

Search history

- Search 1: ft=tilt and vehicle and motorcycle (Results 683)
- Search 2: ft=tilt and (vehicle or motorcycle) and frame and front wheel (Results 825)
- Search 3: ft=tilt and (vehicle or motorcycle) and frame and front wheel and stopper and torque (Results 2)
- Search 4: ft=tilt and (vehicle or motorcycle) and frame and front wheel and stopper and turn* and restric* (Results 1)
- Search 5: ft=tilt and (vehicle or motorcycle) and frame and front wheel and stopper and turn* and limit* (Results 4)
- Search 6: ft=tilt and (vehicle or motorcycle) and frame and front wheel and stopper and steer* and limit* (Results 3)
- Search 7: ft=tilt and (vehicle or motorcycle or tricycle) and frame and front wheel and steer* and limit* (Results 116)

- session log created:26 April 2017 17:03:39

- Update information:

PatBase Coverage at Update 2017 Week 16 (Year 2017 Week 16)

PatBase Coverage includes 100+ million documents from over 100 patent-issuing authorities and includes patent applications, granted patents, utility models and designs â€” detailed in the below coverage listings.

Major countries

Publishing body	Document type	Bibliographic publication date		Full-Text publication date	
		Earliest	Latest	Earliest	Latest
CN China	Patent Applications	19850910	20170419	19850910	20170419
	Patents	19930106	20170419	19930106	20170419
	Utility Model Applications	19850409	19921230	19850409	19921230
	Utility Models	19930106	20170419	19930106	20170419
	Designs	19850910	20170419	19850910	20150819
DE Germany	Patent Applications	19211221	20170420	19650317	20170420
	Patents	18770101	20170420	19200113	20170420
	Utility Models	19280626	20170420	19610831	20170420
	EP/WO Patents	19871217	20140410		
EP European Patent Office	Patent Applications	19781220	20170419	19781220	20170419
	Patents	19800109	20170419	19800109	20170419
FR France	Patent Applications	19690307	20170421	19810102	20170331
	Patents	18550227	20170421	19600502	20170421
	Utility Model Applications	19720107	20170421	19800104	20170331
	Utility Models	19730112	20170421	19690802	20170414
GB United Kingdom	Unpublished Patent	19830209	20170405		

	Applications				
	Patent Applications	19790104	20170419	19790104	20170405
	Patents	17820704	20170419	19020911	19811216
JP Japan	Patent Applications	19710116	20170420	19930108	20170413
	Patents	19281026	20170405	19960529	20170405
	Utility Model Applications	19710723	20060209	19990817	20031107
	Utility Models	19640805	19960329		
	Registered Utility Models	19940726	20170406	19940726	20101216
	Designs	20141110	20170417		
KR Republic of Korea	Patent Applications	19781209	20170421	19940103	20170421
	Patents	19700820	20170421	19970104	20170421
	Utility Model Applications	19781127	20170421	19940730	20170421
	Utility Models	19780110	20170421	19970104	20170421
US United States of America	Patent Applications	20010315	20170420	20010315	20170420
	Patents	18360101	20170418	18560617	20170418
	Designs	18650912	20170418	19770719	20170418
WO World Intellectual Property Organization (WIPO)	Patent Applications	19781019	20170420	19781019	20170420
	Designs	20151127	20170421	20151127	20170331

20170422 21:00

- Login to Patbase:26 April 2017 17:03:39
- **search:** SS1 ft=tilt and vehicle and motorcycle (Results 683)
- **search:** SS2 ft=tilt and (vehicle or motorcycle) and frame and front wheel (Results 825)
- **search:** SS3 ft=tilt and (vehicle or motorcycle) and frame and front wheel and stopper and torque (Results 2)
- List: SS3 1–50 (ft=tilt and (vehicle or motorcycle) and frame and front wheel and stopper and torque) (Results 2)

0) US2001028154A – VEHICLE HAVING SUSPENSION SYSTEM WITH VARIABLE ...

1) Family number: 31018397 (US2001028154A)

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Title: Vehicle having suspension system with variable camber and vertical suspension in the plane of the wheel

Priority: DE20012014331U 20010830 FR20000004596 20000410 FR20010011860 20010913
GB20010023903 20011004 US20010922155 20010806

Family:	Publication number	Publication date	Application number	Application date
	AT258120 E	20040215	AT20010107977T	20010329
	DE20114331 U1	20011025	DE20012014331U	20010830
	DE60101809 D1	20040226	DE20016001809	20010329
	DE60101809 T2	20041104	DE20016001809T	20010329
	EP1145879 A1	20011017	EP20010107977	20010329
	EP1145879 B1	20040121	EP20010107977	20010329
	FR2807378 A1	20011012	FR20000004596	20000410
	FR2829460 A3	20030314	FR20010011860	20010913
	FR2829460 B3	20030829	FR20010011860	20010913
	GB200123903 A0	20011128	GB20010023903	20011004
	GB2380459 A1	20030409	GB20010023903	20011004
	JP2002052915 A2	20020219	JP20010111443	20010410
	US2001028154 AA	20011011	US20010829058	20010409
	US2003025291 AA	20030206	US20010922155	20010806
	US6511078 BB	20030128	US20010829058	20010409
	US6511087 BA	20030128	US20010922155	20010806

Probable Assignee: CONCEPTION AND DEV MICHELIN SA

Assignee(s):^(std): CONCEPTION AND DEV MICHELIN SA ; CONCEPTION ET DEV MICHELIN S A ; FONG CHIN LONG ; MICHELIN RECH TECH

Assignee(s): CHIN LONG FONG ; CONCEPTION ET DEVELOPPEMENT MICHELIN SA ; CONCEPTION ET DEVELOPPEMENT MICHELIN ; CONCEPTION ET DEVELOPPEMENT MICHELIN S A ; CONCEPTION ET DEVELOPMENT MICHELIN S A ; CONCEPTION ET DEVELOPMENT MICHELIN S A GIVISIEZ

Inventor(s):^(std): FONG CHIN LONG ; SEBE MARC

Inventor(s): CHIN LONG FONG

Designated states: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

International class
(IPC 8-9): [B60G17/015](#) [B60G17/016](#) [B60G21/00](#) [B60G3/01](#) [B60G3/20](#) [B60G7/00](#) [B60G7/02](#)
[B62D17/00](#) [B62D7/20](#) [B62D9/02](#) [B62K5/00](#) [B62M1/00](#) (Advanced/Invention);
[B60G17/015](#) [B60G21/00](#) [B60G3/00](#) [B60G3/18](#) [B60G7/00](#) [B60G7/02](#) [B62D17/00](#) [B62D7/00](#)
[B62D9/00](#) (Core/Invention)

International class
(IPC 1-7): [A63B22/02](#) [B60G17/01](#) [B60G17/015](#) [B60G21/00](#) [B60G3/01](#) [B60G3/20](#) [B60G7/02](#)
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CPC: [B62K3/002](#) [B62M1/34](#) [B60G3/01](#) [B60G7/001](#) [B60G17/0162](#) [B60G21/007](#) [B60G2200/144](#)
[B60G2200/44](#) [B60G2200/46](#) [B60G2200/462](#) [B60G2200/464](#) [B60G2202/413](#)
[B60G2204/143](#) [B60G2204/421](#) [B60G2204/422](#) [B60G2204/82](#) [B60G2204/8302](#)
[B60G2206/11](#) [B60G2206/1114](#) [B62D9/02](#) [B62D17/00](#)

European class: [B60G17/015A2](#) [B60G17/016F](#) [B60G21/00D](#) [B60G3/01](#) [B60G7/00A](#) [B62D17/00](#) [B62D9/02](#)
[L60G200/144](#) [L60G200/440](#) [L60G200/460](#) [L60G200/462](#) [L60G200/464](#) [L60G202/413](#)
[L60G204/143](#) [L60G204/421](#) [L60G204/422](#) [L60G204/82](#) [L60G204/8302](#) [L60G206/11](#)
[L60G206/1114](#)

US class: [280/124.103](#) [280/124.127](#) [280/210](#) [280/210P](#) [280/228](#) [280/282](#) [280/5.509](#) [280/5.521](#)
[280/86.757](#)

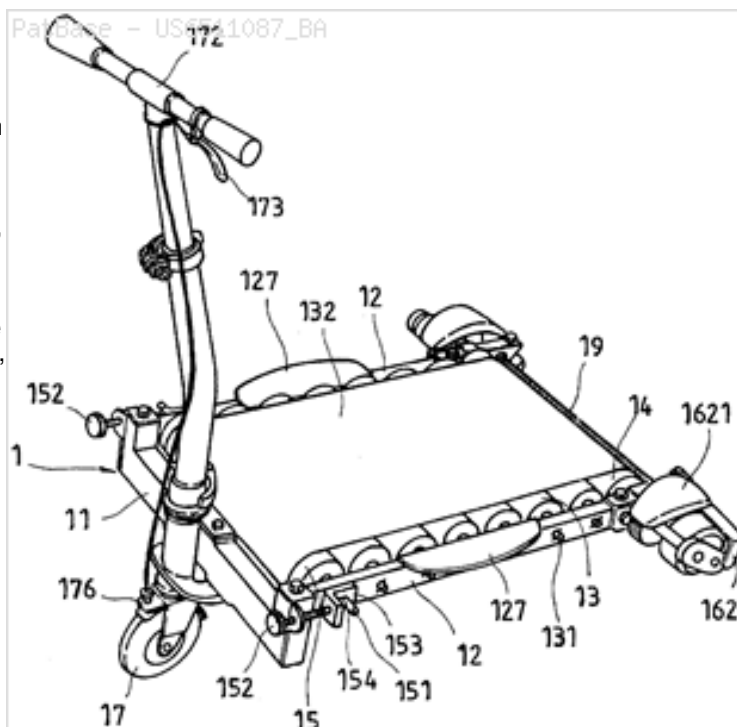
[Classification Explorer](#)

Cited documents: WO8702951 A1, US6170838 BA, US6113119 A, US4796720 A, US4700972 A, US4487429 A, US4334695 A, US4159128 A, US3485506 A, US3332704 A, US2152938 A, US1696927 A, US1353011 A, JP63101114 A2, JP46033604 B4, JP46033604 B1, JP11028924 A2, JP10338009 A2, GB210429 A, FR967710 A, EP0878378 A1, EP0878332 A1, DE2822058 A1, DE1214100 B,

Forward Citations: WO17022934, WO05000606, WO04069569, WO03057529, WO03057529, US9283989, US9248857, US9145168, US9090281, US9045015, US9010784, US8818700, US8641064, US8202201, US8128110, US8050820, US7914020, US7905500, US7845666, US7703781, US7673883, US7625000, US7607695, US7591337, US7571787, US7559400, US7425005, US7419175, US7357400, US7246806, US7234708, US7108271, US7013206, US6986519, US6840524, US6695331, US6505845, US2016059661, US2010324808, US2010320023, US2010117313, US2009256326, US2009194965, US2008290618, US2008197597, US2008194386, US2008073168, US2008039289, US2007267883, US2007205576, US2006287165, US2006237941, US2006220335, US2006181050, US2005179225, US2005051976, US2005017471, US2004150179, US2004150178, US2004128040, US2004036443, US2003230443, RU2607691, KR101614701, KR101028058, JP4813360, JP2006027602, FR2858964, EP1944228, EP1889537, EP1736401, EP1506917, DE10241725, DE102014006600, CN103640661, CN102596601, CN102596601,

Abstract:

Source: US2001028154A A ground contact system for a vehicle having a wheel mounted on a wheel carrier, the wheel carrier being mounted on a support by a vertical suspension device, the support being mounted on a chassis by a load transfer arm on one side of which the support is articulated along an essentially horizontal geometrical camber axis, the load transfer arm being connected at its other side to the chassis along an essentially vertical geometrical axis, a camber control rod being mounted articulated to the support some distance from the geometrical suspension axis, the camber control rod being able to move transversely relative to the chassis, a triangulation-forming element connecting the load transfer arm to the chassis around the essentially vertical geometrical axis, such that it controls the moment about the essentially vertical geometrical axis.



0) FR2912929A – ELECTRICAL MINIATURE CAR FOR TRANSPORTING INFAN...

2) Family number: 42124584 (FR2912929A)

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Title: ELECTRICAL MINIATURE CAR FOR TRANSPORTING INFANTS, HAS BUTTONS FOR SWITCHING CONTROL OF CAR BETWEEN INFANT AND OPERATOR, STOPPING CAR, PERFORMING FORWARD/REVERSE GEAR OPERATION AND STARTING/STOPPING REMOTE CONTROL, RESPECTIVELY

Priority: FR20070001455 20070228

Family:	Publication number	Publication date	Application number	Application date
	<u>FR2912929 A1</u>	20080829	FR20070001455	20070228

Probable Assignee: MAHTALI NOUREDDINE

Assignee(s):^(std): MAHTALI NOUREDDINE

Assignee(s): NOUREDDINE MAHTALI

Inventor(s):^(std): MAHTALI NOUREDDINE

Inventor(s): NOUREDDINE MAHTALI

Agent(s): NOUREDDINE MAHTALI

International class A63H17/00 A63H30/04 (Advanced/Invention);
(IPC 8-9): A63H17/00 A63H30/00 (Core/Invention)

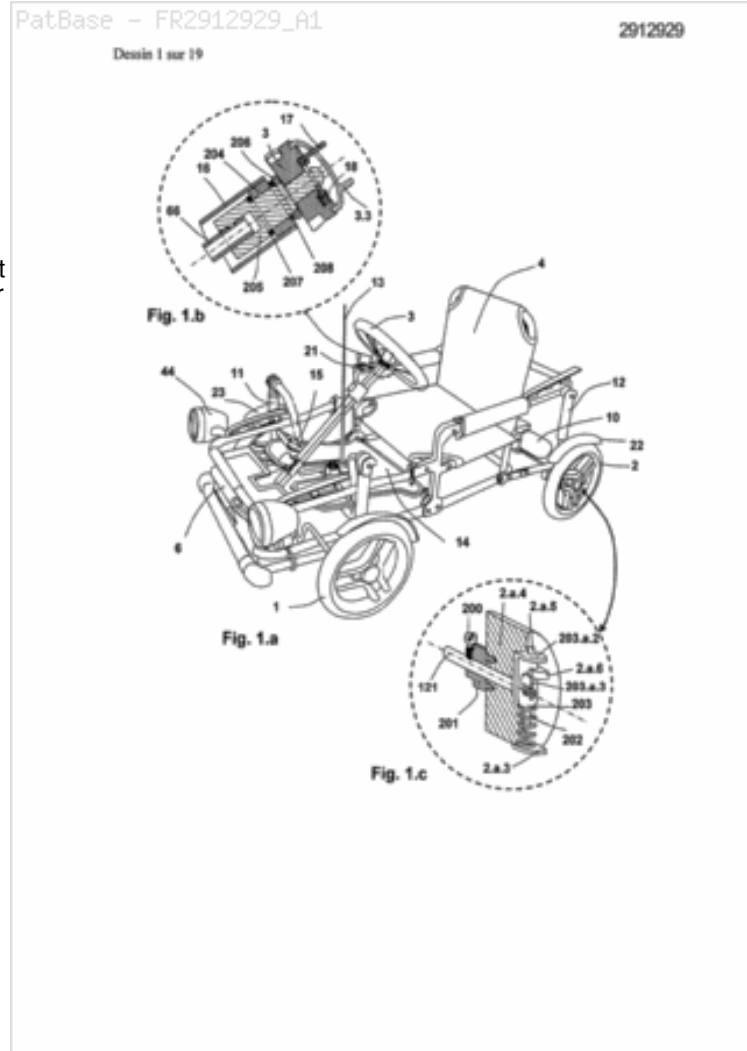
CPC: B62K9/00

European class: B62K9/00

[Classification Explorer](#)

Abstract:

The car has a chassis that is foldable at the center of the car, where the car is controlled locally by an infant and remotely by an operator using a remote control (5). A directional signal switch allows an infant to perform forward/reverse gear operation. A speed variator is connected to an accelerator pedal of the infant. The remote control has buttons (38–41) for allowing the operator to switch the control of the car between the infant and operator, stop the car in case of danger or anomaly, perform forward/reverse gear operation and to start/stop the remote control, respectively.



- **search:** SS4 ft=tilt and (vehicle or motorcycle) and frame and front wheel and stopper and turn* and restric* (Results 1)
- **List:** SS4 1–50 (ft=tilt and (vehicle or motorcycle) and frame and front wheel and stopper and turn* and restric*) (Results 1)

0) US2012193159A – FOLDABLE SEAT MOUNTING RACK AND FOLDABLE MOTORI...

1) Family number: 49645223 (US2012193159A)

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Title: FOLDABLE SEAT MOUNTING RACK AND FOLDABLE MOTORIZED VEHICLE HAVING SAME

Priority: CN201110321596 20111020 CN201120029827U 20110128 CN201120029860U 20110128
CN201120029836U 20110128 CN201120029857U 20110128 CN201120029840U 20110128
US20110233999 20110915 US20120357247 20120124 US20120357102 20120124
US20120357310 20120124 US20120357194 20120124 CN201120074817U 20110321
CN201120074814U 20110321 EP20120152670 20120126

Family:

Publication number	Publication date	Application number	Application date
CN102616326 A	20120801	CN201110321596	20111020
CN201989907 U	20110928	CN201120029836U	20110128
CN202029936 U	20111109	CN201120029857U	20110128
DE602012005760 D1	20150423	DE201260005760T	20120126
EP2481655 A2	20120801	EP20110181965	20110920
EP2481655 A3	20131023	EP20110181965	20110920
EP2481659 A2	20120801	EP20120152670	20120126
EP2481659 A3	20131009	EP20120152670	20120126
EP2481659 B1	20150311	EP20120152670	20120126
EP2481661 A2	20120801	EP20120152663	20120126
EP2481661 A3	20130925	EP20120152663	20120126
EP2481662 A2	20120801	EP20120152680	20120126
EP2481662 A3	20131016	EP20120152680	20120126
EP2481663 A2	20120801	EP20120152685	20120126
EP2481663 A3	20130529	EP20120152685	20120126
ES2532930 T3	20150406	ES20120152670T	20120126
US2012193159 AA	20120802	US20120357102	20120124
US2012193160 AA	20120802	US20120357310	20120124
US2012193886 AA	20120802	US20120357247	20120124
US2012193891 AA	20120802	US20110233999	20110915
US2012193943 AA	20120802	US20120357194	20120124
US8381858 BB	20130226	US20120357310	20120124
US8388014 BB	20130305	US20110233999	20110915
US8413753 BB	20130409	US20120357102	20120124
US8511705 BB	20130820	US20120357247	20120124
US8684378 BB	20140401	US20120357194	20120124

Probable Assignee: DONGGUAN PRESTIGE SPORTING PRODUCTS CO

Assignee(s):^(std): WU CHICHUN ; WU JIQUN ; ZHANG ZHAO ; DONGGUAN PRESTIGE SPORTING PRODUCTS CO LTD

Assignee(s): DONGGUAN PRESTIGE SPORTING PRODUCTS CO LTD DONGGUAN ; DONGGUAN PRESTIGE SPORTING PRODUCTS CO

Inventor(s):^(std): WU CHICHUN ; ZHANG ZHAO ; ZHAO ZHANG

Agent(s): WEICKMANN AND WEICKMANN PATENTANWALTE RECHTSANWALT PARTMBB; JORDAN VOLKER OTTO WILHELM; LEHMANN MARIA ISABEL; MORRIS MANNING AND MARTIN LLP; TIM TINGKANG

Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

International class [B60G11/14](#) [B60G9/02](#) [B60N2/30](#) [B62B1/12](#) [B62B7/06](#) [B62D21/00](#) [B62D25/00](#) [B62D31/00](#)
(IPC 8-9): [B62D61/00](#) [B62J1/08](#) [B62K15/00](#) [B62K21/12](#) [B62K21/16](#) [B62K25/16](#) [B62K5/00](#) [B62K5/007](#)

B62K5/08 B62M27/02 E05B55/14 F16M13/02 (Advanced/Invention);
B62K5/00 (Advanced/Non-invention)

CPC: B60G9/02 B60G11/14 B60G2200/322 B60G2204/124 B60G2300/22 B62K3/002 B62K5/007
B62K2204/00 B62D21/14 B62K5/00 B62K15/00 B62K2005/001 B62D31/006 B62K15/008
B62K21/12 B62K15/006 B62K19/36 Y10T74/20792 Y10T74/20798 Y10T292/552

European class: B62D21/14 B62K15/00 B62K15/00F B62K19/36 B62K21/12 B62K5/00 B62K5/007
L62K204/00 L62K5/00B

US class: 180/208 180/214 211/27 211/27S 280/124.111 280/124.111P 280/263 280/267 280/278
280/287 280/415.1 280/47.34 280/47.38 280/491.1 280/638 280/638P 280/639 280/648
280/657 280/87.05 292/334 292/334S 296/203.02 296/203.020P 297/311 297/311S 74/551.3
74/551.4 74/551.400S

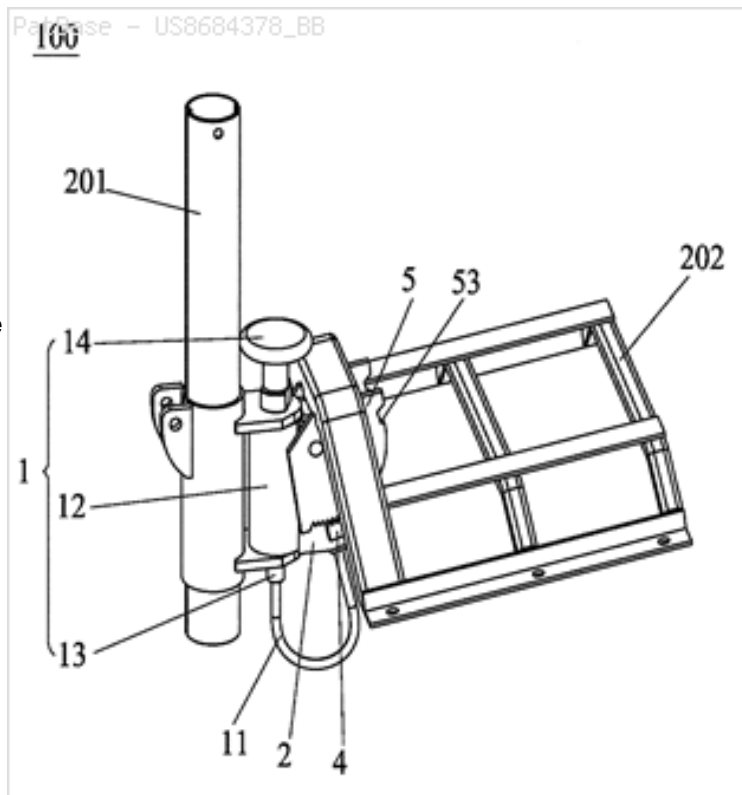
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Cited documents: WO02055372 A1, US8474840 BB, US8388014 BB, US8328209 BB, US8328206 BB, US8230758 BA, US8172243 BB, US8162090 BB, US8113525 BB, US7950686 BB, US7926606 BB, US7862055 BB, US7793949 BB, US7703567 BB, US7654356 BB, US7559561 BB, US7451848 BB, US7438303 BB, US7419171 BA, US7407172 BB, US7364174 BB, US7219907 BB, US7156405 BA, US7124849 BB, US7011319 BB, US6913272 BB, US6880840 BB, US6866275 BA, US6851498 BA, US6848697 BB, US6827358 BB, US6793224 BB, US679086 A, US6557873 BB, US6481913 BB, US647366 A, US645884 A, US6428021 BA, US6390483 BA, US6378880 BA, US6371235 BA, US6343798 BA, US6332621 BA, US6301749 BA, US6299186 BA, US6286845 BA, US6276701 BA, US6270095 BA, US6234501 BA, US6234042 BA, US6206387 BA, US6182988 BA, US6173976 BA, US6173976 B1, US6120044 A, US5630774 A, US5312126 A, US5154251 A, US4682509 A, US4417745 A, US4176850 A, US4054300 A, US4026573 A, US3770289 A, US3572757 A, US3354976 A, US2771145 A, US2013113172 AA, US2012193886 AA, US2012193160 AA, US2011247889 AA, US2011109058 AA, US2010327547 AA, US2010181124 AA, US2010126789 AA, US2010084831 AA, US2010013183 AA, US2009308676 AA, US2009278327 AA, US2009241723 AA, US2009206643 AA, US2009160163 AA, US2009115167 AA, US2009020350 AA, US2007278767 AA, US2007235971 AA, US2006237934 AA, US2006192358 AA, US2006145443 AA, US2006131091 AA, US2006103096 AA, US2005248111 AA, US2005173878 AA, US2005151334 AA, US2005082778 AA, US2005077097 AA, US2005073121 AA, US2005057032 AA, US2004135334 AA, US2004129472 AA, US2003214108 AA, US2003178877 AA, US2003141121 AA, US2003067151 AA, US2002149166 AA, US2002148324 AA, US2002145264 AA, US2002125670 AA, US2002096855 AA, US2002063411 AA, US2002063406 AA, US2002063405 AA, US2002053775 AA, US2002050696 AA, TWM270112 Y, TWM268267 Y, JP55102714 A2, JP2249781 A2, GB963042 A, GB859577 A, GB2450348 A1, GB2416742 A1, GB2367541 A1, FR928424 A, EP1407961 A1, EP1249215 A1, EP0458101 A1, DE885964 A, DE20015773 U1, CN2570163 Y, CN2464615 Y, CN2421232 Y, CN2419158 Y, CN201907618 U, CN201895746 U, CN201647030 U, CN201553257 U, CN201099342 Y, CN201099328 Y, CN101293552 A,

Forward Citations: WO16043556, WO16029787, US9567034, US9533729, US9346514, US9302691, US9289639, US9284015, US9265675, US9119986, US9016702, US8978806, US8894088, US8511705, US8413753, US8388014, US2016009332, US2015209205, US2014203538, US2013324376, US2012193891, US2012193886, US2012193159, RU2559189, GB2529304, GB2510334, FR3013026, EP2772421, CN104890780, CN103818504, CN103818504, CN103770875, CN103723173, CN103359236, CN103101597, CN102980011,

Abstract:

Source: US2012193159A A foldable seat mounting rack of a foldable motorized vehicle includes a pair of symmetric foldable seat mounting support. Each symmetric foldable seat mounting supports comprises: an upper mounting base, a lower mounting base, a pinion, a locking lever, a main connecting plate, a first and a second auxiliary connecting plates. The main connecting plate is pivoted on both upper and lower mounting bases. The pinion is pivoted at a middle portion on an inner side of the main connecting plate. Side surfaces at one end of the both auxiliary connecting plates are formed with racks engaging with the pinion. The first auxiliary connecting plate is pivoted on the lower mounting base and the second auxiliary connecting plate is pivoted on the upper mounting base. One end of the locking lever is pivoted on the upper end of the main connecting plate, and the other end presses against the pinion.



- **search:** SS5 ft=tilt and (vehicle or motorcycle) and frame and front wheel and stopper and turn* and limit* (Results 4)
- **List:** SS5 1-50 (ft=tilt and (vehicle or motorcycle) and frame and front wheel and stopper and turn* and limit*) (Results 4)

0) US2006042670A – TOY FOR WASHING A ROTATABLE OBJECT

1) Family number: 32658186 (US2006042670A)

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Title: TOY FOR WASHING A ROTATABLE OBJECT

Priority: US20040604283P 20040825 US20050181697 20050713 US20050182489 20050714
 US20050181699 20050713 US20050183118 20050714 US20050181698 20050713
 US20060373407 20060309 US20060341405 20060126 US20050730080P 20051024
 US20050315700 20051220 US20060341407 20060126 US20050315701 20051220
 US20050315702 20051220 US20060341406 20060126 US20070975681 20071018
 US20070975721 20071019 US20080126098P 20080430 US20090387418 20090430
 US20060852913P 20061018 US20070878763P 20070104 WO2004US34365 20041018
 US20060853527P 20061020 US20060873763P 20061208

Family:

Publication number	Publication date	Application number	Application date
<u>AU2004322952 AA</u>	20060309	AU20040322952	20041018
<u>CN1895714 A</u>	20070117	CN200610101555	20060712
<u>CN1895714 B</u>	20120530	CN200610101555	20060712
<u>CN1907528 A</u>	20070207	CN200610101941	20060711
<u>CN1907528 B</u>	20110601	CN200610101941	20060711
<u>HK1096053 A1</u>	20130118	HK20070103748	20070411
<u>KR20070053156 A</u>	20070523	KR20067018013	20060905
<u>US2006042670 AA</u>	20060302	US20050182489	20050714
<u>US2006046607 AA</u>	20060302	US20050181697	20050713
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<u>US2006211333 AA</u>	20060921	US20060341405	20060126
<u>US2008166947 AA</u>	20080710	US20070975681	20071018
<u>US2008176483 AA</u>	20080724	US20070975721	20071019
<u>US2009227178 AA</u>	20090910	US20090387418	20090430
<u>US7445539 BB</u>	20081104	US20060341405	20060126
<u>US7458876 BB</u>	20081202	US20060341407	20060126
<u>US7494398 BB</u>	20090224	US20050181698	20050713
<u>US7500898 BB</u>	20090310	US20050183118	20050714
<u>US7594843 BB</u>	20090929	US20050315700	20051220
<u>US7815486 BB</u>	20101019	US20070975681	20071018
<u>US7950976 BB</u>	20110531	US20090387418	20090430
<u>US8128454 BB</u>	20120306	US20070975721	20071019
<u>WO06025837 A1</u>	20060309	WO2004US34365	20041018
<u>WO07011528 A1</u>	20070125	WO2006US26206	20060629
<u>WO08048681 A2</u>	20080424	WO2007US22302	20071018
<u>WO08048681 A3</u>	20080619	WO2007US22302	20071018
<u>WO08051524 A1</u>	20080502	WO2007US22448	20071022

Probable Assignee: JAKKS PACIFIC INC

Assignee(s):^(std):

BERNSTEIN MICHAEL ; BERNSTEIN MICHAEL D ; BUI C P ; CARLSON GABRIEL ; CARLSON GABRIEL S ; CUONG HU BUI ; DOMINIC LAURRIENZO ; LAURIENZO DOMINIC ; VETUSKEY BRENDON ; LAURIENZO DOMINIO ; JAKKS PACIFIC INC ; JACKS PACIFIC INC ; ROSENBLUM BRIAN ; JAKKS

Assignee(s): GENERAL ELECTRIC CAPITAL CORP ; JAKKS PACIFIC INCORPORATION

Inventor(s):^(std): BUI CUONG PHU ; CARLSON GABRIEL ; CARLSON GABRIEL S ; CUONG HU BUI ; DOMINIC LAURIENZO ; DOMINIC LAURRIENZO ; HIGUCHI TERENCE ; HIGUCHI TERENCE J YUKIO ; BERNSTEIN MICHAEL ; BERNSTEIN MICHAEL ; BERNSTEIN MICHAEL D ; BUI C P ; LAURIENZO DOMINIO ; MCGRATH JACK ; VETUSKEY BRENDON ; LAURIENZO DOMINIC ; TAM THOMAS ; ROSENBLUM BRIAN

Inventor(s): BUI CP ; HU BUI CUONG

Agent(s): SHELSTON IP; SHELSTON IP PTY LTD; TOPE-MCKAY AND ASSOCIATES; TOPE MCKAY AND ASSOCIATES; TOPE-MCKAY AND ASSOCIATES, CARY TOPE-MCKAY; TOPE MCKAY AND ASSOCIATES CARY TOPE MCKAY; MARCUS; TOPE MCKAY CARY R; GHAUSI SHARON ET AL

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

International class
(IPC 8-9): A63H1/06 A63H17/00 A63H17/26 A63H17/267 A63H17/28 A63H17/32 A63H27/127 A63H29/00 A63H29/02 A63H29/22 A63H29/24 A63H3/00 A63H3/06 A63H30/00 A63H33/00 A63H33/18 B08B3/00 B23P17/04 (Advanced/Invention);
A63H17/00 A63H29/24 (Advanced/Non-invention);
A63H1/00 A63H17/00 A63H27/00 A63H29/00 A63H3/00 A63H30/00 A63H33/00 B08B3/00 B23P17/00 (Core/Invention);
A63H (Subclass/Invention)

International class
(IPC 1-7): A63H29/24

CPC: A63H29/02 A63H17/18 A63H17/266 A63H17/44 A63H30/04 A63H33/3061 A63H17/00 Y10T29/49904 Y10T29/49826 A63H17/262 A63H17/006 A63H17/008 A63H27/14 A63H29/24 F41F7/00

European class: A63H17/00 A63H17/00E A63H17/00F A63H17/18 A63H17/26B A63H17/26D A63H17/44 A63H27/14 A63H29/00 A63H29/02 A63H29/24 A63H30/04 A63H33/30N F41F7/00

US class: 134/137 239/211 239/211S 29/428 29/428S 29/469 446/220 446/220P 446/236 446/236P 446/236S 446/247 446/247P 446/288 446/38 446/38P 446/39 446/429 446/429P 446/429S 446/430 446/431 446/435 446/435P 446/435S 446/440 446/454 446/454P 446/456 446/457 446/464 446/465 446/465P 446/471 446/475 446/475S 446/73 446/73P 463/58 463/66 463/7

[Classification Explorer](#)

Cited documents: WO06025837 A1, WO03076034 A1, WO0007681 A1, USRE37616 E, USD97019 S1, USD506953 S1, USD505982 S1, USD503361 S1, USD498447 S1, USD491109 S1, USD482301 S1, USD458316 S1, USD456748 S1, USD455678 S1, USD451557 S1, USD444820 S1, USD434086 S1, USD431611 S1, USD419205, USD412019 S1, USD410970 S1, USD401643 S1, USD400938 S1, USD396433 S1, USD395464 S1, USD390284 S1, USD380503 S1, USD342551 S1, USD340757 S1, USD339088 S1, USD315758 S1, USD306616 S1, USD305415 S1, USD303407 S1, USD302191 S1, USD300752 S1, USD291709 S1, USD285324 S1, USD279625 S1, USD276714 S1, USD268920 S1, USD268505 S1, USD266097 S1, USD265669 S1, USD258426 S1, USD256384 S1, USD238158 S1, USD231441 S1, USD226188 S1, USD194401 S1, USD171251 S1, USD161009 S1, USD157767 S1, USD144077 S1, USD102956 S1, US783357 A, US755446 A, US7033241 BB, US6959838 BB, US6939197 BA, US6854547 BB, US6851817 BB, US6807959 BA, US6805609 BA, US6776458 BA, US6764374 BB, US6758203 BA, US6648725 BB, US6648722 BB, US6632121 BB, US6619823 BB, US6590386 BA, US6589098 BB, US6582276 BA, US6565411 BA, US6565243 BA, US6540583 BA, US6523535 BB, US6475059 BB, US6475059 BA, US6461212 BA, US6443530 BA, US6439948 BA, US6364734 BA, US6334270 BA, US6325690 BA, US627934 A, US6234866 BA, US6227934 BA, US6221409 BA, US6193582 BA, US6132284 A, US6089946 A, US6086446 A, US6079398 A, US6076511 A, US6048280 A, US6048251 A, US6030273 A, US6024627 A, US5970970 A, US5957541 A, US5951363 A, US5921843 A, US5919075 A, US5873600 A, US5860846 A, US5823848 A, US5803790 A, US5794294 A, US5782228 A, US5752871 A, US5738079 A, US5711285 A, US5683164 A, US5674105 A, US5667421 A, US5667420 A, US5643041

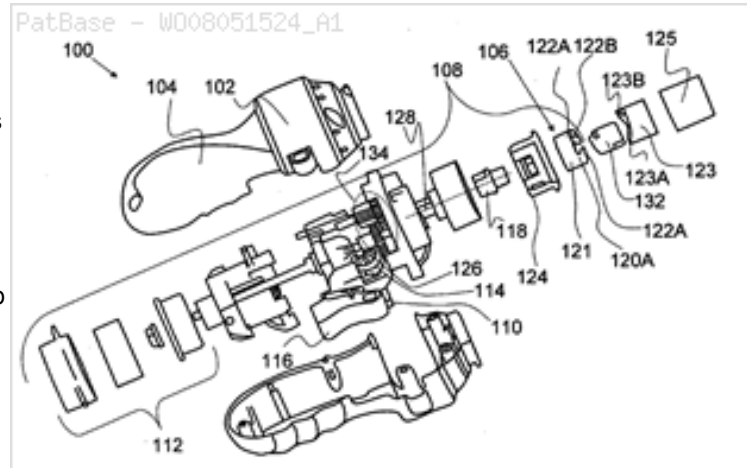
A, US5643036 A, US5626505 A, US5611322 A, US5593338 A, US5584747 A, US5580093 A, US5545068 A, US5536074 A, US5525086 A, US5525085 A, US5518437 A, US5433641 A, US5380231 A, US5377775 A, US5370571 A, US5359985 A, US5338247 A, US5326301 A, US5324045 A, US5322469 A, US5316514 A, US5305068 A, US5279512 A, US5195920 A, US5141468 A, US5083799 A, US4959035 A, US4946417 A, US4897070 A, US4891995 A, US4889513 A, US4887688 A, US4867728 A, US4850922 A, US4841902 A, US4840599 A, US4832651 A, US4795396 A, US4767375 A, US4764149 A, US4756703 A, US4737135 A, US4732569 A, US4717367 A, US4709774 A, US4701150 A, US4696655 A, US4693696 A, US4690654 A, US4689034 A, US4685894 A, US4683986 A, US4667421 A, US4659320 A, US4654018 A, US4639236 A, US4623317 A, US4571212 A, US4559389 A, US4556396 A, US4547174 A, US4547166 A, US4541813 A, US4540377 A, US4529389 A, US4529055 A, US4526554 A, US4498886 A, US4483096 A, US4479326 A, US4475305 A, US4443967 A, US4443966 A, US4418495 A, US4411098 A, US4387604 A, US4373290 A, US4363186 A, US4356657 A, US4345402 A, US4341034 A, US4332050 A, US4309841 A, US4299301 A, US4299051 A, US4293052 A, US4267661 A, US4250657 A, US4248011 A, US4204359 A, US4201011 A, US4193597 A, US4155194 A, US4150508 A, US4109774 A, US4087935 A, US4053029 A, US4043556 A, US4021961 A, US4016674 A, US3995392 A, US3955429 A, US3953669 A, US3935669 A, US3919804 A, US3895458 A, US3886682 A, US3812933 A, US3798832 A, US3785086 A, US3748780 A, US3742507 A, US3735526 A, US3733739 A, US3713514 A, US3701216 A, US3670453 A, US3653149 A, US3645529 A, US3642048 A, US3570467 A, US3520080 A, US3497992 A, US3492758 A, US3412503 A, US3264780 A, US3237342 A, US3236323 A, US3216529 A, US3187459 A, US3151866 A, US3124007 A, US3084934 A, US3060625 A, US3044213 A, US2938512 A, US2862330 A, US2792899 A, US2788613 A, US2758418 A, US2697306 A, US2638708 A, US2615280 A, US2607163 A, US2594527 A, US2551982 A, US2546223 A, US2528494 A, US2517084 A, US2407720 A, US2272582 A, US2243780 A, US2159974 A, US2035131 A, US2006211331 AA, US2006099880 AA, US2006046610 AA, US2006046609 AA, US2006021905 AA, US2005082774 AA, US2005030756 AA, US2004257825 AA, US2004218397 AA, US2004125612 AA, US2004092201 AA, US2004085777 AA, US2003102657 AA, US2003082985 AA, US2003077979 AA, US2002142702 AA, US2002098768 AA, US2001004578 AA, US1997115 A, US1597532 A, US1565437 A, US1473419 A, JP58086192 U1, JP58086192 U, JP2004229871 A2, JP2002089648 A2, GB374362 A, GB2389321 A1, GB2130903 A1, EP0332407 A1,

Forward Citations:

WO15027475, WO14179747, WO12095675, WO11010129, WO08051524, WO07011528, USD709139, USD703766, USD703275, USD701578, USD700250, USD696733, USD685862, USD681742, USD639349, USD637661, USD598961, USD580655, US9626396, US9610515, US9550542, US9457285, US9427671, US9370725, US9289694, US9180379, US9162153, US9050540, US9028291, US9020639, US8992285, US8939812, US8876572, US8777785, US8734200, US8715032, US8697977, US8662953, US8579674, US8568191, US8562386, US8523627, US8517790, US8388405, US8128454, US8126323, US8121551, US8100736, US8083013, US8007340, US7950976, US7682218, US7679320, US7500898, US7491112, US2017008579, US2016325192, US2016243429, US2015314206, US2015202769, US2015072588, US2015050859, US2015017872, US2014329436, US2014239591, US2013331002, US2013324003, US2013244536, US2013056929, US2012270472, US2011306269, US2011277575, US2011250820, US2011237151, US2011212666, US2011177750, US2011104981, US2011003532, US2010330876, US2010330874, US2010330873, US2010323582, US2010304639, US2010291832, US2010093256, US2010029173, US2009253345, US2009227178, US2009168743, US2009098799, US2008230285, US2008176483, US2008146117, US2008096460, US2007167109, US2007090787, US2006211331, US2006046610, ITM120121197, GB2474820, GB2474820, EP2438972, EP2380643, EP2277611, EP2133128, DE102014106160, CN104208880, CN103893976, CN103893976, CN102614668, AU2012206444,

Abstract:

Source: US2006042670A A toy is presented for washing an object by rotating the object in a chamber of liquid. The toy comprises a chamber partially filled with liquid and includes a mount to rotationally fix an object into the chamber. The mount includes a driving element to drivingly connect with a receiving element on the object to form a driving connection. An object rotating system then imparts a rotary motion to the mount to rotate the object within the chamber of water so as to wash the object. The object rotating system is a gear and axle drivingly connected with a gear rack. The gear rack is pulled by a user to impart a rotary motion to the gear and axle, which then rotates the mount and thus the object. In another embodiment, the object rotating system is a gear and axle drivingly connected with a motor.



2) Family number: 30825935 (US2006136826A)

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Title: RIDING SIMULATION DEVICE**Priority:** EP20040710477 20040212 JP20030036173 20030214 JP20030037407 20030214
WO2004JP01474 20040212 JP20030361146 20031021

Family:	Publication number	Publication date	Application number	Application date
	<u>CN100492440 C</u>	20090527	CN200480004254	20040212
	<u>CN1751329 A</u>	20060322	CN200480004254	20040212
	<u>DE602004047257 D1</u>	20150709	DE200460047257T	20040212
	<u>EP1594104 A1</u>	20051109	EP20040710477	20040212
	<u>EP1594104 A4</u>	20081210	EP20040710477	20040212
	<u>EP1594104 B1</u>	20150527	EP20040710477	20040212
	<u>IN03242DN2005 A</u>	20070105	IN2005DN03242	20050721
	<u>IN215845 B</u>	20080321	IN2005DN03242	20050721
	<u>JP2004264358 A2</u>	20040924	JP20030036173	20030214
	<u>JP2004264823 A2</u>	20040924	JP20030361146	20031021
	<u>JP4156942 B2</u>	20080924	JP20030036173	20030214
	<u>JP4200078 B2</u>	20081224	JP20030361146	20031021
	<u>TH39141 B</u>	20140226	TH20041000482	20040213
	<u>TH65918 A</u>	20041227	TH20041000482	20040213
	<u>US2006136826 AA</u>	20060622	US20050544853	20050805
	<u>US7387513 BB</u>	20080617	US20050544853	20050805
	<u>WO04072927 A1</u>	20040826	WO2004JP01474	20040212

Probable Assignee: HONDA MOTOR CO LTD**Assignee(s):^(std):** HONDA MOTOR CO LTD ; ICHIMI SADANAO ; MAKUTA YOHEI ; MIYAKAWA FUTOSHI ; MIYAMARU YUKIO ; UEDA KYOHEI ; UEDA KYOKEI**Assignee(s):** HONDA GIKEN KOGYO KABUSHIKI KAISHA ; HONDA MOTOR CO**Inventor(s):^(std):** KYOHEI MAKUTA YOHEI MIYAMARU Y ; MAKUTA YOHEI ; HITOMI SADANAO ; ICHIMI SADANAO ; MIYAGAWA FUTOSHI ; MIYAKAWA FUTOSHI ; MIYAMARU YUKIO ; UEDA KYOHEI ; UEDA KYOKEI ; YUKIO MIYAMARU ; YOHEI MAKUTA ; SADANAO ICHIMI ; KYOHEI UEDA ; FUTOSHI MIYAKAWA**Inventor(s):** UEDA KYOHEI WAKO SHI ; MIYAMARU YUKIO WAKO SHI ; MIYAKAWA FUTOSHI WAKO SHI ; ICHIMI SADANAO WAKO SHI ; MAKUTA YOHEI MIYAMARU YUKIO MIYAKAWA FUTOSHI ; MAKUTA YOHEI MIYAMARU YUKIO MIYAKAWA FUTOSHI ICHIM ; MAKUTA YOHEI WAKO SHI**Agent(s):** WEICKMANN AND WEICKMANN PATENTANWALTE RECHTSANWALT PARTMBB; WEICKMANN AND WEICKMANN; CARRIER BLACKMAN AND ASSOCIATES; CARRIER BLACKMAN AND ASSOCIATES PC; CARRIER JOSEPH P; BLACKMAN WILLIAM D; JOSEPH P; WILLIAM D**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW**International class** A63F13/00 A63F13/06 A63F13/08 A63F13/90 G09B19/16 G09B9/058 (Advanced/Invention);
(IPC 8-9): A63F13/00 A63F13/02 A63F13/08 G09B19/00 G09B19/16 G09B9/04 (Core/Invention)**International class** A63F13/00 A63F13/06 G09B19/16 G09B9/00 G09B9/058
(IPC 1-7):**CPC:** A63F13/245 A63F13/285 A63F13/803 A63F13/08 A63F2300/1037 A63F2300/8017 G09B9/058

European class: A63F13/08 G09B9/058 K63F300/10F K63F300/80D

US class: 280/827 434/61 463/37 472/59 715/702

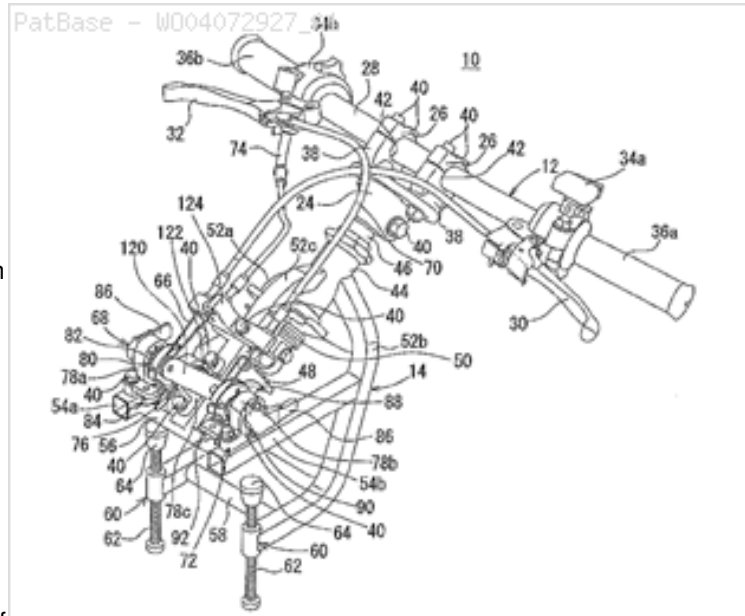
[Classification Explorer](#)

Cited documents: US6471586 BA, US6409596 BA, US6251015 BA, US6210165 BA, US6200138 BA, US6030223 A, US5607308 A, US5533899 A, US5364271 A, US5354202 A, US5240417 A, US5209662 A, US5010763 A, US5006072 A, US4978300 A, US4730509 A, US3686776 A, US3526042 A, US2004076929 AA, US2003211446 AA, JP9081024 A2, JP8263160 A2, JP8150263 A2, JP2669806 B2, JP2002311811 A2, JP2002113264 A2, JP11174943 A2, JP10293526 A2,

Forward Citations: USD630273, USD608843, US9120021, US2009212968, JP2011085716, JP2008238873, CN102651179,

Abstract:

Source: US2006136826A A riding simulation device allowing a rider to pseudoexperience the running state of a motorcycle, more specifically, to pseudoexperience an operating feeling similar to an actual braking, to be able to switch the operating feeling of an operating lever according to the types of transmissions, and to pseudoexperience roll feeling when the motorcycle is turned by tilting a motorcycle body in running when the device is installed on a pedestal member, comprising an elastic member pressingly deformed by the contact part of a stopper mechanism brought into contact with a rotating member rotated by the operation of a brake lever and a switching mechanism switching between the second stopper member of the stopper mechanism brought into contact with a rotating member rotated by the operation of the operating lever and the first stopper member thereof brought into contact with the rotating member through the elastic member. The axis of a shaft part in which a handle mechanism is installed is set so as to be tilted in the range of the tilt angle of 45 to 60 DEG from a vertical plane to an operator side.



0) WO14096470A1 – HUMAN POWERED VEHICLE INCLUDING A FOOT-ACTUATED...

3) Family number: 56776207 (WO14096470A1)

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Title: HUMAN POWERED VEHICLE INCLUDING A FOOT-ACTUATED TRANSMISSION MECHANISM

Priority: WO2012ES70901 20121221

Family:	Publication number	Publication date	Application number	Application date
	ES2535206 AB	20150506	ES20140090082	20121221
	ES2535206 BA	20160122	ES20140090082	20121221
	ES2535206 R1	20150729	ES20140090082	20121221
	WO14096470 A1	20140626	WO2012ES70901	20121221

Probable Assignee: MORETO VILAMAJO RAMON

Assignee(s):^(std): MORETO VILAMAJO RAMON

Assignee(s): RAMON MORETO VILAMAJO

Inventor(s):^(std): MORETO VILAMAJO RAMON

Inventor(s): RAMON MORETO VILAMAJO

Agent(s): SUGRANES PEDRO; SUGRANES MOLINE PEDRO

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class [B62M1/28 F16H19/06](#) (Advanced/Invention)
(IPC 8-9):

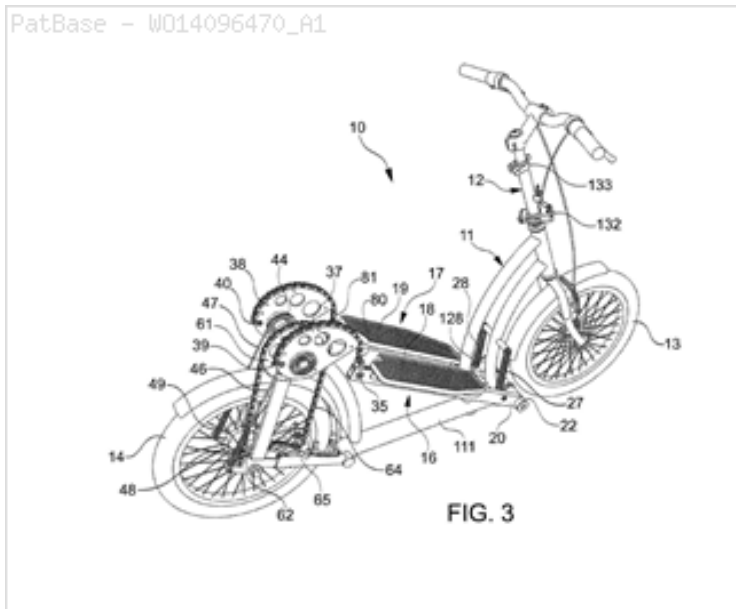
CPC: [B62M1/28 F16H19/06](#)

[Classification Explorer](#)

Cited documents: WO11061128 A1, WO10022903 A1, WO10020726 A1, WO08063499 A1, WO0230732 A1, US6648355 BB, US5121654 A, FR1054942 A, DE4319104 A1,

Abstract:

The invention relates to a human powered vehicle comprising a frame, a steering mechanism, a front wheel, a rear wheel, and a transmission mechanism including: two pedals that rotate independently about a rotation axis between an upper end position and a lower end position; transmission means having a lower end coupled to the rear part of an associated pedal; guide elements which, over a first angular portion (α) of the clockwise rotational movement, guide the respective transmission means, and, over a second angular portion (β), are articulated with the upper end; a front-end return mechanism for each pedal; a rear-end return mechanism for each guide element; free wheel mechanisms coupled to respective guide elements and an output shaft; and transmission means for transmitting power from the output shaft to the rear wheel.



0) FR2912929A – ELECTRICAL MINIATURE CAR FOR TRANSPORTING INFAN...

4) Family number: 42124584 (FR2912929A)

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Title: ELECTRICAL MINIATURE CAR FOR TRANSPORTING INFANTS, HAS BUTTONS FOR SWITCHING CONTROL OF CAR BETWEEN INFANT AND OPERATOR, STOPPING CAR, PERFORMING FORWARD/REVERSE GEAR OPERATION AND STARTING/STOPPING REMOTE CONTROL, RESPECTIVELY

Priority: FR20070001455 20070228

Family:	Publication number	Publication date	Application number	Application date
	FR2912929 A1	20080829	FR20070001455	20070228

Probable Assignee: MAHTALI NOUREDDINE

Assignee(s):^(std): MAHTALI NOUREDDINE

Assignee(s): NOUREDDINE MAHTALI

Inventor(s):^(std): MAHTALI NOUREDDINE

Inventor(s): NOUREDDINE MAHTALI

Agent(s): NOUREDDINE MAHTALI

International class A63H17/00 A63H30/04 (Advanced/Invention);
(IPC 8-9): A63H17/00 A63H30/00 (Core/Invention)

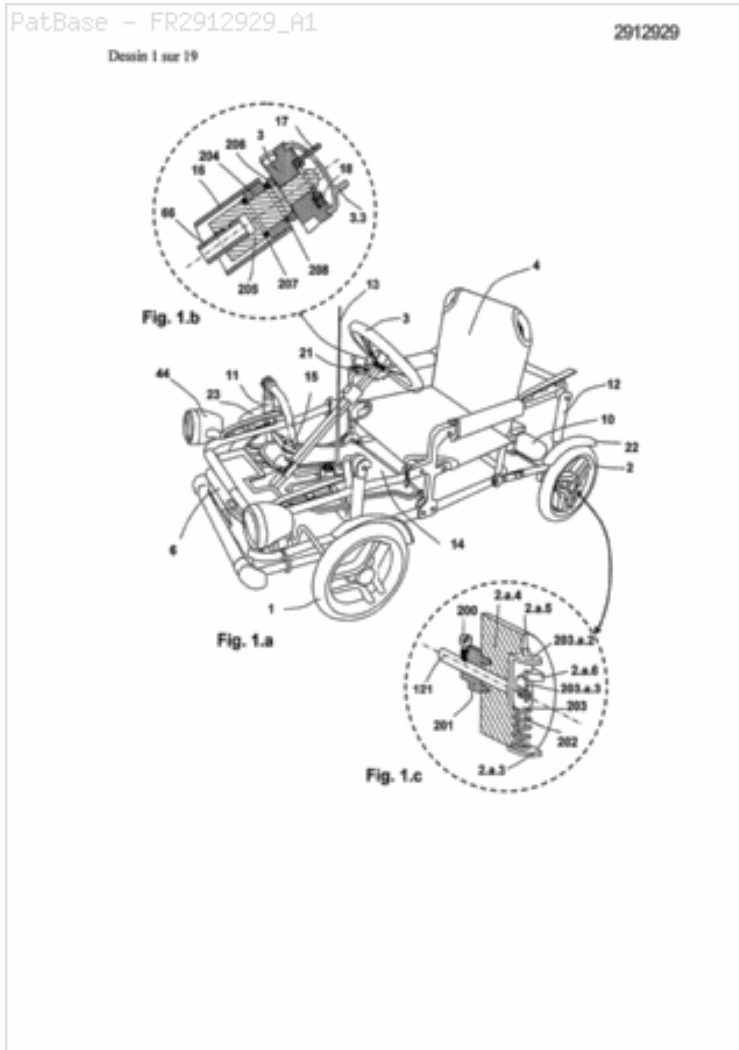
CPC: B62K9/00

European class: B62K9/00

[Classification Explorer](#)

Abstract:

The car has a chassis that is foldable at the center of the car, where the car is controlled locally by an infant and remotely by an operator using a remote control (5). A directional signal switch allows an infant to perform forward/reverse gear operation. A speed variator is connected to an accelerator pedal of the infant. The remote control has buttons (38–41) for allowing the operator to switch the control of the car between the infant and operator, stop the car in case of danger or anomaly, perform forward/reverse gear operation and to start/stop the remote control, respectively.



- **search:** SS6 ft=tilt and (vehicle or motorcycle) and frame and front wheel and stopper and steer* and limit* (Results 3)
- **List:** SS6 1–50 (ft=tilt and (vehicle or motorcycle) and frame and front wheel and stopper and steer* and limit*) (Results 3)

1) Family number: 30825935 (US2006136826A)

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Title: RIDING SIMULATION DEVICE**Priority:** EP20040710477 20040212 JP20030036173 20030214 JP20030037407 20030214
WO2004JP01474 20040212 JP20030361146 20031021

Family:	Publication number	Publication date	Application number	Application date
	<u>CN100492440 C</u>	20090527	CN200480004254	20040212
	<u>CN1751329 A</u>	20060322	CN200480004254	20040212
	<u>DE602004047257 D1</u>	20150709	DE200460047257T	20040212
	<u>EP1594104 A1</u>	20051109	EP20040710477	20040212
	<u>EP1594104 A4</u>	20081210	EP20040710477	20040212
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	<u>TH65918 A</u>	20041227	TH20041000482	20040213
	<u>US2006136826 AA</u>	20060622	US20050544853	20050805
	<u>US7387513 BB</u>	20080617	US20050544853	20050805
	<u>WO04072927 A1</u>	20040826	WO2004JP01474	20040212

Probable Assignee: HONDA MOTOR CO LTD**Assignee(s):^(std):** HONDA MOTOR CO LTD ; ICHIMI SADANAO ; MAKUTA YOHEI ; MIYAKAWA FUTOSHI ; MIYAMARU YUKIO ; UEDA KYOHEI ; UEDA KYOKEI**Assignee(s):** HONDA GIKEN KOGYO KABUSHIKI KAISHA ; HONDA MOTOR CO**Inventor(s):^(std):** KYOHEI MAKUTA YOHEI MIYAMARU Y ; MAKUTA YOHEI ; HITOMI SADANAO ; ICHIMI SADANAO ; MIYAGAWA FUTOSHI ; MIYAKAWA FUTOSHI ; MIYAMARU YUKIO ; UEDA KYOHEI ; UEDA KYOKEI ; YUKIO MIYAMARU ; YOHEI MAKUTA ; SADANAO ICHIMI ; KYOHEI UEDA ; FUTOSHI MIYAKAWA**Inventor(s):** UEDA KYOHEI WAKO SHI ; MIYAMARU YUKIO WAKO SHI ; MIYAKAWA FUTOSHI WAKO SHI ; ICHIMI SADANAO WAKO SHI ; MAKUTA YOHEI MIYAMARU YUKIO MIYAKAWA FUTOSHI ; MAKUTA YOHEI MIYAMARU YUKIO MIYAKAWA FUTOSHI ICHIM ; MAKUTA YOHEI WAKO SHI**Agent(s):** WEICKMANN AND WEICKMANN PATENTANWALTE RECHTSANWALT PARTMBB; WEICKMANN AND WEICKMANN; CARRIER BLACKMAN AND ASSOCIATES; CARRIER BLACKMAN AND ASSOCIATES PC; CARRIER JOSEPH P; BLACKMAN WILLIAM D; JOSEPH P; WILLIAM D**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW**International class** A63F13/00 A63F13/06 A63F13/08 A63F13/90 G09B19/16 G09B9/058 (Advanced/Invention);
(IPC 8-9): A63F13/00 A63F13/02 A63F13/08 G09B19/00 G09B19/16 G09B9/04 (Core/Invention)**International class** A63F13/00 A63F13/06 G09B19/16 G09B9/00 G09B9/058
(IPC 1-7):**CPC:** A63F13/245 A63F13/285 A63F13/803 A63F13/08 A63F2300/1037 A63F2300/8017 G09B9/058

European class: A63F13/08 G09B9/058 K63F300/10F K63F300/80D

US class: 280/827 434/61 463/37 472/59 715/702

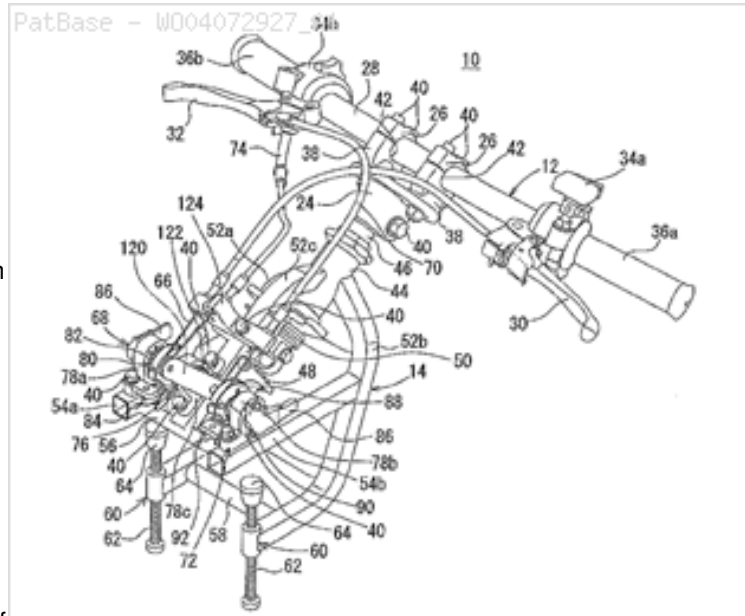
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Forward Citations: USD630273, USD608843, US9120021, US2009212968, JP2011085716, JP2008238873, CN102651179,

Abstract:

Source: US2006136826A A riding simulation device allowing a rider to pseudoexperience the running state of a motorcycle, more specifically, to pseudoexperience an operating feeling similar to an actual braking, to be able to switch the operating feeling of an operating lever according to the types of transmissions, and to pseudoexperience roll feeling when the motorcycle is turned by tilting a motorcycle body in running when the device is installed on a pedestal member, comprising an elastic member pressingly deformed by the contact part of a stopper mechanism brought into contact with a rotating member rotated by the operation of a brake lever and a switching mechanism switching between the second stopper member of the stopper mechanism brought into contact with a rotating member rotated by the operation of the operating lever and the first stopper member thereof brought into contact with the rotating member through the elastic member. The axis of a shaft part in which a handle mechanism is installed is set so as to be tilted in the range of the tilt angle of 45 to 60 DEG from a vertical plane to an operator side.



0) WO14096470A1 – HUMAN POWERED VEHICLE INCLUDING A FOOT-ACTUATED...

2) Family number: 56776207 (WO14096470A1)

© PatBase

Title: HUMAN POWERED VEHICLE INCLUDING A FOOT-ACTUATED TRANSMISSION MECHANISM

Priority: WO2012ES70901 20121221

Family:	Publication number	Publication date	Application number	Application date
	ES2535206 AB	20150506	ES20140090082	20121221
	ES2535206 BA	20160122	ES20140090082	20121221
	ES2535206 R1	20150729	ES20140090082	20121221
	WO14096470 A1	20140626	WO2012ES70901	20121221

Probable Assignee: MORETO VILAMAJO RAMON

Assignee(s):^(std) MORETO VILAMAJO RAMON

Assignee(s): RAMON MORETO VILAMAJO

Inventor(s):^(std) MORETO VILAMAJO RAMON

Inventor(s): RAMON MORETO VILAMAJO

Agent(s): SUGRANES PEDRO; SUGRANES MOLINE PEDRO

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class [B62M1/28 F16H19/06](#) (Advanced/Invention)
(IPC 8-9):

CPC: [B62M1/28 F16H19/06](#)

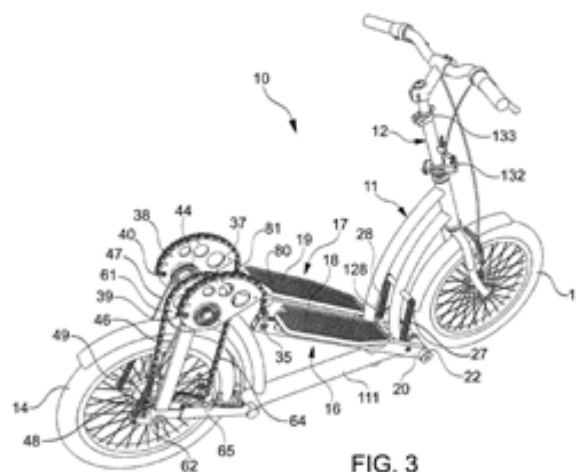
[Classification Explorer](#)

Cited documents: WO11061128 A1, WO10022903 A1, WO10020726 A1, WO08063499 A1, WO0230732 A1, US6648355 BB, US5121654 A, FR1054942 A, DE4319104 A1,

Abstract:

The invention relates to a human powered vehicle comprising a frame, a steering mechanism, a front wheel, a rear wheel, and a transmission mechanism including: two pedals that rotate independently about a rotation axis between an upper end position and a lower end position; transmission means having a lower end coupled to the rear part of an associated pedal; guide elements which, over a first angular portion (α) of the clockwise rotational movement, guide the respective transmission means, and, over a second angular portion (β), are articulated with the upper end; a front-end return mechanism for each pedal; a rear-end return mechanism for each guide element; free wheel mechanisms coupled to respective guide elements and an output shaft; and transmission means for transmitting power from the output shaft to the rear wheel.

PatBase - WO14096470_A1



0) FR2912929A – ELECTRICAL MINIATURE CAR FOR TRANSPORTING INFAN...

3) Family number: 42124584 (FR2912929A)

© PatBase

Title: ELECTRICAL MINIATURE CAR FOR TRANSPORTING INFANTS, HAS BUTTONS FOR SWITCHING CONTROL OF CAR BETWEEN INFANT AND OPERATOR, STOPPING CAR, PERFORMING FORWARD/REVERSE GEAR OPERATION AND STARTING/STOPPING REMOTE CONTROL, RESPECTIVELY

Priority: FR20070001455 20070228

Family:	Publication number	Publication date	Application number	Application date
	FR2912929 A1	20080829	FR20070001455	20070228

Probable Assignee: MAHTALI NOUREDDINE

Assignee(s):^(std): MAHTALI NOUREDDINE

Assignee(s): NOUREDDINE MAHTALI

Inventor(s):^(std): MAHTALI NOUREDDINE

Inventor(s): NOUREDDINE MAHTALI

Agent(s): NOUREDDINE MAHTALI

International class A63H17/00 A63H30/04 (Advanced/Invention);
(IPC 8-9): A63H17/00 A63H30/00 (Core/Invention)

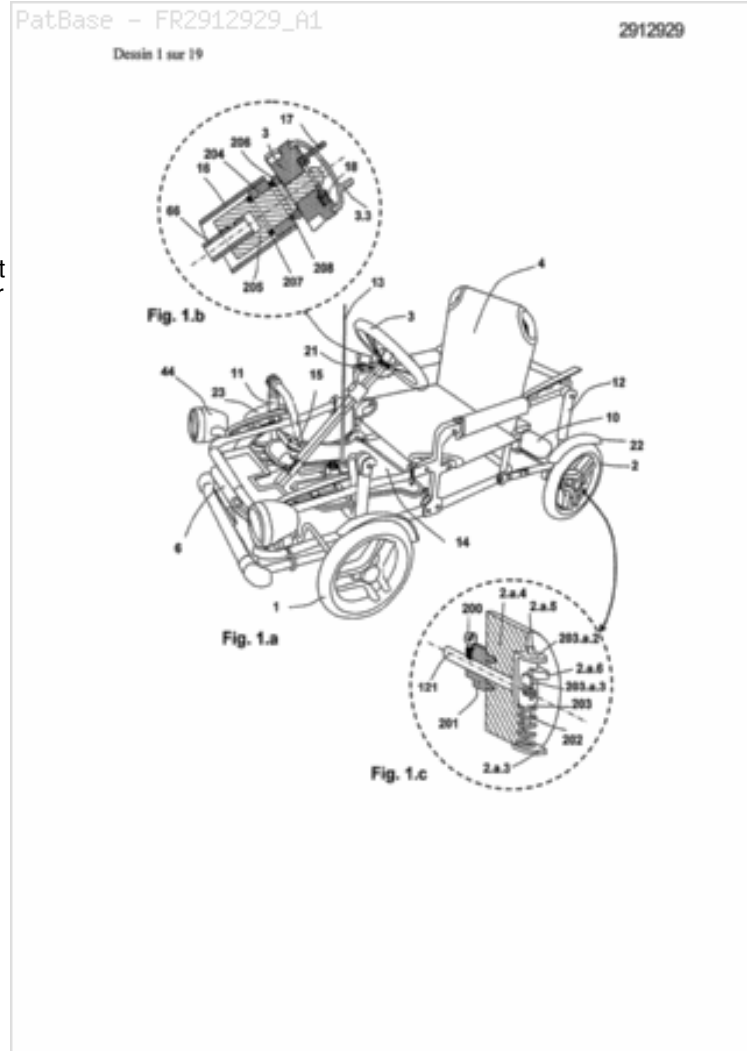
CPC: B62K9/00

European class: B62K9/00

[Classification Explorer](#)

Abstract:

The car has a chassis that is foldable at the center of the car, where the car is controlled locally by an infant and remotely by an operator using a remote control (5). A directional signal switch allows an infant to perform forward/reverse gear operation. A speed variator is connected to an accelerator pedal of the infant. The remote control has buttons (38–41) for allowing the operator to switch the control of the car between the infant and operator, stop the car in case of danger or anomaly, perform forward/reverse gear operation and to start/stop the remote control, respectively.



- **search:** SS7 ft=tilt and (vehicle or motorcycle or tricycle) and frame and front wheel and steer* and limit* (Results 116)
- **List:** SS7 1–50 (ft=tilt and (vehicle or motorcycle or tricycle) and frame and front wheel and steer* and limit*) (Results 116)

0) US2015210338A – VEHICLE

1) Family number: 56089642 (US2015210338A)

© PatBase

Title: VEHICLE

Priority:

EP20130838840	20130924	EP20130863895	20131220	JP20120209873	20120924
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Family:

Publication number	Publication date	Application number	Application date
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Probable Assignee: YAMAHA MOTOR CO LTD

Assignee(s):^(std): YAHAMA HATSUDOKI KK ; YAMAHA MOTOR CO LTD

Assignee(s): YAMAHA MOTOR CO ; YAMAHA HATSUDOKI IWATA SHI KK ; YAMAHA HATSUDOKI KK ; YAMAHA HATSUKOKI KK

Inventor(s):^(std): HIRAYAMA YOSUKE ; IIZUKA TOSHIO ; KUBO YUTAKA ; MIYAMOTO NOBORU ; OGAWA HIROKATSU ; SASAKI KAORU ; WATANABE TAKAHIRO ; YAMASAKI SHIGETO ; TAKANO KAZUHISA

Inventor(s): TOSHIO IIZUKA ; YOSUKE HIRAYAMA ; YUTAKA KUBO ; TAKAHIRO WATANABE ; NOBORU MIYAMOTO ; KAORU SASAKI ; KAZUHISA TAKANO ; HIROKATSU OGAWA

Agent(s): JUAN PABLO CADENA SARMIENTO; GRUENECKER PATENT U RECHTSANWAELTE PARTG MBB; GRUENECKER PATENT U RECHTSANWAELTE PARTG MBB; INSAN BUDI MAULANA; ROHALDY MULUK; DIPL ING ROHALDY MULUK; SHIN EI PATENT FIRM PC; KEATING AND BENNETT LLP

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class
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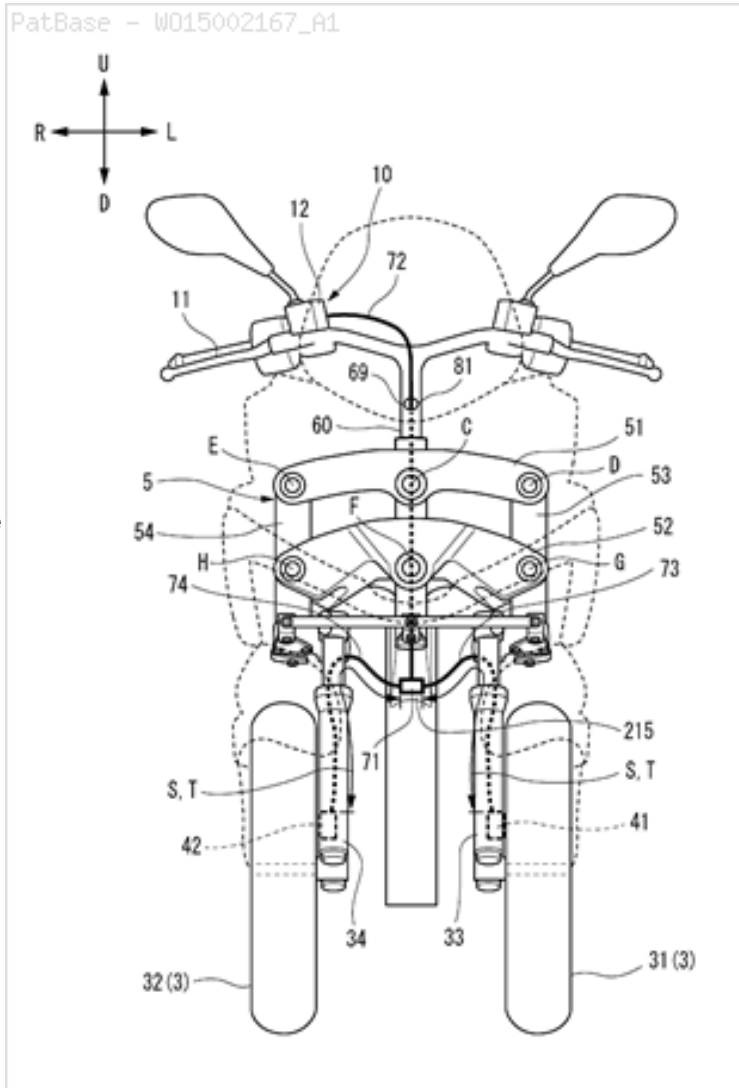
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Source: US2015210338A A vehicle includes a center transmission plate, a first center turnable portion configured to turn about a first center turning axis extending in an up-down direction, a second center turnable portion configured to turn about a second center turning axis extending in a front-rear direction, a left transmission plate, a first left turnable portion configured to turn about a first left turning axis extending in the up-down direction, a second left turnable portion configured to turn about a second left turning axis extending in the front-rear direction, a right transmission plate, a first right turnable portion configured to turn about a first right turning axis extending in the up-down direction, and a second right turnable portion configured to turn about a second right turning axis extending in the front-rear direction. A tie rod is supported on the second center turnable portion, the second left turnable portion, and the second right turnable portion.



