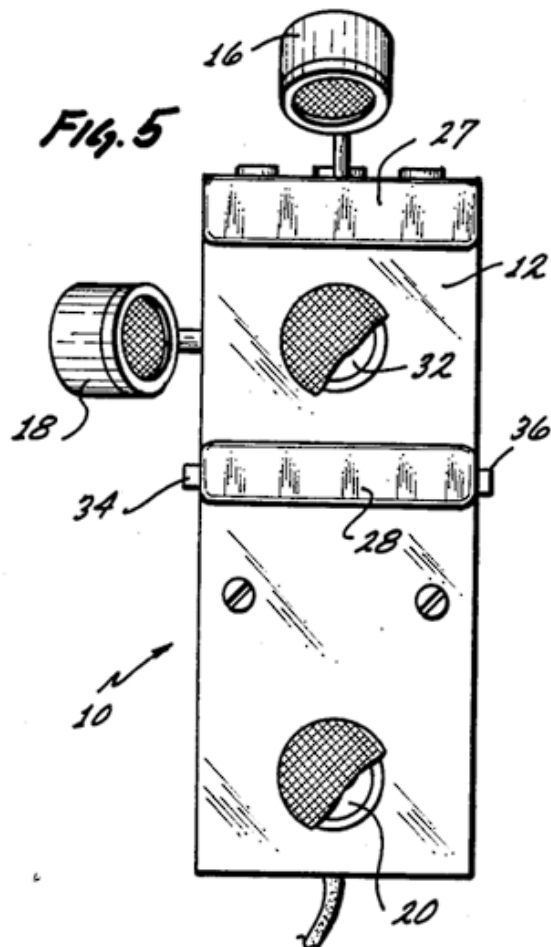
U.S. Patent No. 4,718,096 (Ex. 1005, “Meisel”) is directed to a speech recognition system. Meisel, Abstract.

Meisel does not disclose a voicing sensor. Instead, Meisel uses a “push to talk” switch which “will produce a logically true signal . . . when the speaker is not talking . . . to delineate the beginning and end of a spoken word.” *Id.*, 11:8-15.

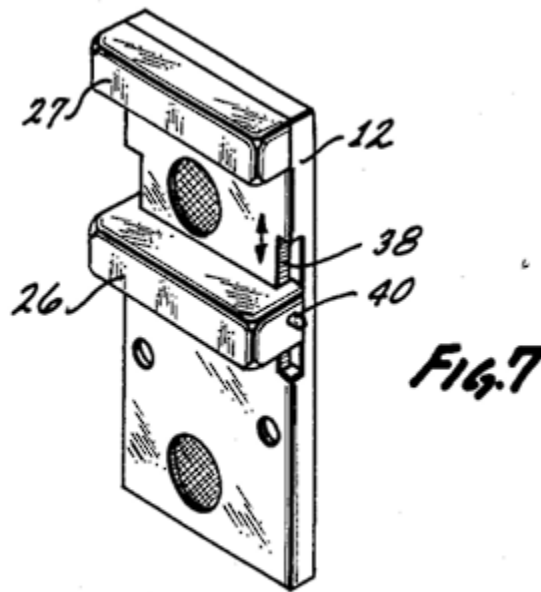


Id., FIG. 13.

While, in one embodiment, Meisel makes use of a system of four acoustic microphones (a nose microphone (16), throat microphone (20), mouth microphone (32), and side mouth microphone (18)) none of these microphones are a voicing sensor. *Id.*, 5:19-36. At most, as discussed below, they classify types of sounds received when Meisel's push-to-talk button is pressed.



Id., FIG. 5. The microphones are enclosed in a housing (12) which includes spacers (26, 27) that prevent the microphones from touching the user's skin. *Id.*, 5:37-46. The spacers rest, for example, on a user's upper lip and chin. *Id.*



Id., FIG. 7.

Meisel does not use its “throat microphone” as a voicing sensor. Rather its throat microphone detects when a user pronounces certain consonant sounds. *Id.*, 2:31-53. In particular, when a user pronounces stop consonants, the vocal tract is closed briefly. *Id.* 2:39-41. When the vocal tract is closed, “little sound comes from the mouth.” *Id.* By comparing the mouth microphone and throat microphone signals, the system can detect voiced stop consonants when the mouth signal is low, but the throat signal is high. *Id.* 2:45-48.

