

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(2) is not binding precedent of the Board.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. 37

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte GERARDUS G.P. VAN GORKOM  
PETUS H. F. TROMPENAARS SIEBE T. DE ZWART  
and NICOLAAS LAMBERT

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Appeal No. 1997-2291  
Application 08/422,667

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ON BRIEF

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Before HAIRSTON, BARRETT and HECKER, Administrative Patent  
Judges.

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

Appeal No. 1997-2291  
Application No. 08/422,667

This is an appeal from the final rejection of claims 13 through 45.

The disclosed invention relates to a display device with at least one electron transport duct that has an inner surface formed from an insulating material having a secondary emission coefficient which is equal to at least one at every electron energy level within a predetermined range of electron energies.

Claim 13 is illustrative of the claimed invention, and it reads as follows:

13. A display device comprising an envelope including a surface bearing a luminescent screen having a multiplicity of predefined areas and means for selectively energizing respective ones of said areas to produce an image, characterized in that said display device comprises:

a. electron emitting means;

b. at least one electron transport duct which has an electron-receiving portion in communication with the electron emitting means, has a plurality of output apertures, and has an inner surface which is formed, over a substantial length of the duct, from an insulating material having a secondary emission coefficient which is equal to at least one at every electron energy level within a predetermined range of electron energies;

c. means for producing within said duct an electric field with a predetermined field strength for effecting the

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transport of electrons from the electron-receiving portion to the vicinities of the output apertures by way of electron interactions with said inner surface of insulating material at energies within said predetermined range;

d. selection means for selectively effecting the extraction of electron currents from the output apertures; and

e. a supporting spacer arranged between the luminescent screen and the at least one electron transport duct and including a plurality of openings for permitting electrons to pass from the output apertures to the predefined areas of the luminescent screen.

The references relied on by the examiner are:

Knapp 1978	4,099,079	July 4,
Freeman 1989	4,873,472	Oct. 10,
Morimoto et al.(Morimoto) 1989	4,881,005	Nov. 14,
Chang 1990	4,956,575	Sept. 11,
		(filed Mar. 23,
1989)		
Knapp et al. (Knapp) 1983 (European Patent Application)	0 079 108	May 18,

Lyamikschev et al. (Lyamikschev), "Devices for Displaying Information with Flat Screens," Radio and Communication, 1983, pages 36 through 38, 135, 147, 154 and 160.<sup>1</sup>

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<sup>1</sup>A copy of the translation of this publication is attached.



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All of the rejections are reversed.

Turning first to the rejection under the first paragraph of 35 U.S.C. § 112, the examiner states (Answer, page 5) that "[t]here is not one range of energies where the secondary emission coefficient is equal to one." Appellants argue (Brief, page 4) that "[f]igure 3 clearly shows a secondary emission coefficient that is one or more at every point over the range of electron energies from  $E_I$  to  $E_{II}$ ." This rejection is reversed because we agree with appellants' argument that Figure 3 of the drawing clearly shows that the endpoints of the range are equal to "1" and all points between the two endpoints are "equal to at least one" as claimed.

In the obviousness rejection involving the references to Van Gorkum and Chang, the examiner is of the opinion that Van Gorkum discloses all of the claimed structure except for a second selection plate, and that Chang discloses "a selection plate  
26 termed as a 'modulating structure'" which has the "advantageous property modulating the level of the picture element." The examiner is of the opinion (Answer, page 6)

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that it would have been obvious to one of ordinary skill in the art to provide Van Gorkum with a second selection plate as taught by Chang "so as to modulate the level of the picture element."

Appellants argue (Brief, page 7) that:

The '750 Van Gorkom [sic, Van Gorkum] patent is not prior art with respect to the present application. The present application is a continuation-in-part of U.S. Patent Application 830,951 filed on 6 February 1992 (now U.S. Patent 5,313,136), which is a continuation of U.S. Patent Application 528,677 filed on 24 May 1990. The latter date (which is earlier than the 5 December 1990 publication date of the '750 European Patent cited by the Examiner) is effectively the filing date of the present application with respect to anything that is commonly disclosed in both the present application and its CIP parent, i.e. the '136 U.S. Patent. By comparison, it can be seen that the disclosures (including the drawing figures) in the '136 parent and the '750 European Patent cited by the Examiner are substantially identical. Thus, to the extent that the '750 European Patent discloses any material which is common to that disclosed and claimed in the present application, it is not prior art, because it is also disclosed in the parent of the present application.

