

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. 30

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANDREAS WINTER, JURGEN ROHRMANN,
MARTIN ANTBERG, VOLKER DOLLE and WALTER SPALECK

Appeal No. 1998-3272
Application 08/461,393¹

ON BRIEF

Before KIMLIN, WARREN and OWENS, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

Decision on Appeal

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner finally rejecting claims 17, 18 and 23 through 41. Subsequent to the final rejection, appellants amended claims 23 through 27, 29 through 39 and 41, added 42, and canceled claims 28 and 40, leaving claims 17, 18, 23 through 27, 29 through 39, 41 and 42 for our consideration on appeal, which are all of the claims in the application.

Claim 23, as it appears in the appendix to appellants' brief, is illustrative of the claims on

appeal. A copy of this claim as it is presented in the appendix to appellants' brief, is appended to this decision.² Claims 17 and 18 are also illustrative:

17. A metallocene which is selected from the group consisting of (arylalklidene)(9-fluorenyl)(cyclopentadienyl)zirconium dichloride and (diarylmethylene)(9-fluorenyl)(cyclopentadienyl)zirconium dichloride in which aryl represents an aryl group having 6-10 carbon atoms.

18. The metallocene as claimed in claim 17, wherein the metallocene is which is (Methyl(phenyl)methylene)(9-fluorenyl)(cyclopentadienyl)zirconium dichloride or (diphenylmethylene)(9-fluorenyl)(cyclopentadienyl)zirconium dichloride.

The appealed claims, as represented by claim 23, are drawn to metallocene compounds defined by the structural formula (I) wherein formula members "R³ and R⁴ are different and denote a mono- or polynuclear hydrocarbon radical which can form a sandwich structure with central atom M¹," wherein formula member M¹ can be, *inter alia*, zirconium. The nuclear hydrocarbon radicals R³ and R⁴ are bridged through one atom or a two atom chain as set forth for formula member R⁵, which atoms can be a substituted metal or a substituted carbon, wherein the substituents are formula members, R⁶, R⁷, and R⁸. The metal atom M¹ can be bonded to formula members R³ and R⁴ which can be hydrogen, halogen or a hydrocarbon groups. The claimed metallocenes encompassed by claim 17 are illustrated to a small extent by the two subgeneric groups of metallocenes in Markush claim 17 which have "arylalklidene" and "diarylmethylene" radicals bridging the polynuclear "9-fluorenyl" and the mononuclear "cyclopentadienyl" radicals, and zirconium chloride. Representative species of each of these subgeneric groups contain a "methyl(phenyl)methylene" and a "diphenylmethylene" bridge, respectively, are encompassed by claim 18, and are structurally depicted in specification Examples 1 and 2, respectively (pages 12 and 13). The claimed metallocene compounds are disclosed to be useful as the transition metal

¹ This application is a continuation of application 08/325,558 ('558 application), now abandoned, which is a continuation of application 07/759,093 ('093 application), now abandoned. The '093 application was the subject of Appeal No. 93-2450, decided December 2, 1994 (Paper No. 29).

² We note that the sole difference between claim 23 as it appears in the appendix to the brief and as it appears in the amendment of August 18, 1997 (Paper "22/G"), entered by the examiner as stated in the advisory action of August 26, 1997 (Paper No. 23), is in the formality required by 37 CFR § 1.121(b) (1984) (*see also* 37 CFR § 1.121(a)(2)(ii) (1997)), in that in said amendment, the claim contains the notation "(Once Amended) while in the appendix to the brief, the claim

component of a catalyst used in the preparation of syndiotactic polyolefins by polymerization or copolymerization of olefins (specification, e.g., pages 2-5).

The references relied on by the examiner are:

Ewen et al. (Ewen)	4,892,851	Jan. 9, 1990
Kioka et al. (Kioka)	4,952,540	Aug. 28, 1990
Welborn	5,017,714	May 21, 1991
Winter et al. (Winter '381)	5,132,381	Jul. 21, 1992
Winter et al. (Winter '178)	5,416,178	May 16, 1995

The examiner has rejected appealed claims 23 through 27 and 29 through 39 under 35 U.S.C. § 103(a) as being unpatentable over Ewen in view of Winter '178,³ Welborn and Kioka.⁴ The examiner has also rejected claims 17, 18 23 through 27, 29, 30, 32 through 35, 37 through 39, 41⁵ and 42 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 2 of Winter '381 in view of Ewen.

