

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SATORU TOGUCHI, ATSUSHI ODA and HITOSHI ISHIKAWA

Appeal No. 2002-0242
Application 09/112,364

ON BRIEF

Before GARRIS, OWENS and PAWLIKOWSKI, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal is from the final rejection of claims 1-11, which are all of the claims in the application.

THE INVENTION

The appellants claim an organic electroluminescence device having, in at least one organic thin layer, at least one compound selected from four general formulas. Claim 1 is illustrative and is appended to this decision.

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THE REFERENCES

Inoue et al. (Inoue)	5,635,308	Jun. 3, 1997
Enokida et al. (Enokida)	5,759,444	Jun. 2, 1998
Azuma et al. (JP '569) (Japanese patent application)	8-333569	Dec. 17, 1996

THE REJECTION

Claims 1-11 stand rejected under 35 U.S.C. § 103 as being unpatentable over Enokida in view of Inoue and JP '569.

OPINION

We reverse the aforementioned rejection. We need to address only claim 1, which is the sole independent claim.

The applied references all disclose compounds to be included in an organic electroluminescence device.

The portion of Enokida relied upon by the examiner (answer, page 4) discloses anthracene compounds having two diarylamino substituents which may themselves be substituted (col. 3, lines 1-29). The anthracene compounds do not include anthracene groups directly attached to each other.

The portion of Inoue relied upon by the examiner (answer, page 4) discloses compounds (VII-1 to VII-27) having anthracene groups which are directly connected to each other and have phenyl substituents which may be substituted with diphenylamino groups (compounds VII-7 and VII-27) or styryl groups (compound VII-23).

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These compounds do not have a styryl group as a substituent of a diarylamino group, or have a diarylamino group directly attached to an anthracene group.

The portion of JP '569 relied upon by the examiner (answer, page 4) discloses compounds having anthracene groups and naphthalene groups connected to each other, and discloses compounds having three directly connected anthracene groups (compounds 4, 6, 7, 18, 43, 45-47 and 62-64). The anthracene and naphthalene groups have styryl substituents, but the styryl substituents are not substituents of a diarylamino group, and there is no diarylamino group directly attached to an anthracene group or a naphthalene group.

The examiner argues that one of ordinary skill in the art would have reasonably expected that a compound obtained by combining the structures of the applied references would be suitable as an electroluminescent compound (answer, pages 5-6). In the examiner's view, "[o]ne of ordinary skill in the art, having knowledge of properties such as ionization potential and electron affinity of particular chemical structures, could determine without undue experimentation whether a particular

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combination of chemical structures could reasonably be expected to be usable as a material for an organic EL device" (answer, page 9).

In order for a *prima facie* case of obviousness to be established, the teachings from the prior art itself must appear to have suggested the claimed subject matter to one of ordinary skill in the art. See *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976). The mere fact that the prior art could be modified as proposed by the examiner is not sufficient to establish a *prima facie* case of obviousness. See *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992). The examiner must explain why the prior art would have suggested to one of ordinary skill in the art the desirability of the modification. See *Fritch*, 972 F.2d at 1266, 23 USPQ2d at 1783-84.

The examiner's argument that one of ordinary skill in the art could have made the appellants' compounds from the compounds of the applied prior art based upon properties such as ionization potential and electron affinity, without undue experimentation, does not provide the required explanation as to why the applied prior art would have fairly suggested, to one of ordinary skill in the art, the desirability of modifying the prior art such that

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a compound within the general formulas in the appellants' claim 1 is obtained. The record indicates that the motivation relied upon by the examiner for combining particular parts of the compounds of the applied references so as to arrive at a compound within the general formulas in the appellants' claim 1 comes from the description of the appellants' invention in their specification and that, therefore, the examiner used impermissible hindsight when rejecting the claims. See *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984); *In re Rothermel*, 276 F.2d 393, 396, 125 USPQ 328, 331 (CCPA 1960). Accordingly, we reverse the examiner's rejection.¹

¹ Since no *prima facie* case of obviousness has been established we need not address the evidence relied upon by the appellants (brief, pages 3-5). See *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984).

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DECISION

The rejection of claims 1-11 under 35 U.S.C. § 103 over Enokida in view of Inoue and JP '569 is reversed.

REVERSED

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BRADLEY R. GARRIS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
TERRY J. OWENS)	
Administrative Patent Judge)	APPEALS AND
)	
)	INTERFERENCES
)	
BEVERLY A. PAWLIKOWSKI)	
Administrative Patent Judge)	