A comparison of the drawing figures and disclosure of the '750 European Patent Application to the drawing figures and disclosure of the '136 U.S. Patent reveals that they are "substantially identical." Thus, we agree with appellants'

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argument (Brief, page 7) that "to the extent that the '750 European Patent discloses any material which is common to that disclosed and claimed in the present application, it is not prior art" to the present application. The examiner states (Answer, page 15) that "[t]he claimed invention contains new material not supported by [t]he 830,951 application." On the other hand, the examiner has not pointed to anything in the application claims on appeal that is not found in the 830,951 application. For this reason, we will accept appellants' conclusion (Brief, page 7) that the '750 European Patent Application to Van Gorkum is not prior art with respect to the present application. In short, the obviousness rejection is reversed because Chang neither teaches nor would have suggested the claimed invention set forth in claims 13, 21 through 25, 27, 36 through 38, 41 and 42.

In the obviousness rejection of claims 13 through 15, 17 through 24, 26 through 37 and 39 through 45 based upon the teachings of Morimoto, Knapp '079 and Lyamikschev, the examiner admits (Answer, page 8) that Morimoto does not teach "the use of a material that has a secondary emission coefficient at least equal to one for a given range of

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electron energies in a substantial length of the cavity of the duct." The examiner cites Knapp '079 (Answer, page 8) because "it is well known to form the secondary electron emissive material from substances like 'KAPTON' and with a coating like MgO, so as to form a[n] electrically insulative layer," and cites the Lyamikschev publication because it purportedly teaches that the use of such a material would allow for the use of a smaller electron gun.

Appellants argue (Brief, page 10) that:

The Examiner states that the Russian-language document to Ljamitscher [sic, Lyamikschev] teaches the use of electron multipliers so as to utilize a smaller electron gun. Even if this is true, it does not suggest why or how the teachings of Morimoto, Knapp '079 and Ljamitscher [sic, Lyamikschev] could or should be combined to produce applicants' invention. Note that applicants' invention does not use an electron gun (which produces a focused and accelerated high-energy beam of electrons). Rather, it produces and uses unfocused, relatively low-energy secondary electrons which propagate through a duct. The entire mode of operation of the claimed display is dissimilar from that of Morimoto. Similarly, it is not clear how or why the likewise dissimilar modes of operation of the Morimoto (focused electron beam display) and Ljamitscher [sic, Lyamikschev] (secondary emission display) could or should be combined to produce anything suggestive of applicants['] claimed display device.

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We agree with the entirety of appellants' arguments. To take such disparate teachings, and arrive at the claimed invention (e.g., the duct with an inner surface formed from an insulating material of a specific secondary emission coefficient) would take a healthy dose of impermissible hindsight and creativity to change the desired operation of Morimoto. Accordingly, the obviousness rejection of claims 13 through 15, 17 through 24, 26 through 37 and 39 through 45 is reversed.

Turning lastly to the obviousness rejection of claims 13 through 15, 28 through 30, 33 and 43 through 45 based upon the teachings of Freeman, Knapp '108 and Knapp '079, the examiner states (Answer, page 12) that Freeman teaches all of the claimed invention except for "a material that has a secondary emission coefficient of one for a given range of electron energies," and "a spacer with a plurality of apertures between the transport duct and the luminescent screen."

Notwithstanding the secondary electron emissive material teachings of Knapp '079, and the spacer teachings of Knapp '108, the examiner has again failed to present a plausible reason for modifying the teachings of the primary reference

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based upon the teachings of the additionally cited references. If the dynode 16 in Freeman is the duct referred to by the examiner (Answer, page 12), it does not correspond to the claimed duct structure, function and location. In summary, the obviousness rejection of claims 13 through 15, 28 through 30, 33 and 43 through 45 is reversed because the examiner has not presented a prima facie case of obviousness.

DECISION

Inasmuch as all of the rejections are reversed, the decision of the examiner is reversed.

REVERSED

Kenneth W. Hairston	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
Lee E. Barrett	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
Stuart N. Hecker	)	
Administrative Patent Judge	)	

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