

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PIETER J. VAN DER ZAAG, KLASS VEGTER,
PETRUS H. ANTONIS and PIETER J. VAN DER VALK

Appeal No. 96-4196
Application No. 08/239,010¹

ON BRIEF

Before HAIRSTON, BARRETT and HECKER, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 7, 10 through 13, 15 through 17, 19 through 25 and 28 through 30. Claims 31 and 32 are allowable over the art of record, and claims 8, 9, 14, 18, 26 and 27 would be allowable if rewritten in independent form including all of the

¹ Application for patent filed May 5, 1994.

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limitations of the base claim and any intervening claims (final rejection, page 5). After submission of the brief, the examiner indicated that claim 29 should have been listed with the latter group of claims (Answer, page 2). Accordingly, claims 1 through 7, 10 through 13, 15 through 17, 19 through 25, 28 and 30 remain before us on appeal.

The disclosed invention relates to an electrodeless low-pressure discharge lamp that uses a sintered core of polycrystalline ferrite material so that the losses in the core, when measured at room temperature in an alternating magnetic field with a frequency of 3 MHz and at a magnetic flux density of 10mT, are at most 150 mW/cm³.

Claims 1 and 10 are illustrative of the claimed invention, and they read as follows:

1. An illumination unit, comprising:

an electrodeless low-pressure discharge lamp; and
a supply device,

said lamp comprising a discharge vessel enclosing a discharge space in a gastight manner, an ionizable filling within said discharge space, and a coil for inducing a high-frequency magnetic field which maintains a discharge in the discharge space, said coil including a sintered core of

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polycrystalline ferrite material and a winding connected to the supply device,

the supply device including means for energizing said coil for inducing a high-frequency magnetic field which starts and maintains a discharge in the discharge space, characterized in that the losses in the core, when measured at room temperature in an alternating magnetic field with a frequency of 3 MHz and at a magnetic flux density of 10 mT, are at most 150 mW/cm³.

10. An electrodeless low-pressure discharge lamp, comprising:

a discharge vessel enclosing a discharge space in a gastight manner, an ionizable filling in said discharge space, and a coil for inducing a high-frequency magnetic field which maintains a discharge in the discharge space, said coil including a sintered core of polycrystalline ferrite material and a winding around said core, characterized in that:

the losses in the core, when measured at room temperature in an alternating magnetic field with a frequency of 3 MHz and at a magnetic flux density of 10 mT, are at most 150 mW/cm³

The references relied on by the examiner are:

Anderson	3,521,120	July 21,
1970		
Johnson et al. (Johnson)	5,138,546	Aug.
11, 1992		
Philips	974,853	Nov. 11,
1964		
(British patent application)		

Claims 1 through 7, 10 through 13, 15 through 17, 19 through 25, 28 and 30 stand rejected under 35 U.S.C. § 103 as

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being unpatentable over Anderson in view of Philips and Johnson.

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

OPINION

The obviousness rejection of claims 1, 10 and 11 is sustained, and the obviousness rejection of claims 2 through 7, 12, 13, 15 through 17, 19 through 25, 28 and 30 is reversed.

Anderson discloses a high frequency electrodeless fluorescent lamp (Figure 1) with a ferrite core for coupling operating power to a light-emitting element in the lamp (column 2, lines 5 through 7). Anderson states that "[o]ne of the most important of the criteria in constructing lights in accord with the present invention is that the ferrite rod be chosen of a material which, at the operating frequency, has a relatively low loss so as to transmit a maximum proportion of power input thereto to the fluorescent envelope" (column 4, lines 4 through 9). Since "heating losses with the ferrite" are important to Anderson, he notes that "the choice of an ideal ferrite for a particular lamp and for a

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particular operative environment is a matter of choice to those skilled in the art, and many other ferrites may be chosen by a study of their characteristic loss and dissipation characteristics" (column 4, lines 21 through 27).

We agree with appellants (Brief, pages 7 and 8) that Philips discloses the use of a sintered polycrystalline ferrite material for a magnetic recording head or for other electromagnetic use (page 1, column 2, line 52 through page 2, column 1, line 12). On the other hand, Johnson discloses a sintered polycrystalline ferrite material that is used in a core of a transformer (column 1, lines 7 and 8). Johnson, like Anderson, is concerned about heating losses within the ferrite core (column 1, lines 29 through 37; column 4, lines 30 through 54). Examples 1 through 5 in Johnson's Table 1 show a sintered polycrystalline ferrite core with a grain size between 0.5 and 2.0 microns that is operated at a frequency of 3 MHz, and a magnetic flux density of 10 mT to yield losses in the range 60 mW/cm³ to 140 mW/cm³ (column 4, lines 45 through 54).

Inasmuch as Johnson is concerned with reduction of heating losses in a polycrystalline ferrite core, albeit in a

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transformer, and has recognized that grain size of the polycrystalline ferrite material has a direct relation on losses (Table 1; column 5, lines 1 through 7), we are of the opinion that it would have been obvious to one of ordinary skill in the art to use the polycrystalline ferrite material of Johnson in Anderson for the advantage of reducing "heating losses within the ferrite" (Anderson, column 4, lines 21 through 27).

The very specific teachings in Johnson of a sintered polycrystalline ferrite material used in a core, and the accompanying advantageous teachings of heat-loss reduction based upon specific grain sizes, indicate to us that it would not be 'obvious to try' such a ferrite in Anderson to lessen the problem of heat loss (Brief, page 9). Appellants' arguments concerning reducing the loading of an external supply device during starting to thereby improve the life of the supply device are not commensurate in scope with the claimed invention (Brief, pages 7 through 9).

Based upon the foregoing, the obviousness rejection of claims 1, 10 and 11 is sustained. With respect to the remainder of the claims on appeal, the granular ferrites

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disclosed by Johnson are not described as having a "monodomain structure." In the absence of anything in the record to indicate that the granular ferrites in Johnson have a "monodomain structure," the obviousness rejection of claims 2 through 7, 12, 13, 15 through 17, 19 through 25, 28 and 30 is reversed.

DECISION

The decision of the examiner rejecting claims 1 through 7, 10 through 13, 15 through 17, 19 through 25, 28 and 30 under 35 U.S.C. § 103 is affirmed as to claims 1, 10 and 11, and is reversed as to claims 2 through 7, 12, 13, 15 through 17, 19 through 25, 28 and 30.

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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

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
LEE E. BARRETT)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
STUART N. HECKER)	
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