0) US2002089144A – VEHICLE STEERING HEAD

2) Family number: 30431382 (US2002089144A)

© PatBase

Title: Vehicle steering head

Priority: CA20002303687 20000403 CA20002303687 20000403 US20000584497 20000601
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Family:	Publication number	Publication date	Application number	Application date
	<u>CA2303687 AA</u>	20010105	CA20002303687	20000403
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Probable Assignee: KETTLER INT INC

Assignee(s):^(std): CHANG JUI YANG ; KETTLER INT INC ; KETTLER INTERNATIONAL INC ; KETTLER HEINZ ; ROCHOLL REINHARD ; KETTLER JOACHIM ; HEINZ KETTLER GMBH AND CO KG ; KETTLER HEINZ GMBH

Assignee(s): KETTLER INT ; KETTLER INTERNATIONAL INC ; HEINZ KETTLER GMBH ; HEINZ KETTLER GMBH AND CO ; HEINZ KETTLER GMBH AND CO 59469 ENSE DE

Inventor(s):^(std): CHANG JUI YANG ; HEINZ KETTLER ; KETTLER HEINZ ; KETTLER JOACHIM ; ROCHOLL REINHARD

Inventor(s): CHANG JUI

Agent(s): MARKS AND CLERK; GOWLING LAFLEUR HENDERSON LLP; JUI YANG CHANG; GREENBLUM AND BERNSTEIN PLC

International class B29C44/22 B29C44/46 B29C44/48 B32B5/18 B42F13/00 B42F7/04 B42F7/14 B62D5/02
(IPC 8-9): B62J15/04 B62K19/32 B62K21/00 B62K21/02 B62K21/10 B62K21/18 B62K5/02

B62K9/00 (Advanced/Invention) ;
B32B37/08 B32B37/15 (Advanced/Non-invention) ;
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B32B37/08 B32B37/14 (Core/Non-invention)

International class
(IPC 1-7) :

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CPC:

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US class:

156/244.11 156/244.110S 156/78 156/78P 156/78S 190/125 190/127 264/145 264/145S
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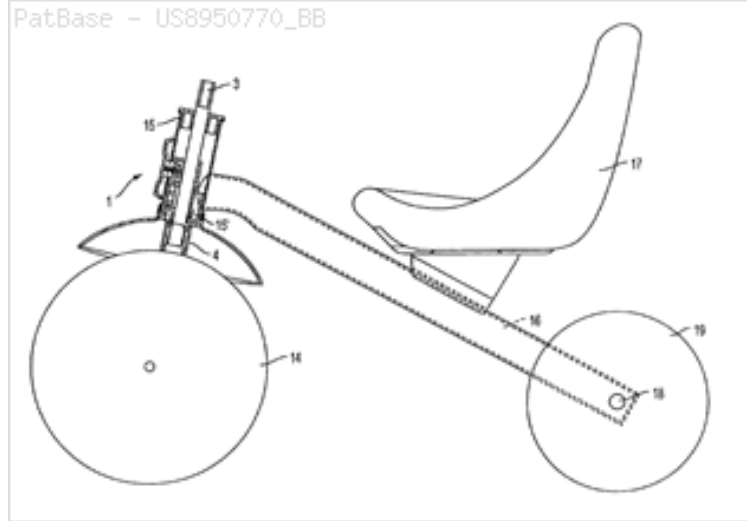
Forward Citations:

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EP1582447, EP1582447, CN105015683, CN104943798, CN104554555, CN104129458,
CN103273656,

Abstract:

Source: US2002089144A Vehicle steering head including a connecting element adapted to engage a handlebar. A support tube rotatably supports the connecting element. A latch element is disposed within the support tube. A slide is moveable with respect to the support tube. The slide is moveable from at least one position wherein linkage element prevents the connecting member from rotating with respect to the support tube to at least another position wherein the linkage element allows the connecting member to rotate with respect to the support tube in at least two directions.

PatBase - US8950770_BB



0) US2009038186A – EXTENDABLE FRAME WORK VEHICLE

3) Family number: 42924146 (US2009038186A)

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Title: EXTENDABLE FRAME WORK VEHICLE

Priority: EP20080780222 20080717 EP20080794559 20080717 US20070890332 20070806
US20090386565 20090420 WO2008US08704 20080717 US20130088856 20131125
WO2008US08748 20080717

Family:	Publication number	Publication date	Application number	Application date
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	AU2008284393 AA	20090212	AU20080284393	20080717
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	WO09020514 A1	20090212	WO2008US08748	20080717

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Agent(s): GRIFFITH HACK; RIDOUT AND MAYBEE LLP; ANDRAE WESTENDORP PATENTANWALTE PARTNERSCHAFT; PATENTANWALTE HENKEL BREUER AND PARTNER; CHARIG RAYMOND JULIAN; NIKOLAI AND MERSEREAU PA; C G; NIKOLAI THOMAS J

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class
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B60P3/00 B60P3/32 B60S9/00 B62C1/00 B62D21/17 B62D33/00 B66F9/00 B66F9/075 B66F9/08 B66F9/20 E02F3/04 E02F7/00 E02F9/08 G01C21/20 (Core/Invention)

International class
(IPC 1-7): B60P3/34 B60S9/02

CPC: B62D55/0655 B60K25/06 B62D21/14 B62D37/04 B62D49/0678 B62D49/085 B66F9/0655 B66F11/044 B66F17/003 E02F3/3414 E02F3/96 E02F9/02 E02F9/024 E02F9/028 E02F9/18 E02F9/2004 E02F9/225 E02F9/2253

European class: B62D21/14 B62D37/04 B62D49/06H B62D49/08B B66F11/04B B66F17/00B B66F9/065T E02F3/34P E02F3/96 E02F9/02 E02F9/02D E02F9/02L E02F9/18 E02F9/20A E02F9/22S E02F9/22T

US class: 1/1 180/209 180/306 180/53.1 180/9.1 187/224 187/224S 187/226 187/226S 187/234 187/234S 187/238 187/238S 280/782 280/782P 296/26.11 37/413 37/413P 37/445 37/445S 37/468 37/468S 701/213 701/213S 701/469 701/469S 701/50

[Classification Explorer](#)

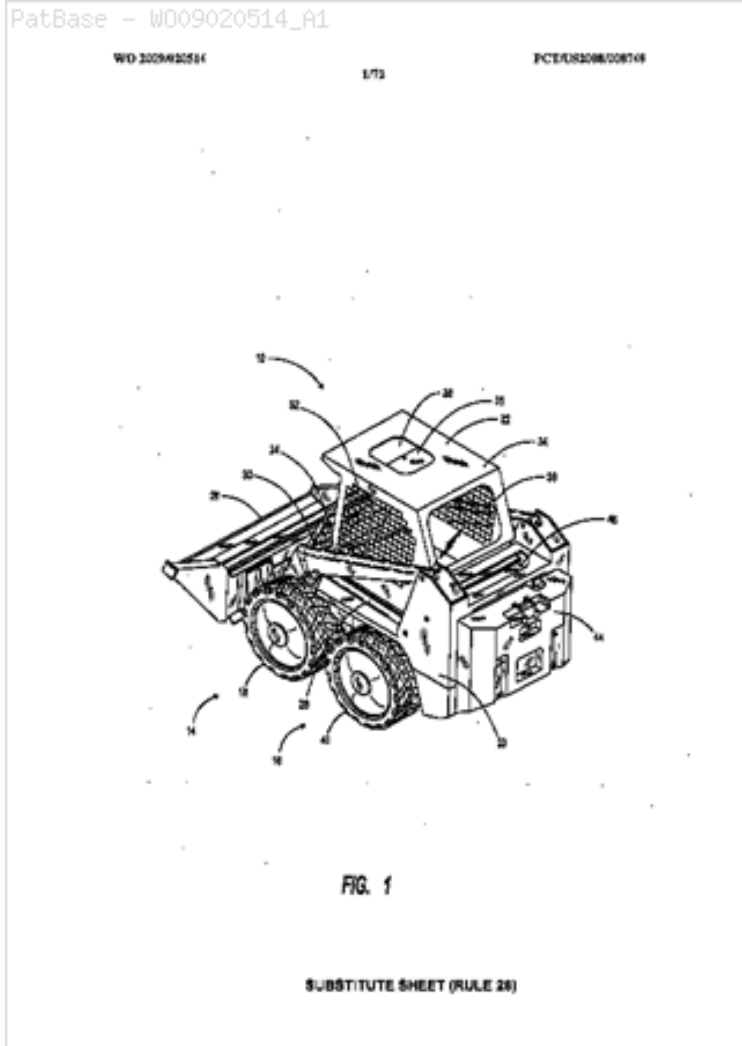
Cited documents: US7938206 BB, US7874391 BB, US7861794 BB, US7828071 BB, US7686720 BB, US7686097 BB, US7543671 BB, US7527118 BB, US7204506 BB, US7174967 BB, US7165643 BB, US6796762 BB, US6764270 BA, US6640915 BB, US6619693 BA, US6434437 BA, US6409457 BA, US6408963 BA, US6405806 BA, US6390764 BA, US6321851 BA, US6315374 BA, US6296436 BA, US6149180 A, US6148928 A, US6089328 A, US6065556 A, US6062321 A, US5899292 A, US5879124 A, US5638387 A, US5537818 A, US5423394 A, US5368121 A, US5031704 A, US4840437 A, US4831900 A, US4763800 A, US4715770 A, US4685695 A, US4664404 A, US4659102 A, US4434437 A, US4381900 A, US4355946 A, US4222583 A, US4204697 A, US4135731 A, US4049138 A, US4030560 A, US3999779 A, US3856149 A, US3791540 A, US3734326 A, US3690395 A, US3670910 A, US3633702 A, US3565273 A, US3490633 A, US3207044 A, US3133651 A, US3053552 A, US2734438 A, US2119800 A, US2009038186 AA, US2006245896 AA, US2004148822 AA, US2004031649 AA, US1877373 A, GB1465891 A, GB1369649 A, GB1063980 A, FR2854121 A1, DE3447052 A1, BE888406 A1, BE888406 A, AU4894790 A1,

Forward Citations: WO14000089, WO11009692, US9617711, US9592733, US9561794, US9550656, US9459349, US9439341, US9434586, US9410304, US9409597, US9370138, US9358975, US9333986, US9303761, US9302721, US9227478, US9221504, US9211961, US9163384, US8991904, US8905165, US8869911, US8858151, US8851225, US8616603, US8616310, US8550193, US8505684, US8423247,

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Abstract:

Source: US2009038186A An extendable frame work vehicle offering enhanced versatility, safety and effectiveness. The vehicle includes an adjustable frame with front and rear portions that extend or retract with respect to each other. The front portion is supported by a first pair of wheels and said rear portion is supported by a second pair of wheels. Each wheel is independently driven and steered. The vehicle also includes an engine mounted on the rear portion of the frame. Incorporated into the vehicle is an electro-hydraulic assembly which enables extension and retraction of the adjustable frame. The assembly includes a sensor-responsive microprocessor controller, at least one hydraulic pump, at least one hydraulic drive motor, and at least one valve network.



0) US2002023420A – LAWN MOWER SUSPENSION AND ASSEMBLY METHOD

4) Family number: 30083091 (US2002023420A)

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Title: LAWN MOWER SUSPENSION AND ASSEMBLY METHOD

Priority: US19960022865P 19960726 US19960022865P 19960727 US19970022868P 19970726
 US19970053403P 19970722 US19970063362P 19971028 US19990144499 19990831
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 WO1998US22862 19981028 US20020285350 20021031 US20050062901 20050222

Family:

Publication number	Publication date	Application number	Application date
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US7930813 BB	20110426	US20080154220	20080520
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WO9921406 A1	19990506	WO1998US22862	19981028

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 CROSSWAY BRIAN ; DECKER WILLIAM ; FERRIS A DIVISION OF SIMPLICIT ; FERRIS
 IND A DIVISION OF SIMPL

Assignee(s):

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TRAURIG (PHX); GREENBERG TRAURIG PHX; GREENBERG TRAURIG LLP

Designated states: AT AU BE CA CH CY DE DK ES FI FR GB GR IE IT JP LU MC NL PT SE

International class
(IPC 8-9): A01D34/00 A01D34/03 A01D34/43 A01D34/63 A01D34/64 B23P11/00 B60B33/00
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B60K7/00 B60P1/02 B62D21/00 (Advanced/Invention);
B60G23/00 B60G9/00 B60K7/00 B60P1/02 B62D21/00 (Advanced/Non-invention);
A01D34/63 B60B33/00 B60G11/00 B60G3/00 B60G3/18 (Core/Invention)

International class
(IPC 1-7): A01D34/03 A01D34/43 A01D34/64 B60G1/00 B60G1/02 B60G21/00 B60G3/20 B60G9/00
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US class: 180/311 280/124.1 280/124.111 280/124.111S 280/124.113 280/124.135 280/124.135S
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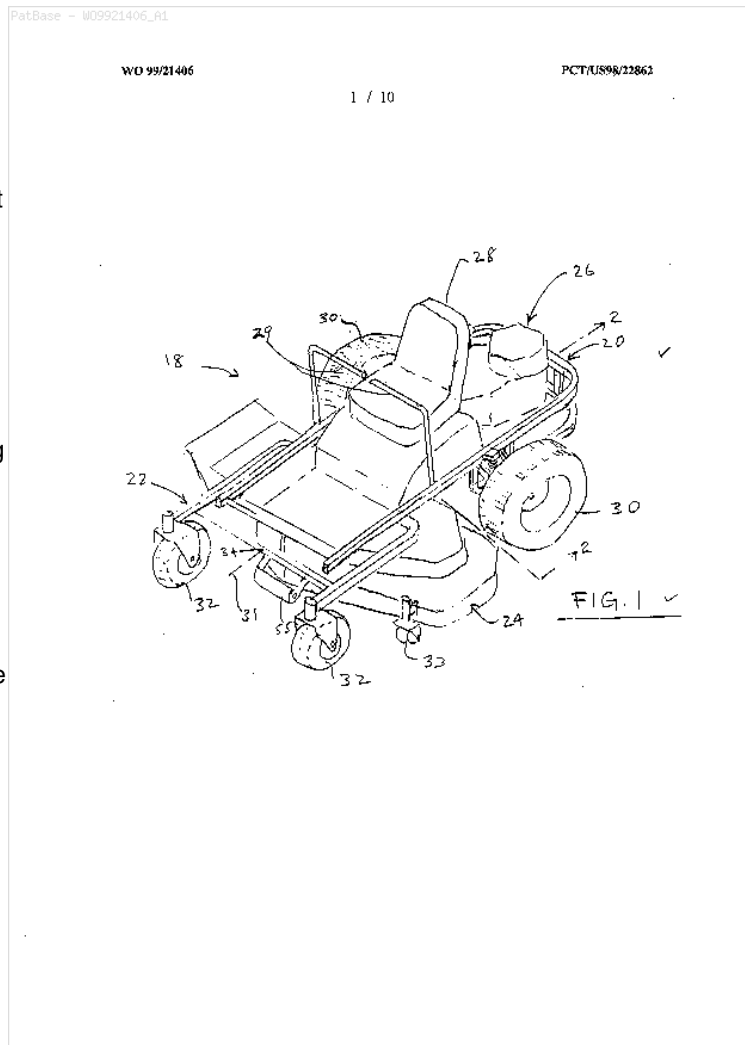
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Forward Citations: WO17017507, WO07084524, WO02054929, USD719980, USD590844, USD528562,
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Abstract:

Source: US2002023420A A lawn mower includes a front wheel suspension system as well as a rear wheel suspension system. The front wheel suspension system includes upper and lower suspension struts that are pivotably connected between a main frame of the lawn mower and a longitudinal suspension strut that is connected to a front wheel. A spring is connected between an extension of the upper suspension strut and a front transverse member of the main frame. The rear wheel suspension system includes upper and lower links that are pivotably connected between vertical struts that are connected between upper and lower frame members of the main frame and a motor mount. A spring is connected between a spring bracket extending from the upper frame member and either the motor mount or a motor mounted in the motor mount. In order to prevent scalping while turning, a floating cutter deck is suspended from the front and rear wheel suspension systems rather than from the main frame or chassis of the mower. An alternative embodiment includes a hinged pivoting subframe with springs between the main frame and the left and right halves of the subframe. In this alternative embodiment, the front of the cutter deck is suspended from the main frame while the rear of the cutter deck is suspended from the rear wheel suspension system.



5) Family number: 61131788 (US2016194044A)

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Title: STRADDLED VEHICLE

Priority: JP20140120235 20140611 JP20140120236 20140611 JP20140256379 20141218
 JP20140256382 20141218 JP20140256408 20141218 JP20140256393 20141218
 JP20150009180 20150121 JP20150009181 20150121 WO2015JP65735 20150601
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 WO2015JP02947 20150611

Family:

Publication number	Publication date	Application number	Application date
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US2016229473 AA	20160811	US20150896301	20150611
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WO15190115 A1	20151217	WO2015JP02950	20150611
WO15190332 A1	20151217	WO2015JP65735	20150601

Probable Assignee: YAMAHA HATSUDOKI KK**Assignee(s):^(std):** YAMAHA MOTOR CO LTD**Assignee(s):** YAMAHA HATSUDOKI KK**Inventor(s):^(std):** IKEDA TAKESHI ; INOUE TAKEHIRO ; KUBO YUTAKA**Inventor(s):** TAKEHIRO INOUE ; TAKESHI IKEDA ; YUTAKA KUBO**Agent(s):** GRUENECKER PATENT U RECHTSANWALTE PARTG MBB; DIPL INGROHALDY MULUK; DIPL LNG ROHALDY MULUK; GOTOH TAKASHI; RABIN AND BERDO PC; WASHIDA KIMIHITO; TASS MEISTER PATENT FIRM**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA

ZM ZW

International class
(IPC 8-9):

B60Q1/00 B60Q1/04 B60Q1/18 B62J17/02 B62J6/02 B62J6/18 B62J99/00 B62K21/02
B62K21/12 B62K21/26 B62K25/08 F21S8/10 F21S8/12 F21V19/00 F21V23/00 F21V23/06
F21V5/04 F21V5/08 F21W101/023 F21W101/10 F21Y101/00 (Advanced/Invention);
F21S8/10 F21W101/023 F21W101/027 F21W101/10 F21Y101/00
F21Y101/02 (Advanced/Non-invention)

CPC:

B62K25/08 B62K21/02 F21S48/1216 B60Q1/0483 F21S48/1159 F21S48/328 B60Q1/14
B62K21/12 B62K21/26 B62J17/02 B62J99/00 F21S48/12 B62J2099/004 B62J6/02
F21S8/10 B60Q1/0035 B60Q1/0041 B60Q1/04 F21S48/1154 F21S48/1258 F21S48/1747

US class:

180/219 280/279 362/476

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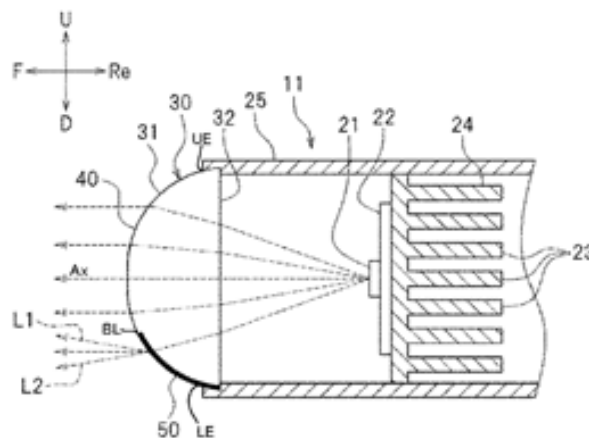
DE102007013309 A1

Forward Citations: CN105057344,

Abstract:

Source: US2016194044A An increase in the size of a body portion of a straddled vehicle forward of a steering shaft in a left-right direction and a front-rear direction of a body frame is suppressed to secure a space forward of the steering shaft. Each top end of left optical lens body 35L and right optical lens body 35R is located below top edge B1 of an upper bracket in an up-down direction of the body frame. Each bottom end of left optical lens body 35L and right optical lens body 35R is located above bottom edge B2 of a lower bracket in the up-down direction of the body frame. The left end of left optical lens body 35L is located on the right of left edge B3 of a left front-wheel support unit in the left-right direction of the body frame. The right end of left optical lens body 35L is located on the right of right edge B5 of the left front-wheel support unit in the left-right direction of the body frame. The left end of right optical lens body 35R is located on the left of left edge B4 of a right front-wheel support unit in the left-right direction of the body frame. The right end of right optical lens body 35R is located on the left of right edge B6 of the right front-wheel support unit in the left-right direction of the body frame.

PatBase - WO15190332_A1



6) Family number: 20682921 (US6328125B)

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Title: TILTING VEHICLE**Priority:** NL19971007045 19970916 WO1998NL00534 19980916

Family:	Publication number	Publication date	Application number	Application date
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	US6328125 BA	20011211	US20000508770	20000316
	WO9914099 A1	19990325	WO1998NL00534	19980916

Probable Assignee: BRINKS WESTMAAS BV**Assignee(s):^(std):** BRINKS VESTMAS B V ; BRINKS VESTMAS BV ; BRINKS WESTMASS BV ; DEN BRINK CHRISTOPHER RALPH VA ; KROONEN HENDRIK MARINUS ; BRINKS WESTMAS BV ; BRINKS WESTMAAS BV ; BRINKS WESTMAS B V ; BRINKS WESTMASS B V**Assignee(s):** VAN DEN BRINK CHRISTOPHER RALPH A ; BRINKS WESTMAAS S GRAVENDEEL BV ; VAN DEN BRINK CHRISTOPHER RALPH ; BRINKS WESTMAAS VILTWEIG BV ; BRINKS WESTMAAS B V ; BRINKS WESTMAAS B V S GRAVENDEEL**Inventor(s):^(std):** BRINK CHRISTOPHER RALPH VAN DE ; CHRISTOPHER RALPH VAN DEN BRINK ; HENDRIK MARINUS KROONEN ; KROONEN KHENDRIK MARINUS ; KROONEN HENDRIK MARINUS ; KROONEN MARINUS ; VAN DEN BRINK CHRISTOPHER RALPH ; VAN DEN BRINK CHRISTOPHER RALPH A ; VAN DEN BRINK KRISTOFER RAL F ; VAN DEN BRINK RALPH**Inventor(s):** VAN DEN BRINK KRISTOFER RAL F ; VAN DEN BRINK CHRISTOPHER RALPH**Agent(s):** COLLISON AND CO; MCCARTHY TETRAULT LLP**Designated states:** AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CU CY CZ DE DK EE ES FI FR GA GB GE GH GM GN GR GW HR HU ID IE IL IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MC MD MG MK ML MN MR MW MX NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT UA UG US UZ VN YU ZW**International class** B60G17/016 B60G21/00 B62D1/00 B62D61/08 B62D9/02 B62K5/027
(IPC 8-9): B62K5/04 (Advanced/Invention);

B62D9/02 (Advanced/Non-invention);
B60G17/015 B60G21/00 B62D61/00 B62D9/00 B62K5/00 (Core/Invention)

International class
(IPC 1-7): B62D61/08 B62D9/02 B62K5/04

CPC: B60G17/0162 B60G21/007 B60G2200/46 B60G2300/12 B60G2300/122 B60G2400/412 B60G2800/24 B62D9/02 B62D61/08 B62K5/027 B62K5/10

European class: B60G17/015A2 B60G17/016F B60G21/00D B62D61/08 B62D9/02 B62K5/027 B62K5/10 L60G200/460 L60G300/12 L60G300/122 L60G400/412 L60G800/24

US class: 180/211 280/124.103 280/93.51

[Classification Explorer](#)

Cited documents: WO9534459 A1, US5927424 A, EP0592377 A1, EP0020835 A1,

Forward Citations: WO12059902, WO11061768, WO10116641, WO06130007, WO06130007, WO06006859, WO06006859, WO0187689, US9574582, US9545963, US9529365, US9499024, US9487234, US9459627, US9442492, US9442491, US9442486, US9429955, US9411340, US9411339, US9411336, US9400502, US9283989, US9248857, US9150076, US9145168, US9090281, US9061564, US9045015, US8997911, US8781684, US8762002, US8602421, US8534687, US8360440, US8317207, US8249775, US8235398, US8123240, US8050820, US7967096, US7850180, US7762368, US7722063, US7648148, US7641207, US7600596, US7591337, US7571787, US7552790, US7343997, US7159903, US7097187, US7097187, US6886842, US6871866, US6863288, US6814364, US6811167, US6641154, US2016229251, US2016096574, US2015165855, US2015160657, US2015151806, US2014124286, US2013131932, US2012126565, US2011006498, US2010292041, US2010072722, US2010072721, US2009200766, US2009194961, US2009108555, US2008238005, US2008135320, US2007228675, US2006097471, US2006086555, US2004262863, US2004160030, US2004094346, US2003168828, US2003102646, US2003001353, TWI342839, NL1015233, JP2010260532, JP2008545577, JP2006182091, GB2394701, GB2394701, FR2943308, EP2030814, EP1944228, DE102011103831, DE102009042661, CN105813922, CN103687782, CN103687782, CN102596697, CN102596697, CN102378700, CN102378700, CN102328563, AU775010, AU2002233045, AU2002233045,

Abstract:

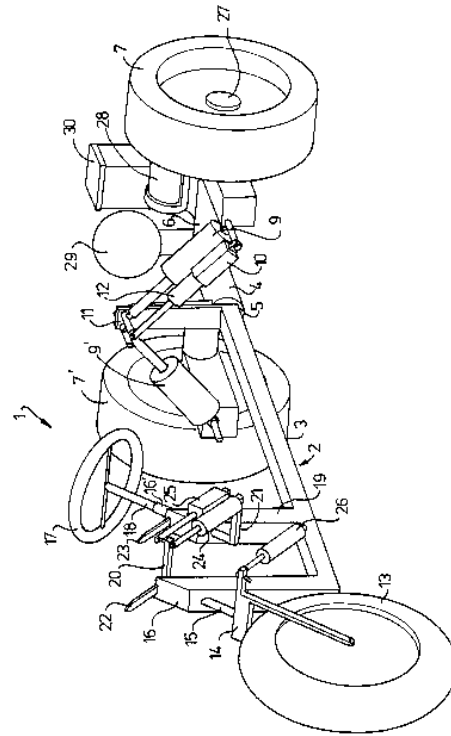
Source: US6328125B The invention relates to a vehicle (1) provided with a frame (2) having a front frame part (3) and a rear frame part (4) which can tilt with respect to one another. The vehicle (1) comprises three or more wheels (7, 7', 13), it being possible to rotate the front wheel (13) with respect to the steering column (18). In this case, a sensor (24) determines the angle of rotation between the front wheel (13) and the steering column (18) and, as a function of this angle of rotation, actuates the tilting means (9, 9') of the vehicle. As a result of the consequent tilting of the front frame part (3) and as a consequence of the speed at which the vehicle (1) is travelling, the front wheel (13) and the tilting angle will automatically adopt the correct level for allowing the vehicle (1) to travel through the bend in a stable manner at the given speed. Controlling the tilt via the difference in angular rotation between the steering column (18), which is flexibly connected to the front wheel (13), and the front wheel (13), it is possible to control the tilt in a simple and robust manner.

PatBase - W09914099_R1

WO 99/14099

PCT/NL98/00534

1/8

Fig 1

0) US4076270A – FOLDABLE CAMBERING VEHICLE

7) Family number: 1526864 (US4076270A)

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Title: FOLDABLE CAMBERING VEHICLE

Priority: CA19760251310 19760428 CA19770272670 19770225 US19750578739 19750519
US19760649967 19760119 CA19790332336 19790723 US19760713411 19760811
US19760714901 19760816

Family:	Publication number	Publication date	Application number	Application date
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	<u>JP51145649 A2</u>	19761214	JP19760056760	19760519
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Probable Assignee: GEN MOTORS CORP

Assignee(s):^(std): GEN MOTORS CORP ; GEN MOTORS CORP SOC DELLO STAT

Assignee(s): GENERAL MOTORS CO ; GENERAL MOTORS CORP ; GENERAL MOTORS CORP SOC DELLO STATO DEL DELAWARE ; GENERAL MOTORS TE DETROIT MICHIGAN VER ST V AM CORP ; GENERAL MOTORS TE DETROIT MICHIGAN VERSTVAM CORP ; WINCHELL FRANK J ; WINKELMANN KLAUS O

Inventor(s):^(std): WINCHELL FRANK J ; WINKELMANN KLAUS OTTO ; WINKELMANN KLAUS O ; WINKELMANN K ; WINCHELL F ; WINKELMANN K O ; WINCHELL FRANK JENNINGS ; WINCHELL F J ; KURASU OO UINKERUMAN ; FURANKU JIEE UINCHIERU

Inventor(s): K O WINKELMANN ; FRANK JENNINGS WINCHELL ; F J WINCHELL ; KLAUS OTTO WINKELMANN ; JENNINGS WINCHELL FRANK

Agent(s): GOWLING LAFLEUR HENDERSON LLP

International class
(IPC 8-9): B62B13/08 B62B13/12 B62K15/00 B62K17/00 B62K3/00 B62K5/00 B62K5/04 B62K5/06 B62M1/00 B62M1/04 B62M1/12 B62M1/24 B62M27/02 (Advanced/Invention);
B62K17/00 B62K5/00 (Advanced/Non-invention);
B62B13/00 B62K15/00 B62K3/00 B62K5/00 B62M1/00 (Core/Invention)

International class
(IPC 1-7): B62B11/00 B62B13/08 B62B15/00 B62B19/04 B62B3/02 B62B3/12 B62D11/00 B62D61/06 B62D61/08 B62K15/00 B62K17/00 B62K5/00 B62K5/02 B62K5/04 B62K5/08 B62M1/00 B62M1/04 B62M1/12 B62M1/14 B62M5/00

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European class: B62B13/08 B62B13/12 B62K15/00F B62K3/00B B62K5/06 B62K5/10 B62M1/00 B62M1/24 B62M6/00 L62B205/00 L62B5/00P1 L62K5/00B

US class: 180/183 180/208 280/12.1 280/14.28 280/16 280/210 280/218 280/220 280/221 280/278 280/8

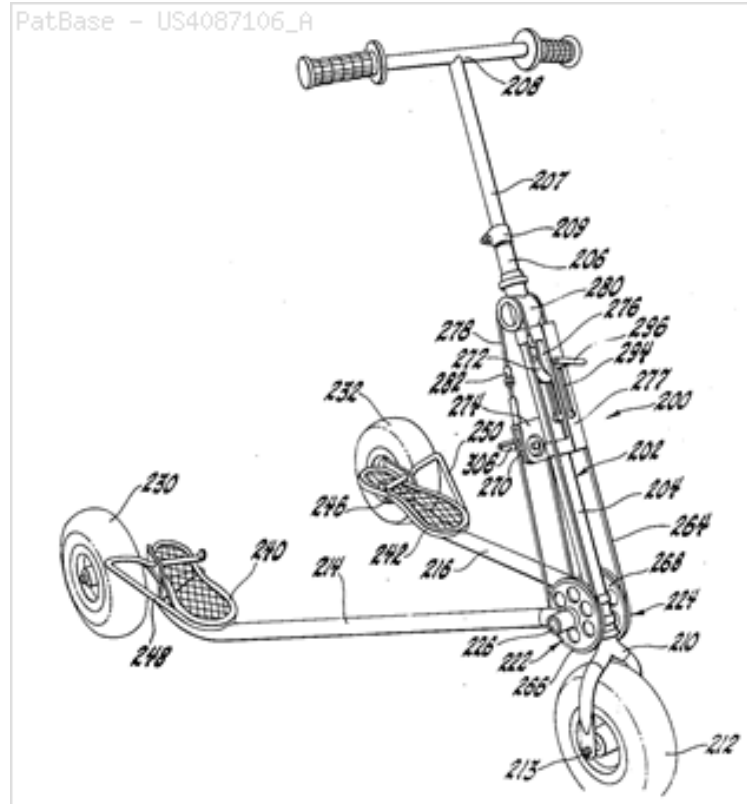
[Classification Explorer](#)

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Forward Citations: WO15166456, WO09070035, WO07147951, WO07063567, WO07063567, WO05005233, WO04087491, WO04087491, WO0236419, USRE32031, USD725712, USD725711, USD716382, USD710950, USD706876, USD658724, USD594792, USD497957, USD495758, USD495374, US9567034, US9545963, US9529365, US9477228, US9459627, US9442492, US9442491, US9442486, US9429955, US9411339, US9411336, US9400502, US9283848, US9268333, US9266582, US9193371, US9188984, US9168966, US9108693, US9073585, US8636288, US8556009, US8505945, US8467941, US8453768, US8387996, US8328209, US8322477, US8170780, US8100216, US7988159, US7967096, US7900725, US7896362, US7808214, US7757794, US7694986, US7690452, US7690447, US7591337, US7571787, US7546889, US7479872, US7438297, US7407175, US7370713, US7275607, US7240908, US7210544, US7192038, US7182166, US7174976, US7157875, US7090040, US7023330, US7004271, US7000933, US6976687, US6969079, US6965206, US6915878, US6908091, US6908090, US6883814, US6880840, US6874591, US6868931, US6866107, US6851694, US6827358, US6827163, US6815919, US6796396, US6789640, US6779621, US6739606, US6651766, US6581714, US6538411, US6499751, US6481729, US6478104, US6467781, US6378879, US6367817, US6302230, US6279929, US6220612, US5762351, US5388659, US5169165, US5168947, US5039121, US5009415, US4998596, US4540192, US4498683, US4332378, US4325565, US4160552, US2016121957, US2016009332, US2015158386, US2015076786, US2014217705, US2014035255, US2012223502, US2012043733, US2011187069, US2011169234, US2010225079, US2010140893, US2010114468, US2010072722, US2010044981, US2009099762, US2008223637, US2008223632, US2008174087, US2008035395, US2007187166, US2007075517, US2007075514, US2006249313, US2006125433, US2006108165, US2006108156, US2006061460, US2006011398, US2005236215, US2005218610, US2005212245, US2005211477, US2005126832, US2004262871, US2004256824, US2004256823, US2004256822, US2004256821, US2004227318, US2004118622, US2004094925, US2004069543, US2004055804, US2004055796, US2004054634, US2004032105, US2004024207, US2004011573, US2004007425, US2004007399, US2004007398, US2003205419, US2003188906, US2003141832, NL2003040, JP2010508188, JP1316536, GB2369331, FR2886914, FR2852914, FR2796358, FR2786958, FR2736876, FR2689082, FR2641469, EP2268530, EP2268530, EP1608546, EP0184076, DE202004014978, DE19652509, DE19652509,

Abstract:

Source: US4076270A A cambering vehicle employing a cambering device which interconnects the trailing arms for controlled pivotal movement and includes means for locking the trailing arms together and for allowing the vehicle to be folded into a compact configuration so as to facilitate stowage thereof.



0) US5437531A – VEHICLE FOR REACHING, LIFTING, RETRACTING, STAC...

8) Family number: 8482414 (US5437531A)

© PatBase

Title: Vehicle for reaching, lifting, retracting, stacking and carrying loads
Priority: US19930078607 19930616 WO1994US06674 19940614

Family:	Publication number	Publication date	Application number	Application date
	AU199470606 A1	19950103	AU19940070606	19940614
	AU680922 B2	19970814	AU19940070606	19940614
	CA2165430 AA	19951215	CA19942165430	19940614
	DE69420407 D1	19991007	DE19946020407	19940614
	EP0703871 A1	19960403	EP19940919484	19940614
	EP0703871 A4	19960529	EP19940919484	19940614
	EP0703871 B1	19990901	EP19940919484	19940614
	JP8511488 T2	19961203	JP19950502166T	19940614
	US5437531 A	19950801	US19930078607	19930616
	WO9429211 A1	19941222	WO1994US06674	19940614

Probable Assignee: KRESS CORP

Assignee(s):^(std): KRESS CORP

Assignee(s): KRESS CORP BRIMFIELD ; MERRILL LYNCH BUSINESS FINANCIAL SERVICES INC ; KRESS EDWARD S ; COLE TAYLOR BANK AN ILLINOIS STATE CHARTERED BANK ; HARRIS TRUST AND SAVINGS BANK

Inventor(s):^(std): KRESS EDWARD ; KRESS EDWARD S

Inventor(s): EDWARD S KRESS

Agent(s): SHELSTON IP; SHELSTON IP PTY LTD; MARKS AND CLERK

Designated states: AT AU BE BR CA CH CN CZ DE DK ES FI FR GB GR IE IT JP KR LU MC NL PT RU SE

International class
(IPC 8-9): [B60P3/28](#) [B60S9/02](#) [B66C23/42](#) [B66C23/46](#) [B66C23/80](#) [B66F9/06](#) (Advanced/Invention);
[B60P3/28](#) (Advanced/Non-invention);
[B60P3/28](#) [B60S9/00](#) [B66C23/00](#) [B66F9/06](#) (Core/Invention)

International class
(IPC 1-7): [B60P1/54](#) [B60P3/28](#) [B60P9/00](#) [B60S9/02](#) [B66C23/00](#) [B66C23/42](#) [B66C23/80](#) [B66F9/06](#)
[B66F9/065](#) [E02F3/36](#)

CPC: [B66C23/54](#) [B66C23/80](#) [B66F9/061](#)

European class: [B66C23/54](#) [B66C23/80](#) [B66F9/06B](#)

US class: [212/304](#) [280/766.1](#) [414/546](#) [414/555](#) [414/694](#) [414/734](#)

[Classification Explorer](#)

Cited documents: US4969789 A, US4762291 A, US4632630 A, US4482285 A, US4424985 A, US4390314 A, US4373854 A, US4236643 A, US4163625 A, US4084777 A, US3945666 A, US3876093 A, US3863834 A, US3501035 A, US3487964 A, US3342361 A, US3279622 A, US3278058 A, US3263834 A, US3253716 A, US3239080 A, US3232460 A, US2998143 A, US2599991 A,

Forward Citations: WO14149125, US9278834, US8985353, US8578638, US7128518, US7128518, US7001131, US6789995, US6486787, US6158947, US5833429, US5720589, US5641261, US2014367624, US2011150617, US2010303596, US2009107775, US2009060685, US2007027581, US2005196262, US2005042068, US2004179925, EP2338827, DE202009017388,

Source: US5437531A A vehicle for reaching, lifting, retracting, stacking and carrying loads. The vehicle includes a load carrying portion disposed behind the front axle of the vehicle for receiving and transporting loads, so that the vehicle is able to transport loads without tipping yet without carrying excess ballast. The vehicle includes a reach and retract lifting device for reaching to secure or release loads substantially far from the vehicle and retracting to secure or release loads stacked on the load carrying portion of the vehicle. The reach and retract lifting device is interchangeable depending on the desired lifting operation. To prevent tipping while reaching loads, the vehicle incorporates selectively actuatable outriggers. Additionally, the vehicle includes selectively actuatable hydraulic cylinders or the like for adjusting the lateral position of a lifted load.

WO 94/29211

ECT/US94/06674

FIG. 1

0) US5033567A – LOW PROFILE SELF PROPELLED VEHICLE AND METHOD F...

9) Family number: 3858626 (US5033567A)

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Title: Low profile self propelled vehicle and method for converting a normal profile vehicle to the same

Priority: CA19912057981 19911218 US19890448807 19891211 WO1990US07184 19901206
US19900631651 19901219

Family:	Publication number	Publication date	Application number	Application date
	AU199170358 A1	19910718	AU19910070358	19901206
	CA2057981 AA	19920620	CA19912057981	19911218
	US5033567 A	19910723	US19890448807	19891211
	US5156230 A	19921020	US19900631651	19901219
	WO9108939 A1	19910627	WO1990US07184	19901206

Probable Assignee: UTAH GEN MFG INC

Assignee(s):^(std): GEN MFG OF UTAH INC ; UTAH GEN MFG INC ; WASHBURN DAVID J

Assignee(s): GENERAL MANUFACTURING OF UTAH INC ; GENERAL MFG ; GENERAL MFG OF UTAH INC ; GENERAL MFG OF UTAH INC A CORP OF UTAH

Inventor(s):^(std): ENKE GLEN L ; ENKE GLENN L ; WASHBURN DAVID J

Inventor(s): DAVID J WASHBURN ; GLEN L ENKE

Agent(s): SMART AND BIGGAR

Designated states: AT AU BE CA CH DE DK ES FR GB GR IT LU NL SE

International class
(IPC 8-9): [B60P3/42](#) [B62D33/00](#) [B62D33/06](#) [B62D63/02](#) [B62D65/00](#) (Advanced/Invention);
[B62D63/00](#) [B62D65/00](#) (Core/Invention)

International class
(IPC 1-7): [B60K31/00](#) [B62D33/06](#) [B62D49/00](#) [B62D63/02](#) [B62D65/00](#)

CPC: [B60P3/42](#) [B62D33/00](#) [B62D33/06](#)

European class: [B60P3/42](#) [B62D33/00](#) [B62D33/06](#)

US class: [180/170](#) [180/271](#) [180/337](#) [180/89.12](#) [280/781](#) [296/190.08](#) [296/193.01](#)

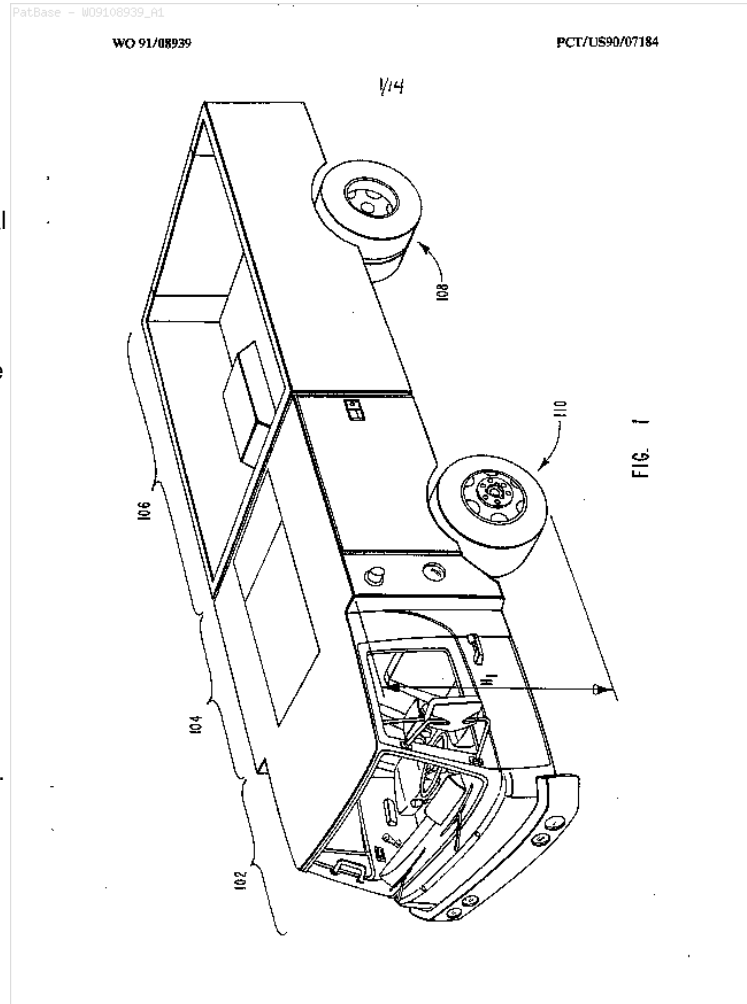
[Classification Explorer](#)

Cited documents: US4415051 A, US4157878 A, US4090736 A, US4090578 A, US4078629 A, US3885643 A, US3698759 A, US3690759 A, US3680653 A, US3675966 A, US2897004 A,

Forward Citations: WO16134281, WO13000040, WO05012067, US9528447, US9522623, US9434244, US9428047, US9421861, US9394841, US9278614, US9254849, US9248736, US9170081, US9046371, US9031763, US8967669, US8882071, US8881933, US8827028, US8820289, US8727062, US8714632, US8678479, US8657057, US8596405, US8590652, US8534412, US8534403, US8240748, US7980340, US7914067, US7836967, US7726675, US7395591, US7159915, US7154414, US7070229, US6876265, US6871875, US6864803, US6838985, US6829924, US6788193, US6725712, US6693522, US6691567, US6671609, US6668636, US6647773, US6578907, US6434470, US6340191, US6296436, US5673767, US5593167, US2014346763, US2014297182, US2013240280, US2013220714, US2013069357, US2013068905, US2012112492, US2011284306, US2011253467, US2011175336, US2011048828, US2011022545, US2010207425, US2010102596, US2010078244, US2010059953, US2010032063, US2010018732, US2009166122, US2009133297, US2008246289, US2008017426, US2006208536, US2005263337, US2004164589, US2003179086, US2003179085, US2003178834, US2003164799, US2003164774, US2003164759, US2003164741, US2003164035, US2003164034, GB2297951, FR2930527, ES2425024, EP1767443, EP1607313, EP1607313, EP0727344, DE4234120, DE10036396, DE10036396, CN102826124, CN102582501,

Abstract:

Source: US5033567A A novel low profile vehicle, and a novel method for converting normal profile vehicles into the same, is disclosed. The low profile vehicle disclosed herein is adapted for use in a variety of applications, such as mining operations and aircraft maintenance applications. Selected components and assemblies found in a normal profile vehicle are removed from the normal profile vehicle's original frame and retained and/or modified for use in a completed low profile vehicle in accordance with the present invention. The operator's cab of the original normal profile vehicle is modified for use in the completed low profile vehicle. A frame extension is added to the forward end of the frame of the normal profile vehicle to form a split level frame in a position forward of the front wheels. The cab is shortened and otherwise modified and attached to the frame extension. The lower level of the frame extension allows the shortened cab to be secured to the frame extension and still not exceed the maximum height allowed for the low profile vehicle. The described low profile vehicle provides many features and better performance than previously available in low profile vehicles and achieves such performance and features more economically than possible with prior art low profile vehicles.



10) Family number: 32484600 (US2005275181A)

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Title: VEHICLE WITH MOVABLE AND INWARDLY TILTING SAFETY BODY

Priority: US20020412045P 20020918 US20030667105 20030918 US20080127761 20080527
US20090488259 20090619 US20120431874 20120327

Family:	Publication number	Publication date	Application number	Application date
	<u>US2005275181 AA</u>	20051215	US20030667105	20030918
	<u>US2008224436 AA</u>	20080918	US20080127761	20080527
	<u>US2010171282 AA</u>	20100708	US20090488259	20090619
	<u>US2012181768 AA</u>	20120719	US20120431874	20120327
	<u>US7377522 BB</u>	20080527	US20030667105	20030918

Probable Assignee: MACISAAC WILLIAM L**Assignee(s):**^(std) MACISAAC WILLIAM L**Inventor(s):**^(std) MACISAAC WILLIAM L**Inventor(s):** MACISAAC WILLIAM**Agent(s):** CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC; CHRISTENSEN OCONNOR JOHNSON KINDNESS PLLC

International class
(IPC 8-9): B60G1/00 B60G13/16 B60G17/005 B60G17/016 B60G21/00 B60G3/01 B60G3/20
B60G7/00 B60R21/00 B62D39/00 B62D9/02 (Advanced/Invention);
B60R19/18 (Advanced/Non-invention);
B60G1/00 B60G13/00 B60G17/005 B60G17/015 B60G21/00 B60G3/00 B60G3/18
B60G7/00 B60R21/00 B62D39/00 (Core/Invention);
B60R19/18 (Core/Non-invention)

International class
(IPC 1-7): B60G1/00 B60G17/01 B60R21/00

CPC: B60G3/01 B60G3/20 B60G7/008 B60G13/16 B60G17/0162 B60G21/007 B60G2200/14
B60G2200/144 B60G2204/1484 B60G2204/30 B60G2204/422 B60G2204/4222
B60G2204/62 B60G2206/50 B60R2019/1893 B62D39/00

European class: B60G13/16 B60G17/016F B60G21/00D B60G3/01 B60G3/20 B60G7/00W B62D39/00
L60G200/14 L60G200/144 L60G204/1484 L60G204/30 L60G204/422 L60G204/4222
L60G204/62 L60G206/50 L60R19/18P

US class: 180/271 280/124.103 280/124.103P 280/5.506 280/5.507 280/5.513 280/6.15

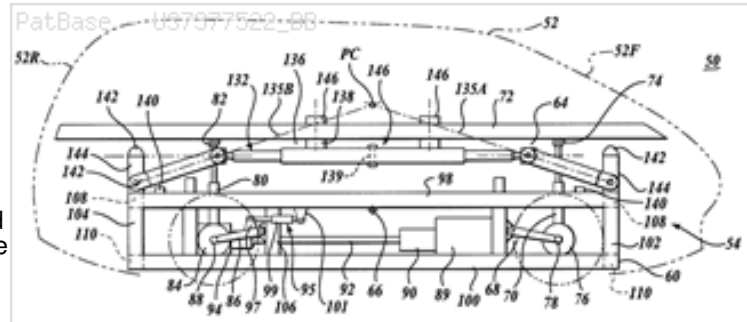
[Classification Explorer](#)

Cited documents: WO9216387 A1, WO8900512 A1, WO02058949 A1, US7377522 BB, US6863288 BB, US6793288 BB, US6793228 BB, US6702307 BB, US6585275 BA, US6467783 BA, US6267387 BA, US6244190 BA, US6170838 BA, US6170838 B1, US6113119 A, US6056303 A, US5873586 A, US5821434 A, US5716067 A, US5620199 A, US5580089 A, US5310200 A, US5048858 A, US5004257 A, US4854603 A, US4573702 A, US4550926 A, US4041878 A, US3711113 A, US3598385 A, US3089710 A, JP11078457 A2, GB965667 A, GB840583 A, GB2344796 A1, GB1213795 A, FR967710 A, FR2833233 A1, FR2400147 A1, EP0908368 A1,

Forward Citations: WO14185773, WO13134283, US9469174, US9434244, US9283989, US9248857, US9233716, US9150070, US9145168, US9090281, US9061564, US9045015, US8925940, US8813898, US8762003, US8746717, US8641064, US8616568, US8602421, US8437950, US8360440, US8162328, US8141891, US8128110, US8051934, US7967306, US7934579, US7891455, US7802816, US7722063, US7487985, US2016009155, US2015375590, US2015210319, US2015165855, US2015108732, US2013147145, US2013054126, US2012248717, US2012232758, US2012031696, US2011309593, US2011079166, US2011024999, US2010171282, US2010170736, US2010044134, US2010007109, US2009256331, US2009256326, US2009194961, US2009174167, US2009166116, US2008208442, NL2010824, JP2008007013, EP2822787, DE102009047240, CN104627239, CN104627239, CN103216596, CN103158770,

Abstract:

Source: US2005275181A A suspension system for a vehicle (50c) having a body (52c) and a plurality of wheel support assemblies (56c, 58c) includes a tie structure (60c) interposed between the body and the wheel support assemblies. A first interconnection system (68c) interconnects the tie structure to the wheel support assemblies, and the second interconnection system (302) interconnects the tie structure and the body. The second interconnection system includes a plurality of link structures (304, 320) pivotally connected at one end to the tie structure, and pivotally connected at the opposite end to the body. Such link structures are oriented relative to the tie structure to extend towards a common point along a longitudinal axis (33B) of the tie structure.



0) US4153265A – OFF-ROAD VEHICLE

11) Family number: 7778257 (US4153265A)

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Title: Off-road vehicle

Priority: CA19760244775 19760202 CA19780313941 19781023 CA19780316528 19781120
 CA19790332592 19790726 CA19790323384 19790314 CA19790339838 19791114
 CA19810369689 19810129 CA19800366346 19801208 US19780934459 19780817
 US19770842801 19771017 US19780934458 19780817 US19780934457 19780817
 CA19790339839 19791114 US19750584078 19750605 US19790018080 19790306
 US19780973427 19781226 US19800161981 19800620 US19800155901 19800602

Family:	Publication number	Publication date	Application number	Application date
	<u>BR7603607 A</u>	19770125	BR19760003607	19760604
	<u>CA1056873 A1</u>	19790619	CA19760244775	19760202
	<u>CA1084550 A1</u>	19800826	CA19790323384	19790314
	<u>CA1084550 A2</u>	19800826	CA19790323384	19790314
	<u>CA1102371 A1</u>	19810602	CA19780316528	19781120
	<u>CA1102843 A1</u>	19810609	CA19780313941	19781023
	<u>CA1108998 A1</u>	19810915	CA19790332592	19790726
	<u>CA1109098 A1</u>	19810915	CA19800366346	19801208
	<u>CA1109098 A2</u>	19810915	CA19800366346	19801208
	<u>CA1130729 A1</u>	19820831	CA19810369689	19810129
	<u>CA1130729 A2</u>	19820831	CA19810369689	19810129
	<u>CA1134881 A1</u>	19821102	CA19790339838	19791114
	<u>CA1134882 A1</u>	19821102	CA19790339839	19791114
	<u>FI761598 A</u>	19761206	FI19760001598	19760604
	<u>JP51147814 A2</u>	19761218	JP19760056737	19760519
	<u>NO761895 A</u>	19761207	NO19760001895	19760604
	<u>SE7606345 A</u>	19761206	SE19760006345D	19760604
	<u>SE7606345 L</u>	19761206	SE19760006345	19760604
	<u>US4153265 A</u>	19790508	US19770842801	19771017
	<u>US4205730 A</u>	19800603	US19780973427	19781226
	<u>US4207956 A</u>	19800617	US19780934458	19780817
	<u>US4223904 A</u>	19800923	US19780934459	19780817
	<u>US4237994 A</u>	19801209	US19780934457	19780817
	<u>US4350190 A</u>	19820921	US19800155901	19800602
	<u>US4372407 A</u>	19830208	US19800161981	19800620

Probable Assignee: OI FOREST PRODUCTS STS INC

Assignee(s):^(std): OWENS ILLINOIS INC

Assignee(s): OWENS ILLINOIS INC A CORP OF ; MCCOLL BRUCE J ; OI FOREST PRODUCTS STS INC ; OWENS ILLINOIS

Inventor(s):^(std): BURUUSU JIYON MATSUKORU ; MC COLL B ; MCCOLL B J ; MCCOLL BRUCE J ; MCCOLL BRUCE JOHN

Agent(s): GOWLING LAFLEUR HENDERSON LLP

International class
 (IPC 8-9): A01G23/00 B60G21/04 B60G5/00 B60G5/01 B60G5/02 B60G5/04 B60G5/06 B60K17/04
 B60K17/16 B60K17/30 B60K17/34 B60K17/356 B60K17/36 B60P3/40 B60P3/41
 B61G11/10 B62D49/00 B62D5/26 B62D53/00 B62D53/02 B62D61/10 B62D7/00
 B62D7/14 (Advanced/Invention);
 A01G23/00 B60G21/00 B60G5/00 B60K17/00 B60K17/04 B60K17/16 B60K17/34
 B60P3/40 B61G11/00 B62D49/00 B62D5/20 B62D53/00 B62D61/00 B62D7/00
 B62D7/14 (Core/Invention);
 B60D B60P (Subclass/Invention)

International class (IPC 1-7): A01G23/08 B60D B60G19/00 B60G19/10 B60G5/04 B60G5/06 B60K17/04 B60K17/16 B60K17/30 B60P3/40 B61G11/10 B62D5/04 B62D61/10 B62D7/00 B62D9/00

CPC: B60K17/30 B60K17/34 B62D53/028 B60P3/41 B62D7/144 B62D53/00 B62D61/10 A01G23/006 B60G5/02 B60G21/04 B60K17/36 B62D49/00 B62D53/005 B62D53/021 B60G5/01 B60K17/356 B61G11/10

European class: A01G23/00B1 B60G21/04 B60G5/01 B60G5/02 B60K17/30 B60K17/34 B60K17/356 B60K17/36 B60P3/41 B62D49/00 B62D53/00 B62D53/00B B62D53/02C B62D53/02F B62D61/10 B62D7/14B1

US class: 144/3D 144/4.1 180/14.1 180/140 180/179 180/22 180/23 180/24 180/24.01 180/24.08 180/24.13 180/242 180/261 180/41 180/6.2 180/7.1 180/79 180/7R 180/89.13 180/8R 280/104 280/124.109 280/12A 280/404 280/5.508 280/6.154 280/677 280/682 414/495 414/528

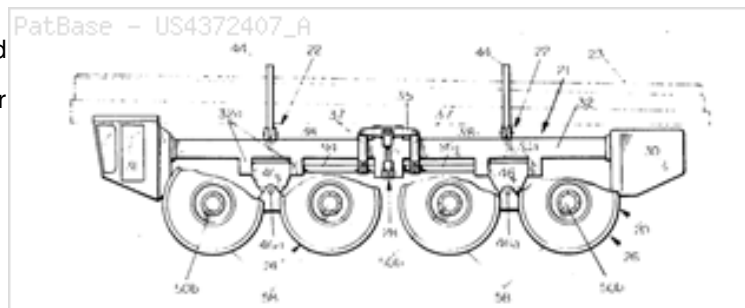
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Cited documents: US4144918 A, US4127154 A, US4090581 A, US4089384 A, US4042059 A, US4008783 A, US3957165 A, US3941203 A, US3941202 A, US3939938 A, US3933215 A, US3903979 A, US3887239 A, US3878915 A, US3874698 A, US3856102 A, US3799063 A, US3743044 A, US3721077 A, US3680653 A, US3670910 A, US3669469 A, US3666034 A, US3631905 A, US3503463 A, US3490555 A, US3471166 A, US3450222 A, US3414072 A, US3387684 A, US3335810 A, US3302739 A, US3280931 A, US3273912 A, US3244249 A, US3198579 A, US3183991 A, US3027959 A, US3011579 A, US2966223 A, US2863518 A, US2661069 A, US2456865 A, US2110213 A, US2105553 A,

Forward Citations: WO9959862, WO9912408, WO9910221, WO12044210, WO11101782, WO06108375, WO03072420, WO0236412, WO0228677, WO0153145, WO0032462, WO0032462, USRE42036, US9403604, US9389613, US9199745, US9187185, US9187123, US9114832, US9090358, US9085374, US9022317, US8991532, US8950532, US8935049, US8910736, US8851500, US8825338, US8801011, US8774983, US8640804, US8544792, US8515594, US8424897, US8380416, US8333401, US7832509, US7784812, US7690737, US7689336, US7559403, US7314105, US7191865, US7165644, US7103952, US7040428, US7017688, US7000940, US6923453, US6892838, US6863144, US6840338, US6721629, US6719087, US6698478, US6676143, US6581525, US6513614, US6454294, US6425453, US6406043, US6170848, US6148939, US6129170, US6085505, US6059056, US6024184, US6016885, US5904365, US5832706, US5715665, US5515936, US5515935, US5379842, US5337847, US5308216, US5083629, US5076378, US5010971, US4971175, US4887013, US4874283, US4813695, US4782906, US4754826, US4673066, US4650017, US4648472, US4620280, US4523656, US4506792, US4505396, US4304617, US4296826, US4277085, US4267873, US2013113197, US2012018983, US2011224845, US2011201472, US2011125371, US2011112721, US2011097183, US2010327558, US2010140392, US2010096494, US2010072733, US2010012401, US2009273159, US2008178429, US2007262552, US2007235972, US2006247837, US2006237242, US2006076828, US2006054368, US2005279563, US2005236896, US2005209763, US2005206231, US2005206224, US2005198797, US2004244868, US2004195013, US2004025424, US2003226727, US2003222432, US2003221879, US2003184056, US2003178816, US2002074179, JP2012121434, GB2353982, GB2353982, GB2347396, GB2347396, GB2150511, FR2956381, FR2706369, FR2678217, FR2652313, FR2642370, FR2577502, FR2521941, EP2100802, EP1361124, EP1283148, EP1283148, EP1125826, EP1118531, EP0932544, EP0089910, EP0087202, EP0087201, DE4024477, DE10100743, DE10100743, CN105035345, CN105035345, CN102869573, AU770118, AU738729, AU2001293507,

Abstract:

Source: US4153265A A high-mobility wheeled vehicle for transporting long loads over roadless terrain. The vehicle has front and rear quad wheel assemblies pivotally connected to a centrally disposed elongated bed frame so as to permit lateral rotation of these assemblies about the longitudinal axis of the frame. A roll control means interconnects the quad wheel assemblies and the bed frame to proportionately control the relative angular movement. The wheels of each quad wheel assembly are paired together by walking beam members, thus providing a suspension system having balanced load distribution between the wheels over a wide range of terrain roughness conditions. A differential drive system provides a balanced distribution of power to each wheel on both assemblies under all wheel drive conditions. Preferably, each of these wheels is steerable



and the steering control means provides for oblique travel in conjunction with conventional steering.

0) US2002056582A – WHEEL LIFT IDENTIFICATION FOR AN AUTOMOTIVE VEH...

12) Family number: 30431306 (US2002056582A)

© PatBase

Title: Wheel lift identification for an automotive vehicle

Priority:

EP20030254814	20030731	EP20030254817	20030731	EP20030254820	20030731
US20020400155	20020801	JP20030311982	20030731	US20020308364	20020104
US20020038364	20020104	US20000669513	20000925	US20020400155P	20020801
US20020400375	20020801	US20020400261	20020801	US20020400172	20020801
US20020400376	20020801	US20020400156	20020801	US20020401309P	20020805
US20020400156P	20020801	US20020400264P	20020801	US20020400375P	20020801
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Designated states: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

International class
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International class
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CPC: B60W30/045 B60W40/103 B60W40/12 B60W2040/1307 B60W2520/14 B60W2520/16 B60W2520/18 B60W2520/26 C12Q1/6883 C12Q1/6827 C12Q2600/156 B60T8/176 B60T8/1769 B60T8/17554 B60G2800/925 B60G17/0182 B60G17/0185 B60G2600/08 B60G2600/1871 B60G2800/80 B60G2800/0124 B60T8/241 B60T8/17551 B60T8/246 B62D6/002 B60R21/0132 B60G17/0162 B60G17/0195 B60G2300/026 B60G2400/0521 B60G2400/0523 B60G2400/104 B60G2400/106 B60G2400/204 B60G2400/208 B60G2400/32 B60G2400/41 B60G2400/4122 B60G2400/61 B60G2401/12 B60G2401/174 B60G2401/28 B60G2800/012 B60G2800/0194 B60G2800/215 B60G2800/24 B60G2800/70 B60G2800/702 B60G2800/85 B60G2800/91 B60G2800/9122 B60G2800/9124 B60G2800/92 B60G2800/922 B60G2800/952 B60G2800/96 B60G2800/962 B60R16/0233 B60R21/01 B60R21/013 B60R2021/0018 B60R2021/01122 B60R2021/01313 B60R2021/01322 B60R2021/01327 B60T8/00 B60T8/172 B60T8/175 B60T8/1755 B60T8/243 B60T8/885 B60T17/22 B60T2210/22 B60T2230/03 B60T2240/06 B60T2270/413 B60W30/04

European class: B60G17/015A2 B60G17/015G B60G17/016F B60G17/0185 B60G17/018C B60G17/0195 B60R16/023D3F B60R16/02B6A1 B60R21/01 B60R21/013 B60R21/0132 B60R21/01C B60R21/01C3 B60T17/22 B60T8/00 B60T8/00B10H B60T8/00B12 B60T8/00B4 B60T8/172 B60T8/175 B60T8/1755 B60T8/1755B B60T8/1755F B60T8/1769 B60T8/24B B60T8/24B2 B60T8/24F B60T8/88B B60W30/045 B60W40/103 B60W40/12 B62D6/00D C12Q1/68B6 C12Q1/68M6 L60G300/026 L60G400/0521 L60G400/0523 L60G400/104 L60G400/106 L60G400/204 L60G400/208 L60G400/32 L60G400/41 L60G400/4122 L60G400/61 L60G401/12 L60G401/174 L60G401/28 L60G600/08 L60G600/1871 L60G800/012 L60G800/0124 L60G800/0194 L60G800/215 L60G800/24 L60G800/70 L60G800/702 L60G800/80 L60G800/85 L60G800/910 L60G800/9122 L60G800/9124 L60G800/920 L60G800/922 L60G800/925 L60G800/952 L60G800/960 L60G800/962 L60R21/00A8 L60R21/0132T L60R21/0132W L60R21/013P L60R21/01N L60T210/22 L60T230/03 L60T240/06 L60T270/413 L60W30/04 L60W40/13B L60W40/44A L60W520/14 L60W520/16 L60W520/18 L60W520/26 L60W900/50J

US class: 1/1 180/167 180/167S 180/172 180/197 180/282 180/282S 280/5.502 280/5.502S 280/735 280/735S 280/755 303/138 303/146 303/158 303/163 303/174 340/429 340/438 340/439 340/44 340/440 340/440P 340/440S 340/441 340/444 340/446 340/446P 340/465 340/467 435/6 435/6.12 435/6.120P 435/6P 701/1 701/124 701/124P 701/29.2 701/29.200P 701/30.3 701/31.2 701/33.9 701/34 701/34P 701/36 701/36P 701/36S 701/38 701/38P 701/38S 701/40 701/41 701/42 701/45 701/45S 701/46 701/48 701/69 701/7 701/70 701/70P 701/70S 701/71 701/71P 701/72 701/72S 701/74 701/75 701/79 701/8 701/80 701/80S 701/83 701/90 701/91 702/41 702/41P

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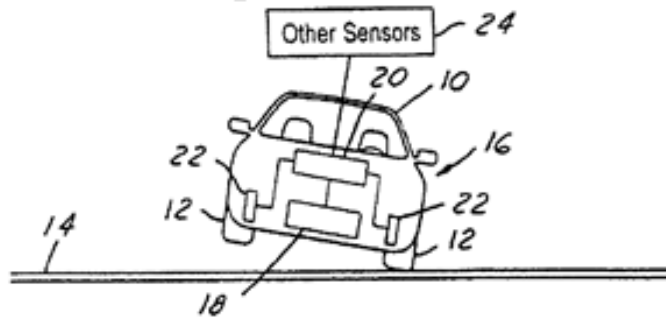
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Abstract:

Source: US2002056582A A system and method for detecting wheel lift of an automotive vehicle includes a yaw rate sensor (28) that generates a yaw rate signal, a lateral acceleration sensor (32) that generates a lateral acceleration signal, a roll rate sensor (34) generating a roll rate signal, and a longitudinal acceleration sensor (36) for generating a longitudinal acceleration signal. A controller (18) is coupled to the yaw rate sensor (28), the lateral acceleration sensor (32), the roll rate sensor (34), and the longitudinal acceleration sensor (36). The controller determines a dynamic load transfer

acting on the plurality of wheels as a function of yaw rate, lateral acceleration roll rate, and longitudinal acceleration. Normal forces for each of the plurality of wheels is determined as a function of the dynamic load transfer. Wheel lift is indicated when at least one of the normal forces for each of the plurality of wheels is less than a normal force threshold.

PatBase - USRE40268_E



13) Family number: 34490480 (US2007114743A)

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Title: SIDE MOTION PROPELLED SKATEBOARD DEVICE

Priority: AU20070358721 20070921 EP20070838609 20070921 US20050734612P 20051107
 US20050734612P 20051107 US20060525537 20060921 US20060525538 20060921
 US20060591192 20061031 US20060591192 20061031 US20070656897 20070122
 US20100689205 20100118 US20060760638P 20060121 US20110932985 20110309
 WO2007US20439 20070921

Family:

Publication number	Publication date	Application number	Application date
<u>AU2007358721 AA</u>	20090423	AU20070358721	20070921
<u>CA2664142 AA</u>	20090320	CA20072664142	20070921
<u>DE602007034948 D1</u>	20140306	DE200760034948T	20070921
<u>EP2200891 A2</u>	20100630	EP20070838609	20070921
<u>EP2200891 A4</u>	20101020	EP20070838609	20070921
<u>EP2200891 B1</u>	20140122	EP20070838609	20070921
<u>JP2010540306 T2</u>	20101224	JP20100525788T	20070921
<u>JP5323839 B2</u>	20131023	JP20100525788T	20070921
<u>KR101637199 B1</u>	20160720	KR20097008172	20070921
<u>KR20100080745 A</u>	20100712	KR20097008172	20070921
<u>US2007114743 AA</u>	20070524	US20060591192	20061031
<u>US2007170666 AA</u>	20070726	US20060525537	20060921
<u>US2007170686 AA</u>	20070726	US20060525538	20060921
<u>US2008029985 AA</u>	20080207	US20070656897	20070122
<u>US2010201093 AA</u>	20100812	US20100689205	20100118
<u>US2011227305 AA</u>	20110922	US20110932985	20110309
<u>US7597334 BB</u>	20091006	US20060525538	20060921
<u>US7681895 BB</u>	20100323	US20060525537	20060921
<u>US7926825 BB</u>	20110419	US20100689205	20100118
<u>US8128109 BB</u>	20120306	US20110932985	20110309
<u>WO09041933 A2</u>	20090402	WO2007US20439	20070921
<u>WO09041933 A3</u>	20090911	WO2007US20439	20070921

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Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class A63C17/01 A63G19/00 B62B3/00 B62B7/04 B62D61/06 B62K17/00 B62K3/00 B62M1/00
 (IPC 8-9): B62M1/12 B62M1/24 (Advanced/Invention);
A63C17/00 A63G19/00 B62B7/00 B62D61/00 B62K17/00 B62K3/00
B62M1/00 (Core/Invention)

CPC:

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A63C2203/40 A63C17/12 B62K17/00

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US class: 280/1.181 280/218 280/221 280/23.1 280/32.6 280/47.11 280/62 280/87.01 280/87.010P
280/87.021 280/87.03 280/87.041 280/87.042 280/87.042P 280/87.043

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Forward Citations: WO16005907, WO14141042, WO11136541, WO11136541, WO10056514, WO09041933, USD770571, USD727434, USD725712, USD725711, USD716382, USD710950, USD706876, USD658724, USD656203, USD654542, USD652455, USD641799, USD623559, US9545963, US9533728, US9529365, US9493205, US9492732, US9469365, US9459627, US9442492, US9442491, US9442486, US9429955, US9411340, US9411339, US9411336, US9403573, US9400502, US9387900, US9381968, US9296443, US9186570, US9138632, US9108693, US8998226, US8985602, US8882114, US8870200, US8827296, US8807581, US8801002, US8777240, US8746716, US8738278, US8690165, US8684376, US8641054, US8636288, US8632084, US8632083, US8562004, US8544854, US8505945, US8459669, US8398099, US8387996, US8360475, US8328209, US8201838, US8091906, US8079604, US8075006, US8047556, US8020881, US2015266530, US2015197303, US2015137470, US2015048585, US2014042717, US2013277939, US2013257013, US2013257003, US2013238231, US2012326403, US2012223502, US2012068434, US2012043733, US2011187069, US2011169234, US2011140384, US2010320717, US2010289237, US2010234186, US2010164193, US2010117326, US2010117317, US2010117316, US2010096823, US2010084846, US2009131628, US2008122193, US2008029985, KR101015912, ITVI20120102, GB2519582, GB2519582, GB2464676, GB2457020, GB2457020, EP2857300, EP2857300, EP2323897, EP2200891, EP2186553, EP2143472, DE102011111419, DE102011111419, CN104925185, CN102029057, CN102001406, CN102001406, AU2010219352,

Abstract:

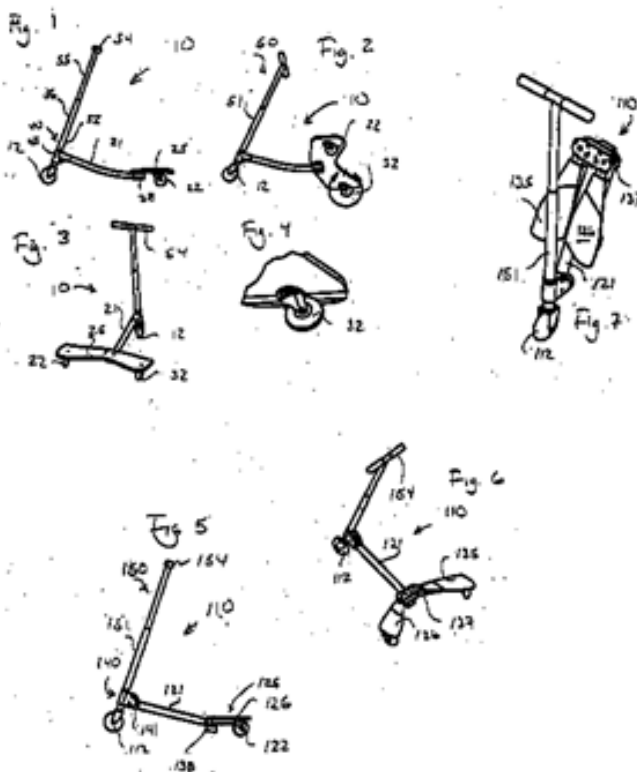
Source: US2007114743A A skateboard device that achieves forward propulsion from the sideways movement (side-to-side and/or twisting motion) of a user. Various embodiments are disclosed, each including a front and rear wheel assemblies mounted to a board. One or more of the wheel assemblies may have a relatively high axle shaft angle and the axle shaft angles of the two assemblies may be different. The wheel assemblies may have the same orientation or an opposite orientation or be changeable between the two.