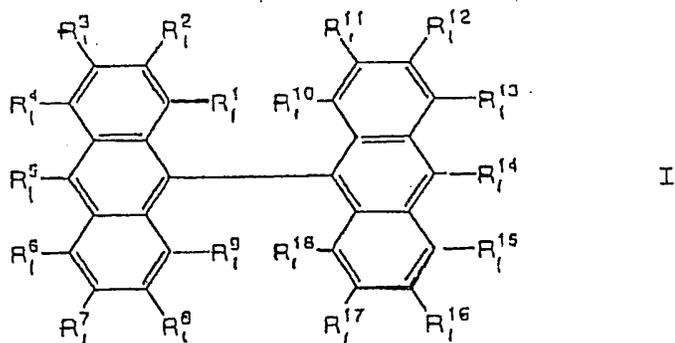
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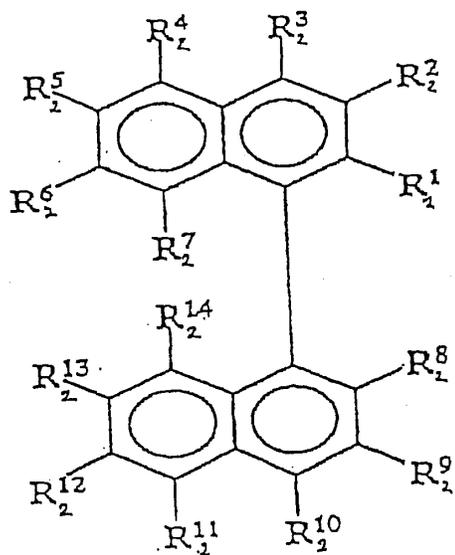
APPENDIX

1. An organic electroluminescence device having one or more organic thin layers including a luminescent layer between an anode and a cathode, wherein at least one of the organic thin layers contains at least one of compounds selected from the group consisting of the compounds represented by general formulas I, II, III, and IV, alone or in combination;



wherein R_1^1 to R_1^{18} independently represent hydrogen, halogen, hydroxy, a substituted or unsubstituted amino, nitro, cyano, a substituted or unsubstituted alkyl, a substituted or unsubstituted alkenyl, a substituted or unsubstituted cycloalkyl, a substituted or unsubstituted alkoxy, a substituted or unsubstituted aromatic hydrocarbon, a substituted or

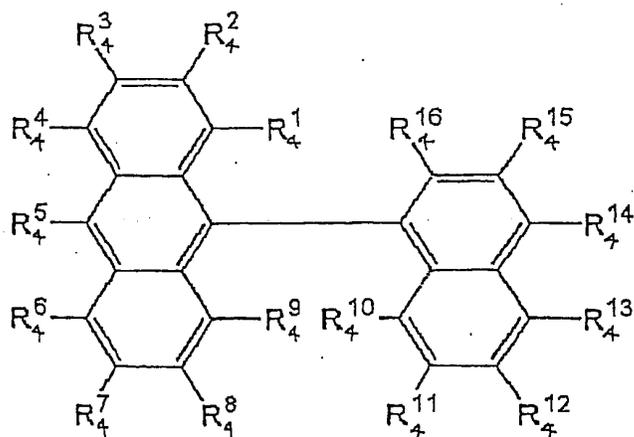
unsubstituted aromatic heterocycle, a substituted or unsubstituted aralkyl, a substituted or unsubstituted aryloxy, a substituted or unsubstituted alkoxy, a substituted or unsubstituted alkoxy, or carboxyl groups; or two of R_1^1 to R_1^9 or two of R_1^{10} to R_1^{18} may be combined together to form a ring, although at least one of R_1^1 to R_1^{18} is a diarylamino group represented by $-NAr_1^1Ar_1^2$ wherein Ar_1^1 and Ar_1^2 independently represent a substituted or unsubstituted aryl group having 6 to 20 carbon atoms;



II

wherein R_2^1 to R_2^{14} independently represent hydrogen, a halogen, hydroxy, a substituted or unsubstituted amino, nitro, cyano, a substituted or unsubstituted alkyl, a substituted or unsubstituted alkenyl, a substituted or unsubstituted cycloalkyl, a substituted or unsubstituted alkoxy, a substituted or unsubstituted aromatic hydrocarbon, a substituted or

unsubstituted aralkyl, a substituted or unsubstituted aryloxy, a substituted or unsubstituted alkoxycarbonyl, or carboxyl groups; or two of R_3^1 to R_3^9 , or two of R_3^{10} to R_3^{13} and two of R_3^{23} to R_3^{26} , or two of R_3^{14} to R_3^{22} may form a ring, although at least one of R_3^1 to R_3^{26} is a diarylamino group represented by $-NAr_3^1Ar_3^2$ wherein Ar_3^1 and Ar_3^2 are independently a substituted or unsubstituted aryl group having 6 to 20 carbon atoms;



wherein R_4^1 to R_4^{16} independently represent hydrogen, a halogen, hydroxy, a substituted or unsubstituted amino, nitro, cyano, a substituted or unsubstituted alkyl, a substituted or unsubstituted alkenyl, a substituted or unsubstituted cycloalkyl, a substituted or unsubstituted alkoxy, a substituted or unsubstituted aromatic hydrocarbon, a substituted or unsubstituted aromatic heterocycle, a substituted or

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unsubstituted aralkyl, a substituted or unsubstituted aryloxy, a substituted or unsubstituted alkoxy, or carboxyl groups; or two of R_4^1 to R_4^9 , or R_4^{10} to R_4^{16} may form a ring, although at least one of R_4^1 to R_4^{16} is a diarylamino group represented by $-NAr_4^1Ar_4^2$ wherein Ar_4^1 and Ar_4^2 are independently a substituted or unsubstituted aryl group having 6 to 20 carbon atoms.