

DEFULL (German (Deutschland, DE) Patents Full Text)

Subject Coverage	All patent-relevant areas of science and technology, i.e., all classes of the International Patent Classification		
File Type	Full Text		
Features	Thesauri	International Patent Classification (/IPC) and Cooperative Patent Classification (/CPC), European Patent Classification (/EPC)	
	Alerts (SDIs)	Weekly or monthly (weekly is the default)	
	CAS Registry Number® Identifiers	☐	☒
	Keep & Share	☒	☐
	Register Links	☒	☒
Record Content	• Full text of patent applications and granted patents in Germany from application publication year 1877 onwards. • Records are available about a week after publication with the complete content. • Records contain bibliographic data including patent applicant and inventor, patent, application, priority, and related application data, IPC, CPC, and EPC/ICO classification codes, abstract, and full text of description and claims. • Titles, Abstracts, Descriptions and Claims are available in German and machine translated to English. • Standardized and normalized patent assignee names are searchable in their own fields /PAS and /PAN. • Ultimate Owners are searchable in the field /UO and /UOS. • Numeric values of 59 physical and chemical properties are searchable in about 20,000 variants of the base and additional units within all full text fields in English. • Key Terms, indexed and displayed in the field /KT, enhance retrieval of relevant results, and make the evaluation of results more efficient. They are useful to broaden search scope more precisely than Basic Index searches. • Database records comprise all documents published for one application. • Some of the full text has been created by Optical Character Recognition (OCR) software. Therefore, characters may be misinterpreted, or portions of the text may be incomplete.		
File Size	• More than 6.25 million family records with more than 7.8 million publications (01/2026) • More than 5.05 million front page images (01/2026)		
Coverage	Comprehensive 1877 to present		
Updates	Weekly		
Language	English, German		
Database Producer	LexisNexis Business Information Solutions B.V. Radarweg 29 1043 NX Amsterdam The Netherlands Copyright Holder		

Sources	Patent applications, granted patents, and utility models published by the Reichspatentamt and the Deutsche Patent- und Markenamt (DPMA) in Germany (country code DE).
User Aids	• Online Helps (HELP DIRECTORY lists all help messages available) • STNGUIDE
Cluster	• AEROTECH • ALLBIB • AUTHORS • CORPSOURCE • ENGINEERING • FULLTEXT • HPATENTS • NPS • PATENTS • PNTTEXT STN Database Cluster information

Search and Display Field Codes

If multiple search terms are linked with and AND-operator, all terms are searched in the complete database record, i.e. in all publications referring to one application. For a search in a specific publication of the record, connect the search term and the patent kind code with the (L)-proximity operator, e.g.
S BOREHOLE/AB,TI,CLM (L) DEA1/PK limits the search to German applications DEA1.

Fields that allow left truncation are indicated by an asterisk (*).

General Search Fields

Search Field Name	Search Code	Search Examples	Display Codes
Basic Index* (contains single words from title (TI), abstract (AB), detailed description (DETD), claims (CLM), and main claims (MCLM) fields, and key terms (KT))	None or /BI	S TRANSISTOR AND ELECTRODE S ACOUSTIC SENSOR S ?TRANSFER?	TI, AB, ABDE, ABEN, DETD, DETDDE, DETDEN, CLM, CLMDE, CLMEN, MCLM, MCLMDE, MCLMEN, KT
Abstract (German and English) * Abstract (German) * Abstract (English) * Accession Number Agent (4) Agent, Country Agent, Address Application Country (WIPO code and text) Application Date (1) Application Kind Code Application Number (2) Application Number, Original Application Year (1) Claims (German and English) * Claims (German) * Claims (English) * Claims, Claim Groups	/AB /ABDE /ABEN /AN /AG /AG.CNY /AGA /AC	S BOREHOLE/AB S BOHRMASCHINEN/ABDE S BOREHOLE/ABEN S 2011009/AN S SCHMIDT/AG S DE/AG.CNY S AUGSBURG/AGA S DE/AC	AB ABDE, AB ABEN, AB AN AG AG, AG.CNY AG AI
Claims, Independent Claims	/CLM /CLMDE /CLMEN /CLM.CG	S AD=JAN 2011 S DEA1/AK S DE2011-102011077851/AP S DE20112352/APO S AY>=2005 S DERIVATION/CLM S BACKENBREMSE/CLMDE S DERIVATION/CLMEN S OFFICE CHAIR/CLM.CG	AI AI AI APO AI CLM CLMDE, CLM CLMEN, CLM CLM.CG, CLMEN, CLM CLM.IC, CLMEN, CLM CPC CPC.TAB
Cooperative Patent Classification (3) Cooperative Patent Classification, Action Date (1) Cooperative Patent Classification, Keyword Cooperative Patent Classification, Version Date in Force (1) Data Entry Date (1) Detailed Description (English)	/CPC /CPC.ACD /CPC.KW /CPC.VER /DF /DED /DETDEN	S C12N0009/CPC S 20121113/CPC.ACD S C12N0009/CPC (S) I/CPC.KW S 20130101/CPC.VER S 20150108/DF S 20190822/DED S OFFICE CHAIR/DETDEN	CPC CPC.TAB CPC.TAB DF DED DETDEN, DETD DUPD DT
Data Update Date (1) Document Type (code and text) Entry Date (1) Entry Date of Full-text (1) EPC, Keyword European Patent Classification (3)	/DUPD /DT (or /TC) /ED /EDTX /EPC.KW /EPC (or ECLA or EPCLA)	S 20190827/DUPD S P/DT S PATENT/DT S ED=DEC 2013 S 20131201/EDTX S B22F3-00/EPC.KW S A01B0001-02B/EPC	DUPD DT ED EDTX EPC EPC
Field Availability ICO (in-computer-only) Classification (3) ICO Keyword International Patent Classification (ICM, ICS) Inventor	/FA /ICO /ICO.KW /IC /IN (or /AU)	S AB/FA S T04L0001-18D/ICO S ADD/ICO.KW S A47J0051-24/IC S BAAR HEINZ JOACHIM/IN S MUELLER A?/IN	FA ICO ICO IC, ICM, ICS IN

General Search Fields (cont'd)