PatBase - W009041933_A2

WI 3009041933

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PCT/US2007/020439



14) Family number: 30740589 (US2005121249A)

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Title: HYDRAULIC AXLE-DRIVE DEVICE

Priority: EP20030786289 20031224 EP20100177293 20031224 JP20030001935 20030108
 US20040917557 20040813 US20080101724 20080411 US20080204458 20080904
 WO2003JP16635 20031224 JP20030274809 20030715 JP20030394862 20031126

Family:	Publication number	Publication date	Application number	Application date
	<u>AT487634 E</u>	20101115	AT20030786289T	20031224
	<u>AU2003296098 AA</u>	20040810	AU20030296098	20031224
	<u>DE60334930 D1</u>	20101223	DE20036034930	20031224
	<u>DE60341049 D1</u>	20120802	DE20036041049	20031224
	<u>EP1584510 A1</u>	20051012	EP20030786289	20031224
	<u>EP1584510 A4</u>	20061108	EP20030786289	20031224
	<u>EP1584510 B1</u>	20101110	EP20030786289	20031224
	<u>EP2295276 A1</u>	20110316	EP20100177293	20031224
	<u>EP2295276 B1</u>	20120523	EP20100177293	20031224
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	<u>JP4521627 B2</u>	20100811	JP20030274809	20030715
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	<u>US7431122 BB</u>	20081007	US20040917557	20040813
	<u>US7980351 BB</u>	20110719	US20080101724	20080411
	<u>US8205708 BB</u>	20120626	US20080204458	20080904
	<u>WO04062956 A1</u>	20040729	WO2003JP16635	20031224

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 KOKYUKOKI MFG CO LTD ; MIZUKAWA KATSUMOTO C O KANZAKI KOKYUKOKI
 MFG... ; IWAKI KOJI C O KANZAKI KONKUKOKI MFG CO LTD ; ISHII NORIHIRO C O
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Agent(s): JOSTARNDT PATENTANWALTS AG; JOSTARNDT HANS DIETER; DIECKHOFF
 BEATE; STERNE KESSLER GOLDSTEIN AND FOX PLLC

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN
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 GR GW HR HU ID IE IL IN IS IT KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD
 MG MK ML MN MR MW MX MZ NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE
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International class
(IPC 8-9): B60B35/16 B60G9/02 B60K17/04 B60K17/10 B60K17/14 B60K17/30 B60K17/356 B60K23/00 B62D11/00 B62D7/18 B62D9/00 F16H39/00 F16H47/02 (Advanced/Invention);
F16H39/14 (Advanced/Non-invention);
B60B35/00 B60G9/00 B60K17/00 B60K17/04 B60K17/10 B60K17/34 B62D11/00 B62D7/00 B62D9/00 F16H39/00 F16H47/00 (Core/Invention);
F16H39/00 (Core/Non-invention)

International class
(IPC 1-7): B60G9/02 B60K17/04 B60K17/10 B60K17/30 B60K17/356 F16H47/02

CPC: B60K17/043 B60K17/105 B60K17/356 B60Y2200/221 B60Y2200/223 B62D7/18 B62D9/002 B62D11/001 F16H39/14 F16H39/12

European class: B60K17/04B B60K17/10T B60K17/356 B62D11/00B B62D7/18 B62D9/00B F16H39/12 L60Y200/221 L60Y200/223 R16H39/14

US class: 180/252 180/305 180/307 180/308 301/137 301/137P 60/484 60/484P

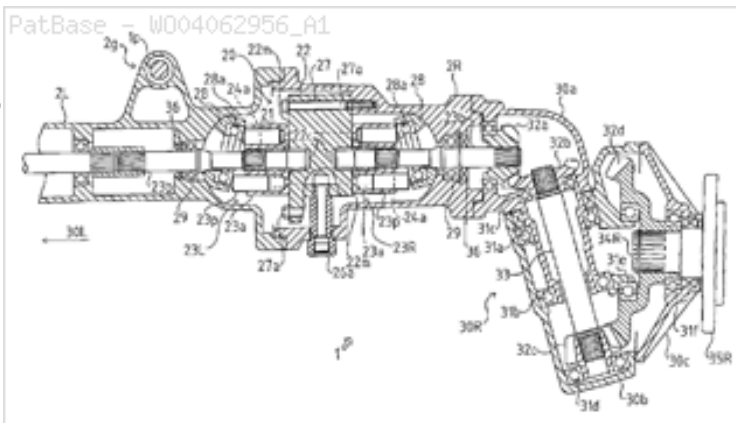
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Cited documents: US8001883 BA, US7987669 BB, US7980351 BB, US7980339 BB, US7971675 BB, US7971435 BB, US7954907 BA, US7954316 BB, US7921956 BB, US7921643 BB, US7908960 BB, US7908850 BA, US7900735 BB, US7866152 BB, US7849689 BB, US7841429 BB, US7841176 BA, US7798259 BB, US7673712 BB, US7654083 BB, US7647770 BB, US7637346 BB, US7621353 BB, US7617892 BB, US7591338 BB, US7588103 BB, US7536858 BB, US7533753 BB, US7510035 BA, US7503174 BA, US7503172 BB, US7503161 BA, US7455145 BB, US7431122 BB, US7419025 BB, US7415823 BB, US7383913 BA, US7357750 BB, US7337611 BB, US7314110 BA, US7204779 BB, US7111545 BA, US7086227 BB, US7082759 BA, US6971469 BB, US6964310 BB, US6955046 BA, US6926111 BA, US6923092 BA, US6915872 BB, US6877573 BB, US6860354 BB, US6672058 BA, US6648094 BB, US6554085 BB, US6336513 BA, US6237708 BA, US6220144 BA, US6196348 BA, US6189641 BA, US6135231 A, US6126564 A, US5466130 A, US5277270 A, US4700794 A, US3830593 A, US3774505 A, US3351147 A, US3209538 A, US3159041 A, US2036437 A, US2010222172 AA, US2010147616 AA, US2010050625 AA, US2009301076 AA, US2009120709 AA, US2009049833 AA, US2009047151 AA, US2006278459 AA, US2006042839 AA, US2005109553 AA, US2005070390 AA, US2002027025 AA, JPS644514, JP8225024 A2, JP7323740 A2, JP7323740, JP7156676 A2, JP64004514 A2, JP64004514, JP62202429 U1, JP62137129 U, JP6183274 A2, JP6183274, JP6012156 U1, JP60116567 A2, JP55142335 U1, JP55132325 A2, JP55132325, JP55057671 A2, JP52137823, JP2001355705 A2, JP2001355705, JP2001178208 A2, JP2000168381 A2, JP11263135 A2, JP11263135, JP10081150 A2, JP1004519 A2, JP1004514 A2, GB2306420 A1, GB1354560 A, EP0893296 A2,

Forward Citations: WO06109571, US9610840, US8997914, US8978810, US8820066, US8483921, US8205708, US8146691, US8109355, US7980351, US7971675, US7900735, US7721830, US7690470, US7681393, US7658257, US7647770, US7591338, US7588103, US7419025, US7415823, US2013186703, US2012089310, US2010147616, US2010032219, US2009288901, US2009266071, US2009242219, US2009104047, US2009049833, US2008271939, US2008217991, US2008179128, US2008072591, US2008053736, US2006278459, JP5097883, JP4606228, JP2008062691, JP2007283986, JP2006321339, JP2006290009, JP2006097889, EP1950071, EP1897740, EP1847441, EP1837226, EP1712399, EP1632381, EP1632381, EP1541402, EP1533168, CN104149606, CN104149606, CN103167982,

Abstract:

Source: US200512149A A transaxle (2), having a hydraulic drive unit (20) and a pair of left and right wheel support units (2 L and 2 R), is suspended from a vehicle frame so as to be turnable around a turning-center axis oriented in a fore-and-aft direction of a vehicle. The hydraulic drive unit (20) comprises: a pair of left and right hydraulic motors (23 L and 23 R) having respective left and right horizontal motor shafts (23 b); a center section (22) formed therein with an oil passage for hydraulically connecting at least one of the hydraulic motors to a hydraulic pump, the center section having motor attachment surfaces onto which the hydraulic motors are attached; and a pair of left and right axle casings (2 L and 2 R) containing the respective hydraulic motors and supporting the respective motor shafts. The pair of wheel support units (2 L and 2 R), supporting respective left and right travel wheels (12 L and 12 R) are joined to respective outer ends of the left and right axle casings, and drivingly connected to the respective motor



shafts (23 b).

15) Family number: 43789241 (US2005040619A)

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Title: VEHICLE LEAN AND ALIGNMENT CONTROL SYSTEM**Priority:** US20030428274 20030502 US20030695377 20031027 US20040555425P 20040322
US20040577692 20041027 WO2003US25267 20030811 WO2004US36107 20041027
US20040555425P 20040322

Family:	Publication number	Publication date	Application number	Application date
	<u>AT507992 E</u>	20110515	AT20040796818T	20041027
	<u>AU2003258189 AA</u>	20041126	AU20030258189	20030811
	<u>DE602004032581 D1</u>	20110616	DE200460032581T	20041027
	<u>EP1646517 A1</u>	20060419	EP20030816921	20030811
	<u>EP1646517 A4</u>	20071121	EP20030816921	20030811
	<u>EP1799472 A2</u>	20070627	EP20040796818	20041027
	<u>EP1799472 A4</u>	20080430	EP20040796818	20041027
	<u>EP1799472 B1</u>	20110504	EP20040796818	20041027
	<u>US2005040619 AA</u>	20050224	US20030695377	20031027
	<u>US2008258415 AA</u>	20081023	US20040577692	20041027
	<u>US6805362 BA</u>	20041019	US20030428274	20030502
	<u>US7131650 BB</u>	20061107	US20030695377	20031027
	<u>US7931286 BB</u>	20110426	US20040577692	20041027
	<u>WO04098916 A1</u>	20041118	WO2003US25267	20030811
	<u>WO05051712 A2</u>	20050609	WO2004US36107	20041027
	<u>WO05051712 A3</u>	20051103	WO2004US36107	20041027

Probable Assignee: MELCHER THOMAS**Assignee(s):^(std):** MELCHER THOMAS ; MELCHER THOMAS W ; MELCHER THOMAS WESLEY**Inventor(s):^(std):** MELCHER THOMAS ; MELCHER THOMAS W ; MELCHER THOMAS WESLEY**Inventor(s):** THOMAS MELCHER**Agent(s):** SCHURACK EDUARD F; SCHMEISER OLSEN AND WATTS; QUARLES AND BRADY LLP; SCHMEISER OLSEN AND WATTS LLP; PATENT LAW GROUP; ROBERT D**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW**International class**
(IPC 8-9): B60G17/015 B60G17/016 B60G17/0165 B60G21/00 B60G3/18 B60G7/00 B62D17/00 B62D9/02 B62K5/00 B62K5/01 (Advanced/Invention);
B62K5/00 (Advanced/Non-invention);
B60G17/015 B60G21/00 B60G7/00 B62D17/00 B62D9/00 B62K5/00 (Core/Invention);
B60R (Subclass/Invention)**International class**
(IPC 1-7): B60G17/00 B60G17/01 B60G3/18**CPC:** B60G2204/42 B60G2300/12 B62K5/01 B60G21/007 B60G7/006 B60G17/0162 B60G17/0165 B60G2200/144 B60G2200/46 B60G2202/413 B60G2202/42 B60G2202/442 B60G2204/13 B60G2204/143 B60G2204/20 B60G2204/421 B60G2204/4232 B60G2300/45 B62D9/02 B62K5/10 B62K2005/001**European class:** B60G17/0165 B60G17/016F B60G21/00D B60G7/00D B62D9/02 B62K5/01 B62K5/10 L60G200/144 L60G200/460 L60G202/413 L60G202/42 L60G202/442 L60G204/130 L60G204/143 L60G204/20 L60G204/42 L60G204/421 L60G204/4232 L60G300/12 L60G300/45 L62K5/00B**US class:**

280/124.103 280/124.103P 280/124.135 280/124.135P 280/5.5 280/5.508 280/5.509
280/5.52 280/5.521 280/5.522 280/5.54 280/86.75 280/86.751 280/86.757

Classification Explorer

Cited documents: WO9849023 A1, WO9637375 A1, WO9515865 A1, WO04098916 A1, WO02058949 A1, WO0038939 A1, US69537703, US6805362 BA, US6406036 BA, US6279920 BA, US6267387 BA, US5580089 A, US55542504 P, US5435193 A, US5324056 A, US4927169 A, US4826206 A, US4700972 A, US4546997 A, US42827403, US3652104 A, JP6064438 A2, JP5085133 A2, JP3279010 A2, JP1311907 A2, JP10311907 A2, GB2155410 A1, FR2121813 A1, DE10007658 A1,

Forward Citations: WO10120381, WO05051712, WO05051712, USRE44854, US9616922, US9545976, US9527543, US9487234, US9283989, US9248857, US9193243, US9145168, US9090281, US9045015, US9010784, US8925940, US8899372, US8833775, US8814186, US8762003, US8746717, US8657301, US8602421, US8556009, US8485541, US8387740, US8360440, US8342548, US8251375, US8235404, US8235398, US8141890, US8128110, US8123240, US8050820, US7967306, US7963361, US7931286, US7918472, US7909340, US7887074, US7883099, US7870926, US7845666, US7802800, US7708291, US7665742, US7631721, US7591337, US7571787, US7568541, US7513516, US7497294, US7487985, US7485984, US7461712, US7438143, US7357400, US7281716, US7131650, US2016137251, US2016129937, US2016059661, US2014252731, US2014049012, US2013193656, US2012248717, US2012232758, US2011298191, US2011006498, US2010326761, US2010320023, US2010264623, US2010219600, US2010194068, US2010075727, US2010072721, US2010044977, US2010025944, US2010007109, US2009283350, US2009256326, US2009036021, US2008290618, US2008223637, US2008087469, US2008087468, US2007262549, US2007246903, US2007228675, US2007205576, US2007193815, US2007075517, US2007075514, US2006264151, US2006255550, US2006151225, US2005248116, US2005040619, GB2503094, GB2503094, ES2550525, EP2199194, EP1944228, EP1799472, CN104249788, CN104249788,

Abstract:

Source: US2005040619A A frame and suspension for a vehicle provides automatic lean and alignment. The lean is determined by force sensors, the speed and/or the angle of turn and is provided by actuators in the suspension in accordance with a predetermined protocol in an electronic control unit (ECU). The protocol also provides shock absorption by rapidly tracking a contour of a surface on which the vehicle rides. The suspension is provided by a plurality of arm assemblies each including a lower arm, an upper control arm, and an actuator motively connected to the lower arm and to the upper control arm. The arm assemblies are pivotally connected to the frame on a common axis. The arm assemblies generally form parallelograms and are actuated in concert to remain generally parallel to each other through a range of angles to adjust the lean of the vehicle. The arm assemblies are also actuated independently of each other to accommodate variations in the contour. In one aspect, an actuator controlled by an ECU can be replaced by a mechanical actuator that can be activated manually such as by a driver's own leaning weight.

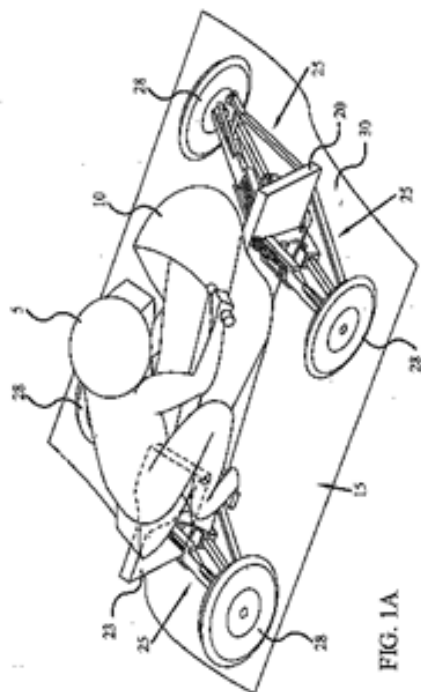
PatBase - W005051712_A2

W0 2005/051712

PC/PUB/2006/01/04/077

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0) US2015329165A – VEHICLE STABILITY, STEERING, RIDE CHARACTERISTI...

16) Family number: 56485527 (US2015329165A)

© PatBase

Title: VEHICLE STABILITY, STEERING, RIDE CHARACTERISTICS AND CONTROL
Priority: AU20120905017 20121119 AU20130344834 20131119 WO2013AU01331 20131119
Family:

Publication number	Publication date	Application number	Application date
AU2013344834 AA	20140522	AU20130344834	20131119
EP2920049 A1	20150923	EP20130854509	20131119
EP2920049 A4	20160803	EP20130854509	20131119
US2015329165 AA	20151119	US20130443599	20131119
WO14075152 A1	20140522	WO2013AU01331	20131119

Probable Assignee: PAGE ALAN

Assignee(s):^(std): PAGE ALAN

Inventor(s):^(std): CONTARINO ALDO ; PAGE ALAN

Agent(s): WATERMARK PATENT AND TRADE MARKS ATTORNEYS; WATERMARK
INTELLECTUAL PROPERTY PTY LTD; MANSFIELD PETER TURQUAND

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH
CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE
GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ
LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ
NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG
SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA
ZM ZW

International class [B62K21/20](#) [B62K25/06](#) [B62K25/10](#) [B62K5/02](#) [B62K5/027](#) [B62K5/06](#)
^(IPC 8-9): [B62K5/10](#) (Advanced/Invention)

CPC: [B62K25/08](#) [B62K5/10](#) [B62K5/027](#) [B62K21/20](#) [B62K25/06](#) [B62K25/10](#) [B62K5/02](#) [B62K5/06](#)
[B62K2005/001](#)

US class: [180/205.1](#) [180/21](#) [280/266](#) [280/274](#)

[Classification Explorer](#)

Cited documents: WO0187689 A1, US9114844 BB, US9061724 BB, US8292315 BA, US8141890 BB,
US8070172 BA, US7708291 BA, US7661690 BB, US7552790 BB, US7543829 BA,
US7487985 BA, US6062581 A, US5941548 A, US5762351 A, US5730453 A, US5727801
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US4789173 A, US4572535 A, US4497502 A, US4088199 A, US3605929 A,
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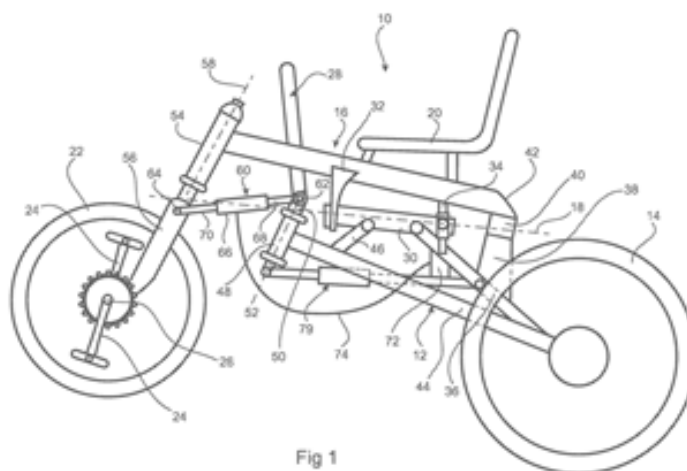
DE102008004074 A1

Forward Citations: US9580131, CN104787178, CN104554550,

Abstract:

Source: US2015329165A A vehicle O, such as a tricycle, has a pair of rear wheels 14 mounted to a first sub-frame 12, and a second sub-frame 16 pivotally coupled to the first sub-frame and arranged to pivot about a first pivot axis 18 relative to said first sub-frame. Relative rotation between the first and second sub-frames is provided, such as by one or more elastomeric couplings or bearings e.g. torsional pivot 98. At least one front wheel 22 is coupled to the second sub-frame via forks and a steering head. A seat 20 for a rider is supported by the second sub-frame. Handlebars 28 are coupled to the steering head via at least one steering member, such as a mechanical link 60 or hydraulic, magnetic or electrical link. The cycle is steered by a combination of handlebar and/or lean steer. Steering can be damped by a damper 79. Handlebar steer involves manipulating the handlebars to act on the steering arm which rotates the steering head and therefore also the front wheel(s) to steer the front wheel(s). Lean steer articulates the second sub-frame relative to the first sub-frame and causes the front wheel(s) to steer via movement of the steering head coupled to the second sub-frame. Steering can transition or be trimmed (feathered) between these two modes dependent on speed and terrain.

PatBase - W014075152_A1



17) Family number: 15652193 (US2004124033A)

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Title: UTILITY MOTOR VEHICLE WITH CARRIER
Priority: US20000504648 20000214 US20030660895 20030912 WO2001US04771 20010213
Family:

Publication number	Publication date	Application number	Application date
AU2001238273 AA	20010827	AU20010238273	20010213
AU2001238273 BB	20041028	AU20010238273	20010213
AU200138273 A5	20010827	AU20010038273	20010213
CA2399789 AA	20020809	CA20012399789	20010213
EP1263642 A1	20021211	EP20010910690	20010213
JP2003523809 T2	20030812	JP20010559748T	20010213
US2004124033 AA	20040701	US20030660895	20030912
US6631925 BA	20031014	US20000504648	20000214
US6860512 BB	20050301	US20030660895	20030912
WO0160684 A1	20010823	WO2001US04771	20010213

Probable Assignee: WILLIAM LAWSON JR
Assignee(s):^(std) LAWSON JR WILLIAM M ; LAWSON WILLIAM M JR ; WILLIAM LAWSON JR
Assignee(s): WILLIAM M LAWSON JR ; LAWSON WILLIAM M
Inventor(s):^(std) LAWSON JR WILLIAM M ; LAWSON WILLIAM M JR ; WILLIAM M LAWSON JR ; LAWSON WILLIAM M
Agent(s): SPRUSON AND FERGUSON; VERMETTE AND CO; CAHILL VON HELLENS AND GLAZER PLC
Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CR CU CY CZ DE DK DM DZ EE ES FI FR GA GB GD GE GH GM GN GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
International class
 (IPC 8-9): [A63G25/00 B62D21/18 B62D63/00 B62D63/02 B62J1/00 B62J1/06 B62K21/24 B62K5/00 B62K9/00](#) (Advanced/Invention);
[A63G25/00 B62D21/18 B62D63/00 B62J1/00 B62K21/00 B62K5/00 B62K9/00](#) (Core/Invention)
International class
 (IPC 1-7): [A63G25/00 B62D21/00 B62D63/00 B62D63/02 B62J1/00 B62J1/06 B62K21/24 B62K5/00](#)
CPC: [B62D21/183 B62D63/00 B62K9/00](#)
European class: [B62D21/18B B62D63/00 B62K9/00](#)
US class: [180/291 180/312 180/65.1 280/781](#)

[Classification Explorer](#)

Cited documents: US6656010 BA, US6631925 BA, US6405817 BA, US6105982 A, US6026923 A, US6007126 A, US5992863 A, US5992556 A, US5984356 A, US5924506 A, US5921341 A, US5863051 A, US5845724 A, US5836597 A, US5740878 A, US5363934 A, US5324056 A, US5323867 A, US5312126 A, US5307889 A, US5306034 A, US5238267 A, US5042607 A, US5036938 A, US4988143 A, US4984645 A, US4973075 A, US4862668 A, US4861058 A, US4798400 A, US4709958 A, US4682668 A, US4643695 A, US4629023 A, US4614249 A, US4606429 A, US4574902 A, US4562893 A, US4535869 A, US4475618 A, US4217970 A, US4185711 A, US3842928 A, US3829117 A, US3799283 A, US3684046 A, US2468316 A, US2415596 A, US2336511 A,

Forward Citations: WO09059099, WO06019453, USD601640, US9623342, US9574356, US9221470, US9220991, US9150102, US9027685, US8028597, US7554217, US7549494, US7461864, US7407032, US7249657, US7195271, US6860512, US2014227941, US2012285755, US2012217074, US2007107541, US2006261674, US2006090950, US2006086574, US2006048532, US2006038380, US2005288111, US2005280254, US2005173166, US2004154854, US2004129471, US2004124033, US2004035626, JP2013068762, CN102774278, CN102774278, AU2005272999,

Abstract:

Source: US2004124033A A miniaturized four wheel vehicle includes a forwardly located compartment for transporting articles. Robust side mounted footrests, in combination with a forwardly canted steering handlebar urges a driver to lean into a turn to enhance stability during turns. The motor and related heavy components are mounted low on the frame to maintain the center of gravity close to the ground. A drive train of cog wheels and cog belt ensure corresponding rotation of the motor and rear axle to maintain affirmative control over forward and rearward movement. If an electric motor is used, soft start circuitry prevents abrupt starts. By mounting the front and rear axles at different heights relative to the frame, the frame will cant forwardly downwardly for better control and maneuverability.

PatBase - W00160684_A1

WFO 01/06/04

PCT/US00/0471

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FIG. 1

SUBSTITUTE SHEET (RULE 26)

18) Family number: 32019350 (US2005133294A)

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Title: INDUSTRIAL VEHICLE
Priority: KR20030095798 20031223 KR20030095799 20031223 KR20030095800 20031223
Family:

Publication number	Publication date	Application number	Application date
CN1636859 A	20050713	CN200410102459	20041223
EP1547905 A2	20050629	EP20040028914	20041207
EP1547905 A3	20051214	EP20040028914	20041207
JP2005200005 A2	20050728	JP20040361892	20041214
KR100541365 B1	20060111	KR20030095798	20031223
KR100620788 B1	20060913	KR20030095799	20031223
KR100631388 B1	20061004	KR20040078208	20041001
KR20050064434 A	20050629	KR20030095798	20031223
KR20050064435 A	20050629	KR20030095799	20031223
KR20050065276 A	20050629	KR20040078208	20041001
US2005133294 AA	20050623	US20040964997	20041014
US7152709 BB	20061226	US20040964997	20041014

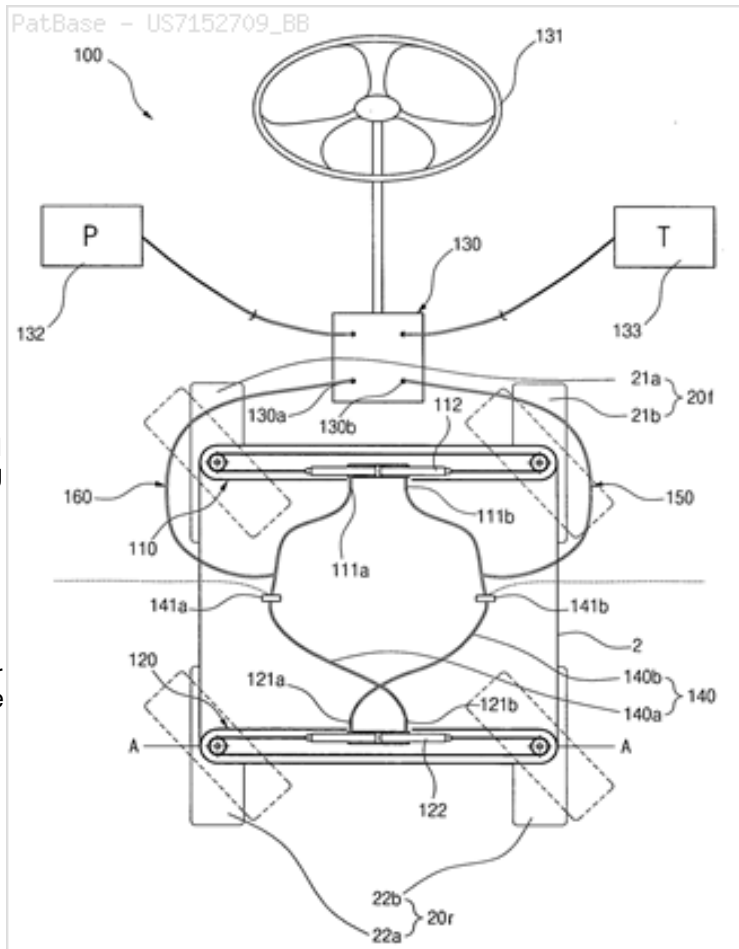
Probable Assignee: HYO CHUN CO LTD
Assignee(s):^(std): HYO CHUN CO LTD
Assignee(s): HYO CHUN CO
Inventor(s):^(std): JUN MO JUNG ; JUNG JUN M ; JUNG JUN MO
Inventor(s): JUNG JUN
Agent(s): LADAS AND PARRY; LADAS AND PARRY LLP
Designated states: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR
International class
 (IPC 8-9): [B62D5/06 B62D5/12 B62D7/02 B62D7/06 B62D7/14 B62D9/00 B66F9/00 B66F9/06 B66F9/065 B66F9/075 F16H48/00](#) (Advanced/Invention);
[B62D5/06 B62D7/14 B62D9/00 B66F9/06](#) (Advanced/Non-invention);
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International class
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European class: [B62D5/12 B62D7/02C B66F9/065T B66F9/075D](#)
US class: [180/414 414/686](#)

[Classification Explorer](#)

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Forward Citations: US9410304, US9267245, US9045882, US8464819, US7597160, US2011217151, US2009097954, US2007051540, KR101102817, KR100771581, EP2357286, EP2210854, CN104229676, CN102442341, CN102061716, CN101966973,

Abstract:

Source: US2005133294A Disclosed is an industrial vehicle, in which a progress direction of the industrial vehicle is easily changed by mounting a steering system steering front and rear wheels in the same direction without any restriction to a steering angle, which a stacked position of an object is freely selected by mounting a boom length adjuster and a working tool horizontal adjuster to a boom assembly and mounting an upper frame pivoting unit to the vehicle, to thereby adjust a boom length by means of a leading end of a working tool which moves along a linear path in a substantially vertical direction. The industrial vehicle comprises a lower frame in front and rear of which front and rear wheels are installed, an upper frame rotatably coupled on an upper side of the lower frame, a steering system rotating the front and rear wheels in a predetermined direction as a steering wheel is rotated, a differential driving unit mounted each wheels and differentially driving the left wheel and the right wheel according to a load applied to the wheels, a boom assembly having a boom length adjuster, and an upper frame pivoting unit provided between the lower and upper frames and rotating the upper frame in relation to the lower frame.



19) Family number: 48391329 (US2012145470A)

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Title: TWO–WHEELED MOTOR VEHICLE
Priority: EP20100811427 20100705 JP20090194735 20090825 WO2010JP04373 20100705
Family:

Publication number	Publication date	Application number	Application date
AU2010288005 AA	20110303	AU20100288005	20100705
AU2010288005 BB	20140508	AU20100288005	20100705
BR112012004234 A2	20160405	BR20121104234	20100705
CN102597482 A	20120718	CN201080033489	20100705
CN102597482 B	20150930	CN201080033489	20100705
CO6430488 A2	20120430	CO20120027731	20120216
DE602010022162 D1	20150312	DE201060022162T	20100705
EP2472094 A1	20120704	EP20100811427	20100705
EP2472094 A4	20130410	EP20100811427	20100705
EP2472094 B1	20150128	EP20100811427	20100705
IN01704CN2012 A	20121026	IN2012CN01704	20120224
JP2011047294 A2	20110310	JP20090194735	20090825
JP5399168 B2	20140129	JP20090194735	20090825
TH130109 A	20131211	TH20121000716	20100705
TH42001 B	20141107	TH20121000716	20100705
US2012145470 AA	20120614	US20100389729	20100705
US8302722 BB	20121106	US20100389729	20100705
WO11024368 A1	20110303	WO2010JP04373	20100705
ZA201201068 A	20130529	ZA20120001068	20120214

Probable Assignee: HONDA MOTOR CO LTD

Assignee(s):^(std): FUJIYAMA KOTARO ; HONDA MOTOR CO LTD

Assignee(s): HONDA GIKEN KOGYO KABUSIKI KAISHA ; HONDA MOTOR CO

Inventor(s):^(std): FUJIYAMA KOTARO ; KOTARO FUJIYAMA

Agent(s): SPRUSON AND FERGUSON; WEICKMANN AND WEICKMANN PATENTANWALTE RECHTSANWALT PARTMBB; FELLER FRANK; BIRCH STEWART KOLASCH AND BIRCH LLP; KUSHIBUCHI AND ASSOCIATES

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class
 (IPC 8–9): [B60K11/04](#) [B62D11/00](#) [B62J35/00](#) [B62J99/00](#) [B62M7/06](#) [F02M35/024](#)
[F02M35/16](#) (Advanced/Invention);
[F02M35/16](#) (Core/Invention);
[B62J F02M](#) (Subclass/Invention)

CPC: [F02M35/02491](#) [B62J37/00](#) [F02M35/0203](#) [F02M35/04](#) [F02M35/162](#)

European class: [B62J37/00](#) [F02M35/024S4](#) [F02M35/02H2C](#) [F02M35/16C](#)

US class: [180/219](#)

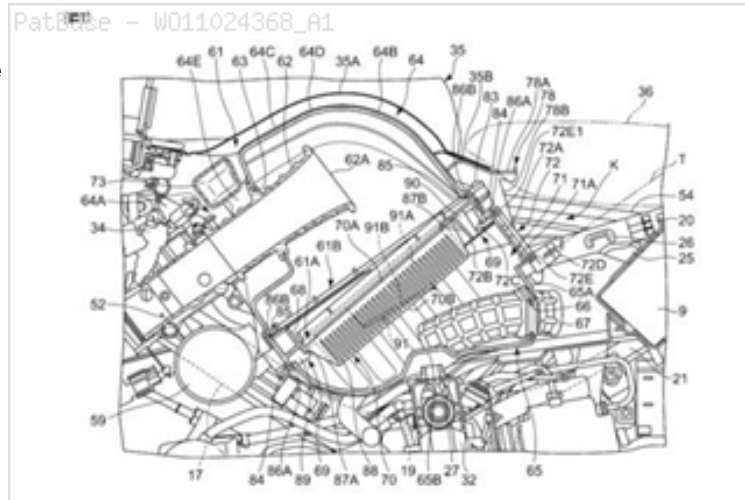
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Cited documents: US5494497 A, US2009242305 AA, US2008230030 AA, US2006065457 AA, US2001030071 AA, JPS6453055, JPS60101268, JPS55164765, JP7132868 A2, JP64053055 A2, JP60101268 A2, JP55164765 A2, JP5026124 A2, JP4325761 A2, JP3466043 B2, JP2003336553 A2, JP2001329921 A2, JP1208559 A2, GB2348153 A1,

Forward Citations: WO15018689, US9016414, US8991533, US8919480, US8864157, US8863881, US2014062058, US2013248271, US2013192912, US2013068551, JP6083601, JP5905091, JP5852071, JP2015132233, JP2015063257, JP2014196043, JP2013194623, JP2013179501,

Abstract:

Source: US2012145470A An air cleaner case whereby a seat height can be reduced and the air cleaner case can be disposed in proximity to an engine. In a two-wheeled motor vehicle having a vehicle body frame, a fuel tank disposed at a front upper side of the vehicle body frame, a seat disposed behind the fuel tank and above the vehicle body frame, an engine suspended between the lower side of the fuel tank and the lower side of the vehicle body frame, an air cleaner case, a plate-like element disposed in the air cleaner case, and a maintenance lid used when the plate-like element is mounted/dismounted, the air cleaner case is disposed below the fuel tank, the plate-like element is disposed to be tilted rearward and upward in side view of the vehicle, and the maintenance lid is provided below the seat so as to face the seat.



20) Family number: 15388887 (US2003034622A)

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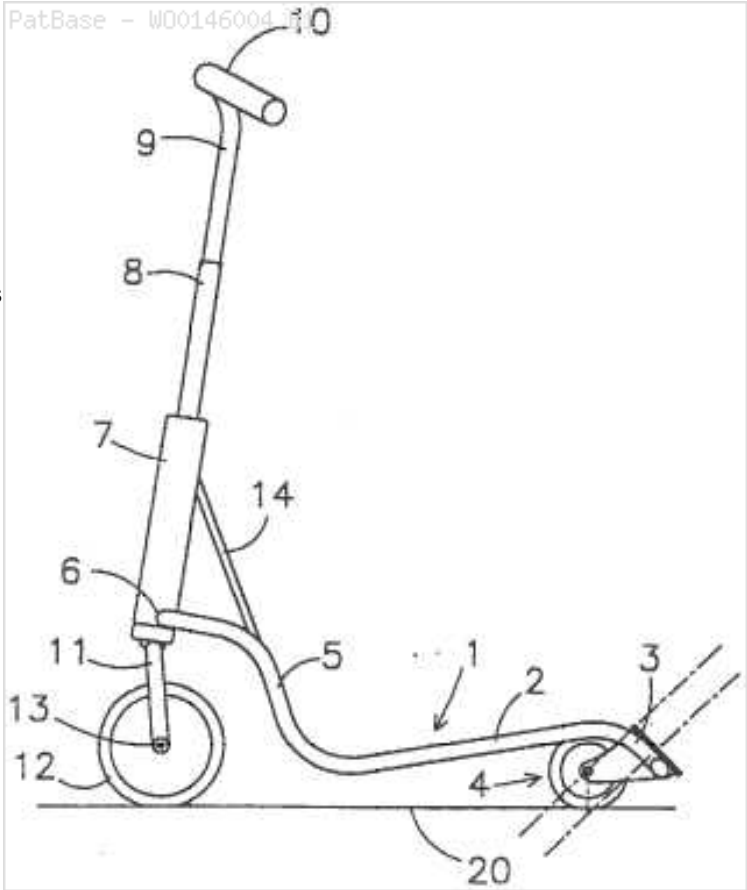
Title: Scooter**Priority:** NL19991013919 19991222 WO2000NL00930 20001219**Family:**

Publication number	Publication date	Application number	Application date
AU200132436 A5	20010703	AU20010032436D	20001219
EP1240073 A1	20020918	EP20000991333	20001219
NL1013919 C2	20010625	NL19991013919	19991222
US2003034622 AA	20030220	US20020173400	20020617
US6619678 BB	20030916	US20020173400	20020617
WO0146004 A1	20010628	WO2000NL00930	20001219
WO0146004 B1	20011101	WO2000NL00930	20001219

Probable Assignee: ROBERTUS ANTHONIUS MARIA VAN A**Assignee(s):^(std):** ARDENNE ROBERTUS ANTHONIUS MAR ; ROBERTUS ANTHONIUS MARIA VAN A ; ROBERTUS ANTHONIUS MARIA VAN ARDENNE ; VAN ARDENNE ROBERTUS A M ; VAN ARDENNE ROBERTUS ANTHONIUS**Assignee(s):** VAN ARDENNE ROBERTUS ANTHONIUS MARIA ; VAN ARDENNE ROBERTUS ANTONIUS MARIA**Inventor(s):^(std):** ARDENNE ROBERTUS ANTHONIUS MAR ; ROBERTUS ANTHONIUS MARIA VAN ARDENNE ; VAN ARDENNE ROBERTUS A M ; VAN ARDENNE ROBERTUS ANTHONIUS**Inventor(s):** VAN ARDENNE ROBERTUS ANTHONIUS MARIA ; VAN ARDENNE ROBERTUS ANTONIUS MARIA**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CR CU CY CZ DE DK DM DZ EE ES FI FR GA GB GD GE GH GM GN GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW**International class**
(IPC 8-9): [B62H1/04](#) [B62K15/00](#) [B62K21/00](#) [B62K3/00](#) (Advanced/Invention);
[B62H1/00](#) [B62K15/00](#) [B62K21/00](#) [B62K3/00](#) (Core/Invention)**International class**
(IPC 1-7): [B62H1/04](#) [B62K15/0](#) [B62K15/00](#) [B62K21/00](#) [B62K3/00](#) [B62M1/0](#)**CPC:** [B62H1/04](#) [B62K3/002](#) [B62K15/00](#) [B62K21/00](#)**European class:** [B62H1/04](#) [B62K15/00](#) [B62K21/00](#) [B62K3/00B](#)**US class:** [280/287](#) [280/40](#) [280/87.041](#) [280/87.05](#)[Classification Explorer](#)**Cited documents:** WO9534461 A1, US6120044 A, US5984328 A, US5954349 A, US5848660 A, US5259632 A, US5118122 A, US4991861 A, US4805934 A, US4799702 A, US4799701 A, US4707884 A, US4555122 A, US3620547 A, US3442528 A, US3203706 A, US3023022 A, US2861814 A, US2474946 A, US2253649 A, US2170978 A, US1227888 A, NL1007245 C1, NL1007245 C, EP0300650 A1, DE4124165 A1, DE29710509 U1, DE2971050, DE29700486 U1, DE2970048, DE29622219 U1, DE2962221, DE29612216 U1, DE2961221, DE29519090 U1, DE2951909, DE19738048 A1, DE19633061 C1,**Forward Citations:** WO13088107, WO12128828, WO06135235, USD756465, USD736861, USD736679, USD547388, US9387900, US9108693, US9079627, US9051017, US8939454, US8870200, US8662508, US8632084, US8632083, US8500147, US8020881, US7597333, US2015137470, US2014312588, US2014306422, US2014217694, US2014070508, US2013257003, US2013001909, US2011241302, US2010117326, US2010117316, US2010059956, US2009160150, US2008029985, US2007235970, US2006181050, US2006175784, US2006048532, US2005012289, TWI576272, GB2505846, GB2505846, EP2371691,

Abstract:

Source: US2003034622A A two-axled vehicle, such as a scooter, is provided having a frame with a platform section. The platform section is connected at the front to a steering column. The vehicle has a front wheel arranged on a steering rod, toward a front of the vehicle, and a back wheel toward the rear. The frame has a back section or tailpiece behind the platform section which projects as far as behind the wheel area and on which the back wheel is arranged. The back wheel has an axle which is supported by a shaped part that can pivot freely with respect to the tailpiece about an axis which is directed downwards and forwards at an acute angle with respect to the support surface ("the road") for the two wheels.



21) Family number: 383043 (US3410357A)**Title:** GYRO STABILIZED VEHICLE**Priority:** FR19670100875 19670330 US19660539186 19660331

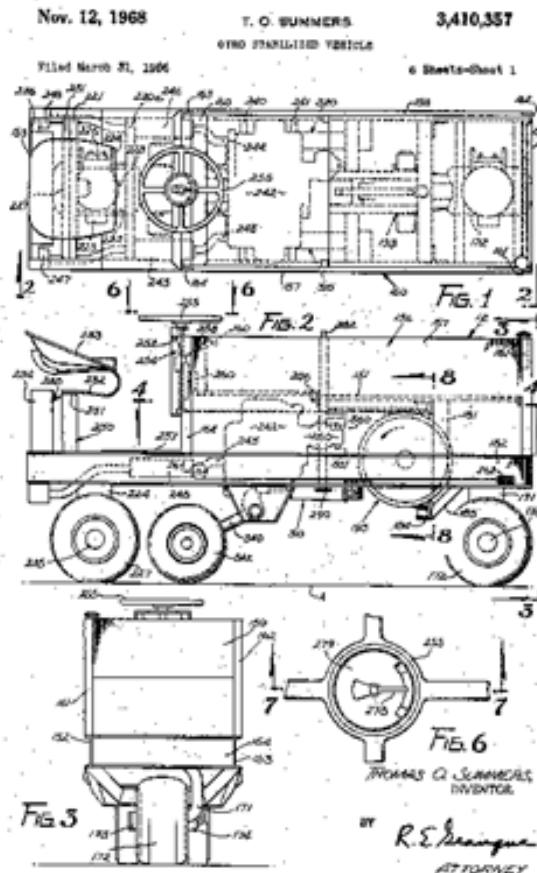
Family:	Publication number	Publication date	Application number	Application date
	<u>DE1580783 B1</u>	19701029	DE19661580783	19661230
	<u>FR1526094 A</u>	19680524	FR19670100875	19670330
	<u>GB1179481 A</u>	19700128	GB19670014708	19670331
	<u>NL6704667 A</u>	19671002	NL19670004667	19670331
	<u>SE328419 B</u>	19700914	SE19670004454	19670331
	<u>US3410357 A</u>	19681112	US19660539186	19660331

Probable Assignee: THOMAS O SUMMERS**Assignee(s):**^(std): SUMMERS T ; SUMMERS THOMAS OSMOND ; THOMAS O SUMMERS**Assignee(s):** THOMAS OSMOND SUMMERS**Inventor(s):**^(std): OSMOND SUMMERS THOMAS ; SUMMERS T ; SUMMERS THOMAS O ; SUMMERS THOMAS OSMOND**Inventor(s):** THOMAS OSMOND SUMMERS**International class**
^(IPC 8-9): [B62D37/06](#) (Advanced/Invention);
[B62D37/00](#) (Core/Invention)**International class**
^(IPC 1-7): [B60G21/08 B62D49/08 G01C19/02 G01C19/44](#)**CPC:** [Y10T74/1218 B62D37/06](#)**European class:** [B62D37/06](#)**US class:** [180/209 180/224 180/30 180/306 74/5.22](#)[Classification Explorer](#)**Cited documents:** US991485 A, US3277840 A, US3234797 A, US3124007 A, US2681117 A, US2579570 A, US2558562 A, US1407491 A, GB980529 A, FR1226661 A, DE623214 A, DE259032 A, DE174402 A,**Forward Citations:** US8615356, US6360838, US5839386, US5348265, US5207408, US4691798, US4133402, US3980150, US3804455, US3787066, US2012072099, GB2339470, FR2424845, CN102837745, CN102837745,

Abstract:

Source: US3410357A ABSTRACT OF THE DISCLOSURE A motorcycle-like vehicle is roll stabilized by precession of a gyro frame containing a gyro rotor of high moment of inertia spinning at high speed. The frame is pivotally secured to the chassis of the vehicle for unrestrained precessional freedom about an axis perpendicular to both the roll axis of the vehicle and the spin axis of the gyro. When random roll torque precesses the frame, equal and opposite internal gyroscopic countertorque keeps the vehicle from tipping. When the frame is precessed away from its normal position, a sensor activates motors capable of selectively applying precessional roll torque to the vehicle. This torque precesses the frame toward its normal position. Selective precessional torque also is applied to the frame to cause roll precession of the vehicle; which precession produces equilibrating internal gyroscopic countertorque. This countertorque keeps the frame from being displaced by the precessional frame torque. The precessional frame torque, a function of the commanded roll torque, precesses the vehicle into an equilibrium position in which the commanded roll torque is substantially zero.

PatBase - US3410357_A



22) Family number: 56155158 (US2015203162A)

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Title: COMPACT VEHICLE

Priority: EP20130874421 20131209 JP20130022766 20130208 JP20130249696 20131203
 WO2013JP82895 20131209 US20140412116 20141230 US20160214811 20160720

Family:

Publication number	Publication date	Application number	Application date
<u>CN104395183 A</u>	20150304	CN201380032412	20131209
<u>CN104395183 B</u>	20160420	CN201380032412	20131209
<u>DE602013013987 D1</u>	20161222	DE201360013987T	20131209
<u>EP2865583 A1</u>	20150429	EP20130874421	20131209
<u>EP2865583 A4</u>	20150930	EP20130874421	20131209
<u>EP2865583 B1</u>	20161109	EP20130874421	20131209
<u>IN11127DN2014 A</u>	20160831	IN2014DN11127	20141226
<u>JP2014151761 A2</u>	20140825	JP20130022766	20130208
<u>JP2014151903 A2</u>	20140825	JP20130249696	20131203
<u>JP5441044 B1</u>	20140312	JP20130022766	20130208
<u>JP6029107 B2</u>	20161124	JP20130249696	20131203
<u>US2015203162 AA</u>	20150723	US20130412116	20131209
<u>US2016325789 AA</u>	20161110	US20160214811	20160720
<u>US9440685 BB</u>	20160913	US20130412116	20131209
<u>WO14122846 A1</u>	20140814	WO2013JP82895	20131209

Probable Assignee: SEARCHWARE KK**Assignee(s):^(std):** SEARCHWARE INC ; SEARCHWARE KK**Assignee(s):** SEARCHWARE HAMAMATSU SHI KK**Inventor(s):^(std):** SUZUKI MASANOBU**Agent(s):** JOHANSSON LARS E; MAIER AND MAIER PLLC; TORII MASANORI

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH
 CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE
 GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA
 LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA
 NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI
 SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM
 ZW

International class B60J5/02 B60K1/04 B60K7/00 B60L11/18 B60L15/20 B60L3/00 B60N2/24 B60R21/231
^(IPC 8-9) B62D21/15 B62D25/00 B62D27/00 B62D31/00 B62D33/06 (Advanced/Invention);
B60K7/00 B60R21/00 (Advanced/Non-invention)

CPC: B62D31/003 B62D21/152 B60R21/23138 B60N2/24 B60R2021/0004 B60K1/04
B60R2021/0011 B60R2021/23146 B60J5/02 B60K7/0007 B60K2001/0411
B60K2001/0416 B60L3/0007 B60L3/0046 B60L11/1877 B60L15/20 B60L2200/22
B60L2220/46 B60L2240/12 B60L2250/10 B60L2250/26 B60L2270/145 B60Y2200/112
B60Y2306/01 Y02T10/645 Y02T10/7005 Y02T10/705 Y02T10/72 Y02T10/7275
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US class: 1/1 180/271 180/274 296/190.03[Classification Explorer](#)

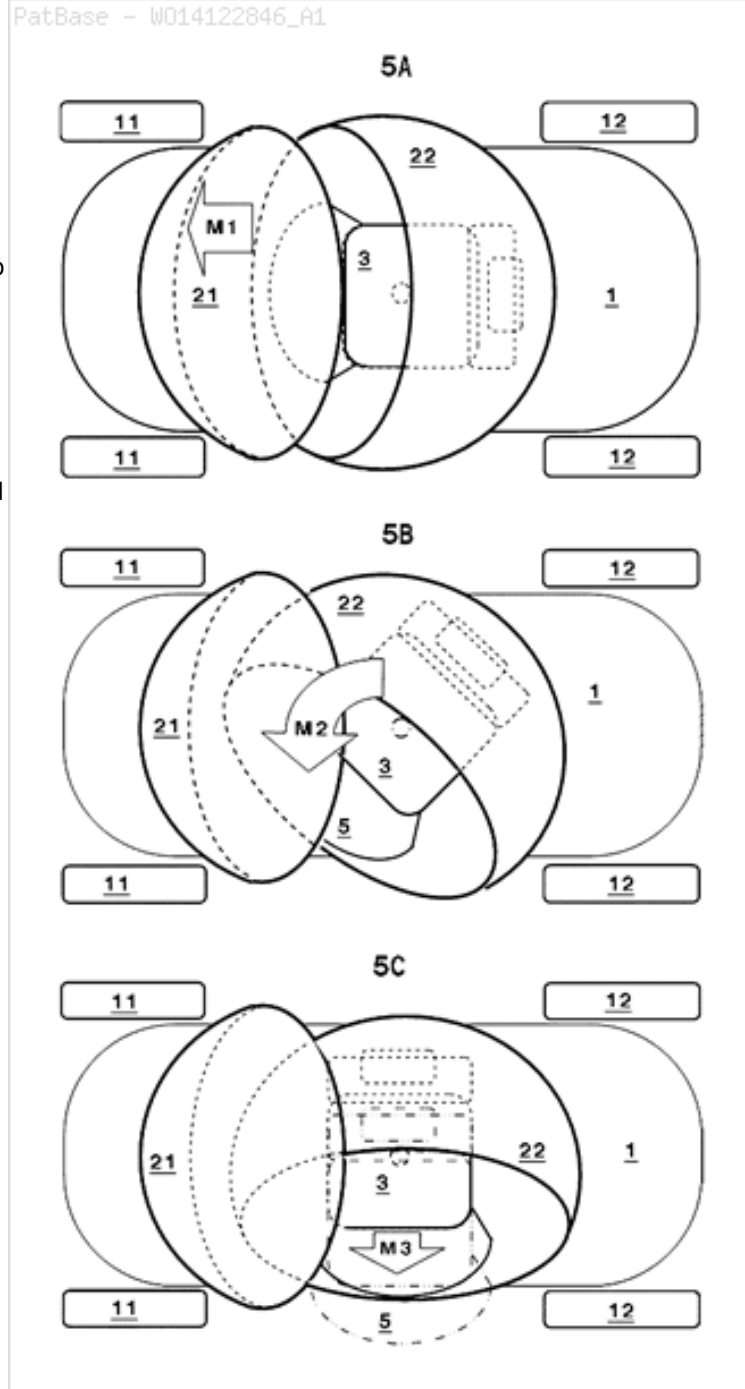
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 US5082305 A, US4412595 A, US2822214 A, US2009256395 AA, US2006131847 AA,
 US2003218319 AA, JP9286348 A2, JP8332856 A2, JP7108833 A2, JP5515984 B2,
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Forward Citations: US9616922, US9266413, US2016137229, KR101506495, KR101506494, KR101210697, JP5839245, JP2015077959, EP2995532, EP2995532,

Abstract:

Source: US2015203162A A seat section protecting structure, having a seat at the center thereof, is supported on a chassis frame so that it can swivel horizontally. While running, the lateral side of the seat is covered by the seat section protecting structure so as to protect the passenger from the risk of a collision from the side of the vehicle or a rollover, and while the passenger gets on/off, the seat section protecting structure swivels so that the opening, which allows the passenger to get on/off therethrough, is located on the lateral side of the vehicle. The vehicle has its seat and batteries arranged at optimal positions so as to increase the space efficiency and safety within a limited volume space. Moreover, a steering handle is provided, which is made while taking passenger accessibility into consideration, and an airbag unique to this vehicle is provided in order to increase safety.



23) Family number: 50897763 (US2012080249A)

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Title: FRONT WHEEL ENERGY RECOVERY SYSTEM

Priority: US20100897534 20101004 US20130838989 20130315 US20140305534 20140616

Family:

Publication number	Publication date	Application number	Application date
TW201223822 A	20120616	TW20110135773	20111003
US2012080249 AA	20120405	US20100897534	20101004
US2013226381 AA	20130829	US20130838989	20130315
US2014291050 AA	20141002	US20140305534	20140616
US8761984 BB	20140624	US20130838989	20130315
US8973690 BB	20150310	US20100897534	20101004
US9043067 BB	20150526	US20140305534	20140616
WO12047754 A1	20120412	WO2011US54227	20110930

Probable Assignee: MORRISON CONSULTING GROUP INC W

Assignee(s):^(std): INGRAM BENJAMIN T ; MORRISON CONSULTING GROUP INC W ; MORRISON CONSULTING GROUP INC W ; YATES III WILLIAM M ; YATES WILLIAM M III

Assignee(s): WMORRISON CONSULTING GROUP INC ; YATES WILLIAM M ; W MORRISON CONSULTING GROUP INC ; W MORRISON CONSULTING GROUP INC

Inventor(s):^(std): INGRAM BENJAMIN T ; YATES III WILLIAM M ; YATES WILLIAM M ; YATES WILLIAM M III

Agent(s): MCKENNA LONG AND ALDRIDGE LLP; JUNG SONG K

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class
(IPC 8-9): [B60K1/00](#) [B60L11/00](#) [B60L15/20](#) [B60L7/18](#) [B62K11/04](#) [B62M23/02](#) [B62M6/40](#) [B62M6/80](#) [B62M6/90](#) [B62M7/02](#) [G06F19/00](#) [H02P3/14](#) (Advanced/Invention)

CPC: [B60L11/002](#) [B60L7/18](#) [B60L15/2045](#) [B60L2200/12](#) [B62K11/04](#) [B62K2204/00](#) [B62M7/02](#) [B62M23/02](#) [Y02T10/7283](#) [Y02T10/645](#) [Y02T10/72](#)

European class: [B60L15/20E](#) [B60L7/18](#) [B62K11/04](#) [B62M23/02](#) [B62M7/02](#) [L60L200/12](#) [L62K204/00](#) [Y02T10/72D6](#)

US class: [180/220](#) [180/65.21](#) [180/65.31](#) [180/65.310P](#) [180/65.6](#) [290/1R](#) [701/22](#) [701/22S](#)

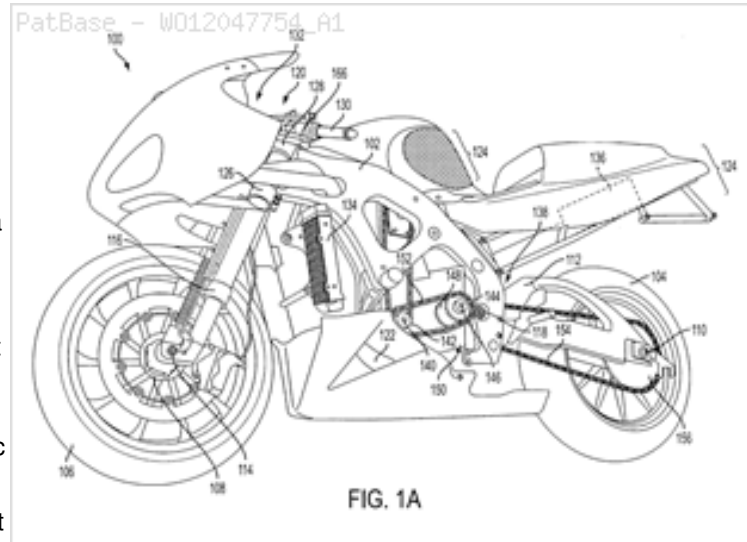
[Classification Explorer](#)

Cited documents: WO9011218 A1, WO05044602 A2, WO0058121 A1, US8413748 BB, US8225897 BA, US8151919 BB, US8056693 BB, US8042641 BB, US7775314 BB, US7570012 BB, US7487854 BB, US7328766 BB, US7290629 BB, US7231998 BA, US6888273 BB, US6833642 BA, US6724165 BB, US6663524 BB, US6505699 BA, US6446985 BA, US6439592 BA, US6398683 BA, US6196347 BA, US6182991 BA, US6161855 A, US6161854 A, US6158543 A, US6068279 A, US6039137 A, US5894903 A, US5873428 A, US5865267 A, US5671821 A, US5644202 A, US5491390 A, US5324057 A, US5253889 A, US5113964 A, US5054572 A, US5052705 A, US5050699 A, US5042608 A, US4479660 A, US4397369 A, US3939932 A, US3934669 A, US3199623 A, US3045772 A, US3024860 A, US2012211291 AA, US2012184379 AA, US2012109483 AA, US2012065825 AA, US2012052995 AA, US2011295454 AA, US2011295452 AA, US2011292667 AA, US2011291462 AA, US2011231085 AA, US2011231060 AA, US2011231041 AA, US2011162900 AA, US2011036656 AA, US2010243350 AA, US2010243349 AA, US2010236849 AA, US2010018787 AA, US2009188738 AA, US2008234933 AA, US2008100027 AA, US2008066984 AA, US2007235235 AA, US2007169973 AA, US2005173176 AA, US2004134696 AA, US2003169002 AA, JP8262971 A2, JP5085444 A2, JP5085443 A2, JP5085441 A2, JP5085439 A2, JP5085438 A2, JP5085437 A2, JP4151390 A2, JP2009161026 A2, JP2004210072 A2, EP0798202 A1,

Forward Citations: WO15006277, US9616755, US9573590, US9457668, US9415691, US9387764, US9321358, US9168970, US9050905, US8954212, US8950539, US8919483, US8892292, US8880266, US2016325745, US2015274020, US2015274019, US2015258898, US2015203110, US2014358343, US2014297074, US2014262581, US2014034267, US2013299265, US2013284527, US2013282218, US2013274983, US2013168171, US2012296508, US2012203407, EP2946993, EP2910401,

Abstract:

Source: US2012080249A A kinetic energy recovery system ("KERS system") and motorcycle equipped with the same is disclosed. The KERS system may be mechanical, hydraulic, or a combination thereof. In an embodiment, motorcycle includes a rear wheel, an electric motor, a motor shaft, and a front wheel equipped with a wheel hub that includes a sprag clutch. The motor shaft can be fitted with a motor drive sprocket that drives a jackshaft chain that in turn drives a jackshaft input sprocket that is fitted to the jackshaft. Jackshaft input sprocket may be installed in conjunction with a sprag clutch that allows the rear wheel to free wheel during coasting while the front wheel KERS system is engaged. The motor harvests kinetic energy from the front wheel without simultaneously powering the rear wheel while the use of a geared dead zone allows the front and rear wheels to not lock together to improve safety.



0) US4917209A – MOTORCYCLE

24) Family number: 4999476 (US4917209A)

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Title: Motorcycle

Priority: JP19870059236 19870313 JP19870203511 19870818 US19890432417 19891102
US19880219508 19880715 US19880168110 19880311 JP19870204163 19870819
US19900473786 19900202

Family:	Publication number	Publication date	Application number	Application date
	BRPI8801115 A	19881018	BR1988PI01115	19880311
	DE3884830 D1	19931118	DE19883884830	19880311
	DE3884830 T2	19940310	DE19883884830T	19880311
	EP0282333 A2	19880914	EP19880302155	19880311
	EP0282333 A3	19891129	EP19880302155	19880311
	EP0282333 B1	19931013	EP19880302155	19880311
	JP1047690 A2	19890222	JP19870204163	19870819
	JP1047691 A2	19890222	JP19870203511	19870818
	JP63222991 A2	19880916	JP19870059236	19870313
	JP64047690 A2	19890222	JP19870204163	19870819
	JP64047691 A2	19890222	JP19870203511	19870818
	US4917209 A	19900417	US19880219508	19880715
	US5014807 A	19910514	US19890432417	19891102
	US5076388 A	19911231	US19900618563	19901127
	US5107950 A	19920428	US19910649253	19910131

Probable Assignee: HONDA MOTOR CO LTD

Assignee(s):^(std): HONDA MOTOR CO LTD

Assignee(s): HONDA GIKEN KOGYO K K TOKIO TOKYO JP ; HONDA GIKEN KOGYO KABUSHIKI KAISHA

Inventor(s):^(std): NAKANO YASUSHIKO ; YAMAMOTO TOSHITERU ; OSHIRO TAKESHI ; OOKI KENJI ; OKANO SHIGETAROU ; NAKANO YASUHIKO ; MATSUZAKI MASANOBU ; KUBO MIKIO ; HORIIKE SATORU ; HAMANO EIJI ; TAKEMURA HIROO ; HORIIKE TATSU ; OKANO SHIGETARO ; KIMURA SHIGERU ; HAMANO BIJI

Inventor(s): HORIIKE SATORU NERIMA KU TOKYO JP ; MATSUZAKI MASANOBU SETAGAYA KU TOKYO JP ; KUBO MIKIO FUJIMI SHI SAITAMA KEN JP ; HAMANO BIJI ADACHI KU TOKYO JP ; OKANO SHIGETAROU TOKOROZAWA SHI SAITAMA KEN JP ; KIMURA SHIGERU ASAKA SHI SAITAMA KEN JP ; NAKANO YASUHIKO SHIKI SHI SAITAMA KEN JP ; OOKI KENJI ASAKA SHI SAITAMA KEN JP ; MIKIO KUBO ; MASANOBU MATSUZAKI ; KENJI OOKI ; EIJI HAMANO ; YAMAMOTO TOSHITERU IRUMA GUN SAITAMA KEN JP ; SATORU HORIIKE ; SHIGERU KIMURA ; SHIGETAROU OKANO ; TOSHITERU YAMAMOTO ; YASUSHIKO NAKANO

Designated states: DE FR GB IT

International class
^(IPC 8-9): [B62J25/00](#) [B62K11/00](#) [B62K25/00](#) [F02B61/02](#) ^(Advanced/Invention);
[B62J25/00](#) ^(Core/Invention)

International class
^(IPC 1-7): [B60G9/02](#) [B62D61/02](#) [B62J25/00](#) [B62K11/00](#) [B62K11/02](#) [B62M25/00](#) [B62M27/02](#) [B62M7/02](#)

CPC: [B62K11/00](#) [B62K25/005](#) [F02B61/02](#)

European class: [B62K11/00](#) [B62K25/00B](#) [F02B61/02](#)

US class: [180/219](#) [180/222](#) [180/223](#) [180/227](#) [280/112.1](#) [280/112.2](#) [280/124.103](#) [280/124.129](#)

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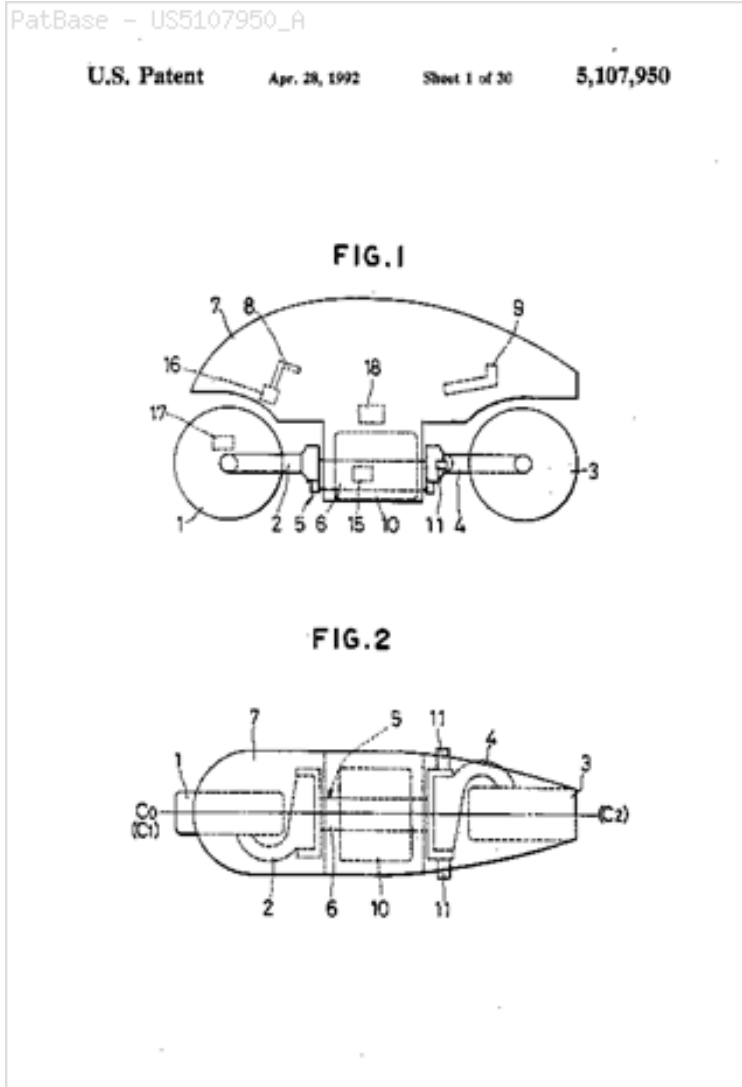
Cited documents: US4686656 A, US4666018 A, US4546993 A, US4541501 A, US4506754 A, US4466631 A, US4460057 A, US4448436 A, US4437535 A, US4423795 A, US3938609 A, US3912031 A, US3893533 A, US3531138 A, US3504934 A, GB239365 A, GB2082987

A1, FR2583704 A1, EP0017480 A2,

Forward Citations: WO9950133, US9428236, US9168970, US9114848, US8727057, US8684377, US8653681, US8640809, US8376378, US8128111, US7648000, US7600596, US7097187, US7097187, US7006901, US6668959, US6213237, US6012539, US5613571, US5485893, US5248019, US5188192, US5054572, US5042608, US4903790, US2015123389, US2013161920, US2011266079, US2011163516, US2010108423, US2007209854, US2007102217, US2006097471, US2004160030, US2004098185, NL1005894, JP2013133099, JP2008280763, JP2007022102, JP2006188084, FR2629039, FR2612148, ES2326764, EP2628972, EP1743831, EP1674386, CN103171389, BE1010650, AU644903,

Abstract:

Source: US4917209A A motorcycle has a frame assembly including a main frame supporting front and rear wheels on a central line thereof. A connecting means mounted on the main frame between the front and rear wheels, and a subframe is mounted on the connecting member and being capable of banking laterally about the connecting member. At least one of the front and rear wheels is a drive wheel. At least the drive wheel is capable of preventing the main frame from banking laterally. Centrifugal forces generated upon cornering are counterbalanced by centripetal forces produced when only the subframe banks laterally. The drive wheel supported on the main frame which does not bank has an increased road gripping force. Thus, high-speed cornering is made possible.



25) Family number: 34245392 (WO07024239A1)

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Title: WHEELED VEHICLES AND CONTROL SYSTEMS AND METHODS THEREFOR

Priority: WO2005US30619 20050824

Family:

Publication number	Publication date	Application number	Application date
<u>WO07024239 A1</u>	20070301	WO2005US30619	20050824

Probable Assignee: ROBBINS ALAN R

Assignee(s):^(std): ROBBINS ALAN R

Inventor(s):^(std): ROBBINS ALAN R

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KM KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW

International class
(IPC 8-9): G09B9/04 (Advanced/Invention);
G09B9/04 (Core/Invention)

CPC: G09B9/058

European class: G09B9/058

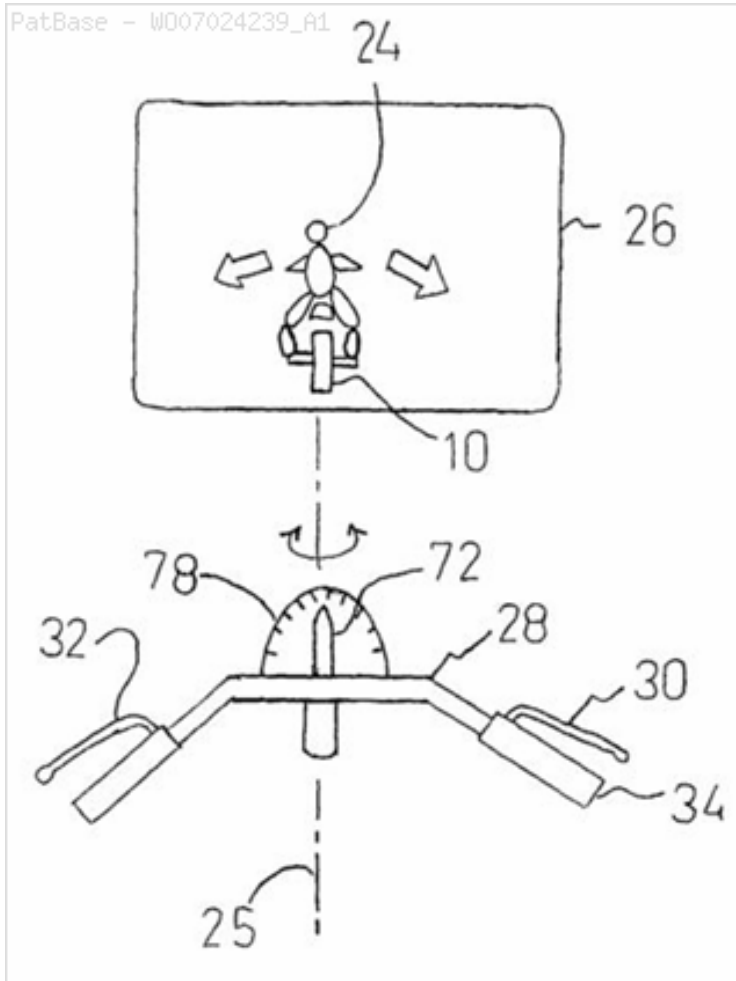
[Classification Explorer](#)

Cited documents: US6764310 BA, US6726483 BB, US6409596 BA, US6234800 BA,

Forward Citations: KR101171793, JP2014052603,

Abstract:

Systems for simulating motion of two-wheeled vehicles (10) and for enabling actual two-wheeled vehicular motion over a support surface. Simulated systems, which can be visual, remote-controlled, or mobile platform simulations, can simulate a vehicle (10) with a frame (12), front and rear wheels (14 and 16), and a steering arrangement (20). A control system can impart simulated motion to the vehicle (10) pursuant to a Theoretical Method of Operation in response to control signals from a user. Control signals can be provided through a steering arrangement, center of gravity sensors, and other force sensors. Actual vehicular movement can, for example, be over a ground surface, a body of water, or along a rail. Two-wheeled vehicles (10) can be gyroscopically stabilized for substantially vertical travel or with secondary stability.



Title: GYRO VEHICLE**Priority:** FR19670103201 19670418 US19660543708 19660419

Family:	Publication number	Publication date	Application number	Application date
	DE1655027 A1	19720105	DE19671655027	19670419
	FR1527982 A	19680607	FR19670103201	19670418
	GB1188191 A	19700415	GB19670017863	19670419
	NL6705513 A	19671020	NL19670005513	19670419
	US3373832 A	19680319	US19660543708	19660419

Probable Assignee: THOMAS O SUMMERS**Assignee(s):**^(std): SUMMERS THOMAS OSMOND ; THOMAS O SUMMERS**Assignee(s):** THOMAS OSMOND SUMMERS**Inventor(s):**^(std): OSMOND SUMMERS THOMAS ; SUMMERS THOMAS O ; SUMMERS THOMAS OSMOND**Inventor(s):** THOMAS OSMOND SUMMERS**International class**
(IPC 8-9): [B62D37/06](#) (Advanced/Invention);
[B62D37/00](#) (Core/Invention)**International class**
(IPC 1-7): [B60G21/08](#) [B60K9/02](#)**CPC:** [Y10T74/1218](#) [B62D37/06](#)**European class:** [B62D37/06](#)**US class:** [180/209](#) [180/226](#) [180/30](#) [74/5.22](#)[Classification Explorer](#)**Cited documents:** US991485 A, US991485, US3277840 A, US3145797 A, US3124007 A, US1513143 A, US1362024 A, US1236030 A, US1236030,**Forward Citations:** WO15049695, US9428236, US9168970, US8973450, US8833189, US8653681, US8640809, US8555734, US7195487, US6685208, US6360838, US5839386, US5820439, US4200168, US3980150, US3804455, US3465840, US2011163516, US2011016996, US2008302194, US2006063137, US2005187641, US2005045398, GB2339470, FR2678230, FR2424845, EP0955231, EP0941914, DE3442574,

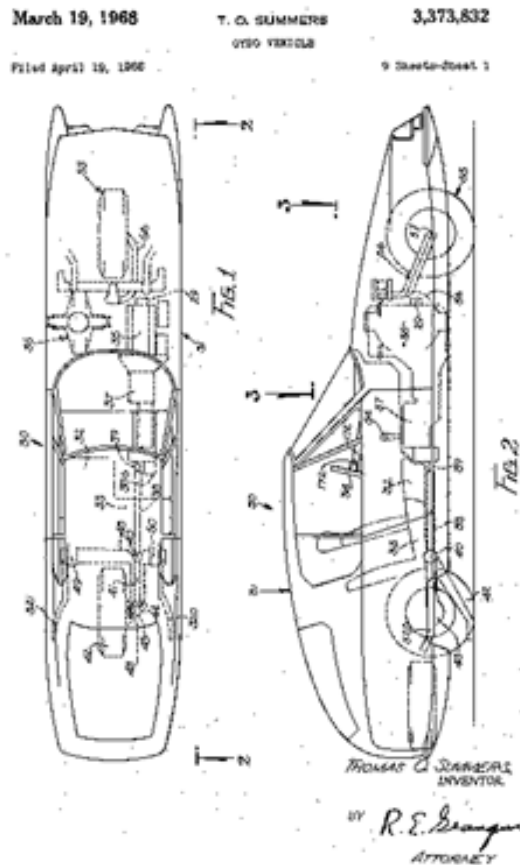
Abstract:

Source: GB1188191A 1,188,191. Vehicles; steering; suspension. T. O. SUMMERS. 19 April, 1967 [19 April, 1966], No. 17863/67.

