

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte STEVEN F. GRIFFIN, CHANCE C. MCCOLL  
and SATHYA V. HANAGUD

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Appeal No. 1999-1112  
Application No. 08/683,705

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ON BRIEF

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Before HAIRSTON, KRASS, and RUGGIERO, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1-10, all of the pending claims.

The invention is directed to acoustical musical instruments. More particularly, sound quality of such

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instruments is improved by sensing vibrations from the acoustical musical instrument structure and coupling an actuator to the vibration sensor for adjusting the vibrations emanating from the structure.

Representative independent claim 1 is reproduced as follows:

1. An acoustic musical instrument having a structure which vibrates to produce sound, the improvement comprising means for sensing vibrations from said structure and actuator means coupled to said means for sensing vibrations for adjusting the vibrations emanating from said structure to improve sound quality.

The examiner relies on the following references:

Eland	2,568,797	Sept. 25, 1951
Fricke et al. (Fricke)	4,151,368	Apr. 24, 1979
Holland	4,236,433	Dec. 02, 1980
Groupp	4,245,540	Jan. 20, 1981
Nourney	4,484,508	Nov. 27, 1984
Maloney	4,697,491	Oct. 06, 1987
Fishman	4,911,057	Mar. 27, 1990
Wachi et al. (Wachi)	5,056,400	Oct. 15, 1991

Claims 1-6 stand rejected under 35 U.S.C. 102(b). As evidence of anticipation, the examiner cites any one of Nourney, Holland or Wachi or Groupp or Eland or Fricke with regard to claims 1-3 and cites any one of Maloney, Nourney or Wachi with regard to claims 4-6.

Claims 7 and 8 stand rejected under 35 U.S.C. 103 as unpatentable over either one of Maloney, Nourney or Wachi in view of Fishman.

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Claims 9 and 10 stand rejected under 35 U.S.C. 112, first paragraph, as relying on an inadequate written description, the examiner contending that there is no support for the claimed microprocessor, microcontroller or the application-specific integrated circuit.

Reference is made to the briefs and answer for the respective positions of appellants and the examiner.

### OPINION

At the outset, we note that a pivotal issue in this case is the meaning to ascribe to “acoustic musical instrument.” The examiner ascribes an extremely broad meaning to include any musical instrument based on the reasoning that all musical instruments “when played provides resonant or acoustical frequencies in the audible frequency range” [answer-page 4]. For their part, appellants urge that there is a strict dichotomy between an “acoustic” musical instrument, which is “a musical instrument whose sound is not electronically modified,” citing Webster’s Ninth New Collegiate Dictionary, and a non-acoustic musical instrument which may include electronic instruments such as an electric guitar.

We agree with appellants. Since an applicant may be his own lexicographer, the meaning urged by appellants is consistent with a dictionary definition of the term “acoustic” musical instrument and appellants’ interpretation is not inconsistent with what is described in the instant specification, we hold that an “acoustical musical instrument”, as claimed, precludes electrical instruments but does include

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non-electronic stringed instruments such as guitars, violins, cellos, basses, pianos and others which may use reeds. While appellants recite that “[t]his list is not meant to be exhaustive and no limitation on the use of the invention is to be implied” [specification-page 28], appellants, by their argument, have, indeed, limited the claimed invention to specifically exclude all electronic/electric musical instruments and we so hold.

Moving on, now that we have decided, as urged by appellants, that the instant claimed invention does, indeed, preclude electronic/electric musical instruments, we will summarily reverse the rejections of the instant claims which rely on the Group, Holland and Maloney references because these references are clearly directed to electric/electronic musical instruments. Fricke is directed to a music synthesizer and Eland to a microphone suppression system. Thus, these references, also, fail to teach an “acoustic musical instrument,” as claimed.

Since Fishman is directed to a piezoelectric transducer for a stringed musical instrument, but not to the instrument itself, the combination of Fishman with any of the foregoing references would not supply the deficiency of the primary references with regard to supplying an “acoustic musical instrument,” as claimed.

Therefore, we will not sustain the rejection of claims 1-8 under either 35 U.S.C. 102(b) or 35 U.S.C. 103 based, in whole or in part, on any one of Holland, Group, Eland, Fricke or Maloney.

Accordingly, we turn our attention to the rejection of claims 1 and 3-6 under 35 U.S.C. 102(b) as

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anticipated by either Nourney or Wachi, the rejection of claims 7 and 8 under 35 U.S.C. 103 as unpatentable over either one of Nourney or Wachi in view of Fishman and the rejection of claims 9 and 10 under the first paragraph of 35 U.S.C. 112 as being based on an inadequate written description.

Turning first to the rejections based, in whole or in part, on Nourney, we will not sustain these rejections.

While Nourney is directed to an acoustic musical instrument, Nourney's sensors, electroacoustic transducers 3, are juxtaposed with the strings of the guitar for converting the oscillations of the strings into electric audio signals. See the single figure and claim 1 of Nourney. The instant claims, however, require the sensing of vibrations "from said structure." In accordance with appellants' arguments, Figure 20, attendant description in the specification and appellants' invocation of In re Donaldson, 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994), appellants have established a distinction between strings of an acoustic musical instrument (such as a guitar) and the housing, or "structure," of the acoustic musical instrument. As claimed, as disclosed, and as argued by appellants, a "structure" precludes strings of an acoustic musical instrument. With such a distinction in mind, Nourney clearly does not provide for the sensing of vibrations "from said structure" or for an actuator to "induce structural vibration of the structure at the actuator location," as claimed.