Appellants state in their brief (pages 8 and 9) that the appealed claims “do not stand or fall together” and group together claims 23, 29 through 35 and 38, separately group each of claims 24 through 27, 36, 37, and group together remaining claims 17, 18, 41 and 42. It is apparent from pages 17 through 22 of the brief, that appellants argue only the patentability of claim 36, Group VI, over the prior art with specificity, and that no specific argument is directed to claims 17, 18, 41 and 42, Group IX. Thus, we find that the appealed claims as grouped in the two grounds of rejection stand and fall together, with the exception of claim 36, which is rejected only under § 103(a), and thus decide this appeal based on appealed claim 23 for both grounds of

contains the notation “(Twice Amended). We do not find in the record a “Twice” amendment to claim 23.

³ The examiner states that Winter '178 “has been substituted for its German equivalent, “Hoechst,” German patent 3,762,067 (answer, page 3). “Hoechst” was relied on in the final Office action (Paper No. 16) and discussed by appellants in the brief (e.g., pages 10-11). Appellants did not object to the change in the applied reference in the reply brief.

⁴ The examiner acknowledges that “[t]he Hoel reference has been withdrawn” (answer, page 3), but does not mention the Kaminsky et al. reference applied in the final Office action (Paper No. 16), in any respect. See brief, page 13. Thus, we assume that the examiner has dropped Kaminsky.

⁵ The examiner recognizes that “claims 18 and 41 are duplicates” (answer, page 2). See Manual of Patent Examining Procedure § 706.03(k), Duplicate Claims (8th ed., August 2001; 700-52).

rejection, and on appealed claim 36 for the first ground of rejection. 37 CFR § 1.192(c)(7) (1997).

We affirm both grounds of rejection.

Rather than reiterate the respective positions advanced by the examiner and appellants, we refer to the examiner's answer and to appellants' brief and reply brief for a complete exposition thereof.

Opinion

In Appeal No. 93-2450 (*see above* note 1), a prior panel of this Board affirmed the examiner's decision finally rejecting appealed claims drawn to a process for the preparation of a syndiotactic polyolefin utilizing a catalyst comprising a metallocene as the transition metal component. The scope of the metallocene specified in the broadest claim involved in said prior appeal is the same as present appealed claim 17, as the examiner points out in the present answer (page 3). We note that a dependent claim involved in said prior appeal has the same scope as present appealed claim 18 with respect to the metallocene compounds. The sole ground of rejection advanced by the examiner in that appeal was under § 103(a) as being unpatentable over Ewen in view of "Hoechst" (*see above* note 3), and the dispositive issue was "whether the . . . metallocene . . . would have been obvious . . . in view of" this combination of references (Appeal No. 93-2450, page 3).

In the present case, the examiner points out that there are several differences in the record between the present and prior appeals with respect to the ground of rejection under § 103(a), including that the present ground of rejection has not been applied to appealed claim 17 (answer, page 3). We note that appealed claim 18 is also not so rejected. Accordingly, we consider whether the claimed metallocene products are patentable over essentially the same prior art applied in the prior appeal, but on the record of the present appeal. *Cf. In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976).

We have carefully reviewed the record on this appeal and based thereon find ourselves in agreement with the supported position advanced by the examiner (answer, pages 3-5) that, *prima facie*, one of ordinary skill in this art would have found in the combined teachings of Ewen, Winter '178, Welborn and Kioka the reasonable suggestion that that the bridging groups in the

R³ position of the metallocene compounds of Winter '178 can be used as the bridging groups in the R" position of the metallocene compounds of Ewen with the reasonable expectation of obtaining stereorigid metallocene compounds that are used as the transition metal component of a catalyst used to prepare syndiotactic polyolefins.⁶

The examiner points out that "Ewen discloses that metallocenes having different cyclopentadienyl rings such as cyclopentadienyl and fluorenyl connected by a structural bridge which imparts stereoridity to the rings, produces a catalyst (when combined with aluminoxane) that will produce syndiotactic polymers of alpha-olefins having 3 or more carbon atoms" (answer, page 4). The examiner further points out that Winter '178 also teaches "bridges that will produce stereorigid chiral metallocenes" with respect to formula member R³, which "are generically disclosed by Ewen, e.g., hydrocarbyl radicals containing silicon, germanium, phosphorous, nitrogen, boron or aluminum" (*id.*, pages 4-5). The examiner also finds that the teachings of Winter '178 at col. 2, line 55, would include ring structures as required by appealed claim 36 (*id.*, page 5).