B. Kaneda (U.S. Patent No. 5,208,864)

U.S. Patent No. 5,208,864 (Ex. 1006, “Kaneda”) is directed to a method of detecting an acoustic signal. Kaneda, 1:6-9. Kaneda uses “two sound receiving units

for generating signals having different S/N ratios” that “are located at a single position.” *Id.*, 5:16-24. “[A] speech period is detected by using a power difference between the two output signals.” *Id.*, 5:22-24.

C. Freidin (U.S. Patent No. 6,148,313)

U.S. Patent No. 6,148,313 (Ex. 1007, “Freidin”) is directed to a “programmable digital correlator device, and associated correlation method, with a very efficient structure.” Freidin, Abstract. Freidin explains that “[c]orrelators have been widely used in signal processing to measure the degree of correspondence between a data sequence and a predetermined pattern or reference sequence.” *Id.*, 1:11-20.

D. Lyons

Understanding Digital Processing by Lyons (Ex. 1012, “Lyons”) is a textbook purportedly published in 1997.

E. Sakoe (U.S. Patent No. 4,239,936)

U.S. Patent No. 4,239,936 (Ex. 1008, “Sakoe”) is directed to a speech recognition system for use in noisy environments. Sakoe Abstract. Sakoe makes use of two microphones. *Id.*, FIG. 1A, 1:59-2:39. One microphone is used to pick up speech, another is used to receive ambient noise. *Id.* Sakoe includes a recognition system to recognize speech. *Id.* Sakoe also includes a rejection unit that rejects the recognition results when excessive noise is detected. *Id.*

IV. CLAIM CONSTRUCTION

For the purposes of this Preliminary Response only, Patent Owner believes that claim construction is not required to resolve any issues.

V. LEVEL OF ORDINARY SKILL IN THE ART

For the purposes of this Preliminary Response only, Patent Owner utilizes Petitioner’s proposed level of skill in the art—“would have had a minimum of a bachelor’s degree in computer engineering, computer science, electrical engineering, mechanical engineering, or a similar field, and approximately three years of industry or academic experience in a field related to acoustics, speech recognition, speech detection, or signal processing. . . . Work experience can substitute for formal education and additional formal education can substitute for work experience.” Pet. at 7.

VI. ARGUMENT

A. GROUND 1: Meisel in View of Kaneda and Freidin Does Not Render Obvious Claims 1-2 and 4-5

1. Meisel Does Not Disclose “at least one voicing sensor that receives physiological information associated with human voicing activity” as Required by Claim 1 and “receiving physiological information associated with human voicing activity at a voicing sensor” as Required by Claim 2¹

Meisel does not disclose or render obvious “at least one voicing sensor that receives physiological information associated with human voicing activity” as required by Claim 1, nor does it disclose “receiving physiological information associated with human voicing activity at a voicing sensor” as required by Claim 2. Petitioner argues that Meisel’s throat microphone discloses a voicing sensor. Pet. at 21. Petitioner does not raise any obviousness arguments with respect to this limitation. *See id.*

