

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(2) is not binding precedent of the Board.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. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANDREA NEPOTE
and DARIO DECURTI

Appeal No. 1997-1231
Application 08/308,985

ON BRIEF

Before THOMAS, KRASS and LALL, **Administrative Patent Judges.**

LALL, Administrative Patent Judge.

Appeal No. 1997-1231
Application No. 08/308,985

DECISION ON APPEAL

This is an appeal from the final rejection¹ of claims 1 to 11.

The disclosed invention relates to a ballast for a gas-discharge lamp, particularly for use in motor vehicles. The ballast of the present invention comprises a switched DC/DC converter means comprising a switched DC/DC converter of the "fly-back" type and a second switched DC/DC converter of the "feed-forward" type. This structure of the two specific DC/DC converters is smaller in dimension than previous devices while being able to start the lamp and a subsequent low voltage with high electrical power to support the passage of a large current through the lamp during the warming-up and steady-state operation of the lamp. The ballast contains an

¹The first final rejection was mailed as paper no. 6. There was an amendment (paper no. 11) after that final rejection, which was approved for entry (paper no. 12). As a result of the amendment, claim 13 was allowed. Claim 12 had already been indicated to contain allowable matter. Another final rejection was mailed as paper no. 13. This final rejection is the same as the first final rejection, except that claim 10 had been inadvertently omitted from the first final rejection. The grounds of rejection in both the final rejections are the same.

H-shaped bridge switching circuit which is connected to the DC/DC converter means and in the central branch of which the discharge lamp and the associated starting means are disposed. A control circuitry is disposed in the ballast for driving the DC/DC converter means and the bridge circuit to control the voltage and the power to the gas-discharge lamp during its operation. The invention is further illustrated by the following claim.

1. A ballast for a gas-discharge lamp, particularly for motor vehicles, comprising:

switched dc/dc converter means which are intended to be connected to a direct-current voltage source such as the battery of a motor vehicle, and which can output a direct-current voltage higher than that supplied by the source,

an H-shaped bridge switching circuit which is connected to the dc/dc converter means and in the central branch of which the discharge lamp and associated reactive starting means are disposed,

and

control circuitry for driving the dc/dc converter means and the bridge switching circuit in a manner such that, each time the lamp is switched on, a very high voltage is applied initially, in particular in order to start the lamp, and subsequently a low voltage is applied, but with a high electrical power, in order to support the passage of a large current through the lamp during the heating (warming-

up) of

Appeal No. 1997-1231
Application No. 08/308,985

the lamp and during the subsequent steady operation
of the lamp;

Appeal No. 1997-1231
Application No. 08/308,985

the dc/dc converter means comprising

a switched dc/dc converter of the "fly-back" type
and a second switched dc/dc converter of the
"feed-forward" type,

the control circuitry being arranged to drive the
dc/dc converters in a manner such that, each time
the lamp is switched on, first the "fly-back"
converter is activated in order to generate the very
high
voltage and, subsequently, the "feed-forward"
converter is activated in order to generate the low
voltage with high electrical power.

The references relied on by the Examiner are:

Ruff et al. (Ruff)	4,469,981	Sep. 4, 1984
Roberts	4,709,188	Nov. 24, 1987
Oda et al. (Oda)	5,151,631	Sep. 29, 1992

Claims 1, 4 to 6, 7, 8 and 9 stand rejected under 35
U.S.C. § 103 over Roberts and Oda, while 2, 3, 10 and 11 stand
rejected over Roberts, Oda and Ruff.

Reference is made to Appellants' brief and the
Examiner's answer for their respective positions.

OPINION

We have considered the record before us, and we will
reverse the rejection of claims 1 to 11.

With respect to claims 1 to 11, the Examiner has failed
to set forth a prima facie case of obviousness. It is the

Appeal No. 1997-1231
Application No. 08/308,985

burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the express teachings or suggestions found in the art, or by implications contained in such teachings or suggestions.

In re Sernaker,

702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983).

"Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is no legally recognizable 'heart' of the invention." Para-Ordnance Mfg.