Headings B7D and B7H. [Also in Division G1] A gyro stabilized vehicle comprises wheels 42, 55 providing a longitudinal roll axis 309, a gyro gimbal 115 mounted for freedom of angular movement about its axis, a gyro rotor 139 and a steering wheel 34. The rear wheel 42 is driven by an engine 35 which also drives a pump 29 to supply pressurized hydraulic fluid to the stabilizing components of the vehicle such as the hydraulic gyro motor 133, a steering motor 80 and c. In order to turn the vehicle, the steering wheel 34 is rotated to operate a valve 170 which directs pressurized fluid to a piston actuator 158 or 161 depending on the required direction of turn. The actuator 158 or 161 torques the gimbal 115 in the desired direction about the gimbal axis 308 in order to bank the vehicle. On banking the vehicle to the right, for example, gravity rotates the gimbal counterclockwise so that the resultant movement of a link 250 attached to the gimbal operates a valve 256. The valve 256 directs pressurized fluid to the rotary steering motor 80 which, by means of a worm 82 and a chain and sprocket arrangement 85, 86, rotates the caster arm 56 of the negative caster wheel 55. In order to turn the wheel 55 proportionally to the gimbal displacement, a chord 260 is rotated by a pulley 66 itself rotated by the steering motor and moves a lever 266 biased by a spring 287. Linkage 286, 288 attached to the lever 266 operates the valve 256 so that the wheel 55 assumes a position which centres the valve 256, i.e. the valve adopts the position shown in Fig. 20. Movement of the wheel 55 is therefore terminated. A cable 290 is also connected to the linkage 288 and passes around a pulley of the valve 170 so that the valve is centred when the front wheel reaches a position

corresponding to the position of the steering wheel. To prevent the vehicle making a too severe turn at high speeds, a piston and cylinder mechanism 302 is provided so that displacement of the gimbal results in a small movement of the front wheel at high vehicle speeds and a large movement of the wheel at low vehicle speeds. A pump 306 is driven by the engine transmission at a speed proportional to the speed of the vehicle and supplies fluid to the cylinder so that the greater the fluid pressure, the further a pin 281, attached to the piston, is moved in a slot 280 of the lever 266. Thus a greater movement of the wheel 55 is required to centre the valve 256 when the pin is at the extreme left hand side (see Fig. 5) of the slot than when the pin is in any other position along the slot. At high vehicle speeds, therefore, the valve 256 is centred by less movement of the wheel than is required at low speeds. If the engine is inoperative for any considerable length of time the gyro rotor will lose speed so that in order to maintain the vehicle upright, parking rests 320, 321 are lowered by operating a valve 324 controlling hydraulic actuators 322, 323. The front wheel is spring mounted by two coil springs (92, 93), Fig. 3 (not shown), on either side of the wheel.

PatBase - US3373832_A



27) Family number: 12729045 (US5209662A)

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Title: Riding simulation system of motorcycle

Priority: JP19890166931 19890630 JP19900158939 19900618 JP19900158941 19900618
 JP19900158942 19900618 JP19900158940 19900618 JP19900158943 19900618
 JP19900170582 19900628 US19920928687 19920812 JP19910207056 19910819
 JP19910207058 19910819 US19920921853 19920729 US19900545525 19900628
 JP19910188991 19910729 JP19900158944 19900618 US19950420432 19950410

Family:

Publication number	Publication date	Application number	Application date
<u>DE4221558 A1</u>	19930204	DE19924221558	19920701
<u>DE4221558 C2</u>	19960125	DE19924221558	19920701
<u>DE4221602 A1</u>	19930304	DE19924221602	19920701
<u>DE69029172 D1</u>	19970102	DE19906029172	19900629
<u>DE69029172 T2</u>	19970320	DE19906029172T	19900629
<u>EP0406729 A2</u>	19910109	EP19900112486	19900629
<u>EP0406729 A3</u>	19940720	EP19900112486	19900629
<u>EP0406729 B1</u>	19961120	EP19900112486	19900629
<u>JP2068422 C3</u>	19960710	JP19900170582	19900628
<u>JP2752232 B2</u>	19980518	JP19900158940	19900618
<u>JP2752233 B2</u>	19980518	JP19900158943	19900618
<u>JP2834545 B2</u>	19981209	JP19900158939	19900618
<u>JP2834546 B2</u>	19981209	JP19900158944	19900618
<u>JP2862640 B2</u>	19990303	JP19900158941	19900618
<u>JP2862641 B2</u>	19990303	JP19900158942	19900618
<u>JP3087784 A2</u>	19910412	JP19900170582	19900628
<u>JP3499572 B2</u>	20040223	JP19910207058	19910819
<u>JP4051076 A2</u>	19920219	JP19900158939	19900618
<u>JP4051077 A2</u>	19920219	JP19900158940	19900618
<u>JP4051078 A2</u>	19920219	JP19900158941	19900618
<u>JP4051079 A2</u>	19920219	JP19900158942	19900618
<u>JP4051080 A2</u>	19920219	JP19900158943	19900618
<u>JP4051081 A2</u>	19920219	JP19900158944	19900618
<u>JP5088605 A2</u>	19930409	JP19910207056	19910819
<u>JP5088606 A2</u>	19930409	JP19910207058	19910819
<u>JP5113746 A2</u>	19930507	JP19910188991	19910729
<u>JP7104648 B4</u>	19951113	JP19900170582	19900628
<u>US5209662 A</u>	19930511	US19920928687	19920812
<u>US5547382 A</u>	19960820	US19950420432	19950410

Probable Assignee: HONDA MOTOR CO LTD**Assignee(s):^(std):** HONDA MOTOR CO LTD**Assignee(s):** HONDA GIKEN KOGYO K K ; HONDA GIKEN KOGYO K K TOKIO TOKYO JP ; HONDA GIKEN KOGYO KABUSHIKI KAISHA ; HONDA GIKEN KOGYO KK**Inventor(s):^(std):** AOKI KATSUHIRO ; AOKI KATSUTO ; FUJITA ISAO ; HIJIKATA TOSHIHIRO ; ICHIZAWA TAKASHI ; ISENO MITSURU ; IWATA KAZUYUKI ; KASHIWAGI HITOSHI ; KIZAWA HIROTOSHI ; MITSURU ISENO ; MIYAMARU YUKIO ; MUKUMOTO TAKAJI ; MUKUMOTO TAKATSUGU ; OHTSUKA HIROSHI ; OTSUKA HIROSHI ; YAMASAKI GORO ; YAMASAKI GOROU ; YAMAZAKI GORO ; YAMAZAKI GOROU ; YOSHIDA KEIGO**Inventor(s):**

YOSHIDA KEIGO NIIZA SHI SAITAMA KEN JP ; YAMAZAKI GOROU WAKO SAITAMA JP ; YAMASAKI GORO NIIZA SHI SAITAMA KEN JP ; OHTSUKA HIROSHI KAWAGOE SHI SAITAMA KEN JP ; OOTSUKA HIROSHI ; MYAMARU YUKIO ; MUKUMOTO TAKAJI HANNOU SHI SAITAMA KEN JP ; MIYAMARU YUKIO ITABASHI KU TOKYO JP ; MIYAMARU YUKIO WAKO SAITAMA JP ; KIZAWA HIROTOSHI MITAKA SHI TOKYO JP ; KASHIWAGI HITOSHI SHIKI SHI SAITAMA KEN JP ; IWATA KAZUYUKI TOKOROZAWA SHI SAITAMA KEN JP ; ISENO MITSURU WAKO SAITAMA JP ; ICHIZAWA TAKASHI IRUMA SHI SAITAMA KEN JP ; HIJIKATA TOSHIHIRO SAITAMA KEN JP ; FUJITA ISAO KAWAGOE SHI SAITAMA KEN JP ; AOKI KATSUHITO NIIZA SHI SAITAMA KEN JP

Designated states: DE FR GB IT

International class
(IPC 8-9): A63F13/00 B62H7/00 G06F19/00 G09B9/02 G09B9/042 G09B9/05 G09B9/052 G09B9/058 G09B9/06 (Advanced/Invention);
A63F13/00 G06F19/00 G09B9/02 G09B9/04 (Core/Invention)

International class
(IPC 1-7): A63F9/22 B62H7/00 G06F15/20 G09B9/02 G09B9/05 G09B9/052 G09B9/058

CPC: G09B9/058 G09B9/05 A63F2300/6661 A63F2300/8017

European class: G09B9/05 G09B9/058 K63F300/66V K63F300/80D

US class: 273/442 273/85G 340/705 345/8 348/121 358/104 434/307 434/307R 434/61 434/69 703/8

[Classification Explorer](#)

Cited documents: WO8806776 A1, US5354202 A, US5269687 A, US5261820 A, US5240417 A, US5209662 A, US5184956 A, US5090909 A, US5015189 A, US5006072 A, US4978300 A, US4918535 A, US4887967 A, US4846686 A, US4817948 A, US4760388 A, US4752836 A, US4578710 A, US4464117 A, US4303236 A, US4049262 A, US3895183 A, US3833759 A, US3686776 A, US3488861 A, US3479750 A, JP63249885 A2, JP63032588 U1, JP62286490 A2, JP62286087, JP62187282 A2, JP62187281 A2, JP621688, JP62001688 U1, JP62001688 A2, JP61154689 A2, JP54043475 U1, JP5220538 A2, JP5124344 A2, JP51024344 A2, JP50149029, JP440260 U, JP342181 U, JP2181780, JP2181113, JP1232380 A2, EP0406729 A2, EP0183497 A1, EP0137110 A1, DE3925427 A1, DE3612383 A1, DE3306452 A1, DE3107311 A1,

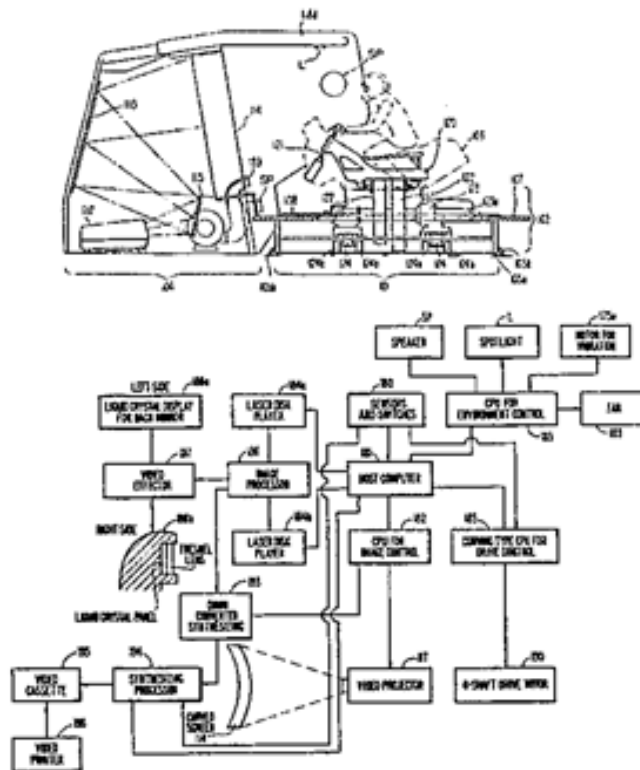
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DE4221602, DE202008005792, DE19607189, DE10211884, DE10057994,

Abstract:

Source: US5209662A A riding simulation system of motorcycle provides at least a model motorcycle on which a person can ride and which can be operated by a person. In response to the operation and movement of the person who rides on the model motorcycle, the model motorcycle is moved by a movable mechanism in a desirable direction such as a yawing direction, a rolling direction and a pitching direction. Preferably, the moving image such as the scenery which is seen from the running motorcycle is displayed in front of the person who rides on the model motorcycle. Such moving image is varied in response to the driving condition of the model motorcycle.

PatBase - US5547382_A



28) Family number: 33211706 (US2006180372A)

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Title: ELECTRONIC STABILITY SYSTEM ON A THREE-WHEELED VEHICLE

Priority: US20030496905P 20030822 US20040547089P 20040225 US20040920226 20040818
WO2006US17477 20060505 US20060299690 20060505 US20040547092P 20040225

Family:	Publication number	Publication date	Application number	Application date
	<u>CN101175655 A</u>	20080507	CN200680001548	20060505
	<u>CN101175655 B</u>	20111214	CN200680001548	20060505
	<u>EP1981743 A1</u>	20081022	EP20060752340	20060505
	<u>US2006180372 AA</u>	20060817	US20040920226	20040818
	<u>US2009152940 AA</u>	20090618	US20060299690	20060505
	<u>WO07130043 A1</u>	20071115	WO2006US17477	20060505

Probable Assignee: BOMBARDIER RECREATIONAL PRODUCTS INC

Assignee(s):^(std): BOMBARDIER MOTOR CORP OF US ; BOMBARDIER RECREATIONAL PROD ;
BOMBARDIER RECREATIONAL PRODUC ; BRP US INC ; JONASCH ROLAND ;
MERCIER DANIEL

Assignee(s): BOMBARDIER RECREATIONAL PRODUCTS INC

Inventor(s):^(std): JONAS ROLAND ; MESSIER DANIELE ; MERCIER DANIEL ; JONASCH ROLAND

Inventor(s): ROLAND JONAS ; DANIELE MESSIER

Agent(s): SOLF ALEXANDER; OSLER HOSKIN AND HARCOURT LLP (BRP); OSLER HOSKIN
AND HARCOURT LLP BRP

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN
CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ
GR GW HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LC LI LK LR LS LT LU LV
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UZ VC VN YU ZA ZM ZW

International class
(IPC 8-9): B60G17/015 B60T7/12 B60T8/17 B60T8/1755 B60T8/24 B60T8/32 B60T8/34 B60T8/48
B60T8/60 B62D61/06 B62D61/08 B62K5/027 B62K5/04 B62K5/05 (Advanced/Invention);
B60G17/015 B60T8/17 B60T8/24 B60T8/32 B60T8/34 B60T8/48 B62D61/00
B62K5/00 (Core/Invention)

CPC: B60T8/1706 B60T8/17554 B60T8/241 B60T8/243 B60T8/3225 B60T8/4809 B60T2230/03
B62K5/027 B62K5/05 B62D61/065 B62K5/10

European class: B60T8/24B B60T8/24B2 B60T8/32D6 B60T8/48B L60T230/03

US class: 180/210 280/5.507 280/5.507S 303/113.2 303/113.200P 303/146 303/146S 701/83
701/83S

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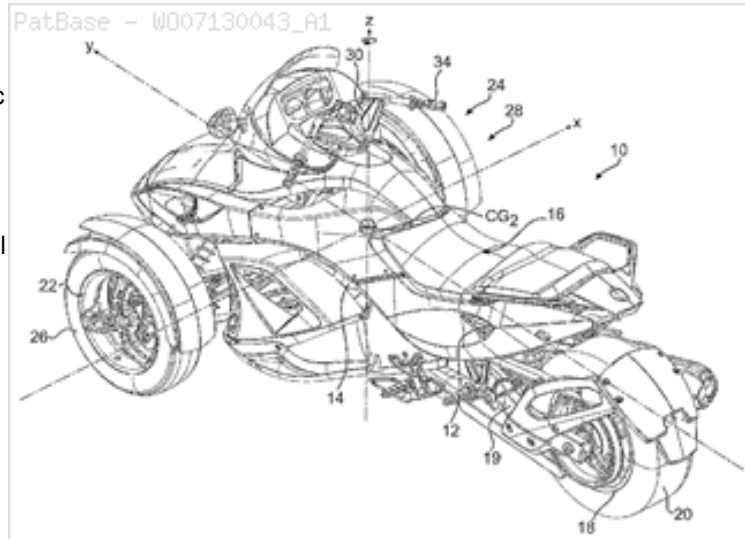
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Forward Citations: WO16180637, WO16157049, WO14098144, WO13149453, WO09073636, WO09042276, USD689794, USD592557, USD592556, US9582446, US9517807, US9487196, US9434439, US9043111, US9020744, US9004214, US8904782, US8892305, US8798869, US8727057, US8695746, US8655565, US8647161, US8577588, US8544587, US8423243, US8378803, US8260535, US8086382, US8016092, US7891474, US7788007, US7591337, US7588110, US7571787, US2016137253, US2015021865, US2014215115, US2014012482, US2013214503, US2012283918, US2012185136, US2012179332, US2012085090, US2012061160, US2011168473, US2010268420, US2010263956, US2010230192, US2010178815, US2009321169, US2009266670, US2009266666, US2009240399, US2009152940, US2009084623, US2007256882, US2007162202, US2007045020, US2006254842, ITPV20110009, FR2977548, EP3109107, EP2942247, EP2923933, DE202014104120, DE102014217387, DE102014217386, CN104309431, CN103797768, CN103442976, CN103442976, CN102601862, CN101918256, CN101909964,

Abstract:

Source: US2006180372A A three-wheeled vehicle having a pair of front wheels and a single rear wheel is provided with an electronic stability system (ESS) to control certain operating parameters of the vehicle based on sensed inputs from the three wheels. Preferably, the three-wheeled vehicle has a straddle type seat, an internal combustion engine, and road tires suitable for conventional road use.



29) Family number: 11575225 (US5257671A)

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Title: Vehicle

Priority: US19900619014 19901128 US19930105973 19930811 US19950461110 19950605
US19940331082 19941028

Family:	Publication number	Publication date	Application number	Application date
	<u>US5257671 A</u>	19931102	US19900619014	19901128
	<u>US5628379 A</u>	19970513	US19930105973	19930811
	<u>US5816354 A</u>	19981006	US19940331082	19941028
	<u>US5904218 A</u>	19990518	US19950461110	19950605

Probable Assignee: WATKINS JONATHAN

Assignee(s):^(std): WATKINS JONATHAN

Inventor(s):^(std): WATKINS JONATHAN

International class B62D61/02 B62D61/04 B62D61/12 B62H1/12 B62J27/00 B62K11/00 B62K11/10
(IPC 8-9): B62K3/00 (Advanced/Invention)

International class B62D61/04 B62D61/12
(IPC 1-7):

CPC: B62D61/02 B62D61/04 B62D61/12 B62H1/12 B62J27/00 B62K3/005 B62K11/00
B62K11/10 B62K2202/00 Y10T74/20888

European class: B62D61/02 B62D61/04 B62D61/12 B62H1/12 B62J27/00 B62K11/00 B62K11/10
B62K3/00C L62K202/00

US class: 180/209 180/21 180/219 280/293 280/301 280/755 280/767 74/560

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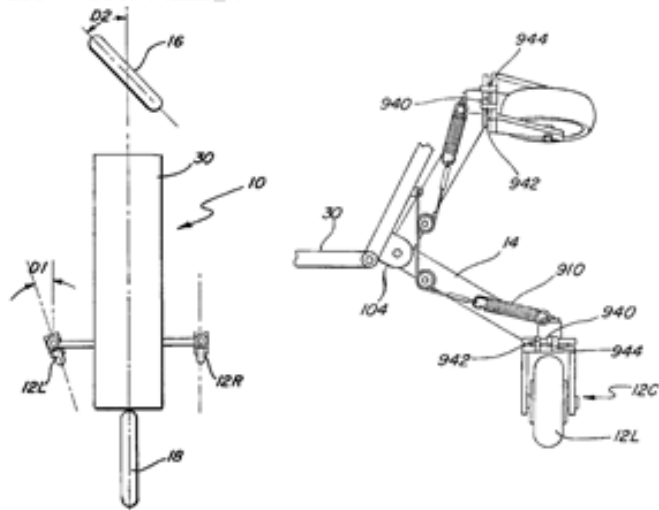
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Forward Citations: WO05006912, WO04033277, WO0204282, USD774981, USD771196, USD761700, USD541701, US9499220, US9475533, US9434438, US9428236, US9284002, US9180927, US9102375, US8925669, US8875831, US8820460, US8702061, US8366135, US8356686, US8322749, US8235419, US8172014, US7845658, US7823675, US7676310, US7591337, US7571787, US7568709, US7547044, US7472005, US7357416, US7243746, US7181992, US7175200, US7159887, US7147235, US7140631, US7025368, US7006901, US6942053, US6711482, US6424907, US6195564, US6113117, US6006849, US5904218, US5743561, US5676398, US5467838, US5358267, US2017043831, US2015130943, US2015129341, US2014265283, US2014217714, US2013256048, US2013193661, US2013001492, US2011221177, US2011042912, US2010274445, US2010032223, US2009315310, US2009314568, US2008179868, US2008133087, US2008067773, US2007021888, US2006175109, US2006113748, US2006108159, US2005248140, US2005179229, US2005035583, US2005034910, US2005000771, US2004200651, US2004118626, US2004098185, US2004036253, US2003204293, EP0911248, CN103476666,

Abstract:

Source: US5257671A A vehicle having a chassis frame, a single front and a single rear wheel aligned on the longitudinal axis of the vehicle, and retractable outrigger wheels on opposite sides of the frame. A driver compartment supported by the frame and a driver foot pedal inside the compartment. Connection apparatus including ratchet and pawl instrumentalities connecting the foot pedal to the outrigger wheels to move them up and down in two full depressions of the foot pedal. The first depression lowers the outrigger wheels to a first position about half way to full lowering of the outrigger wheels which is suitable for low speed operation. The second depressions lowers the outrigger wheels to a second fully lowered position which is suitable for stopping. The force of the feet required to fully lower the outrigger wheels in two strokes when the vehicle is leaned over with the weight applied to one of the outrigger wheels being generally half of the force required to fully lower the outrigger wheels in one stroke. A hand grip on each side of the driver compartment, a front fork pivotally supporting the front wheel, and motion transfer apparatus from each hand grip extending on each side of the driver compartment and connecting to the front fork, whereby steering is accomplished by the driver pushing and pulling on the hand grips. A swing arm pivotally mounting bearings for the rear wheel with the pivotal axis of the swing arm located rearwardly of the rear wheel. The outrigger wheels have axles located in generally the same vertical plane lateral of the vehicle as the rear wheels axles when the outrigger wheels are in down position. The frame includes side trusses disposed generally in horizontal planes and located on each side of the driver compartment at about elbow height and diagonal frame members at front and back of the driver compartment tying together the side trusses thereby forming a complete trusswork about the compartment to protect the driver.

PatBase - US5904218_A



30) Family number: 32753384 (US2006063624A)

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Title: TRANSMISSION SYSTEMS AND METHODS**Priority:** EP20050797910 20050920 US20040610944P 20040920 WO2005US33511 20050920
US20050228474 20050919 US20050228473 20050919 US20040622846P 20041029
WO2005US33512 20050920

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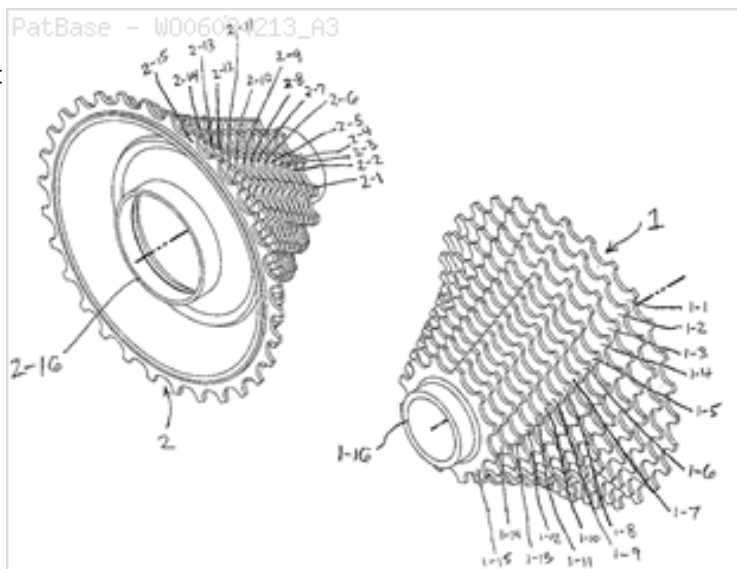
Probable Assignee: VOSS DARRELL**Assignee(s):^(std):** VOSS DARRELL**Assignee(s):** VOSS DARRELL VANCOUVER**Inventor(s):^(std):** VOSS DARRELL**Inventor(s):** VOSS DARRELL VANCOUVER**Agent(s):** SAMSON AND PARTNER PATENTANWAELTE MBB; JONES GRAHAM HENRY; LAW OFFICE OF JIM ZEGERER**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KM KP KR KZ LC LI LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW**International class**
(IPC 8-9): B62M9/10 B62M9/123 B62M9/124 B62M9/128 B62M9/134 B62M9/138 F16H59/00 F16H61/00 F16H63/00 F16H9/00 G06F17/00 G06F19/00 G06F7/00 (Advanced/Invention); B62M9/00 F16H59/00 F16H61/00 F16H63/00 F16H9/00 G06F17/00 (Core/Invention)**CPC:** B62M9/04 B62K25/286 B62M17/00 F16H9/24 B60G17/018 B60G17/0195 B60G2400/051 B60G2400/61 B60G2800/912 B60G2800/92 B60G2800/925 B60G2800/95 B60G2800/96 B60G2800/97 B60W10/06 B60W10/08 B60W10/12 B60W10/18 B60W10/20 B60W10/22 B60W10/24 B60W30/02 B60W30/025 B60W40/02 B60W40/06 B60W40/09 B60W40/10 B60W40/11 B60W40/112 B60W40/114 B60W40/12 B60W50/04 B60W50/06 B60W2040/1307 B60W2300/18 B60W2300/36 B60W2300/367 B60W2300/43 B62M9/10 B62M9/105 B62K25/04 B62K2025/044 B62K2025/045**European class:** B60G17/018 B60G17/0195 B60W30/02 B60W40/02 B60W40/09 B60W40/10 B60W40/12 B60W50/06 B62K25/04 B62K25/28C B62M17/00 B62M9/04 B62M9/10 B62M9/10B L60G400/051 L60G400/61 L60G800/912 L60G800/920 L60G800/925 L60G800/950 L60G800/960 L60G800/970 L60W10/06 L60W10/08 L60W10/12 L60W10/18 L60W10/20 L60W10/22 L60W10/24 L60W30/02B L60W300/18 L60W300/36 L60W300/36T L60W300/43 L60W40/06 L60W40/09 L60W40/11 L60W40/112 L60W40/114 L60W40/13B L60W50/04 L62K25/04D L62K25/04E R16H9/24**US class:** 474/78 701/52 701/52P[Classification Explorer](#)

Cited documents: WO02100698 A1, US6905126 BA, US6880846 BB, US6871867 BB, US6863291 BB, US6786107 BB, US6741045 BB, US6722669 BA, US6714849 BA, US6688626 BB, US6682087 BA, US6671595 BB, US6648109 BB, US6604751 BB, US6598893 BB, US6581948 BB, US6575441 BB, US6481700 BA, US6471610 BA, US6454288 BA, US6386567 BA, US6352486 BA, US6341768 BA, US6336648 BA, US6336647 BA, US6311798 BA, US6286642 BA, US6250659 BA, US6176798 BA, US6173982 BA, US6155585 A, US6149174 A, US6146297 A, US6134485 A, US6098025 A, US6079726 A, US6044940 A, US6032752 A, US6029990 A, US6013001 A, US5999868 A, US5975550 A, US5975225 A, US5971116 A, US5957426 A, US5925084 A, US5865624 A, US5865454 A, US5860660 A, US5857931 A, US5803482 A, US5791425 A, US5738603 A, US5664649 A, US5653315 A, US5611556 A, US5559700 A, US5553880 A, US5419574 A, US5362278 A, US5354243 A, US5348112 A, US5332068 A, US5320375 A, US5285697 A, US5253544 A, US5205794 A, US5086866 A, US5002295 A, US4925203 A, US4735276 A, US4638895 A, US4592738 A, US4591033 A, US4582303 A, US4580997 A, US4558767 A, US4307875 A, US4064977 A, US3906809 A, US3722640 A, US3165002 A, US2006058131 AA, US2005080543 AA, US2005067811 AA, US2005062254 AA, US2005029879 AA, US2005023094 AA, US2004214670 AA, US2004206188 AA, US2004158377 AA, US2004067804 AA, US2004066017 AA, US2004064246 AA, US2004061303 AA, US2004051273 AA, US2004014543 AA, US2003221892 AA, US2003213318 AA, US2003191568 AA, US2003080529 AA, US2003064844 AA, US2003060325 AA, US2003020255 AA, US2002094906 AA, US2002055422 AA, US2001011806 AA, FR486815 A, FR349009 A, EP1396372 A2, EP0803386 A1, DE222760 A, DE194018 A,

Forward Citations: WO14152035, WO13037533, US9580143, US9550547, US9527362, US9523406, US9522599, US9452655, US9428022, US9422018, US9415981, US9415835, US9186949, US9182016, US9150280, US9140325, US9014913, US8892304, US8886403, US8843273, US8821330, US8764594, US8663044, US8615356, US8589029, US8489278, US8489277, US8454461, US8386127, US8342994, US8251376, US8181981, US8121757, US8090501, US8086371, US7976434, US7959529, US7862476, US7833135, US7584026, US7445079, US2015352920, US2015307156, US2015210353, US2015130153, US2014257631, US2014172233, US2014107892, US2014088828, US2013241565, US2013225343, US2013006471, US2012244976, US2012166044, US2012130591, US2011202236, US2011118086, US2011012317, US2010010709, US2009281682, US2009248247, US2009222168, US2009215565, US2009212529, US2009192673, US2009112402, US2009042682, US2009042681, US2009042680, US2009042679, US2009011907, US2008261735, US2008234082, US2008231014, US2008230344, US2007276572, US2007149364, TWI477422, TWI441991, TWI370787, TWI370079, FR3024866, EP3118099, EP3028934, EP2757030, EP2468616, EP2468615, EP2103512, EP1972541, EP1972541, EP1972540, EP1972539, EP1972539, CN102219039, CN102219039,

Abstract:

Source: US2006063624A A transmission includes a pair of conical transmission element carriers with one being a drive carrier and one being a driven carrier. The drive carrier has a plurality of fixed drive elements attached. The driven carrier has a plurality of fixed driven elements attached. An endless connecting element rotationally couples a drive carrier element to a driven carrier element to provide a transmission output ratio. Also, a shift element means transfers the endless connecting element between a selected drive element to a corresponding driven element to establish a change in the rotational ratio between the drive carrier and the driven carrier.



0) US2007095243A – UNDER-WAY VEHICLE TRANSFER

31) Family number: 34433796 (US2007095243A)

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Title: UNDER-WAY VEHICLE TRANSFER
Priority: US20050721300P 20050928 US20060536298 20060928 US20070733789 20070411
US20070745087 20070507 US20110217984 20110825

Family:	Publication number	Publication date	Application number	Application date
	US2007095243 AA	20070503	US20060536298	20060928
	US2008029346 AA	20080207	US20070733789	20070411
	US2008276829 AA	20081113	US20070745087	20070507
	US2012087768 AA	20120412	US20110217984	20110825
	US7637217 BB	20091229	US20070745087	20070507
	US7779761 BB	20100824	US20060536298	20060928
	US8746153 BB	20140610	US20110217984	20110825

Probable Assignee: BARRY LEONARD D

Assignee(s):^(std): BARRY LEONARD D

Inventor(s):^(std): BARRY LEONARD D

Inventor(s): BARRY LEONARD

Agent(s): GIFFORD KRASS SPRINKLE ANDERSON AND CITKOWSKI PC

International class
(IPC 8-9): [B60P1/00 B60P3/07 B61D3/00 B61D47/00 B61K1/00 B65G67/00 B66F9/075](#) (Advanced/Invention);
[B61D47/00 B61K1/00 B65G67/00 B66F9/075](#) (Core/Invention)

CPC: [B61D3/18 B61D47/00 B61D3/20 B65G63/025 B61K1/00 B66F7/0608 B66F7/0625 B66F7/0633](#)

European class: [B61D3/18 B61D3/20 B61D47/00 B61K1/00 B65G63/02A2](#)

US class: [104/18 104/20 105/355 105/404 105/413 187/222 187/222S 187/237 414/339 414/467 414/467P](#)

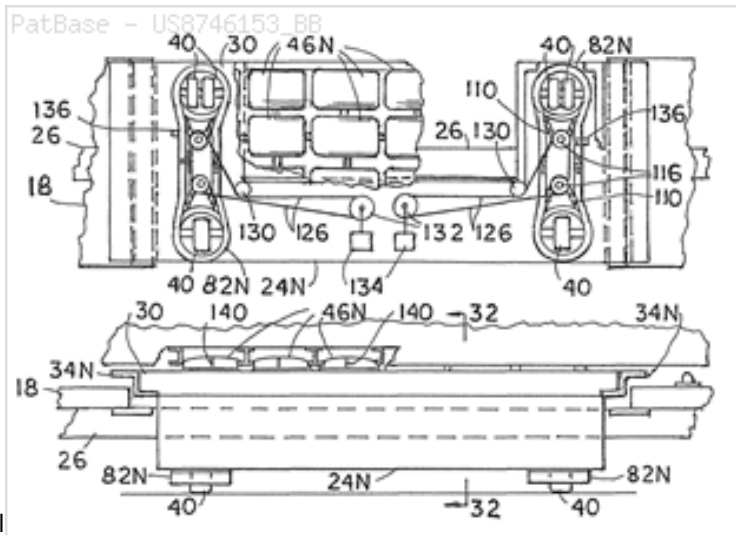
[Classification Explorer](#)

Cited documents: US7077065 BB, US6695289 BA, US5506012 A, US5174415 A, US5121900 A, US4950126 A, US4921075 A, US4599030 A, US4500248 A, US4257619 A, US4130208 A, US4130206 A, US3892188 A, US3596730 A, US3269744 A, US3230900 A, US3077354 A, US3047904 A, US2959262 A, US27978 A, US1139411 A, JP5227107 A2,

Forward Citations: US9428949, US9346170, US9346169, US9079478, US9010253, US8739705, US8312817, US2016009164, US2011083579, US2010307368, US2010276216, DE102010043916,

Abstract:

Source: US2007095243A This invention is a guided transport vehicle with berth with open side and bottom for a roadway vehicle to be driven along side on a station driveway and obliquely steered into the berth and lifted for transport on the transport vehicle and lowered to another station driveway and obliquely steered out from the berth. The guided vehicle can be a railway car in a train on a track or guideway flush with station driveways for the transfer vehicle. The transfer vehicle can be a bus, truck, motor home, or platform for holding containers or vehicles. This transfer vehicle has all wheel parallel steering and can shift to front wheel steering and can have either end the front. End rollers guide the transfer vehicle parallelly in and out of the berth and end lifts raise the vehicle for travel on the train above the track. The vehicle is controlled to accelerate to train speed and aligned before all wheels are turned together at an oblique angle to enter the berth.



0) US5024287A – ENGINE UNIT FOR VEHICLE

32) Family number: 29207593 (US5024287A)

© PatBase

Title: ENGINE UNIT FOR VEHICLE

Priority:

EP19880120003	19881130	EP19900112308	19900627	EP19930105961	19900627
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Family:

Publication number	Publication date	Application number	Application date
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<u>DE69005030 T2</u>	19940421	DE19906005030T	19900601
<u>DE69005035 D1</u>	19940120	DE19906005035	19900601
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<u>DE69007576 D1</u>	19940428	DE19906007576	19900627
<u>DE69007576 T2</u>	19940630	DE19906007576T	19900627
<u>DE69022329 D1</u>	19951019	DE19906022329	19900627
<u>DE69022329 T2</u>	19960229	DE19906022329T	19900627
<u>DE69025656 D1</u>	19960411	DE19906025656	19900627
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<u>DE69030111 D1</u>	19970410	DE19906030111	19900627
<u>DE69030111 T2</u>	19970612	DE19906030111T	19900627
<u>DE69032625 D1</u>	19981008	DE19906032625	19900627
<u>DE69032625 T2</u>	19990128	DE19906032625T	19900627
<u>EP0318971 A2</u>	19890607	EP19880120003	19881130
<u>EP0318971 A3</u>	19900530	EP19880120003	19881130
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<u>EP0401710 B1</u>	19931208	EP19900110498	19900601
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<u>EP0406697 A1</u>	19910109	EP19900112310	19900627
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<u>EP0411319 A3</u>	19910424	EP19900112311	19900627
<u>EP0411319 B1</u>	19950913	EP19900112311	19900627
<u>EP0415022 A1</u>	19910306	EP19900112308	19900627
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<u>EP0653553 B1</u>	19980902	EP19950101307	19900627
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<u>ES2050694 T3</u>	19940601	ES19880120003T	19881130
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<u>US5240088 A</u>	19930831	US19900532200	19900601
<u>US5257674 A</u>	19931102	US19930018285	19930216

Probable Assignee: YAMAHA MOTOR CO LTD

Assignee(s):^(std): YAMAHA MOTOR CO LTD ; YAMAHA HATSUDIKI KABUSHIKI KAI

Assignee(s): YAMAHA HATSUDIKI KABUSHIKI KAISHA ; YAMAHA HATSUDIKI KK ; YAMAHA HATSUDOKI D B A YAMAHA MOTOR CO LTD KK ; YAMAHA HATSUDOKI DBA YAMAHA MOTOR CO LTD KK ; MANABU KOBAYASHI ; YAMAHA HATSUDOKI KK ; YAMAHA HATSUDOKI KABUSHIKI KAISHA YAMAHA MOTOR CO ; YAMAHA HATSUDOKI KABUSHIKI KAISHA ; YAMAHA HATSUDOKI K K IWATA SHIZUOKA JP ; YAMAHA HATSUDOKI K K IWATA SHIZUOKA ; YAMAHA MOTOR CO ; YAMAHA

HATSUDOKI YAMAHA MOTOR CO LTD A CORP OF JAP ; YAMAHA HATSUDOKI K K ;
YAMAHA HATSUDOKI KABUSHIKI KAISHA YAMAHA MOTOR CO LTD ; YAMAHA
HATSUDOKI YAMAHA MOTOR CO LTD A CORP OF JAPAN KK

Inventor(s):^(std): KOBAYASHI MANABU ; MANABU KOBAYASHI ; OKUI KAORU ; YAMAHA HATSUDOKI
KABUSHIKI KAI

Inventor(s): YAMAHA HATSUDOKI KABUSHIKI KAISHA ; OKUI KAORU IWATA SHI SHIZUOKA KEN
438 ; OKUI KAORU IWATA SHI SHIZUOKA KEN 438 JP ; OKUI KAORU SHIZUOKA KEN
438 JP ; KOBAYASHI MANABU IWATA SHI SHIZUOKA KEN 438 ; KOBAYASHI
MANABU IWATA SHI SHIZUOKA KEN 438 JP ; KOBAYASHI MANABU SHIZUOKA KEN
438 JP

Designated states: DE ES FR GB IT

International class
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F02F1/10 F02F1/14 F02F1/40 F02F1/42 F02F7/00 F02M35/104 F16C3/06 F16F15/12
F16F15/126 F16F15/26 (Advanced/Invention);
F01M1/12 F02B1/04 F02B61/00 F02B67/06 F02B75/18 F02B75/20
F02F1/24 (Advanced/Non-invention);
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F01M1/00 F02B75/00 (Core/Non-invention)

International class
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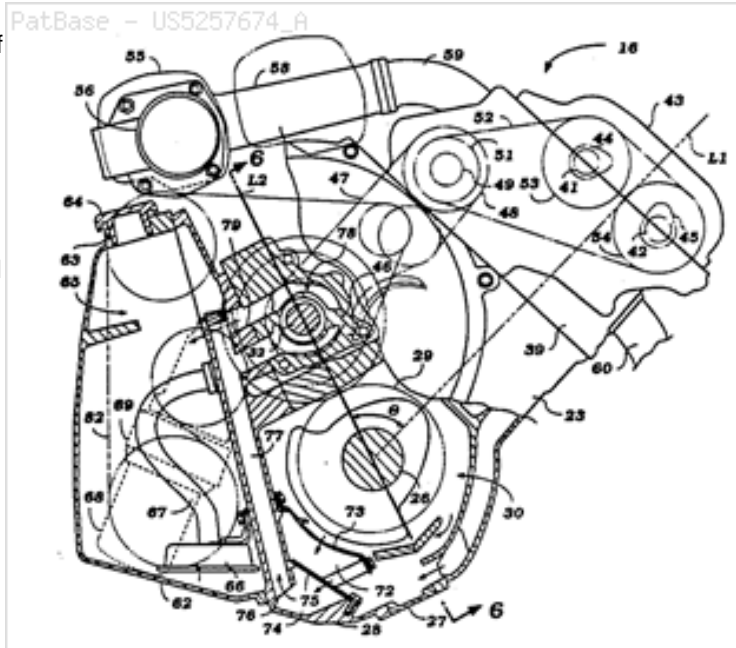
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Forward Citations: WO9808701, WO09155997, WO04088095, WO0165088, WO0136798, WO0017003, USD686273, US9518532, US9261045, US9074553, US9057340, US8919301, US8887703, US8833328, US8689925, US8678116, US8601997, US8393306, US8316815, US8291882, US8256280, US8146693, US8011342, US7870926, US7845329, US7823684, US7669573, US7341039, US7293538, US7240758, US7220196, US7210461, US7162989, US7007655, US6971363, US6962225, US6952929, US6941924, US6928988, US6910547, US6904994, US6892844, US6868925, US6848528, US6840208, US6834634, US6823829, US6745726, US6732679, US6725958, US6715460, US6708664, US6666290, US6637401, US6631703, US6631702, US6612272, US6609491, US6534958, US6533624, US6523627, US6510912, US6508211, US6427648, US6425360, US6415759, US6412464, US6398683, US6390869, US6343573, US6332441, US6305342, US6295959, US6295955, US6286476, US6273047, US6260682, US6260527, US6240887, US6234268, US6199525, US6192865, US6135083, US6125811, US6113446, US6076495, US6071158, US6029638, US6024193, US6010378, US6009671, US5901679, US5873336, US5865655, US5860402, US5842451, US5743229, US5740768, US5732667, US5730673, US5724930, US5715784, US5711387, US5687690, US5678516, US5636608, US5630387, US5598813, US5560331, US5531291, US5531194, US5529575, US5529045, US5517957, US5513606, US5489243, US5400748, US5372215, US5360079, US5305848, US5279381, US5259347, US5257674, US5251720, US5240088, US5195607, US5195479, US5184582, US5107799, US5092284, US2016090905, US2015377114, US2014174397, US2013240284, US2012012078, US2011277707, US2011162613, US2011127103, US2010242893, US2010224149, US2010167855, US2010064787, US2010012075, US2009283350, US2009241867, US2009218152, US2008314677, US2007075521, US2007027505, US2006196749, US2006162699, US2006113136, US2006032469, US2005224273, US2005034925, US2005022546, US2004255897, US2004244991, US2004244760, US2004182623, US2004168543, US2004089492, US2004040531, US2003125145, US2003019464, US2002170506, US2002038731, KR101103444, JP6001717, JP55052841, JP4109437, JP4054353, JP3266722, JP2575944, JP2016070164, JP2008265691, JP2007192160, GB2392235, GB2382117, GB2382117, GB2368615, GB2213115, FR2812030, ES2050570, EP2375025, EP1788285, EP1528236, EP1528236, EP1389677, EP1357256, EP1291506, EP1291506, EP1231367, EP1231367, EP1115590, EP1087126, EP1087126, EP1039098, EP0923459, EP0923459, EP0922849, EP0907007, EP0837236, EP0713960, EP0688693, EP0451710, EP0416636, EP0411319, DE4421926, DE4421926, DE4402233, DE4402233, DE10244829, DE10238261, DE102009036895, DE102006007421, DE10036130, AU781639,

Abstract:

Source: US5024287A Several embodiments of power units particularly adapted for transverse engine operation for driving the wheels of a motor vehicle. In all of the embodiments, the axles are disposed on one side of the engine and a change speed transmission is located on the other side of the engine. The change speed transmission is driven from a gearing arrangement located between the ends of the crankshaft and in some embodiments torsional vibration dampers are included in the drive for the change speed transmission. Vibration dampers are affixed to one or both ends of the crankshaft in some embodiments and an auxiliary shaft is driven from the transmission primary shaft for operating the camshafts of the engine.



33) Family number: 321381 (US3583727A)

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Title: TRICYCLE VEHICLES**Priority:** FR19660064245 19660606 GB19680009011 19680223

Family:	Publication number	Publication date	Application number	Application date
	<u>DE1908826 A1</u>	19700312	DE19691908826	19690221
	DE1908826 B2	19770512	DE19691908826	19690221
	<u>DE1908826 C3</u>	19771229	DE19691908826	19690221
	<u>ES363983 A2</u>	19710101	ES19690363983	19690222
	<u>FR1482387 A</u>	19670526	FR19660064245	19660606
	<u>FR2002481 A6</u>	19691017	FR19690004416	19690221
	<u>GB1146351 A</u>	19690326	GB19650017656	19650427
	<u>GB1146352 A</u>	19690326	GB19680013325	19650427
	<u>GB1208156 A</u>	19701007	GB19680009011	19680223
	<u>JP57009992 B4</u>	19820224	JP19690012942	19690222
	<u>US3583727 A</u>	19710608	US19690800989	19690220

Probable Assignee: WALLIS GEORGE**Assignee(s):**^(std): G L WALLIS AND SON LTD ; GEORGE L WALLIS ; LESLIE WALLIS ; WALLIS GEORGE LESLIE ; WALLIS GEORGE**Assignee(s):** GL WALLIS AND SON LTD ; G L WALLIS AND SON LIMITED**Inventor(s):**^(std): WALLIS GEORGE L ; WALLIS GEORGE LESLIE ; LESLIE WALLIS GEORGE**Inventor(s):** GEORGE L WALLIS**International class**
^(IPC 8-9): B62D61/08 B62K5/027 B62K5/04 B62K5/06 B62M7/00 (Advanced/Invention) ;
B62D61/00 B62K5/00 B62M7/00 (Core/Invention)**International class**
^(IPC 1-7): B60G11/20 B60K25/00 B62K11/00 B62K25/00 B62K25/04 B62K5/04**CPC:** B62D61/08 B62K5/06 B62K5/10 B62M7/00 B62M2701/0015 B62K5/027 B62K5/08**European class:** B62D61/08 B62K5/027 B62K5/06 B62K5/08 B62K5/10 B62M7/00 L62M701/63K23**US class:** 180/215 280/124.103 280/283[Classification Explorer](#)**Cited documents:** US530552 A, US2878032 A, US2819093 A, US2221196 A, US2105553 A, FR1158922 A,**Forward Citations:** WO09027597, WO05025972, WO0136257, USD621304, US9327725, US7794375, US7309081, US6364048, US6062581, US5240267, US5121806, US4740004, US4647067, US4592441, US4541501, US4469188, US4429760, US4405027, US4340125, US4316520, US4278273, US4159752, US4003443, US3995875, US3938609, US3931989, US2004012169, JP49102033, GB2125745, FR2918634, FR2831866, FR2528376, FR2453747, FR2453070, FR2280539, FR2280539, EP1006148, EP0557449, EP0017480, DE9211853, DE4343311, DE2502529, DE19640475, DE102011106474, DE102011103831,

Abstract:

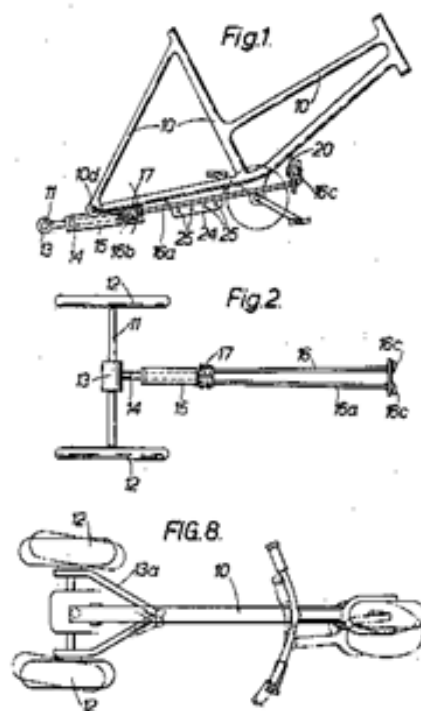
Source: GB1146351A 1,146,351. Tricycles. G. L. WALLIS and SON Ltd. 26 April, 1966 [27 April, 1965], No. 17656/65. Heading B7E. In a pedal driven or engine powered tricycle two rear wheels 2 having a common axle are connected by a wishbone rear fork assembly 4a and a ball joint 4 to a frame 3, and a shockabsorbing spring 7 encircles a support tube pivoted to the frame and connected by a ball- and-socket 8 to the fork assembly, see also Figs. 1 and 4 (not shown). Since the joint 4 is above the line joining 8 with the front wheel ground point, then when a rider leans the frame 3 over and turns the front wheel, the joint 4 will move transversely as the frame pivots about the line axis 9, Fig. 3 (not shown), and turn the axle of the rear wheels about the ball 8 so that the wheels 2 steer with and follow the wheel 1. Springs (11) on either side of the joint 4 also resist tilting of the frame and may alternatively be associated with the joint 8, Fig. 6 (not shown). In Fig. 5 (not shown), the frame 3 and rear support tube are integral. In Figs. 7 and 8 (not shown), the frame 3 and bushed bearing (15) tilt about a horizontal threaded extension (19) of the fork 4a against the action of a spring-pressed cam 21. In other modifications not illustrated the bearing (15) is inclined forwardly and positioned near the rear axle. In Figs. 9 and 10 (not shown), a bar (27) constituting part of a luggage carrier (28) may be gripped by pads 24 operated by a Bowden cable so as to prevent tilt of the tricycle when stationary on say a cambered road.

PatBase - US3583727_A

PATENTED JUN 8 1967

3,583,727

SHEET 1 OF 3



INVENTOR

GEORGE L. WALLIS

By *Ernest L. Smith* Att.

34) Family number: 13529046 (WO0244008A2)

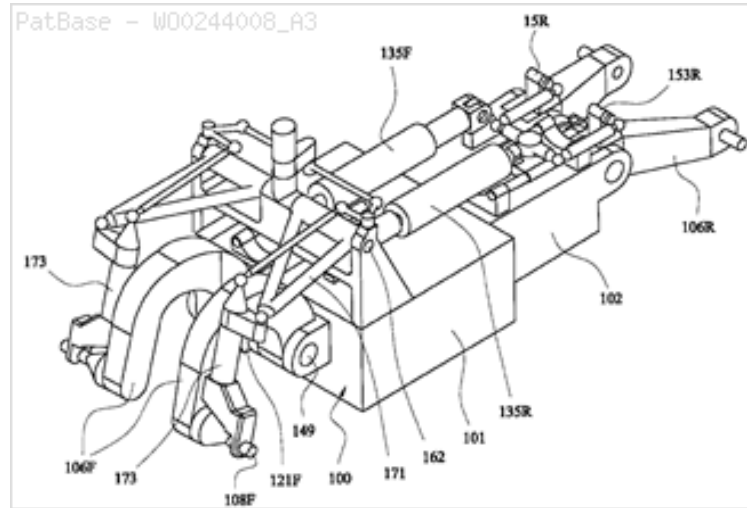
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Title: MOTORCYCLE–TYPE VEHICLE**Priority:** EP20010998472 20011129 EP20100003570 20011129 WO2001GB05294 20011129
GB20000029136 20001129**Family:**

Publication number	Publication date	Application number	Application date
AU2002216195 AA	20020611	AU20020216195	20011129
DE60146643 D1	20120726	DE20016046643	20011129
DE60147447 D1	20130117	DE20016047447	20011129
EP1339599 A2	20030903	EP20010998472	20011129
EP1339599 B1	20120530	EP20010998472	20011129
EP2196386 A2	20100616	EP20100003570	20011129
EP2196386 A3	20110525	EP20100003570	20011129
EP2196386 B1	20121128	EP20100003570	20011129
ES2388059 T3	20121008	ES20010998472T	20011129
ES2397602 T3	20130308	ES20100003570T	20011129
GB2000029136 A0	20010110	GB20000029136	20001129
WO0244008 A2	20020606	WO2001GB05294	20011129
WO0244008 A3	20020912	WO2001GB05294	20011129

Probable Assignee: THE FOUR WHEELED MOTORCYCLE COMPANY LIMITED**Assignee(s):**^(std): FOUR WHEELED MOTORCYCLE COMPAN ; FOUR WHEELED MOTORCYCLE COMPANY LTD ; SHOTTER NICHOLAS RICHARD ; SHOTTER NICHOLAS R**Assignee(s):** THE FOUR WHEELED MOTORCYCLE COMPANY LIMITED ; NICHOLAS RICHARD SHOTTER ; FOUR WHEELED MOTORCYCLE CO LTD**Inventor(s):**^(std): SHOTTER NICHOLAS ; SHOTTER NICHOLAS RICHARD**Inventor(s):** SHOTTER NICHOLAS RICHARD ENFIELD ; NICHOLAS RICHARD SHOTTER**Agent(s):** CAMERON STEWART; BRERETON PAUL ARTHUR; DE ELZABURU ALBERTO**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ OM PH PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG US UZ VN YU ZA ZM ZW**International class**
^(IPC 8-9): [B60G3/20](#) [B62K25/00](#) [B62K25/24](#) [B62K5/02](#) [B62K5/08](#) (Advanced/Invention);
[B62K25/00](#) [B62K25/04](#) [B62K5/00](#) (Core/Invention)**International class**
^(IPC 1-7): [B62K25/00](#) [B62K25/24](#) [B62K5/02](#) [B62K5/08](#)**CPC:** [B60G3/185](#) [B60G17/0162](#) [B60G21/05](#) [B60G2300/122](#) [B60G2300/124](#) [B60G2800/012](#)
[B62D9/02](#) [B62K5/08](#) [B62K5/10](#) [B62K25/005](#) [B62K25/24](#)**European class:** [B60G17/016F](#) [B60G21/05](#) [B60G3/18B](#) [B62D9/02](#) [B62K25/00B](#) [B62K25/24](#) [B62K5/08](#)
[B62K5/10](#) [L60G300/122](#) [L60G300/124](#) [L60G800/012](#)[Classification Explorer](#)**Cited documents:** WO03018390 A1, US6263994 BA, US4890857 A, US4828069 A, US4756379 A, US4638881 A, US4020914 A, DE29510091 U1, DE19823002 A1,**Forward Citations:** WO16001722, WO15193705, WO14048698, WO12160323, WO11061768, WO11029795, WO10015986, WO08065436, WO08011917, WO04056645, US9216763, US8286978, US7731210, US7243765, US7172045, US2013153311, JP5289312, JP2009544509, ITMI20081453, GB2475309, FR2995869, FR2995868, EP2889210, EP2650193, EP2650193, EP2628672, EP2246249, EP2199195, EP2199122, EP1918187, EP1571016, EP1571016, EP1484239, EP1378428, EP1362779, DE102009042662, CN102596697, CN102596697,

The or each front wheel (4) of the vehicle is mounted on a stub axle (108F) at the lower end of a strut (173) articulated in the central plane of the wheel to one end of an inverted U or J-shaped suspension arm (106F) pivotally mounted on its other end on the vehicle chassis and forming a parallelogram linkage with a wishbone member (171), pivoted at (162) thereby providing constant trail for the wheel. To provide increased stability, the vehicle can have two front wheels (4) and two rear wheels (5) mounted on respective swing arms (106F) and (106R) respectively and the swing arm movements can be restricted by stabilising brakes (121F) and (1



35) Family number: 12587193 (US5836541A)

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Title: Easily-convertible fixed-wing roadable aircraft

Priority: US19960012719P 19960304 US19970045106P 19970425 US19980041915 19980313
US19970811503 19970305 US19970859732 19970521

Family:	Publication number	Publication date	Application number	Application date
	<u>US5836541 A</u>	19981117	US19970859732	19970521
	<u>US5984228 A</u>	19991116	US19970811503	19970305
	<u>US6129306 A</u>	20001010	US19980041915	19980313

Probable Assignee: PHAM ROGER N C

Assignee(s):(std): PHAM ROGER N C

Inventor(s):(std): PHAM ROGER N C

International class B64C37/00 (Advanced/Invention)
(IPC 8-9):

International class B64C37/00
(IPC 1-7):

CPC: B64C37/00 B60F5/02

European class: B64C37/00

US class: 244/100R 244/104FP 244/2 244/220 244/46 244/49 244/50

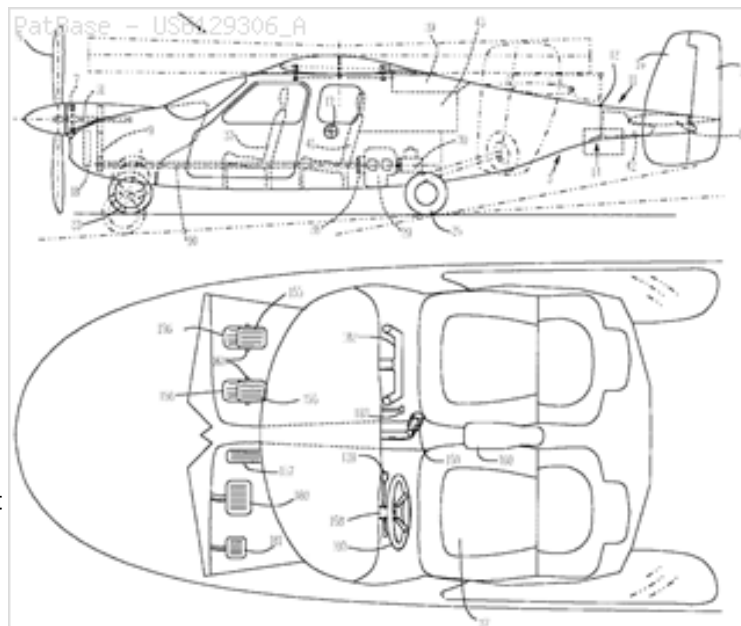
[Classification Explorer](#)

Cited documents: US5435502 A, US5050817 A, US4986493 A, US4881701 A, US4720061 A, US4706907 A, US4627585 A, US4269374 A, US3986686 A, US3960103 A, US3371886 A, US3261572 A, US3134560 A, US3116896 A, US3112088 A, US2746698 A, US2735634 A, US2692095 A, US2681773 A, US2584961 A, US2446528 A, US2375423 A, US2350608 A, US2241577 A, US2110563 A, FR1334496 A,

Forward Citations: WO17025704, WO08085195, WO07056294, WO03078247, US9610817, US9555681, US9457890, US9446841, US9393847, US9297439, US9259984, US9145215, US9045226, US8882091, US8757537, US8746378, US8702041, US8573937, US8561939, US8499907, US8376263, US8371520, US8275516, US8267347, US7950479, US7938358, US7905449, US7874512, US7665690, US7642929, US7515999, US7377470, US7322545, US7234667, US7113855, US7113855, US7066428, US7066428, US6994394, US6978970, US6974106, US6848649, US6786450, US6695106, US6662086, US6619584, US6561455, US6488504, US6483254, US6259976, US6224012, US6131848, US6082671, US6082665, US2017096221, US2015217613, US2015210161, US2015144743, US2015028150, US2013127132, US2011315806, US2011036939, US2011022267, US2011000723, US2010294877, US2010276545, US2010252675, US2010129215, US2009101754, US2009057480, US2009045294, US2009044991, US2008087763, US2008073459, US2008017751, US2008011897, US2007102590, US2007084971, US2007045012, US2006151272, US2006017307, US2005242236, US2005230525, US2005151003, US2004243291, US2004232727, US2004094658, JP2011225058, GB2455035, GB2450981, EP3130535, EP2560860, CN102892664,

Abstract:

Source: US5836541A A fixed-wing four-seat light aircraft that can be easily converted to a roadway vehicle within minutes by a single person in the field, comprising a one-piece wing center panel with foldable wing tips on each sides. The whole wing unit is then rotatably mounted on top of the fuselage. The aircraft features a conventional front-engine-and-propeller lay-out, with a short fuselage for convenient roadability and garageability, with horizontal stabilizer of significant span with foldable tips for adequate flight stability. The vehicle has a low ride-height with a low center of gravity, four wheels with independent suspension, nose-height leveling for take-off and landing, and anti-sway mechanism for adequate ground handling. Ground propulsion is by automotive-style transmission driving the front wheels.



36) Family number: 22104630 (US2904343A)

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Title: MOTOR VEHICLE STEERING AND SPRING SUSPENSION MECHANISM

Priority: US19550504807 19550429

Family:

Publication number	Publication date	Application number	Application date
<u>US2904343 A</u>	19590915	US19550504807	19550429

Probable Assignee: TABER GEORGE H

Assignee(s):^(std): TABER GEORGE H

Inventor(s):^(std): TABER GEORGE H

International class
(IPC 8-9): B60G17/027 B62D7/00 (Advanced/Invention);
B60G17/02 B62D7/00 (Core/Invention)

International class
(IPC 1-7): B60G13/00 B60G17/02 B60G3/14

CPC: Y10S280/01 B60G17/027 B60G2200/13 B60G2202/312 B60G2202/413 B60G2204/13 B62D7/00

European class: 63C45K1A B60G17/027 B62D7/00 L60G200/13 L60G202/312 L60G202/413 L60G204/130

US class: 267/221 280/124.102 280/124.153 280/43.18 280/43.23 280/DIG.1

[Classification Explorer](#)

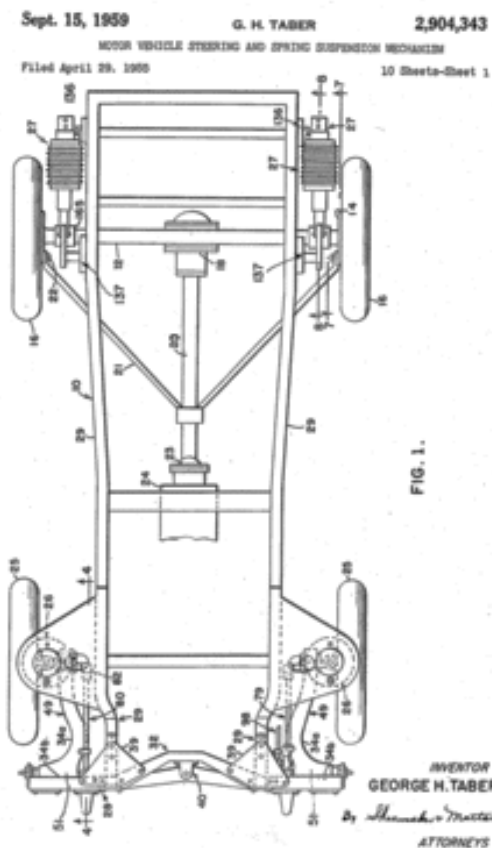
Cited documents: US2756067 A, US2728583 A, US2720403 A, US2687311 A, US2605118 A, US2490719 A, US2428447 A, US2290923 A, US2202665 A, US2164470 A, US2098473 A, US1650680 A, US1271978 A, US1251399 A,

Forward Citations: US8827279, US8408561, US6857625, US4081187, US3254899, US3143360, US3073617, US3061329, US2958471, US2012279401, US2011101632, US2004036206, DE3635232,

Abstract:

Source: US2904343A (Claim 1) I claim: 1. In a motor vehicle, a chassis, frame, rear wheel running gear, yieldable suspension means connecting the frame with said running gear, the chassis frame including side beams and a transverse front beam extending at its ends laterally of the side beams, steerable front wheel running gear including knuckle bolts, rearwardly extending pairs of vertically spaced duplicate parallel arms, each pair having forward ends pivotally connected one above the other to one of said ends of the transverse beam for vertical swinging movement, said arms lying outside the area of the side beams and in substantially parallel relation therewith, means pivotally coupling the rear ends of each pair of the arms to the top and bottom ends of a knuckle bolt whereby each wheel has up-and-down movement and steering turning movement, said pivot couplings at the forward and rear ends of the arms being in substantial alignment longitudinally of the chassis, means for steering the steerable wheels, and an elongate resilient suspension means mounted directly upon the top end of and supported by each knuckle bolt between the bolt and the adjacent frame side beam. 2.

PatBase - US2904343_A



0) US2374410A – EARTH-MOVING EQUIPMENT

37) Family number: 21629886 (US2374410A)

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Title: EARTH-MOVING EQUIPMENT

Priority: US19420468947 19421214

Family:	Publication number	Publication date	Application number	Application date
	<u>US2374410 A</u>	19450424	US19420468947	19421214

Probable Assignee: KNUCKEY TRUCK CO

Assignee(s):^(std): KNUCKEY TRUCK CO ; KNUCKEY TRUCK COMPANY

Inventor(s):^(std): BRUMBAUGH ANDREW K

International class
(IPC 8-9): E02F3/65 (Advanced/Invention);
E02F3/64 (Core/Invention)

International class
(IPC 1-7): E02F3/85

CPC: E02F3/6454 E02F3/651 E02F3/653

European class: E02F3/64T E02F3/65B E02F3/65F

US class: 180/419 180/420 280/423.1 280/438.1 280/468 280/492 37/417

[Classification Explorer](#)

Forward Citations: WO8303400, US6170851, US3814531, US3443826, US3183991, US2936039, US2936038, US2936037, US2841231, US2697609, US2633366, US2583197, US2557513, US2557066,

Abstract:

Source: US2374410A 1. An ear moving vehicle adapted to operate as—a six-wheel unit during hauling and as a front wheel drive four-wheel unit during cutting, comprising a tractor and a trailer, said trailer connected to said tractor by a, universal pivot means comprising a member carried by said primemover, a steering plate carried by said member, means to lock said trailer to said steering plate, means to tilt vertically said tractor relative to said trailer, and means to actuate sequentially said locking and said tilting means.

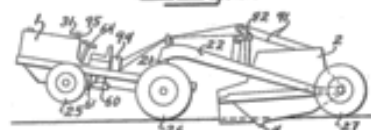
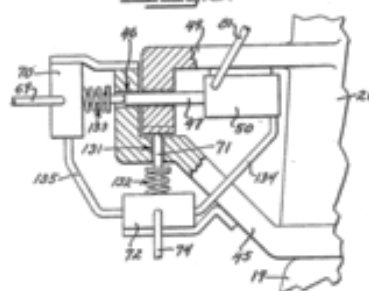
PatBase - US2374410_A

April 24, 1945.

A. K. BRUMBAUGH
EARTH MOVING EQUIPMENT
Filed Dec. 14, 1942

2,374,410

4 Sheets-Sheet 1

Fig. 1Fig. 2Fig. 3INVENTOR,
ANDREW K. BRUMBAUGH
BY
Charles E. Lawrence
ATTORNEY.