Search Field Name	Search Code	Search Examples	Display Codes
Inventor, Country (WIPO code and text)	/IN.CNY	S DE/IN.CNY	IN, IN.CNY
Inventor, Nationality	/IN.NAT	S DE/IN.NAT	IN
Inventor, Residence	/IN.RES	S DE/IN.RES	IN
Inventor Address	/INA	S AUGSBURG/INA	IN
IPC (International Patent Classification) (ICM, ICS, IPCI, IPCR) (3)	/IPC	S A01B0001-16/IPC	ICM, ICS, IPCI, IPCR
IPC Additional	/ICA (or IPCA)	S A61K0007-00/ICA	ICA
IPC Index	/ICI (or IPCIN)	S A61K0031-235/ICI	ICI
IPC Initial	/IPCI	S B21B0001/IPCI	IPCI, IPC
IPC, Keyword Terms	/IPC.KW	S INITIAL/IPC.KW	IPC.TAB
IPC Main	/ICM (or IPCM)	S B29B0011-06/ICM	ICM, IC
IPC Reclassified	/IPCR	S B21D0007-08/IPCR	IPCR, IPC
IPC Reform	/IPC.REF	S A01B0001-16/IPC.REF	IPC.TAB
IPC Secondary	/ICS (or IPCS)	S B29H003-00/ICS	ICS, IC
IPC, Version	/IPC.VER (or IC.VER)	S 7/IPC.VER	IPC.TAB
Key Terms *	/KT	S (LASER(3A)SOURCE?)/KT	KT
Language (code and text)	/LA	S DE/LA	LA
Language, Filing (code and text)	/LAF	S GERMAN/LAF	LAF
Main Claim (German and English) *	/MCLM	S ?FRACTURE?/MCLM	MCLM
Main Claim (German) *	/MCLMDE	S FRAESEN/MCLMDE	MCLMDE, MCLM
Main Claim (English) *	/MLCMEN	S ?FRACTURE?/MLCMEN	MLCMEN, MCLM
Number of Claims (1)	/CLMN	S 5-7/CLMN	CLMN
Number of Paragraphs in DETD (Detailed Description) (1)	/DETN	S DETN<10	DETN
Patent Assignee (4)	/PA (or /CS)	S BASF COATINGS AG/PA	PA
Patent Assignee, Country	/PA.CNY	S DE/PA.CNY	PA, PA.CNY
Patent Assignee, Residence	/PA.RES	S DE/PA.RES	PA
Patent Assignee, Total	/PA.T	S BASF/PA.T	PA
Patent Assignee, Address (4)	/PAA	S AUGSBURG/PAA	PA
Patent Assignee Normalized (4)	/PAN	S BASF/PAN	PAN
Patent Assignee Standardized (4)	/PAS	S BASF COATINGS/PAS	PAS
Patent Country (WIPO code and text)	/PC	S DE/PC	PI
Patent Information Type	/PIT	S DEA8 CORRECTED FIRST PAGE/PIT	PIT
Patent Kind Code	/PK	S DEA1/PK	PI
Patent Number (2)	/PN	S DE 20100026P/PN	PI
Patent Number, Original	/PNO	S DE00102714/PNO	PNO
Patent Number/Kind Code	/PNK	S DE20111497 U1/PNK	PI
Physical Properties	/PHP	S PHV/PHP (S) BUFFER/BI	KWIC
Priority Country (WIPO code and text)	/PRC	S DE/PRC	PRN
Priority Date (1)	/PRD	S GERMANY/PRC S PRD=MAY, 20 2003 S 20030520/PRD	PRN
Priority Date First (1)	/PRDF	S 20010704/PRDF	PRN
Priority Number (2)	/PRN	S AT2005-1585/PRN	PRN
Priority Number, Original	/PRNO	S US10283008/PRNO	PRNO, PRAO
Priority Year (1)	/PRY	S 2003/PRY	PRN
Priority Year First (1)	/PRYF	S 2003-2004/PRYF	PRN
Publication Date (1)	/PD	S PD=MARCH-APRIL 2011	PI
Publication Year (1)	/PY	S PY>2008 AND L1	PI

General Search Fields (cont'd)

Search Field Name	Search Code	Search Examples	Display Codes
Related Application Country	/RLC	S WO/RLC	RLI
Related Application Date (1)	/RLD	S 20050701/RLD	RLI
Related Application Number	/RLN	S WO2005-CN2240/RLN	RLI
Related Application Type	/RLT	S PARENT APPLICATION/RLT	RLI
Related Application Year (1)	/RLY	S 2005/RLY	RLI
Related Patent Country	/RLPC	S WO/RLPC	RLI
Related Patent Date (1)	/RLPD	S19790405/RLPD	RLI
Related Patent Number	/RLPN	S WO2000001478/RLPN	RLI
Related Patent Year (1)	/RLPY	S 1998/RLPY	RLI
Title (English and German) *	/TI	S ?FLUGZEUGE/TI	TIDE, TIEN, TI
Title (German) *	/TIDE	S ?FLUGZEUGE/TIDE	TIDE, TI
Title (English) *	/TIEN	S FLUORIDE/TIEN	TIEN, TI
Ultimate Owner (4)	/UO	S PFIZER INC/UO	UO
Ultimate Owner Standardized (4)	/UOS	S PFIZER/UOS	UOS
Update Date (1)	/UP	S UP=NOV 2022	UP
Update Date Full-Text (1)	/UPTX	S 20190822/UPTX	UPTX

(1) Numeric search field that may be searched using numeric operators or ranges.

(2) By default, patent numbers, application and priority numbers are displayed in STN Format. To display them in Derwent format, enter SET PATENT DERWENT at an arrow prompt. To reset display to STN Format, enter SET PATENT STN.

(3) An online thesaurus is available in this field.

(4) Search with implied (S) proximity is available in this field.

Super Search Fields

Enter a super search code to execute a search in one or more fields that may contain the desired information. Super search fields facilitate crossfile and multifile searching. EXPAND may not be used with super search fields. Use EXPAND with the individual field codes instead.

Search Field Name	Search Code	Fields Searched	Search Examples	Display Codes
Application Number Group	/APPS	AP, APO, PRN, RLN	S DE2011-102011077851/APPS	AI, PRAI, RLI, APPS, APO
Patent Assignee Group	/PASS	PA, PA.T, , PAN, PAS, UO	S BASF/PASS	PA, PAS, PAN, PASS, UO
Patent Number Group	/PATS	PN, PNO, RLPN	S DE 20080276U/PATS	PN, RLPN, PATS, PNO

Property Fields ⁽¹⁾

In DEFULL a numeric search for a specific set of physical properties (/PHP) is available within the full text fields in English (TIEN, ABEN, DETDEN, CLMEN as well as English text in TI, AB, CLM, DETD, BI). The numeric values are not displayed as single fields, but highlighted within the hit displays.

Use EXPAND/PHP to search for all available physical properties. A search with the respective field codes will be carried out in all database fields with English text. The /PHP index contains a complete list of codes and related text for all physical properties available for numeric search.

Field Code	Property	Unit	Symbol	Search Examples
/AOS	Amount of substance	Mol	mol	S 10 /AOS
/BIR	Bit Rate	Bit/Second	bit/s	S 8000-10000/BIR
/BIT	Stored Information	Bit	Bit	S BIT > 3 MEGABIT
/CAP	Capacitance	Farad	F	S 1-10 MF/CAP
/CATA	Catalytic Activity	Katal	kat	S 1-10/CATA
/CDN	Current Density	Ampere/Square Meter	A/m ²	S CDN>10 A/M**2
/CMOL	Molarity, Molar Concentration	Mol/Liter	mol/L	S UREA/BI (S) 8/CMOL
/CON	Conductance	Siemens	S	S 1S-3/CON
/DB	Decibel	Decibel	dB	S DB>50
/DEG	Degree	Degree	°	S CYLINDER/BI (S) 45/DEG
/DEN (/C)	Density (Mass Concentration	Kilogram/Cubic Meter	kg/m ³	S 5E-3-10E-3/DEN
/DEQ	Dose Equivalent	Sievert	Sv	S 100/DEQ
/DOA	Dosage	Milligram/Kilogram/Day	mg/kg/day	S 100-300/DOA
/DOS (/LD50)	Dose	Milligram/Kilogram	mg/kg	S DOS>0.8
/DV	Viscosity, dynamic	Pascal * Second	Pa*s	S DV>5000
/ECH (/CHA)	Electric Charge	Coulomb	C	S 0.0001-0.001/ECH
/ECO (/ECND)	Electrical Conductivity	Siemens/Meter	S/m	S ECO>800 S/M (15A) AQUEOUS
/ELC (/ECC)	Electric Current	Ampere	A	S 1-10/ELC
/ELF (/ECF)	Electric Field	Volt/Meter	V/m	S 200/ELF
/ENE	Energy	Joule	J	S DROPLETS (10A) 40 JOULE - 70 JOULE /ENE
/ERE (/ERES)	Electrical Resistivity	Ohm*Meter	Ohm*m	S ERE>0.1
/FOR	Force	Newton	N	S 50 N /FOR
/FRE (/F)	Frequency	Hertz	Hz	S OSCILLAT?/BI (S) 1- 3/FRE
/IU	International Unit	none	IU	S IU>1000 (P) VITAMIN A
/KV	Viscosity, kinematic	Square Meter/Second	m ² /s	S METHYLPOLYSILOXANES/BI (10A) 200-300 CST /KV
/LEN (/SIZ)	Length, Size	Meter	m	S 1-4/LEN
/LUME	Luminous Emittance, Illuminance	Lux	lx	S 10-50/LUME
/LUMF	Luminous Flux	Lumen	Lm	S LUMF>1000
/LUMI	Luminous Intensity	Candela	cd	S LUMI<4
/M	Mass	Kilogram	kg	S ALLOY/BI (30A) 1E-10-1E-5/M
/MCH	Mass to Charge Ratio	none	m/z	S MCH=1
/MFD (/MFS)	Magnetic Flux Density	Tesla	T	S MFD>102
/MFR (/MFL)	Mass Flow Rate	Kilogram/Second	kg/s	S MFR<0.1
/MFST	Magnetic Field Strength	Ampere/Meter	A/m	S 10-20/MFST
/MM (/MW, /MOM)	Molar Mass	Gram/Mol	g/mol	S 2000-3000 G/MOL/MM
/MOLS	Molality of Substance	Mol/Kilogram	mol/kg	S 01.-10 MOL/KG/MOLS
/MVR	Melt Volume Rate, Melt Flow Rate	none	g/10 min	S 3/MVR
/PER	Percent (Proportionality)	none	%	S POLYMER?/AB (5A) 4/PER
/PHV (/PH)	pH Value	pH	pH	S 7.4-7.6/PHV
/POW (/PW)	Power	Watt	W	S "HG-XE-?"/BI (S) 100-200 WATT/POW