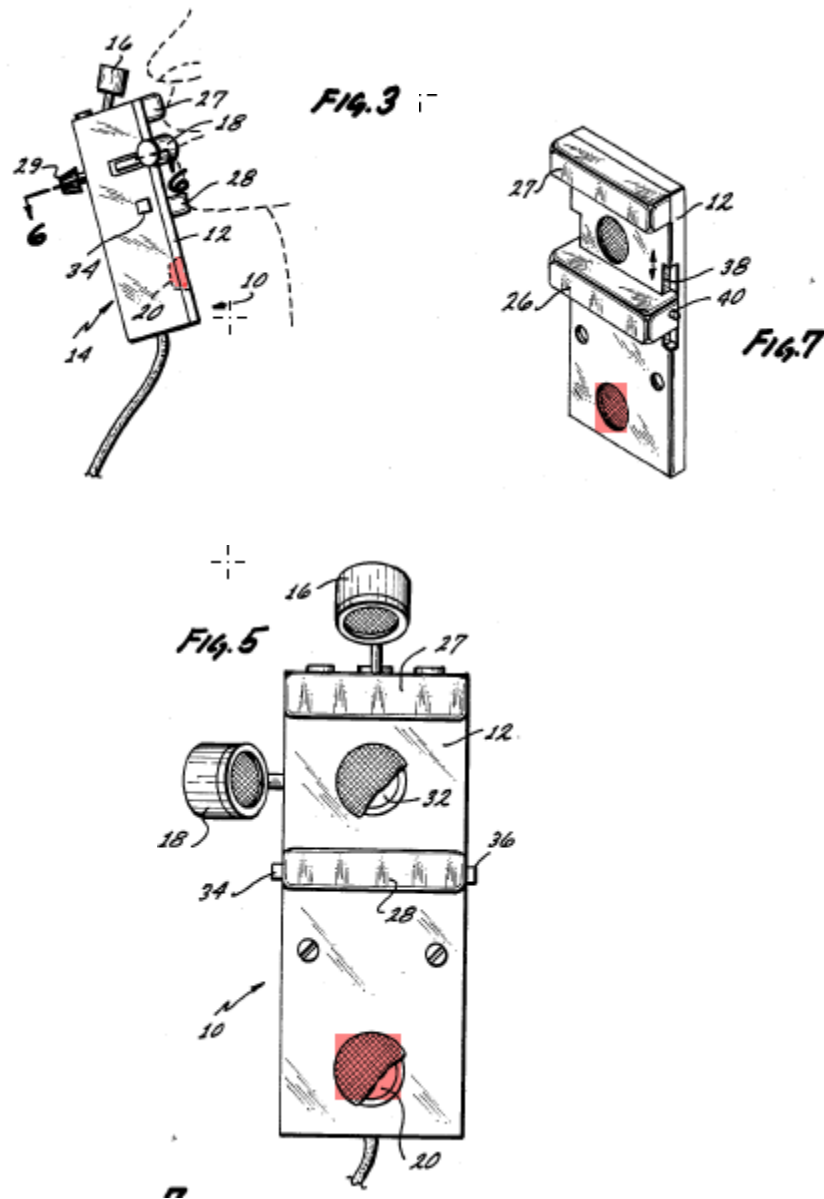
Petitioner argues that Meisel’s throat microphone satisfies this limitation based on the misapprehension that Meisel uses its throat microphone to detect whether a user is speaking. Pet. at 22. This is simply incorrect. Meisel uses a “push-to-talk” button, not a throat microphone, to detect voicing activity. Meisel 11:8-15,

¹ Petitioner relies on its Claim 1 arguments for all limitations of Claim 2. Pet. at 65-66. Thus, both independent claims are addressed together herein.

FIG. 13. Meisel relies on this button to “delineate the beginning and end of a spoken word.” Pushing a button is indisputably not “physiological information associated with human voicing activity.”

In contrast, Meisel’s throat microphone is merely used to classify whether voicing activity (i.e., sound that happens while the push-to-talk button is pressed) is a voiced or unvoiced consonant. *Id.*, 2:32-45. In other words, the throat microphone at most classifies certain consonants, and relies on the push-button to detect voicing activity.

Meisel’s throat microphone further does not disclose this limitation because it does not receive physiological information. Instead, it only detects “sounds emanating from the throat of a speaker.” *Id.*, 5:29-36. Indeed, the throat microphone will necessarily be separated from the user’s actual throat. This is illustrated in Meisel’s Figures which show the throat microphone (20) positioned with space between it and the user:



Id., FIGS. 3, 5, 7 (highlighting added to show throat microphone 20). Meisel explains that spacers 27 and 28 rest against the upper lip and chin of the speaker, respectively. *Id.* at 5:37-46. Accordingly, Meisel's throat microphone can only receive acoustic signals propagating through the air.