0) US3216337A – SPREADER ATTACHMENT

38) Family number: 22891632 (US3216337A)

© PatBase

Title: SPREADER ATTACHMENT

Priority: US19620218080 19620820

Family:	Publication number	Publication date	Application number	Application date
	US3216337 A	19651109	US19620218080	19620820

Probable Assignee: ULMAC EQUIPMENT CO

Assignee(s):^(std) ULMAC EQUIPMENT CO ; ULMAC EQUIPMENT COMPANY

Inventor(s):^(std) MACDONALD RAYMORE D

International class
(IPC 8-9): [E01C19/15](#) (Advanced/Invention);
[E01C19/00](#) (Core/Invention)

International class
(IPC 1-7): [E01C19/15](#)

CPC: [E01C19/15](#)

European class: [E01C19/15](#)

US class: [37/280 404/104](#)

[Classification Explorer](#)

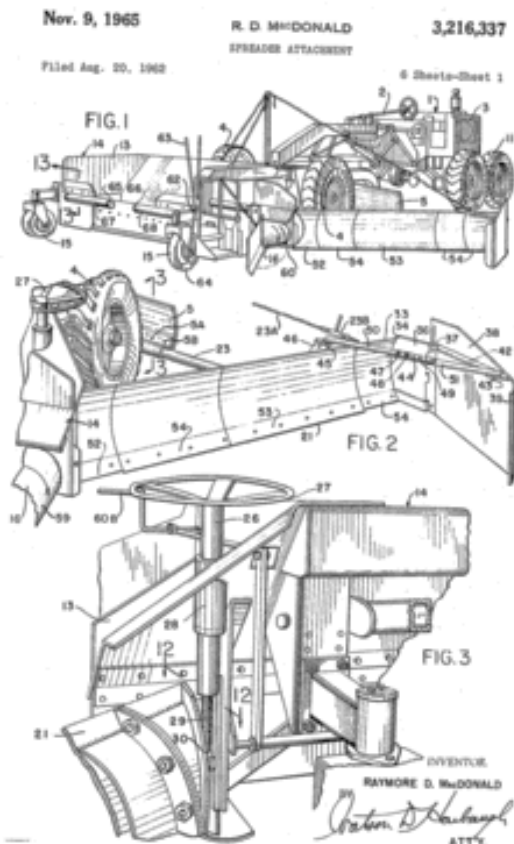
Cited documents: US3015261 A, US2888864 A, US2848930 A, US2800340 A, US2750688 A, US2713220 A, US2660937 A, US2572776 A, US2522610 A, US2332712 A, US1972498 A, NO60293 A,

Forward Citations: US7407016, US6363631, US6164866, US5921326, US5344254, US4741116, US4188152, US4145825, US3466989, US2011239491, US2007089327, FR2467918, CN104612091,

Abstract:

Source: US3216337A What is claimed is: 1. In a shoulder spreading vehicle comprising a rear motor driven road engaging propelling unit and a front attachment unit coupled thereto in longitudinal alignment and propelled forwardly thereby, said rear propelling unit having an operator's station embodying controls for steering said shoulder spreading vehicle and for controlling the shoulder spreading operation, said front attachment unit comprising solid rubber tired caster road wheels spaced a distance sufficient to receive a dump truck body between them at the front, a hopper supported on said road wheels for receiving till material from a dump truck which travels ahead of said front attachment unit, between said caster road wheels, whereby fill material in the hopper will hold the front attachment unit firmly to the road, a conveyor travelling in the lower portion of said hopper for discharging fill material from said hopper to one side of said attachment unit, a relatively long strike-off blade projecting diagonally outwardly and rearwardly from said attachment unit for receiving fill material discharged by said conveyor and for spreading such material outwardly and striking it off at a predetermined level, said strike-off blade having its inner front end pivotally connected with said attachment unit at a point disposed rearwardly of and in relatively close proximity to the point of discharge of the fill material from said conveyor, and extending rearwardly at a relatively sharp angle whereby to effect a substantially uniform distribution of the fill material out along the entire length of the blade, said inner front connection comprising a universal mechanism having a substantially vertical axis and a horizontal axis pivot means accommodating horizontal and vertical angulation of said blade relative to said shoulder spreading vehicle, means for vertically adjusting the strike-off level of the inner end of said strike-off blade, an upright strut on said attachment unit above the last mentioned means, outer rear connecting mechanism pivotally connecting an outer rear portion of said strike-off blade with said attachment unit and including an adjustable fall means supporting the outer end of said strike-off blade from the strut for adjusting the strike-off level of the outer end of said strike-off blade with respect to the front attachment unit, a side draft sustaining boom pivotally connected at its outer end with an outer portion of said strike-off blade and extending inwardly from the back side of said blade to said propelling unit, whereby to hold said strike-off blade down at its strike-off level as a flexure stress and to bear a substantial portion of the side draft exerted by said fill material being deflected outwardly along said strike-off blade is borne as a compression stress in said boom. In a shoulder spreading vehicle including a propelling vehicle unit, a hopper propelled by the propelling vehicle unit for receiving till material from a dump truck which travels ahead of it, a conveyor travelling in the lower portion of said hopper for discharging the fill material from said hopper to one side of said attachment unit, a strike-off blade extending outwardly and rearwardly and being pivotally connected at its inner front end with said shoulder spreading vehicle at a point disposed rearwardly of and in relatively close proximity to the point of discharge of the fill material from said conveyor, solid rubber tired caster wheels supporting said hopper, conveyor and strike-off blade on a roadway, said pivotal connection including a vertical adjusting mechanism for controlling the level of said strike-off blade, an upright strut on said shoulder spreading vehicle above said mechanism, an outer rear connecting mechanism pivotally connecting an outer rear portion of said strike-off blade with said attachment unit and including a chain fall supporting the outer end of said strike-off blade from the strut for adjusting the strike-off level of the outer end of said strike-off blade, a side draft means interconnecting the propelling vehicle unit and the outer end portion of the strike-off blade to withstand the side draft exerted thereon by said till material being deflected outwardly along said strike-off blade, said side draft means exerting a downward pressure upon the strike-off blade. 3. A trench tiller comprising a wheeled shoulder spreader assembly attached to a propelled vehicle for depositing and spreading aggregate material, said shoulder spreader comprising a frame structure, four solid rubber tired casters supporting said frame structure, releasable hitch means interconnecting said assembly and said propelled vehicle for relative movement therebetween about a horizontal axis disposed transverse to the direction of travel of said assembly, a conveyor mechanism carried by the frame structure having motion transverse to the direction of movement of said assembly for depositing aggregate material on the shoulder area of a road surface, a spreader blade projecting

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diagonally outwardly and rearwardly from said frame structure to engage and spread said deposited aggregate material, first adjustable means interconnecting the inner end of said blade to the frame structure of said spreader assembly, second adjustable means interconnecting the outer end of said spreader blade and said spreader assembly, said second adjustable means including a chain fall holding the outer end of the spreader blade means against downward movement beyond its working position, and vertically adjustable means interconnecting said propelling vehicle and spreader blade for holding said spreader blade against upward movement from its working position and transmitting through said hitch means a torsional force holding said wheels against a road surface. In a shoulder spreading vehicle comprising a rear driven unit and a front driven unit attached thereto in longitudinal alignment, a connection between the unit, providing for relative vertical movement about transversely disposed parallel horizontal axes, said driven unit being adapted for movement along a roadway, said front driven unit comprising a hopper for receiving till material from dump trucks pushed along the roadway ahead of said front driven unit, a conveyor belt supported and travelling in the lower portion of said hopper transversely of the direction of movement of the driven unit for discharging till material from said hopper on the shoulder area of a road surface at the side of said driven unit, solid rubber tired wheels supporting the weight of said driven unit, a strike-off blade projecting diagonally outwardly and rearwardly from said driven unit for engaging and spreading outwardly and levelling till material discharged by said conveyor belt, said strike-off blade having its inner front end disposed at a point located rearwardly of and in relatively close proximity to the point of discharge of till material from said conveyor, a vertical strut on said driven unit above said point, means pivotally interconnecting the inner front end of said strike-off blade to said driven unit for pivotal movement about a horizontal axis for substantially vertical movement of the outer end of said blade relatively to said vehicle, said pivotal means interconnecting the inner front end of said strike-off blade and said driven unit including a mechanism for vertically adjusting the strike-off level of the inner end of said strike-off blade, outer rear connecting mechanism comprising brace means interconnecting the outer portion of said strike-off blade and the driven unit to sustain the strike-off blade against side draft pressures, support means interconnecting said strut and the outer portion of said strike-off blade in weight bearing relationship to adjust the strike-off level of the outer end of said strike-off blade in its lowered position with respect to the roadway surface contacted by said solid rubber tired wheels, and hydraulic means interconnecting said driven unit and said strike-off blade for lifting and lowering the outer portion of said strike-off blade with respect to said adjusted strike-off level. 5. A shoulder spreading vehicle comprising a motor driven propelling unit having a vertically adjustable element, and a spreader unit, means supporting said spreader unit upon a roadway surface including transversely spaced castor wheels having solid rubber tires, horizontal pivot hitch means interconnecting said units including a pivot pin having its axis disposed horizontally transverse to the direction of travel to permit relative vertical movement therebetween and to support the units against relative torsional movement about an axis extending in the direction of travel, a hopper carried by said spreading unit adapted to receive fill material from dump trucks, a conveyor belt traveling in the lower portion of the hopper in a direction transversely of the roadway surface for discharging till material from said hopper to the side of the spreading unit, a strike-off blade extending diagonally rearwardly and outwardly from said shoulder spreading vehicle with the inner end of said blade disposed at the rear of the point of discharge from said conveyor belt to engage and spread E11 material therefrom, brace means interconnecting said strike-off blade and the vertically adjustable element on the motor driven propelling unit for urging the strike-off blade in a downward direction, said brace means including telescoping members for adjusting the horizontal angularity of said strike-off blade, and means interconnecting the outer end of the strike-off blade and said spreading unit for adjustably limiting the downward movement of the strike-off blade. 6. In a road travelling shoulder spreader for spreading till material in a shoulder area comprising a rear propelling unit and a front driven unit disposed in longitudinal alignment; coupling means interconnecting said units including horizontally disposed pivot means with its axes extending transversely of the road and spaced longitudinally of the road to permit free relative vertical movement between the units while maintaining said units rigidly in longitudinal alignment, said driven unit including: a frame; means supporting said frame for travel on a roadway including castor road wheels having solid rubber tires bearing the full weight of the driven unit, with two front wheels located at the front of the frame and spaced from each other in a direction transverse to the path of travel a distance wide enough to receive the rear end of a dump truck therebetween; a hopper extending said distance and supported on the frame for receiving till material from a dump truck which travels ahead of the hopper between said front wheels; a conveyor traveling in the lower portion of said hopper towards the shoulder area side of the driven unit and extending laterally beyond the front wheel adjacent thereto to a point within said shoulder area to discharge the fill material from the hopper out of the path of travel of the shoulder spreader directly to the shoulder area and at a place ahead of one of the remaining said wheels located at the rear of the frame; a strike-off blade having its inner front end disposed at a point located rearwardly of and in relatively close proximity to the place of discharge of the material from said conveyor and extending diagonally outwardly and rearwardly to spread outwardly and strike-off at a predetermined height the fill material discharged from the conveyor; means interconnecting the strike-off blade and driven unit for supporting the strike-off blade at a predetermined level with respect to the roadway engaged by the solid tired wheels and including a lifting and lowering mechanism connected to the inner front end of said strike-off blade and said driven unit for vertically adjusting the strike-off level of the inner end of the strike-off blade, an upright member mounted on the shoulder spreader above said roadway and adjustable members interconnecting the upright member and an outer portion of said strike-off blade in weight bearing relationship for lifting and lowering the outer portion of said strike-off blade to adjust the strike-off height of the outer end of said strike-off blade; extendible assembly means interconnecting the shoulder spreader and the strike-off blade for firmly holding the strike-off blade downwardly to its adjusted height including a side draft mechanism interconnecting said propelling unit and the strike-off blade for supporting the strike-off blade at its diagonal angularity to withstand the side draft exerted thereon by said till material being deflected outwardly along the strike-off blade. The combination called for in claim 6 including a transverse plate member rigidly secured at one end to the outer end of the strike-off blade at a right angle thereto to confine and strike off the fill material marginally within the transverse dimension of the shoulder area, a forward extending runner plate pivotally connected about a vertical axis to the other end of the plate member for movement in a horizontal direction and

having its leading vertical edge curved inwardly towards the driven unit, adjustment means for locating the runner plate with the leading edge horizontally spaced inwardly from the outer edge of the shoulder area, and vertical adjustment means for lowering the lower edge of the runner plate below the strike-off level of the strike-off blade to approximately the level of the bottom of the shoulder area being filled to remove and deflect outwardly any loose material marginally present in the shoulder area ahead of the driven unit. The combination called for in claim 6 including gate means hinged about a vertical axis to the hopper at the forward side of the conveyor including a vertical hopper front wall member on said driven unit extending along the forward side of the conveyor to a point beyond its discharge end a deflection plate hinged to the vertical wall member and extending diagonally outwardly and rearwardly substantially parallel to the strike-off blade for deflecting fill material back in under the conveyor where it overhangs said shoulder area, and adjustment means interconnecting said deflection plate and said driven unit at a point to the rear of said vertical wall member for holding said deflection plate in place against the force of said discharged H11 material. 9. A wheeled shoulder spreader assembly for attachment to a propelled vehicle for depositing and spreading aggregate material comprising a frame structure, a hopper carried by said frame structure a plurality of solid tiredwheels supporting said frame structure in full load and weight bearing relationship on a surface of a roadway at a predetermined level, releasable hitch means pivotally interconnecting said assembly and said propelled vehicle for relative vertical movement about horizontal axes disposed transversely to the roadway without loading said hitch means with the weight of the shoulder spreader attachment, conveyor mechanism carried by the frame structure for depositing aggregate material on the shoulder area of a road surface, means for propelling said conveyor mechanism at a gradually variable speed, an adjustable spreader blade means pivotally secured to the frame structure at one end rearwardly of said conveyor mechanism and projecting diagonally outwardly and rearwardly therefrom, means secured to said frame at said one end of the blade for adjustably holding said spreader blade means at a working level, means interconnecting said blade intermediate to the ends thereof with said propelled vehicle for holding the other end of the blade at a fixed predetermined horizontal diagonal working angle, adjustable means carried by said frame structure including a strut extending above said hopper and fall means interconnecting the strut and an outer portion of said spreader blade for supporting the spreader blade means at said predetermined strike-off working level throughout its length with respect to said roadway surface, gate means pivotally supported along an edge to the hopper ahead of said conveyor mechanism and adapted to extend rearwardly across the conveyor discharge to control the flow of aggregate material from the conveyor, and connected to said gate and frame structure for controlling the openness of the gate means for directing the flow of aggregate material from the conveyor mechanism to the area of the connection between the blade and the frame structure. 10. A roadway shoulder spreader having a rear propelling unit and a front driven unit coupled together in longitudinal alignment with the driven unit propelled forwardly and steered by the propelling unit, said driven unit comprising: a frame; a hopper supported on the frame for receiving fill material from dump trucks which travel ahead of the hopper; means supporting said frame for forward travel on a roadway beside a shoulder including road wheels having solid rubber tires with two front wheels located at the forward corners of the frame and spaced from each other in a direction transverse to the path of travel a distance wide enough to receive a discharge end of a dump truck pushed forwardly therebetween and two transversely spaced rear wheels on the rear of the frame; a conveyor in the lower portion of said hopper below said discharge end for receiving fill material thereon, said conveyor being adapted to travel towards the shoulder side of the driven unit for discharging fill material from the hopper out of the path of travel -of the shoulder spreader and onto the shoulder area ahead of the rear one of said wheels that is located next to the shoulder; a strike-off blade extending outwardly and rearward extending strike-off blade pivotally mounted at its inner forward end to the frame at a point rearwardly of the discharge end of the conveyor and in relatively close proximity to the place of discharge of fill material for receiving fill material from said conveyor and to spread outwardly and strike-off at a predetermined height in the shoulder area fill material discharged from the conveyor; means interconnecting the strike-off blade and driven unit for supporting the strike-off blade at a predetermined level with respect to the roadway engaged by the solid tired wheels and including a raising and lowering mechanism between the inner forward end of said strike-off blade and said driven unit for vertically adjusting the strike-off level of the inner forward end of the strike-off blade, an upright strut supported on the frame above said rear one of said wheels and said mechanism, and adjustable members interconnecting the strut and an outer portion of said strike-off blade in weight bearing relationship for raising and lowering the outer portion of said strike-off blade to adjust the working strike-off height of the outer end of said strike-off blade; and side draft means interconnecting the propelling unit and the strike-off blade for holding the strike-off blade at its adjusted height including a telescoping mechanism interconnecting said propelling unit and the strike-off blade for supporting the strike-off blade at a predetermined diagonal angularity to withstand the side draft exerted thereon by said fill material being deflected outwardly along the strike-off blade. 11. The combination called for in claim 10 in which the two mentioned interconnecting means include supporting elements pivotally interconnected for movement about substantially concentric horizontal axes, and means constructed and arranged to raise said strike-off blade about said concentric axes to an upright transport position. 12. The combination called for in claim 10 in which the last mentioned interconnecting means includes a bar extending longitudinally of and spaced from the back side of said strike-off blade and a connection on the side draft means slidable longitudinally on said bar. 13. A shoulder spreading vehicle for spreading fill material in a shoulder area comprising a motor driven propelling unit having pneumatic wheels and a self supporting spreader unit propelled forwardly thereby in a direction of travel along a roadway adjacent to a shoulder area, coupling hitch means interconnecting said units including elements interconnected for relative pivotal movement between said units about a horizontal axis extending transversely to said direction of travel for steering the spreader unit by the propelling unit and supporting the units against relative torsional movement about an axis parallel to said direction of travel, said spreading unit including a frame, means supporting said frame for movement in said direction of travel including widely spread front and rear solid rubber tired road wheels bearing the full weight of the spreader unit with one of said rear wheels mounted on the rear of the frame adjacent to the shoulder area and said front wheels mounted at the front of the frame and spaced from each other in a direction transverse to the direction of travel with one adjacent to the shoulder area and another remote from the shoulder area and diagonally opposite said one rear wheel, a hopper supported on the frame for

receiving therein fill material from a dump truck during forward travel of the spreading unit, and extending over a distance transversely of the roadway greater than the width of the dump truck, a conveyor belt mechanism in the lower portion of said hopper for supporting the fill material received therein from a dump truck, said conveyor in front traveling laterally in a direction towards the shoulder area to discharge till material from the hopper directly to the shoulder area at a place ahead of said one rear wheel, an outwardly and rearwardly extending strike-off blade pivotally mounted at its forward end to the frame rearwardly of the discharge end of the conveyor and adjacent to said rear wheel, to engage and spread outwardly and strike-off the material discharged from the conveyor at a predetermined height along the shoulder area, means at said forward end for raising and lowering the forward end of the strike-off blade to adjust vertically its working level adjacent to the roadway, an upright member extending above said hopper supported against relative lateral movement on the frame above said rear wheel, adjustable elements interconnecting the upright member and an outer portion of the strike-off blade in weight bearing relationship for locating the outer portion of the strike-off blade at its working level, and a vertically adjustable element supported by the propelling unit for transmitting a downward force, side draft mechanism interconnecting said vertically adjustable element of the propelling unit and said strike-off blade, said vertically adjustable element transmitting said downward force upon said draft mechanism to place a torsional load on the hitch means along a longitudinal axis of the shoulder spreading vehicle and hold said strike-off blade firmly in a steady position and working level in relation to said wheels on the roadway diagonally opposite each other. 14. The combination called for in claim 13 including a rearwardly extending gate pivotally supported at its vertical forward edge to the forward wall of the hopper ahead of said conveyor mechanism, said gate extending rearwardly across the conveyor discharge to control the flow of aggregate material from the conveyor mechanism, adjustable means interconnecting said hopper and gate means for controlling the opening of the gate means to direct the flow of aggregate material from the conveyor mechanism to the shoulder area and against said forward end of said strike-off blade. 15. A shoulder spreading vehicle comprising a motor driven propelling unit having a vertically adjustable element, and a spreader unit, means supporting said spreader unit upon a roadway surface including transversely spaced castor wheels having solid rubber tires, hitch means interconnecting said units including a pivot pin having its axis disposed horizontally transverse to the direction of travel to permit relative vertical movement therebetween and to support the units against relative torsional movement about an axis extending in the direction of travel, a hopper carried by said spreading unit adapted to receive till material from dump trucks, a conveyor belt traveling in the lower portion of the hopper in a direction transversely of the roadway surface for discharging till material from said hopper to the side of the spreading unit, a strike-off blade extending diagonally rearwardly and outwardly from said shoulder spreading vehicle with the inner end of said blade connected to said spreader unit and disposed at the rear of the point of discharge from said conveyor belt to engage and spread till material therefrom, brace means interconnecting said strike-off blade and the vertically adjustable element on the motor driven propelling unit for urging the strike-off blade in a downward direction, said brace means including telescoping members for adjusting the horizontal angularity of said strike-off blade, and means interconnecting the outer end of the strike-off blade and said spreading unit for adjustably limiting the downward movement of the strike-off blade, said vertically adjustable element comprising a road scraper blade and the first mentioned interconnecting means is rigidly secured thereto.

39) Family number: 11695616 (US5947516A)

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Title: Swing control apparatus for industrial vehicle**Priority:** JP19970189690 19970715 KR19980013726 19980417

Family:	Publication number	Publication date	Application number	Application date
	CN1174878 C	20041110	CN19981009408	19980417
	CN1210089 A	19990310	CN19981009408	19980417
	DE69807161 D1	20020919	DE19986007161	19980417
	DE69807161 T2	20030102	DE19986007161T	19980417
	EP0891883 A1	19990120	EP19980107080	19980417
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	KR100306940 B1	20011130	KR19980013726	19980417
	KR19990013353 A	19990225	KR19980013726	19980417
	TW534011 Y	20030521	TW20020208037U	19980417
	US5947516 A	19990907	US19980061675	19980416

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International class
 (IPC 8-9): [B60B21/02](#) [B60G17/005](#) [B60G17/016](#) [B60G17/0185](#) [B60G9/02](#) [B66F17/00](#) [B66F9/22](#)
[B66F9/24](#) (Advanced/Invention);
[B60G17/015](#) (Advanced/Non-invention);
[B60G17/005](#) [B60G17/015](#) [B66F17/00](#) [B66F9/20](#) [B66F9/24](#) (Core/Invention)

International class
 (IPC 1-7): [B60B21/02](#) [B60G17/005](#) [B60G17/015](#) [B60G9/02](#) [B60R21/00](#) [B66F17/00](#) [B66F9/06](#)
[B66F9/075](#) [B66F9/22](#) [B66F9/24](#)

CPC: [B60G17/005](#) [B60G17/0162](#) [B60G17/0185](#) [B60G2200/322](#) [B60G2204/46](#) [B60G2300/02](#)
[B60G2300/022](#) [B60G2400/104](#) [B60G2400/204](#) [B60G2400/412](#) [B60G2400/60](#)
[B60G2400/61](#) [B60G2400/63](#) [B60G2400/90](#) [B60G2500/20](#) [B60G2600/02](#) [B60G2600/044](#)
[B60G2800/012](#) [B60G2800/922](#) [B66F17/003](#)

European class: [B60G17/005](#) [B60G17/015A2](#) [B60G17/015D](#) [B60G17/016F](#) [B60G17/0185](#) [B66F17/00B](#)
[L60G200/322](#) [L60G204/46](#) [L60G300/02](#) [L60G300/022](#) [L60G400/104](#) [L60G400/204](#)
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[L60G600/02](#) [L60G600/044](#) [L60G800/012](#) [L60G800/922](#)

US class: [187/222](#) [280/755](#)[Classification Explorer](#)**Cited documents:** US5813697 A, US5639119 A, US5388857 A, US5087068 A, US5029892 A, US5011358 A, US4511974 A, US4393959 A, US4231450 A, US4093091 A, JP58167215 A2, GB2290149 A1, GB2264689 A1, FR2681563 A1, FR2518464 A1, EP0465838 A1,**Forward Citations:** WO09130528, WO04007223, US8281900, US8140228, US7706947, US7475753, US7416188, US7322444, US7314053, US7216024, US7165652, US7152709, US6561546, US6398242, US6370938, US6308962, US6302419, US6209913, US6175796, US6164415, US6082742, US6056501, US6047229, US2010250073, US2010204891, US2009097954, US2008078623, US2008011530, US2006232025, US2005281656, US2005257965, US2005133294, US2004226776, US2004159499,

40) Family number: 30547980 (US2004084266A)

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Title: LOCKING SUSPENSION SYSTEM**Priority:** US20020287291 20021104 WO2003US34060 20031027

Family:	Publication number	Publication date	Application number	Application date
	AU2003301871 AA	20040607	AU20030301871	20031027
	AU2003301871 AH	20040607	AU20030301871	20031027
	EP1567366 A2	20050831	EP20030810802	20031027
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	US7051851 BB	20060530	US20020287291	20021104
	WO04041561 A2	20040521	WO2003US34060	20031027
	WO04041561 A3	20040902	WO2003US34060	20031027

Probable Assignee: VOLVO TRUCKS NORTH AMERICA INC**Assignee(s):^(std):** VOLVO TRUCKS NORTH AMERICA INC**Inventor(s):^(std):** BJORN O SVARTZ ; DARRIS WHITE ; SVARTZ BJORN O ; WHITE DARRIS**Agent(s):** MARTIN

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW

International class
(IPC 8-9): [B60G17/005 B60G17/015 B60G17/052 F16F9/32](#) (Advanced/Invention);
[B60G17/005 B60G17/015 B60G17/04 F16F9/32](#) (Core/Invention)

International class
(IPC 1-7): [B60G1/00 B60G17/005 B60G17/01 B60G21/045 F16F9/32](#)

CPC: [B60G9/00 B60G17/005 B60G17/0155 B60G17/0164 B60G17/052 B60G2200/30 B60G2202/152 B60G2204/4605 B60G2300/026 B60G2400/204 B60G2400/252 B60G2400/32 B60G2400/33 B60G2400/38 B60G2400/39 B60G2400/412 B60G2600/00 B60G2800/182 B60G2800/21 B60G2800/22 B60G2800/702 B60G2800/95](#)

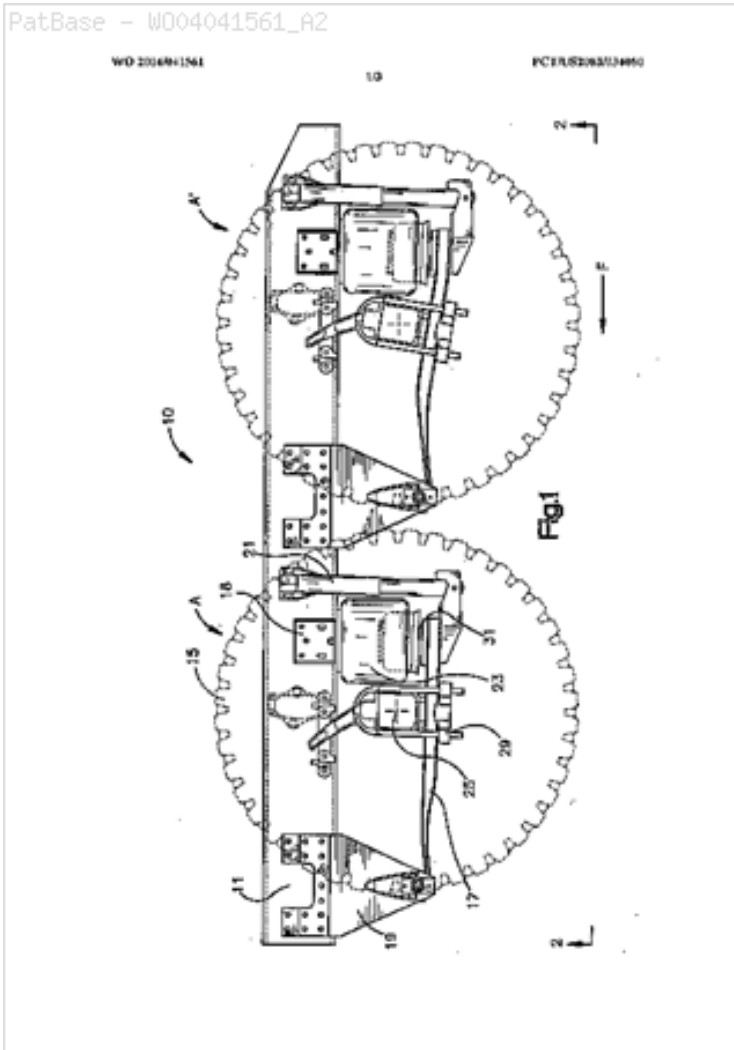
European class: [B60G17/005 B60G17/015B1 B60G17/016H B60G17/052 B60G9/00 L60G200/300 L60G202/152 L60G204/4605 L60G300/026 L60G400/204 L60G400/252 L60G400/32 L60G400/33 L60G400/38 L60G400/39 L60G400/412 L60G600/00 L60G800/182 L60G800/21 L60G800/22 L60G800/702 L60G800/950](#)

US class: [188/300 280/5.504 280/5.507 280/55.04 280/55.07 280/6.157 280/61.57](#)**Locarno class:** [18/83](#)[Classification Explorer](#)

Cited documents: US6883810 BB, US6883810 BA, US6883810 B1, US6810314 BB, US6810314 BA, US6810314 B1, US6345826 BA, US6070681 A, US6039311 A, US6015155 A, US5785345 A, US5692587 A, US5529153 A, US5513875 A, US5200896 A, US5044455 A, US4743046 A, US4483409 A, US3770077 A, US3199892 A, US2948548 A, EP0435142 A2, DE19803370 A1,

Forward Citations: US9056537, US8498773, US8413997, US7735839, US7287760, US2015367837, US2014297118, US2011093239,

Source: US2004084266A A method and apparatus for controlling frame rise on a heavy duty truck having a frame, a drive axle connected to the frame, and a selectively lockable suspension component disposed therebetween for maintaining the relative position therebetween. Signals indicative of at least one of the following vehicle operating parameters: engine speed, brake pressure, vehicle speed, air bag pressure, steering wheel angle, vehicle height, or throttle position are monitored and a predicted thrust is calculated that will be applied to the drive axle based on the monitored signals. The selectively lockable suspension component is locked if the predicted thrust exceeds a predetermined threshold and is also controlled with respect to other operating parameters such as whether vehicle brakes are applied, any instantaneous change in torque, vehicle operating speed, and the length of time the selectively lockable suspension component has been locked.



41) Family number: 1709835 (US4305600A)

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Title: Two–wheel man–powered vehicle**Priority:** AR19780271689 19780405 AR19780272519 19780609

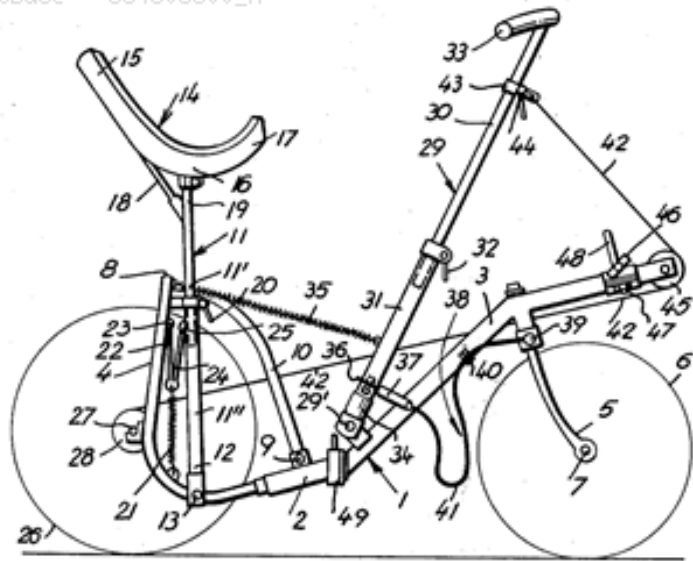
Family:	Publication number	Publication date	Application number	Application date
	<u>AR212742 A1</u>	19780915	AR19780271689	19780405
	<u>AR217300 A1</u>	19800314	AR19780272519	19780609
	<u>BR7902060 A</u>	19791127	BR19790002060	19790404
	<u>DE2913503 A1</u>	19791018	DE19792913503	19790404
	<u>ES479091 A1</u>	19800616	ES19790479091	19790330
	<u>FR2421792 A1</u>	19791102	FR19790008535	19790404
	<u>GB2018693 A1</u>	19791024	GB19790011719	19790404
	<u>IT1111221 A</u>	19860113	IT19790021609	19790405
	<u>IT7921609 A0</u>	19790405	IT19790021609	19790405
	<u>JP54155543 A2</u>	19791207	JP19790041535	19790405
	<u>US4305600 A</u>	19811215	US19790024995	19790329

Probable Assignee: MENDEZ JULIAN**Assignee(s):**^(std) MENDEZ J ; MENDEZ JULIAN**Inventor(s):**^(std) JIYURIAN MENDETSU ; MENDEZ J ; MENDEZ JULIAN**International class**
^{(IPC 8–9):} [B62K17/00 B62M1/16 B62M1/20](#) (Advanced/Invention);
[B62K17/00](#) (Core/Invention)**International class**
^{(IPC 1–7):} [B62K17/00 B62M1/14 B62M1/16](#)**CPC:** [B62M1/20](#)**European class:** [B62M1/20](#)**US class:** [280/226R 280/240 280/243](#)[Classification Explorer](#)**Cited documents:** US749153 A, US697104 A, US642544 A, US516786 A, US348619 A, US1359957 A, GB456498 A, GB1469363 A, FR775833 A,**Forward Citations:** WO9418059, WO9407579, WO10054590, WO09125968, US8336897, US7938419, US6224078, US6206394, US5876052, US5280936, US4811964, US4796907, US4653766, US4639007, US4632414, US4437677, US2011248466, US2009058034, US2008073869, KR101008391, GB2151562, FR2548999, CN104743052, CN103231767, CN103231767, CN103029789, CN103029789,

Abstract:

Source: US4305600A A two-wheel man-powered vehicle having a frame, a steerable front wheel and a rear wheel, both rotatably mounted on the frame. A hand operable power lever has a lower end pivotally mounted on the frame so as to be capable of swinging back and forth in a vertical plane passing through the frame. The lever is constructed in such manner that an upper portion is capable of rotating about its own longitudinal axis. The power lever is provided with a handle at its upper end. A seat for an operator of the vehicle is mounted on the frame so as to be movable back and forth with regard thereto. A flexible transmission mechanism has one end connected to the power lever and one end connected to one of the wheels through a unidirectional drive. The front wheel is connected to the rotatable portion of the power lever by flexible connecting cables so as to be steerable upon rotation of the power lever about its longitudinal axis. A first resilient spring urges backwardly the power lever, and a second resilient spring urges backwardly the operator's seat.

PatBase - US4305600_A



0) US2012175856A – TRICYCLE WITH WHEELCHAIR PLATFORM

42) Family number: 47672122 (US2012175856A)

© PatBase

Title: TRICYCLE WITH WHEELCHAIR PLATFORM
Priority: US20090180734P 20090522 US20100321495 20100520 WO2010IB01370 20100520

Family:	Publication number	Publication date	Application number	Application date
	<u>US2012175856 AA</u>	20120712	US20100321495	20100520
	<u>WO10133968 A2</u>	20101125	WO2010IB01370	20100520
	<u>WO10133968 A3</u>	20110127	WO2010IB01370	20100520

Probable Assignee: ELLIS ROBERT

Assignee(s):^(std): ELLIS ROBERT

Inventor(s):^(std): ELLIS ROBERT

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class B60N2/01 B62D61/06 B62D9/02 B62K5/02 (Advanced/Invention)
(IPC 8-9).

CPC: B60N2/005 B62K3/16 B62K5/027

European class: B60N2/005 B62K3/16 B62K5/027

US class: 180/211 280/124.103 280/124.103P

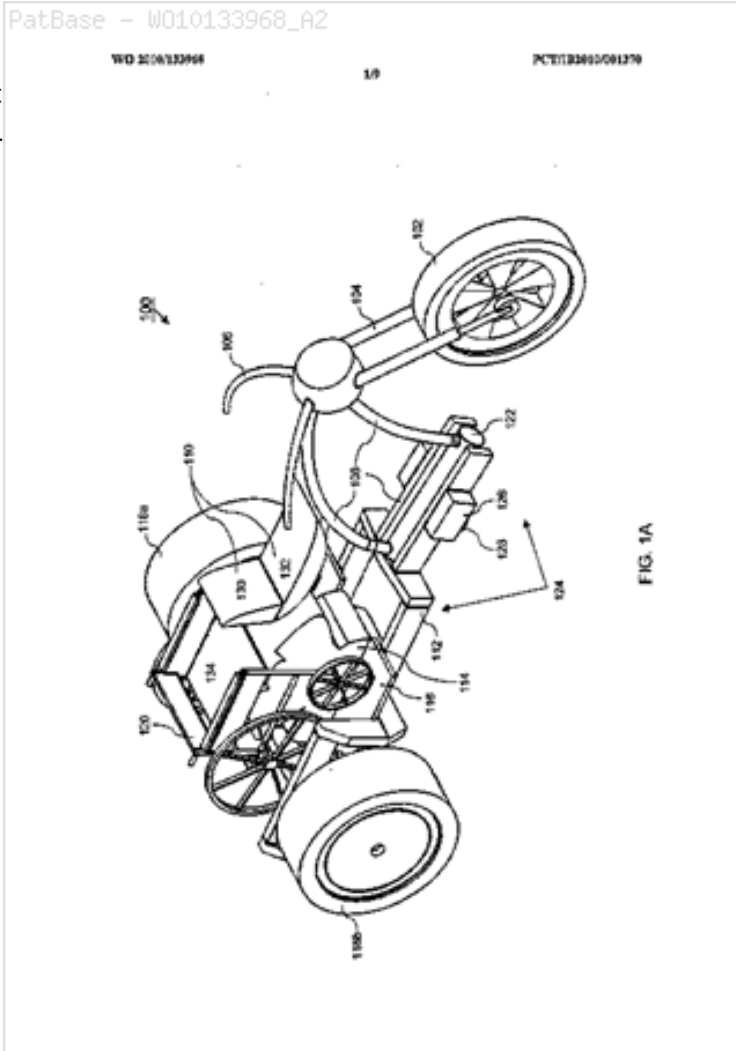
[Classification Explorer](#)

Cited documents: USD556099 S1, US7311167 BB, US6276480 BA, US5873589 A, US5806622 A, US5305845 A, US4592441 A, US4159752 A, US2007262656 AA,

Forward Citations: US8746717, US2016324705, US2015329165, US2012248717, CN102923225,

Abstract:

Source: US2012175856A A vehicle includes a frame having a front portion and a rear portion, an operator's seat coupled to the frame, a front wheel steerably coupled to the front portion of the frame, a first rear wheel coupled to the rear portion of the frame, a second rear wheel coupled to the rear portion of the frame, an engine coupled to the rear portion of the frame and configured to drive the first rear wheel, and a wheelchair platform located at least partially between the first rear wheel and the second rear wheel and configured to accept a wheelchair placed in a position at least partially straddling the engine. The front portion of the frame may be rotatably coupled to the rear portion. The vehicle may further include a body, a lean angle limiting system, and/or an active lean angle system.



43) Family number: 1945865 (US4423795A)

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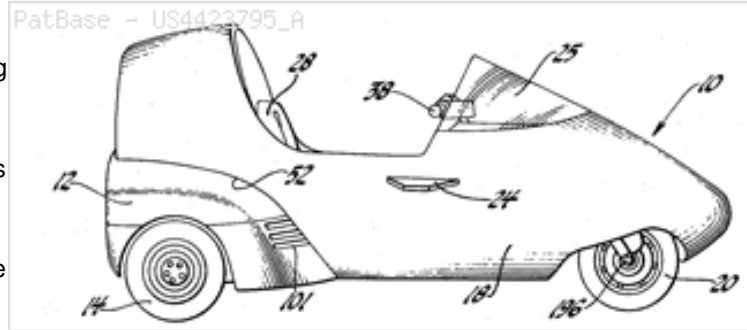
Title: Wheeled vehicle with cambering front module**Priority:** US19820350330 19820219

Family:	Publication number	Publication date	Application number	Application date
	<u>AU198311303 A1</u>	19840621	AU19830011303	19830210
	<u>AU557101 B2</u>	19861204	AU19830011303	19830210
	<u>GB2120184 A1</u>	19831130	GB19830002403	19830128
	<u>GB2120184 B2</u>	19850417	GB19830002403	19830128
	GB8302403 A0	19830302	GB19830002403	19830128
	JP1593793 C3	19901214	JP19830025528	19830219
	<u>JP2015438 B4</u>	19900412	JP19830025528	19830219
	<u>JP58152690 A2</u>	19830910	JP19830025528	19830219
	<u>US4423795 A</u>	19840103	US19820350330	19820219

Probable Assignee: GEN MOTORS CORP**Assignee(s):^(std):** GEN MOTORS CORP**Assignee(s):** GENERAL MOTORS A CORP OF DE CORP ; GENERAL MOTORS CORP**Inventor(s):^(std):** FURANKU JIEI UINCHIERU ; IRWIN C CLARK ; JIERII KEE UIRIAMUSU ; SHII KURAUKU AAUIN ; WILLIAMS JERRY K ; WINCHELL FRANK J**Inventor(s):** JERII KEE UIRIAMUSU ; JERRY K WILLIAMS ; C CLARK IRWIN ; FRANK J WINCHELL ; FURANKU JEI UINCHERU**Agent(s):** PHILLIPS ORMONDE FITZPATRICK**International class**
(IPC 8-9): B60G21/00 B62D31/00 B62D61/08 B62J17/08 B62K5/04 (Advanced/Invention);
B60G21/00 B62D31/00 B62D61/00 B62J17/00 B62K5/00 (Core/Invention)**International class**
(IPC 1-7): B62D27/00 B62D35/00 B62D61/08 B62D9/02 B62J17/08 B62K5/02 B62K5/04**CPC:** B60G21/007 B60G2300/122 B62D31/003 B62D61/08 B62K5/027 B62K5/10**European class:** B60G21/00D B62D31/00B B62D61/08 B62K5/027 B62K5/10 L60G300/122**US class:** 180/215 280/124.103 280/282[Classification Explorer](#)**Cited documents:** US4368796, US4316520, US4088199, US4065144, US4020914, US3698502, US3277840, US1606044, GB2014094 A1, EP0020835 A1,**Forward Citations:** WO9534459, WO9502385, WO09133267, WO07035571, WO02098722, USD596081, USD593455, USD581320, USD581319, USD547701, USD529841, US9428236, US9327725, US9180927, US9114844, US8820460, US8781684, US7669864, US7591337, US7588110, US7571787, US7552790, US7308963, US7100727, US7059440, US6880660, US6685208, US6062581, US5927424, US5518081, US5107950, US5076388, US5014807, US4877102, US4662468, US2015123389, US2013256048, US2010320023, US2010072721, US2008017432, US2007262548, US2007075517, US2007075514, US2007045020, US2006249921, US2006086555, US2004173981, JP63020284, JP61044084, JP60119686, GB2484091, GB2450740, FR2929585, FR2841209, FR2825672, FR2573024, EP1686053, EP0592377, DE19833478,

Abstract:

Source: US4423795A A three-wheeled cambering vehicle having a rear noncambering module which has a forwardly extending tongue which rotatably supports a main and front cambering module. The cambering module carries the vehicle operator who steers the vehicle by rotating a single front wheel about a substantially vertical axis and additionally leans in response to vehicle turn and his own will, the two modules are rotatable in relation to each other about an inclined camber axis extending longitudinally of the vehicle. The cambering module has cambering controls at a forward portion thereof to allow the operator to physically engage the controls with his feet for cambering the front module relative to the ground and rear modules.



44) Family number: 30825935 (US2006136826A)

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Title: RIDING SIMULATION DEVICE**Priority:** EP20040710477 20040212 JP20030036173 20030214 JP20030037407 20030214
WO2004JP01474 20040212 JP20030361146 20031021

Family:	Publication number	Publication date	Application number	Application date
	<u>CN100492440 C</u>	20090527	CN200480004254	20040212
	<u>CN1751329 A</u>	20060322	CN200480004254	20040212
	<u>DE602004047257 D1</u>	20150709	DE200460047257T	20040212
	<u>EP1594104 A1</u>	20051109	EP20040710477	20040212
	<u>EP1594104 A4</u>	20081210	EP20040710477	20040212
	<u>EP1594104 B1</u>	20150527	EP20040710477	20040212
	<u>IN03242DN2005 A</u>	20070105	IN2005DN03242	20050721
	<u>IN215845 B</u>	20080321	IN2005DN03242	20050721
	<u>JP2004264358 A2</u>	20040924	JP20030036173	20030214
	<u>JP2004264823 A2</u>	20040924	JP20030361146	20031021
	<u>JP4156942 B2</u>	20080924	JP20030036173	20030214
	<u>JP4200078 B2</u>	20081224	JP20030361146	20031021
	<u>TH39141 B</u>	20140226	TH20041000482	20040213
	<u>TH65918 A</u>	20041227	TH20041000482	20040213
	<u>US2006136826 AA</u>	20060622	US20050544853	20050805
	<u>US7387513 BB</u>	20080617	US20050544853	20050805
	<u>WO04072927 A1</u>	20040826	WO2004JP01474	20040212

Probable Assignee: HONDA MOTOR CO LTD**Assignee(s):**^(std) HONDA MOTOR CO LTD ; ICHIMI SADANAO ; MAKUTA YOHEI ; MIYAKAWA FUTOSHI ; MIYAMARU YUKIO ; UEDA KYOHEI ; UEDA KYOKEI**Assignee(s):** HONDA GIKEN KOGYO KABUSHIKI KAISHA ; HONDA MOTOR CO**Inventor(s):**^(std) KYOHEI MAKUTA YOHEI MIYAMARU Y ; MAKUTA YOHEI ; HITOMI SADANAO ; ICHIMI SADANAO ; MIYAGAWA FUTOSHI ; MIYAKAWA FUTOSHI ; MIYAMARU YUKIO ; UEDA KYOHEI ; UEDA KYOKEI ; YUKIO MIYAMARU ; YOHEI MAKUTA ; SADANAO ICHIMI ; KYOHEI UEDA ; FUTOSHI MIYAKAWA**Inventor(s):** UEDA KYOHEI WAKO SHI ; MIYAMARU YUKIO WAKO SHI ; MIYAKAWA FUTOSHI WAKO SHI ; ICHIMI SADANAO WAKO SHI ; MAKUTA YOHEI MIYAMARU YUKIO MIYAKAWA FUTOSHI ; MAKUTA YOHEI MIYAMARU YUKIO MIYAKAWA FUTOSHI ICHIM ; MAKUTA YOHEI WAKO SHI**Agent(s):** WEICKMANN AND WEICKMANN PATENTANWALTE RECHTSANWALT PARTMBB; WEICKMANN AND WEICKMANN; CARRIER BLACKMAN AND ASSOCIATES; CARRIER BLACKMAN AND ASSOCIATES PC; CARRIER JOSEPH P; BLACKMAN WILLIAM D; JOSEPH P; WILLIAM D**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW**International class**
^{(IPC 8-9):} A63F13/00 A63F13/06 A63F13/08 A63F13/90 G09B19/16 G09B9/058 (Advanced/Invention);
A63F13/00 A63F13/02 A63F13/08 G09B19/00 G09B19/16 G09B9/04 (Core/Invention)**International class**
^{(IPC 1-7):} A63F13/00 A63F13/06 G09B19/16 G09B9/00 G09B9/058**CPC:** A63F13/245 A63F13/285 A63F13/803 A63F13/08 A63F2300/1037 A63F2300/8017
G09B9/058

European class: A63F13/08 G09B9/058 K63F300/10F K63F300/80D

US class: 280/827 434/61 463/37 472/59 715/702

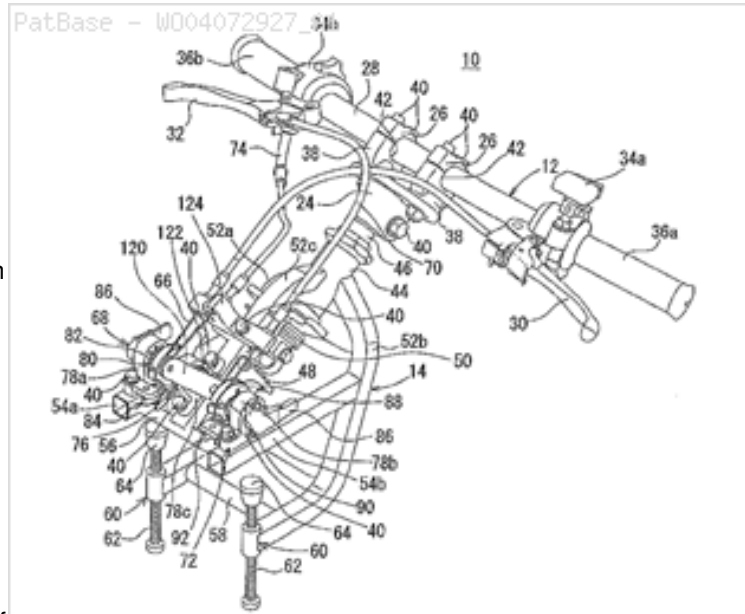
[Classification Explorer](#)

Cited documents: US6471586 BA, US6409596 BA, US6251015 BA, US6210165 BA, US6200138 BA, US6030223 A, US5607308 A, US5533899 A, US5364271 A, US5354202 A, US5240417 A, US5209662 A, US5010763 A, US5006072 A, US4978300 A, US4730509 A, US3686776 A, US3526042 A, US2004076929 AA, US2003211446 AA, JP9081024 A2, JP8263160 A2, JP8150263 A2, JP2669806 B2, JP2002311811 A2, JP2002113264 A2, JP11174943 A2, JP10293526 A2,

Forward Citations: USD630273, USD608843, US9120021, US2009212968, JP2011085716, JP2008238873, CN102651179,

Abstract:

Source: US2006136826A A riding simulation device allowing a rider to pseudoexperience the running state of a motorcycle, more specifically, to pseudoexperience an operating feeling similar to an actual braking, to be able to switch the operating feeling of an operating lever according to the types of transmissions, and to pseudoexperience roll feeling when the motorcycle is turned by tilting a motorcycle body in running when the device is installed on a pedestal member, comprising an elastic member pressingly deformed by the contact part of a stopper mechanism brought into contact with a rotating member rotated by the operation of a brake lever and a switching mechanism switching between the second stopper member of the stopper mechanism brought into contact with a rotating member rotated by the operation of the operating lever and the first stopper member thereof brought into contact with the rotating member through the elastic member. The axis of a shaft part in which a handle mechanism is installed is set so as to be tilted in the range of the tilt angle of 45 to 60 DEG from a vertical plane to an operator side.



0) US2008156563A – POWER UNIT FOR A MOTORCYCLE, AND MOTORCYCLE INC...

45) Family number: 41968137 (US2008156563A)

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Title: POWER UNIT FOR A MOTORCYCLE, AND MOTORCYCLE INCORPORATING SAME

Priority: JP20060356243 20061228

Family:	Publication number	Publication date	Application number	Application date
	CN101210510 A	20080702	CN200710160807	20071218
	CN101210510 B	20100616	CN200710160807	20071218
	DE102007054617 A1	20080703	DE200710054617	20071115
	JP2008163899 A2	20080717	JP20060356243	20061228
	JP4361560 B2	20091111	JP20060356243	20061228
	US2008156563 AA	20080703	US20070005244	20071226
	US7665561 BB	20100223	US20070005244	20071226

Probable Assignee: HONDA MOTOR CO LTD

Assignee(s):^(std): HONDA MOTOR CO LTD

Assignee(s): HONDA GIKEN KOGYO K K ; HONDA MOTOR CO

Inventor(s):^(std): MASAHIRO SHIMIZU ; MITSUBORI TOSHIMASA ; SHIMIZU MASAHIRO ; SHIOZAKI TOMOO ; TOMOO SHIOZAKI ; TOSHIMASA MITSUBORI

Agent(s): CARRIER BLACKMAN AND ASSOCIATES; CARRIER BLACKMAN AND ASSOCIATES PC; JOSEPH P; WILLIAM D

International class
(IPC 8-9): [B60K17/02](#) [B60K17/06](#) [B62D61/02](#) [B62M7/00](#) [F01M1/02](#) [F01P5/10](#) [F01P5/12](#) [F02B61/02](#) [F02B67/00](#) [F16H9/04](#) ^(Advanced/Invention);
[B60K17/00](#) [B60K17/06](#) [B62D61/00](#) [B62M7/00](#) [F01M1/02](#) [F01P5/00](#) [F02B61/00](#) [F02B67/00](#) [F16H9/02](#) ^(Core/Invention)

CPC: [F02B61/02](#) [F01P5/12](#) [F01P2050/16](#)

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US class: [180/219](#) [180/65.1](#)

[Classification Explorer](#)

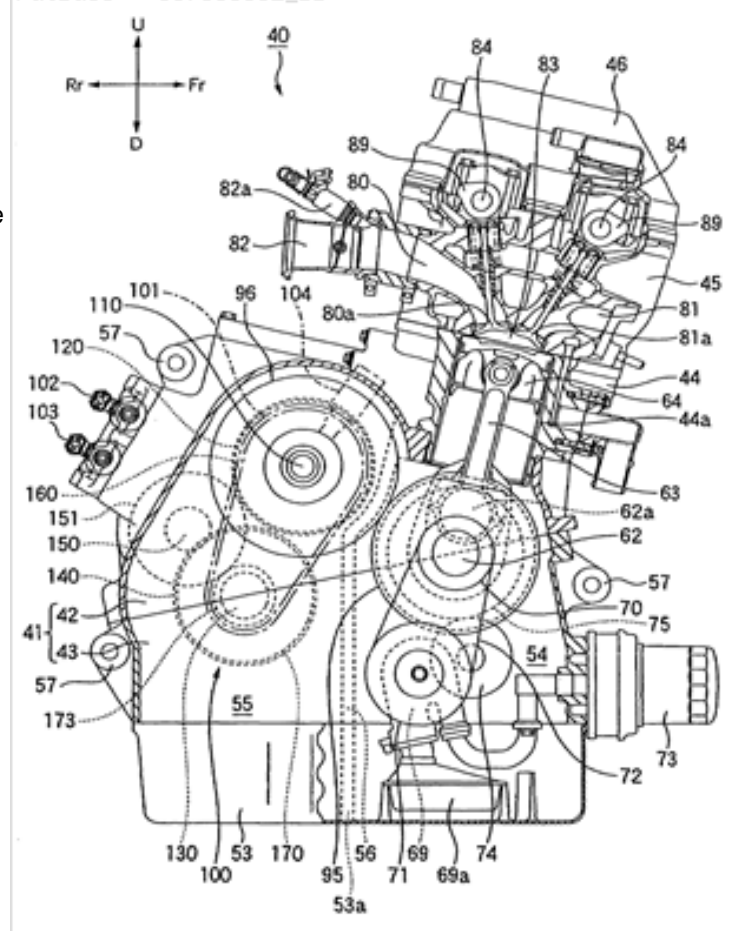
Cited documents: US6666290 BB, US2007102215 AA, US2006027192 AA, US2002033295 AA, US2002032088 AA, JP2080720 A2, JP2002104276 A2, JP2001065650 A2,

Forward Citations: WO14057847, US8550202, US8512181, US7954582, US7823684, US2013075182, US2009255748, US2008314677, US2008182688, JP6042688, JP5219883, JP2014077376, JP2010196519,

Abstract:

Source: US2008156563A A motorcycle is provided with a compact, lightweight power unit that allows for increased maneuverability and increased bank angles while turning. The power unit includes an engine and transmission integrated into a single unit. Often, the balance and maneuverability of a motorcycle are influenced by the heaviest components of the vehicle, such as the engine or power unit. The present advantage is accomplished by providing the power unit with a water pump, oil pump and transmission which are balanced on the motorcycle, limiting the weight variations and protrusions from the motorcycle. This results in allowing the motorcycle to achieve greater bank angles for better turning speeds and maneuverability. It desirable to keep the vehicle center of gravity as low as possible in a motorcycle which is likely to lean steeply around corners. The present arrangement provides the vehicle with a lower center of gravity thereby increasing maneuverability.

PatBase - US7665561_BB



0) US4740004A – THREE WHEELED CYCLE WITH LOAD CARRYING BASKET

46) Family number: 10203575 (US4740004A)

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Title: Three wheeled cycle with load carrying basket

Priority: US19860871769 19860609

Family:	Publication number	Publication date	Application number	Application date
	<u>US4740004 A</u>	19880426	US19860871769	19860609

Probable Assignee: MCMULLEN WAYNE W

Assignee(s):^(std): MCMULLEN WAYNE W

Inventor(s):^(std): MCMULLEN WAYNE W

International class B62K5/08 B62K7/00 (Advanced/Invention)
(IPC 8-9):

International class B62K5/08
(IPC 1-7):

CPC: B62K5/05 B62K5/08 B62K7/00

European class: B62K5/05 B62K5/08 B62K7/00

US class: 280/124.103 280/269 280/282 280/62

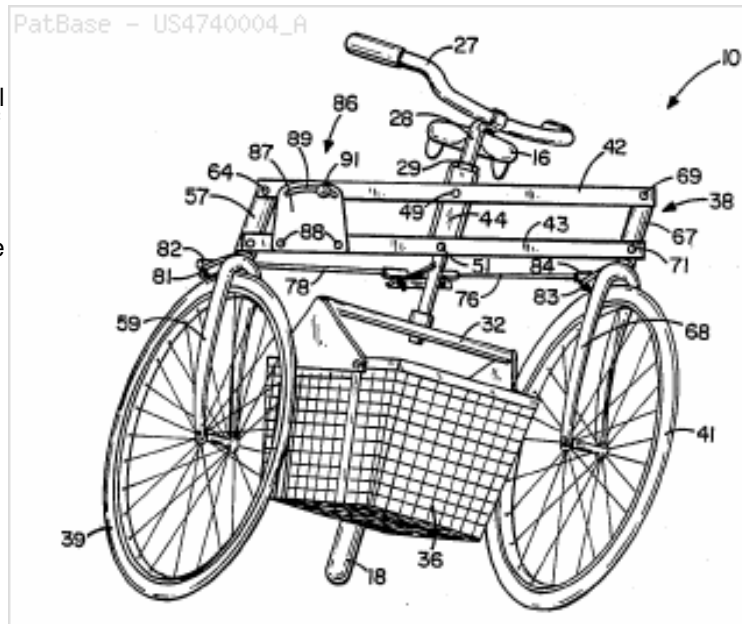
[Classification Explorer](#)

Cited documents: US609170 A, US580587 A, US4469344 A, US4375293 A, US4351410 A, US4290620 A, US4277078 A, US4132435 A, US4088199 A, US4070032 A, US3902738 A, US3870338 A, US3866945 A, US3583727 A, US3561778 A, FR2550507 A1,

Forward Citations: WO9925602, WO14165074, WO14165074, WO11096751, WO11096751, WO07127783, USRE44854, USD563285, USD535218, USD485788, US9623926, US9545967, US9517807, US9475535, US9428240, US9371106, US9340249, US9278711, US9227662, US8973695, US8746717, US8632088, US8596660, US8141890, US7909340, US7887070, US7850180, US7731210, US7708291, US7665749, US6953203, US6948581, US6817617, US6755425, US6161860, US6022036, US5762351, US5513865, US5330214, US5326121, US5232235, US5169166, US5040812, US4941673, US4917396, US4903857, US4863183, US2016129964, US2015344091, US2015314827, US2015307149, US2015298735, US2015274244, US2015210338, US2015076797, US2013181420, US2012248717, US2011304117, US2011168473, US2010263956, US2010194068, US2010044977, US2009321169, US2009315282, US2009108555, US2008258416, US2008164085, US2007256882, US2007251464, US2007085298, US2006170171, US2005093270, US2004140645, US2004129483, US2004129473, US2004050605, US2004035626, US2004035625, US2004035623, US2004032120, US2003221891, US2003221890, US2003116930, US2003102176, TWI558600, NL1027409, JP2009526681, FR2960849, FR2943308, EP3069979, EP2913256, EP2345576, EP1484239, EP1391374, EP1391374, DE19524802,

Abstract:

Source: US4740004A A tricycle having two front steering wheels and a rear drive wheel has a frame for accommodating the rear wheel and a mount pivotally connected to the front of the frame carrying a pair of front steering wheels. Handle bars are connected with a tie-rod assembly to the supporting forks for the front steering wheels. The mount has a parallel linkage which allows the frame and the front wheels to bank to facilitate the turning of the tricycle. A basket is suspended below the mount between the front wheels. A lock connected to the beams holds the beams in fixed relation relative to each other. The lock can be released to limit the angle of the bank of the tricycle.



47) Family number: 29737756 (US2003214113A)

Title: VEHICLE HAVING INDEPENDENTLY ARTICULATING REAR FRAME MEMBERS

Priority: US20020377424P 20020502 US20030428816 20030502

Family:	Publication number	Publication date	Application number	Application date
	US2003214113 AA	20031120	US20030428816	20030502

Assignee(s): BANK TODD ; PET INC

Inventor(s):^(std): BANK TODD

International class B62K13/00 B62K17/00 B62K3/00 B62K5/02 B62K5/04 (Advanced/Invention)
(IPC 8-9).

International class B62K1/00
(IPC 1-7).

CPC: B62K3/00 B62K5/02 B62K13/00 B62K17/00 B62M6/00

European class: B62K13/00 B62K17/00 B62K3/00 B62K5/02 B62M6/00

US class: 280/282 280/282P

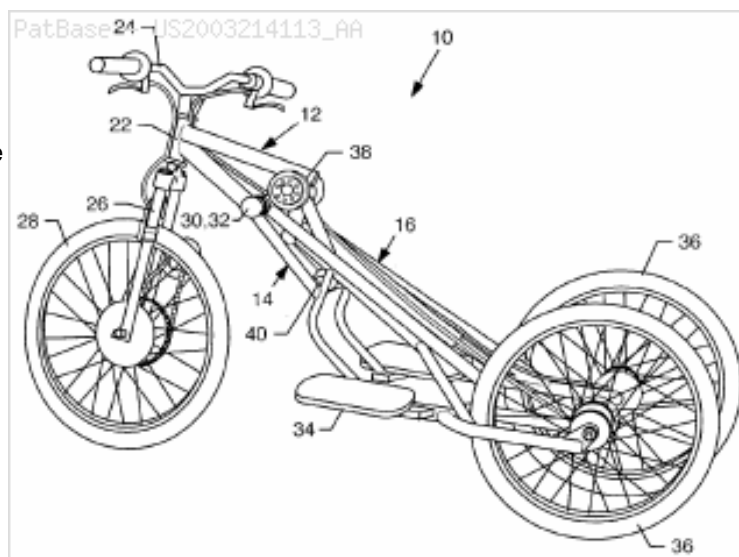
Classification Explorer

Cited documents: US6659486 BB, US6499751 BA, US6010433 A, US5730453 A, US5611555 A, US4263977 A, US4071261 A, US2879858 A.

Forward Citations: USD772990, US8925940, US8322735, US7967306, US7878522, US7552790, US7487985, US2012258840, US2010059955, US2010007109, US2008001374, US2006086555.

Abstract:

Source: US2003214113A A vehicle having a front frame section and rear frame sections which are pivotally attached to the front frame section and adapted to move along a vertical plane independent of one another. The vehicle includes a steering assembly connected to the front frame section. Upper and lower stops extend from the front frame section and are engageable with the rear frame sections to limit the vertical movement thereof. Movement facilitators, such as wheels or ski members, are operably connected to the vehicle so as to interface with the riding surface and provide movement to the vehicle.



48) Family number: 3667657 (US4271762A)

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Title: Pleasure vehicle and a transportation system utilizing the same

Priority: CA19780309733 19780821 DE19772736731 19770816 DE19772760186 19770816
 DE19772742141 19770919 DE19782736731 19780408 DE19772736731 19770919
 JP19780099933 19780816 DE19782808146 19780225 DE19782815265 19780408

Family:	Publication number	Publication date	Application number	Application date
	AT370369 B	19830325	AT19780005886	19780814
	AT588678 A	19820815	AT19780005886	19780814
	CA1114234 A1	19811215	CA19780309733	19780821
	CH631083 A	19820730	CH19780008462	19780809
	DE2736731 A1	19790222	DE19772736731	19770816
	DE2736731 C2	19840823	DE19772736731	19770816
	DE2742141 A1	19790329	DE19772742141	19770919
	DE2760186 C2	19850613	DE19772760186	19770816
	DE2808146 A1	19790830	DE19782808146	19780225
	DE2815265 A1	19791018	DE19782815265	19780408
	ES472557 A1	19791016	ES19780472557	19780814
	FR2400454 A1	19790316	FR19780023763	19780811
	FR2400454 B1	19830114	FR19780023763	19780811
	GB2013587 A1	19790815	GB19780033396	19780816
	GB2013587 B2	19820217	GB19780033396	19780816
	IT1174369 A	19870701	IT19780026701	19780811
	IT7826701 A0	19780811	IT19780026701	19780811
	JP1389143 C3	19870714	JP19780099933	19780816
	JP1456433 C3	19880909	JP19860029116	19860214
	JP54042226 A2	19790404	JP19780099933	19780816
	JP61059153 B4	19861215	JP19780099933	19780816
	JP61247489 A2	19861104	JP19860029116	19860214
	JP63005106 B4	19880202	JP19860029116	19860214
	SE434122 B	19840709	SE19780008383	19780803
	SE434122 C	19841018	SE19780008383	19780803
	SE7808383 A	19790216	SE19780008383D	19780803
	US4271762 A	19810609	US19780900891	19780428

Probable Assignee: RASDORF REP FED DI GERMANIA A

Assignee(s):^(std): RASDORF REP FED DI GERMANIA A ; WIEGAND J ; WIEGAND JOSEF ; YOOZEFU BUIIGANTO

Assignee(s): A RASDORF REP FED DI GERMANIA ; JOSEF WIEGAND ; WIEGAND JOSEF 6419 RASDORF DE

Inventor(s):^(std): WIEGAND JOSEF ; YOOZEFU BUIIGANTO

Inventor(s): YOOZEFU UIIGANTO ; WIEGAND JOSEF 6419 RASDORF DE ; JOSEF WIEGAND ; SOK

Agent(s): FETHERSTONHAUGH AND CO

International class [A63G21/04](#) [A63G21/12](#) [B61D13/00](#) [B62B15/00](#) [B62B17/08](#) (Advanced/Invention);
 (IPC 8-9); [B62B13/00](#) (Advanced/Non-invention);
[A63G21/00](#) [B61D13/00](#) [B62B15/00](#) [B62B17/00](#) (Core/Invention);
[B62B13/00](#) (Core/Non-invention)

International class A63G21/02 A63G21/04 A63G21/04 A63G21/12 A63H17/00 B61B12/12 B61B9/00 B61D13/00 B62B13/00 B62B15/00

CPC: B62B15/00 B62B15/007 B62B17/08 A63G21/04

European class: A63G21/04 B62B15/00 B62B15/00T B62B17/08

US class: 104/118 104/134 104/173.1 104/193 104/69 188/8 280/28.11 472/89

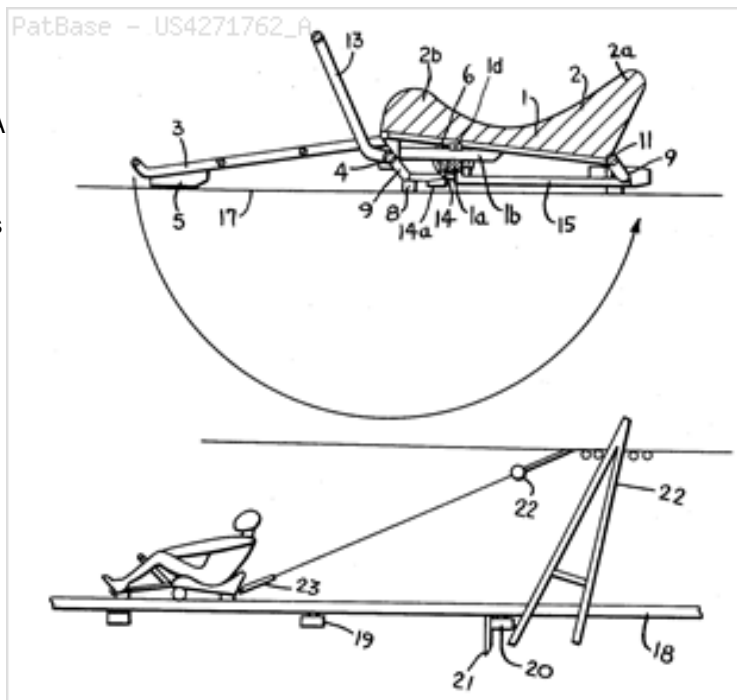
[Classification Explorer](#)

Cited documents: USB946200, USB368157, US946200 A, US789750 A, US552692 A, US3973785 A, US3858517 A, US384843 A, US368157 A, US3363583 A, US1785989 A, US1536449 A, US1404144 A, US1084390 A, US1073156 A, GB409292 A, DE47526 A, DE295323 A, DE2515994 A1, DE2436347 A1, DE2404337 B1, DE2351938 B2,

Forward Citations: WO9934890, WO10108484, US6550392, US5522321, US4917215, US4632408, US2014326160, US2010207338, JP63134867, JP59183285, FR2661880, FR2449016, EP0754480, EP0456588, DE3937580, DE3017921, DE102006035237,

Abstract:

Source: US4271762A A pleasure vehicle which is to be used on a trough-shaped downhill track, includes a vehicle body and a leg support, extending frontwardly therefrom. A plurality of support elements support the vehicle on the downhill track for movement down the track. A plurality of brake shoes are mounted on the vehicle body, for simultaneous displacement by a single actuating lever into and out of braking positions, so that the support elements of the vehicle body are lifted off the downhill track, while the support elements of the leg support continue to guide the vehicle on the downhill track.



49) Family number: 49099934 (WO11072356A1)

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Title: CHASSIS FOR TRANSFORMING A MOTORCYCLE INTO A MOTORISED TRICYCLE
Priority: BR20090118877 20091218 BR20090200901 20091218 BR2009MU03132U 20091218
 WO2010BR00417 20101217

Family:	Publication number	Publication date	Application number	Application date
	<u>BRMU8903132 U2</u>	20130213	BR2009MU03132U	20091218
	<u>CN203020485 U</u>	20130626	CN201090001391U	20101217
	<u>IN04274DN2012 A</u>	20160826	IN2012DN04274	20120515
	<u>WO11072356 A1</u>	20110623	WO2010BR00417	20101217

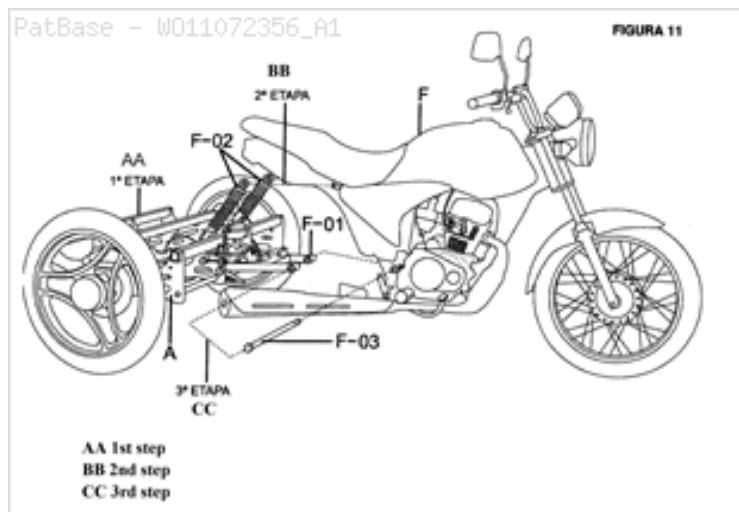
Probable Assignee: LAURI GRANDIS**Assignee(s):**^(std) GRANDI LAURY ; LAURI GRANDIS**Assignee(s):** LAURY GRANDI ; LAURIGRANDIS**Inventor(s):**^(std) BAU MARLI TERESINHA ; GRANDI LAURY**Inventor(s):** LAURY GRANDI ; MARLI TERESINHA BAU**Agent(s):** BITELBRON MARCIO ROBERTO

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI
 CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH
 GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC
 LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE
 NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST
 SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class B62K11/00 B62K13/04 (Advanced/Invention)
 (IPC 8-9).

CPC: B62K13/04**European class:** B62K13/04[Classification Explorer](#)**Cited documents:** WO06125320 A1, US2004195026 AA, BRMU8602308 U, BRMU8303027 U,**Abstract:**

A chassis used for transforming a motorcycle into a motorised tricycle (A) has a structure (B), a transmission system (C), a braking system (D) and a set of wheels (E), the chassis for transforming a motorcycle into a motorised tricycle (A) being coupled to the motorcycle (F).



50) Family number: 15441904 (GB2374843A)

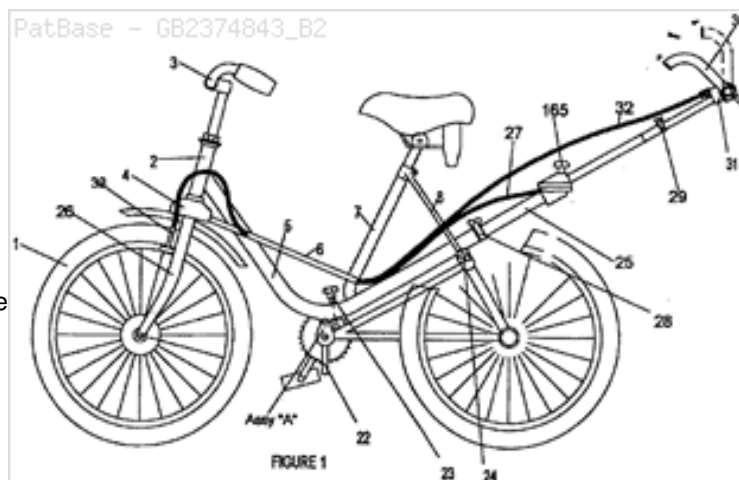
© PatBase

Title: Rider propelled pedal vehicle with pedestrian supervised control**Priority:** GB20010010009 20010424

Family:	Publication number	Publication date	Application number	Application date
	GB200110009 A0	20010613	GB20010010009	20010424
	<u>GB2374843 A1</u>	20021030	GB20010010009	20010424
	<u>GB2374843 B2</u>	20051026	GB20010010009	20010424

Probable Assignee: GRIFFIN ROBERT W F**Assignee(s):^(std):** GRIFFIN ROBERT W F ; GRIFFIN ROBERT WILLIAM FRANK**Assignee(s):** ROBERT WILLIAM FRANK GRIFFIN**Inventor(s):^(std):** GRIFFIN ROBERT WILLIAM FRANK**Inventor(s):** ROBERT WILLIAM FRANK GRIFFIN**International class** B62H7/00 B62L3/02 (Advanced/Invention)
(IPC 8-9):**International class** B62H7/00 B62J1/00 B62J39/00 B62K15/00 B62K5/04 B62L3/02 B62M3/08
(IPC 1-7):**CPC:** B62H7/00 B62K2015/003 B62L3/02**European class:** B62H7/00 B62L3/02 L62K15/00C[Classification Explorer](#)**Cited documents:** US6120048, US5924713, GB2260524,**Forward Citations:** WO09040099, DE102005021269, DE102005021269,**Abstract:**

Source: GB2374843A The vehicle, e.g. a tricycle, is provided with means, e.g. a rearward arm 25, whereby a pedestrian might regulate the speed, apply brake(s) and steer the direction of the vehicle independently or, additionally to the rider; the vehicle frame is separable into two individual assemblies by means of releasable attachment(s) 23, 24, a swivel seat is provided to enable a rider to mount or dismount, a stand-on step is provided co-operable with the frame to elevate the rider prior to mounting and subsequent to dismounting and means is provided to retain the riders feet in a predetermined position on the pedals and secure support to the seated riders trunk. One frame part 5 carries the front wheel 1, the handlebar 3 and the seat, the other frame part carrying the pedals and the rear wheels.



0) US3346063A – GASEOUS CUSHION SUSTAINED VEHICLE AND THE LIKE

51) Family number: 29765438 (US3346063A)

© PatBase

Title: Gaseous cushion sustained vehicle and the like

Priority: DE1962S077515 19620112 DE1965S096608 19650417 FR19610080047 19610630
FR19610866604 19610630 US19620165634 19620111 FR19610849877 19610117
FR19640971607 19640420 US19650498250 19651020 FR19610856604 19610630
US19680741992 19680702 US19650502934 19651023 US19650498295 19651020
US19680741991 19680702 US19650498315 19651020

Family:	Publication number	Publication date	Application number	Application date
	<u>AU1334862 A1</u>	19630718	AU19620013348	19620116
	<u>DE1190800 B</u>	19650408	DE1962S077515	19620112
	<u>DE1230674 B</u>	19661215	DE1965S096608	19650417
	<u>FR1310483 A</u>	19621130	FR19610849877	19610117
	<u>FR1421301 A</u>	19651217	FR19640971607	19640420
	<u>FR80047 E</u>	19630301	FR19610866604	19610630
	<u>GB1105264 A</u>	19680306	GB19650016217	19650415
	<u>GB1108883 A</u>	19680403	GB19650016222	19650415
	<u>GB997518 A</u>	19650707	GB19630001539	19620116
	<u>OA28 E</u>	19660715	OA19640050742	19641205
	<u>OA29 E</u>	19660715	OA19640050765	19641208
	<u>OA630 A</u>	19660715	OA19640050721	19641204
	<u>US3263764 A</u>	19660802	US19620165634	19620111
	<u>US3346063 A</u>	19671010	US19650498295	19651020
	<u>US3369623 A</u>	19680220	US19650449019	19650419
	<u>US3371738 A</u>	19680305	US19650498315	19651020
	<u>US3388766 A</u>	19680618	US19650498250	19651020
	<u>US3414075 A</u>	19681203	US19650449009	19650419
	<u>US3465845 A</u>	19690909	US19670646964	19670619
	<u>US3478835 A</u>	19691118	US19650502934	19651023
	<u>US3536155 A</u>	19701027	US19650498432	19651020
	<u>US3548967 A</u>	19701222	US19680741992	19680702
	<u>US3586118 A</u>	19710622	US19680741991	19680702
	<u>US3779333 A</u>	19731218	US19710131607	19710406

Probable Assignee: BERTIN AND CIE

Assignee(s):^(std): BERTIN AND CIE ; BERTIN ET CIE S A ; ORVILLE E HORSLEY ; BERTIN ET CIE SOC

Assignee(s): BERTIN ET COMP SOC ; SOCIETE BERTIN ET COMPAGNIE ; SOCIETE BERTIN AND CIE ; SOCIETE BERTIN AND COMPAGNIE ; BERTIN AND CIE FR ; BERTIN AND CIE SOC ; BERTIN AND COMP ; BERTIN AND COMPAGNIE

Inventor(s):^(std): BERTIN JEAN H ; BERTIN JEAN HENRI ; HENRI BERTIN JEAN ; BERTIN J

Inventor(s): BERTIN J FR ; JEAN H BERTIN ; JEAN HENRI BERTIN

International class B60V1/00 B60V1/04 B60V1/06 B60V1/11 B60V1/16 B60V3/02 (Advanced/Invention);
(IPC 8-9): B60V1/00 B60V3/00 (Core/Invention)

International class B60V1/00 B60V1/04 B60V1/06 B60V1/16 B60V3/02 B65G7/06
(IPC 1-7):

CPC: B60V1/16 B60V1/043 B60V1/06 B60V1/00 B60V1/115 B60V1/04 B60V3/02

European class: B60V1/00 B60V1/04 B60V1/04F B60V1/06 B60V1/11G B60V1/16 B60V3/02

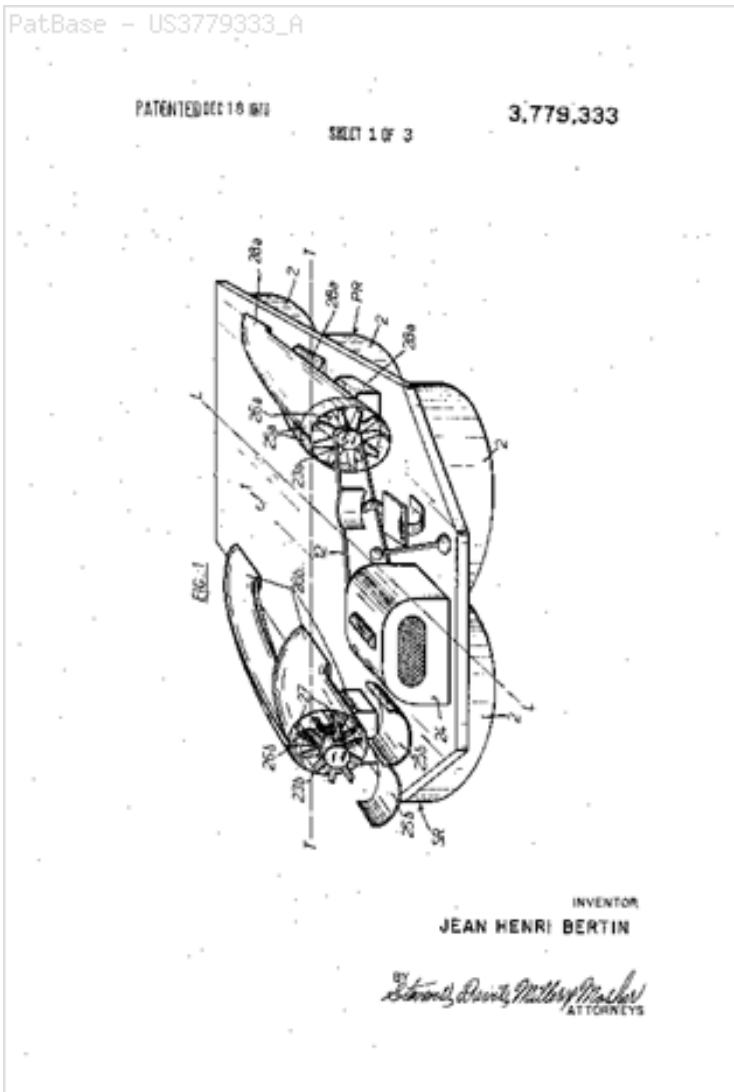
US class: 180/116 180/117 180/118 180/119 180/121 180/127 180/219

Cited documents: US936395 A, US3586118 A, US3536155 A, US3478835 A, US3371738 A, US3332508 A, US3266757 A, US3263764 A, US3251432 A, US3247921 A, US3237708 A, US3213956 A, US3209848 A, US3203498 A, US3185240 A, US3185238 A, US3182739 A, US3180443 A, US3174573 A, US3170530 A, US3168155 A, US3153461 A, US3150731 A, US3134452 A, US3130939 A, US3124209 A, US3118513 A, US3116897 A, US3106260 A, US3082836 A, US3066753 A, US3055446 A, US3052483 A, US3039550 A, US3013505 A, US3001500 A, US2981501 A, US2953320 A, US2938590 A, US2743787 A, US1698482 A, US1403249 A, US1362517 A, US1169241 A, US1123589 A, GB860781 A, GB268696 A, FR80047 E, FR1310483 A, FR1278912 A, FR1258780 A, FR1251967 A, FR1238499 A, AU246358 A1, AU246358,

Forward Citations: WO8505335, WO04094210, US9108612, US6695084, US6382336, US6318488, US5860620, US5429359, US5377775, US4591015, US4416346, US4068735, US4063611, US4042060, US3952475, US3949784, US3908784, US3900079, US3887030, US3840089, US3822761, US3805912, US3799095, US3786893, US3779334, US3779333, US3695382, US3688724, US3677359, US3656575, US3643757, US3631938, US3620325, US3592285, US3589058, US3576231, US3561559, US3515238, US3513935, US3511331, US3478835, US3465845, US3463264, US3401767, US3395773, US3390736, US3382945, US3339657, US3339655, US3339654, US3327799, US3313366, US2014311813, NL1019336, FR2675082, FR2522752, FR2472502, FR2063134, FR2061575, EP0113147, DE1756368, DE1556927, DE1482707, DE1291209, DE1290437, DE1289746, DE1285895, DE1275363, DE1274894, DE1264968, DE1254475, DE1241274, DE1230674, DE1218887, DE1210684,

Abstract:

Source: US3346063A ABSTRACT OF THE DISCLOSURE A vehicle of the ground effect type wherein a fluid under pressure is admitted into a plenum chamber defined by a bounding skirt means which is open at one end thereof whereby said fluid forms a supporting cushion between the vehicle and a bearing surface over which the vehicle moves with the edge of said skirt means being spaced from said bearing surface, and including a second bounding skirt means surrounding the first mentioned skirt means and defining a space therebetween whereby fluid leaking between the edge of the first skirt means and the bearing surface flows into said space and thereby forms a second fluid cushion surrounding the first fluid cushion. This is a divisional application of my copending application Sen No. 165,634 filed Jan. 11, 1962, now U.S. Patent No. 3,263,764.