Property Fields ⁽¹⁾ (cont'd)

Field Code	Property	Unit	Symbol	Search Examples
/PPM	Parts per million	Ppm	ppm	S 100 PPM /PPM (10A) ADDITIVE/BI
/PRES (/P)	Pressure	Pascal	Pa	S (VACUUM (5A) DISTILL?)/BI (S) 1000-1100/PRES
/RAD	Radioactivity	Becquerel	Bq	S 10-20/RAD
/RES	Electrical Resistance	Ohm	Ohm	S SENSOR /BI (S) 10- 100/RES
/RI	Refractive Index	none		S 3-4/RI
/RSP	Rotational Speed	Revolution/Minute	rpm	S 2 RPM - 100 RPM /RSP (S) ENGINE/BI
/SAR	Area /Surface Area	Square Meter	m ²	S PLATE/BI (S) 10 M**2 - 100 M**2 /SAR
/SOL (/SLB)	Solubility	Gram/100 gram	g/100g	S SOL>20 G/100G (5A) WATER
/SSAM	Specific Surface Area, Mass	Square Meter/ Kilogram	m ² /kg	S 1-10/SSAM
/STSC	Surface Tension	Joule /Square Meter	J/m ²	S 60 J/M**2/STSC
/TCO (/TCND)	Thermal Conductivity	Watt/Meter*Kelvin	W/m*K	S 1/TCO (S) HEAT?
/TEMP (/T)	Temperature	Kelvin	K	S 20-25/TEMP
/TEX	Tex	Gram/Kilometer	g/km	S 1-5/TEX
/TIM	Time	Second	s	S ?INCUB?/BI (10A) 50 S - 150 S /TIM
/VEL (/V)	Velocity	Meter per Second	m/s	S REDUC?/BI (S) 1E-3-5E-3/VEL
/VELA	Velocity, angular	Radian/Second	rad/s	S VELA>10
/VLR	Volumetric Flow Rate	Cubic Meter/Second	m ³ /s	S 1 M**3/S - 2 M**3/S /VLR (S) ABRASIVE
/VOL	Volume	Cubic Meter	m ³	S 1E-8-2E-8/VOL.EX
/VOLT	Voltage	Volt	V	S TENSION/BI (10A) 5E-3 V <VOLT<7E-3 V

(1) Exponential format is recommended for the search of particularly high or low values, e.g., 1.8E+7 or 1.8E7 (for 18000000) or 9.2E-8 (for 0.000000092).

International Patent Classification (/IPC) Thesaurus

The classifications, validity and catchwords for the main headings and subheadings from the current (8th) edition of the WIPO International Patent Classification (IPC) manual are available. The classifications from the previous editions (1-7) are also available as separate thesauri. To EXPAND and SEARCH in the thesauri for editions 1–7, use the field code followed by the edition number, e.g., /IPC2, for the 2nd edition. Catchwords are included only in the thesauri for the 8th, 7th, 6th, and 5th editions.

Code	Content	Examples
ADVANCED (ADV)	Advanced Codes for the Core Level IPC Code	E A61K0006-06+ADVANCED/IPC
ALL	All Associated Terms (BT, SELF, NT, RT)	E C01C003-00+ALL/IPC
BRO (MAN)	Complete Class	E C01C+BRO/IPC
BT	Broader Term (BT, SELF)	E C01F001-00+BT/IPC
CORE (COR)	Core Codes for the Advanced Level IPC Code	E G08C0019-22+CORE/IPC
ED	Complete title of the SELF term and IPC manual edition	E C01F001-00+ED/IPC
HIE	Hierarchy Term (Broader and Narrower Term) (BT, SELF, NT)	E C01B003-00+HIE/IPC
INDEX	Complete title of the SELF term	E C01F001-00+INDEX/IPC
KT	Keyword Term (catchwords) (SELF, KT)	E CYANOGEN+KT/IPC
NEXT	Next Classification	E C01C001-00+NEXT5/IPC
NT	Narrower Terms (SELF, NT)	E C01C+NT/IPC
PREV	Previous Classification	E C01C001-12+PREV10/IPC
RT (SIB)	Related Terms (SELF, RT)	E C01C003-20+RT/IPC
TI	Complete Title of the SELF Term and Broader Terms (BT, SELF)	E C01F001-00+TI/IPC

CPC Thesaurus

This thesaurus is available in the /CPC search field. All relationship codes can be used with both the EXPAND and SEARCH commands.

Relationship Code	Content	Search Examples
ALL AUTO (1) BT CODE DEF HIE KT MAX NEXT NEXT(n) NT PREV PREV(n) TI	All usually required terms (BT, SELF, CODE, DEF) Automatic relationship (BT, SELF, CODE, DEF) Broader terms (BT, SELF) Classification Code (SELF, CODE) Definition (SELF, DEF) Hierarchy terms (all broader and narrower terms) (BT, SELF, DEF, NT) Keyword terms (SELF, KT) All associated terms Next classification within the same class (SELF, NEXT) Next n classification within the same class Narrower terms Previous Code within the same class (SELF, PREV) Previous n classifications within the same class Complete Title of SELF Term and Broader Terms (BT, SELF)	E A61K0031-4375+ALL/CPC E C07D0473-40+AUTO/CPC E C12N0009-6464+BT/CPC E CARTRIDGES+CODE/CPC E B65G0045-16+DEF/CPC E F02M0031-047+HIE/CPC E LASER+KT/CPC E G01R0022-066+MAX/CPC E A01N0041-04+NEXT/CPC E A01N0041-04+NEXT3/CPC E C07D0473-40+NT/CPC E F05C2253-16+PREV/CPC E F05C2253-16+PREV2/CPC E F05B2250-313+TI/CPC

(1) Automatic Relationship is SET OFF. In case of SET REL ON the result of EXPAND or SEARCH without any relationship code is the same as described for AUTO.

ECLA (/EPC) Thesaurus

This thesaurus is available in the /EPC search field (for ECLA codes). All relationship codes can be used with both the EXPAND and SEARCH commands.

Code	Content	Search Examples
ALL AUTO (1) BT CODE DEF HIE KT MAX NEXT NEXT(n) NT PREV PREV(n) TI	All usually required terms (BT, SELF, CODE, DEF) Automatic relationship (BT, SELF, CODE, DEF) Broader terms (BT, SELF) Classification Code (SELF, CODE) Definition (SELF, DEF) Hierarchy terms (broader and narrower terms) (BT, SELF, DEF, NT) Keyword terms (SELF, KT) All associated terms Next classification within the same class (SELF, NEXT) Next n classification within the same class Narrower terms Previous Code within the same class (SELF, PREV) Previous n classifications within the same class Complete Title of SELF Term and Broader Terms (BT, SELF)	E C12M0001-34H2+ALL/EPC E G01J003-443+AUTO/EPC E G01J0003-443+BT/EPC E MOVING SCRAPER+CODE/EPC E B65G0045-16+DEF/EPC E A01B0001+HIE/EPC E LASER+KT/EPC E G01J0003-44B+MAX/EPC E A01B0001-24+NEXT/EPC E A01B0001-24+NEXT3/EPC E G05B0001-04+NT/EPC E G05B0019-418N1+PREV/EPC E G05B0019-418N1+PREV2/EPC E G05B0001-03+TI/EPC

(1) Automatic Relationship is SET OFF. In case of SET REL ON the result of EXPAND or SEARCH without any relationship code is the same as described for AUTO.

