Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHANNES H. WESSELS

Appeal No. 97-3672
Application 08/515,312[1]

ON BRIEF

Before THOMAS, FLEMING, and LEE, Administrative Patent Judges.

LEE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-14. Claims 15-18 have been objected to by the examiner as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. No claim has been allowed.

References relied on by the Examiner

1. Shackle Patent 5,412,287 May 2, 1995

[1] Application for patent filed August 15, 1995.

2. Admitted Prior Art as represented by (see Answer at page 5):

Fahnrich et al. Patent 4,782,268 Nov. 1, 1988
(Fahnrich)

For convenience purposes, in this opinion our discussions will regard Fahnrich as the admitted prior art, as has the examiner (Answer at 3-4).

The Rejections on Appeal

Claims 1-14 stand finally rejected under 35 U.S.C. § 103 as being unpatentable over the appellant's admitted prior art and Shackle.

The Invention

The invention is directed to a circuit arrangement for operating a discharge lamp. The independent claims 1 and 11 are reproduced below:

> 1. A circuit arrangement for operating a lamp, comprising:
>
> terminals for connection to an AC supply voltage source,
>
> rectifying means provided with a first output and a second output and coupled to the terminals for rectifying the AC voltage,
>
> a DC-AC converter provided with a first input and a second input coupled to the first output and the second output, respectively,

a first branch comprising first capacitive means interconnecting the first and second inputs,

a second branch comprising a series circuit of first inductive means and second capacitive means and connecting the first output to the second output,

a third branch comprising a series circuit of two unidirectional elements which connect a common junction point of the first inductive means and the second capacitive means to the first input, and

a fourth branch comprising third capacitive means for connecting a common junction point of the two unidirectional elements to a point of the DC-AC converter at which a high-frequency voltage is present during lamp operation,

wherein the resonance frequency of a series circuit formed by the first inductive means and by a parallel arrangement of the second capacitive means and the third capacitive means is chosen to lie within a range limited by 0.1 Fb and 2.0 Fb, where Fb is the operating frequency of the DC-AC converter.

11. A circuit for operating a discharge lamp comprising:

first and second terminals for connection to a source of pulsatory DC supply voltage for the circuit,

a DC-AC converter having first and second inputs,

means coupling said second input to said second terminal,

a first capacitor coupled across the first and second inputs of the DC-AC converter,

a first series circuit including a first inductor and a second capacitor coupled across the first and second terminals,

a second series circuit of first and second unidirectional elements coupling a junction point between the first inductor and the second capacitor to the first input of the DC-AC converter,

a third capacitor connecting a junction point between the first and second unidirectional elements to a circuit point of the DC-AC converter at which a high frequency voltage is present during operation of the lamp, and wherein

> the resonance frequency of a third series circuit including the first inductor and a parallel circuit of the second capacitor and the third capacitor lies within the range 0.1 Fb and 2.0 Fb, where Fb is the operating frequency of the DC-AC converter.

Opinion

We reverse the rejection of claims 1-14.

A reversal of the rejection on appeal should not be construed as an affirmative indication that the appellant's claims are patentable over prior art. We address only the positions and rationale as set forth by the examiner and on which the examiner's rejection of the claims on appeal is based.

The examiner finally rejected claims 1-14 as being unpatentable over the admitted prior art described in the instant specification (spec. at 1) in view of Shackle. (Paper No. 8 at 2). The appellant's specification on page 1 evidently describes as prior art the combination of circuit components claimed in independent claims 1 and 11. Apparently, what is novel is the setting of the resonance frequency of the circuit formed by the serially connected inductor and the parallel arrangement of second and third

capacitors to a range between 0.1 Fb and 2.0 Fb, where Fb is the operating frequency of the DC-AC converter.

The examiner addressed the resonance frequency limitation as follows (Paper No. 8 at 3):

> With regard to determining the optimum range for the component values used within the specific circuit arrangement and therefore the resonance frequency, this would be well within the skill of one of ordinary skill in the art, i.e., involving only routine skill in the art.

The examiner further relies on Shackle for its teaching of the desirability of having a high power factor for a circuit of a gas discharge lamp. (Answer at 4-6) (Shackle at column 2, lines 25-27 and column 3, lines 17-21).

The conclusion of obviousness on the basis of optimization is unsupported by sufficient reasoning and underlying factual findings. While we may be persuaded that optimization is commonly desired by one with ordinary skill in the art, the examiner has not established that the appellant's specifically claimed feature is a recognized or obvious means to achieve the optimization. In that regard, the examiner's position is merely conclusory.

The examiner acknowledges that the prior art does not disclose the resonance frequency setting feature claimed by

the appellant. (Answer at 5). The examiner then indicates that because Shackle teaches an equalizing operation to improve the power factor, the appellant's claimed feature would have been obvious. The reasoning is without merit. The examiner has not explained why the procedure used in Shackle would have rendered obvious the appellant's claimed invention having the particular resonance frequency matching limitation. The fact that Shackle teaches that it is desirable to improve the power factor for running a discharge lamp by a different equalization technique as applied to Shackle's own lamp circuit does not render obvious the particular feature required by the appellant's claimed circuit.

We agree with appellant that the examiner has failed to set forth a prima facie case of obviousness. The examiner has provided no evidence to show that the claimed resonance frequency range would have been obvious to one having ordinary skill in the art or even that it would have been desirable to match the resonance frequency of the circuit formed by the one inductor and two capacitors to some range of the operating frequency of the DC-AC converter. While Shackle teaches a circuit arrangement with a high power factor for a discharge lamp, much more is needed to support a conclusion of

obviousness with regard to the appellant's specifically claimed invention.

The examiner has failed to demonstrate any suggestion from the prior art that a relationship between (1) the resonance frequency of a circuit formed by the serially connected inductor and first and second capacitors in parallel, and (2) the operating frequency of the DC-AC converter, would have been a recognized result-effective variable for maximizing the power factor. The examiner has shown nothing to indicate that one with ordinary skill in the art would have known how such a relationship would have affected the resulting power factor. Note that to support an argument that a claim feature constitutes mere optimization by routine experimentation, one must first demonstrate that the result-effectiveness of the variable at issue was recognized by one with ordinary skill in the art. See, e.g., In re Antonie, 559 F.2d 618, 620, 195 USPQ 6, 8 (CCPA 1977). Obvious to try varying a parameter to achieve optimization is not the standard. Id.

For the foregoing reasons, the rejection of claims 1-14 cannot be sustained.

Conclusion

The rejection of claims 1-14 under 35 U.S.C. § 103 as being unpatentable over the appellant's admitted prior art (as represented by Fahnrich) and Shackle is reversed.

REVERSED

JAMES D. THOMAS Administrative Patent Judge	)	
MICHAEL R. FLEMING Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JAMESON LEE Administrative Patent Judge	)	

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