0) GB686685A – IMPROVEMENTS IN SUSPENSION MEANS FOR THE ROAD W...

52) Family number: 19892890 (GB686685A)

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Title: Improvements in suspension means for the road wheels of motor vehicles

Priority: GB19490033288 19491229

Family:	Publication number	Publication date	Application number	Application date
	<u>GB686685 A</u>	19530128	GB19490033288	19491229

Probable Assignee: CLERK ROBERT CECIL

Assignee(s):^(std): CLERK ROBERT CECIL

Assignee(s): ROBERT CECIL CLERK

International class B60G3/26 (Advanced/Invention);
(IPC 8-9): B60G3/18 (Core/Invention)

International class B60G3/20
(IPC 1-7):

CPC: B60G3/26

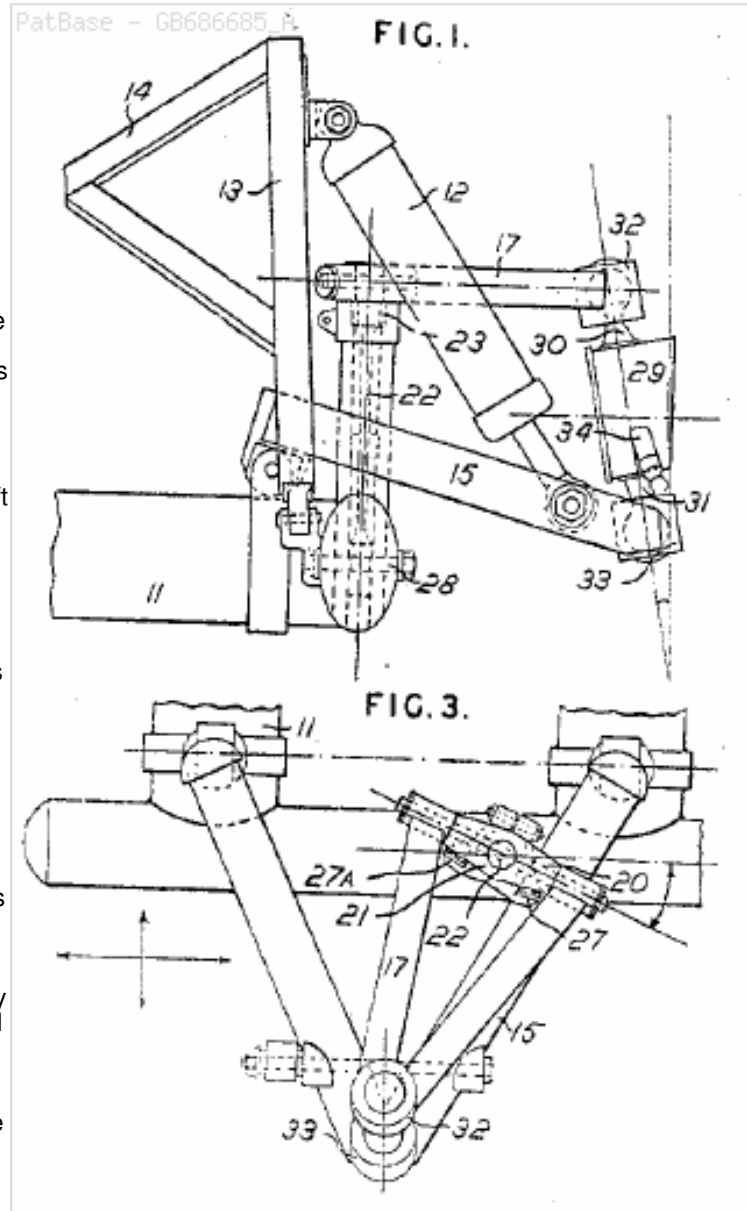
European class: B60G3/26

[Classification Explorer](#)

Forward Citations: FR2455997,

Abstract:

Source: GB686685A 686,685. Spring suspensions. CLERK, R. C. March 29, 1951 [Dec. 29, 1949], No. 33288/49. Class 108 (ii). In a suspension means for a motor vehicle road wheel employed for steering, driving and braking and of the kind including a steering pivot member coupled at points above and below the road wheel axis respectively to two levers mounted on the vehicle frame, the steering pivot carrying a wheel hub directly connected by a cardan shaft to transmission gearing which is mounted on the vehicle frame and which includes a road wheel brake, the coupling by which the steering pivot member is connected to the upper suspension lever is permitted to move to a limited extent relatively to the vehicle frame horizontally or substantially horizontally in a direction having at least a major component in the fore-and-aft direction. In the arrangement shown, in which a lower wishbone link 15 is pivoted about a horizontal axis to a frame member 11 and is sprung against frame members 13, 14 by a suspension strut 12, an upper wishbone link 17 is pivoted on a cross-piece 20 of a T-shaped member 21, the stem 22 of which is journaled in a bearing 23 on the chassis frame. The crosspiece 20 co-operates with stops 27, 27A on the frame and is biased towards a braking stop 27A by the stem 22 which is formed as a torsion spring and is anchored by a bolt 28. The torsion spring may be formed by a rubber disc or bush bonded to two relatively rotating annular or cylindrical surfaces. The outer ends of the wishbone links are formed with sockets 32, 33 which engage ball-ended pins 30, 31 on a drum-shaped member 29 forming part of a steering pivot member. A steering lever 34 projects forwardly of the steering pivot member and is connected by a ball-joint above the level of the lower wishbone link, to a transverse track rod link (not shown). The lever 34 may project rearwardly and in this case is connected to the track rod link below the lower wishbone link. A suitable linkage may connect the crosspieces on opposite sides of the vehicle. In an alternative arrangement the suspension may comprise upper and lower trailing arms to which the steering pivot is connected directly or through a rigid extension joining together rearward ends of the arms. The upper arm is out of parallel with the chassis and is telescopic and resiliently biased towards its rearward limit. The arm may comprise telescopic tubes or it may have its forward end pivoted to a link which is rigid with one end of a torsion bar disposed transversely of the vehicle.



0) US5501478A – OCCUPANT PROPELLED THREE WHEELED VEHICLE

53) Family number: 12443913 (US5501478A)

© PatBase

Title: OCCUPANT PROPELLED THREE WHEELED VEHICLE

Priority: US19950483708 19950607

Family:	Publication number	Publication date	Application number	Application date
	<u>US5501478 A</u>	19960326	US19950483708	19950607

Probable Assignee: DOAN ROBERT L

Assignee(s):^(std): DOAN ROBERT L

Inventor(s):^(std): DOAN DAVID G

International class B62K5/02 B62K5/04 B62M1/00 (Advanced/Invention)
(IPC 8-9):

International class B62K5/02 B62K5/08 B62M1/00
(IPC 1-7):

CPC: B62K5/02 B62K5/06 B62K5/08 B62M1/00

European class: B62K5/02 B62K5/06 B62K5/08 B62M1/00

US class: 280/220 280/267 280/282 280/62

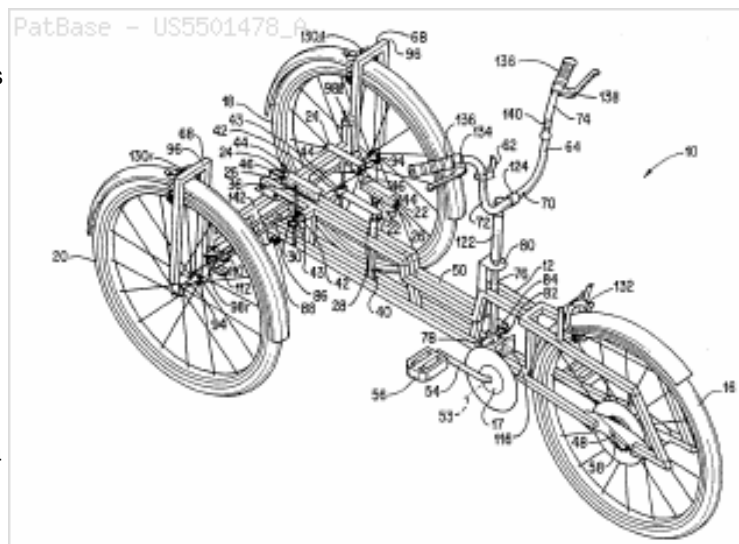
[Classification Explorer](#)

Cited documents: US906293 A, US4925202 A, US4826190 A, US4799704 A, US4789173 A, US4580802 A, US4572535 A, US4548421 A, US4526392 A, US4497502 A, US4456277 A, US4432561 A, US4279429 A, US4198072 A, US4103921 A, US3981516 A, US3909043 A, US3669468 A, US354642 A, US3403927 A, US3311388 A, US2207161 A, SU1745608 T, DE3540976 A1,

Forward Citations: USRE44854, USD783725, USD776204, USD493391, US8950770, US8511701, US8201840, US7909340, US7708291, US7552790, US7044491, US6007084, US5901973, US5727801, US2010194068, US2009108558, US2006086555, US2004080139, US2002029285,

Abstract:

Source: US5501478A An occupant propelled three wheeled vehicle, e.g., a tricycle, includes a frame, a seat, a front driven wheel, two laterally spaced steerable rear wheels and handlebar steering mechanism. The front wheel is driven via a gear and chain arrangement by a pedal assembly which is located at least partially rearwardly of the front wheel axis. The handlebar steering mechanism is located forward of the seat and controls the steering of the rear wheels by simultaneously rotating each rear wheel about a respective vertical axis. The handlebar steering mechanism includes levers which independently control the braking of the two rear wheels and the front wheel. The handlebar steering mechanism also includes a gear shift lever permitting the user to selectively choose a desired gearing ratio between the pedal assembly and the front drive wheel. The seat is positioned with respect to the pedal assembly for substantially upright pedalling, as opposed to recumbent pedalling. The seat is independently vertically, longitudinally, and angularly adjustable with respect to the frame.



54) Family number: 10088979 (US4714140A)

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Title: MULTI-AXIS ARTICULATED ALL TERRAIN VEHICLE**Priority:** US19860840591 19860317

Family:	Publication number	Publication date	Application number	Application date
	<u>US4714140 A</u>	19871222	US19860840591	19860317

Probable Assignee: BATT GREGORY L**Assignee(s):**^(std): BATT GREGORY L ; HATTON JOHN H**Inventor(s):**^(std): BATT GREGORY L ; HATTON JOHN H

International class B62D61/08 E02D3/026 (Advanced/Invention);
^{(IPC 8-9):} B62D61/00 E02D3/00 (Core/Invention)

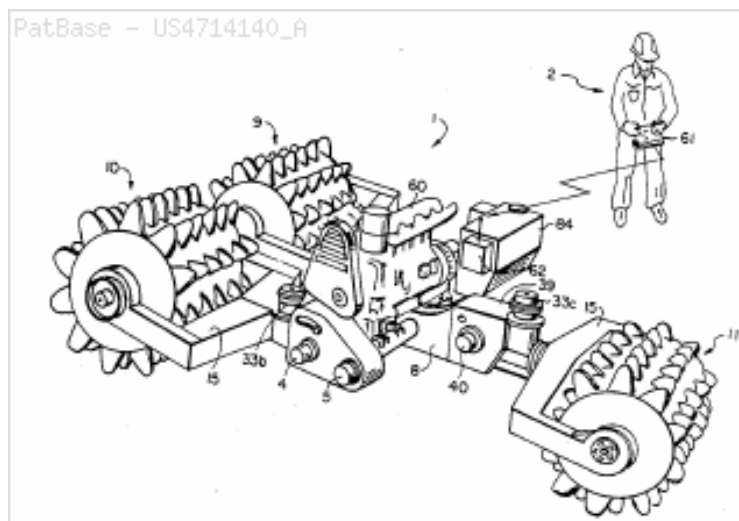
International class B62D57/02
^{(IPC 1-7):}

CPC: Y10S414/122 E02D3/026 B62D61/08**European class:** B62D61/08 E02D3/026**US class:** 180/167 180/20 180/9.32 280/442 280/6.156 280/6H 414/909[Classification Explorer](#)**Cited documents:** US4109742 A, US3842926 A, US3680878 A, US3606957 A, US2510817 A,

Forward Citations: WO10090823, WO10090823, WO04016493, USD678426, USD607473, USD592682, USD553649, US9522817, US9493184, US9488450, US9267245, US9221602, US9207673, US9145163, US9122276, US9082293, US9061626, US9002581, US8970363, US8731777, US8725363, US8725362, US8725317, US8577551, US8515595, US8474161, US8452464, US8193903, US8186931, US8072309, US7565941, US7204341, US7017689, US6983583, US6712173, US5711139, US5552983, US5435408, US5346233, US5087071, US2012230803, US2011166721, US2011118903, US2011046813, US2010275472, US2010183412, US2010145551, US2010114405, US2008129445, US2008071429, US2006266574, US2005247508, US2005217230, US2005108999, US2002096381, EP1534575,

Abstract:

Source: US4714140A A remote controlled multi-axis all terrain vehicle includes front and rear lugged driving wheels, with front and rear wheels steerable about a vertical axis, and pivotal about a longitudinal axis of the vehicle. The vehicle is remotely controlled and includes hydrostatic drive for the wheels of the vehicle. A level control system includes level sensing instruments and controls for automatically leveling the frame of the vehicle for up to thirty-five degree slopes.



0) US3868146A – PAVEMENT GROOVING MACHINE

55) Family number: 1125523 (US3868146A)

© PatBase

Title: Pavement grooving machine
Priority: US19720261360 19720609 US19740476461 19740605 US19740476462 19740605
Family:

Publication number	Publication date	Application number	Application date
US3868146 A	19750225	US19720261360	19720609
US3896989 A	19750729	US19740476461	19740605
US3902760 A	19750902	US19740476462	19740605

Probable Assignee: ENGELHARD MIN AND CHEM

Assignee(s):^(std): SUPER CUT ; ENGELHARD MIN AND CHEM

Assignee(s): ENGELHARD MINERALS AND CHEMICALS CORP ; MORGAN GRENFELL AND CO LTD ; SUPER CUT INC ; UNICORN IND ; UNICORN IND PLC A CORP OF UNITED KINGDOM

Inventor(s):^(std): ELLIS STAFFORD M

International class [E01C23/088](#) (Advanced/Invention);
^{(IPC 8-9):} [E01C23/00](#) (Core/Invention)

International class [E01C23/09](#)
^{(IPC 1-7):}

CPC: [Y10S83/928](#) [E01C23/088](#)

European class: [E01C23/088](#)

US class: [280/442](#) [299/39](#) [299/39.4](#) [299/39.5](#) [404/96](#) [83/928](#)

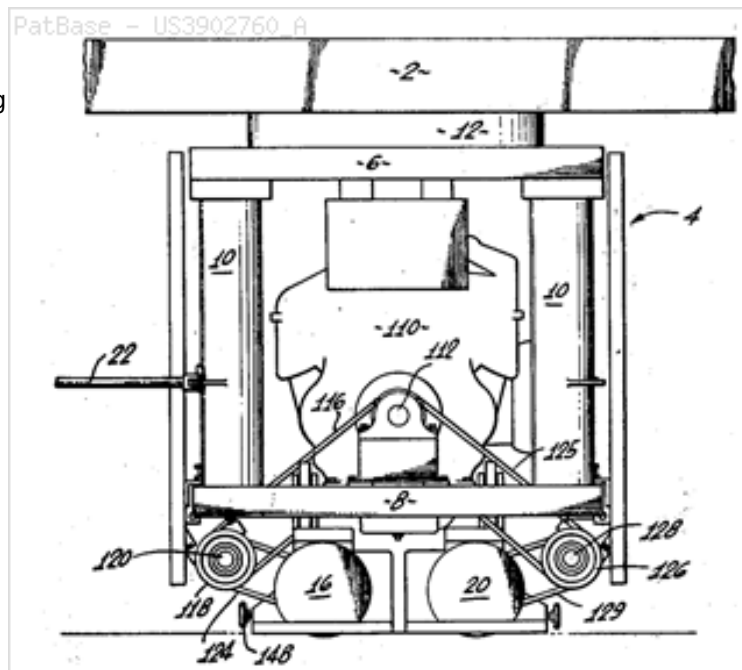
[Classification Explorer](#)

Cited documents: US3779607 A, US3778110 A, US3771831 A, US3767264 A, US3724900 A, US3709116 A, US3703316 A, US3608969 A, US2845851 A,

Forward Citations: WO9005214, WO8900627, US9574310, US9068304, US8840191, US8821063, US8534764, US8256847, US8100481, US8075063, US8056549, US8025342, US7918512, US7886864, US7837276, US6499809, US6176551, US6149342, US5354147, US5234284, US5190398, US5094565, US4896995, US4764051, US4701069, US4516808, US4333686, US4262966, US3989304, US2012132738, US2011140505, US2008315666, US2008246328, US2008205983, US2008008527, US2006060410, KR101187558, EP2623673, DE2816177, DE102013001715, CN103628399, AU2008202490,

Abstract:

Source: US3868146A A pavement grooving machine comprising a truck and trailer with a yoke mounted therebetween, a housing having rotary blade pavement cutter means depending therefrom, the housing being horizontally rotatably mounted on and depending from the yoke, the housing being sufficiently rotatable to provide the cutter means with selective first and second pavement cutting positions opposed 180 DEG relative to each other, whereby the rotary blade cutter means are capable of selective clockwise and counter-clockwise cutting action. Otherwise, the rotatable housing permits the use of a bank of rotary cutter blades long enough to span a road pavement lane when in cutting position and rotatably retractable to another less space-consuming position when the machine is in transit.



56) Family number: 34447386 (US2008258426A)

© PatBase

Title: BICYCLE

Priority: JP20030284228 20031018 JP20030314978 20051028 WO2006JP21520 20061027
 JP20060284228 20031018 JP20050314978 20051028 JP20060284228 20061018
 WO2006JP321520 20061027

Family:	Publication number	Publication date	Application number	Application date
	CN101316756 A	20081203	CN200680039825	20061027
	CN101316756 B	20110824	CN200680039825	20061027
	EP1942048 A1	20080709	EP20060822481	20061027
	EP1942048 A4	20101013	EP20060822481	20061027
	JP2007145318 A2	20070614	JP20060284228	20061018
	JP4374367 B2	20091202	JP20060284228	20061018
	US2008258426 AA	20081023	US20060084109	20061027
	US7798512 BB	20100921	US20060084109	20061027
	WO07049753 A1	20070503	WO2006JP321520	20061027

Probable Assignee: LAND WALKER LTD

Assignee(s):^(std): KANOU KINYA ; LAND WALKER LTD

Inventor(s):^(std): KANOU KIMIYA ; KANOU KINYA ; KINYA KANOU

Agent(s): MANITZ FINSTERWALD AND PARTNER GBR; BIRCH STEWART KOLASCH AND BIRCH; BIRCH STEWART KOLASCH AND BIRCH LLP

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class
 (IPC 8-9): [B62H1/12](#) [B62H7/00](#) [B62K23/06](#) [B62K5/00](#) [B62M25/04](#) ^(Advanced/Invention);
[B62H1/00](#) [B62K23/00](#) [B62K5/00](#) [B62M25/00](#) ^(Core/Invention)

CPC: [B62H1/12](#) [B62K5/00](#) [B62K5/10](#)

European class: [B62H1/12](#) [B62K5/00](#) [B62K5/10](#)

US class: [280/282](#) [280/282P](#) [280/293](#)

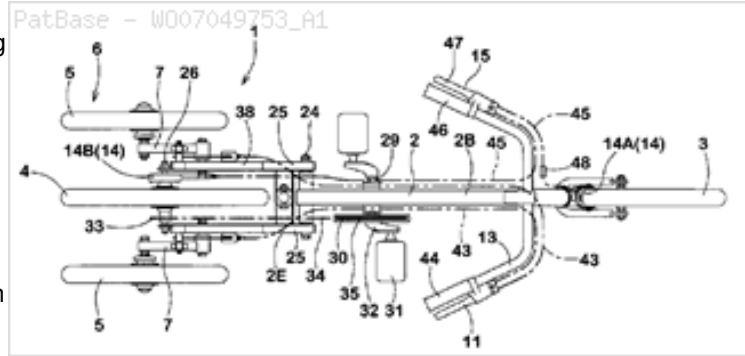
[Classification Explorer](#)

Cited documents: WO04014716 A1, USRE18424 E, US5352403 A, US5100163 A, US4826194 A, US4488617 A, US3700059 A, US3465840 A, US2005248140 AA, US1403249 A, JP59185183 U1, JP59185183 U, JP51040192 Y2, JP51040192 A2, JP3300925 B2, JP2237878 A2, JP2003019987 A2, JP2001315677 A2, JP2000335468 A2, JP2000168648 A2, JP1136883 A2, GB283429 A, GB181742 A, CN2296843 Y, CN2250893 Y,

Forward Citations: US9440488, US9321499, US9067633, US8151912, US7878522, US2014367931, US2013078028, US2009289437, US2008001374, JP6055392, JP5572396, JP2015083412, JP2011140255, JP2011126513, JP2009286314, JP2009286145, JP2009248696, JP2009248694, JP2009214670, CN103318293,

Abstract:

Source: US2008258426A A bicycle comprising a longitudinally extending frame, a front wheel for steering disposed at the front of the frame, a rear wheel disposed at the rear thereof, and auxiliary wheels for assisting the traveling of the bicycle. The bicycle further comprises an auxiliary wheels for assisting the traveling of the bicycle. The bicycle further comprises an auxiliary means having first and second auxiliary supporting devices disposed on one side and the other side of the rear wheel. Each of the auxiliary supporting devices includes an arm having one end pivotally supported on the frame and the other free end movable in the vertical direction, an auxiliary wheel pivotally supported parallel with the rear wheel, an energizing means for energizing the arm in the rotating direction the auxiliary wheel moves downward, and an arm lock means securing the arm. The pair of arms can be rotated independently of each other, and the arm lock means can restrain the rotation of the arms and fix the vertical movement of the auxiliary wheels by their operation.



57) Family number: 20670149 (US6557658B)

© PatBase

Title: Forklift having transverse travel system

Priority: JP19990140877 19990521 JP19990167576 19990615 WO2000JP02948 20000508
JP19990244172 19990831 JP19990193812 19990708

Family:	Publication number	Publication date	Application number	Application date
	<u>CN1108272 C</u>	20030514	CN20008000932	20000508
	<u>CN1306494 A</u>	20010801	CN20008000932	20000508
	<u>EP1114789 A1</u>	20010711	EP20000922998	20000508
	<u>JP2000327295 A2</u>	20001128	JP19990140877	19990521
	<u>JP2000355489 A2</u>	20001226	JP19990167576	19990615
	<u>JP2001019381 A2</u>	20010123	JP19990193812	19990708
	<u>JP2001063984 A2</u>	20010313	JP19990244172	19990831
	<u>JP3121809 B1</u>	20010109	JP19990244172	19990831
	<u>JP3140012 B2</u>	20010305	JP19990140877	19990521
	<u>JP3140013 B2</u>	20010305	JP19990167576	19990615
	<u>JP3140014 B2</u>	20010305	JP19990193812	19990708
	<u>TW498051 B</u>	20020811	TW20000124290	20001116
	<u>US6557658 BA</u>	20030506	US20010743559	20010109
	<u>WO0071459 A1</u>	20001130	WO2000JP02948	20000508

Probable Assignee: TCM CORP

Assignee(s):^(std): ENMEIJI YOSHIYUKI ; KAMO YUUSUKE ; NISHIKAWA TAKESHI ; TCM CORP

Inventor(s):^(std): YUUSUKE KAMO ; YOSHIYUKI ENMEIJI ; TAKESHI NISHIKAWA ; NISHIKAWA TAKESHI ; KAMO YUUSUKE ; KAMO YUSUKE ; ENMEIJI YOSHIYUKI

Designated states: AT BE CH CN CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE US

International class B62D7/00 B62D7/14 B62D7/15 B66F9/075 B66F9/22 (Advanced/Invention);
(IPC 8-9): B62D7/14 B66F9/075 B66F9/20 (Core/Invention)

International class B62D5/00 B62D7/00 B62D7/14 B66F9/075 B66F9/22
(IPC 1-7):

CPC: B62D7/1509 B66F9/07568

European class: B62D7/15B B66F9/075 B66F9/075M

US class: 180/234 180/236 180/411 180/415

[Classification Explorer](#)

Cited documents: US6206127 BA, US5899292 A, US5718304 A, US5570754 A, US5325935 A, US5213143 A, US4893689 A, US4823899 A, US4823899, US4750628 A, US4498554 A, US4446941 A, US4432690 A, US4284159 A, US4024968 A, US3696881 A, US3596730 A, US3255840 A, JP9286342, JP3235762 A2, JP3235762, JP264947, JP2306879 A2, JP2306879, JP1168580 A2, JP1168580,

Forward Citations: WO15159758, WO14075921, WO08137704, US8588508, US7913792, US7316288, US7278511, US6854552, US6827176, US6732824, US2012039523, US2009045004, US2008277890, US2008232943, US2008001380, US2005230171, US2004129491, US2004020724, US2004007415, US2002148669, JP4152082, JP2003531075, JP2002234698, CN104149846, CN104149846, AU2013347045,

Abstract:

Source: US6557658B During ordinary travel, a direction change cylinder (51) is actuated by an orbit roll (58) by turning a steering wheel (16) right and left, so that the rear wheels (4) can be turned for direction change in response to the operation of the steering wheel. When the direction change cylinder is actuated to the limit, the right and left rear wheels can be turned for direction change into an inclined state with their rear ends approaching each other, thereby making it possible to make a pivot turn. The front and rear wheel turning devices (30, 50) are actuated to turn the front wheels (3) and rear wheels around vertical axes (27, 49) for direction change by 90 degrees (directed exactly sideways). At this time, in the rear wheel turning device, with the direction change cylinder put in the neutral position, the rear wheel transverse travel cylinders (53) are actuated to turn the rear wheels for direction change by 90 degrees. After the front wheels and rear wheels have been turned for direction change so that they are directed exactly sideways, the front wheels are driven forward and backward by the travel driving device (21); thus, the forklift (1) can be transversely moved to the right or left.

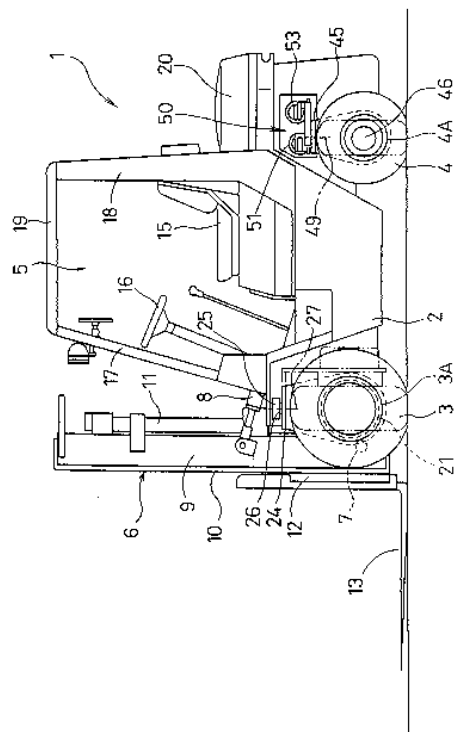
PatBase - W00071459_R1

WO 00/71459

PCT/JP00/02948

1

1 / 24



58) Family number: 56776207 (WO14096470A1)

© PatBase

Title: HUMAN POWERED VEHICLE INCLUDING A FOOT-ACTUATED TRANSMISSION MECHANISM**Priority:** WO2012ES70901 20121221**Family:**

Publication number	Publication date	Application number	Application date
ES2535206 AB	20150506	ES20140090082	20121221
ES2535206 BA	20160122	ES20140090082	20121221
ES2535206 R1	20150729	ES20140090082	20121221
WO14096470 A1	20140626	WO2012ES70901	20121221

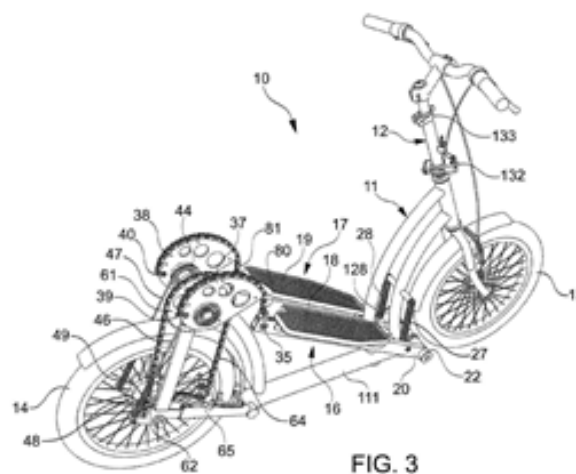
Probable Assignee: MORETO VILAMAJO RAMON**Assignee(s):^(std):** MORETO VILAMAJO RAMON**Assignee(s):** RAMON MORETO VILAMAJO**Inventor(s):^(std):** MORETO VILAMAJO RAMON**Inventor(s):** RAMON MORETO VILAMAJO**Agent(s):** SUGRANES PEDRO; SUGRANES MOLINE PEDRO

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class [B62M1/28 F16H19/06](#) (Advanced/Invention)
(IPC 8-9):**CPC:** [B62M1/28 F16H19/06](#)[Classification Explorer](#)**Cited documents:** WO11061128 A1, WO10022903 A1, WO10020726 A1, WO08063499 A1, WO0230732 A1, US6648355 BB, US5121654 A, FR1054942 A, DE4319104 A1,**Abstract:**

The invention relates to a human powered vehicle comprising a frame, a steering mechanism, a front wheel, a rear wheel, and a transmission mechanism including: two pedals that rotate independently about a rotation axis between an upper end position and a lower end position; transmission means having a lower end coupled to the rear part of an associated pedal; guide elements which, over a first angular portion (α) of the clockwise rotational movement, guide the respective transmission means, and, over a second angular portion (β), are articulated with the upper end; a front-end return mechanism for each pedal; a rear-end return mechanism for each guide element; free wheel mechanisms coupled to respective guide elements and an output shaft; and transmission means for transmitting power from the output shaft to the rear wheel.

PatBase - WO14096470_A1



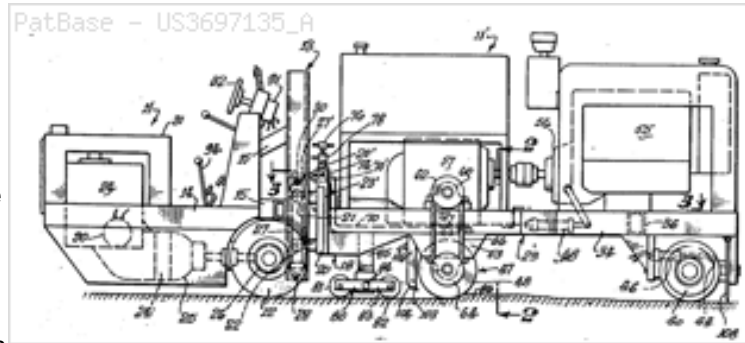
Title: CONCRETE PAVEMENT CUTTING MACHINE**Priority:** AU19720039407 19720225 US19710118909 19710225**Family:**

Publication number	Publication date	Application number	Application date
AU197239407 A1	19730830	AU19720039407	19720225
AU470737 B2	19730830	AU19720039407	19720225
CA942113 A1	19740219	CA19720135647	19720224
DE2208540 A1	19720928	DE19722208540	19720223
DE2208540 B2	19771201	DE19722208540	19720223
DE2208540 C3	19780713	DE19722208540	19720223
FR2126461 A1	19721006	FR19720006955	19720224
FR2126461 B1	19740628	FR19720006955	19720224
GB1329398 A	19730905	GB19720008204	19720222
US3697135 A	19721010	US19710118909	19710225

Probable Assignee: WARNER G**Assignee(s):**^(std) GENE WARNER ; HATCHER C W ; HATCHER CECIL W ; PAVEMENT GROOVING IDEAS LTD ; HATCHER CECIL ; PAVEMENT GROOVING IDEAS LTD A ; WARNER G ; WARNER GENE**Assignee(s):** PAVEMENT GROOVING IDEAS LTD A LIMITED PARTNERSHIP ; PAVEMENT GROOVING IDEAS LTD SOUTH EL MONTE CALIF V ST A ; PAVEMENT GROOVING IDEAS LTD SOUTH EL MONTE CALIF ; PAVEMENT GROOVING IDEAS LTD A PARTNERSHIP LTD ; PAVEMENT GROOVING IDEAS LTD (A LIMITED... ; PAVEMENT GROOVING IDEAS ; HATCHER C W AND WARNER G ; BURGELMAN ASSOCIATES BV ; CECIL W HATCHER ; HATCHER CECIL US**Inventor(s):**^(std) HATCHER CECIL W ; WARNER GENE**Inventor(s):** WARNER GENE WHITIER ; HATCHER CECIL W WEST COVINA ; CECIL W HATCHER ; CECIL W HATCHER AND GENE WARNER ; GENE WARNER**International class**
^{(IPC 8-9) :} [E01C23/088](#) (Advanced/Invention) ;
[E01C23/00](#) (Core/Invention)**International class**
^{(IPC 1-7) :} [B28D1/24](#) [E01C23/00](#) [E01C23/08](#) [E01C23/09](#)**CPC:** [E01C23/088](#)**European class:** [E01C23/088](#)**US class:** [173/24](#) [299/39](#) [299/39.4](#)[Classification Explorer](#)**Cited documents:** US3606467 A, US3407005 A, US3007687 A, US2223213 A, FR1580283 A, FR1481149 A, FR1457882 A, FR1457882,**Forward Citations:** US8733845, US7325881, US7029370, US6454490, US4333686, US4333685, US2006154571, US2004166774, JP49129331, EP0802848,

Abstract:

Source: US3697135A A self-propelled pavement cutting machine comprising a drive truck having a front end having an upright sliding coupling with the rear of a vehicle having an elongated cutter for cutting bumps or grooves, the vehicle having front wheels and rear wheels. When the cutter is active, the vehicle is supported by its two sets of wheels, depth control means being provided for the cutter. The truck has a pump supplying hydraulic fluid to raise and support the rear end of the vehicle with its cutter and rear wheels, the vehicle being supported then by its front wheels. When the vehicle is being pushed by the truck, side sway of the vehicle is prevented as the coupling is arranged on opposite sides of the longitudinal center of the truck and vehicle.



0) GB2311967A – A VARIABLE-TRACK, FOUR WHEEL STEERING AGRICULTU...

60) Family number: 13404553 (GB2311967A)

© PatBase

Title: A variable-track, four wheel steering agricultural vehicle with active suspension

Priority: GB19960007397 19960410

Family:	Publication number	Publication date	Application number	Application date
	<u>GB2311967 A1</u>	19971015	GB19960007397	19960410
	GB9607397 A0	19960612	GB19960007397	19960410

Probable Assignee: BATEMAN ENGINEERING LTD

Assignee(s):^(std): BATEMAN ENGINEERING LTD

Inventor(s):^(std): BATEMAN JASON JOHN ; BATEMAN RICHARD JOHN

Inventor(s): JASON JOHN BATEMAN ; RICHARD JOHN BATEMAN

International class
(IPC 8-9): B60B35/10 B60G21/06 B62D49/08 B62D7/20 (Advanced/Invention)

International class
(IPC 1-7): B60B35/10 B60G21/06 B62D49/08 B62D5/06 B62D7/06

CPC: B60B35/1054 B60B35/109 B60G21/06 B60Y2200/22 B62D7/20 B62D49/08

European class: B60B35/10B4 B60B35/10C4 B60G21/06 B62D49/08 B62D7/20 L60Y200/22

[Classification Explorer](#)

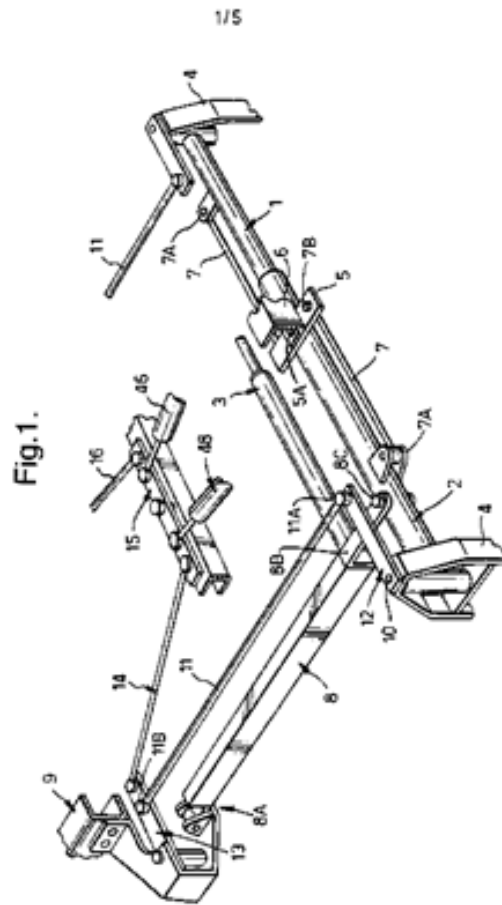
Cited documents: US5489113 A, GB2082926 A1, GB1558007 A, GB1400906 A, GB1050526 A, EP0501585 A1,

Forward Citations: WO15179936, WO05056308, US7735176, US7063706, GB2382056, GB2375332, GB2356331, GB2339761, FR2862022, EP2156724, EP1908674, EP1529722, EA018272, CN102442341,

Abstract:

Source: GB2311967A A variable-track vehicle, such as an agricultural vehicle, has front and rear wheels, on opposite sides of the vehicle, carried by axle portions (1, 2) displaceable outwardly and inwardly by hydraulic drive means (3). Linkwork 7, 7a ensures that the displacements on opposite sides are equal and opposite. The wheels are steerable about respective vertical axes and mounted on respective swinging arms (8) pivotally connected to the vehicle chassis. Each wheel is steered by a radius arm (12) pivotally connected with a steering rod (11) extending parallel with the respective swinging arm (8) so that the steering geometry is substantially unaffected by track width adjustments. A hydraulically lockable linkage arrangement (Fig. 2) is provided whereby the rear wheels can, at choice, be locked against steering movements or can be steered in conjunction with the front wheels. An active hydraulic suspension system (Figure 4) for the vehicle lends stability when working across a slope.

PatBase - GB2311967_A1



61) Family number: 20990957 (US2941815A)

© PatBase

Title: EQUALIZATION SPRING SUSPENSION MEANS FOR VEHICLES

Priority: DE1955D020740 19550624

Family:	Publication number	Publication date	Application number	Application date
	<u>DE1043101 B</u>	19581106	DE1955D020740	19550624
	<u>FR1153372 A</u>	19580305		19560530
	<u>US2941815 A</u>	19600621	US19560591194	19560613

Probable Assignee: DAIMLER BENZ AG

Assignee(s):^(std): DAIMLER BENZ AG

Assignee(s): DAIMLER BENZ AKTIENGESELLSCHAFT

Inventor(s):^(std): JOSEF MULLER ; MUELLER DIPL ING JOSEF ; MUELLER JOSEF

Inventor(s): MULLER JOSEF

International class
(IPC 8-9): B60G17/027 B60G21/04 B60G21/10 (Advanced/Invention);
B60G17/02 B60G21/00 (Core/Invention)

International class
(IPC 1-7): B60G19/02 B60G21/10

CPC: B60G17/0277 B60G21/04 B60G21/10

European class: B60G17/027T B60G21/04 B60G21/10

US class: 267/273 280/104 280/124.107 280/124.167 280/5.505

[Classification Explorer](#)

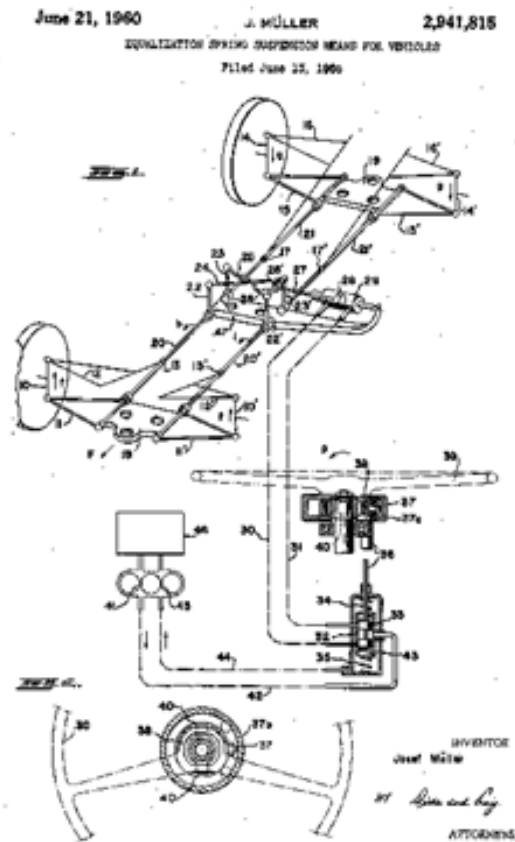
Cited documents: US2739823 A, US2735691 A, US2621057 A, US2260102 A, US2191211 A, US2083381 A, US1785118 A, DE884156 A, DE838553 A, DE489412 A,

Forward Citations: WO9706971, WO9525020, WO9015727, US8387999, US7748721, US6942230, US6499754, US6302417, US5839741, US5378010, US4793630, US4641856, US4277085, US3486762, US3396984, US2011001301, US2007241528, GB2148217, AU694193,

Abstract:

Source: US2941815A (Claim 1) In a road vehicle having a superstructure and four road wheels, suspension means for springing said wheels relative to the vehicle superstructure, means for supporting the suspension means of each road wheel in such a manner against the suspension means of the other road wheels that the movement of any road wheel reacts upon all the other road wheels, anti-roll curve stabilisation means acting upon said opposed suspension means in such a manner as at certain times to stiffen the spring means for the wheels at one side of the vehicle while relaxing the spring means for the wheels at the other side of the vehicle, and control means for said curve stabilization means, said means for supporting the suspension means comprising means for transmitting movements from the suspension means of any one wheel to the suspension means of the other three wheels, said means for transmitting movements comprising an equalizing device provided with a plurality of connection portions and further comprising means connecting the suspension means of one pair of said road wheels to a first one of said connection portions, means connecting the suspension means of the other pair of said road wheels to a second one of said connection portions, and means for connecting said anti-roll curve stabilization means to a third one of said connection portions, said last-named means for connecting being movable only in response to actuation of said control means.

PatBase - US2941815_A



0) DE102011106474A1 – ROAD VEHICLE E.G. MOTORCYCLE, HAS CONNECTED JOI...

62) Family number: 50114689 (DE102011106474A1)

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Title: ROAD VEHICLE E.G. MOTORCYCLE, HAS CONNECTED JOINT PROVIDED WITH WHEEL HUB OF FRONT WHEEL, WHERE FRONT WHEEL IS SWINGABLE AROUND WAKE ANGLE FOR BENDING GUIDANCE ROTATIONAL AXIS ON STUB AXLE WHEN FRONT WHEEL SUSPENSION IS SUPPORTED

Priority: DE201110106474 20110704

Publication number	Publication date	Application number	Application date
<u>DE102011106474 A1</u>	20111215	DE201110106474	20110704

Probable Assignee: ZIEMER PETER

Assignee(s):^(std): ZIEMER PETER

Assignee(s): ZIEMER

Inventor(s):^(std): ZIEMER PETER

International class B62D9/02 B62K5/08 (Advanced/Invention)
(IPC 8-9):

CPC: B62K5/027 B62K5/08

European class: B62K5/027 B62K5/08

[Classification Explorer](#)

Cited documents: US3746118 A, GB1146351 A,
DE112006002581 T5

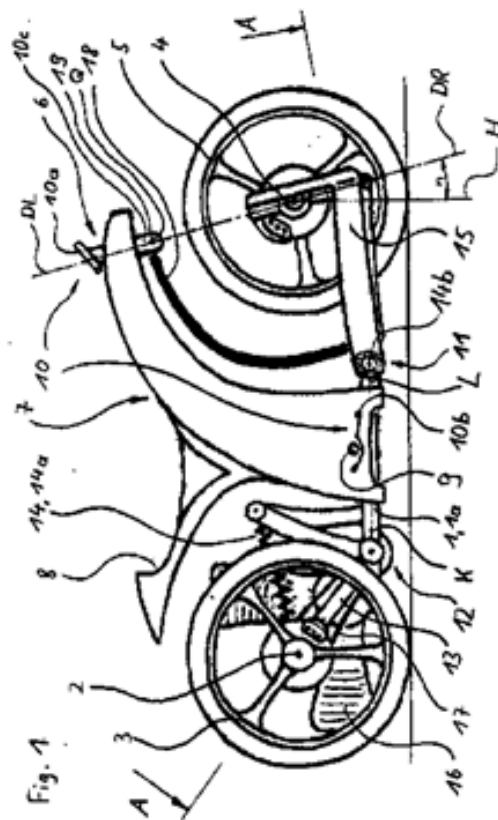
Abstract:

The vehicle has a two-lane and not-tiltable rear axle (2) provided with two wheels (3). A single-lane front axle (4) is provided with a front wheel (5). A main frame forms a rotation-fixed connection between a front wheel suspension (11) and a rear wheel suspension (12) for preventing lateral tilting of the front wheel. A connected joint of a two-axle joint is provided with a wheel hub of the front wheel. The front wheel is swingable around a wake angle bending guidance rotational axis (DR) on a stub axle (15) when the front wheel suspension is supported.

PatBase - DE1020111106474_A1

DE 10 2011 108 474 A1 2011.12.15

Anhängende Zeichnungen



10 / 13

63) Family number: 28815793 (EP0305727A2)

© PatBase

Title: SAFETY MOTOR VEHICLE WITH PROTECTION DEVICES

Priority: DE19870011792U 19870801 DE19870013455U 19870801 DE19870015275U 19870801
 DE19873733876 19871007 DE19873729085 19870901 DE19873739011 19871117
 DE19870017170U 19870801 DE19873725591 19870801 DE19870017329U 19870801
 DE19893922836 19890711 EP19880112025 19880726 DE19883800896 19880114
 DE19893900906 19890113 DE19890004750U 19890113 DE19883838455 19881112
 DE19893912403 19890415 EP19880202598 19881112 EP19880202598 19881112
 DE19883861838 19880726 DE19895000198 19890113 DE19883817672 19880525
 EP19880202598 19881112 EP19890100584 19890113

Family:

Publication number	Publication date	Application number	Application date
<u>AT61023 E</u>	19910315	AT19880112025T	19880726
<u>AT65969 E</u>	19910815	AT19890100584T	19890113
<u>AT74086 E</u>	19920415	AT19880202598T	19881112
<u>DE3725591 A1</u>	19880623	DE19873725591	19870801
<u>DE3729085 A1</u>	19880825	DE19873729085	19870901
<u>DE3733876 A1</u>	19881013	DE19873733876	19871007
<u>DE3739011 A1</u>	19890524	DE19873739011	19871117
<u>DE3800896 A1</u>	19880929	DE19883800896	19880114
<u>DE3800896 C2</u>	19951207	DE19883800896	19880114
<u>DE3817672 A1</u>	19891207	DE19883817672	19880525
<u>DE3838455 A1</u>	19900517	DE19883838455	19881112
<u>DE3861838 D1</u>	19910404	DE19883861838	19880726
<u>DE3869606 D1</u>	19920430	DE19883869606	19881112
<u>DE3900906 A1</u>	19900726	DE19893900906	19890113
<u>DE3912403 A1</u>	19901018	DE19893912403	19890415
<u>DE3922836 A1</u>	19891207	DE19893922836	19890711
<u>DE58900198 D1</u>	19910912	DE19895000198	19890113
<u>DE8711792 U1</u>	19880114	DE19870011792U	19870801
<u>DE8713455 U1</u>	19871217	DE19870013455U	19870801
<u>DE8715275 U1</u>	19880317	DE19870015275U	19870801
<u>DE8717170 U1</u>	19880303	DE19870017170U	19870801
<u>DE8717329 U1</u>	19880728	DE19870017329U	19870801
<u>DE8717525 U1</u>	19890216	DE19870017525U	19870801
<u>DE8816262 U1</u>	19890330	DE19880016262U	19880114
<u>DE8816493 U1</u>	19890914	DE19880016493U	19880114
<u>DE8816688 U1</u>	19900628	DE19880016688U	19880726
<u>DE8904750 U1</u>	19890727	DE19890004750U	19890113
<u>EP0305727 A2</u>	19890308	EP19880112025	19880726
<u>EP0305727 A3</u>	19890524	EP19880112025	19880726
<u>EP0305727 B1</u>	19910227	EP19880112025	19880726
<u>EP0324503 A2</u>	19890719	EP19890100584	19890113
<u>EP0324503 A3</u>	19900321	EP19890100584	19890113
<u>EP0324503 B1</u>	19910807	EP19890100584	19890113
<u>EP0352372 A1</u>	19900131	EP19880202598	19881112
<u>EP0352372 B1</u>	19920325	EP19880202598	19881112

Probable Assignee: AMBROS RICHARD**Assignee(s):^(std):** AMBROS RICHARD

Assignee(s): AMBROS RICHARD 87439 KEMPTEN DE ; AMBROS RICHARD 8960 KEMPTEN DE

Inventor(s):^(std): AMBROS RICHARD

Inventor(s): AMBROS RICHARD 87439 KEMPTEN DE ; AMBROS RICHARD 8960 KEMPTEN DE

Designated states: AT BE CH DE ES FR GB GR IT LI LU NL SE

International class
(IPC 8-9): B60G11/00 B60K5/10 B60N2/00 B60N2/26 B60N2/28 B60N2/30 B60N2/32 B60N2/42 B60N2/427 B60N2/48 B60R1/076 B60R1/10 B60R21/02 B60R21/045 B60R21/08 B60R21/34 B60R7/00 B60S1/04 B60S1/18 B60S1/32 B60S1/34 B60S1/48 B60S1/50 B60S1/52 B60S1/56 B60S1/58 B60S1/60 B62D1/18 B62D1/19 B62D21/15 B62D25/06 B62D39/00 B62J27/00 B62K11/02 B62K25/04 (Advanced/Invention);
B60R21/02 (Advanced/Non-invention);
B60G11/00 B60K5/00 B60N2/00 B60N2/26 B60N2/30 B60N2/32 B60N2/42 B60N2/48 B60R1/076 B60R21/04 B60R7/00 B60S1/04 B60S1/32 B62D1/18 B62D21/15 B62D25/06 B62D39/00 (Core/Invention);
B60R21/02 (Core/Non-invention)

International class
(IPC 1-7): B60G11/26 B60J5/00 B60N1/00 B60N1/12 B60N2/00 B60N2/26 B60N2/42 B60N2/48 B60N3/10 B60P3/38 B60R1/00 B60R1/02 B60R1/10 B60R11/00 B60R13/00 B60R15/04 B60R21/00 B60R21/02 B60R21/04 B60R21/045 B60R21/08 B60R22/00 B60R3/00 B60R7/00 B60R7/04 B60S1/04 B60S1/06 B60S1/34 B60T8/32 B62D1/18 B62D21/15 B62D25/00 B62D25/06 B62D25/07 B62D25/08 B62D25/16 B62D31/00 B62D35/00 B62D37/00 B62D43/00 B62D63/02 B62K11/02

CPC: B60S1/0452 B60S1/3404 B60S1/50 B60S1/52 B60S1/56 B60S1/583 B62D39/00 B60N2/2884 B60N2/4214 B60N2/4221 B60N2/4235 B60N2/42727 B60N2/4279 B60N2/4885 B60R2021/022 B60S1/32 B60R21/02 B60S1/04 B60S1/18 B60S1/48 B60S1/60 B62D1/19 B62J27/00 B62K11/02 B60N2/32 B60N2/4852 B60R21/08 B60R1/10 F41H5/26 F41H7/04 B60R1/076 B60R21/34 B60R2021/346 B60N2/3081 B60N2/4847 B60K5/10 B60G11/00 B62K25/04 B62K2025/048

European class: B60G11/00 B60K5/10 B60N2/28W B60N2/30K B60N2/32 B60N2/427R B60N2/427T4 B60N2/42D2 B60N2/42D2F B60N2/42D4 B60N2/48C3B4 B60N2/48C3C B60N2/48W B60R1/076 B60R1/10 B60R21/02 B60R21/08 B60R21/34 B60S1/04M B60S1/18 B60S1/32 B60S1/34B2 B60S1/48 B60S1/50 B60S1/52 B60S1/56 B60S1/58B B60S1/60 B62D1/19 B62D39/00 B62J27/00 B62K11/02 B62K25/04 F41H5/26 F41H7/04 L60R21/02A3 L60R21/34F L60S1/04M L62K25/04G

[Classification Explorer](#)

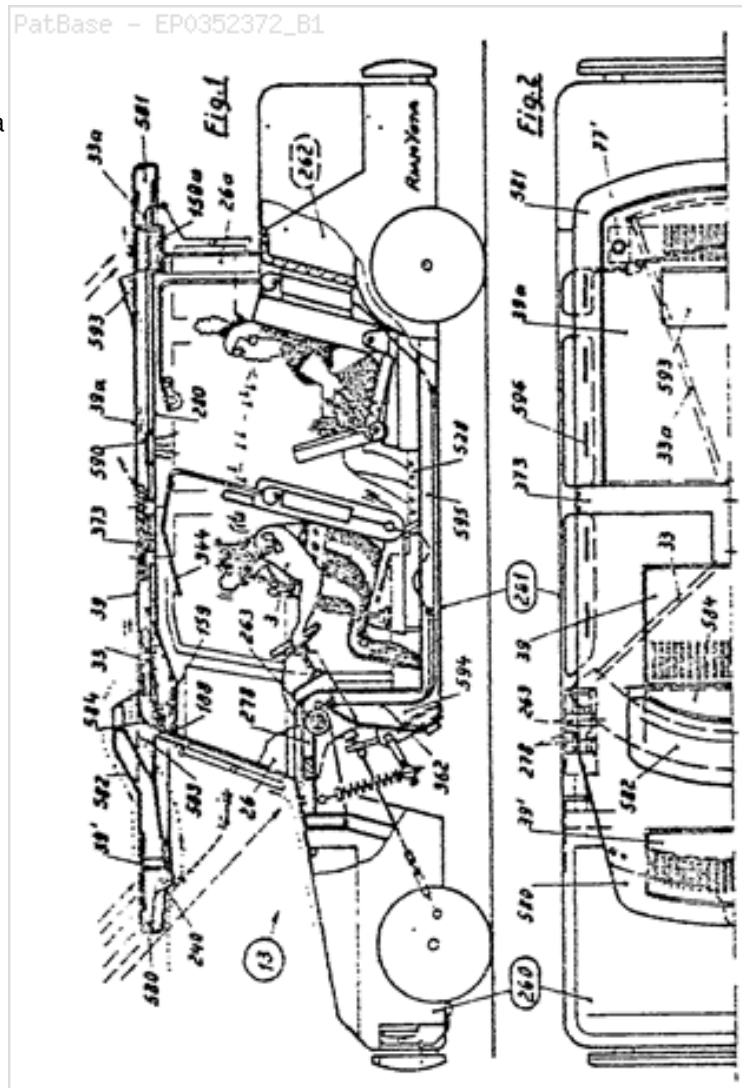
Cited documents: US4579367 A, US4555135 A, US4466633 A, US2991120 A, GB2094243 A1, EP0305727 A2, EP0190677 A2, DE8816262 U, DE8717170 U, DE8708561 U, DE8614792 U, DE421309 A, DE417316 A, DE3900906 A1, DE3800896 A1, DE3725591 A1, DE3642415 C2, DE3638261 A1, DE3623658 A1, DE3600411 A1, DE3221604 A1, DE3130984 A1, DE2825329 B2, DE2823529 B2, DE2709005 B2, DE2617980 A1, DE1106627 B, DE1072112 B, AT225043 B,

Forward Citations: WO9212024, WO9119623, WO11069506, WO10043347, WO05087547, WO0110667, US8431819, US8061772, US7832747, US6494531, US6488333, US6279996, US6199945, US5788326, US5588700, US5542742, US5524962, US5498062, US5449216, US5409293, US5385384, US5121964, JP6003661, JP4238751, JP2014133515, GR900100773, GB2439521, GB2436283, GB2436283, GB2423244, GB2423244, GB2315994, GB2315251, GB2276129, FR2860459, FR2707567, FR2676975, FR2673408, FR2668432, FR2665399, FR2663271, EP2768716, EP1964768, EP1099607, EP0747259, EP0666194, EP0636513, EP0516495, EP0462859, EP0324503, DE9413168, DE4414432, DE4409757, DE4224894, DE4135868, DE4134644, DE4030841, DE4022280, DE4001344, DE3922836, DE3912403, DE3838455, DE29515849, DE202014104190, DE19946097, DE19946097, DE19909432, DE19850754, DE19850754, DE19527126, DE19524796, DE19524796, DE102008036253, DE102006014204, DE102004030471, CN102762461, CN102762461,

Abstract:

A safety motor vehicle with a front vehicle part (260) mounted so as to pivot off about a horizontal transverse axis (263) on a rear part of the vehicle (261) and which in the event of a sharp braking process converts the kinetic energy of the vehicle into a raising of the centre of gravity of the vehicle and thus causes the front axial load on the carriageway to be increased.

PatBase - EP0352372_B1



64) Family number: 16961793 (DE29806566U1)

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Title: Two-wheeled motor vehicle with side cars**Priority:** DE19982006566U 19980409**Family:**

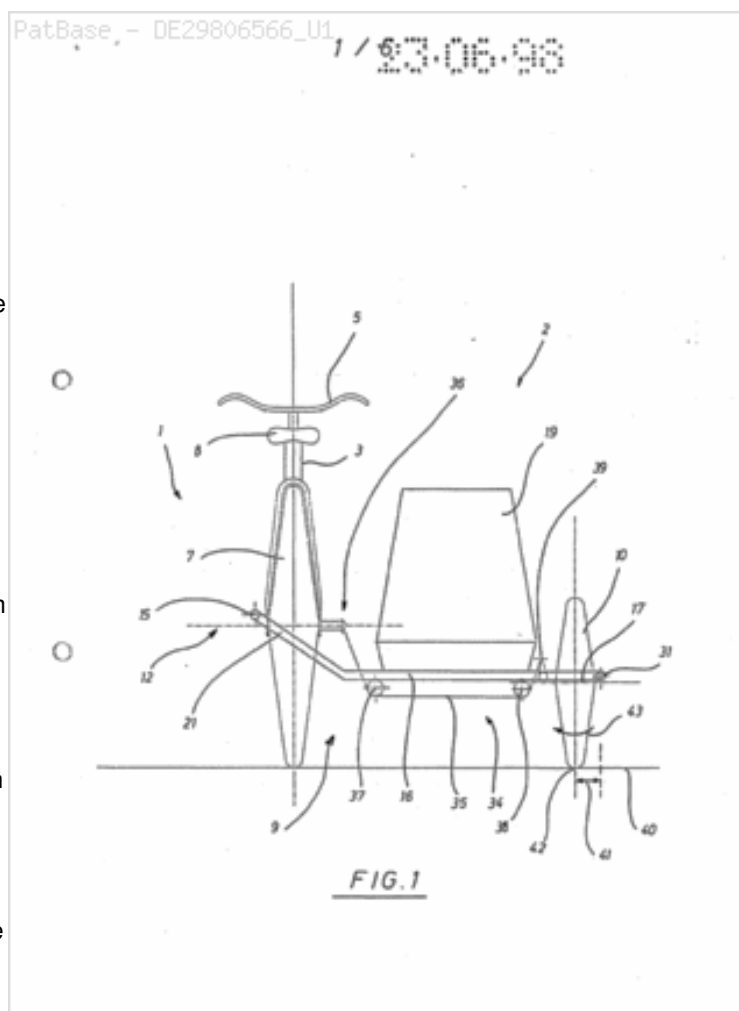
Publication number	Publication date	Application number	Application date
<u>DE29806566 U1</u>	19980723	DE19982006566U	19980409

Probable Assignee: KASPAR LOTHAR**Assignee(s):^(std):** KASPAR LOTHAR**Assignee(s):** KASPAR LOTHAR 92345 DIETFURT DE**International class** B62K27/02 (Advanced/Invention)
(IPC 8-9):**International class** B62K27/12
(IPC 1-7):**CPC:** B62K27/00**European class:** B62K27/00 B62K27/02[Classification Explorer](#)**Abstract:**

Source: DE29806566U1 (Claim 1) 1.
Zweirad-Fahrzeug mit Seitenwagen,
insbesondere Fahrrad mit
Seitenwagen, bestehend aus ? ? einem
Zweirad-Fahrzeug (1) mit einem
Zweirad-Rahmen (3) und mit einem Vorderrad
(5) und Hinterrad (7), die in einer ersten Spur
laufen und wovon vorzugsweise das Vorderrad
(5) lenkbar ist, einem Seitenwagen (2) mit
einem Seitenwagen-Rahmen (9), an dem ein
in einer zweiten Spur auf einer Stuetzradachse
(17) laufendes Stuetzrad (10) angebracht ist
und der Seitenwagen-Rahmen (9) mit dem
Zweirad-Rahmen (3) ueber ein e in
Fahrzeuglaengsrichtung verlaufende erste
Schwenkachse (15) schwenkbar verbunden
ist, dadurch gekennzeichnet, dass die quer zur
Fahrtrichtung liegende Stuetzradachse (17)
mit dem Zweirad-Rahmen (3) ueber eine in
Fahrzeuglaengsrichtung verlaufende zweite
Schwenkachse (31) schwenkbar direkt oder
indirekt verbunden ist, und dass eine
Neigungskoppeleinrichtung (34) zwischen dem
Zweirad-Fahrzeug (1) und dem Stuetzrad (10)
vorgesehen ist, welche
Kraftuebertragungsmittel (35; 53, 54, 55)
umfasst, die einerseits mit dem
Zweirad-Rahmen (3) und andererseits mit der
schwenkbaren Stuetzradachse (17) zu deren
Verschwenkung direkt oder indirekt verbunden
sind,

Machine translation: (Claim 1) 1

Two-wheeled vehicle with a sidecar,
especially bicycle with sidecar, consisting of??
a two-wheeled vehicle (1) with a bicycle frame
(3) and with each front wheel (5) and rear (7),
which in a first track Running and which,
preferably, the front wheel (5) can be steered,
a sidecar (2) with a Sidecar frame (9), at which
a second in a track on a Stuetzradachse (17) running wheel (10) are fitted and the side car frame (9) with the
bicycle frame (3) over an e in Fahrzeuglaengsrichtung extending first pivot axis (15) pivotally connected, is



characterized in that the transverse to the direction of travel Stuetzradachse (17) with demZweirad-frame (3) over one running in Fahrzeuglaengsrichtung second pivot axis (31) swivel verbundenist directly or indirectly, unddass a tendency coupling device (34) between the two-wheeled vehicle (1) and the wheel (10) which is what Kraftuebertragungsmittel (35, 53, 54, 55) comprises, on the one hand, with the bicycle frame (3) and the other with the swiveling Stuetzradachse (17) to that pivoting connected directly or indirectly,

65) Family number: 3144711 (US4861054A)

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Title: PEDAL-POWERED SKATEBOARD**Priority:** US19870078657 19870728

Family:	Publication number	Publication date	Application number	Application date
	<u>US4861054 A</u>	19890829	US19870078657	19870728

Probable Assignee: SPITAL WADE**Assignee(s):^(std):** SPITAL WADE**Inventor(s):^(std):** SPITAL WADE

International class A63C17/01 A63C17/12 (Advanced/Invention);
^{(IPC 8-9):} A63C17/00 (Core/Invention)

International class B62M1/04
^{(IPC 1-7):}

CPC: A63C17/015 A63C17/12 A63C2203/40**European class:** A63C17/00B A63C17/01 A63C17/01H2 A63C17/12 K63C203/40**US class:** 280/11.115 280/11.28 280/221 280/87.042[Classification Explorer](#)

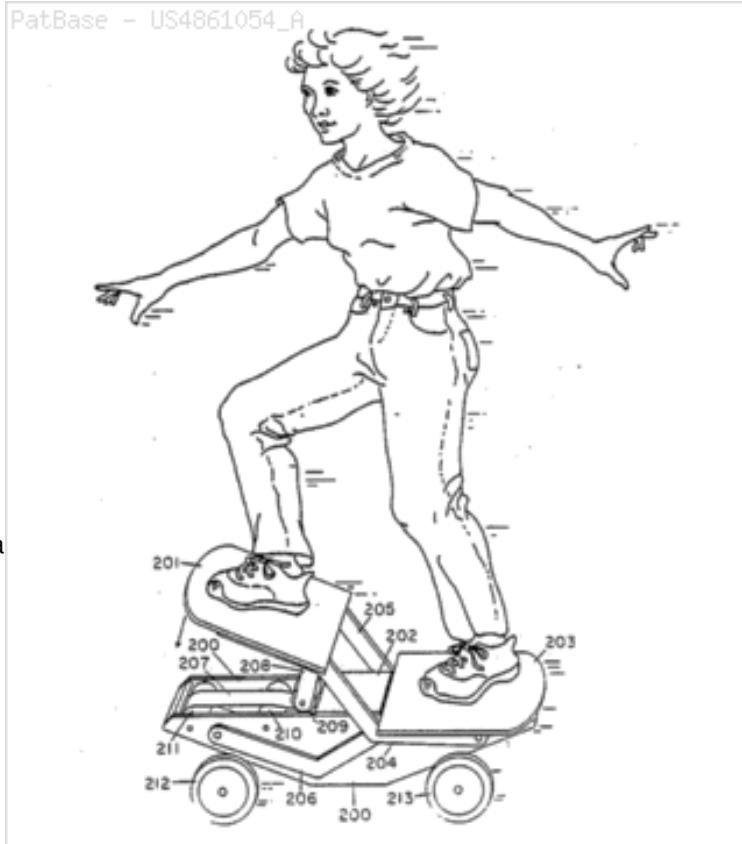
Cited documents: US4595209 A, US4411442 A, US4398735 A, US4186934 A, US4184693 A, US4159830 A, US4124222 A, US4094524 A, US3774924 A, US3415540 A, US3399906 A, US3285618 A, US2185698 A, US2148919 A, US1259592 A, FR2447210 A1, FR1189306 A, DE2726961 A1,

Forward Citations: WO11119508, WO04062757, WO04062757, WO0187436, USD473905, US8944452, US8783703, US8668039, US8511188, US8500145, US8113524, US7887076, US7744100, US7677988, US7635136, US7631884, US7487987, US7374179, US7261305, US7216876, US7111860, US7077414, US7073805, US7040638, US7007957, US6796570, US6769706, US6705630, US6688624, US6398244, US6375198, US6334838, US6241269, US6189907, US6131933, US5984328, US5957470, US5839737, US5540455, US5310202, US5309361, US5280935, US5224719, US2012187648, US2012091677, US2011181013, US2011074127, US2011000327, US2010207348, US2010007111, US2009273152, US2008217084, US2007277318, US2006255554, US2006205528, US2006181050, US2006131831, US2005280233, US2005280232, US2005062253, US2004178603, US2004036248, US2004032099, US2003111821, US2002195788, NL1000278, GB2415168, GB2415168, GB2334494, FR2808702, FR2777196, FR2760382, EP1256363, EP1163938, DE10312878, CN102029058,

Abstract:

Source: US4861054A Improved propulsion, suspension, and steering means for a skateboard-like vehicle which can be propelled and steered entirely by the feet of a rider without those feet touching the ground. An actuating means is also provided which allows the operation of brakes and/or other appropriate mechanisms without the repositioning of the rider's feet on the vehicle's foot supporting surface. The vehicle incorporates front and rear,

independently-actuable pedals (53, 53R) which are actually discontinuous sections of the foot supporting platform or deck. These, combined with their support means (54, 55-front; 54R, 55R-rear), compose opposing front and rear level members which are pivotally mounted along crosswise axes. The pivotal axis of the front pedal is positioned substantially to the rear of the pivotal axis of the rear pedal so that the pedals can achieve a greater range of motion with a minimum of angular deviation. Each pedal support means retains a roller (58, 58R) which moves up and down with the support means. Using the front drive train as an example, a drive belt (52) is fixed in its middle to the frame (50) of the vehicle and is guided by two other rollers before winding around and terminating at a drive sleeve (76) to which it is fixed at its front end. When the pedal (53) is depressed, the roller (58) descends into the drive belt (52) causing it to unwind from the drive sleeve (76), imparting in it, a rotational motion. The drive sleeve retains one way clutches (80 and 81) which engage a wheel axle (82) causing a wheel (92) to rotate and propel the vehicle. A return spring (78) biases the drive sleeve to rotate in other direction when the rider lifts their foot off the pedal. At that time, the vehicle coasts, as the drive sleeve (76) disengages from the drive axle (82), winding up the drive belt (52) and pushing the pedal (53) back up to its original position. Other embodiments include a vehicle with a crank-clutch-gear drive and a vehicle with an alternate arrangement and style of pedal brackets.



66) Family number: 5007689 (US5110153A)

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Title: VEHICLE FOR TRANSPORTING LOADS

Priority: US19900578507 19900906 US19910787078 19911104

Family:

Publication number	Publication date	Application number	Application date
<u>US5110153 A</u>	19920505	US19900578507	19900906
<u>US5165838 A</u>	19921124	US19910787078	19911104

Probable Assignee: TELEDYNE IND

Assignee(s):^(std): TELEDYNE IND

Assignee(s): TELEDYNE IND INC ; TELEDYNE IND INC A CORP OF CA ; TELEDYNE INDUSTRIES INC

Inventor(s):^(std): AIKEN WILLIAM C ; DEITZ DAN P ; KALLANSRUDE DAVID K ; POWELSON WILLIAM D

International class
(IPC 8-9): B60G17/015 B60G17/04 B62D7/14 B64D9/00 (Advanced/Invention);
B60G17/015 B60G17/04 B62D7/14 B64D9/00 (Core/Invention)

International class
(IPC 1-7): B60G17/00 B60P1/34

CPC: B64D9/00 Y10S280/01 B62D7/144 B60G17/0152 B60G17/04 B60G2202/154 B60G2202/413 B60G2300/02 B60G2400/25 B60G2401/14 B60G2500/324 B60G2600/20

European class: B60G17/015B B60G17/04 B62D7/14B1 B64D9/00 L60G202/154 L60G202/413 L60G300/02 L60G400/25 L60G401/14 L60G500/324 L60G600/20

US class: 180/204 180/209 180/41 198/782 254/124 254/2R 280/6.15 280/704 280/840 280/DIG.1 283/707 414/346 414/347 414/471 414/491 414/495 414/523 414/533 414/535 5/611

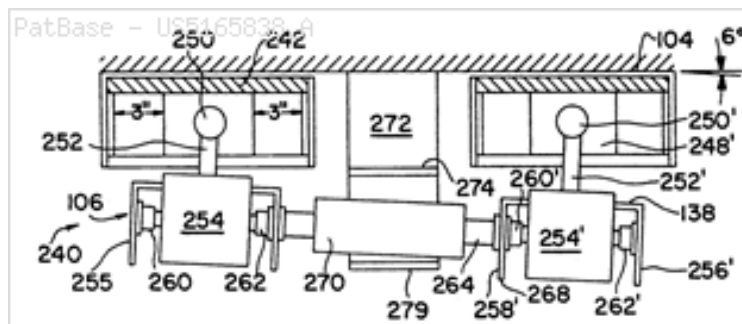
[Classification Explorer](#)

Cited documents: US943827 A, US5056977 A, US4978272 A, US4927127 A, US4907935 A, US4861067 A, US4854805 A, US4854409 A, US4799848 A, US4796911 A, US4770438 A, US4618156 A, US4595072 A, US4570733 A, US4552238 A, US4518169 A, US4501437 A, US4425978 A, US4420167 A, US4364574 A, US4279319 A, US4250975 A, US3944277 A, US3854610 A, US3743044 A, US3612312 A, US3589490 A, US3513927 A, US3489300 A, US3435969 A, US3319932 A, US3259255 A, US3003783 A, US1452449 A, DE3711232 A1, DE2926028 A1,

Forward Citations: WO9423995, WO13156731, WO10020049, WO08030785, WO06135326, WO05091951, US9549505, US9421840, US9329917, US8793054, US8678479, US8500384, US8425174, US8317215, US8313278, US8186497, US7950675, US7918637, US7802958, US7789175, US7717656, US7402015, US7134829, US7007790, US6923606, US6622853, US6308404, US6227357, US6023220, US5780783, US5618151, US5570483, US5390752, US2015239554, US2012221186, US2012047655, US2011142583, US2011139933, US2011097183, US2011083411, US2011002756, US2009322057, US2008292434, US2008272562, US2008253853, US2008213075, US2008213074, US2008213058, US2008056870, US2007080000, US2005279616, US2005247540, US2005236195, US2005226707, US2003143052, FR2989365, DE19752108, DE102010016486,

Abstract:

Source: US5110153A A vehicle having a suspension control system that is especially applicable to an aircargo transport loader which is adapted for storage in a cargo hold of an aircraft. The suspension control system utilizes sensors to monitor the clearance between the vehicle and an underlying or overlying surface such as the ramp leading into a cargo hold or the roof of the cargo hold. The sensors relay information concerning clearance to a central control where the necessary suspension adjustments are made to allow the vehicle to avoid a clearance problem once travel is continued after stopping for the suspension adjustment. The system allows for suspension adjustments to be made either automatically or manually. The



invention also includes an under deck support system which allows for limited pitch, yaw, roll and side to side adjustments to be made to the deck with respect to the underlying base frame. The invention further includes a cab relocation system which features a hinged deck section which can be varied from a first position where it covers a deck cutout formed to receive the laterally adjustable operator's cab to a second position where the cutout is uncovered. In the first position, the hinged deck section is releasably locked to the cab for added stability and support.

