

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(2) is not binding precedent of the Board.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. 42

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FUMIHIRO ENDO,
TOMOAKI UTSUMI, TOSHIO ISHIKAWA,
SHUZO IWAASA and TOKIO YAMAGIWA

Appeal No. 1997-3028
Application 08/290,083¹

HEARD: October 5, 1999

¹ Application for patent filed August 15, 1994. According to Appellants, the application is a continuation of Application 07/760,947, filed September 17, 1991, abandoned.

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Before THOMAS, FLEMING and FRAHM, **Administrative Patent Judges**.

FLEMING, **Administrative Patent Judge**.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1, 3 and 5 through 20, all of the claims pending in the present application. Claims 2 and 4 have been cancelled.

The invention relates to a gas insulated electric apparatus in which a high voltage conductor is disposed in a sealed vessel filled with insulating gas. On page 4 of the specification, Appellants disclose that figure 1 is a block diagram of an apparatus according to the invention. On page 5 of the specification, Appellants disclose that the sealed vessel is sectioned into a plurality of gas sections 3a, 3b, 3c and 3d. The sealed vessel is filled with an insulating gas consisting of only SF₆ gas. Appellants further disclose a storing reservoir 11. On page 6 of the specification, Appellants disclose that the storage reservoir 11 is filled with an

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insulating gas of a different kind from the insulating gas filled in the sealed vessel. Appellants disclose preferably that the insulating gas of a different kind is preferably one of the fluorocarbon gases, pentafluoropropionyl fluoride, carbon fluoride nitrile compounds or bromochlorodifluoromethan. On page 7 of the specification, Appellants disclose that the gas

sections in the sealed vessel have disposed sensors 13a and 13b. These sensors detect an abnormality in the insulation strength of the gas. The output of this abnormality from the sensors is sent to the abnormality monitoring device 16. On page 8 of the specification, Appellants disclose that the output of the abnormality monitoring device 16 is inputted into a valve control device 20 and the output of the valve control device 20 is sent to a trip circuit 21 for opening and closing the corresponding electromagnetic valves 8a to 8d and 9. This allows the gas of a different kind to be injected

from the storing reservoir 11 into the sealed vessel, thereby increasing the insulating strength.

Independent claim 1 is reproduced as follows:

1. A gas insulated electric apparatus, comprising:
an elongated insulated electric device;

a plurality of gas section members joined together to form a gas-tight body having said insulated electric device therein, extending between said gas section members, with each gas section member filled at a first pressure with only a first insulating gas;

detecting means for detecting one of said gas section members having metal particles therein, causing an insulation abnormality on said insulated electric device;

electromagnetic valve means connected to said gas section members;

a gas storage reservoir storing a second insulating gas, different from the first insulating gas;

gas filling means coupling said gas storage reservoir to said electromagnetic valve means and responsive to an output from said detecting means indicating detection of the insulation abnormality, for controlling said electromagnetic valve means to admit at least a portion of the second insulating gas into said gas section members so that within the gas section members the second insulating gas mixes with the first insulating gas and varies the pressure of the insulating gas mixture in said gas section members so as to increase insulation strength on said electric device therein.

The Examiner relies on the following references:

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Harrold 1982	4,320,035	Mar. 16,
Kuroda et al. (Kuroda) 1986	4,607,245	Aug. 19,
Ishikawa et al. (Ishikawa) 1992	5,146,170	Sept. 8,

Mulcahy et al. (Mulcahy), "A Review of Insulation Breakdown and Switching in Gas Insulation," *Insulation/Circuits*, August 1970, pp. 55-61

Claims 1, 3 and 5 through 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ishikawa in view of Kuroda, Harrold and Mulcahy.

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the briefs² and the answer for the respective details thereof.

OPINION

² Appellants filed an appeal brief on March 7, 1997. Appellants filed a reply brief on August 4, 1997. On September 16, 1997, the Examiner mailed an Office communication stating that the reply brief has been entered and considered but no further response by the Examiner is deemed necessary.

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We will not sustain the rejection of claims 1, 3 and 5 through 20 under 35 U.S.C. § 103.

The Examiner has failed to set forth a *prima facie* case. It is the 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 prior 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. v. SGS Importers Int'l, Inc.*, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995), *cert. denied*, 519 U.S. 822 (1996) *citing W. L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

On page 10 of the brief, Appellants argue that the apparatus claims require (1) the gas section members, (2) the first gas, which prior to detection of an abnormality is the only

gas in the gas section members, (3) the storage reservoir, and (4) the second gas, which is different from the first gas, and which is in the gas storage reservoir. On page 13, Appellants argue that the method claims 15 through 20 recite detecting an insulating abnormality on an insulated electric device within a gas filled body which is filled only with a first insulating gas, and in response to detection of the insulating abnormality admitting a second insulating gas, different from the first insulating gas, into the gas section members to mix within the gas section members with the first insulating gas. Appellants argue that the reference relied on by the Examiner fails to teach or suggest the above limitations recited in Appellants' claims. Upon our careful review of the references, we agree that the references fail to teach Appellants' claim limitations as recited in Appellants' claims 1, 3 and 5 through 20. In addition, we note that the Examiner has not been able to show that the references teach an elongated insulated electric device filled with only a first insulating

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gas, a gas storage reservoir storing a second insulating gas different from the first insulating gas and a gas filling means coupling the gas storage

reservoir to the electromagnetic valve means in response to the output of the detecting means indicating the detection of an insulating abnormality for controlling the electromagnetic valve to admit at least a portion of the second insulating gas into the gas section members of the elongated insulated electric device. Instead, the Examiner argues that there is nothing unobvious seen to have been involved in simply applying one of the well-known gases for the gas insulating apparatus.

The Federal Circuit states that "[t]he 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

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n.14 (Fed. Cir. 1992), *citing In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

In the reply brief, Appellants argue that the Examiner, in effect, is relying on the common knowledge and common sense to determine that he or she should use a second gas which is different from the first gas. Appellants argue that one of ordinary skill in the art using his or her common knowledge and common sense and aware of the cited prior art would utilize

the same gas in both gas section members in the gas storage reservoir, since that is the only thing taught or even suggested in the prior art.

Upon our review of the references, we fail to find any suggestion or teaching that would lead one of ordinary skill in the art to make the proposed modification suggested by the Examiner. In fact, we note that Harrold suggests mixing the insulating gases from the outset rather than using a single gas by itself. Kuroda teaches a gas mixture from the outset and does not have a single insulating gas within a

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vessel prior to detection of an abnormality and introducing a second insulating gas upon detection so that they provide a mixture. Mulcahy simply teaches various insulating gases and does not lead one of ordinary skill in the art to ignore the teachings of Harrold or Kuroda in that a mixture of gases should be provided. Finally, Ishikawa detects abnormalities but does not add a second gas to the first gas within the insulating device to result in a gas mixture. Therefore, we fail to find that the prior art suggests the desirability of the modifications suggested by the Examiner.

We have not sustained the rejection of claims 1, 3 and 5 through 20 under 35 U.S.C. § 103. Accordingly, the Examiner's decision is reversed.

REVERSED

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	JAMES D. THOMAS)	
	Administrative Patent Judge)	
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PATENT)	
	MICHAEL R. FLEMING)	APPEALS AND
	Administrative Patent Judge)	INTERFER-
ENCES)	
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)	
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MRF:psb

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