We agree with the examiner's evidentiary findings as Ewen discloses that the two cyclopentadienyl or "Cp" rings are different and can be the mononuclear cyclopentadienyl and the polynuclear fluorenyl; that zirconium dichloride can be the substituted central transition metal atom (e.g., col. 3, lines 24-25; col. 4, line 64, to col. 5, line 12; and col. 5, lines 37-40); and that bridging group "R" is a structural bridge between two [cyclopentadienyl] rings imparting a stereoridity to the [cyclopentadienyl] rings" (col. 3, lines 26-28; see also col. 4, lines 54-56) which "is preferably selected from the group consisting of an alkyl radical selected from the group of an alkyl radical having 1-4 carbon atoms or a hydrocarbyl group containing silicon, germanium, phosphorous, nitrogen, boron or aluminum" (col. 4, lines 56-60). Ewen also discloses that the central transition metal atom can be, *inter alia*, titanium and zirconium (e.g., col. 5, lines 26-29).

Winter '178 also discloses that the two cyclopentadienyl rings can be different and can be mono- and polynuclear, with zirconium dichloride as the substituted central transition metal atom

⁶ We have considered only Ewen and Winter '178 with respect to this dispositive issue as the examiner does not rely on Welborn and Kioka in this respect (answer, page 5) and appellants

(e.g., col. 2, lines 30-45, and col. 3, line 22). Winter '178 further discloses that bridging group "R³ is a linear C₁-C₄ . . . hydrocarbon radical or a cyclic C₄-C₆ hydrocarbon radical; these hydrocarbon radicals can contain at least one heteroatom as a bridge unit in the chain," and exemplifies a number of "single-membered bridge units," which include a number of "aryl" and "aryl" containing hydrocarbyl groups as the R⁶ substituent, as well as hydrocarbyl groups containing, *inter alia*, silicon, germanium, phosphorous, nitrogen, boron or aluminum atoms as the bridge unit (e.g., col. 2, line 54, to col. 3, line 3). The reference also discloses a number of "two-membered bridge units" having aryl containing R⁶, including R⁶ containing silicone groups (e.g., col. 3, lines 4-6). Winter '178 also discloses that the "single-membered bridge units" can include the non-hydrocarbyl containing bridges "-O-, -S-, -SO-" (col. 2, line 61). The central transition metal atoms disclosed by this reference includes titanium and zirconium.

Thus, *prima facie*, the teachings of Ewen and Winter '178 establish that one of ordinary skill in art would have used the bridging groups disclosed by Winter '178 as the bridging groups in the bridge position of the metallocene compounds taught by Ewen which are of the same type and used for the same purpose, and therefore, this person would have reasonably arrived at the metallocene compounds of claims 23 and 36.

Accordingly, since a *prima facie* case of obviousness has been established by the examiner over the substantial evidence in the combined teachings of Ewen, Winter '178, Welborn and Kioka, we have again evaluated all of the evidence of obviousness and nonobviousness based on the record as a whole, giving due consideration to the weight of appellants' arguments and the evidence in the declarations of record.⁷ *See generally, In re Johnson*, 747 F.2d 1456, 1460, 223 USPQ 1260, 1263 (Fed. Cir. 1984); *In re Piasecki*, 745 F.2d

correctly argue that these references do not apply in this respect (brief, pages 11-13).

⁷ Appellants point to the declarations by appellant Winter filed in this application on August 2, 1995 (Paper No. 4; Winter (I)), styled as directed to parent '558 application (*see above* note 1); filed in this application on July 22, 1996 (Paper No. 11; Winter (II)), directed to related application 08/462,110, now United States Patent No. 5,731,254; and filed in this application on December 13, 1996 (Paper No. 15; Winter (III)). While appellants state that Winter (II) "is very similar to" Winter (III) (brief, page 14), we agree with the examiner that Winter (III) and Winter (II) are "identical except for the serial number of the application." Thus, we consider only Winter (I) and Winter (III), as has the examiner.

