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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte NOBUHIRO YABUNOUCHI,
MASAHIRO KAWAMURA, HISAYUKI KAWAMURA,
CHISHIO HOSOKAWA, SHIGEYUKI MATSUNAMI,
TADAHIKO YOSHINAGA, and YASUNORI KIJIMA

Appeal 2012-007845
Application 11/844,050
Technology Center 1600

Before JEFFREY N. FREDMAN, ULRIKE W. JENKS, and
JOHN G. NEW, *Administrative Patent Judges.*

NEW, *Administrative Patent Judge*.

DECISION ON APPEAL

SUMMARY

Appellants file this appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1-12, 28-29, and 39-41 as unpatentable under the doctrine of nonstatutory obviousness-type double patenting as being obvious over claims 1, 3-7, 9-11, and 38-40 of Yabunouchi et al. (US 8,044,222 B2, October 25, 2011) ("Yabunouchi"). App. Br. 3.

We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

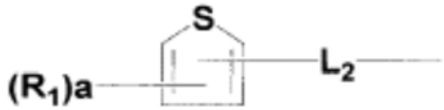
NATURE OF THE CLAIMED INVENTION

Appellants' invention is directed to a novel aromatic amine derivative having a specific structure and an organic electroluminescence device in which an organic thin film layer comprising a single layer or plural layers including at least a light emitting layer is interposed between a cathode and an anode, wherein at least one layer in the above organic thin film layer, particularly a hole injecting layer contains the aromatic amine derivative described above in the form of a single component or a mixed component. Use of the aromatic amine derivative described above materialize an organic electroluminescence device which reduces an operating voltage and makes molecules less liable to be crystallized and which enhances a yield in producing the organic EL device and has a long lifetime.

Abstract.

GROUPING OF CLAIMS

Appellants argue claims 1-12, 28-29, and 39-41 together. App. Br. 4-8. We therefore select claim 1 as representative of this group. Claim 1 recites:

> Claim 1 An aromatic amine compound represented by the following Formula (1):
>
>
>
> (1)
>
> wherein L_1 represents a divalent group selected from the group consisting of phenyl, 1-naphthyl, 2-naphthyl, l-anthryl, 2-anthryl, 9-anthryl, 1-phenanthryl, 2-phenanthryl, 3-phenanthryl, 4-phenanthryl, 9-phenanthryl, 1-naphthacenyl, 2-naphthacenyl, 9-naphthacenyl, 1-pyrenyl, 2-pyrenyl, 4-pyrenyl, 2-biphenylyl, 3-biphenylyl, 4 biphenylyl, p-terphenyl-4-yl, p-terphenyl-3-yl, p-terphenyl-2-yl, m-terphenyl-4-yl, m-terphenyl-3-yl, m-terphenyl-2-yl, o-tolyl, m-tolyl, p-tolyl, p-t-butylphenyl, p-(2-phenylpropyl)phenyl, 3-methyl-2-naphthyl, 4-methyl-1-naphthyl, 4-methyl-1-anthryl, 4´-methylbiphenylyl, 4´´-t-butyl-p-terphenyl-4-yl, fluoranthenyl, fluorenyl, and 9,9-dimethylfluorenyl; at least one of Ar_l to Ar_4 is represented by the following Formula (2):
>
> 
>
> (2)
>
> wherein R_1 is an aryl group having 6 to 50 ring atoms, a branched or linear alkyl group having 1 to 50 carbon atoms, or

> a cyano group; a is an integer of 1 to 3; and L_2 represents a divalent group selected from the group consisting of phenyl, 1-naphthyl, 2-naphthyl, 2-biphenylyl, 3-biphenylyl, 4-biphenylyl, o-tolyl, m-tolyl, p-tolyl, fluoranthenyl, fluorenyl, and 9,9-dimethylfluorenyl; in Formula (1), among Ar_l to Ar_4, the groups which are not represented by Formula (2) each are independently an aryl group having 6 to 50 ring atoms; provided that substituents for Ar_1 to Ar_4 are an aryl group having 6 to 50 ring atoms, a branched or linear alkyl group having 1 to 50 carbon atoms, a halogen atom or a cyano group; provided that there is no case in which a is 2 and in which two R_1 form a ring to be turned into a benzothiophenyl group.