But the '058 Patent distinguishes acoustic signals, such as the sounds emanating from the throat, and physiological information. *E.g.*, '058 Patent, 3:10-4:13 (explaining that the invention uses “non-acoustic” sensors), 4:55-57 (“the non-acoustic sensor (or hereafter just the sensor) will be required to ensure good performance”); *see also id.* at cl. 1. Indeed, while Claim 5 recites that a voicing sensor may be an “acoustic throat microphone[,]” it does not obviate the requirement that the voicing sensor must receive *physiological* information. Moreover, the '058 Patent further states that “[a]lternative embodiments, however, may use any sensor that is able to detect human tissue motion associated with speech and is *unaffected by environmental acoustic noise.*” *Id.*, 3:61-63 (emphasis added). Meisel’s microphone, which only receives acoustic signals, would be affected by environmental acoustic noise, and therefore cannot meet this limitation.

Accordingly, Petitioner’s combination does not disclose or render obvious this limitation. Petitioner has therefore not shown a reasonable probability of success with respect to Claims 1 or 2 (or dependent claims 3-5).

2. Meisel Does Not Disclose “wherein the at least one processor . . . identifies information of the acoustic signals as noise when the difference parameters are less than a gain threshold.”

Petitioner argues that this limitation is obvious over Meisel in view of Kaneda. But Petitioner’s argument, and its alleged motivation to combine, is based on a misapprehension of Meisel’s disclosure.

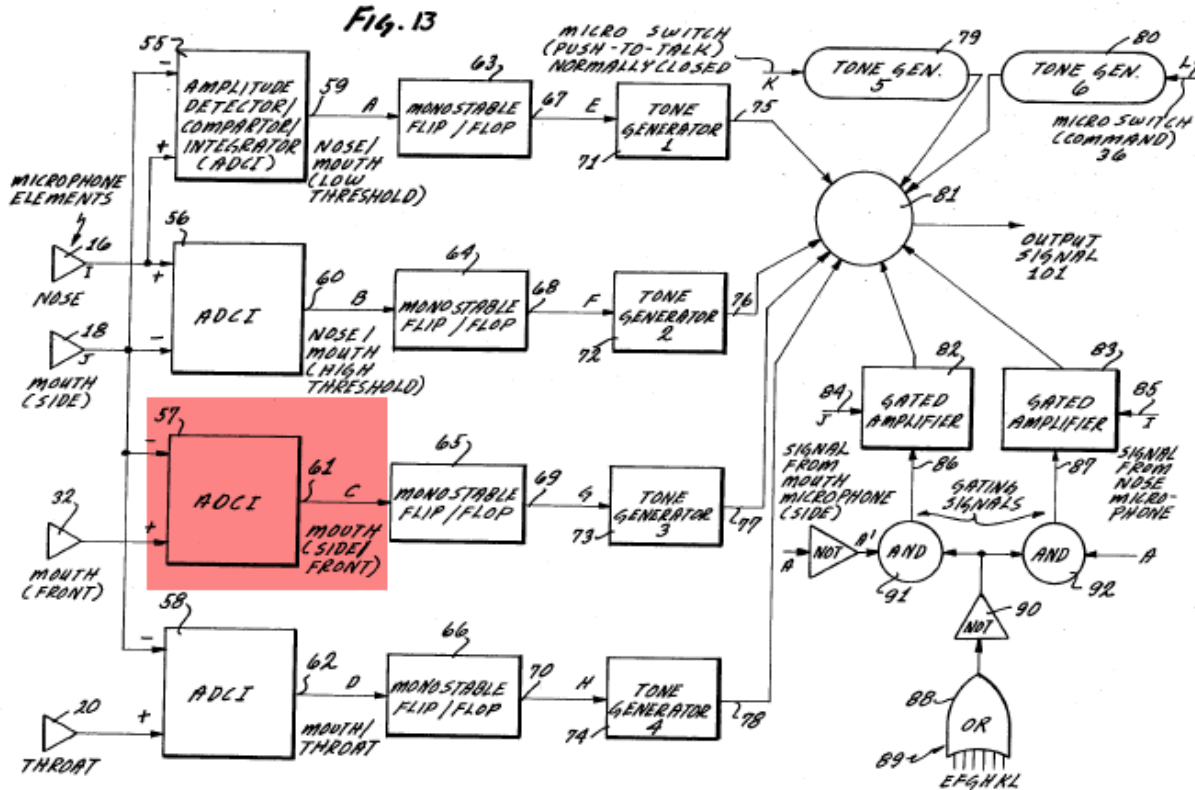
Petitioner argues from the proposition that Meisel discloses “that its comparison process illustrated in Figure 13 [] distinguishes speech from noise” based on “the difference between the first mouth microphone input and the second mouth microphone input,” and goes on to assert that a POSITA would have been motivated to modify this disclosure in view of Kaneda to reach the comparison of difference parameters to a gain threshold. Pet. at 57-58. But Meisel discloses no such thing.