DISPLAY and PRINT Formats

Any combination of formats may be used to display or print answers. Multiple codes must be separated by spaces or commas, e.g., D L1 1-5 TI PA. The fields are displayed or printed in the order requested.

The information of the latest publication is displayed by default. To display the content for all levels of the record you can combine all display fields and formats with the qualifier .M except FA, SCAN, and TRIAL.

For displaying a particular publication of a database record, you can simply add for certain display field the kind code to the appropriate display format, e.g. ALL.A. Fields that allow this are indicated by a number **(3)**.

Hit-term highlighting is available for all fields. Highlighting must be ON during SEARCH to use the HIT, KWIC, and OCC formats. The default display format is STD.M, i.e., all publication levels of one family in the STD format.

Format	Content	Examples
AB (ABS)	Abstract (German and English)	D TI AB 1-5
ABDE	Abstract (German)	D ABDE
ABEN	Abstract (English)	D ABEN
AG	Agent	D AG
AG.CNY	Agent, Country	D AG.CNY
AI (AP) (1)	Application Information	D AI
AN	Accession Number	D L3 AN
APO (AIO)	Application Number, Original	D APO
CLM (3)	Claims (German and English)	D CLM
CLM.CG	Claims, Claim Groups	D CLM.CG
CLM.IC	Claims, Independent Claims	D CLM.IC
CLMDE (3)	Claims (German)	D CLMDE
CLMEN (3)	Claims (English)	D CLMEN
CLMN (2)	Number of Claims	D CLMN
CPC	Cooperative Patent Classification	D CPC
CPC TAB	CPC, Tabular	D CPC.TAB
DETD (3)	Detailed Description	D DETD
DETDDE (3)	Detailed Description (German)	D DETDDE
DETDEN (3)	Detailed Description (English)	D DETDEN
DETN (2)	Number of Paragraphs in DETD	D DETN
DF	Date of Force	D DF
DT (TC)	Document Type	D DT
ED	Entry Date	D ED
EDTX	Entry Date of Full-text	D EDTX
EPC (ECLA, EPCLA)	European Patent Classification	D EPC
FA	Field Availability (for all publication levels)	D FA
GI	Graphic Image	D GI
IC	IPC (format contains ICM, ICS)	D IC
ICA	IPC, Additional	D ICA
ICI	IPC, Index	D ICI
ICM	IPC, Main	D ICM
ICO	ICO (in-computer-only) Classification	D ICO
ICS	IPC, Secondary	D ICS
IN (AU)	Inventor (in English)	D IN
IN.CNY	Inventor, Country	D IN.CNY
IN.NAT	Inventor, Nationality	D IN
IN.RES	Inventor, Residence	D IN
IPC	International Patent Classification (ICM, ICS, IPCI, IPCR)	D IPCI
IPCI	IPC, Initial	D IPCI
IPCR	IPC, Reclassified	D IPCR
KT	Key Terms	D KT
LA	Language	D LA
LAF	Language of Filing	D LAF
MCLM	Main Claim (German and English)	D MCLM
MLCMDE	Main Claim (German)	D MCLMDE
MCLMEN	Main Claim (English)	D MCLMEN
PA (CS)	Patent Assignee	D PA
PA.CNY	Patent Assignee, Country	D PA.CNY
PA.NAT	Patent Assignee, Nationality	D PA
PA.RES	Patent Assignee, Residence	D PA
PAN	Patent Assignee Normalized	D PAN
PAS	Patent Assignee Standardized	D PAS

DISPLAY and PRINT Formats (cont'd)

Format	Content	Examples
PI (PN) (1) PNO PIT PRAI (PRN) (1, 5) PRNO (PRAO) (2) RLI (RLN) (1) TI TIDE TIEN UO UOS UP UPTX	Patent Information Patent Number Original Patent Information Type Priority Information Priority Number, Original Related Patent Information (contains RLPI) Title (German and English) Title (German) Title (English) Ultimate Owner Ultimate Owner Standardized Update Date Update Date Full-Text	D PI D PNO D PIT D PRAI D PRNO D RLI D TI D TIDE D TIEN D UO D UOS D UP D UPTX
ALL (1, 3) ALLG (1) IALL (1, 3) IALLG (1) DALL (1) APPS (1) CPC.TAB BIB (1) BIBG (1) IBIB (1) IBIBG (1) BRIEF (1) BRIEFG (1) IBRIEF (1) IBRIEFG (1) IND IPC IPC.TAB MAX (ALL.M) (1) MAXG (ALLG.M) (1) IMAX (IALL.M) (1) IMAXG (IALLG.M) (1) PASS PATS (1) SCAN (4) STD (1) STDG (1) ISTD (1) ISTDG (1) TRIAL (TRI, SAM, SAMPLE, FREE) TX	AN, EDP, ED, EDTX, UP, UPTX, TIEN, TIDE, TI, IN, IN.CNY, PA, PA.CNY, PAS, PAN, UO, UOS, AG, AG.CNY, LAF, LA, DT, PIT, PI, AI, RLI, PRAI, DF, IPC, CPC, EPC, ICO, ABEN, ABDE, DETDEN, DETDDE, CLMEN, CLMDE, KT ALL, plus graphic image ALL, indented with text labels IALL, plus graphic image ALL, delimited for post processing AI, RLN, PRAI CPC, CPC.KW, CPC.VER, CPC.ACD in tabular version AN, EDP, ED, EDTX, UP, UPTX, TIEN, TIDE, TI, IN, IN.CNY, PA, PA.CNY, PAS, PAN, UO, UOS, AG, AG.CNY, LAF, LA, DT, PIT, PI, AI, RLI, PRAI, DF BIB, plus graphic image BIB, indented with text labels IBIB, plus graphic image AN, EDP, ED, EDTX, UP, UPTX, TIEN, TIDE, IN, IN.CNY, PA, PA.CNY, PAS, PAN, UO, UOS, AG, AG.CNY, LAF, LA, DT, PIT, PI, AI, RLI, PRAI, DF, IPC, CPC, EPC, ICO, ABEN, ABDE, MCLMEN, MCLMDE, KT BRIEF, plus graphic image BRIEF, indented with text labels IBRIEF, plus graphic image EDP, ED, IPC (ICA, ICI, ICM, ICS, IPCI, IPCR), CPC, EPC, ICO International Patent Classification (ICM, ICS, IPCI, IPCR) IPC, IPC.KW, IPC.VER, IPC.ACD in tabular version AN, EDP, ED, EDTX, UP, TI, IN, IN.CNY, PA, PA.CNY, LAF, LA, DT, PIT, PI, AI, RLI, PRAI, IPC, CPC, AB, DETD, CLM, FA, KT for all levels of publication MAX, plus graphic image MAX, indented with text labels IMAX, plus graphic image PA, PAS, PAN, UO, UOS PI, PNO, RLPI TI (random display without answer numbers) AN, EDP, ED, EDTX, UP, UPTX, TIEN, TIDE, TI, IN, IN.CNY, PA, PA.CNY, PAS, PAN, UO, UOS AG, AG.CNY, LAF, LA, DT, PIT, PI, AI, RLI, PRAI, DF, IPC, CPC, EPC, ICO (STD.M is default) STD, plus graphic image STD, indented with text labels ISTD, plus graphic image EDP, ED, EDTX, UP, UPTX, TIEN, TIDE, FA, DETN, CLMN DETDEN, DETDDE, CLMEN, CLMDE	D ALL D ALLG D IALL D IALLG D DALL D APPS D CPC.TAB D BIB D BIBG D IBIB D IBIBG D BRIEF D BRIEFG D IBRIEF D IBRIEFG D IND D IPC D IPC.TAB D MAX D MAXG D IMAX D IMAXG D PASS D PATS D SCAN D STD D STDG D ISTD D ISTDG D TRIAL D TX
HIT KWIC OCC	Hit term(s) and field(s) Up to 50 words before and after hit term(s) (KeyWord-In-Context) Number of occurrences of hit term(s) and field(s) in which they occur	D HIT D KWIC D OCC

(1) By default, patent numbers, application and priority numbers are displayed in STN Format. To display them in Derwent format, enter SET PATENT DERWENT at an arrow prompt. To reset display to STN Format, enter SET PATENT STN.