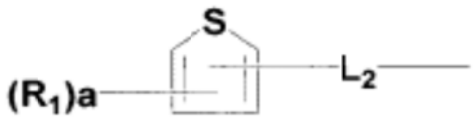
App. Br. 9-10.

ISSUE

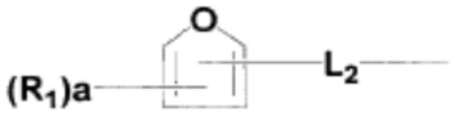
Appellants argue that the Examiner erred in finding that Formula 2 is not patently distinct from Formula 2 in Yabunouchi. App. Br. 4. We therefore address the issue of whether the Examiner so erred.

ANALYSIS

Appellants argue that Formula (2) of the claimed invention is based upon a thiophene ring:



whereas Formula (2) of Yabunouchi is based upon a furan ring:



App. Br. 4. Appellants argue that there is nothing in the claims of Yabunouchi to suggest the specific modification in question. App. Br. 5. Moreover, argue Appellants, there is no suggestion or disclosure in the claims of Yabunouchi or in Frank D. King, *Bioisosteres, Conformational Restriction, and Pro-Drugs — Case History: An Example of a Conformational Restriction Approach*, 206-09, *in* MEDICINAL CHEMISTRY: PRINCIPLE AND PRACTICE (1994) ("King") that the replacement of a furan ring with thiophene would provide the same functionality with a reasonable expectation of success. App. Br. 5.

Appellants argue that even if thiophene and furan were functionally equivalent (which Appellants do not concede) "functional equivalence does not necessarily establish obviousness." *Id.* (quoting *In re Scott*, 323 F.2d 1016, 1019 (C.C.P.A. 1963) ("Expedients which are functionally equivalent to each other are not necessarily obvious in view of one another").

The Examiner responds that King teaches that furan and thiophenes are bioisosteres and that they are therefore functional equivalents. Ans. 7 (*see* King, Table 1). The Examiner concludes that such substitution is obvious from well-known knowledge of bioisosterism. *Id.* (quoting *United States v. Adams*, 383 U.S. 39, 50-51 (1966) ("When a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result")); *see also KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007) ("The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results").

We are not persuaded by Appellants' argument. The Federal Circuit has ruled that:

> In brief, the cases establish that if an examiner considers that he has found prior art close enough to the claimed invention to give one skilled in the relevant chemical art the motivation to make close relatives (homologs, analogs, isomers, etc.) of the prior art compound(s), then there arises what has been called a presumption of obviousness or a *prima facie* case of obviousness. *In re Henze*, 181 F.2d 196, 37 C.C.P.A. 1009, 85 USPQ 261, (C.C.P.A. 1950); *In re Hass*, 141 F.2d 122, 127, 130, 31 C.C.P.A. 895, 60 USPQ 544, 548, 552 (C.C.P.A. 1944). The burden then shifts to the applicant, who then can present arguments and/or data to show that what appears to be obvious, is not in fact that, when the invention is looked at as a whole. *In re Papesch*, 315 F.2d 381, 50 C.C.P.A. 1084, 137 USPQ 43 (C.C.P.A. 1963). The cases of *Hass* and *Henze* established the rule that, unless an applicant showed that the prior art compound lacked the property or advantage asserted for the claimed compound, the presumption of unpatentability was not overcome.

In re Dillon, 919 F.2d 688, 696 (Fed. Cir. 1990).

Appellants have adduced no evidence of secondary considerations of nonobviousness with respect to their claimed compound, and therefore have not met their burden under *Dillon* of overcoming the presumption of unpatentability. Nor have Appellants provided any evidence to rebut the teaching of King that furan and thiophenes are bioisosteres, and therefore would have been obvious equivalents. We therefore affirm the Examiner's rejection of claim 1.

DECISION

The Examiner's rejection of claims 1-12, 28-29, and 39-41 under the doctrine of nonstatutory obviousness-type double patenting is affirmed.

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

cdc