Meisel does not disclose identifying any information as noise at all. Instead, Meisel discloses that it simply does not receive sound unless its push-to-talk button is pressed. Even if the absence of receiving were an “identification” (it is not), Meisel makes that determination based on whether its push-to-talk button is pressed, not based on any comparison of signals, let alone a comparison of “difference parameters” to a “gain threshold.” Meisel also generally assumes that its use and placement of close talking microphones will prevent any noise from being received

during when the push-to-talk button is pressed. Meisel, 2:54-60 (“[c]lose-talking microphones have the secondary advantage that they respond very little to background noise, such as may occur in an office environment”); *id.* 6:8-11 (“[t]he microphone 18 detects speech sounds from the mouth; its placement is such that it is not overly affected by breath sounds”).

Petitioner also asserts that Meisel’s two-sentence discussion of Sakoe in the context of identifying shortcoming in the prior art somehow teaches identification of noise. Pet. at 57. But Meisel’s statement that one of Sakoe’s microphones is “placed so as to avoid the speech signal and to detect background noise with a view toward minimizing its effect on recognition accuracy” does not disclose identification of a signal as noise, let alone disclose that Meisel’s system does any such thing. Meisel, 1:46-50. At most, this statement suggests that one of Sakoe’s microphones received mostly noise, not that Sakoe ever identifies any specific signals as noise. Moreover, Meisel *critiques* Sakoe’s approach on the basis that “only one [of its microphones] is the speech signal” while noting that “[c]lose-talking microphones do not adequately pick up sounds which are not near the microphone; hence, a microphone near the mouth will pick up nasal and throat sounds poorly.” *Id.* at 1:46-50, 1:55-58. This does not amount to an incorporation, as Petitioner tacitly suggests and, if anything, teaches away from the use of any dedicated microphone to detect noise.

Petitioner further relies on the incorrect statement that, “[w]hen the difference between the first mouth microphone input and the second mouth microphone input (A-B) is below the threshold T1, then the information of the acoustic signals from the side and front mouth microphones [] is identified as noise.” Pet. at 57. Meisel makes no such identification. Meisel simply compares the two mouth microphones in ADCI 57, which generate a Boolean output 61. Meisel, 9:60-10:11, FIG. 13.



Id., FIG. 1 (annotated).

Meisel only uses that Boolean variable and difference to determine if a plosive or fricative is being pronounced, not to identify whether a signal is noise. *Id.*, 10:6-

9 (“The output 61 will become logically true when a plosive or fricative is being pronounced.”).

Petitioner further seeks to add Kaneda to fill admitted deficiencies in Meisel. But Kaneda does not remedy Meisel’s deficiencies, nor does Petitioner’s motivation to combine hold up in view of its misapprehension of Meisel, and its total failure to address Meisel’s push-to-talk design.

Petitioner’s proposed system would calculate the difference between the power output of two microphones (the example given is the two mouth microphones) and, when that difference is greater than a threshold, speech is detected. Pet. at 57. Thus, under Petitioner’s interpretation, noise would be detected when the difference in power output of two microphones’ signals is below some threshold. *See id.*

Petitioner’s combination relies on the false premise that Meisel’s ADCI (rather than its push-to-talk button) detects whether sounds are noise by comparing amplitude. This is demonstrably false as discussed above. Petitioner’s proposed modifications of Meisel with Kaneda’s processes are therefore nonsensical.