(2) Custom display only.

(3) You can combine this display field with the qualifier .PK (Patent Kind Code) to display the content for a certain publication level of a record, e.g., CLM.B3.

(4) SCAN must be specified on the command line, i.e., D SCAN or DISPLAY SCAN.

(5) If priority information is not available for a certain document, this information is taken from the application information of this document and marked with an asterisk (*).

SELECT, ANALYZE, and SORT Fields

The SELECT command is used to create E-numbers containing terms taken from the specified field in an answer set.

The ANALYZE command is used to create an L-number containing terms taken from the specified field in an answer set.

The SORT command is used to rearrange the search results in either alphabetic or numeric order of the specified field(s).

You can combine all fields except FA with the qualifier .M to SELECT/ANALYZE the content of all publication levels.

Field Name	Field Code	ANALYZE/ SELECT (1)	SORT
Accession Number	AN	Y	Y
Agent	AG	Y	Y
Agent, Country	AG.CNY	Y	Y
Agent, Address	AGA	Y	Y
Application Country	AC	Y	Y
Application Date	AD	Y	Y
Application Number	AP (AI)	Y (2)	Y
Application Kind Code	AK	Y (3)	Y
Application Number, Original	AP (AIO)	Y	Y
Application Year	AY	Y	Y
Cooperative Patent Classification	CPC	Y	Y
Document Type	DT	Y	Y
Entry Date	ED	Y	Y
Entry Date Full-Text	EDTX	Y	Y
Entry Date Patent	EDP	Y	Y
European Patent Classification	EPC (ECLA, EPCLA)	Y	Y
Field Availability	FA	Y	N
International Patent Classification	IC	Y	N
Inventor	IN (AU)	Y	Y
Inventor, Country	IN.CNY	Y	Y
Inventor, Nationality	IN.NAT	Y	Y
Inventor, Residence	IN.RES	Y	Y
Inventor, Address	INA	Y	Y
IPC (ICM, ICS, IPCI, IPCR)	IPC	Y	Y
IPC, Advanced Level Symbols	IPC.A	Y (4)	N
IPC, Advanced Level Symbols for Invention	IPC.AI	Y (4)	N
IPC, Core Level	IPC.C	Y	N
IPC, Core Level, Invention	IPC.CI	Y	N
IPC, Reform	IPC.REF	Y	N
IPC, Additional	ICA	Y	Y
IPC, Index	ICI	Y	Y
IPC, Initial	IPCI	Y	Y
IPC, Main	ICM	Y	Y
IPC, Reclassified	IPCR	Y	Y
IPC, Secondary	ICS	Y	Y
Key Terms	KT	Y	N
Language	LA	Y	Y
Language of Filing	LAF	Y	Y
Number of Claims	CLMN	Y	Y
Number of Paragraphs in DETD	DETN	Y	Y
Occurrence Count of Hit Terms	OCC	N	Y
Patent Assignee	PA (CS)	Y	Y
Patent Assignee, Country	PA.CNY	Y	Y
Patent Assignee, Nationality	PA.NAT	Y	Y
Patent Assignee, Residence	PA.RES	Y	Y
Patent Assignee, Address	PAA	Y	Y
Patent Assignee Normalized	PAN	Y	Y
Patent Assignee Standardized	PAS	Y	Y

SELECT, ANALYZE, and SORT Fields (cont'd)

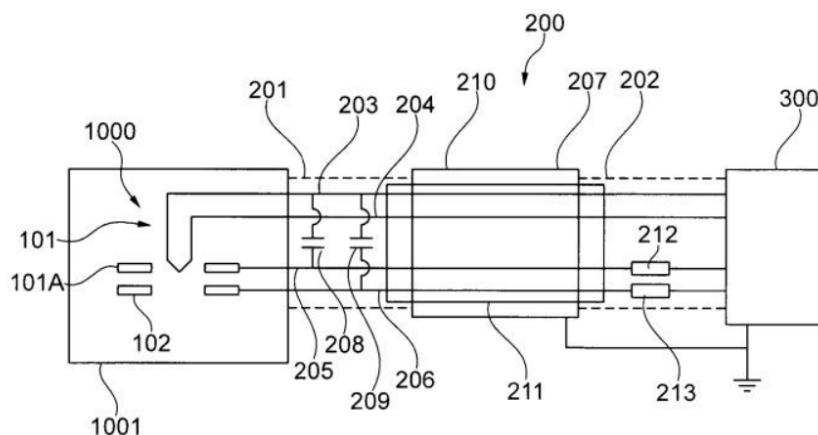
Field Name	Field Code	ANALYZE/ SELECT (1)	SORT
Patent Country	PC	Y	Y
Patent Kind Code	PK	Y	Y
Patent Number	PN (PI)	Y (default)	Y
Patent Number Group	PATS	Y	Y
Patent Number ₇ Original	PNO	Y	Y
Patent Number/Kind Code	PNK	Y (3)	Y
Pre-IPC8 Symbols from the ICM and first IPC8 values from 2006-present	IPC.F	Y (4)	Y
Priority Country	PRC	Y	Y
Priority Date	PRD	Y	Y
Priority Date ₇ First	PRDF	Y	Y
Priority Number	PRN (PRAI)	Y	Y
Priority Number ₇ Original	PRNO	Y	Y
Priority Year	PRY	Y	Y
Priority Year ₇ First	PRYF	Y	Y
Publication Date	PD	Y	Y
Publication Year	PY	Y	Y
Related Application Country	RLC	Y	Y
Related Application Date	RLD	Y	Y
Related Application Number	RLN	Y	Y
Related Application Type	RLT	Y	Y
Related Application Year	RLY	Y	Y
Related Patent Country	RLPC	Y	Y
Related Patent Date	RLPD	Y	Y
Related Patent Number	RLPN	Y (3)	Y
Related Patent Year	RLPY	Y	Y
Title (German and English)	TI	Y	Y
Title (German)	TIDE	Y	Y
Title (English)	TIEN	Y	Y
Ultimate Owner Normalized	UO	Y	Y
Ultimate Owner Standardized	UOS	Y	Y
Update Date	UP	Y	Y
Update Date Text	UPTX	Y	Y

- (1)** HIT may be used to restrict terms extracted to terms that match the search expression used to create the answer set, e.g.,
SEL HIT TI.
- (2)** Selects or analyzes application numbers with /AP appended to the terms created by SELECT.
- (3)** SELECT or ANALYZE HIT are not valid with this field.
- (4)** Appends /IPC to the terms created by SELECT.

Sample Records

DISPLAY BIBG

AN 5669133 DEFULL ED 20190828 UP 20190828 EDTX 20190828
DED 20190808 DUPD 20190813 Full-text
TIEN Connection assembly, particle beam generator having a particle beam device with a particle beam generator and connection assembly
TIDE Steckverbindungseinheit, Teilchenstrahlerzeuger mit einer Steckverbindungseinheit sowie Teilchenstrahlgeraet mit einem Teilchenstrahlerzeuger
IN Fichter, Edgar, DE, Aalen, 73432; Preikszas, Dirk, DE, Oberkochen, 73447
PA Carl Zeiss Microscopy GmbH, Jena, 07745, DE, [NAT: DE, RES: DE], for all designated states
PAS CARL ZEISS MICROSCOPY
PAN CARL ZEISS
AG Freischem & Partner Patentanwaelte mbB, Koeln, 50677, DE
LAF German
LA German
DT Patent; (Fulltext)
PIT DEB4 PATENT (SECOND PUBLICATION)
PI DE 102018200593 B4 20190808
AI DE 2018-102018200593 20180115
PRAI DE 2018-102018200593 20180115
GI