1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); *In re Rinehart*, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

We have carefully considered all of appellants' arguments in the brief. Appellants contend that neither Ewen or Winter '178⁸ discloses a preferred embodiment that shows a bridging group R⁵ as required by appealed claim 23 and submits that "[Winter '178], like Ewen, does not disclose nor teach that the bridge is" a number of listed bridging groups "where at least one R⁶ is" one of a Markush group of aryl containing radicals (brief, pages 10-11). Thus, appellants submit that there is no motivation in either reference to make the selection of the bridging groups necessary to arrive at the claimed metallocene compounds and thus there is no reason to combine the references for that purpose (*id.*, pages 13-14). We cannot agree.

We initially observe that several of the bridging groups listed at the top of page 11 of the brief are not substituted by an R⁶ substituent, which groups, such as "-O-", are shown in Winter '178. Winter '178 further defines the R⁶ substituent(s) on the bridging groups as including aryl groups, as we have pointed out above. Furthermore, the fact that no metallocene compound containing a bridging group as specified in appealed claims 23 and 36 is exemplified by either reference does not diminish the other clear teachings of each of the references. *See generally, In re Lamberti*, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976) ("The fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered.").

In view of the common chemical structure and utility between the metallocene compounds of Ewen and Winter '178, and the common direction in Ewen and Winter '178 to use bridging groups that provide stereorigidity to the metallocene compounds for purposes of the common utility as found by the examiner, there is ample direction to one of ordinary skill in this art to use the bridging groups of the metallocene compounds of Winter '178 in the bridge position of the metallocene compounds of Ewen in the reasonable expectation of obtaining metallocene compounds having the same or similar properties. Accordingly, we are convinced that one of ordinary skill in this art following the combined teaching of Ewen and Winter '178

⁸ We have considered appellants' arguments with respect to "Hoechst" as applying to Winter '178 (*see above* note 3).

would have reasonably arrived at metallocene compounds which satisfy each of the limitations of the claimed metallocene compounds encompassed by claims 23 and 36. *See In re Payne*, 606 F.2d 303, 315, 203 USPQ 245, 254-55 (CCPA 1979) (“An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties.”); *see also In re Jones*, 958 F.2d 347, 349-51, 21 USPQ2d 1941, 1943-44 (Fed. Cir. 1992) (“Conspicuously missing from this record is any *evidence*, other than the PTO’s speculation (if it be called evidence) that one of ordinary skill in the herbicidal art would have been motivated to make the modifications of the prior art salts necessary to arrive at the claimed . . . salt.”); *In re Dillon*, 919 F.2d 688, 692-93, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990)(*in banc*) (“This court . . . reaffirms that structural similarity between claimed and prior art subject matter, proved by combining references or otherwise, where the prior art gives reason or motivation to make the claimed compositions, creates a *prima facie* case of obviousness, and that the burden (and opportunity) then falls on an applicant to rebut that *prima facie* case.”); *In re Grabiak*, 769 F.2d 729, 731-32, 226 USPQ 870, 872 (Fed. Cir. 1985) (“[W]e have concluded that generalizations should be avoided insofar as specific chemical structures are alleged to be *prima facie* obvious one from the other. . . . [I]n the case before us there must be adequate support in the prior art for the ester/thioester change in structure, in order to complete the PTO’s *prima facie* case and shift the burden of going forward to the applicant.”).

Turning now to the evidence in the Winter (I) and (III) declarations, Winter (I) apparently provides evidence of unexpected results with respect to the two species of appealed claim 18, which contain particular “aryl” groups in the R⁶ position and zirconium dichloride as the central transition metal atom, as the examiner cites this evidence as the reason for not rejecting this claim (answer, page 6). We presume that the examiner has also not rejected appealed claim 17, drawn to the subgenus of each of the claimed species containing zirconium, in view of such results. In the absence of a statement to the contrary in the answer, we further presume that the examiner also considers the results in Winter (III) to be unexpected because the only position taken by the examiner for maintaining the ground of rejection even in view of such evidence is that the same “is not commensurate in scope with the claims” (*id.*).