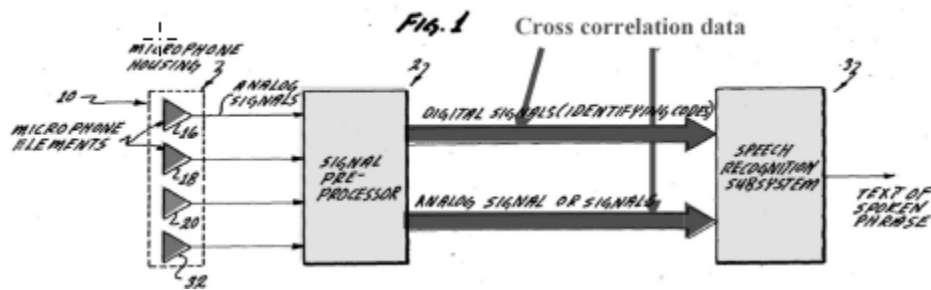
Moreover, implementing Kaneda into Meisel in this fashion would destroy the inventive purpose of Meisel. Meisel already compares the signals of the two mouth microphones and, as explained above, does not consider those signals noise. Instead, if the mouth microphones’ amplitudes are similar, Meisel interprets that sound as not fricative or plosive. Meisel, 10:7-9. Similarly, if the Petition is

interpreted such that the inputs to the Kaneda system are the mouth microphone and nose microphone, Meisel uses those comparisons to detect partial closure of the mouth or nasal sounds. Meisel, 10:4-7. Adding Kaneda would instead, at best, result in at least some of those desired signals as being recorded as noise, frustrating Meisel's intention to detect speech. A POSITA would not make such a combination, as it would destroy the objective of Meisel. *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016); *Chemours Co. FC, LLC v. Daikin Indus., Ltd.*, 4 F.4th 1370, 1376-77 (Fed. Cir. 2021).

Accordingly, Petitioner has failed to show that this limitation is disclosed or rendered obvious.

3. Petitioner's Combination Does Not Disclose or Render Obvious "at least one processor. . .wherein the at least one processor generates cross correlation data between the physiological information and an acoustic signal received at one of the two microphones" and "generating cross correlation data between the physiological information and an acoustic signal received at one of the two receivers" as Required by Claims 1 and 2, Respectively

Petitioner's combination does not disclose or render obvious these limitations because Petitioner has not shown that Meisel's "digital signals (identifying codes)" or "analog signal or signals" are cross correlation data between the physiological information and an acoustic signal as required by Claims 1 and 2. Petitioner illustrates its argument by annotating Meisel Figure 1:



Pet. at 26.

At the outset, as discussed above, Meisel does not disclose receiving physiological information. Thus, Meisel cannot disclose this limitation. Petitioner’s combination entirely fails to address Meisel’s push-to-talk button, and its argument is based on its misapprehension of Meisel’s throat microphone, which merely classifies sounds as voiced or unvoiced consonants when the button tells it that voice activity is occurring.

Moreover, even if the throat microphone signal were physiological information, Meisel does not disclose generating cross correlation data between it and any other microphone or receiver. Petitioner argues that Meisel’s statement that “[t]he pre-processor 2 processes the signals from the microphones 16, 18, 20 and 32 to determine at each instant imbalances in the relative amplitude of each microphone,” is the necessary cross correlation data. Pet. at 25 (citing Meisel at 4:35-42, Fig. 1).

However, Meisel does not generate any cross correlation data. Instead, Meisel determines “imbalances in the relative amplitude of each microphone” and codes

them “as Boolean variables . . . to create a digital code corresponding to the pattern of imbalances.” Meisel at 4:35-42. Meisel’s preprocessor passes those imbalances as Boolean (that is, true or false) values to the speech recognition system. *Id.*, 4:39-42. As Meisel further explains, the preprocessor generates the imbalance data through the use of an ADCI (amplitude detector/comparator/integrator). *Id.* at 8:60-9:2. The ADCI performs a simple compare operation between two inputs by inverting the second input and subtracting it from the first. Meisel, 9:3-59.

Petitioner conclusorily states that the imbalances are “a type of cross correlation data because it contains or is based on, a correlation between signal amplitudes of the acoustic microphones . . . and the throat microphone.” Pet. at 27. Petitioner’s only evidence for this statement is its expert’s declaration which repeats verbatim the same statement. *See* Ex. 1003, ¶ 55. But Meisel’s mere comparison of signals to generate a true/false value is not a “cross correlation.” The ’058 Patent explains that its use of cross-correlation (XCORR) requires at least the ability to shift the samples in time. ’058 Patent, 5:11-14 (“The XCORR is only calculated to 15 delays, which corresponds to just under 2 milliseconds at 8000 Hz.”) Moreover, when questioned about the identical declaration that he submitted in IPR2022-00623, Petitioner’s expert ***admitted*** that a POSITA would understand that XCORR (the cross-correlation function discussed in the specification of the ’058 Patent) requires multiplication of samples. *See Google LLC v. Jawbone Innovations, LLC*,

