(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 239 526 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
07.04.2004 Bulletin 2004/15

(43) Date of publication A2:
11.09.2002 Bulletin 2002/37

(21) Application number: **02005113.2**

(22) Date of filing: **07.03.2002**

(51) Int Cl.[7]: **H01L 51/30**, C07F 15/00, H01L 51/00

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **08.03.2001 JP 2001064204**
20.02.2002 JP 2002042440

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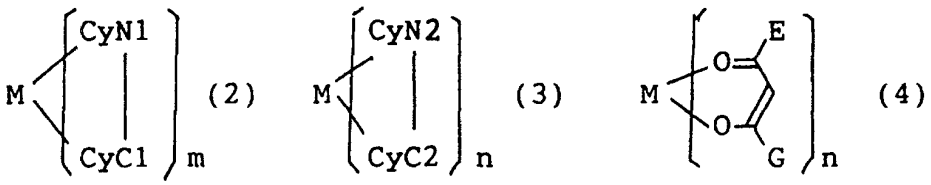
(54) Metal coordination compound, luminescene device and display apparatus

(57) An electroluminescence device having a layer containing a specific metal coordination compound is provided. The metal coordination compound is represented by formula (1) below:

$$ML_mL'_n \quad (1),$$

wherein M is a metal atom of Ir, Pt, Rh or Pd; L and L' are mutually different bidentate ligands; m is 1, 2 or 3 and n is 0, 1 or 2 with the proviso that m+n is 2 or 3; a partial structure MLm is represented by formula (2) shown below and a partial structure ML'_n is represented by formula (3) or (4) shown below:



The metal coordination compound of the formula (1) is characterized by having at least one aromatic substituent for at least one of CyN1, CyN2, CyC1 and CyC2. The metal coordination compound having the aromatic substituent is effective in providing high-efficiency luminescence, long-term high luminance, and less deterioration by current passing.

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EUROPEAN SEARCH REPORT

Application Number
EP 02 00 5113

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C07F
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Munich	3 February 2004	Koessler, J-L

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Application Number
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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

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LACK OF UNITY OF INVENTION SHEET B

Application Number
EP 02 00 5113

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 2,4,9,11; partially 1,5,6-8,12-14

   Metal coordination compound of formula (1) wherein ML'n is represented by formula (3), electroluminescent device comprising such a coordination compound and picture display comprising the device.

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2. claims: 3,10; partially 1,5-8,12-14

   Metal coordination compound of formula (1) wherein ML'n is represented by formula (4), electroluminescent device comprising such a coordination compound and picture display comprising the device.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 02 00 5113

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	金属配位化合物，发光器件和显示装置		
公开(公告)号	EP1239526A3	公开(公告)日	2004-04-07
申请号	EP2002005113	申请日	2002-03-07
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IPC分类号	H01L51/50 C07F15/00 C09K11/06 H01L51/00 H01L51/30		
CPC分类号	H01L51/0084 C07F15/0033 H01L51/0059 H01L51/0062 H01L51/0081 H01L51/0085 H01L51/5012 Y10S428/917		
优先权	2001064204 2001-03-08 JP 2002042440 2002-02-20 JP		
其他公开文献	EP1239526A2 EP1239526B1		
外部链接	Espacenet		

摘要(译)

提供了一种具有含有特定金属配位化合物的层的电致发光器件。金属配位化合物由下式（1）表示：MLmL'n（1），其中M是Ir，Pt，Rh或Pd的金属原子; L和L'是相互不同的二齿配体; m为1,2或3，n为0,1或2，条件是m + n为2或3;部分结构MLm由下面所示的式（2）表示，部分结构ML'n由下面所示的式（3）或（4）表示：式（1）的金属配位化合物的特征在于至少具有CyN1，CyN2，CyC1和CyC2中至少一种的一个芳族取代基。具有芳族取代基的金属配位化合物可有效地提供高效发光，长期高亮度和通过电流通过的较少劣化。