Title: SNOW BIKE CONVERSION SYSTEM**Priority:** US20110038362 20110301

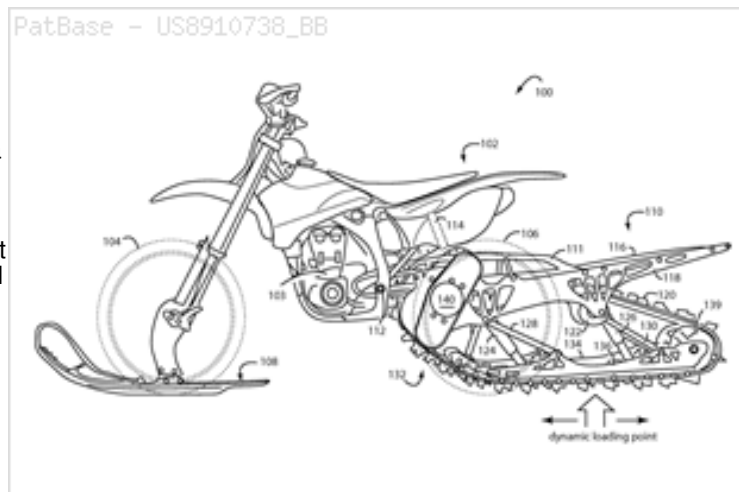
Family:	Publication number	Publication date	Application number	Application date
	<u>US2012222908 AA</u>	20120906	US20110038362	20110301
	<u>US8910738 BB</u>	20141216	US20110038362	20110301

Probable Assignee: POLARIS IND INC**Assignee(s):^(std):** MANGUM ALLEN**Assignee(s):** POLARIS IND INC**Inventor(s):^(std):** MANGUM ALLEN**Agent(s):** KUNZLER LAW GROUP

International class B62D55/04 B62D55/07 B62D55/112 (Advanced/Invention);
 (IPC 8-9): B62M27/02 (Advanced/Non-invention)

CPC: B62D55/04 B62D55/07 B62D55/112 B62M27/02 B62M2027/022**European class:** B62D55/04 B62D55/07 B62D55/112 B62M27/02 L62M27/02C**US class:** 180/190 180/193 180/9.26[Classification Explorer](#)**Cited documents:** US7475751 BB, US6431301 BA, US5586614 A, US5370198 A, US3822755 A, US2004195024 AA,**Forward Citations:** WO16161528, WO15089625, USD778783, US9359022, US9022156, US8915501, US2016167722, US2013285339,**Abstract:**

Source: US2012222908A A snow bike system includes a motorcycle converted for use in the snow with a rear suspension and belt track system. The belt track is relatively very wide and driven by a front wheel sprocket through a jackshaft. Matching shocks and struts in the rear suspension independently equalize the pressure applied to the ground. The rear strut is a sliding extension type that causes the front of the sliders to kick up when fully compressed during acceleration or climbing uphill. Increased weight on the rear track is shifted forward to keep the front ski down. The jackshaft provides both disc braking and moves the motorcycle engine drive power outboard to accommodate the wider belt track. A tubular subframe and tunnel rigidly mounts to the motorcycle's original rear swing arm pivots and shock mounts.



0) US3123380A –

68) Family number: 22866931 (US3123380A)

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Family:	Publication number	Publication date	Application number	Application date
	<u>US3123380 A</u>	19640303		00000000

International class B60P3/40 B62D33/063 (Advanced/Invention);
(IPC 8-9); B60P3/40 B62D33/06 (Core/Invention)

International class B60P3/40
(IPC 1-7);

CPC: B60P3/40 B62D33/0636

European class: B60P3/40 B62D33/063C

US class: 180/89.1 280/402 280/404 280/477 280/81.5 296/184.1

[Classification Explorer](#)

Cited documents: US2987936 A, US2772892 A, US2743116 A, US2520776 A, US2271808 A, US2186593 A, US1996695 A, US1595512 A, FR1198625 A, DE660550 A, CH86663 A,

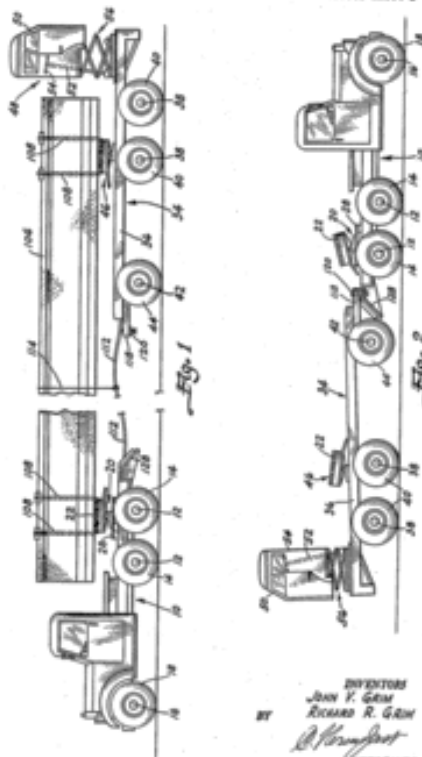
Forward Citations: USB327674, US8955832, US5993126, US4799705, US4560183, US4262923, US4149643, US3918540, US3885643, US3722921, US3679243, US3667565, US3472527, US3430987, US3401955, US3325186, US3232636, RU2522482, FR2402571,

Abstract:

Source: US3123380A (Claim 1) 1. Vehicle means for hauling relatively rigid elongated objects and comprising a powered tractor unit having steering means and load supporting means swivelly connected thereto to receive the forward end of one or more elongated objects; in combination with a trailer unit having at least two axles spaced longitudinally of said trailer unit and wheels rotatably supported thereon, manually operable, steering means and operator positioning means carried by said trailer and adjustably positionable simultaneously and vertically thereon to a level to permit ready viewing above the load by an operator on said positioning means to steer the wheels on at least one of said axles of said trailer, load supporting means swivelly connected to said trailer unit in a position intermediately of said axles in a direction longitudinally of said trailer unit to receive the rearward end of one or more elongated objects, and means to effect such adjustment to vary the vertical position of said steering mechanism and operator positioning means and thereby render the same suitable for use with loads of various heights; the tractor and trailer units being connected for pulling of the trailer only by the elongated load objects extending between the load supporting means respectively thereon.

PatBase - US3123380_A

March 3, 1964 J. V. GRIM ET AL 3,123,380
VEHICLE MEANS FOR ELONGATED AND/OR HEAVY OBJECTS
Filed Jan. 23, 1961 5 Sheets-Sheet 1



INVENTORS
JOHN V. GRIM
RICHARD R. GRIM
BY *[Signature]*
ATTORNEY

Priority: DE19920011853U 19920903

Family:

Publication number	Publication date	Application number	Application date
DE9211853 U1	19921112	DE19920011853U	19920903

Probable Assignee: VARA VALLEDOR JESUS 8000 MUENCHEN DE

Assignee(s): VARA VALLEDOR JESUS 8000 MUENCHEN DE

International class B62K5/02 B62K5/04 (Advanced/Invention)
(IPC 8-9):

International class B62J9/00 B62K23/06 B62K5/02 B62K5/06 B62K7/00 B62L3/02 B62M1/02 B62M9/10
(IPC 1-7):

CPC: B62K5/02

European class: B62K5/02

[Classification Explorer](#)

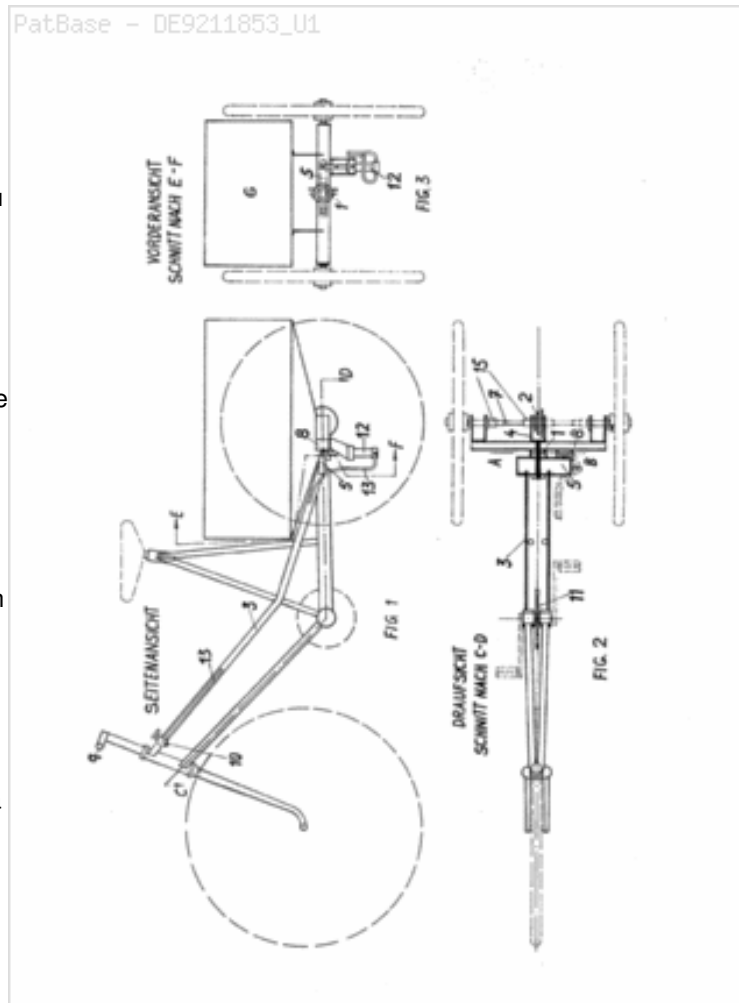
Cited documents: US4006916, US3937486, US3931989, US3701545, GB1480098, GB1448805, GB1209872, FR2513959, DE4124926, DE2502529, DE2429238, DE2247863, DE1908826, DE1908551, DE1298013,

Forward Citations: WO9420356, DE4307269, DE19640475,

Abstract:

Source: DE9211853U1 (Claim 1) 1. Dreiradfahrrad mit verstellbarer Verkipfung und mit einem ein Vorderrad tragenden vorderen Rahmen und einem zwei Hinterräder tragenden hinteren Rahmen, wobei der vordere Rahmen um die Laengsachse des Dreiradfahrrades relativ zu dem hinteren Rahmen verkipfbar und mit diesem ueber ein Drehgelenk verbunden ist, und wobei eins oder beide der Hinterräder durch ein Antriebssystem antreibbar sind und das Fahrzeug ueber einen Lenker am vorderen Rahmen lenkbar ist, dadurch gekennzeichnet, dass durch die konstruktiv bedingte Verkipfung beim Kurvenfahren, wie bei jedem Fahrrad eine hydraulische Stabilisier- und Bregenzungseinrichtung betätigt wird, so dass die Verkipfung nach Wahl, frei oder gedrosselt wird, innerhalb der sicheren Grenzen gehalten wird oder bei Bedarf blockiert.

Machine translation: (Claim 1) 1 Tricycle with adjustable tilt and measures framework with a front wheel bearing front and two rear wheels supporting the rear frame, the front frame relative to the longitudinal axis of the three-wheeled vehicle to the rear frame men-tilted and connected to it by a hinge, and where one or both of the round terra eder are antreibbar by a drive system and the vehicle via a link at the fore yard-men is steerable, wherein venfahren cure through the design-related tilt at, as with any bike, a hydraulic stabilizers and Bregenzungseinrichtung is operated so that the tilt of your choice, free will or throttled to keep GE within safe limits is blocked or when needed.



70) Family number: 11159328 (US5426571A)

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Title: Motorcycle headlight aiming device

Priority: US19930029767 19930311 US19950433796 19950427 US19970781295 19970113

Family:

Publication number	Publication date	Application number	Application date
US5426571 A	19950620	US19930029767	19930311
US5684244 A	19971104	US19950433796	19950427
US5811656 A	19980922	US19970781295	19970113

Probable Assignee: JONES JERRY

Assignee(s): JONES JERRY

Inventor(s):^(std) JONES JERRY

International class [B60Q1/115 B60Q1/12](#) (Advanced/Invention)
(IPC 8-9):

International class [B62J6/00](#)
(IPC 1-7):

CPC: [B60Q1/115 B60Q2300/136 B60Q1/122](#)

European class: [B60Q1/115 B60Q1/12D L60Q300/136](#)

US class: [362/286 362/460 362/464 362/466 362/469 362/473 362/476 362/72 73/1.75 73/1.77](#)

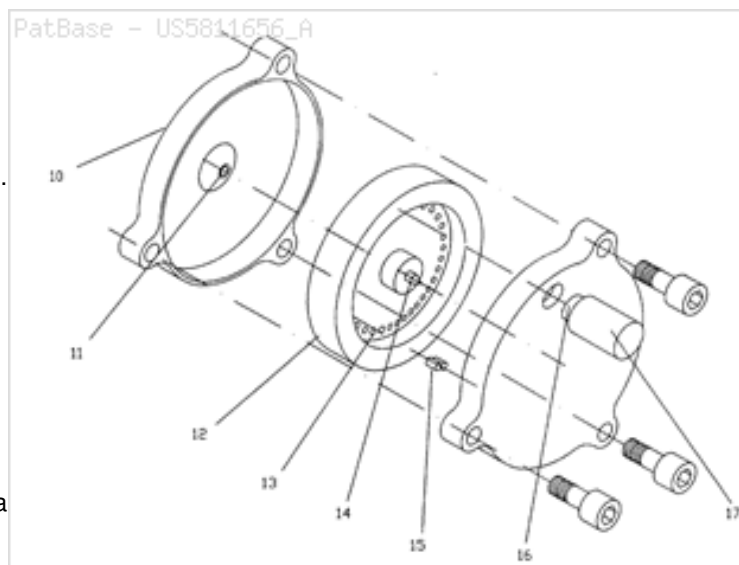
[Classification Explorer](#)

Cited documents: US5217087 A, US4922390 A, US4870545 A, US4868720 A, US4606133 A, US4075469 A, US4024388 A, US3939339 A, US2407580 A, JP62096148 A2, JP60010109 A2, JP2068211 A2,

Forward Citations: WO9930924, WO14118188, WO06029952, US9398270, US9168970, US9108566, US8912722, US8764259, US8653681, US8640809, US8577556, US8550673, US8184278, US8070334, US8042979, US7674022, US7641372, US7556410, US7503828, US7445364, US7252419, US7244055, US7241034, US7134771, US7134771, US7055993, US6414593, US6360838, US6169496, US5798911, US5787370, US2013010483, US2012026746, US2011216310, US2011163516, US2009244920, US2009235744, US2009231869, US2008112174, US2007109801, US2007086203, US2006121824, US2006083014, US2005270785, US2005180144, US2005169001, US2005024884, US2003114974, US2003079878, TWI312848, NL1034984, EP3150434, EP3150433, EP3118439, EP3000657, EP2676872, EP2669163, EP2669116, EP2641779, EP1288069, EP1288069, AP3657,

Abstract:

Source: US5426571A A device which determines the direction and amount of tilt, lean, bank, or attitude of a vehicle relative to the road surface by means of one or more sensors which measure the return time of emitted energy reflected from the road surface. Vehicle attitude information is used to move, correct, adjust, or otherwise alter preselected vehicle parts or functions according to a predetermined combination of computer paradigms and mechanical linkages. This process can be used to adjust the headlight beam orientation in order to better illuminate the forward path of the vehicle. The headlight beam may be further adjusted according to information on vehicle speed and changes thereof. The Motorcycle Headlight Aiming Device may be used to aim a camera which is mounted to a banking vehicle. Bank angle data may also be used to switch off a turn signal mechanism, and to limit engine power at extreme angles of bank. Engine power may



also be limited when sensor data indicates front wheel lift-off.

71) Family number: 11272057 (US5240267A)

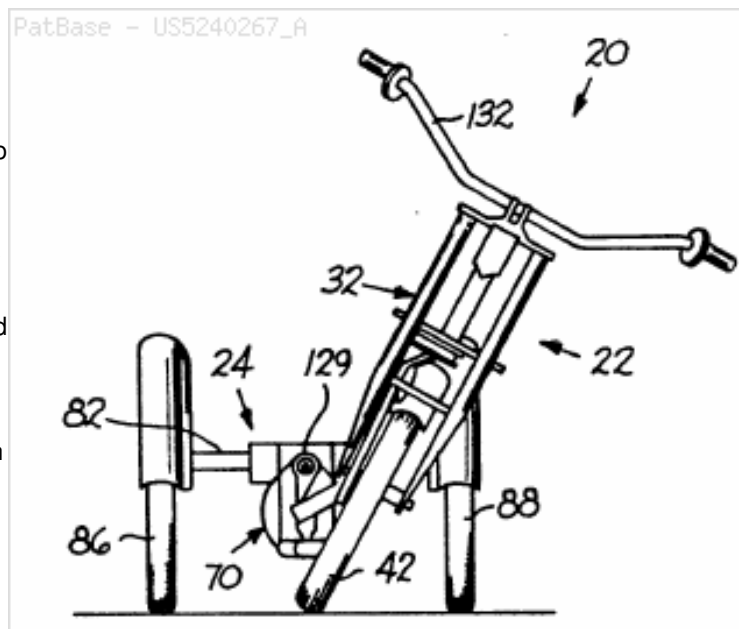
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Title: TRICYCLE**Priority:** US19910763334 19910920**Family:**

Publication number	Publication date	Application number	Application date
<u>US5240267 A</u>	19930831	US19910763334	19910920

Probable Assignee: OWSEN PETER**Assignee(s):^(std):** OWSEN PETER**Inventor(s):^(std):** OWSEN PETER**International class** B62K5/02 B62K5/04 (Advanced/Invention)
(IPC 8-9):**International class** B62K5/02
(IPC 1-7):**CPC:** B62K5/02 B62K5/10**European class:** B62K5/02 B62K5/10**US class:** 280/112.2 280/124.103 280/240 280/259 280/261 280/282 280/287[Classification Explorer](#)**Cited documents:** US4799704 A, US4789173 A, US4540192 A, US4432561 A, US3698502 A, US3583727 A, US3311388 A, FR2628055 A1, DE1298013 B,**Forward Citations:** WO14060238, USD526251, US9616636, US9598134, US9493205, US9469365, US9463839, US9457862, US9457535, US9452804, US8662513, US8226104, US7976046, US7845666, US7641207, US7591337, US7571787, US7481443, US7100929, US7063179, US6595531, US6062581, US5941548, US5730453, US2016023710, US2016023708, US2016023707, US2015054249, US2015048585, US2012061942, US2011133427, US2010283216, US2009289437, US2009224524, US2009200766, US2007205576, US2007152422, US2007007745, US2006273543, US2004040770, US2003205881, GB2484091, DE9400036, DE19511629, DE19511629, DE10237619, DE10237619, DE102004029388, DE102004029388, DE10054273, BE1012229,**Abstract:**

Source: US5240267A A tricycle (20) disclosed includes a front section (22) and rear section (24). The front section (22) is articulated with respect to the rear section (24) so that the front section (22) can be leaned with respect to the rear section (24) from a normal orientation to lean orientation. A caliper assembly (70) interconnects the front and rear sections (22,24) at the point of articulation and includes arms (72,74) which spread when the front section (22) is leaned with respect to the rear section (24). A biasing member (76) connected to the spreadable arms (72,74) biases the arms together to obviate lean orientation. The front section (22) includes a steerable drive wheel (42) including a hub (44), a central sprocket (34) spaced from the hub (44) and an endless belt (48) interconnecting the hub (44) with the sprocket (48) to provide front wheel drive unaffected by drive apparatus. Rear wheels (86,88) are adjustably spaceable by the movement of frame arms (82,84).



72) Family number: 20511607 (GB391916A)

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Title: Improvements in or relating to spring suspension systems for motor road vehicles and the like

Priority: GB19320002255 19320125

Family:	Publication number	Publication date	Application number	Application date
	<u>GB391916 A</u>	19330511	GB19320002255	19320125
	<u>GB392092 A</u>	19330511	GB19320032028	19321010

Probable Assignee: CHARLES DENNISTOUN BURNEY

Assignee(s):^(std): CHARLES DENNISTOUN BURNEY

International class B60G11/00 B60G11/02 (Advanced/Invention);
(IPC 8-9); B60G11/00 B60G11/02 (Core/Invention)

International class B62D35/00
(IPC 1-7);

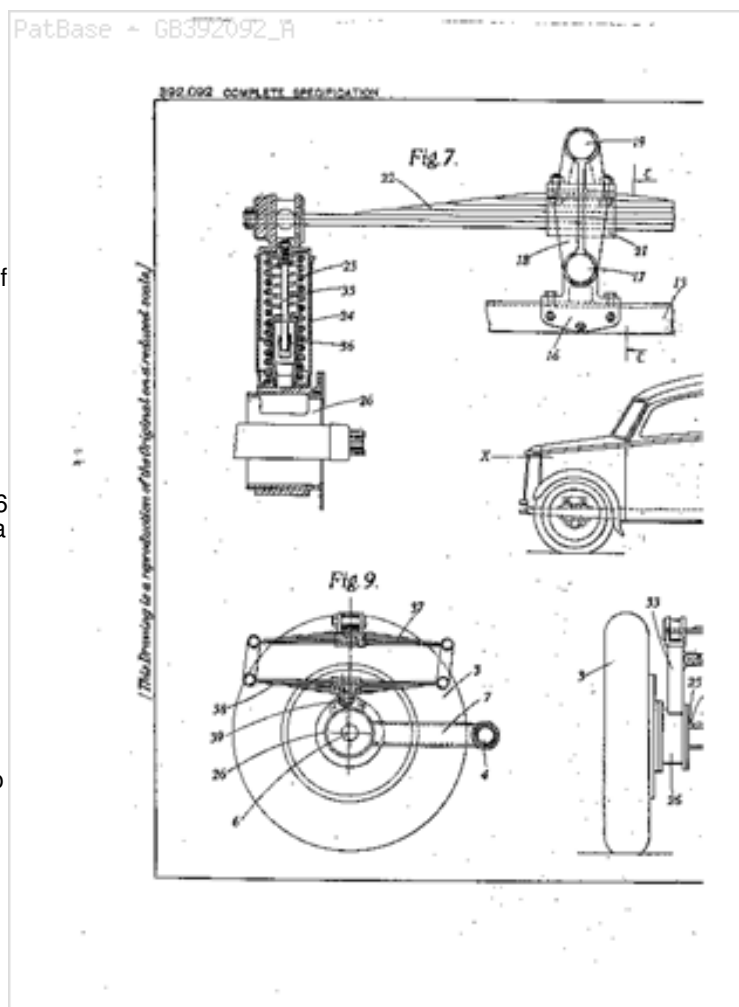
CPC: B60G11/00 B60G11/02

European class: B60G11/00 B60G11/02

[Classification Explorer](#)

Abstract:

Source: GB391916A 2255. [Class 108 (ii).] In a motor road vehicle having its engine in the vicinity of the back axle the chassis and body are supported at the rear of the vehicle by a member extending transversely across the vehicle behind the passenger space and supported at its ends by the rear wheel axle boxes or housings, the chassis being suspended from said transverse member which is elevated above the centre of gravity of the sprung mass to such a height as to define a longitudinal rolling axis for the body passing above said centre of gravity. Fig. 1 shows a car having a body 1 supported on front steering wheels 2 and rear driving wheels 3 and having a tail-piece 4 in which is mounted the driving unit. The latter comprises a differential lying between the wheels 3 and connected therewith by articulated half-axes 6 each comprising two universal joints 7, 8 and a splined sliding joint 9, Fig. 4. The rear wheel axle bearings are carried in housings 10, Fig. 1, having upwardly extending arms 11 fixed to a rigid transverse bar 12, the whole forming a rigid arched axletree. Housings 10 are located by radius rods 10a. Leaf springs 15 are clamped centrally to the ends of bar 12. The ends of springs 15 are universally jointed to forward pedestals 17a extending from the sides of frame 18 and to links 38 pin-jointed to rear pedestals 17b, respectively. Frame 18 is narrowed at its front end, Fig. 3, and carries a journal 19 rotatable in a bearing member 20 mounted upon a transverse member 21. Brackets 25 carrying king pins 26 of the wheels 2 are connected to member 21 by pin-jointed links 22 and by a laminated leaf spring 27. Spring 27 is pinjointed at its ends to downwardly extending arms of brackets 25. In a modified form of rear springing, Fig. 4, the rigid bar 12 is replaced by a spring 28 extending across the body 1 at a level above the centre of gravity and



shackled at its ends either to rigid posts up standing from axle-boxes 10 or to spring arms as shown which are rotatable on the axle-boxes 10. Axle-boxes 10 are located by forwardly extending torque arms rotatably mounted at their front ends on a transverse frame bar.

73) Family number: 21691971 (FR1222555A)

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Title: PERFECTIONNEMENTS AUX RATEAUX A ANDAINS ET AUTRES INSTRUMENTS ANALOGUES
IMPROVEMENTS TO A ANDAINS RAKES AND OTHER INSTRUMENTS LIKE (Machine translation)

Priority: 19571223 FR19580782414 19581223

Family:	Publication number	Publication date	Application number	Application date
	FR1222555 A	19600610	FR19580782414	19581223

Probable Assignee: A M BISLEY AND CO LTD

Assignee(s):^(std) A M BISLEY AND CO LTD ; A M BISLEY AND COMPANY LTD

Assignee(s): A M BISLEY AND COMPANY LIMITED

International class A01B35/16 A01B39/08 A01D78/00 (Advanced/Invention);
(IPC 8-9) A01B35/00 A01B39/00 A01D78/00 (Core/Invention)

CPC: A01B35/16 A01B39/08 A01D78/146

European class: A01B35/16 A01B39/08 A01D78/00D A01D78/14A2

[Classification Explorer](#)

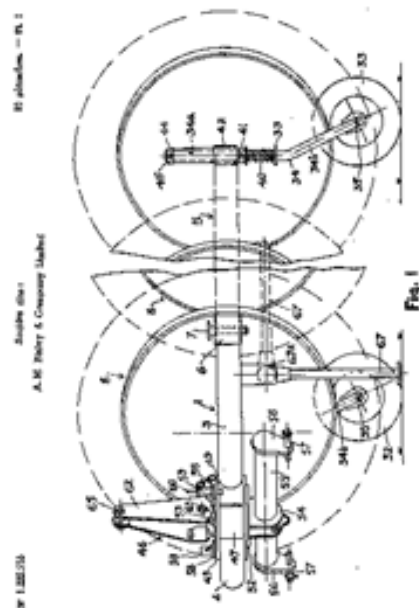
Forward Citations: DE1180988,

Abstract:

Source: FR1222555A (Claim 1) 1. Un rateau a andains ou autre instrument analogue du type de ceux comprenant des roues a dents pouvant etre mises en rotation par contact avec la recolte, comprenant un chassis pourvu de moyens permettant de le relier a l'extremite arriere d'un tracteur ou autre vehicule pour etre deplace sur le sol et portant une serie de roues a dents disposees de telle sorte que, lorsque l'instrument travaille, elles deplacent le foin ou autre matiere lateralement par rapport a la direction de deplacement de l'instrument sur le sol, le chassis etant muni d'une ou plusieurs roues porteuses ou d'un ou plusieurs patins, le dispositif de liaison au tracteur et les roues porteuses ou les patins etant places de telle sorte que le maintien de l'instrument dans la position de travail correcte par rapport au sol depende en partie de la presence des roues ou patins et en partie de la liaison du chassis au vehicule par l'intermediaire dudit dispositif.

Machine translation: (Claim 1) 1. Has a rake windrows or other similar instrument of the type comprising wheels has teeth that can be rotated by contact with the harvest, including a frame provided with means to connect it to the rear end of a tractor or other vehicle for movement on the ground and carrying a set of wheels has teeth arranged so that when the instrument works, they move hay or other material laterally relative to the direction of displacement of the instrument on the ground, frame being provided with one or more wheels or one or more skids, the connecting device to the tractor and the wheels or skids being placed so that the maintenance of the instrument in the correct working position by relative to the ground depends in part on the presence of the wheels or skids and part of the link to the vehicle chassis through said device.

PatBase - FR1222555_A



74) Family number: 7233579 (US4132435A)

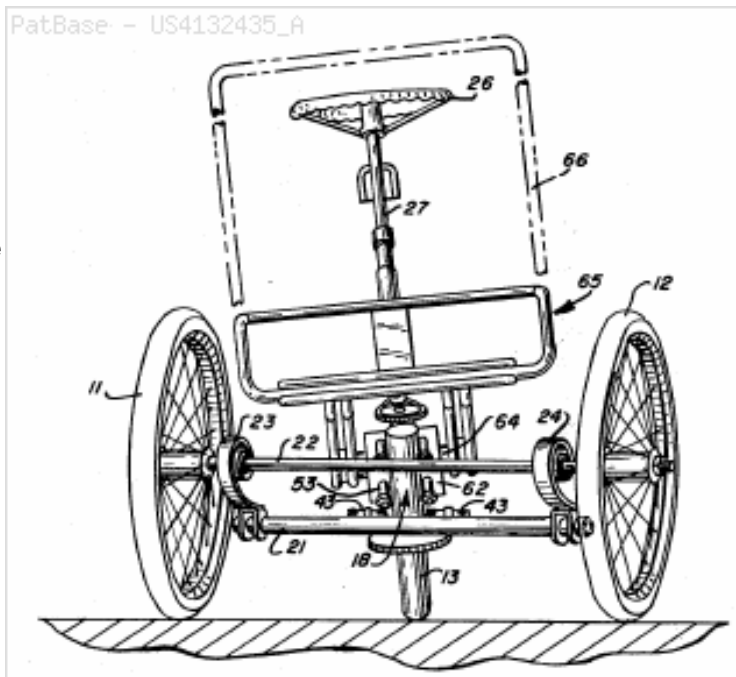
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Title: Steerable wheeled vehicle**Priority:** US19770811561 19770630

Family:	Publication number	Publication date	Application number	Application date
	<u>US4132435 A</u>	19790102	US19770811561	19770630

Probable Assignee: KEN WILSON DEPARTURES INC**Assignee(s):^(std):** KEN WILSON DEPARTURES INC**Assignee(s):** WILSON JOYCE I ; WILSON JOYCE I CHENOA IL**Inventor(s):^(std):** WILSON KENNETH L**International class** B62K5/04 (Advanced/Invention)
(IPC 8-9):**International class** B62D9/02 B62K27/06 B62K5/04
(IPC 1-7):**CPC:** B62K5/05 B62K5/10**European class:** B62K5/05 B62K5/10**US class:** 280/124.103 280/266 280/267 280/275 280/282 280/772[Classification Explorer](#)**Cited documents:** US87713 A, US625377 A, US453053 A, US4045077 A, US3753577 A, US2482472 A, US2147732 A,**Forward Citations:** WO15143523, WO10053520, WO09027597, WO08043870, US9527546, US8684377, US8430713, US8376378, US8240686, US7559576, US7152868, US6932370, US6902177, US6070894, US5730453, US5678835, US5326121, US4941673, US4863183, US4740004, US4600216, US4526392, US4523770, US4417743, US4377215, US4351406, US2015054252, US2010270765, US2010108423, US2009280718, US2008300409, US2006049597, US2005236803, US2004188977, GB2382334, GB2382334, FR2918634, FR2898860, FR2819775, ES2323916, EP0585736, DE4323120, DE3124502,**Abstract:**

Source: US4132435A A three wheeled vehicle with a pair of steerable front wheels mounted to turn on a kingpin which is inclined forwardly and upwardly. The front wheel axis is offset ahead of the kingpin. The frame tilts in the direction of turning and the vehicle may be steered either by turning the front wheels or by leaning to tilt the frame. The vehicle is driven by a single rear wheel. In one form, the vehicle has a load carrier on the frame which tilts in a turn. In another form, the load carrier is connected with the kingpin and front wheels, remaining level in a turn. The frame has an intermediate joint so that one rear portion may be assembled with different types of front portions.



75) Family number: 28620251 (US4121680A)

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Title: VEHICLES
Priority: GB19750001411 19750113 NL19740000508 19740115 US19750540824 19750114
Family:

Publication number	Publication date	Application number	Application date
DE2500857 A1	19750717	DE19752500857	19750110
FR2257484 A1	19750808	FR19750000804	19750113
FR2257484 B1	19800808	FR19750000804	19750113
FR2433452 A1	19800314	FR19790028121	19791114
FR2433452 B1	19840427	FR19790028121	19791114
GB1495991 A	19771221	GB19750001411	19750113
GB1495992 A	19771221	GB19770021194	19750113
NL7400508 A	19750717	NL19740000508	19740115
US4121680 A	19781024	US19760741950	19761115

Probable Assignee: LELY CORNELIS V D

Assignee(s):^(std): C VAN DER LELY N V TE MAASLAND ; LELY C VAN D NV ; LELY NV C VAN DER ; VAN DER LELY NV NL ; LELY CORNELIS V D ; VAN DER LELY NV

Assignee(s): LELY NV VAN D ; LELY NL NV VAN D ; LELY CORNELIS VAN D ; VAN DER LELY CORNELIS ; VAN DER LELY NV C ; CVAN DER LELY NV ; LELY C NV VAN D ; C VAN D LELY TE MAASLAND NV ; C VAN DER LELY N V

Inventor(s):^(std): LELY CORNELIS VAN D ; LELY CORNELIS VON DER ; VAN DER LELY CORNELIS

Inventor(s): DER LELY CORNELIS VON

International class
 (IPC 8-9): [B60K17/10](#) [B60R21/13](#) [B62D49/02](#) [B62D49/06](#) [B62D53/02](#) [B62D61/10](#)
[B62D61/12](#) (Advanced/Invention) ;
[B60K17/10](#) [B60R21/13](#) [B62D49/00](#) [B62D53/00](#) [B62D61/00](#) (Core/Invention)

International class
 (IPC 1-7): [B60K17/28](#) [B60K17/34](#) [B62D49/00](#) [B62D61/10](#)

CPC: [Y10S180/90](#) [B60R21/131](#) [B60K17/10](#) [B62D49/02](#) [B62D49/0621](#) [B62D53/028](#) [B62D61/10](#)
[B62D61/12](#)

European class: [B60K17/10](#) [B60R21/13B](#) [B62D49/02](#) [B62D49/06D](#) [B62D53/02F](#) [B62D61/10](#) [B62D61/12](#)

US class: [180/12](#) [180/24](#) [180/24.01](#) [180/53.1](#) [180/53.3](#) [180/900](#) [280/81.5](#)

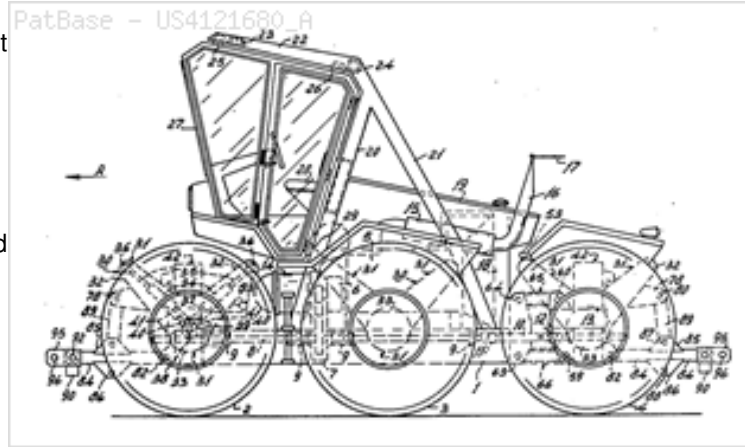
[Classification Explorer](#)

Cited documents: US3921742 A, US3899039 A, US3630302 A, US3446175 A, US3353618 A, US3351037 A, US3294418 A, US3185324 A, US3183991 A, US3170715 A, US3161172 A, US3105705 A, US3099460 A, US3086618 A, US2763331 A, US2544521 A, US2529159 A, US2527343 A, US2482976 A, US2370866 A, US1785124 A, IT618649 A, FR78002 E, FR32064 E, FR2103955 A5, FR2071265 A5, FR1293181 A, FR1197800 A, FR1058867 A, AT166982 B,

Forward Citations: WO13026136, US8534412, US7669675, US6752228, US6048161, US5290201, US4754826, US4523656, US4291946, US4186811, US2011175336, US2006144970, US2003015363, FR2893298, FR2521941, FR2458420, FR2434074, FR2387155, FR2387155, FR2307694, FR2307694, EP0945397, EP0945396, EP0945395, EP0087202, EP0087201, EA015430,

Abstract:

Source: US4121680A According to the present invention, there is provided a vehicle having, viewed from the side, at least three ground wheels arranged one behind the other with respect to the direction of forward travel of the vehicle, and at least one lifting device. At least one of said ground wheels is interconnected with another wheel by a freely pivotable quadrangular structure that is in front or behind said one ground wheel with respect to the direction of forward travel.



76) Family number: 20552722 (US2911230A)

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Title: RECIPROCAL SUSPENSION SYSTEM WITH HYDRAULIC TRANSMISSION
Priority: 19560605 US19570662198 19570528 DE1957R021267 19570601

Family:	Publication number	Publication date	Application number	Application date
	DE1121484 B	19620104	DE1957R021267	19570601
	FR1151204 A	19580127		19560605
	GB857670 A	19610104	GB19570016258	19570522
	US2911230 A	19591103	US19570662198	19570528

Probable Assignee: RENAULT

Assignee(s):^(std): RENAULT

Assignee(s): REGIE NATIONALE DES USINES RENAULT

Inventor(s):^(std): LUCIEN PERAS

Inventor(s): PERAS LUCIEN

International class
 (IPC 8-9): [B60G21/06](#) (Advanced/Invention);
[B60G21/00](#) (Core/Invention)

International class
 (IPC 1-7): [B60G11/32](#) [B60G19/02](#) [B60G19/06](#) [B60G19/10](#)

CPC: [B60G21/06](#)

European class: [B60G21/06](#)

US class: [280/104](#) [280/5.504](#)

[Classification Explorer](#)

Cited documents: US1071547 A, FR511468 A, DE905096 A, DE881054 A, DE662850 A, DE32287 A,

Forward Citations: US8777543, US3363913, US3153425, US2012121368, US2010012646, FR2708529, DE1285899, DE10349655,

Abstract:

Source: GB857670A 857,670. Road vehicle spring suspensions. REGIE NATIONALE DES USINES RENAULT. May 22, 1957 [June 5, 1956], No. 16258/57. Class 108(2) In a vehicle suspension system the front and rear wheels on the same side of a vehicle are hydraulically interconnected, through pistons 3, Fig. 1, cylinders 1, or a central cylinder 7. The cylinder 7, Fig. 2, houses a compression spring 5 between pistons 6 which transmit pressure from the road wheels, and a rebounddamping cylinder and piston 16, 15 which allows relatively free compression and damped expansion of the spring 5. Return springs 8 assist in maintaining the system in balanced condition. Spring compression may be retarded if necessary by an orifice 14 in a non-return valve 13. In the embodiment shown in Fig. 3, partial choking of the pipe lines to the front axles is provided during braking by brake actuated pistons 18, Figs. 2, 3, thus stiffening the front suspension and, preventing longitudinal tilting of the vehicle body. A branch pipe 20 and a gaged valve 21 limit the stiffness in case the brakes are applied whilst traversing rough ground. The lateral assemblies may be connected by pipe line 22, Fig. 4. A valve 23, controlled either mechanically or by an inertial weight, closes the pipe 22 when the vehicle body is laterally inclined beyond a predetermined limit. The two lateral assemblies may be connected at both front and rear, by pipes 24, Fig. 5, each having a rolling movement corrector. When a valve 34 is actuated, in the same way as the valve 23, fluid is supplied under pressure through a pipe 37 to either end compartment 29 or 29'. This pressure acting on either piston 28 or 28' moves a three piston assembly 28, 26, 28', connected by a rod 30, either right or left, to close a passage 36 between suspension cylinders 7. During this movement a piston 26 draws fluid from one of suspension cylinders 7 and forces the same quantity into the opposite cylinder 7. The action of the valve 34 is so arranged that this transfer tends to correct the lateral canting of the vehicle. Springs 35, 35' restore the piston 26 to its rest position when lateral canting has ceased. The suspension spring may be divided into two halves 38, 38', Fig. 6, which bear against a flange 39 carried by a bellows 40. Application of the brakes causes shoes 41 to press against the bellows 40 to lock them, thus suppressing interaction between front and rear axles. Body height may be adjusted, the necessary fluid control valve being opened and closed manually or electromagnetically. A pair of pointers may be provided on the instrument panel which register with each other and close the levelling valve when the vehicle body is horizontal or parallel with the ground. The levelling valve is locked closed when the vehicle is in motion.

PatBase - US2911230_A

Nov. 3, 1959

L. PERAS

2,911,230

RECIPROCAL SUSPENSION SYSTEM WITH HYDRAULIC TRANSMISSION

Filed May 28, 1957

3 Sheets-Sheet 1

FIG. 1

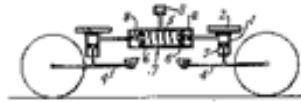


FIG. 2

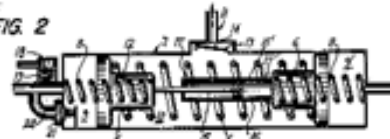


FIG. 2A

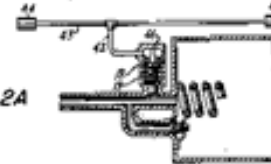


FIG. 3

DIVISION
LUCIEN PERASBY Robert C. Dunn
ATTORNEY

77) Family number: 43656004 (CO4840520A)

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Title: MOTOCICLETA MOTORCYCLE (Machine translation)**Priority:** CO19980052674 19980914

Family:	Publication number	Publication date	Application number	Application date
	<u>CO4840520 A1</u>	19990927	CO19980052674	19980914

Probable Assignee: HONDA MOTOR CO LTD**Assignee(s):^(std):** HONDA MOTOR CO LTD**Assignee(s):** HONDA GIKEN KOGYO KABUSHIKI KAISHA ; HONDA GIKEN KOGYO KK**Inventor(s):^(std):** KAORU WACHIGAI ; TAKUSHI MATSUTO**Inventor(s):** WACHIGAI KAORU ; MATSUTO TAKUSHI**Agent(s):** HUMBERTO RUBIO CAMACHO

International class B62K11/04 B62M7/02 (Advanced/Invention);
^{(IPC 8-9):} B62K11/00 B62M7/00 (Core/Invention)

International class B62K11/04 B62M7/02
^{(IPC 1-7):}

[Classification Explorer](#)**Abstract:**

Source: CO4840520A 1.– Una motocicleta en la que se han previsto un motor de combustion y un motor electrico como unidad de potencia, y una salida del motor de combustion y una salida del motor electrico se transmiten a una rueda motriz mediante un eje de transmision y un eje de motor electrico, respectivamente, caracterizada porque dicho eje de transmision y dicho eje de motor electrico estan dispuestos coaxialmente en serie en la direccion longitudinal de una carroceria del vehiculo y en paralelo a un cigueñal del motor de combustion. Una motocicleta segun la reivindicacion 1, caracterizada porque dicho eje de transmision soporta un embrague unidireccional y un eje de embrague que soporta un embrague unidireccional para un motor de arranque, y se ha previsto un embrague centrifugo integralmente con dicho eje de transmision. Una motocicleta segun la reivindicacion 1, caracterizada porque dicha unidad de potencia esta montada de forma oscilante, junto con una rueda trasera, en un bastidor principal. 1. A motorcycle in which are provided a combustion engine and an electric motor as power unit, and an output of the combustion engine and electric motor output is transmitted to a drive wheel via a drive shaft and electric motor shaft, respectively, wherein said drive shaft and said electric motor shaft are coaxially arranged in series in the longitudinal direction of a vehicle body and parallel to a cigueñal combustion engine. A motorcycle according to claim 1, wherein said drive shaft supports a one-way clutch and a clutch shaft that supports a one-way clutch for a starter, and a centrifugal clutch is provided integrally with said transmission shaft. A motorcycle according to claim 1, wherein said power unit is swingably mounted, together with a rear wheel, on a main frame.

78) Family number: 1434684 (US4504041A)

© PatBase

Title: Wheeled lifting apparatus

Priority: IL19800061482 19801114 IL19800061482 19801114 IL19810061881 19810108
 IL19810063585 19810817 IL19810063585 19810817 IL19810063586 19810817

Family:

Publication number	Publication date	Application number	Application date
<u>AU198177482 A1</u>	19820520	AU19810077482	19811113
<u>AU552343 B2</u>	19860529	AU19810077482	19811113
<u>BE891109 A1</u>	19820301	BE19810206535	19811113
<u>DE3144621 A1</u>	19820909	DE19813144621	19811110
<u>FR2497184 A1</u>	19820702	FR19810021409	19811116
<u>GB2088327 A1</u>	19820609	GB19810034303	19811113
<u>GB2088327 B2</u>	19850710	GB19810034303	19811113
<u>GR76322 B</u>	19840804	GR19810166501	19811111
<u>IL61482 A0</u>	19801231	IL19800061482	19801114
<u>IL61482 A1</u>	19860228	IL19800061482	19801114
<u>IL61881 A0</u>	19810227	IL19810061881	19810108
<u>IL63585 A0</u>	19811130	IL19810063585	19810817
<u>IL63586 A0</u>	19811130	IL19810063586	19810817
<u>IT1139707 A</u>	19860924	IT19810025035	19811112
<u>IT8125035 A0</u>	19811112	IT19810025035	19811112
<u>JP57112299 A2</u>	19820713	JP19810182950	19811113
<u>KR830007423 A</u>	19831021	KR19810004381	19811113
<u>NL8105137 A</u>	19820601	NL19810005137	19811113
<u>NZ198960 A</u>	19850816	NZ19810198960	19811113
<u>SE8106758 A</u>	19820515	SE19810006758D	19811113
<u>SE8106758 L</u>	19820515	SE19810006758	19811113
<u>US4504041 A</u>	19850312	US19810321313	19811113
<u>ZA8107634 A</u>	19830126	ZA19810007634	19811105

Probable Assignee: MICHUN BINYAN LTD

Assignee(s):^(std): DAN RATSU ; DAN RAZ ; ELECTRA MIKUN IND LTD ; ELECTRA MIKUN TAASIYOT LTD ; EREKUTORA MIKUMU IND LTD ; RAZ D ; RAZ DAN ; MICHUN BINYAN LTD ; RAZ DAN A HAIFA ISRAELE

Assignee(s): RAZ D ELECTRA MIKUN IND LTD ; RAZ D ELECTRA MIKUN INDUSTRIES LTD ; ELECTRA MIKUN INDUSTRIES LTD ; ELECTRA MILKUN (INDUSTRIES) LTD A CO OF ISRAEL ; ELECTRA MIKUN IND LTD RAZ D ; ELECTRA MILKUN LTD ; ELECTRA MIKUN IND ; ELECTRA MIKUN INDUSTRIES LTD ; ELECTRA MIKUN INDUSTRIES LTD RAZ D ; DAN RAZ TE HAIFA EN ELECTRA MIKUN IND LTD ; DAN RAZ TE HAIFA EN ELECTRA MIKUN INDUSTRIES LTD TE TEL AVIV ISRAEL

Inventor(s):^(std): DAN RAZ ; RAZ DAN ; RAZ D ; DAN RATSU

Inventor(s): D RAZ

Agent(s): WATERMARK PATENT AND TRADE MARKS ATTORNEYS; WATERMARK INTELLECTUAL PROPERTY PTY LTD; SANFORD TCOLB AND CO

International class B60P1/02 B66F7/06 (Advanced/Invention);
^{(IPC 8-9):} B60P1/02 B66F7/06 (Core/Invention);
B60B B66F (Subclass/Invention)

International class B60B33/00 B60P1/02 B62D1/02 B62D1/16 B66F3/22 B66F5/02 B66F7/06 B66F9/06
^{(IPC 1-7):} B66F9/065 B66F9/18 F16M11/04 F16M11/20

CPC: B66F7/0625 B66F7/065

European class: B66F7/06 B66F7/06M B66F7/06X

US class: 254/122 254/9.00R 254/9R

[Classification Explorer](#)

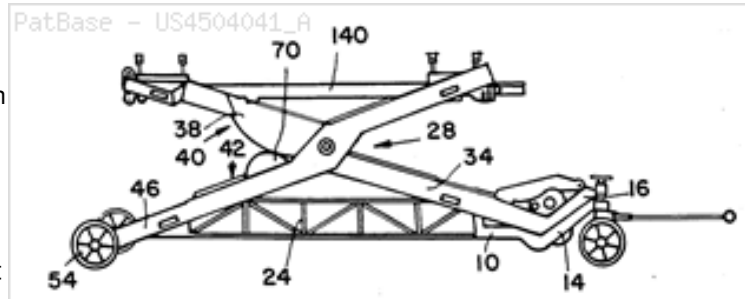
Cited documents: US4269424 A, US4180252 A, US3556481 A, US3172501 A, US2874805 A, US1797830 A, FR747085 A, FR1508001 A,

Forward Citations: WO0068597, US9296596, US6962074, US6865802, US6814188, US2016060084, US2004197181, EP1181468, EP0185891,

Abstract:

Source: US4504041A Lifting apparatus and a wheeled vehicle upon which it can be mounted. There is provided in accordance with an embodiment of the present invention lifting apparatus comprising a scissors mechanism including scissor arms having formed thereon a curved cam path, a cam disposed between the scissor arms for engagement therewith and selectable separation thereof for producing lifting motion thereof, a load support mounted onto the scissor arms and apparatus

for selectably tilting the load support with respect to the scissors mechanism. There is further provided in accordance with an embodiment of the present invention a wheeled vehicle comprising a base and a plurality of wheel assemblies supporting the base on a generally horizontal surface, at least one of the plurality of wheel assemblies comprising a castor assembly including a wheel rotatably mounted on a wheel mounting and apparatus for connecting the wheel mounting to the base and defining first and second axes of rotation, and preferably wherein at least one of the plurality of wheel assemblies comprises a steering wheel rotatably mounted onto a wheel mounting and steerable apparatus rotatably coupling the wheel mounting onto the base and permitting steering over at least 180 DEG of arc.



79) Family number: 15348220 (US4632630A)

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Title: FORKLIFT ATTACHMENT**Priority:** CA19840453336 19840502 US19830491071 19830503 US19840603185 19840420**Family:**

Publication number	Publication date	Application number	Application date
<u>CA1239620 A1</u>	19880726	CA19840453336	19840502
<u>DE3416394 A1</u>	19841220	DE19843416394	19840503
<u>FR2545468 A1</u>	19841109	FR19840006879	19840503
<u>GB2144096 A1</u>	19850227	GB19840011376	19840503
<u>GB2144096 B2</u>	19870114	GB19840011376	19840503
GB8411376 A0	19840606	GB19840011376	19840503
<u>US4632630 A</u>	19861230	US19840603185	19840420

Probable Assignee: JLG OMNIQUIP INC DELAWARE**Assignee(s):^(std):** KOEHRING CO

Assignee(s): FIRST WISCONSIN FINANCIAL CORP ; JLG ACQUISITION CORP ; JLG OMNIQUIP INC ; KOEHRING COMPANY ; JLG ACQUISITION (DELAWARE) CORP ; JLG OMNIQUIP INC (DELAWARE) ; KOEHRING CO A CORP OF DE ; JLG ACQUISITION CORP ; HOMANN HERBERT ; JLG ACQUISITION DELAWARE CORP ; JLG OMNIQUIP INC DELAWARE ; TRAK INTIONAL ; TRAK INT ; WOOLSEY GEORGE ; KOEHRING CY ; TRAK INT INC ; MAKI CLYDE M ; BOATMEN S NATIONAL BANK OF ST LOUIS AGENT AS ; BOATMEN'S NATIONAL BANK OF ST LOUIS AGENT AS ; BOATMEN'S NATIONAL BANK OF ST LOUIS AS AGENT ; BOATMEN'S NATIONAL BANK OF ST LOUIS AS AGENT ; FIRST WISCONSIN FINANCIAL 622 NORTH CASS STREET MI ; FIRST WISCONSIN FINANCIAL 622 NORTH CASS STREET MILWAUKEE WISCONSIN 53074 A DE DOMESTIC CORP CORP

Inventor(s):^(std): HOMANN HERBERT ; MAKI CLYDE M ; MAKI CLYDE MATTHEW**Inventor(s):** MATTHEW MAKI CLYDE ; CLYDE MATTHEW MAKI ; CLYDE MATTHEW MAKI ET HERBERT HOMANN ; HERBERT HOMANN**Agent(s):** MARKS AND CLERK

International class B66F9/06 B66F9/065 B66F9/12 B66F9/14 (Advanced/Invention) ;
^{(IPC 8-9) :} B66F9/065 B66F9/12 (Core/Invention)

International class B66F9/00 B66F9/06 B66F9/12 B66F9/16 E02F3/36
^{(IPC 1-7) :}

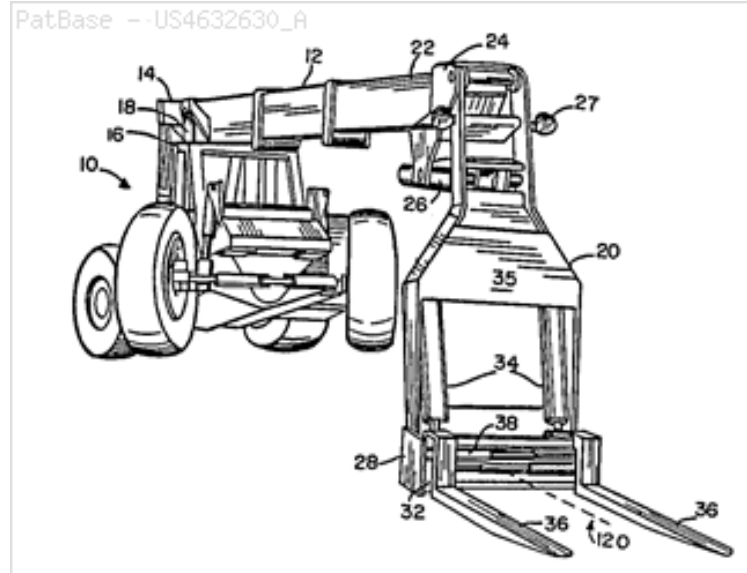
CPC: B66F9/0655 B66F9/12 B66F9/144**European class:** B66F9/065T B66F9/12 B66F9/14 B66F9/14F2**US class:** 414/671 414/700 414/718[Classification Explorer](#)

Cited documents: WO8102885 A1, US4381166 A, US4289442 A, US4159059 A, US3424328 A, US3407947 A, US3312361 A, US3133653 A, US30021 A, US2876921 A, GB1590709 A, GB1554675 A, GB1525923 A, GB1402307 A, FR2287413 A1, DE8125815 U,

Forward Citations: WO9429211, WO8900972, WO07012115, US9522816, US8693492, US8545147, US8322956, US8139600, US7684429, US7383906, US6336565, US6132164, US6056503, US5749696, US5437531, US5199861, US5176485, US5174708, US5088873, US5046914, US5036952, US4964778, US4957408, US4938652, US4822237, US4718814, US2004040137, US2003234721, GB2323832, GB2253830, GB2206853, GB2157651, EP1024108, EP0869100, EP0816282, EP0410082, EP0346292, CN105060179, CN104973543,

Abstract:

Source: US4632630A A fork extension attachment for a boom-type forklift for use in loading and unloading a fragile cargo from commercial containers includes an extension portion pivotally connected to the outer end of the boom to allow pivotal movement of the extension in a vertical plane and a fork assembly having its inner end pivotally connected to the outer end of the extension portion to allow pivotal movement of the fork assembly in a vertical plane. The fork assembly includes at least two tines that are mounted for powered horizontal lateral movement relative to each other and relative to the longitudinal axis of the assembly. An electrical pendulum switch is provided for maintaining the fork assembly in a substantially horizontal position when desired.



0) GB655670A – MINING APPARATUS

80) Family number: 19577941 (GB655670A)

© PatBase

Title: Mining apparatus

Family:	Publication number	Publication date	Application number	Application date
	<u>GB655670 A</u>	19510801	GB19470022052	19470808

Probable Assignee: JOY MFG CO

Assignee(s):^(std): JOY MFG CO

Assignee(s): JOY MANUFACTURING COMPANY

International class E21C31/00 (Advanced/Invention);
(IPC 8-9): E21C31/00 (Core/Invention)

International class E21C25/24
(IPC 1-7):

CPC: E21C31/00

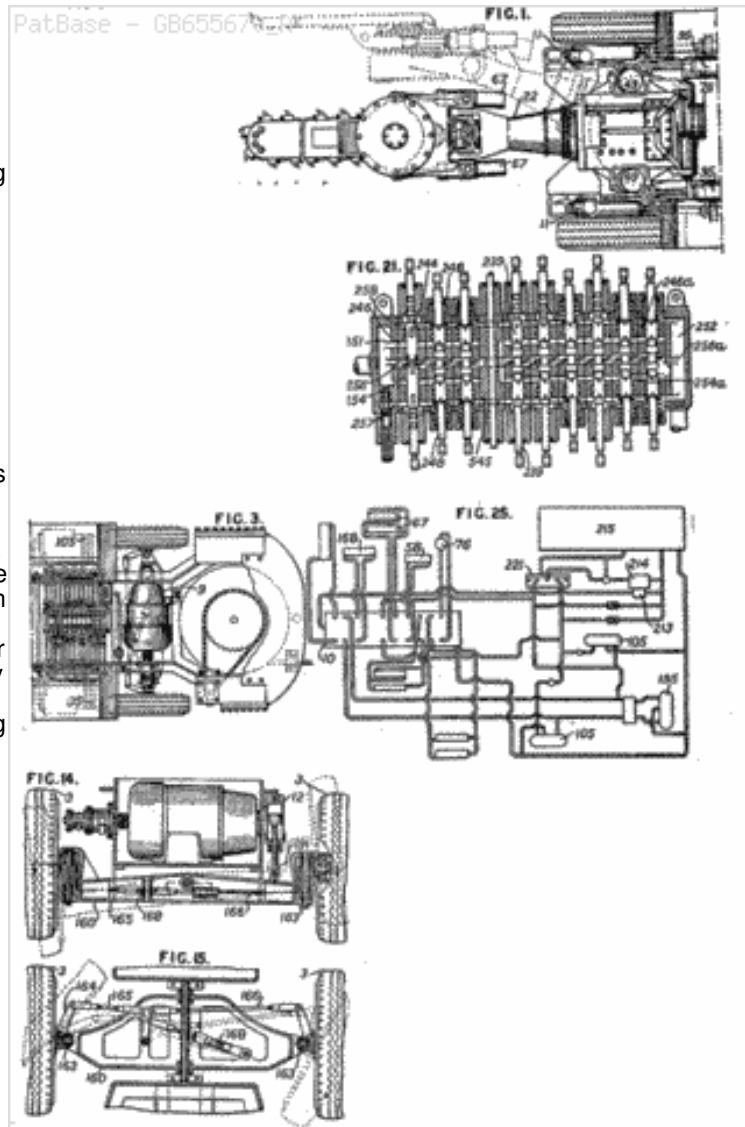
European class: E21C31/00

[Classification Explorer](#)

Forward Citations: GB2145676, DE943342,

Abstract:

Source: GB655670A [Classes 79 (ii) and 79 (v)] [Also in Group XXI] In a mining machine having a portable base adapted to travel over the floor of the mine, there is provided power operated propelling means, power operated steering means, and mechanism for controlling the supply of motive power from a source of motive power to both of said power operated means, said mechanism including a control device for controlling the supply of power to said steering means, a control device for controlling the supply of power to said propelling means, and means whereby the operation of said steering control device for supplying power to said steering means will prevent the supply of motive power from said source to said propelling means. The axles of the front ground wheels are mounted in frames pivotally secured to the chassis, the setting of the frames being controlled by motors 11 and each wheel is driven by a motor 105 through a dual speed gear box and suitable shafting. The rear road wheels, 3 are used for steering, each being mounted in a carrier 191 that rotates about a vertical shaft 163 mounted at the outer ends of a transverse beam 160 that is pivotally secured to the chassis and adjustably locked relative to said chassis by a motor 12. Steering is done by a motor 168 acting through a linkage 165, 166 on each axle carrier. A motor 9 drives two liquid pumps, one a high capacity pump 214 and the other a low capacity pump 213. The pump 214 delivers into a manual valve from which flow may be directed back to the sump 215 or, depending on its setting, to motors 105 to drive them in one direction or the other. The low capacity pump 214 feeds a manually operated valve chest 10 which controls the various operating motors of the machine and in addition may be used to supply fluid to motors 105 in conjunction with pump 214, or when valve 221 is closed, may supply power to these motors alone. The supply from this low capacity pump is delivered into a chamber 251 of the multiple valve box 10 containing a plurality of two-way valves. From this chamber 251 the fluid is delivered into three supply passages 246, 256, and 254. The box is divided into two sections by a block 545 and liquid can be supplied to the right-hand side of the box, which also has three supply passages 246a, 256a, and 254a, through the passages 256 and 546 only as long as any valve on the left-hand side, other than valve 244, is not supplying liquid to the motor which it controls. Exhaust passages 258, 257 pass through each block to a chamber 252 connected to the reservoir. The valve 239 can direct fluid to the motors 105 by valve 248. The Specification as open to inspection under Sect. 91 comprises also an alternative valve chest assembly which forms part of the subject-matter of Specification 655,717, [Group XXI], which is referred to. This subject-matter does not appear in the Specification as accepted.



81) Family number: 26149356 (GB850121A)

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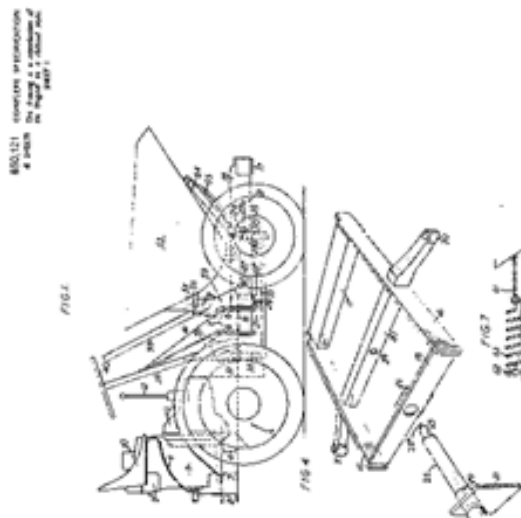
Title: Improvements in or relating to dumpers and similar tipping vehicles**Priority:** GB19580013300 19580426**Family:**

Publication number	Publication date	Application number	Application date
<u>CH377208 A</u>	19640430	CH19590072549	19590425
<u>GB850121 A</u>	19600928	GB19580013300	19580426

Probable Assignee: C H JOHNSON MACHINERY LTD**Assignee(s):^(std):** C H JOHNSON MACHINERY LIMITED ; C H JOHNSON MACHINERY LTD**Inventor(s):^(std):** BRIAN BURTON DEARDEN ; DEARDEN BRIAN BURTON ; WRIGHT FRANK JAMES**Inventor(s):** BURTON DEARDEN BRIAN**International class**
(IPC 8-9): B60G9/02 B60P1/04 B60P1/28 (Advanced/Invention);
B60G9/00 B60P1/04 (Core/Invention)**International class**
(IPC 1-7): B60P1/04**CPC:** B60G9/02 B60P1/04 B60P1/28**European class:** B60G9/02 B60P1/04 B60P1/28[Classification Explorer](#)**Abstract:**

Source: GB850121A 850,121. Tipping vehicles. JOHNSON (MACHINERY) Ltd., C. H. Feb. 20, 1959 [April 26, 1958], No. 13300/58. Classes 79(2), 79(3), 79(4) and. 79(5). The chassis of a tipping vehicle is constructed in two parts which are movable relative to one another about a central longitudinal axis. The rear portion, which comprises the frame structure 1, 2, 3, 4, 5, 6 upon which is mounted the engine 9, gear box 13, and a belt drive 43, is mounted upon the rear axle casing 14. A stepped cylindrical member 22 extends forwardly from and is secured to the box girder 5, 6, 7, 8 of the rear frame through plates 21 and the front portion, which comprises the frame structure 16, 17, 18, 19 and the front axle beam 20, is pivotally mounted thereon as seen in section in Fig. 5, a block 26 attached to the frame member 18 being bushed to provide a rear bearing and a front bearing bush 24 being provided in the axle beam 20. The driver's seat 10 and a steering column 39 is mounted upon the rear portion and the steering mechanism comprises the worm gear 37, 38, drop arm 36 and linkages 35, 34, 32, 33, the steerable front wheels being pivoted to the axle beam at 30. The skip 53 is retained in the position shown in Fig. 1 by the latch mechanism 57, 56 operated by the handle 58 and can roll to a tipping position upon members 55 rolling upon the frame members 16 under the lateral restraint of pivoted arms 54. The drive mechanism, Fig. 6, comprises an output shaft 42 from the gear box upon which is mounted a smaller pulley 44 upon roller bearings 45 carried by a stub shaft 46, and which belt drives a larger pulley 47 bolted to a flange 48 on the input shaft 15 of the differential gearing. The flange 51 of the pulley

PatBase - GB850121_A



47 extends partly over the differential casing and the pulley is supported upon a bearing upon a stub shaft 50. The pulleys and belt are enclosed within a casing 43.

0) WO10034857A1 – STEERING AND SUSPENSION ASSEMBLY FOR THE FRONT ...

82) Family number: 44606459 (WO10034857A1)

© PatBase

Title: STEERING AND SUSPENSION ASSEMBLY FOR THE FRONT TRAIN OF A TWO-WHEEL VEHICLE

Priority: ES20080002698 20080923

Family:	Publication number	Publication date	Application number	Application date
	ES2335335 AA	20100324	ES20080002698	20080923
	ES2335335 BA	20110103	ES20080002698	20080923
	WO10034857 A1	20100401	WO2009ES00465	20090923

Probable Assignee: ARCO DESIGN AND PROJECTS S L

Assignee(s):^(std): BELTRAN CARRION CARLOS ; GARCIA MONZON ALONSO ROBERTO ; GONZALEZ DE CHAVES FERNANDEZ P ; ARCO DESIGN AND PROJECTS S L

Assignee(s): ARCO DESIGN AND PROJECTS SL ; GONZALEZ DE CHAVES FERNANDEZ PABLO

Inventor(s):^(std): GONZALEZ DE CHAVES FERNANDEZ PABLO ; GARCIA MONZON ALONSO ROBERTO ; BELTRAN CARRION CARLOS

Inventor(s): CARLOS BELTRAN CARRION ; PABLO GONZALEZ DE CHAVES FERNANDEZ ; ROBERTO GARCIA MONZON ALONSO

Agent(s): DE JUSTO V MARIO ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class [B62K21/00](#) [B62K25/00](#) (Advanced/Invention);
(IPC 8-9): [B62K21/00](#) [B62K25/00](#) (Core/Invention)

CPC: [B62K25/24](#) [B62K21/00](#) [B62K25/00](#)

European class: [B62K21/00](#) [B62K25/00](#) [B62K25/22](#)

[Classification Explorer](#)

Cited documents: WO0075002, US6263994, US5417305, US5042609, US4265329, DE4126761, DE4125300,

Abstract:

Steering and suspension assembly for the front train of a two-wheel vehicle, which comprises: handlebars; vertical shock absorber; front wheel hub with CHS device; front vertical axle with axle eccentricity adjustment section; essentially horizontal bottom pivot and top pivot, forming a pivoting unit with said front axle; steering shaft joined at its bottom end to said CHS device and at its top end to said handlebars, hinged with the chassis, having a top part divided into at least two portions and a bottom part with shaft eccentricity adjustment section, the eccentricity of which is less than the eccentricity of said axle adjustment section; said front axle having top and bottom through-holes through which said steering shaft extends, and a seat adjacent to its bottom end for receiving the bottom end of said front axle.

PatBase - W010034857_A1

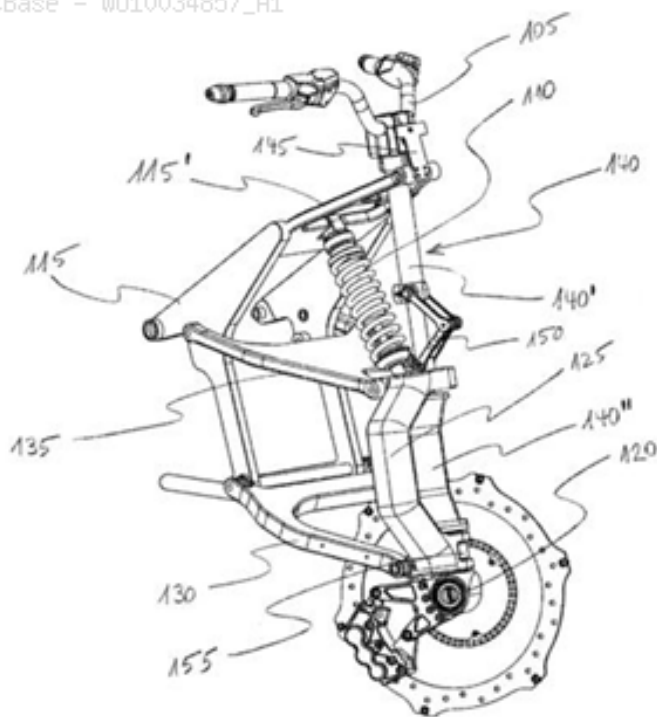


Fig. 2

Family:

Publication number	Publication date	Application number	Application date
BRPI0703928 A	20081104	BR2007PI03928	20070321

Inventor(s): DOMINGOS ROBERTO

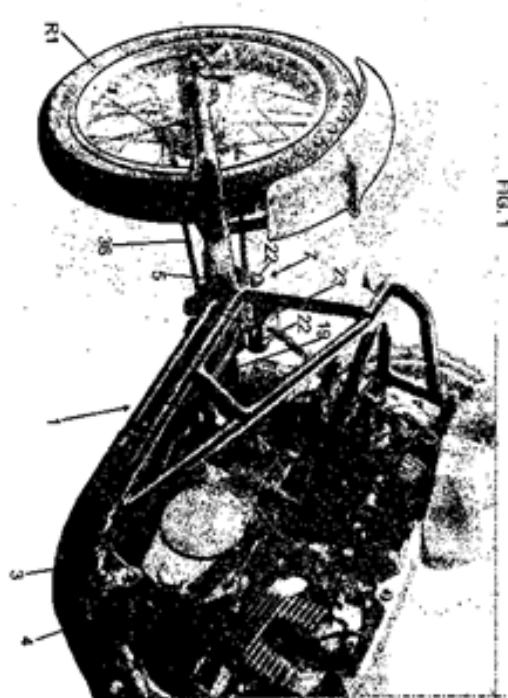
International class B62D61/08 B62K5/02 (Advanced/Invention);
(IPC 8-9): B62D61/00 B62K5/00 (Core/Invention)

Abstract:

Source: BRPI0703928A | . 1/-1..

?710>o3<7<|«"i"» RESUMO "TRICICLO COM MONO AMORTECEDOR E SUSPENSÃO PENDULAR", particularmente de um triciclo que se mostra realmente diferenciado em sua construção e forma de atuação de seu sistema de suspensão, adotando o chamado sistema pendular. Consiste de um triciclo motorizado composto de um chassi (1) que sofre algumas alterações do chassi original de uma motocicleta, sendo que a invenção mantém a roda dianteira (2) e os seus demais componentes, como o guidão (3), alterado ou não, sendo que o chassi (1) possui uma parte anterior mais larga (4), destacando-se por contemplar 10 movimento pendular através de balancas laterais (6) e balancim (10), ditas balancas laterais (6) receptoras mancais (7), os quais possuem os eixos centralizados com os eixos de tração (19) previstos nas saídas de uma caixa de câmbio auxiliar (15), a qual possibilita, por meio de um braço de posicionamento (16), que o triciclo se movimenta para frente ou em marcha a ré; o triciclo pode 15 operar em duas condições: com o dispositivo de bloqueio acionado limita o movimento de inclinação lateral das balancas (6) preservando sua capacidade de carga e movimento; com o dispositivo de bloqueio liberado libera o movimento da inclinação lateral das balancas (6) preservando sua capacidade de carga e movimento; o balancim (10) recebe centralmente o mono amortecedor 20 central (9). |. 1 / -1.. ? 10 and gt; o3 and lt; 71 'i' " i "SUMMARY" TRICYCLE WITH MONO SHOCK AND SUSPENSION PENDULUM ", particularly a tricycle that actually shows different in their construction and mode of operation of your suspension system, 5 adopting the so-called pendulum system. It

consists of a motorized tricycle consists of a chassis (1) undergoes some changes from the original chassis of a motorcycle, and the invention holds the front wheel (2) and its other components, such as the handlebars (3), modified or not, and the chassis (1) has a wider front (4), distinguished by contemplating 10 swinging through lateral scales (6) and beam (10), said lateral scales (6) bearing receiver (7), which have axes centered on the axes of traction (19) provided at the outputs of an auxiliary gearbox (15), which allows, by means of a positioning



arm (16), that the tricycle moves forward or moving to re; Tricycle 15 can operate in two conditions: with the locking device activated limits the movement of lateral tilt the scales (6) preserving its load capacity and movement; with released locking device releases the movement of the side tilt the scales (6) preserving its load capacity and movement; the rocker (10) centrally welcomes the 20 central mono shock absorber (9).

0) DE102010032976A1 – ELECTRIC TRANSPORT VEHICLE FOR, E.G. ELDERLY PE...