DISPLAY ISTD.M

ACCESSION NUMBER: 5669363 DEFULL
ENTRY DATE: 20190829
UPDATE DATE: 20190829
ENTRY DATE (FULLTEXT): 20190829
DATA ENTRY DATE: 20190725
DATA UPDATE DATE: 20190813
TITLE (ENGLISH): A retaining clip for holding vehicle parts in a vehicle
TITLE (GERMAN): Halteklammer zur Halterung von Fahrzeugteilen in einem Fahrzeug
INVENTOR(S): Leancu, Adrian, DE, Pulheim, 50259
PATENT APPLICANT(S): Ford Global Technologies, LLC, Dearborn, Mich., US, [NAT: US, RES: US], for all designated states
PATENT APPL. STANDARD.: FORD GLOBAL TECHNOLOGIES
PATENT APPL. NORMAL.: FORD
AGENT: Doerfler, Thomas, Koeln, 50735, DE
LANGUAGE OF FILING: German
LANGUAGE OF PUBL.: German
DOCUMENT TYPE: Patent; (Fulltext)
PATENT INFORMATION TYPE: DEA1 DOC. LAID OPEN (FIRST PUBLICATION)
PATENT INFORMATION: DE 102018200943 A1 20190725
APPLICATION INFO.: DE 2018-102018200943 A1 20180122
PRIORITY INFO.: DE 2018-102018200943 20180122 Full-text
IPC ORIGINAL: F16L0003-22 [I,A]; B62D0065-00 [I,A]; F16L0003-18 [I,A]; F16L0003-237 [I,A]
CPC CLASSIF. B60R0016-08; F16L0003-223; H02G0003-32; B60R0016-0215
ACCESSION NUMBER: 5669363 DEFULL
ENTRY DATE: 20190829
UPDATE DATE: 20190829

ENTRY DATE (FULLTEXT): 20190829
DATA ENTRY DATE: 20190808
DATA UPDATE DATE: 20190813
TITLE (ENGLISH): A retaining clip for holding vehicle parts in a vehicle
TITLE (GERMAN): Halteklammer zur Halterung von Fahrzeugteilen in einem Fahrzeug
INVENTOR(S): Leancu, Adrian, DE, Pulheim, 50259
PATENT APPLICANT(S): Ford Global Technologies, LLC, Dearborn, Mich., US, [NAT: US, RES: US], for all designated states
PATENT APPL. STANDARD.: FORD GLOBAL TECHNOLOGIES
PATENT APPL. NORMAL.: FORD
AGENT: Doerfler, Thomas, Koeln, 50735, DE
LANGUAGE OF FILING: German
LANGUAGE OF PUBL.: German
DOCUMENT TYPE: Patent; (Fulltext)
PATENT INFORMATION TYPE: DEB4 PATENT (SECOND PUBLICATION)
PATENT INFORMATION: DE 102018200943 B4 20190808
APPLICATION INFO.: DE 2018-102018200943 20180122
PRIORITY INFO.: DE 2018-102018200943 20180122 Full-text
IPC ORIGINAL: F16L0003-22 [I,A]; B62D0065-00 [I,A]; F16L0003-18 [I,A];
F16L0003-237 [I,A]
CPC CLASSIF. B60R0016-08; F16L0003-223; H02G0003-32; B60R0016-0215];
H01M0002-16 [I,A]; H01M0004-62 [I,A]; H01M0010-052 [I,A];
H01M0010-0564 [I,A]

DISPLAY ALL (STN format)

AN 5401505 DEFULL ED 20190820 UP 20190828 EDTX 20190820
DED 20151224 DUPD 20190804 Full-text
TIEN Method for assisting the driver of a motor vehicle at a reverse travel for
attaching a trailer
TIDE Verfahren zur Unterstuetzung des Fahrers eines Kraftfahrzeugs bei einer
Rueckwaertsfahrt zum Ankuppeln eines Anhaengers
IN Schultz, Steffen, DE, Gerabronn, 74582; Weissenmayer, Simon, DE, Marbach, 71672
PA Robert Bosch GmbH, Stuttgart, 70469, DE, [NAT: DE, RES: DE], for all designated
states
PAS ROBERT BOSCH
PAN ROBERT BOSCH
LAF German
LA German
DT Patent; (Fulltext)
PIT DEA1 DOC. LAID OPEN (FIRST PUBLICATION)
PI DE 102014212041 A1 20151224
AI DE 2014-102014212041 A1 20140624
PRAI DE 2014-102014212041 20140624
IPCI B60D0001-36 [I,A]
CPC B60D0001-36; B60D0001-62
ABDE
Original
Die Erfindung betrifft ein Verfahren zur Unterstuetzung des Fahrers eines
Kraftfahrzeugs mit einem kraftfahrzeugseitigen Kupplungsteil einer
Anhaengerkupplung bei einer Rueckwaertsfahrt zum Ankuppeln eines Anhaengers mit
einem anhaengerseitigen Kupplungsteil einer Anhaengerkupplung, bei dem anhand des
eingeschlagenen Lenkwinkels des Kraftfahrzeugs die zukuenftige Trajektorie
des kraftfahrzeugseitigen Kupplungsteils bei der Rueckwaertsfahrt im Falle einer
Beibehaltung des eingeschlagenen Lenkwinkels ermittelt wird und abhaengig davon- in
einem Anzeigeinstrument dem Fahrer erkennbar gemacht wird, ob bei Beibehaltung des
Lenkwinkels der kraftfahrzeugseitige Kupplungsteil waehrend der Rueckwaertsfahrt
unter dem anhaengerseitigen Kupplungsteil zu liegen kommt oder- dem Fahrer eine
Information gegeben wird, in welche Richtung er das Kraftfahrzeug zu lenken hat,
damit der kraftfahrzeugseitige Kupplungsteil waehrend der Rueckwaertsfahrt unter
dem anhaengerseitigen Kupplungsteil zu liegen kommt.
ABEN
Machine translation
The invention relates to a method for assisting the driver of a motor vehicle with
a control unit which is arranged on the coupling part of a trailer hitch with a
trailer coupling part at a reverse travel a trailer hitch for attaching a trailer,
in which the future trajectory of the unit which is arranged on the basis of the
current steering angle of the motor vehicle in the event of a coupling piece when
reverse travel is determined and, in response, -in a continue along steering angle
is made recognizable to the driver Indicating instrument, whether while keeping the
steering angle of the coupling part comes to lie on the vehicle during the

reverse travel under the trailer coupling part is has been an information to
direct or-the driver, which track to the motor vehicle, so that the coupling part
during the reverse travel under the trailer coupling part comes to lie on the
vehicle.
DETDEN

STATE OF THE ART.

[0001] State of the Art tail cameras for motor vehicles are known from the. This
show the rear region behind the motor vehicle at the driver offer a support for and
reverse movements.

DISCLOSURE OF THE INVENTION.

[0002] The invention relates to a method for assisting the driver of a motor
vehicle with a control unit which is arranged on the coupling part or. Coupling
component a trailer hitch with a trailer coupling part or at a reverse travel for
attaching a trailer.

A trailer hitch coupling component, in which the future trajectory of the unit
which is arranged on the basis of the current
steering angle of the motor vehicle in the event of a coupling piece when reverse
travel is determined and, in response, continue along steering angle the driver is
made recognizable-in a Indicating instrument, whether while keeping the steering
angle of the coupling part during the reverse travel under the trailer coupling
part comes to lie on the vehicle or-the driver is to direct an information has
been, which track to the motor vehicle, so that the coupling part during the
reverse travel under the trailer coupling part comes to lie on the vehicle.

[0003] So that the coupling is substantially relieved of heavy trailers to a motor
vehicle, during the reverse travel of the motor vehicle by already, in which it
bears on the trailer coupling part moves, the driver gets ranking procedure a
support for the. This aid can be constructed so that the driver is made
recognizable in a Indicating instrument, whether while keeping the steering angle
of the coupling part during the reverse travel under the trailer coupling part
comes to lie on the vehicle or it can be added to direct the driver has even an
information which track to the motor vehicle, so that the coupling part during the
reverse travel under the trailer coupling part comes to lie on the vehicle. The
coupling part under the trailer coupling part to lie in a sufficiently precise If
strength-driving lateral, then allows a simple lowering the trailer coupling part
strength-saving coupling of the trailer to the motor vehicle or a towing Vehicle.

