

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

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BRAD PEETERS

Appeal No. 1997-3098
Application 08/377,776

ON BRIEF

Before KIMLIN, GARRIS and OWENS, *Administrative Patent Judges*.
OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the examiner's second nonfinal rejection of claims 1-14, which are all of the claims in the application.¹

¹ The board has jurisdiction as discussed in *Ex parte Lemoine*, 46 USPQ2d 1432 (Bd. Pat. App. & Int. 1995).

THE INVENTION

Appellant claims a water conductivity monitor connected to a feed water probe and a filtered water probe. Claims 8 and 12 are illustrative and read as follows:

8. A water conductivity monitor that is connected to a filter probe and a feed water probe, comprising:

a resistor circuit;

microcontroller means for generating a plurality of first drive pulses and a plurality of second drive pulses that are 180° out of phase from said first drive pulses, wherein said first and second drive pulses are sequentially provided to both the filter probe and the feed water probe, and provided to said resistor circuit to create a plurality of probe test signals and a plurality of threshold test signals; and,

comparator means for comparing said probe test signals and said feed water threshold test signals and providing an output signal to said microcontroller means.

12. A water conductivity monitor that is connected to a filter probe and a feed water probe, comprising:

a resistor circuit;

microcontroller means for generating a plurality of first drive pulses that are provided to the filter and feed water probes, and said resistor circuit, to create a plurality of probe test signals and a plurality of threshold test signals;

integrator means for integrating said probe test signals and said threshold test signals; and,

comparator means for comparing said integrated probe test

Appeal No. 1997-3098
Application 08/377,776

signals and said integrated threshold test signals and providing an output signal to said microcontroller means.

THE REFERENCES

Tucci et al. (Tucci '598) 1989	4,847,598	Jul. 11,
Tucci et al. (Tucci '557) 1990	4,937,557	Jun. 26,
Birdsong et al. (Birdsong) 1992	5,096,574	Mar. 17,

THE REJECTION

Claims 1-14 stand rejected under 35 U.S.C. § 103 as being unpatentable over Birdsong in view of Tucci '598 and Tucci '557.

OPINION

We have carefully considered all of the arguments advanced by appellant and the examiner and agree with appellant that the aforementioned rejection is not well founded. Accordingly, we reverse this rejection.

Claims 1-4 and 8-11

Claims 1-4 and 8-11 require a microcontroller which is capable of generating a plurality of first drive pulses and a

Appeal No. 1997-3098
Application 08/377,776

plurality of second drive pulses, wherein the second drive pulses are 180E out of phase with the first drive pulses and the first and second drive pulses are sequentially provided to both the filter probe and the fresh water probe, as well as to a resistor circuit, to create a plurality of probe test signals and a plurality of threshold test signals.

The examiner argues that Tucci '598 suggests out-of-phase pulses and that it would have been obvious to one of ordinary skill in the art to use such out-of-phase pulses in Birdsong's system to obviate problems relating to electrode contamination and erosion (answer, page 4).

The portion of Tucci '598 relied upon by the examiner teaches that the output from comparator 39 is an AC signal which initially is in phase with the AC input applied to middle electrode probe 27, but changes to be 180E out of phase with the AC input to probe 27 when the resin bed becomes exhausted between probe 25 and probe 27 (col. 5, lines 10-16).

Appellant argues that this teaching in Tucci '598 is not

a disclosure of sequentially providing a plurality of phase offset driving signals to both probes of the monitor (brief, pages 7-8).

The examiner's argument that Tucci '598 would have suggested using out-of-phase pulses in Birdsong's system to obviate problems relating to electrode probe contamination and electrolysis deterioration (col. 1, lines 60-63) is not persuasive because the reason why this benefit is obtained, Tucci '598 teaches, is that an AC signal is used rather than a DC

potential and bridge (col. 2, lines 42-48). As argued by the examiner, the reference also teaches that the output of comparator 39 is changed to be 180° out of phase with the input to probe 27. However, the examiner has not explained why this change in phase, rather than the use of AC rather than DC, is what the reference discloses as providing the benefit regarding decreased electrode probe contamination and electrolysis deterioration. Thus, it is not apparent why a teaching of changing the phase of the output of a comparator

such that it is out of phase with the input to a probe would have fairly suggested, to one of ordinary skill in the art, using first and second pluralities of input drive pulses to the probes in the Birdsong system which are 180° out of phase with each other.

For the above reasons we find that the examiner has not set forth a factual basis which is sufficient for supporting a conclusion of obviousness of the invention recited in appellant's claims 1-4 and 8-11. The rejection of these claims, therefore, is reversed.

Claims 5-7 and 12-14

Claims 5-7 and 12-14 require an integrator circuit or means for integrating which is capable of integrating the probe test signals and threshold test signals.

The examiner argues that summing point 47 of Tucci '557 functions as an integrator circuit or means for integrating because it algebraically sums two currents (answer, pages 3 and 7). Appellant argues that algebraically summing two currents is not the same as integrating each test signal (brief, page 10).

An integrator is "[a] circuit or device whose output is

Appeal No. 1997-3098
Application 08/377,776

the integral of its input with respect to time."² The discussion of the integrator circuit or means for integrating in appellant's specification (page 9, lines 13-23) is consistent with this definition. The examiner has not explained, and it is not apparent, why a component which algebraically sums currents is an integrator circuit or means for integrating as those terms are used by appellant or would have fairly suggested such a device to one of ordinary skill in the art. Consequently, the examiner has not carried the burden of establishing a *prima facie* case of obviousness of the invention recited in claims 5-7 and 12-14. We therefore reverse the rejection of these claims.

DECISION

The rejection of claims 1-14 under 35 U.S.C. § 103 over Birdsong in view of Tucci '598 and Tucci '557 is reversed.

REVERSED

² John Marcus and Neil Sclater, *McGraw-Hill Electronics Dictionary* 275 (McGraw-Hill 1994).

Appeal No. 1997-3098
Application 08/377,776

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Administrative Patent Judge)	
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Appeal No. 1997-3098
Application 08/377,776

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