IPR2022-00623, Paper 17 (P.T.A.B. Feb. 10, 2023), Ex. 2001, Dr. Anderson Dep. Trans., Feb. 3, 2023, 28:18-32:24. (“Q. Cross-correlation usually involves multiplying a sample from one set of samples by another – by a sample from a different set of samples. Isn’t that right? A. One of the types I mentioned does that. Q. [T]hat’s how the XCORR function in Mat Lab works. Isn’t that right? A. Yes.”). Dr. Anderson’s Declaration specifically asserts that “[T]he ‘058 Patent identifies the built-in conventional XCORR function rather than explaining cross correlation,” referring to the Matlab XCORR function. Ex. 1003 at 46, n 1. Accordingly, by Dr. Anderson’s own admissions, a POSITA would not recognize a simple comparison of signals as a claimed cross-correlation.

Petitioner next argues that it would be obvious to modify Meisel to include Freidin’s cross-correlation. Pet. at 30-36. According to Petitioner, a POSITA would have been motivated to make the combination “identify voiced speech types because such voiced speech types correlate when the signals at the throat microphone and signal microphone (e.g., mouth microphone) are high and the differences of the ADCI calculation may therefore be small.” Pet. at 32; Ex. 1003, ¶ 62.

Petitioner is wrong. The purpose of the throat microphone in Meisel is to differentiate voiced sounds from unvoiced sounds. Meisel, 2:31-48. If its push-to-talk button is pressed, Meisel outputs a 1 from the ADCI 58 when a sound is voiced (as opposed to unvoiced), in which case the throat microphone amplitude is greater

than the side mouth microphone amplitude. Meisel, 10:9-11. Meisel does not state or identify a need to determine a period where both a mouth microphone and throat microphone have high amplitudes, and no such need exists in view of its push-to-talk button.

Neither Dr. Anderson nor Petitioner identify such a need. Instead, they simply state that voiced speech types correlate when signals at the throat and a signal microphone are high. Pet. at 32; Ex. 1003, ¶ 62. Petitioner and Dr. Anderson cite no evidence that such a relationship exists, and they do not explain how such correlation would “improve the accuracy of voiced and unvoiced speech identification already performed by Meisel.” Pet. at 32. In particular, Petitioner and Dr. Anderson do not identify any way that a POSITA would perceive Meisel’s speech detection as lacking accuracy or even being susceptible to an improvement in accuracy, particularly given its push-to-talk button.

Finally, Dr. Anderson and Petitioner state that a “POSITA would also have been motivated to use Freidin’s cross correlation to identify voiced speech in Meisel because Freidin discloses that ‘[c]orrelators have been widely used in signal processing to measure the degree of correspondence between a data sequence and a predetermined pattern or reference sequence,’ for example, ‘in a number of applications including speech recognition.’” Pet. at 33; Ex. 1003, ¶ 63(quoted Ex. 1007, 1:7-26). According to Dr. Anderson and Petitioner, “[a] POSITA would have

recognized that Meisel's signal processing techniques would be most easily implemented using digital processors, and Freidin provides the guidance needed to find signal correlations." *Id.*

But these statements do not demonstrate any motivation. At most, Freidin's statement demonstrates one use of correlators; it does not suggest any use for correlators in a Meisel system. This argument boils down to an assertion that Freidin and Meisel both exist, without explaining why a POSITA would have been motivated to use them together other than a conclusory statement that such would "render Meisel's identification more objective and accurate." *Id.* at 32; *see also id.* at 32-33 ("[A] POSITA would have been motivated to use Freidin's cross correlation calculation to improve the accuracy of voiced and unvoiced speech identification already performed by Meisel."). Petitioner identifies no teaching in Meisel suggesting that Meisel's disclosure is lacking in accuracy; nor does Petitioner provide any argument that one of skill in the art would have perceived a lack of accuracy within Meisel. Indeed, Petitioner's suggestion that Meisel could somehow benefit from Freidin tacitly assumes that a POSITA would stop using Meisel's push-to-talk button in favor of Meisel's throat microphone, without any justification whatsoever.