[0004] A advantageous embodiment of the process according to the invention is
characterized in that- tail camera the rear region of the motor vehicle by means of
a mounted on the motor vehicle on the vehicle and trailer-side coupling part and
the represented in the display element are optically detected and as Picture and-is
superimposed on the determined trajectory of the unit which is arranged on the
coupling part the image in the Indicating instrument, so that for the driver can be
identified, whether while keeping the steering angle of the coupling part during
the reverse travel under the trailer coupling part comes to lie on the vehicle or
not. A further benefit in many vehicles already existing reversing camera receives
the This, and the invention is to realize hardware expenditure then without
significant.

[0005] One advantageous embodiment of the invention is characterized in that the
determined trajectory in the image of the rear camera is overlaid as a curved path.

[0006] One advantageous embodiment of the invention is characterized in that the
driver can specify by means of an operating element, during the reverse travel is
determined whether the future trajectory of the unit which is arranged on the
coupling part and/or whether the determined trajectory in the reversing camera is
superimposed or this is superimposed on the picture. This allows the driver, to
activate only the method according to the invention, when a trailer to their
vehicle to couple up would like.

[0007] Continue comprises the invention relates to a device, including means, are
designed to conduct the process of the present invention. It in particular a
control unit, which is equipped with the program code for carrying out the process
of the present invention.

[0008] The Drawing comprises 1 . 1 shows, in schematic manner by means of a
reversing camera imaged region from the bird's-eye view, as well as the the drawn
in trajectory of the unit which is arranged on the coupling part.

[0009] Starting from the trailer hitch of the vehicle is a curve superimposed on the picture of the reversing camera. The curve indicates, where the trailer hitch moves, when the vehicle is reversing in current steering lock angle. The driver can then move the steering wheel in a stationary position or during the reverse travel so that the curve, which extends from the clutch or the coupling part of the towing vehicle is aimed, on the clutch or the clutch member of the trailer. Then they go back with a constant steering angle, until the coupling of the trailer is located above the clutch of the towing vehicle. Afterwards the driver holds the vehicle to the trailer by the lowering of the trailer hitch coupling to this and to the trailer hitch on the vehicle. The invention when the vehicle is stationary and the driver can concentrate pattern recognition software does not require any steering and in which reverse travel on to actuation of accelerator pedal.

[0010] 1 a reversing camera 100 shows a schematic representation of the receiving region, drawn in a motor vehicle with a vehicle-mounted coupling component 103 are 106, to which a trailer is to be coupled with a trailer coupling component 105 104. Zum coupling maneuver the driver 107 and drives the front wheels of the motor vehicle backwards proposes. When reverse travel move along the determined trajectory 106 101 and the wheels along the determined trajectory the vehicle-side coupling component 102. Here, based on the steering angle of the wheels is determined 102 107 trajectory. This trajectory is so incorporated in the image of the reversing camera or so or this superposed so as shown that the driver can recognize, whether or not the coupling components come to lie one above the other after the reverse travel.

CLMEN

1. Method for assisting the driver of a motor vehicle (103) with a control unit which is arranged on the coupling part (106) a trailer hitch at a reverse travel for attaching a trailer (104) with a trailer coupling part (105) a trailer hitch, in which the wrapped steering angle (107) of the motor vehicle (103) the future trajectory (102) of the unit which is arranged on the coupling part (106) in which reverse travel in the event of a continue along steering angle (107) is determined and, in response, -in a recognizable is made the driver Indicating instrument, whether while keeping the steering angle (107) of the coupling part on the vehicle (106) during the reverse travel under the trailer coupling part (105) comes to lie or-the driver has an information is given to direct, which track to the motor vehicle (103), so that the coupling part on the vehicle (106) during the reverse travel under the trailer coupling part (105) comes to lie.

comes

2. method according to claim 1, characterized in that-by means of a mounted on the motor vehicle and tail camera the rearward area of the motor vehicle (100) as well as the on the vehicle (106) and trailer-side (105) be represented as a picture in a display element optically detected and clutch member and-the determined trajectory (102) of the unit which is arranged on the coupling part (106) is superimposed on the picture in the Indicating instrument, so that for the driver can be identified, whether while keeping the steering angle (107) of the coupling part on the vehicle (106) during the reverse travel under the trailer coupling part (105) comes to lie or not.

3. Method according to claim 2, characterized in that the determined trajectory(102) in the image of the rear camera is overlaid as a curved path.

4. Method according to claim 2, characterized in that the driver can specify by means of an operating element, whether during the reverse travel the future trajectory (102) of the unit which is arranged on the coupling part (106) is determined and/or whether the determined trajectory (102) is superimposed on the picture of the reversing camera.

5. Apparatus, comprising means, are designed to conduct the process of the present invention.

DETDDE

STAND DER TECHNIK.

[0001] Aus dem Stand der Technik sind Heckkameras fuer Kraftfahrzeuge bekannt. Diese zeigen den rueckwaertigen Bereich hinter dem Kraftfahrzeug an und bieten dem Fahrer eine Unterstuetzung bei Rueckwaertsfahrten.

OFFENBARUNG DER ERFINDUNG.

[0002] Die Erfindung betrifft ein Verfahren zur Unterstuetzung des Fahrers eines Kraftfahrzeugs mit einem kraftfahrzeugseitigen Kupplungsteil bzw. Kupplungskomponente einer Anhaengerkupplung bei einer Rueckwaertsfahrt zum Ankuppeln eines Anhaengers mit einem anhaengerseitigen Kupplungsteil bzw. Kupplungskomponente einer Anhaengerkupplung, bei dem anhand des eingeschlagenen Lenkwinkels des Kraftfahrzeugs die zukuenftige Trajektorie des kraftfahrzeugseitigen Kupplungsteils bei der Rueckwaertsfahrt im Falle einer

in Beibehaltung des eingeschlagenen Lenkwinkels ermittelt wird und abhaengig davon- einem Anzeigeinstrument dem Fahrer erkennbar gemacht wird, ob bei Beibehaltung des Lenkwinkels der kraftfahrzeugseitige Kupplungsteil waehrend der Rueckwaertsfahrt unter dem anhaengerseitigen Kupplungsteil zu liegen kommt oder- dem Fahrer eine Information gegeben wird, in welche Richtung er das Kraftfahrzeug zu lenken hat, damit der kraftfahrzeugseitige Kupplungsteil waehrend der Rueckwaertsfahrt unter dem anhaengerseitigen Kupplungsteil zu liegen kommt.

[0003] Damit wird das Ankuppeln von schweren Anhaengern an ein Kraftfahrzeug wesentlich erleichtert, indem bereits waehrend der Rueckwaertsfahrt des Kraftfahrzeugs, in welcher sich dieses auf den anhaengerseitigen Kupplungsteil zubewegt, der Fahrer eine Hilfestellung fuer den Rangiervorgang bekommt. Diese Hilfe kann so ausgestaltet sein, dass dem Fahrer in einem Anzeigeinstrument erkennbar gemacht wird, ob bei Beibehaltung des Lenkwinkels der kraftfahrzeugseitige Kupplungsteil waehrend der Rueckwaertsfahrt unter dem anhaengerseitigen Kupplungsteil zu liegen kommt oder es kann dem Fahrer sogar eine Information gegeben werden in welchen Richtung er das Kraftfahrzeug zu lenken hat, damit der kraftfahrzeugseitige Kupplungsteil waehrend der Rueckwaertsfahrt unter dem anhaengerseitigen Kupplungsteil zu liegen kommt. Kommt der kraftfahrseitige Kupplungsteil moeglichst praezise unter dem anhaengerseitigen Kupplungsteil zu liegen, dann erlaubt ein einfaches Absenken des anhaengerseitigen Kupplungsteils eine kraftsparende Ankopplung des Anhaengers an das Kraftfahrzeug bzw. Zugfahrzeug.