Accordingly, we will not sustain the rejection of claims 1 and 3-6 under 35 U.S.C. 102(b) over Nourney nor will we sustain the rejection of claims 7 and 8 under 35 U.S.C. 103 as unpatentable over

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Nourney in view of Fishman since Fishman does not provide for the deficiency (i.e., vibrations from the “structure” or an actuator for inducing “structural vibration of the structure at the actuator location”) of Nourney.

However, we will sustain the rejection of claims 1 and 3-6 under 35 U.S.C. 102(b) as anticipated by Wachi, as well as the rejection of claims 7 and 8 under 35 U.S.C. 103 as unpatentable over Wachi in view of Fishman.

In our view, the examiner presents prima facie cases of anticipation and obviousness in explaining that Figure 12 of Wachi discloses a feedback circuit comprising elements 4, 7 and 8 physically located within the acoustic chamber of a guitar. This feedback vibrates the acoustic chamber.

With regard to the rejection of claims 1 and 3 under 35 U.S.C. 102(b) over Wachi, appellants never respond to this rejection. That non-responsiveness may be considered a waiver of any arguments against the rejection and we could sustain the rejection of claims 1 and 3 for this reason alone.

However, we consider the arguments made by appellants regarding Wachi as to the rejection of claims 4-6, at page 12 of the principal brief, and apply this argument to claims 1 and 3-6.

Appellants’ sole argument with regard to the application of Wachi to the claims is that Wachi “fails to even disclose an actuator that operates on the structure of the acoustic chamber” and, instead, “discloses a speaker...which is mounted to project through a structure and emanate sound therefrom.” Summarizing, appellants contend that “Wachi simply adds a speaker to a guitar body to provide added

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acoustics. It does not positively vibrate or excite the structure of an acoustic chamber”[principal brief, page 12].

We disagree. At column 15, lines 8-12 and 41-55, of Wachi, it is disclosed that a “vibrator is attached to the resonator of a conventional musical instrument having the resonator in its main body...” [emphasis ours] and that the “conventional semi-acoustic guitar is used as the resonator of the speaker system.” Further, it is recited therein that elements are arranged “to change and set a resonance frequency of a resonator as an original musical instrument to be an optimal value.” Therefore, it appears to us that Wachi clearly discloses and suggests the improvement of sound quality by sensing vibrations from the structure and adjusting vibrations via an actuator means, i.e., the vibrator driver 8. Since the resonator is in the main body of Wachi’s device, it appears that the acoustic musical instrument structure is doing the vibrating and that the vibrator driver causes an adjustment to those vibrations to improve sound quality by altering the sound normally emanating from the acoustic chamber, as broadly claimed.

With regard to the rejection of claims 7 and 8 under 35 U.S.C. 103, Fishman discloses piezoelectric transducers and we agree with the examiner that it would have been obvious to apply such piezoelectric transducers in Wachi. Appellants argue that Fishman is directed to transducers which are responsive to string vibrations instead of a structural vibration and that there would have been no suggestion for combining Fishman with Wachi.

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While Fishman's piezoelectric transducers may be disclosed as having applicability to the strings of an acoustic musical instrument, the teaching is not so limited nor would it have been recognized by artisans as being so limited. The artisan would have gleaned a broader teaching from Fishman, that is, the applicability of piezoelectric transducers in sensing vibrations in general. Since Wachi discloses a vibrator but does not specify the exact type of vibrator or vibrator driver, the artisan would have been led to extend the teaching of Fishman so as to provide for a piezoelectric transducer in Wachi. Accordingly, we find the examiner's combination of Wachi and Fishman to have been reasonable and we will sustain the rejection of claims 7 and 8 under 35 U.S.C. 103.

Turning, finally, to the rejection of claims 9 and 10 under the first paragraph of 35 U.S.C. 112, we will not sustain this rejection. Even though the words and phrases, "microprocessor, microcontroller, or application specific integrated circuit" do not appear in the original disclosure, the depiction of a DSP board and a host computer in Figure 22 of the instant application would clearly have suggested to the artisan that the claimed processor would have been selected from many devices including a microprocessor, microcontroller or an application specific integrated circuit. The state of the art in the mid-1990's, at the time of filing the original application, would clearly have suggested to the artisan that applicants had in their possession, at the time of filing the application, the knowledge of employing a microprocessor, microcontroller or an application specific integrated circuit for the disclosed processor

shown in Figure 22.

### CONCLUSION

We have not sustained the rejection of claims 1 and 3 under 35 U.S.C. 102(b) as anticipated by Nourney or Holland. We have not sustained the rejection of claims 1-3 under 35 U.S.C. 102(b) as anticipated by Grouppe or Eland or Fricke. We have not sustained the rejection of claims 4-6 under 35 U.S.C. 102(b) as anticipated by Maloney or Nourney. We also have not sustained the rejection of claims 7 and 8 under 35 U.S.C. 103 as unpatentable over either one of Maloney or Nourney in view of Fishman nor have we sustained the rejection of claims 9 and 10 under 35 U.S.C. 112, first paragraph, as relying on an inadequate written description.

We have sustained the rejection of claims 1 and 3-6 under 35 U.S.C. 102(b) as anticipated by Wachi and we have sustained the rejection of claims 7 and 8 under 35 U.S.C. 103 as unpatentable over Wachi in view of Fishman.

Accordingly, the examiner's decision is affirmed-in-part.

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**

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Administrative Patent Judge )  
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