The examiner points out that there is no evidence with respect to “any metallocene containing a silicone bridge,” and that there is no basis in the record which establishes that such a metallocene would reasonably be expected to behave differently from the compound in Example B of Winter (I) which is disclosed in Ewen (*id.*, pages 6-7). The examiner takes the “same” position with respect to “metallocenes having combinations of R¹, R², R⁶ and R⁷ radicals that have not been compared, e.g., phenylene methylene(cyclopentadienyl)(fluorenyl) zirconium dihydride,” and further states that “none” of the other central transition metal atoms “have been shown to produce similar results to those of zirconium” along with other substituents (*id.*, page 7).

Appellants point out that each of the four additional metallocene compounds representing the appealed claims presented in Winter (III) have different aryl containing bridging groups in contending that the evidence is commensurate in scope with the rejected appealed claims (brief, pages 15-16), and further state that they “believe” that the appealed claims are commensurate in scope with such evidence, even though the basis for such belief is not set forth (e.g., brief, page 18). Appellants do not submit further argument with respect to this issue in the reply brief.

We find that there is no appealed claim that is limited to any of the species or a subgenus of any such species shown in Winter (III) as is the case with appealed claims 17 and 18 and the species compared in Winter (I). If such were the case, we would readily agree with appellants.

However, the examiner has pointed to a number of structural distinctions between the claimed metallocene compounds tested in Winter (I) and (III) and other claimed metallocene compounds, particularly with respect to the substitution of one transition metals for another in the central transition metal position M¹, and to the substitution of a non-carbon atom for a carbon atom as the bridging atom(s) in the bridging group position R³ of the claimed metallocene compounds. Appellants’ arguments and “belief” simply do not account for these structural differences with respect to whether similar behavior would reasonably be expected.

Accordingly, in view the enormity of the scope of appealed claims 23 and 36 with respect to these different structural variables, we must agree with the examiner that the evidence in Winter (I) and (III) which is limited in scope to six closely structurally related metallocene compounds containing zirconium as the central transition metal atom and hydrocarbyl bridging

groups, does not provide a reasonable basis on which to predict the behavior of the great number and variety of metallocene compounds encompassed by the claims. *See, e.g., In re Clemens*, 622 F.2d 1029, 1035-36, 206 USPQ 289, 295-96 (CCPA 1980); *In re Greenfield*, 571 F.2d 1185, 1189, 197 USPQ 227, 230 (CCPA 1978); *In re Lindner*, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972).

Therefore, based on our consideration of the totality of the record before us, we have weighed the evidence of obviousness found in the combined teachings of Ewen, Winter '178, Welborn and Kioka with appellants' countervailing evidence of and argument for nonobviousness and conclude that the claimed invention encompassed by appealed claims 23 through 27 and 29 through 39 would have been obvious as a matter of law under 35 U.S.C. § 103(a).

We now consider the ground of rejection of appealed claims 17, 18 23 through 27, 29, 30, 32 through 35, 37 through 39, 41 and 42 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 2 of Winter '381 in view of Ewen. Appellants do not contest the examiner's finding that the metallocene compounds containing zirconium and titanium as the central transition metal atom encompassed by the appealed claims would have been *prima facie* obvious over the metallocene compounds containing hafnium as the central transition metal atom, set forth in claims 1 and 2 of Winter '381, which are drawn to a process for the preparation of a syndiotactic polymer, in view of the disclosure of these three transition metals as the central atom in the metallocene compounds of Ewen which are stereorigid-chiral compounds containing bridged, different cyclopentadienyl groups (brief, pages 16-17; answer, page 8).

Instead, appellants submit that because the examiner required restriction in the *present* application in the Office action of October 16, 1995 (Paper No. 6) between metallocene compounds and a polymerization process that were then claimed, on the basis "that these claims were patentably distinct from each other and required the applicants to elect between" these two sets of claims, "[t]he Examiner cannot restrict claims out and then proceed to reject these restricted claims under double patenting when the Examiner has required restriction"

between these statutorily different inventions (brief, pages 16-17). Appellants cite no authority for their position, and we have found none.