[0004] Eine vorteilhafte Ausgestaltung des erfindungsgemaessen Verfahrens ist dadurch gekennzeichnet, dass- mittels einer am Kraftfahrzeug angebrachten Heckkamera der rueckwaertige Bereich des Kraftfahrzeugs sowie der kraftfahrzeugseitige und anhaengerseitige Kupplungsteil erfasst und als Bild im Anzeigeelement optisch dargestellt werden und- die ermittelte Trajektorie des kraftfahrzeugseitigen Kupplungsteils dem Bild im Anzeigeinstrument ueberlagert wird, so dass fuer den Fahrer erkennbar ist, ob bei Beibehaltung des Lenkwinkels der kraftfahrzeugseitige Kupplungsteil waehrend der Rueckwaertsfahrt unter dem anhaengerseitigen Kupplungsteil zu liegen kommt oder nicht. Dadurch erhaelt die in zahlreichen Fahrzeugen bereits vorhandene Rueckfahrkamera einen weiteren Nutzen und die Erfindung ist dann ohne nennenswerten Hardwareaufwand zu realisieren.

[0005] Eine vorteilhafte Ausgestaltung der Erfindung ist dadurch gekennzeichnet, dass die ermittelte Trajektorie als Bahnkurve in das Bild der Rueckwaertskamera eingeblendet wird.

[0006] Eine vorteilhafte Ausgestaltung der Erfindung ist dadurch gekennzeichnet, dass der Fahrer mittels eines Bedienelements vorgeben kann, ob waehrend der Rueckwaertsfahrt die zukuenftige Trajektorie des kraftfahrzeugseitigen Kupplungsteils ermittelt wird und/oder ob die ermittelte Trajektorie in das Bild der Rueckfahrkamera eingeblendet wird bzw. diesem ueberlagert wird. Dies erlaubt dem Fahrer, das erfindungsgemaesse Verfahren nur dann zu aktivieren, wenn er einen Anhaenger an sein Fahrzeug ankuppeln moechte.

[0007] Weiter umfasst die Erfindung eine Vorrichtung, enthaltend Mittel, die zur Durchfuehrung der erfindungsgemaessen Verfahren ausgestaltet sind. Dabei handelt es sich insbesondere um ein Steuergeraet, welches mit dem Programmcode zur Durchfuehrung der erfindungsgemaessen Verfahren ausgestattet ist.

[0008] Die Zeichnung umfasst 1. 1 zeigt in schematischer Art und Weise den mittels einer Rueckfahrkamera abgebildeten Bereich aus der Vogelperspektive sowie die eingezeichnete Trajektorie des kraftfahrzeugseitigen Kupplungsteils.

[0009] Ausgehend von der Anhaengerkupplung des Fahrzeugs wird dem Bild der Rueckfahrkamera eine Kurve ueberlagert. Die Kurve zeigt an, wo sich die Anhaengerkupplung hinbewegt, wenn das Fahrzeug bei aktuellem Lenkradeinschlag rueckwaerts faehrt. Der Fahrer kann dann im Stand oder waehrend der Rueckwaertsfahrt das Lenkrad so bewegen, dass die Kurve, welche von der Kupplung bzw. dem Kupplungsteil des Zugfahrzeugs ausgeht, auf die Kupplung bzw. den Kupplungsteil des Anhaengers zielt. Dann faehrt er mit gleichbleibendem Lenkwinkel zurueck, bis sich die Kupplung des Anhaengers ueber der Kupplung des Zugfahrzeugs befindet. Danach haelt der Fahrer das Fahrzeug an und kuppelt dieses mit dem Anhaenger durch Herabsenken der anhaengerseitigen Anhaengerkupplung auf die kraftfahrzeugseitige Anhaengerkupplung. Die Erfindung benoetigt keine Bilderkennungssoftware und der Fahrer kann sich bei stehendem Fahrzeug auf das Lenken und bei der Rueckwaertsfahrt auf die Betaetigung von Brems- und Fahrpedal konzentrieren.

[0010] 1 zeigt eine schematische Darstellung des Aufnahmebereichs 100 einer

Rueckfahrkamera. Eingezeichnet sind ein Kraftfahrzeug 103 mit einer fahrzeugseitigen Kupplungskomponente 106, an welches ein Anhaenger 104 mit einer anhaengerseitigen Kupplungskomponente 105 angekoppelt werden soll. Zum Ankoppelmanoeuvr schlaegt der Fahrer des Kraftfahrzeugs die Vorderrae der 107 ein und faehrt rueckwaerts. Bei der Rueckwaertsfahrt bewegen sich die Raeder entlang der ermittelten Trajektorien 101 und die fahrzeugseitige Kupplungskomponente 106 entlang der ermittelten Trajektorie 102. Die Trajektorie 102 wird dabei anhand des Lenkwinkels der Raeder 107 ermittelt. Diese Trajektorie wird in das Bild der Rueckfahrkamera so eingebaut bzw. diesem so ueberlagert bzw. so eingezeichnet, dass der Fahrer erkennen kann, ob die Kupplungskomponenten nach der Rueckwaertsfahrt uebereinander zu liegen kommen oder nicht.

CLMDE

1. Verfahren zur Unterstuetzung des Fahrers eines Kraftfahrzeugs (103) mit einem kraftfahrzeugseitigen Kupplungsteil (106) einer Anhaengerkupplung bei einer Rueckwaertsfahrt zum Ankuppeln eines Anhaengers (104) mit einem anhaengerseitigen Kupplungsteil (105) einer Anhaengerkupplung, bei dem anhand des eingeschlagenen Lenkwinkels (107) des Kraftfahrzeugs (103) die zukuenftige Trajektorie (102) des kraftfahrzeugseitigen Kupplungsteils (106) bei der Rueckwaertsfahrt im Falle einer Beibehaltung des eingeschlagenen Lenkwinkels (107) ermittelt wird und abhaengig davon- in einem Anzeigeinstrument dem Fahrer erkennbar gemacht wird, ob bei Beibehaltung des Lenkwinkels (107) der kraftfahrzeugseitige Kupplungsteil (106) waehrend der Rueckwaertsfahrt unter dem anhaengerseitigen Kupplungsteil (105) zu liegen kommt oder- dem Fahrer eine Information gegeben wird, in welche Richtung er das Kraftfahrzeug (103) zu lenken hat, damit der kraftfahrzeugseitige Kupplungsteil (106) waehrend der Rueckwaertsfahrt unter dem anhaengerseitigen Kupplungsteil (105) zu liegen kommt.
2. Verfahren nach Anspruch 1, dadurch gekennzeichnet, dass- mittels einer am Kraftfahrzeug angebrachten Heckkamera der rueckwaertige Bereich des Kraftfahrzeugs (100) sowie der kraftfahrzeugseitige (106) und anhaengerseitige (105) Kupplungsteil erfasst und als Bild in einem Anzeigeelement optisch dargestellt werden und- die ermittelte Trajektorie (102) des kraftfahrzeugseitigen Kupplungsteils (106) dem Bild im Anzeigeinstrument ueberlagert wird, so dass fuer den Fahrer erkennbar ist, ob bei Beibehaltung des Lenkwinkels (107) der kraftfahrzeugseitige Kupplungsteil (106) waehrend der Rueckwaertsfahrt unter dem anhaengerseitigen Kupplungsteil (105) zu liegen kommt oder nicht.
3. Verfahren nach Anspruch 2, dadurch gekennzeichnet, dass die ermittelte Trajektorie (102) als Bahnkurve in das Bild der Rueckwaertskamera eingeblendet wird.
4. Verfahren nach Anspruch 2, dadurch gekennzeichnet, dass der Fahrer mittels eines Bedienelements vorgeben kann, ob waehrend der Rueckwaertsfahrt die zukuenftige Trajektorie (102) des kraftfahrzeugseitigen Kupplungsteils (106) ermittelt wird und/oder ob die ermittelte Trajektorie (102) dem Bild der Rueckfahrkamera ueberlagert wird.
5. Vorrichtung, enthaltend Mittel, die zur Durchfuehrung der erfindungsgemaessen Verfahren ausgestaltet sind.

KT

reverse travel; motor vehicle; trailer hitch; trailer coupling; steering angle; reversing camera; future trajectory; towing vehicle; zum coupling maneuver; coupling piece; operating element; curved path; heavy trailer; art tail camera; pattern recognition software; steering wheel; clutch member; stationary position; accelerator pedal; program code; ranking procedure

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