

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
(1) was not written for publication in a law journal and
(2) is not binding precedent of the Board.

Paper No. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOE A. NUCKOLLS

Appeal No. 96-0447
Application 08/145,731¹

HEARD: Jan. 13, 1999

Before THOMAS, KRASS, and BARRETT, Administrative Patent
Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

¹ Application for patent filed November 4, 1993.
According to appellant, this application is a continuation of
Application 07/863,272, filed April 3, 1992, now abandoned.

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This is a decision on appeal from the final rejection of claims 3, 5 and 9 through 18, all of the claims remaining in the application.

The invention pertains to an electronic ballast circuit for starting and operating high intensity discharge (HID) lamps and is best illustrated by reference to independent claim 12, reproduced as follows:

12. An electronic ballast circuit including a starting circuit and an operator circuit for starting and operating a high intensity discharge lamp from a low voltage AC power source, said operating circuit comprising:

first circuit means for storing a first voltage at a first energy level wherein said first circuit means provides an output to a high intensity discharge lamp and wherein said first voltage at said first energy level functions to lower an impedance of said lamp;

second circuit means including a second means for storing a second voltage at second energy level and providing an output pulse at said second energy level to said lamp in order to operate said lamp; and

diode matrixing means connected between said first and second circuit means for causing said second energy level pulse to bypass said first circuit means during a half-cycle operation of said source and immediately following the lowering of said lamp impedance during said half-cycle, wherein said first circuit means for storing said first voltage and said second circuit means for storing said second voltage are selected so that a value of said first energy level is of the same order of magnitude as a value of said second energy level.

The examiner relies on the following references:

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|---------------------------|-----------|---------------|
| Tenen | 3,909,666 | Sep. 30, 1975 |
| Nerone et al. (Nerone) | 5,059,867 | Oct. 22, 1991 |

Claims 3, 5 and 9 through 18 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner cites Tenen with regard to claims 3, 5, 9, 10, 12 through 14 and 18, adding Nerone with regard to claims 11 and 15 through 17.

A rejection of claims 5, 10 and 14 under 35 U.S.C. § 112, second paragraph, has been withdrawn by the examiner and is not before us on appeal.

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

OPINION

We reverse.

Independent claims 12 and 14 are very specific in the recitation of elements which form an improvement for an "operating circuit" of an HID lamp. While the ballast circuit includes both a starting circuit and an operating circuit, these claims are specifically directed to the "operating circuit" portion of the electronic ballast. Independent claim 18 is not so direct but, while a starting circuit is not mentioned as being part of the electronic ballast circuit, the

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circuit of claim 18 is "for operating," not starting, an HID lamp. At line 12 of the claim, it is recited that an output pulse is provided "in order to operate said lamp."

Accordingly, all of these claims are directed to the "operation circuit," and not to the "starting circuit" for a HID lamp.

Further, independent claims 12, 14, 15 and 18 all require a "same order of magnitude" limitation. Claim 12 recites that the first voltage storing means and the second voltage storing means are selected so that a value of the first energy level is of the same order of magnitude as a value of the second energy level while claim 14 recites that the high energy loop has an energy value of the same order of magnitude as, but greater than, an energy value of the low energy loop. Claim 18 recites that the value of a first capacitor is the same order of magnitude as a value of a second capacitor. Claim 15 recites that a value of each of at least two levels of energy is of the same order of magnitude as a value of another one of the two levels of energy.

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The primary reference to Tenen appears, at first, to disclose a similar circuit arrangement, comprising capacitors and diodes, as the instant invention. However, on a closer inspection, it is seen that capacitors 27 and 28 are employed to start the lamp but are essentially out of the circuit during the operation of the lamp. Note column 2, lines 53-58 of Tenen, wherein it is stated:

When lamp **12** ignites, its impedance drops, the current through it increases and the voltage between electrodes **34** and **35** drops because most of the current then flows through capacitors **16** and **17** of much lower impedance

than trigger capacitors **27** and **28** so that the voltage increasing effect of the trigger capacitors is then negligible.

Accordingly, it does not appear that one could reasonably conclude that capacitors 27 and 28 in Tenen are part of the operating circuit, as defined by the instant claims and so the examiner's reliance on these capacitors of Tenen as somehow being part of the operating circuit, which is separate and distinct from the starting circuit, as claimed, is misplaced.

To the extent that one might consider the starting circuit and operating circuit to be inseparable and that the capacitors 27 and 28 of Tenen might be considered to be part

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of the operating circuit for the lamp, we do not find the "same order of magnitude" limitation of the instant claims to have been taught or suggested by Tenen (or, with regard to claim 15, by Tenen in combination with Nerone).

As clearly explained by appellant, at pages 8-9 of the principal brief, Tenen discloses a ratio between the energy passed by the large capacitor 16 to the energy passed by the small capacitor 27 of 122 which indicates that the energy of the first circuit is not of the same order of magnitude as the energy delivered by the second circuit. Contrast this with the instant invention where [see page 8 of the principal brief] the ratio of the two energies is calculated to be 1.4, i.e., the same order of magnitude.

While the examiner argues that it would have been obvious to change the ratio of Tenen² as the mere optimization of values within a workable range within general conditions disclosed by the prior art, we agree with appellant that this is not the case. First, if the ratio in Tenen were to be so

² The examiner agrees that Tenen does not disclose such a ratio as claimed.

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changed, the lamp of Tenen would appear to be without the necessary starting circuit since the capacitors 27 and 28 of Tenen have magnitudes greater than the operating circuit capacitors in order to start the lamp. Since the instant claimed invention requires the delivery of the two energy values during operating conditions and not during starting conditions, and the claim limitation of "same order of magnitude" relates to these two energy values during operation, not start-up, it was improper for the examiner to merely dismiss this limitation with the rationale that it would have been obvious to change the ratio of energy values in Tenen as the mere discovery of the optimum or workable ranges of general conditions disclosed by the prior art. The prior art, as represented by Tenen, does not disclose the "general conditions" of the instant claimed invention [since Tenen lacks the necessary disclosure of the claimed operating circuit] and the "same order of magnitude" limitation relates to more than a mere optimization of ranges.

The examiner's decision rejecting claims 3, 5 and 9 through 18 under 35 U.S.C. § 103 is reversed.

REVERSED

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| | James D. Thomas |) | |
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| | Errol A. Krass |) | BOARD OF |
| PATENT | |) | |
| | Administrative Patent Judge |) | APPEALS AND |
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| | Lee E. Barrett |) | |
| | Administrative Patent Judge |) | |

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Oblon, Spivak, McClelland
Maier & Neustadt
Fourth Floor
1755 Jefferson Davis Highway
Arlington, VA 22202