Petitioner's only asserted motivations are thus merely hindsight-based desires to achieve the claimed invention. Accordingly, Petitioner has failed to show that its combination renders these limitations obvious.

4. Petitioner's Combination Does Not Disclose or Render Obvious "identif[ies/ying] information of the acoustic signals as voiced speech when the cross correlation data corresponding to a portion of the acoustic signal received at the one receiver exceeds a correlation threshold," as Required by Claims 1 and 2

As explained above, Petitioner's combination does not disclose or render obvious "cross correlation data" as claimed. However, even if the combination did render the required "cross correlation data" obvious, it still does not render this limitation obvious because Meisel does not disclose this limitation alone, Petitioner fails to demonstrate reason or motivation for a POSITA to combine Meisel and Freidin.

Meisel does not disclose this limitation because it does not identify information of the acoustic signals as voiced speech when the digital code corresponding to the pattern of imbalances exceeds a correlation threshold. Instead, Meisel makes a simple comparison between the throat and mouth microphones without checking whether anything exceeds a threshold.

Instead, Meisel explains that "Stop consonants (such as b, d, g, p, t, and k) are pronounced by closing the vocal tract briefly. While the vocal tract is closed, little

sound comes from the mouth.” Meisel, 2:39-41. Thus, the mouth microphone will show a low amplitude. An unvoiced consonant, such as p, t, or k, will similarly have a low amplitude from the throat microphone. *Id.*, 2:42-43 (“For unvoiced stops (p, t, and k), the vocal cords do not vibrate and little sound comes from the throat as well.”). However, the vocal cords do vibrate for a voiced stop consonant. *Id.*, 2:44-45 (“For voiced stops (b, d, and g), however, the vocal cords vibrate during the closure.”). Accordingly, for a voiced consonant, the throat microphone will have a relatively high amplitude while the mouth microphone has a lower amplitude because the vocal tract is closed. Meisel, 2:39-45.

Meisel thus does not disclose any identification of voiced speech when “the “correlation data exceeds a correlation threshold.” To the contrary, according to Meisel’s disclosure, a greater difference (i.e., a lower comparison) between the throat and mouth microphone is indicative of voiced speech (if the push-to-talk button is pressed). Meisel therefore does not disclose this limitation.

While Petitioner seeks to use Freidin with Meisel to overcome this deficiency, for the reasons discussed above, it fails to show that a POSITA would combine Meisel and Freidin for the reasons discussed above. Petitioner further fails to show any reason that a POSITA would compare anything in Meisel to a gain threshold, when Meisel’s system already accurately detects when speech is occurring based on its push-to-talk button.

Accordingly, Petitioner's combination fails to disclose or render obvious these limitations, and the Board should therefore deny the Petition.

B. GROUND 2: Meisel, in View of Kaneda, Freidin, and Lyons Does Not Render Obvious Claim 3

The Petition does not address the above deficiencies in its Ground 2 arguments, instead relying on its Ground 1 arguments as to those limitations. Pet. at 69-73. Accordingly, Petitioner has not shown obviousness under Ground 2.

C. GROUND 3: Meisel, in View of Kaneda, Freidin, and Sakoe Does Not Render Obvious Claim 4

The Petition does not address the above deficiencies in its Ground 3 arguments, instead relying on its Ground 1 arguments as to those limitations. Pet. at 74-75. Accordingly, Petitioner has not shown obviousness under Ground 3.

VII. CONCLUSION

As discussed above, Petitioner's combination fails to disclose or render obvious numerous limitations of the '058 Patent and, therefore, do not render obvious any claims. The Board should, therefore, deny the Petition.

Respectfully submitted,

Dated: December 11, 2023 By: /Peter Lambrianakos /
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CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned JAWBONE INNOVATIONS, LLC'S PRELIMINARY RESPONSE specified in 37 C.F.R. § 42.24 has 4,360 words in compliance with the 14,000 word limit set forth in 37 C.F.R. § 42.24. This word count was prepared using Microsoft Word for Office 365.

Respectfully submitted,

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