It is well settled that under 35 U.S.C. § 121, the Commissioner “may require restriction” but is not required to do so, and where this “administrative convenience” is exercised in an application and a divisional application of that application, which is drawn to the “other invention” and which “complies with the requirements of section 120,” is filed, a patent issuing on either application can not be the basis of a double patenting rejecting against the other. Thus, this statutory provision applies only to an application in which a restriction requirement has been made by the examiner pursuant thereto, and the restrictive terms of that requirement are complied with in the divisional lineage of that application. *See generally, Applied Materials, Inc v. Advanced Semiconductor Materials*, 98 F.3d 1563, 1567-69, 40 USPQ2d 1481, 1483-85 (Fed. Cir. 1996); *Gerber Garment Technology, Inc. v. Lectra Sys., Inc.*, 916 F.2d 683, 688, 16 USPQ2d 1436, 1440 (Fed. Cir. 1990); *see also* Manual of Patent Examining Procedure §§ 803.01 and 804.01.

The fact that restriction was required in the *present* case between a claimed product and a claimed process using that product, provides no benefit to appellants with respect to the claims of Winter ‘381 even though the appealed claims and the claims of Winter ‘381 stand in the same relationship which the examiner cited in requiring restriction, because the present application and Winter ‘381 are simply not related in the sense of a parent application and its divisional offspring. Furthermore, appellants’ notion, that the judicial doctrine of obviousness-type double patenting does not apply where the Commissioner could have required restriction if the claims of the application and the conflicting patent claims were in the same application, is flawed as it results in the unjustifiably extension of the patent term by the patenting of an obvious variation of a patented invention without the filing of a terminal disclaimer. *See generally, Applied Materials*, 98 F.3d at 1568, 40 USPQ2d at 1484, and the cases cited therein.

Accordingly, we affirm this ground of rejection.

The examiner’s decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

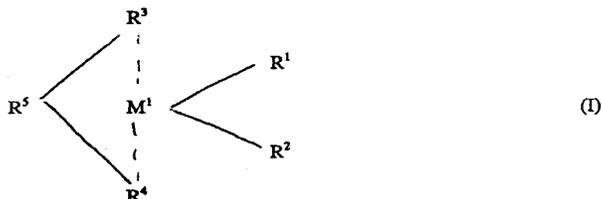
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APPENDIX

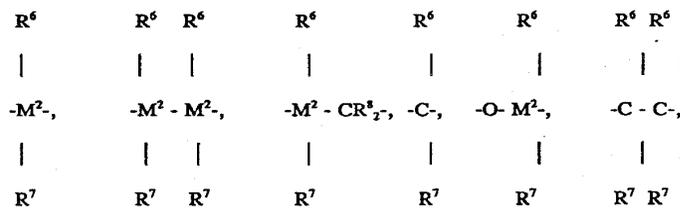
23. (Twice Amended) A compound of the formula I:



in which

M^1 is titanium, zirconium, vanadium, niobium or tantalum,
 R^1 and R^2 are identical or different and denote a hydrogen atom, a halogen atom, a C_1 - C_{10} -alkyl group, a C_1 - C_{10} -alkoxy group, a C_6 - C_{10} -aryl group, a C_6 - C_{10} -aryloxy group, a C_2 - C_{10} -alkenyl group, a C_7 - C_{40} -arylalkyl group, a C_7 - C_{40} -alkylaryl group or a C_8 - C_{40} -arylalkenyl group,
 R^3 and R^4 are different and denote a mono- or polynuclear hydrocarbon radical which can form a sandwich structure with the central atom M^1 ,

R^5 is



= BR^6 , = AlR^6 , -Ge-, -Sn-, -O-, -S-, = SO, = SO_2 , = NR^6 , = CO, = PR^6 , or = $P(O)R^6$,

where at least one R^6 is a C_6 - C_{10} -aryl group, a C_7 - C_{40} -arylalkyl group, a C_6 - C_{10} fluoroaryl, a C_6 - C_{40} -arylalkenyl group or a C_7 - C_{40} -alkylaryl group, and

R^6 , R^7 and R^8 are identical or different and denote a hydrogen atom, a halogen atom, a C_1 - C_{10} -alkyl group, a C_1 - C_{10} -fluoroalkyl group, a C_6 - C_{10} -fluoroaryl group, a C_6 - C_{10} -aryl group, a C_1 - C_{10} -alkoxy group, a C_2 - C_{10} -alkenyl group, a C_7 - C_{40} -arylalkyl group, a C_8 - C_{40} -arylalkenyl group or a C_7 - C_{40} -alkylaryl group, or R^6 and R^7 or R^6 and R^8 , in each case with the atoms joining them, form a ring, and

M^2 is silicon, germanium or tin.

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