Inc. v. SGS Importer Int'l, Inc., 73 F.3d 1085, 1087, 37

USPQ2d 1237, 1239 (Fed. Cir. 1995); cert. denied, 117 S. Ct. 80 (1996)

citing W. L. Gore & Assoc. v. Garlock, Inc., 721 F.2d 1540,

1548, 220 USPQ 303, 309 (Fed. Cir. 1983), cert. denied,

469 U.S. 851 (1984).

Analysis

Claims 1, 4 to 6, 7, 8 and 9

We first take claim 1, the only independent claim. After discussing Roberts and Oda individually, the Examiner asserts (answer, page 4) that "it would have been obvious to

Appeal No. 1997-1231
Application No. 08/308,985

utilize a well known type of DC-DC converter such a
conventional push-pull 'feed-forward type' so as to allow the
use of inverter ballast arrangement , as taught by
Oda."

Appeal No. 1997-1231
Application No. 08/308,985

After discussing Roberts and Oda (brief, pages 12 to 18), Appellants conclude that "neither reference, nor the combination, disclose a ballast including two-separate DC/DC converters, one of the 'fly-back' type and a second of the 'feed-forward' type, as specifically recited in Claim 1 of the present application

. . . . Accordingly, a prime facie case [sic, case] of obviousness has not been made out " (Id. 18).

The Examiner responds by concluding that "[t]he crux of the invention lies in the two DC sources , Roberts shows a sort of fly-back converter arrangement in figure 3 that produces a DC voltage The use of another [DC source] for the main powering is taught by Oda [T]he use of the optimum converter for the particular circuit would have been obvious

. . . . These converters are well known. That is the crux of the invention and it is taught by the prior art." (Answer, page 7) (emphasis added).

While we agree with the Examiner that DC/DC converters are well known, as are most of the other things which go to

Appeal No. 1997-1231
Application No. 08/308,985

make up any invention, the particular structure recited in claim 1 is not shown by Roberts and Oda, either singly or in combination. The Examiner has not shown the reason why an artisan would have incorporated a DC/DC converter in Roberts which is designed to be operated on an AC power line. Even if one were to introduce such a DC/DC converter in Roberts, the Examiner has not demonstrated how the control circuitry of Roberts would have been modified to meet the claimed "control circuitry being arranged to drive the dc/dc converters in a manner such that, each time the lamp is switched on, first the 'fly-back' converter is activated in order to generate the very high voltage and, subsequently, the 'feed-forward' converter is activated in order to generate the low voltage with high electrical power." The Federal Circuit states that "[the] mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In re Fritch, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), citing In re Gordon, 773 F.2d 900, 902, 221 USPQ 1125,

Appeal No. 1997-1231
Application No. 08/308,985

1127 (Fed. Cir. 1984). "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." Para-Ordnance Mfg. v. SGS Importers Int'l, Inc., 73 F.3d at 1087, 37 USPQ 2d at 1239 (Fed. Cir. 1995), citing W. L. Gore & Assoc. v. Garlock, Inc., 721 F.2d at 1540, 1553, 220 USPQ at 303, 312-13 (Fed. Cir. 1983).

Appeal No. 1997-1231
Application No. 08/308,985

Therefore, we conclude that the suggested combination of Roberts and Oda is improper and the Examiner has not established a prima facie case of obviousness to reject the independent claim 1. Therefore, we do not sustain the rejection of claim 1 and its dependent claims 4 to 6, 7, 8 and 9 over Roberts and Oda.

Claims 2, 3, 10 and 11

These claims are rejected over Roberts, Oda and Ruff. Since all these claims depend on claim 1, directly or indirectly, they each contain at least the limitations discussed above with respect to claim 1. Furthermore, the additional reference, Ruff, does not cure the deficiencies noted above in the rejection of claim 1. Therefore, we do not sustain the rejection of claims 2, 3, 10 and 11 over Roberts, Oda and Ruff for the same rationale as claim 1 above.

Appeal No. 1997-1231
Application No. 08/308,985

In conclusion, the decision of the Examiner rejecting claims 1 to 11 under 35 U.S.C. § 103 over the various combinations of Roberts, Oda and Ruff is reversed.

REVERSED

)	
JAMES D. THOMAS)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
ERROL A. KRASS))
Administrative Patent Judge)	APPEALS AND
)	
)	INTERFERENCES
)	
PARSHOTAM S. LALL)	
Administrative Patent Judge)	

PSL:hh

Appeal No. 1997-1231
Application No. 08/308,985

COOK, McFARRON & MANZO, LTD.
200 WEST ADAMS STREET
SUITE 2850
CHICAGO, IL 60606