84) Family number: 50548466 (DE102010032976A1)

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Title: ELECTRIC TRANSPORT VEHICLE FOR, E.G. ELDERLY PERSON IN HOSPITAL, HAS STEERING WHEEL TO STEER WHEELS WHILE MOVING FRONT WHEEL, WHERE LOAD CARRIER AND RIDER SEAT ARE MAINTAINED IN EQUAL HEIGHT AND VELOCITY DELIMITERS ARE SET FOR EACH WHEEL

Priority: DE201010032976 20100731

Publication number	Publication date	Application number	Application date
<u>DE102010032976 A1</u>	20120202	DE201010032976	20100731

Probable Assignee: SIEGHART

Assignee(s):^(std): SIEGHART DIETHER ; ZEHENDMAIER FRANZ

Assignee(s): SIEGHART ; ZEHENDMAIER

Inventor(s):^(std): SIEGHART DIETHER ; ZEHENDMAIER FRANZ

International class B60K1/00 B62D5/04 B62D55/00 B62D61/06 B62D61/10 B62D63/02
(IPC 8-9): B62M6/40 (Advanced/Invention)

CPC: B62K5/003 B62K5/007 B62K5/05

European class: B62K5/003 B62K5/007 B62K5/05

[Classification Explorer](#)

Forward Citations: CN103144696, CN103144696,

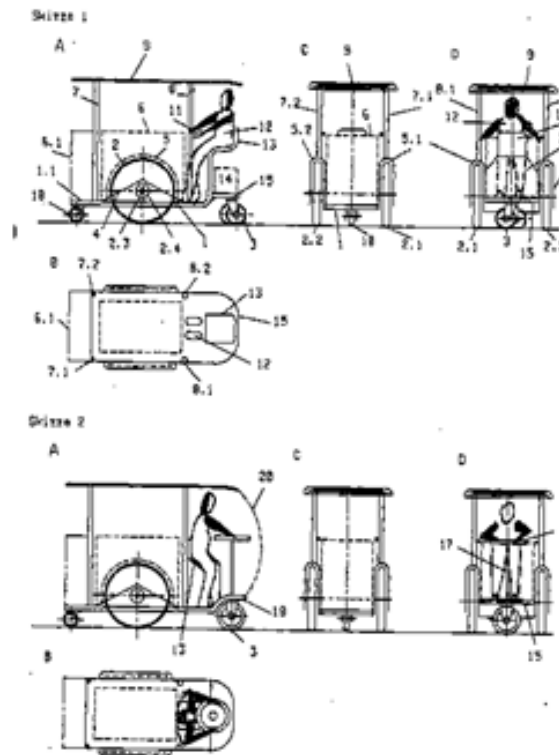
Abstract:

The vehicle has a battery for electric drive, a vertically adjustable springy rider seat (13), suspension elements, front wheel (10), rear wheel (3), and right and left base plates (1). The base plates include main wheels which include axles (2-3) and wheel hubs (2-4) and/or disc brakes. A steering wheel is provided for steering the wheels at different rotational speeds while moving the front wheel in predetermined direction. The load carrier/load container and rider seat are maintained in equal height. The velocity delimiters are provided for each wheel.

PatBase - DE102010032976_A1

DE 10 2010 032 976 A1 2012.02.02

Anhängende Zeichnungen



8/11

0) US2114481A – VEHICLE WHEEL ALIGNING APPARATUS

85) Family number: 29732263 (US2114481A)

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Title: VEHICLE WHEEL ALIGNING APPARATUS

Priority: US19360060126 19360121

Family:	Publication number	Publication date	Application number	Application date
	<u>US2114481 A</u>	19380419	US19360060126	19360121

Probable Assignee: TABER GEORGE H

Assignee(s):^(std): TABER GEORGE H

Inventor(s):^(std): TABER GEORGE H

CPC: G01B5/255

European class: 42B22 G01B5/255

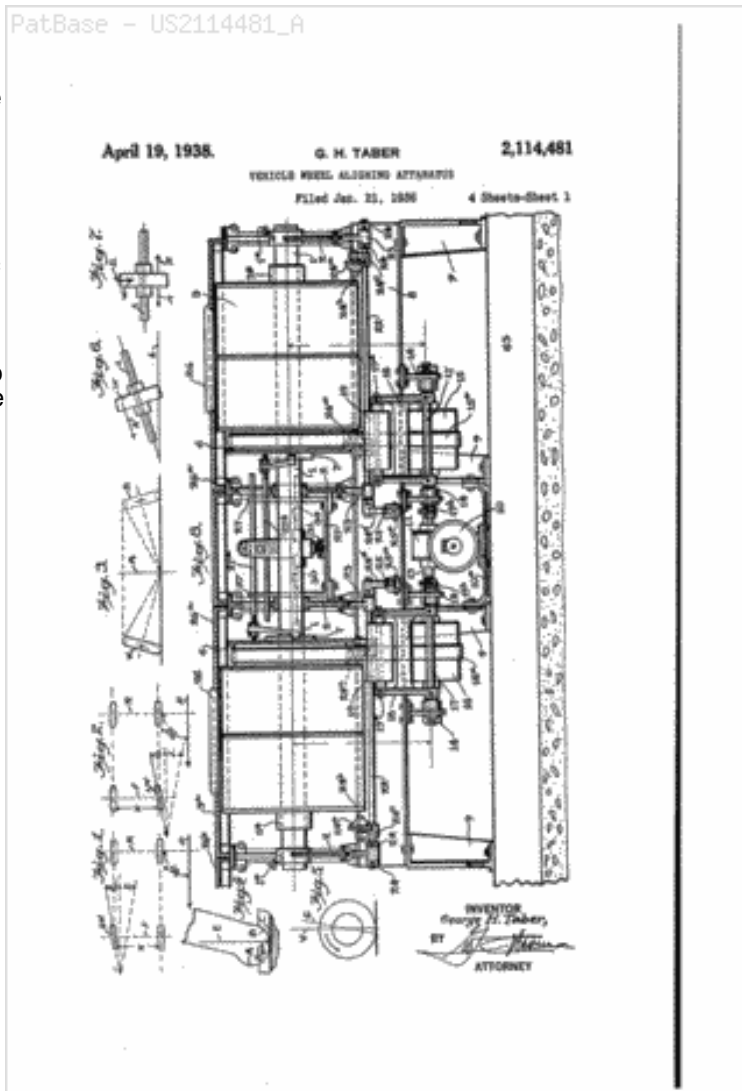
US class: 33/203.13

[Classification Explorer](#)

Forward Citations: US3897636, US3812592, US2601187, US2598599, US2577490,

Abstract:

Source: US2114481A 1. In 51.2, a toe-out condition X, because of cuter and roadway crown requiring lettward correction. causes the left front tire to wear more than the right front tire. It will be noted that the wheels have a natural travel which is nt nlney d€c1' c98 to their axle. , – The above hey or basic knowledge is mandatory before Intelligence can direct the engineering of mechanical components for the detection and correction of alignment trust conditions rdative to wheel alignment. 'Phe proof of the ability of the machine and the intelligence of the engineer are relected In the condition of one front tire to that of the other front tire after time and service have had the opportunity to produce a readable result relative to the figures shown in 1 and



86) Family number: 43193203 (DE202009000172U1)

© PatBase

Title: FAHRZEUG FUER KINDER VEHICLE FOR CHILDREN (Machine translation)**Priority:** DE200920000172U 20090108

Family:	Publication number	Publication date	Application number	Application date
	<u>DE202009000172 U1</u>	20090416	DE200920000172U	20090108

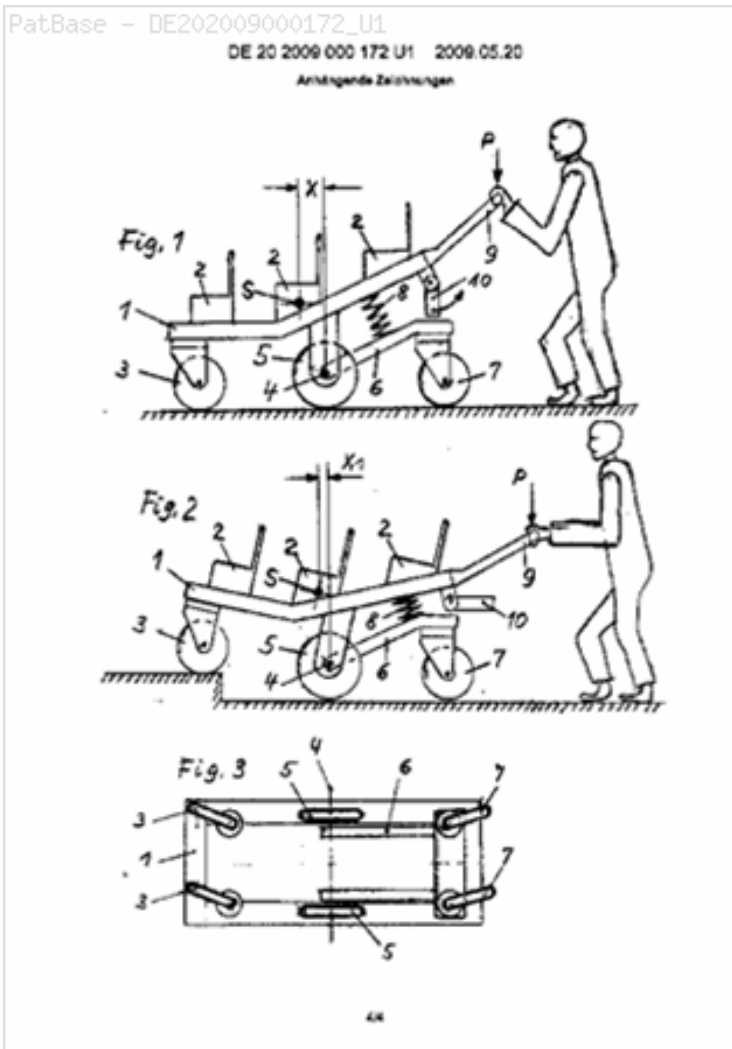
Probable Assignee: SYBERTZ HANS**Assignee(s):^(std):** SYBERTZ HANS

International class B62B7/04 (Advanced/Invention);
B62B7/00 (Core/Invention)

CPC: B62B3/008 B62B7/008 B62B7/04 B62B9/02 B62B2301/08 B62B2301/20**European class:** B62B3/00M B62B7/04 B62B9/02[Classification Explorer](#)**Forward Citations:** US9260127, US9193372, US9056622, EP2684764, EP2444296, CN103328305, CN103328305,**Abstract:**

Source: DE202009000172U1 (Claim 1) 1. Fahrzeug fuer Kinder, mit einer Griffstange (9) zum Schieben und Lenken des Fahrzeugs, festen und lenkbaren, ein Grundgestell (1) abstuetzenden Raedern (3, 5, 7) und mehreren, auf dem Grundgestell (1) hintereinander angeordneten Sitzen (2), gekennzeichnet durch folgende Merkmale: a) zumindest ein gegenueber dem Grundgestell (1) lenkbares Vorderrad (3); b) zwei hinsichtlich ihrer Drehachse (4) miteinander fluchtende, gegenueber dem Grundgestell (1) starr montierte Mittelraeder (5); c) zumindest ein der Griffstange (9) zugewandtes, gegenueber dem Grundgestell (1) lenkbares Hinterrad (7), das am hinteren Ende einer sich in Fahrzeugaengsrichtung erstreckenden Schwinge (6) montiert ist, die mit ihrem vorderen Ende an einer im mittleren Fahrzeugbereich montierten Querachse verschwenkbar gelagert ist; d) das Grundgestell (1) stuetzt sich in seinem hinteren Bereich ueber ein federelastisches Element (8) auf dem hinteren Abschnitt der Schwinge (6) so ab, dass durch Niederdruecken der Griffstange (9) der vordere, mit dem Vorderrad (3) bestueckte Grundrahmen-Abschnitt hoch schwenkt.

Machine translation: (Claim 1) 1. Vehicle for children, with a Griffstange (9) to pushing and steering the vehicle, firm and guidable, a basic frame (1) supporting wheels (3, 5, 7) and several, on the basic frame (1) one behind the other arranged seats (2), characterized by the following characteristics: A) at least opposite the basic frame (1) a guidable front wheel (3); b) two regarding their axis of rotation (4) aligning with one another, opposite the basic frame (1) rigidly installed central wheels (5); C) at least the Griffstange (9) turned opposite the basic frame (1) guidable rear wheel (7), which is installed at the rear end of a rocker (6), extending in vehicle longitudinal direction, which installed transverse axis with their front end at one within the middle vehicle range are tiltable stored; D) the basic frame (1) supports itself within its rear range over fitting with springs reading table an



element (8) on the rear section of the rocker (6) so off that through low pressure of the Griffstange (9) the front equipped, with the front wheel (3) basic frame section highly swivels.

0) WO05025972A1 – MULTI-FUNCTIONAL, SINGLE-SEATER, MOTORISED GOLF...

87) Family number: 31766969 (WO05025972A1)

© PatBase

Title: MULTI-FUNCTIONAL, SINGLE-SEATER, MOTORISED GOLF CART AND GOLF CADDY

Priority: CH20030001565 20030915

Family:	Publication number	Publication date	Application number	Application date
	<u>WO05025972 A1</u>	20050324	WO2004CH00574	20040914

Probable Assignee: SIGL KURT

Assignee(s):^(std): SIGL KURT

Inventor(s):^(std): SIGL KURT

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

International class
(IPC 8-9): B62H1/12 B62K5/00 B62K5/027 B62K5/04 (Advanced/Invention);
B62K5/00 (Advanced/Non-invention)

International class
(IPC 1-7): B62H01/12 B62H1/12 B62K5/04

CPC: B62K15/00 B62H1/12 B62K5/027 B62K2005/002 B62K2015/005 B62K2204/00 A63B55/61 A63B2055/601

European class: B62H1/12 B62K15/00 B62K5/027 L62K15/00D L62K204/00 L62K5/00C

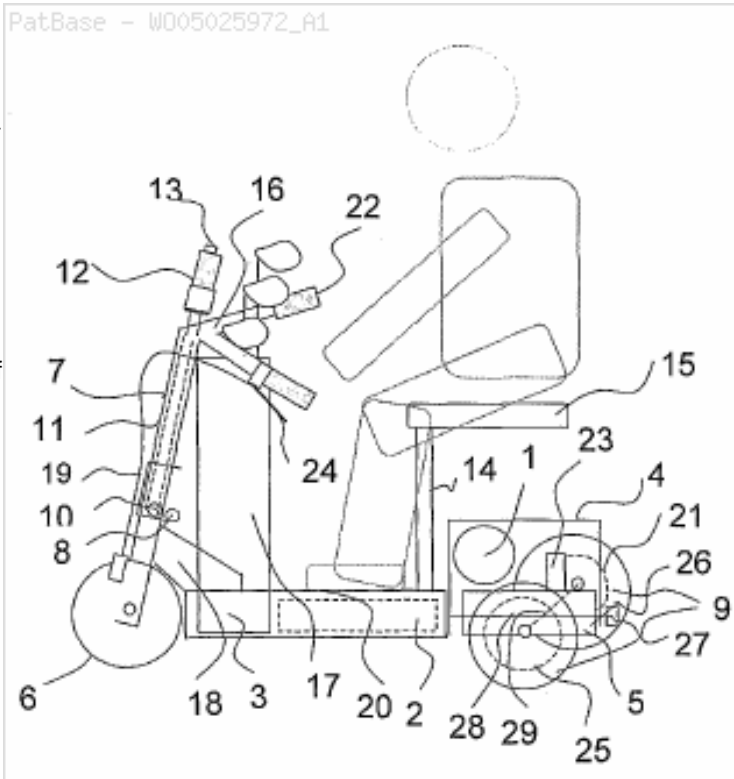
[Classification Explorer](#)

Cited documents: US6276480 BA, US4874055 A, US4159752 A, US3648795 A, US3605929 A, US3583727 A, US2908510 A, JP60189682 A2, GB2127364 A1, EP0911248 A2, EP0576724 B1, EP0576724 A1, DE19833478 A1, AU530862 B2,

Forward Citations: WO12164208, WO09118575, US9339431, GB2542258, FR2975895, EP2486963, EP2486962,

Abstract:

The invention relates to a multi-functional, single-seater, motor-driven, three-wheeled golf cart, which the golf player can use as a vehicle in a sitting or standing position during a round of golf, or which can be used as a caddy, in which case the golf player walks beside, in front of or behind the vehicle, or steers it by remote control. The multi-functional golf cart consists of a scooter-type, three-wheeled base vehicle comprising a foot board (20), an adjustable seat and at least one rear wheel (9) that is propelled by a drive motor (1). The foot board (20), which is rigidly fixed to the front section of the golf cart, is pivotally mounted in relation to at least one of the rear wheels (9) or to at least one supporting wheel (5) along a pivoting axis that runs parallel to the longitudinal axis of the golf cart. The golf bag (17) is placed in the golf bag holder (3) parallel to the steering column (7) of the vehicle and when the latter is used as a caddy, can be tilted backwards onto the seat (15). When the player is standing or sitting on the golf cart, the latter is steered by means of a steering column (7) that acts on the front wheel (6), the handlebars (16) comprising the handlebar speed governor (22) and the brake lever (24). When said cart is used as a caddy, the golf bag (17) and the steering column (7) are tilted backwards onto the seat (15) by means of the steering-column articulation (8) and the cart is steered using the telescopic bar (11), the adjusting handle for said telescopic bar (12) and the start/stop switch (13), which acts on the front wheel (6) by means of the telescopic-bar articulation (10). Alternatively, the cart can be steered by the remote control module (18).



0) DE202012003848U1 – FAHRRAD O.DGL.

88) Family number: 51790494 (DE202012003848U1)

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Title: Fahrrad o.dgl.

Priority: DE201110017359 20110414

DE201220003848U 20120412

Family:

Publication number	Publication date	Application number	Application date
<u>DE102011017359 A1</u>	20130523	DE201110017359	20110414
<u>DE202012003848 U1</u>	20120906	DE201220003848U	20120412

Probable Assignee: GLUSHKO VIKTOR

Assignee(s):^(std): GLUSHKO VIKTOR

Assignee(s): GLUSHKO

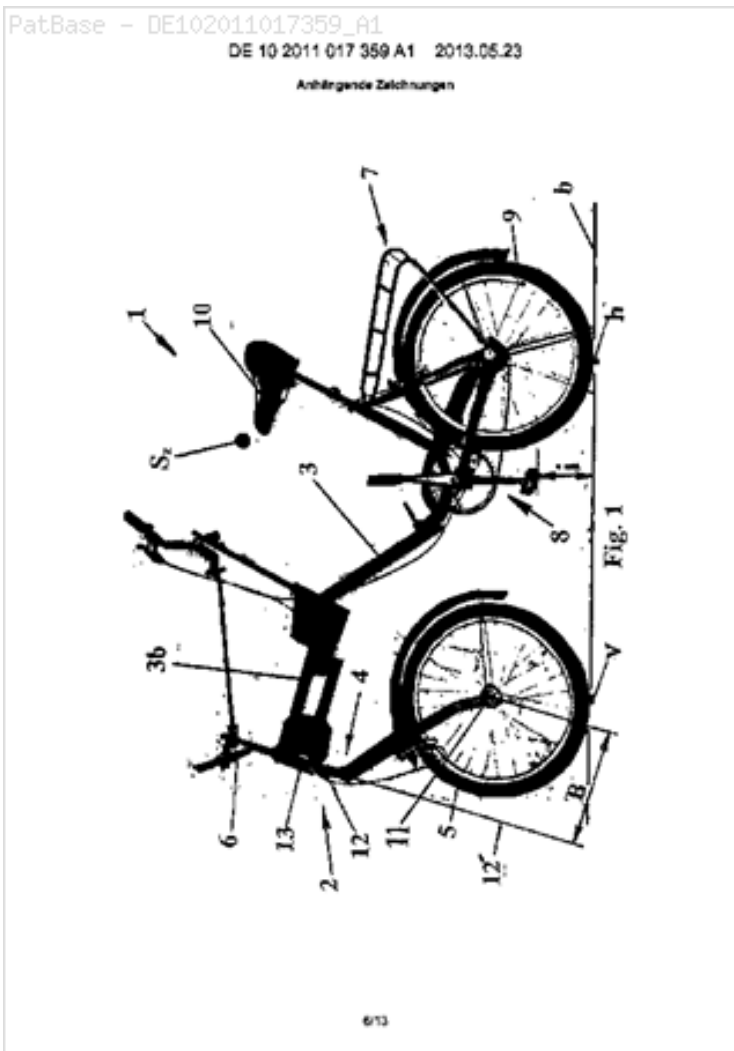
International class B62K21/00 (Advanced/Invention)
(IPC 8-9).

[Classification Explorer](#)

Cited documents: US5069303 A, JP6099872 A2, JP3057789 A2, JP10194182 A2, DE837651 A, DE800944 A, DE7434850 U, DE542745 A, DE19513649 A1, DE10249616 A1, ATA403566, AT403566 B, AT403566 A,

Abstract:

Source: DE202012003848U1 Fahrrad o. dgl., welches wenigstens eine an dem vorderen Ende (2) des Fahrradrahmens (3) schwenkbar angebrachte, mit der Gabelbiegung (B) ausgeführte, mit zumindest einem lenkbaren Vorderlauf (5) und dem Lenker/Lenkhandhebel (6) ausgerüstete gebogene Gabel (4), deren Gabelschaft (12) in der am vorderen Ende des Fahrradrahmens (3) untergebrachten Gabelnabe (13) angeordnet ist, und zumindest ein an einem hinteren Ende (7) des Fahrradrahmens (3) angeordnetes Hinterlauf (9) aufweist, dadurch gekennzeichnet, dass mindestens ein Achsabstand (B) (die Gabelbiegung) zwischen einer Schwenkachse (12') des Gabelschafts (12) der gebogenen Gabel (4) und der Drehachse (11) ihres Vorderlaufs (5) mehr als 10 cm gibt.



89) Family number: 720475 (GB1211760A)

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Title: PAVEMENT CONDITIONING MACHINE**Priority:** GB19680027498 19680610

Family:	Publication number	Publication date	Application number	Application date
	<u>GB1211760 A</u>	19701111	GB19680027498	19680610

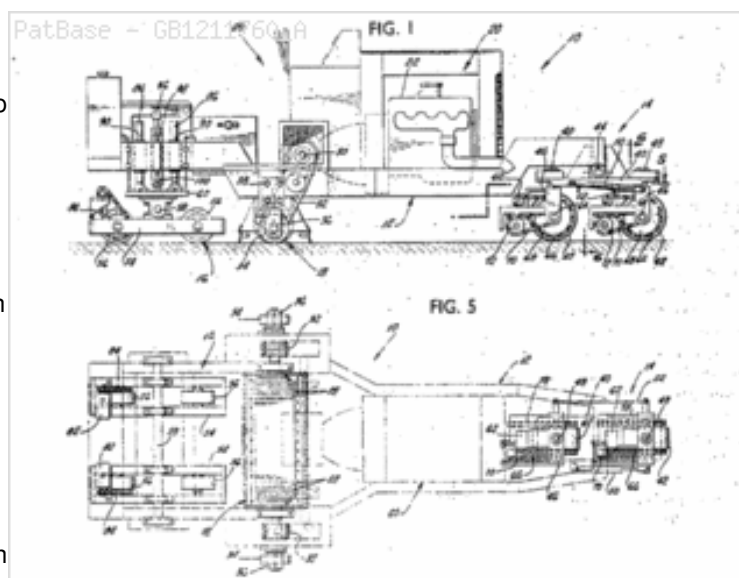
Probable Assignee: SUPER CUT**Assignee(s):^(std):** SUPER CUT**Assignee(s):** SUPER CUT INC**Inventor(s):^(std):** COOK DAVID EARL ; SIMMS GLEN EDWARD**Inventor(s):** DAVID EARL COOK ; GLEN EDWARD SIMMS

International class E01C23/088 (Advanced/Invention);
 (IPC 8-9): E01C23/00 (Core/Invention)

International class E01C23/08
 (IPC 1-7):

CPC: E01C23/088**European class:** E01C23/088[Classification Explorer](#)**Abstract:**

Source: GB1211760A 1,211,760. Vehicle propulsion mechanism. SUPER-CUT Inc. 10 June, 1968, No. 27498/68. Heading B7H. [Also in Division E1] In a rotary cutting machine for levelling, cambering or forming anti-skid grooves in a road surface wherein a belt-driven cutter cylinder 18 is carried by a frame 12 supported by front and rear bogie trucks 40, 64 the front wheels 42 have a low-speed high-torque drive for use when road-cutting, while the rear wheels 56 have an independent relatively-high speed drive for use in transport. The front bogie 40, pivoted at 44 to the frame 12, has two in line steerable wheels 42 each mounted in linked forks 46 actuated by a steering cylinder 50 and each driven through a clutch and three-stage chain reduction gearing from respective hydraulic motors 62. The rear bogie 54, pivoted at 58 to a sub-frame 60, has two pairs of in-line wheels 56 the rear one of which is chain driven from respective hydraulic motors 82. The sub-frame 60 is supported at each side of the frame 12 by guide rods 86, hydraulic cylinders 92 and screw stops 98, whereby the sub-frame 60 may be raised, lowered or transversely tilted (Fig. 9, not shown) to control the depth and camber of cut of the cylinder 18. If the machine is used for cutting anti-skid grooves the depth of cut is controlled by removable vertically-adjustable outrigger wheels 34 adjacent the cutter cylinder 18.



90) Family number: 59785398 (TWM503368Y)

Title: ELECTRICAL TRICYCLE STEERING STRUCTURE

Priority: TW20150203492U 20150310

Family:

Publication number	Publication date	Application number	Application date
TWM503368 Y	20150621	TW20150203492U	20150310

Probable Assignee: YU LONG STAR CO LTD

Assignee(s):(std): YU LONG STAR CO LTD

Assignee(s): YULONG STAR CO LTD ; YU LONG STAR CO

Inventor(s):(std): ZENG NENG CHAO

International class B62K13/04 B62K21/00 (Advanced/Invention)
(IPC 8-9).

Classification Explorer

Abstract:

Abstract:
Source: TWM503368Y An electric tricycle steering structure, the Department has the frame, tilt device and steering device, the frame having a front pivot seat and two rear pivot seat, two rear pivot holder is pivoted are provided on the front sides of the rear seat, and two After pivoting seat system are connected to the rear wheels; tilting device has an inclined retainer and tilt steering columns, tilt limiter is disposed between the two after the preceding frame pivotally connected to the seat, tilt steering linkage pivotally connected to the vehicle Before pivoting seat frame, and is connected to the tilt limiter; steering tube with a fork before pivoting front wheel and fork tube pivotally connected to the tilt of the tilt steering lever means; borrow on, when the electric tricycle in turn, turn device takes advantage of tilting device so that the front wheel is inclined toward the turning direction in order to eliminate located outside of the turn after the wheel is exposed to centrifugal forces.



Title: Improvements in or relating to apparatus for aligning parts of a vehicle such as a wheel

Priority: GB19410010125 19410808

Family:	Publication number	Publication date	Application number	Application date
	<u>GB556603 A</u>	19431013	GB19410010125	19410808

Probable Assignee: THOMPSON PROD INC

Assignee(s):^(std): THOMPSON PROD INC

Assignee(s): THOMPSON PRODUCTS INC

International class G01B11/275 (Advanced/Invention)
(IPC 8-9):

CPC: G01B11/275

European class: 42B22 G01B11/275

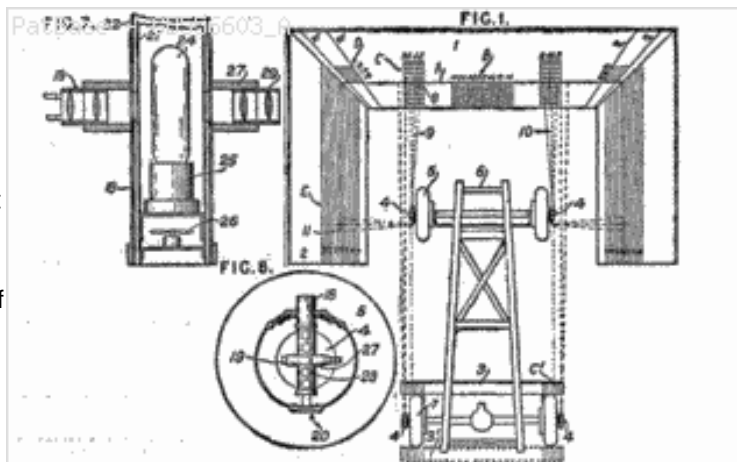
[Classification Explorer](#)

Forward Citations: DE1271999, DE1164107,

Abstract:

Source: GB556603A 556,603. Gauging alignment; optical apparatus. STEVENS, A. H. (Thompson Products Inc.). Aug. 8, 1941, No. 10125. [Class 106 (ii)] [Also in Group XX]

Apparatus for ascertaining the relative adjustment of parts of a vehicle such as a wheel, includes a light projector for attachment to the wheel and to project a beam of light in a predetermined direction, and a graduated surface arranged in the path of said beam in a predetermined position relatively to the body of the vehicle so that the point of incidence of the beam indicate the relative adjustment. To check the alignment of vehicle wheels, front side and rear charts 1, 2, 3 are arranged as shown. Projectors 4 are detachably held on the parts to be adjusted, for instance, the front wheel 5 of a car 6. The graduations on the chart 1 are grouped for various readings to be taken by the shifting of the projectors 4 with the turning of the front wheels 5. Vertical graduations are measured from a norm line A, above and below which and about the vertical "O" line the graduations are symmetrically spaced. The vertical lines of the middle group B denote the inner limits of the steering angle of each front wheel. The horizontal lines of this group are used for reading the lowest points of the fall of the wheel caused by the king pin slant. The markings C are placed to be aligned with the straight forward position of the front wheels 5. The vertical lines of these are marked 2-8 corresponding to the 22 inch - 28 inch width of track of usual cars. The projectors 4 throw a well-defined mark such as a cross-hair mark 8. When the beams 9, 10 coincide with the vertical lines of markings C, the charts are centered with respect to the vehicle. The angle made by the vertical line of the crosshair with the vertical lines of C indicate the camber of the wheels. The marks C' of the rear chart agree with the marks C, thus the difference between forward and rear readings gives the degree of "toe-in". The marks @ indicate 20 degrees to 25 degrees of turn. The horizontal lines above the norm A in this group co-operate, with the mark 8 to measure the maximum rise of the front wheel 5 at or near the outer extreme steering angle caused by the king-pin slant. The slant at the inner angle is checked on the middle group B. The side lines E serve to check caster adjustment, the projection 11 being on the norm A when the wheels are straight. The relative alignment of front and rear wheels may also be determined by a set of projectors 4 on the rear wheels directly forward to the chart 1. The rear chart may be secured also at the rear as at 3. This chart may be automatically centered by a calliper arm arrangement on the chart board adapted to engage inner wheel surfaces. Projector.—Each comprises a tube 18, Figs. 7 and 8, with aligned light-directing unit 19 and magnetic clamping means 20. When used as wheels the clamping means 20 align the projectors 4 so that the units 19 overlie a diameter of the wheel. The tube 18, open at the ends, has snaced from and within it a tube 21, a corrugated tube 22 being placed between to act as a heat dissinator. The tube 21 is fitted with a socket 25 for an electric lamp 24 below which is a cooling fan 26. Short tubes 27 are placed at right angles to the tube 18 and have adjustable tubes 29 each containing spaced lenses between which are arranged the cross-hairs the vertical member of the cross-hairs being parallel to the axis of tube 18. Holes through tubes 18, 21, 22 align with the tubes 27 to permit passage of the beam and the tube 18 has a series of holes 23 for cooling purposes.



0) GB1604404A – AMUSEMENT VEHICLES

92) Family number: 5154616 (GB1604404A)

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Title: AMUSEMENT VEHICLES
Priority: GB19770035233 19780530

Family:	Publication number	Publication date	Application number	Application date
	<u>GB1604404 A</u>	19811209	GB19770035233	19780530

Probable Assignee: EDWARDS S A

Assignee(s):^(std): EDWARDS S A

International class
 (IPC 8-9): B62D9/02 (Advanced/Invention);
B62D9/00 (Core/Invention)

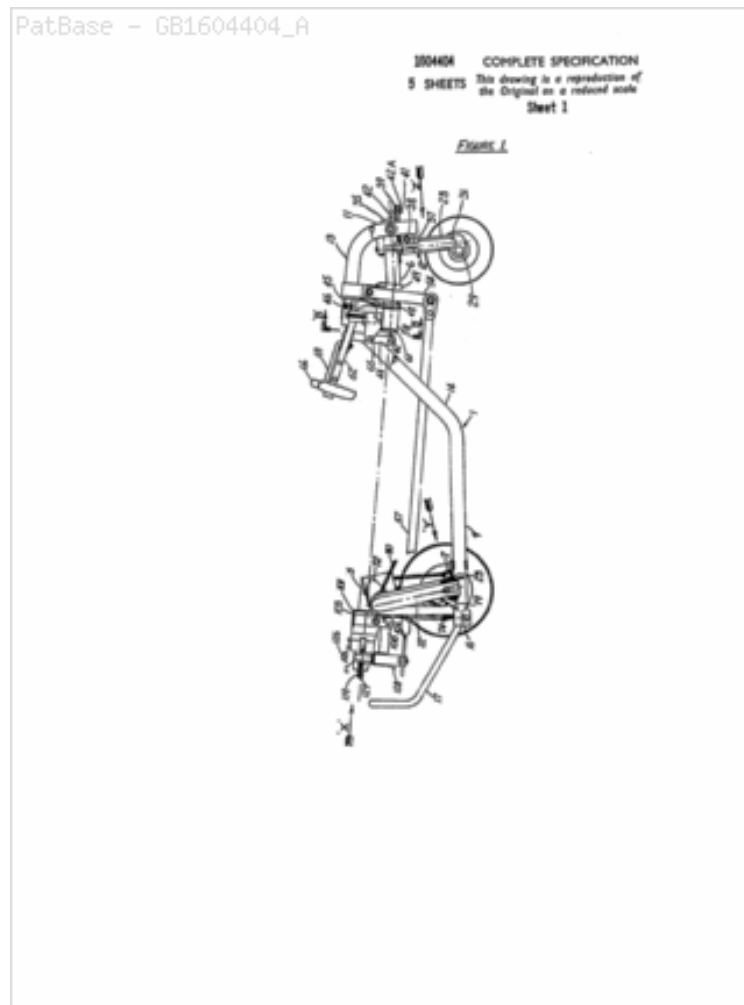
International class
 (IPC 1-7): B62D9/02

CPC: B62D9/02

European class: B62D9/02

[Classification Explorer](#)

Forward Citations: US4783091, US4515362, GB2122558, AU593110,



93) Family number: 52409244 (TWM441617Y)

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Title: Tilt steering and suspension device of front two wheels for motorcycle**Priority:** TW20120212457U 20120628

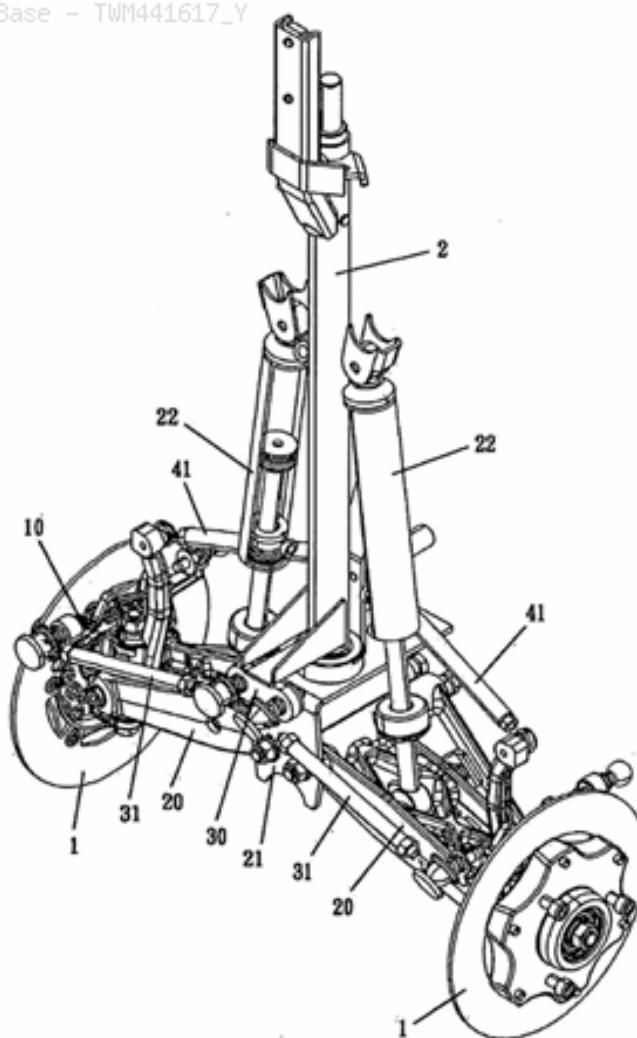
Family:	Publication number	Publication date	Application number	Application date
	TWM441617 Y	20121121	TW20120212457U	20120628

Probable Assignee: AEON MOTOR CO LTD**Assignee(s):**^(std): AEON MOTOR CO LTD**Inventor(s):**^(std): HUANG HUI HUI ; LIN JUN JI**International class** B62K5/08 (Advanced/Invention)
(IPC 8-9):[Classification Explorer](#)**Abstract:**

Source: TWM441617Y

Machine translation: Department of the creation of an application in has the first two turbines car before two tilt, steering and suspension device applicable in has before Er round of and after a single round of three locomotives; also applicable in has the first two and the latter two of the four locomotives. Mainly in the respective pivot supporting two front wheels of the front wheel frame is connected with a connecting frame with an interposed between the two connector holder pivoted connector holder and the locomotives and controlling the steering handle to the steering shaft to be qualified to limit mechanism defining the inclination of the steering shaft connector holder when synchronization inclined left steering shaft situ, rightward movement, the connector holder is not synchronized for left and rightward movement; the right and left the top surface of the connecting frame each pivotally connected to a shock absorber with a locomotive frame pivoted, and two shock absorber is connected to the buffer force of interworking; fixedly connected to the steering axis of the shaft of a steering shaft interlocking with the body of the fixing plate, each pivotally connected at both ends of the fixing plate of the one-directional link with the corresponding the front wheel frame is pivotally connected; with an extension board connected to a seat with the body linked respectively pivotally connected to both ends of a rod and a pivoting front wheel frame. Serve to take control of two steering, tilt and vertical move up and down the institutions, to ensure that under various operating conditions, be able to maintain two affixed sex to avoid caused by vehicle rollover risk of. The simple structure of the device and has a novelty.

PatBase - TWM441617_Y



第一圖

0) DE202012000776U1 – MEHRRRAEDRIGES FAHRZEUG, INSBESONDERE FAHRRAD M...

94) Family number: 51099898 (DE202012000776U1)

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Title: Mehrraedriges Fahrzeug, insbesondere Fahrrad Mehrraedriges vehicle, especially bicycle
(Machine translation)

Priority: DE201220000776U 20120126

Family:	Publication number	Publication date	Application number	Application date
	<u>DE202012000776 U1</u>	20120516	DE201220000776U	20120126

Probable Assignee: ALBERT ULRICH

Assignee(s)^{-(std)}: ALBERT ULRICH

Assignee(s): ALBERT

International class B62K3/02 (Advanced/Invention)
(IPC 8-9):

CPC: B62M1/14

European class: B62M1/14

[Classification Explorer](#)

Cited documents: DE9313824 U,

Forward Citations: DE102014015824,

Abstract:

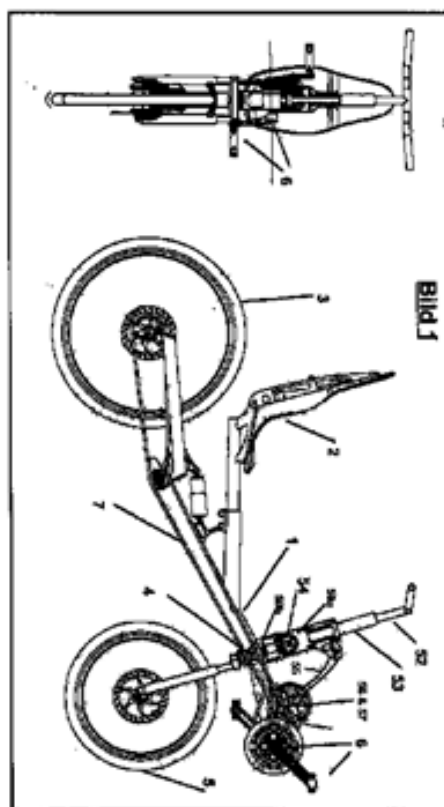
Source: DE202012000776U1 Mehrraedriges Fahrzeug, insbesondere Fahrrad mit einem im wesentlichen ebenen aufrechten Rahmen (1), mit einem auf dem Rahmen (1) angeordneten Sitz (2), mit einer an dem Rahmen (1) gelagerten Hinterradanordnung (3) und einer an dem Rahmen (1) gelagerten, durch Schwenken um eine aufrechte Achse in einem gegenueber dem Rahmen (1) feststehenden Lenkerkopf/Steuerkopf (4) lenkbaren Vorderradanordnung (5) mit einer an dem Rahmen (1) gelagerten Tretkurbel mit Fusspedalen (6), mit einer ersten Antriebsverbindung (7) zur uebertragung des durch die auf die Fusspedale ausgeuebte Fusskraft erzeugten Drehmoments der Tretkurbel auf die Hinterradanordnung (3), mit einem mit der Vorderradanordnung (5) schwenkverbundenen und um eine horizontale Querachse neigbaren Lenker (52, 53), der mit der Vorderradanordnung (5) ueber ein Winkelgelenk (54) verbunden ist, welches eine Verschwenkung des Lenkers (52, 53) eindeutig in eine Drehung der Zwischenkurbelwelle (56) umsetzt und mit einer zweiten Antriebsverbindung (58) zur uebertragung des durch die auf den Lenker...

Machine translation: Mehrraedriges vehicle, especially bicycle, having a substantially planar upright frame (1), with one on the frame (1) arranged on the seat (2), with a to the frame (1) mounted rear wheel assembly (3) and a to the frame (1) mounted by pivoting about an upright axis in a relative to the frame (1) fixed handlebar head / control head (4) steerable front wheel assembly (5) with a to the frame (1) mounted pedal crank with foot pedals (6), with a first drive connection (7) for transferring the by the generated on the foot pedals exerted foot force torque of the pedal crank to the rear wheel assembly (3), with a with the front wheel assembly (5) is pivotally connected about a horizontal transverse axis tilting arm (52, 53), the with the front wheel assembly (5) by an angle joint (54), which has a pivoting of the link (52, 53) clearly reacted in a rotation of the intermediate crankshaft (56) and with a second drive connection (58) for transmitting on by the link...

PatBase - DE202012000776_U1

DE 20 2012 000 776 U1 2012.05.18

Anhängende Zeichnungen



6/7

95) Family number: 20535124 (GB818497A)

© PatBase

Title: Improvements in or relating to four–wheel articulated vehicles**Priority:** GB19560028352 19560917

Family:	Publication number	Publication date	Application number	Application date
	<u>GB818497 A</u>	19590819	GB19560028352	19560917

Probable Assignee: EIMCO CORP**Assignee(s):**^(std): EIMCO CORP**Inventor(s):**^(std): SPANJER DAVID LUCIEN

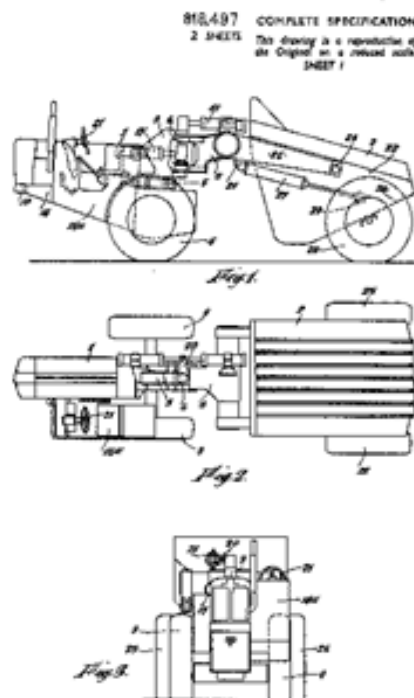
International class B60P1/16 B62D53/02 (Advanced/Invention);
 (IPC 8–9): B60P1/04 B62D53/00 (Core/Invention)

International class B62D53/02
 (IPC 1–7):

CPC: B60P1/16 B62D53/021**European class:** B60P1/16 B62D53/02C[Classification Explorer](#)**Abstract:**

Source: GB818497A 818,497. Articulated vehicles motor forecarriages. EIMCO CORPORATION. Aug. 19, 1957 [Sept. 17, 1956], No. 28352/56. Class 79(3) [Also in Group XXXII] Refers to an articulated vehicle of which the forecarriage is a modification of an agricultural–type tractor having front wheel steering and rear driven wheels on half–shafts aligned with, and driven from, a differential gear. The four–wheel articulated vehicle's front, two – wheel, power unit 1 comprises a conventional tractor, as aforementioned, with the usual front wheel assembly and steering means omitted, the rear part of the tractor being modified so that the half–shafts 7 carrying the drive wheels 8 are vertically below the differential gear assembly 9. The assembly 9 is in a reinforced structure 12 with a top–member 12a that supports on brackets 13 a longitudinal pivot 4 that allows for lateral rolling movements also side–members 14 and a tow–bar 15 all attached to the front of the unit 1. The operator's compartment 14a is displaced to the side of the unit 1. For steering, hydraulic rams 17 and 18 controlled by a steering wheel 21 and mounted on brackets 3, and 5, are connected to arms 19 and 20 respectively that are keyed to a vertical pivot 6. The rear unit 2 may be dump–truck with a body 22 pivoted at 23 to arms 24 on the brackets 5 and with wheels 25 under an up–tilted floor 26. Hydraulic rams 27, connected between the arms 24 and the truck body, can tilt the body rearwards about the pivot 23. Fig. 5 (not shown) illustrates an alternative rear unit in which the structure 24a is cranked and pivoted to the truck's axle, so that the ram 27 causes the body to tilt about the axle.

PatBase – GB818497_A



0) FR2926783A – FRONT WHEEL INCLINATION AND DIRECTING DEVICE FO...

96) Family number: 43585866 (FR2926783A)

© PatBase

Title: FRONT WHEEL INCLINATION AND DIRECTING DEVICE FOR E.G. TWO-MAN TANDEM TRICYCLE, HAS SPRING FOR APPLYING CENTRIFUGAL FORCE BETWEEN STOPPER AND SUPPORTING ARMS, AND SPEED LIMITER POSITIONED AND SCREWED ON SUPPORT PLATE FIXED TO AXLE

Priority: FR20080000425 20080128

Publication number	Publication date	Application number	Application date
<u>FR2926783 A1</u>	20090731	FR20080000425	20080128

Probable Assignee: DUPRAT BENJAMIN

Assignee(s):^(std): DUPRAT BENJAMIN

Assignee(s): BENJAMIN DUPRAT

Inventor(s):^(std): DUPRAT BENJAMIN

Inventor(s): BENJAMIN DUPRAT

Agent(s): BENJAMIN DUPRAT

International class B62D9/04 B62K5/08 (Advanced/Invention);
(IPC 8-9): B62D9/00 B62K5/00 (Core/Invention)

CPC: B62K5/05 B62K5/08 B62K5/10

European class: B62K5/05 B62K5/08 B62K5/10

[Classification Explorer](#)

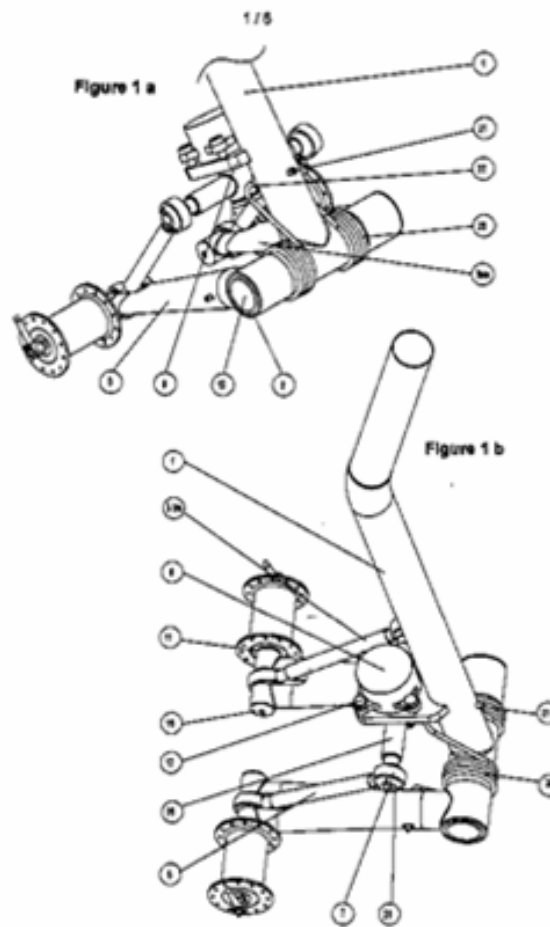
Cited documents: WO0192084 A1, US5762351 A, EP1180476 A1, DE19533669 A1,

Abstract:

The device has a directional axle (1) that is in pivoting connection with a framework. Supporting arms for supporting front wheels are in connection with the axle. A speed limiter (8) limits oscillations of a double torsion spring (23), and is positioned between the directional axle and a cross-bar (25). The spring applies centrifugal force between a stopper (21) and the supporting arms, and is inserted in an oblong hole of the supporting arms. The speed limiter is positioned and screwed on a support plate (12) fixed to the directional axle.

PatBase - FR2926783_A1

2926783



0) CH706111A – MODULE DE DIRECTION INTERCHANGEABLE POUR UNE MO...

97) Family number: 54588214 (CH706111A)

© PatBase

Title: MODULE DE DIRECTION INTERCHANGEABLE POUR UNE MOTOCYCLETTE.
DIRECTION INTERCHANGEABLE MODULE FOR MOTORCYCLE, HAS STEERING
FORK INCLUDING SUSPENSION/ SHOCK ABSORBERS FIXED TO ROCKER THAT IS
ARTICULATED AT ITS MIDDLE TO STEERING FORK AND CONNECTED TO
HYDROPNEUMATIC SUSPENSION DEVICE

Priority: CH20120000205 20120215

Family:

Publication number	Publication date	Application number	Application date
CH706111 A2	20130815	CH20120000205	20120215

Probable Assignee: SBARRO FRANCESCO

Assignee(s):^(std): SBARRO FRANCESCO

Assignee(s): FRANCESCO SBARRO

Inventor(s):^(std): SBARRO FRANCESCO

Inventor(s): FRANCESCO SBARRO

International class [B60G5/06 B62K13/04 B62K21/02 B62K5/08](#) ^(Advanced/Invention)
(IPC 8-9):

CPC: [B62K5/027 B62K5/10 B62K5/08 B60G3/14 B60G2300/122 B60G2300/40 B60G2300/45](#)

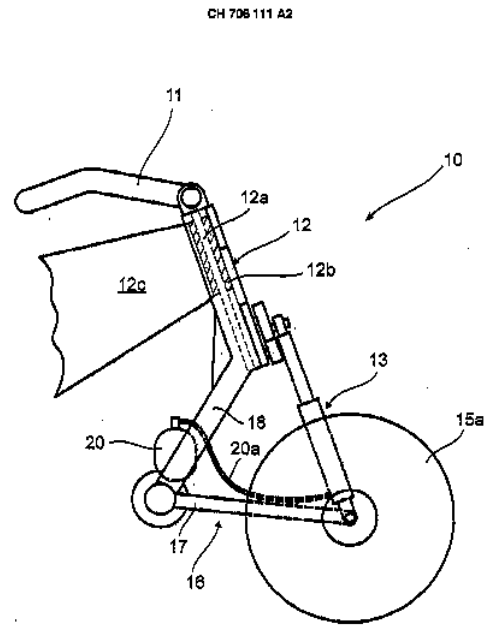
[Classification Explorer](#)

Forward Citations: WO17012869,

Abstract:

Source: CH706111A L'invention concerne un module de direction interchangeable pour motocyclette ou similaire permettant aux motocyclistes de bénéficier, de manière simple et à peu de frais, des avantages des scooters à trois roues en matière de stabilité, de sécurité et d'espace disponible. Le module de direction interchangeable (10) comporte un châssis, un guidon (11), une fourche de direction (12) à laquelle est attaché ledit guidon (11), un ensemble tournant porté par la fourche de direction (12), et deux organes de suspension/amortisseurs (13, 14) montés sur la fourche de direction (12) pour contrôler les déplacements verticaux de l'ensemble tournant. Cet ensemble tournant comporte deux roues indépendantes (15a, 15b) montées librement, respectivement sur deux axes fixes. Les organes de suspension/amortisseurs (13, 14) sont fixés à une bascule (19) articulée en son milieu à la fourche de direction et reliés à un dispositif de suspension hydropneumatique (20) au moyen de deux conduits hydrauliques (20a, 20b). The module (10) has a frame and a handlebar (11) attached to a rotatable steering fork (12). The steering fork includes two suspension/shock absorbers (13, 14) mounted on the steering fork for controlling vertical movements of a rotating wheel assembly. The assembly includes two independent rotary wheels (15a, 15b) freely mounted on two fixed axles, respectively. The suspension/shock absorbers are fixed to a rocker (19) articulated at its middle to the steering fork and connected to a hydropneumatic suspension device (20) by two hydraulic lines.

PatBase - CH706111_A2

**FIG. 1**

0) CH657585A – VEHICLE WITH THREE WHEELS OR RUNNERS

98) Family number: 2600520 (CH657585A)

© PatBase

Title: VEHICLE WITH THREE WHEELS OR RUNNERS

Priority: CH19820005497 19820917

Family:	Publication number	Publication date	Application number	Application date
	<u>CH657585 A</u>	19860915	CH19820005497	19820917

Probable Assignee: ALEX FEHR

Assignee(s):^(std): ALEX FEHR

Inventor(s):^(std): FEHR ALEX ; FEHR MAX

International class
(IPC 8-9): B62B13/12 B62K11/02 B62K5/027 B62K5/04 (Advanced/Invention);
B62B13/00 B62K11/00 B62K5/00 (Core/Invention)

International class
(IPC 1-7): B62B13/12 B62K11/02 B62K5/04

CPC: B62B13/12 B62K3/005 B62K5/027 B62K5/10 B62K11/02

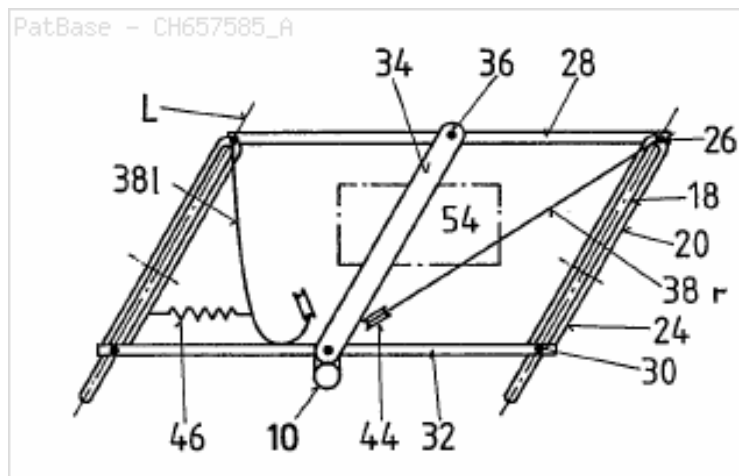
European class: B62B13/12 B62K11/02 B62K3/00C B62K5/027 B62K5/10

[Classification Explorer](#)

Forward Citations: EP0626307, DE19824576, DE19824576,

Abstract:

Source: CH657585A In the case of a vehicle or an appropriate sledge capable of tilting sideways, which can be moved manually, by engine or gravity, two wheels (18) or runners are articulated to the sides (20, 24), forming the axles, of a parallelogram. The third wheel or the third runner can be inclined in parallel. Very safe driving is achieved by – hinged upper and lower connections (26, 30) which connect the upper and, respectively, lower cross-members (28, 32) to the sides (20, 24), forming the axles, and lie in the plane of longitudinal symmetry (L) of the wheels (18), and, in the case of runners, in a plane passing through their sliding surface, – mechanical means, in particular flexible tension means (38) which act in the region of the upper, hinged connections (26), stabilise the inclination of the vehicle in every position and can be operated by the driver using muscle-power, and – a locking device.



0) DE3426619A1 – SEAT POSITION-CHANGING DEVICE – DRIVEN AND CONT...

99) Family number: 3783312 (DE3426619A1)

© PatBase

Title: Seat position-changing device – driven and controlled with movements of the seat components generated by leg or (and) arm movements – for high-performance cycles

Priority: DE19843426619 19840719

Family:	Publication number	Publication date	Application number	Application date
	<u>DE3426619 A1</u>	19860130	DE19843426619	19840719

Probable Assignee: STELTER KORD

Assignee(s):^(std): STELTER KORD

Inventor(s):^(std): STELTER KORD

International class B62M1/18 (Advanced/Invention);
(IPC 8-9): B62M1/00 (Core/Invention)

International class B62M1/18
(IPC 1-7):

CPC: B62M1/18

European class: B62M1/18

[Classification Explorer](#)

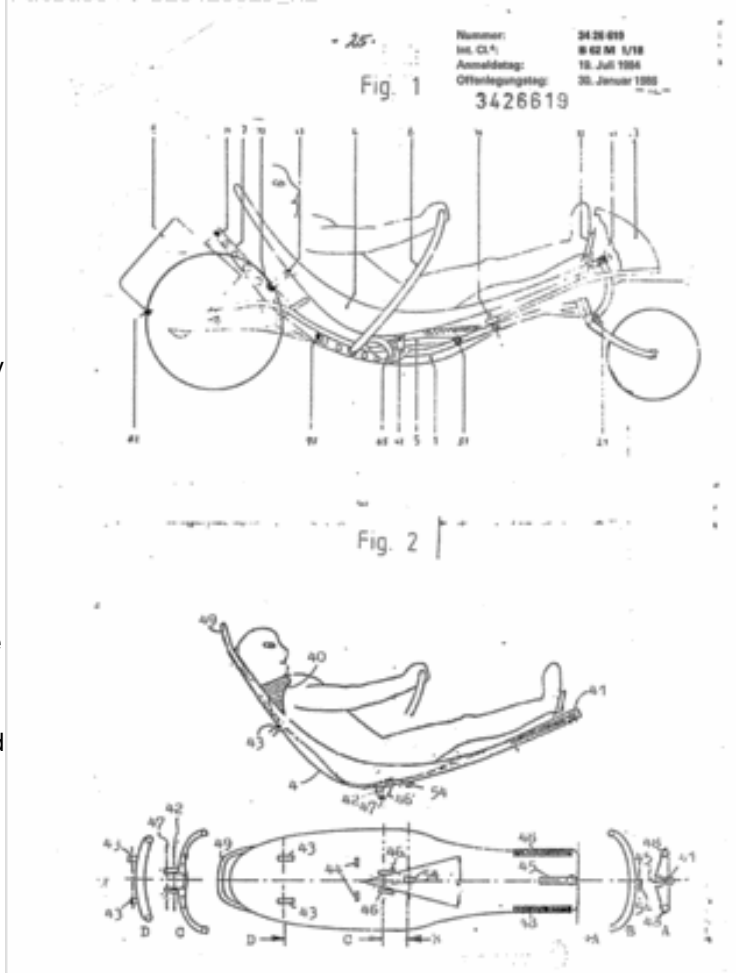
Cited documents: DE88425, DE7570791 U, DE7423209 U, DE2458110, DE2005822,

Forward Citations: DE3823435, DE102013102765,

Abstract:

Source: DE3426619A1 The invention relates to vehicles and fitness equipment which are driven by muscular power and in which the drive and the steering take place by means of pedal cranks, levers and steering linkages. In these known cycles, tricycles or wheelchairs, generally only part of the muscle system is used and only a small part of its energy is converted into useful energy. Other less well known muscular power-operated vehicles or fitness equipment whose function was intended to be to achieve a better distribution and utilisation of power have not yet been successful since they require a specific acrobatic ability of the rider and thus are hardly controllable in a safe fashion in traffic. The present invention relates to a different embodiment of a muscular power-operated vehicle. Starting from the idea that in muscular power-operated vehicles the leg muscles, and only a portion of these, are preferably used for the propulsion of the vehicle, the invention has the object of disclosing a vehicle in which both the muscles of the legs and also the muscles of the upper body can be utilised for the propulsion whilst ensuring an improved degree of power efficiency and better safety in traffic. These objects are achieved according to the invention in that the rider has a seat which is low lying and shaped correctly for his body and whose three-point suspension on the base frame permits, with the aid of levers and a running rail, the... Original abstract incomplete.

PatBase - DE3426619_A1



0) US3370665A – TANDEM AXLE VEHICLE

100) Family number: 813889 (US3370665A)

© PatBase

Title: Tandem axle vehicle

Priority: US19650499230 19651021

Family:	Publication number	Publication date	Application number	Application date
	<u>US3370665 A</u>	19680227	US19650499230	19651021

Probable Assignee: KENNETH P STANABACK

Assignee(s): KENNETH P STANABACK

Inventor(s):^(std): STANABACK KENNETH P

International class B60K17/36 B62D55/02 B62D55/07 B62K13/00 B62M27/02 (Advanced/Invention)
(IPC 8-9):

International class B62D55/00
(IPC 1-7):

CPC: B60K17/36 B62D55/02 B62D55/07 B62K13/00 B62M27/02 B62M2027/021

European class: B60K17/36 B62D55/02 B62D55/07 B62K13/00 B62M27/02 L62M27/02B

US class: 180/185 180/22 180/24.11 180/9.23 180/9.38 280/685 305/157

[Classification Explorer](#)

Cited documents: US3292943 A, US2246609 A, US2236696 A,

Forward Citations: US8418792, US6629699, US6179075, US4971170, US4877102, US4706770, US3880449, US3777832, US2003159871,

Abstract:

Source: US3370665A ABSTRACT OF THE DISCLOSURE A powered, tandem axle, tillable, cycle-type vehicle having a steerable front wheel assembly, and an H-shaped tandem rear axle assembly with forward and rearward axle units, each axle unit having a shaft and a bearing sleeve forming the legs of the H, and a trunnion connecting the legs as the H cross member; the trunnion ends having coaxial bearing connections to the sleeves and its center having a transverse bearing connection to the vehicle frame, with resilient biasing means between the trunnion and sleeves for upright stability.

PatBase - US3370665_A

Feb. 27, 1968

K. P. STANABACK
TANDEM AXLE VEHICLE

3,370,665

Filed Oct. 21, 1965

2 Sheets-Sheet 1

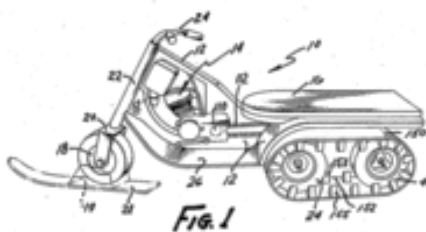


Fig. 1

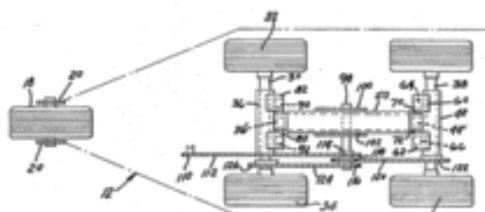


Fig. 2

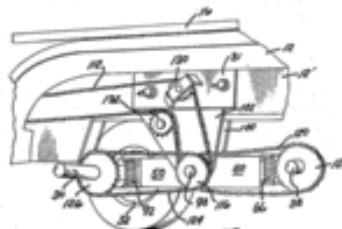


Fig. 3

INVENTOR
KENNETH P. STANABACK
BY *John J. Hennrich*
ATTORNEYS

101) Family number: 23268954 (DE10052822A1)

Title: Foldable bicycle has large wheels, which define outer periphery of bicycle when folded and contain all parts

Family:

Publication number	Publication date	Application number	Application date
DE10052822 A1	20020508	DE20001052822	20001024

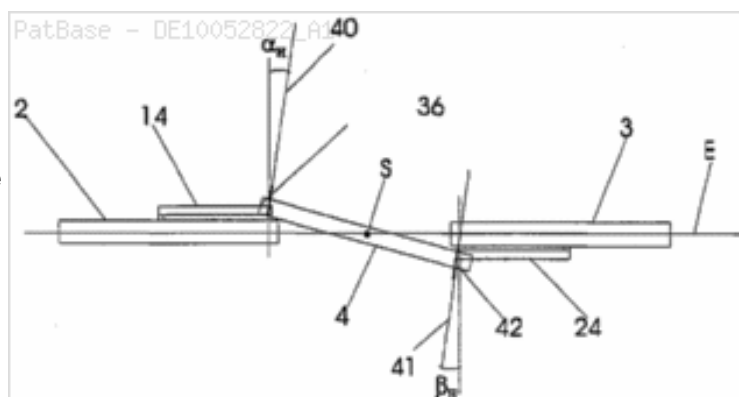
International class B62K15/00
(IPC 1-7).

European class: B62K15/00F2

Cited documents: WO9938759 A1, WO9921750 A1, US4440414 A, US3990717 A, US2708587 A, FR973308 A, FR55465 E, DEC202044, DE4313832 A1, DE4112807 A1, DE19918180 A1, DE19747293 A1.

Abstract:

The bicycle has a frame (4) and wheel forks (14,24) connected to it via pivot joints (36,42), with pivot axis (40,41), which are tilted relative to the rear wheel axle of the erected bicycle. When folded, the wheels (2,3) are located parallel to each other, an the outer limits of the bicycle are defined by the outer sides of the two wheels. Both wheels are fastened to one side of a wheel fork only, which are on the inside when folded. Handle bars, saddle unit, and frame are contained between the outer wheel sides.



0) GB2086815A – MOTOR CYCLE SUSPENSIONS

102) Family number: 5174635 (GB2086815A)

© PatBase

Title: MOTOR CYCLE SUSPENSIONS

Priority: GB19800004872 19800213

Family:

Publication number	Publication date	Application number	Application date
GB2086815 A1	19820519	GB19800004872	19800213
GB2086815 B2	19840606	GB19800004872	19800213

Probable Assignee: SADLER JOHN HARRY LAWRENCE

Assignee(s): (std) SADLER JOHN HARRY LAWRENCE

International class (IPC 8-9): [B62K11/00](#) (Advanced/Invention);
[B62K11/00](#) (Core/Invention)

International class (IPC 1-7): [B60K5/00](#) [B62K11/00](#)

CPC: [B62K11/00](#)

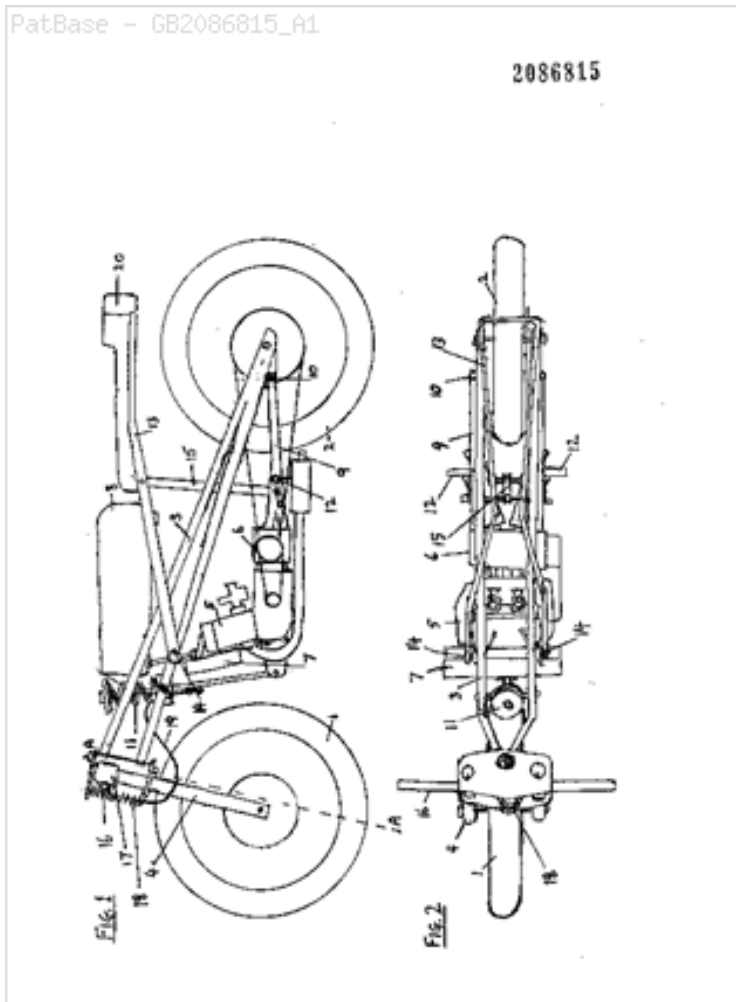
European class: [B62K11/00](#)

[Classification Explorer](#)

Forward Citations: GB2161764, FR2832382,

Abstract:

Source: GB2086815A A motor cycle suspension system includes a rigid frame connecting the steering axis with the rear wheel, which is unsprung, and shock absorbing means disposed between the frame and parts borne by the frame which have appreciable weight, such as the engine, gearbox, seat and luggage carrier.



103) Family number: 31421474 (GB1345859A)

© PatBase

Title: SUSPENSION FOR A NON-STEERED WHEEL OF A VEHICLE
Priority: DE19712158931 19711127 DE19732336787 19730719 DE19732355954 19731109
Family:

Publication number	Publication date	Application number	Application date
DE2158931 A1	19730530	DE19712158931	19711127
DE2336787 A1	19750206	DE19732336787	19730719
DE2355954 A1	19750515	DE19732355954	19731109
GB1345859 A	19740206	GB19720050717	19721103

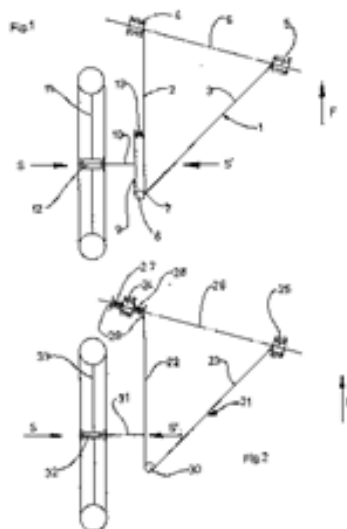
Probable Assignee: VOLKSWAGENWERK AG**Assignee(s):**^(std): VOLKSWAGENWERK AG**Assignee(s):** VOLKSWAGENWERK AG 3180 WOLFSBURG ; VOLKSWAGENWERK 3180 WOLFSBURG AG**Inventor(s):**^(std): SORGATZ ULRICH DIPL ING DR ; BAUERNSTEIN BERNHARD DR ; AMMERSCHLAEGER THOMAS DIPL ING**Inventor(s):** SORGATZ ULRICH DIPL ING DR 3180 WOLFSBURG ; BAUERNSTEIN BERNHARD DR 3180 WOLFSBURG**International class**
(IPC 8-9): [B60B27/00](#) [B60G3/02](#) [B60G3/04](#) [B60G7/00](#) [B60G7/02](#) (Advanced/Invention);
[B60B27/00](#) [B60G3/00](#) [B60G7/00](#) [B60G7/02](#) (Core/Invention)**International class**
(IPC 1-7): [B60G3/02](#) [B60G3/04](#) [B60G7/00](#)**CPC:** [B60G3/02](#) [B60G7/005](#) [B60G7/008](#) [B60G7/02](#) [B60G2200/1322](#) [B60G2200/142](#)
[B60G2200/462](#) [B60G2204/143](#) [B60G2204/148](#) [B60G2204/62](#) [B60G2206/50](#)
[B60G2800/244](#) [B60B27/001](#) [B60G3/04](#) [B60G2200/46](#)**European class:** [B60B27/00C](#) [B60G3/02](#) [B60G3/04](#) [B60G7/00B](#) [B60G7/00W](#) [B60G7/02](#) [L60G200/1322](#)
[L60G200/142](#) [L60G200/460](#) [L60G200/462](#) [L60G204/143](#) [L60G204/148](#) [L60G204/62](#)
[L60G206/50](#) [L60G800/244](#)[Classification Explorer](#)**Forward Citations:** WO13072730, US6241262, US4828279, US4715614, US4603882, US4536007, US4529222, US4526400, US4515391, JP63284008, JP57060973, ITTO20111047, FR2525970, FR2525969, FR2325529, EP1405740, EP1405740, EP0974475, EP0288654, EP0199915, DE4021896, DE3912520, DE3912520, DE3900336, DE3524763, DE3410115, DE3316448, DE3205783, DE2838391, DE2748193, DE2416616, DE19832384, DE10334419, DE102009001228, DE10126192,

Abstract:

Source: GB1345859A 1345859 Independent suspensions VOLKSWAGENWERK AG 3 Nov 1972 [27 Nov 1971] 50717/72 Heading B7D
An independent suspension for a non-steered wheel of a vehicle comprises a longitudinal or oblique suspension arm 1 carrying an axle support 10 which is pivotable against the restoring force of a combined compression and tension spring 9 about hinge means 8 at the end of the arm remote from its pivot axis 6. The arm 1 is a leading link in the case of a front wheel and a trailing link in the case of a rear wheel so that the axle support 10 pivots on the arm 1 under cornering loads on the wheel to produce an understeering effect which counteracts an oversteering effect resulting from deflection of the arm 1. The pivot axis of the hinge means 8 may lie in the central plane of the wheel or be inclined to meet the roadway on the line of intersection of the roadway with the central plane of the wheel. Stops limit movement of the axle support 10 on the arm 1 and may be arranged to prevent outward movement of the support from the straight ahead position. In another embodiment the suspension arm comprises inner and outer side members which are pivotally connected at their ends remote from the pivot axis of the arm, and the axle support is rigidly attached to the outer side member which is displaceable along the pivot axis against restoring springs.

PatBase - GB1345859_A

1345859 COMPLETE SPECIFICATION
1 SHEET
This drawing is a reproduction of
the Original as a reduced scale



104) Family number: 48985994 (DE102010052716B4)

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Title: DREIRAEDRIGES FAHRZEUG**Priority:** TW20090140605 20091127

Family:	Publication number	Publication date	Application number	Application date
	<u>DE102010052716 A1</u>	20110609	DE201010052716	20101126
	<u>DE102010052716 B4</u>	20120906	DE201010052716	20101126
	<u>FR2953184 A1</u>	20110603	FR20100059811	20101126
	<u>FR2953184 B1</u>	20170324	FR20100059811	20101126
	<u>IT1402764 B1</u>	20130918	IT2010MI02184	20101125
	<u>ITMI20102184 A1</u>	20110528	IT2010MI02184	20101125
	<u>TW201117997 A</u>	20110601	TW20090140605	20091127
	<u>TWI378056 B</u>	20121201	TW20090140605	20091127

Probable Assignee: KWANG YANG MOTOR CO**Assignee(s):^(std):** KWANG YANG MOTOR CO**Assignee(s):** KWANG YANG MOTOR CO LTD**Inventor(s):^(std):** HUANG CHUN HAO ; HUANG JUN HAO ; LEE YEN HSIU ; LI YAN XIU ; TING HSIN CHIH ; DING XIN ZHI**Inventor(s):** HSIN CHIH TING ; CHUN HAO HUANG ; YEN HSIU LEE**Agent(s):** CABINET REGIMBEAU

International class
 (IPC 8-9): B62D61/06 B62K11/02 B62K19/32 B62K21/00 B62K5/02 B62K5/027 B62K5/04 B62K5/05 B62K5/08 (Advanced/Invention);
B62K11/02 B62K19/32 (Core/Non-invention)

CPC: B62K5/027 B62K5/05 B62K5/08 B62K5/10**European class:** B62K5/027 B62K5/05 B62K5/08 B62K5/10[Classification Explorer](#)**Cited documents:** US2007075514 AA, TW469239 B, TW331973 B, TW200817230, TW200815231, TW200530057 A, EP1180476,

DE602005005423 T2

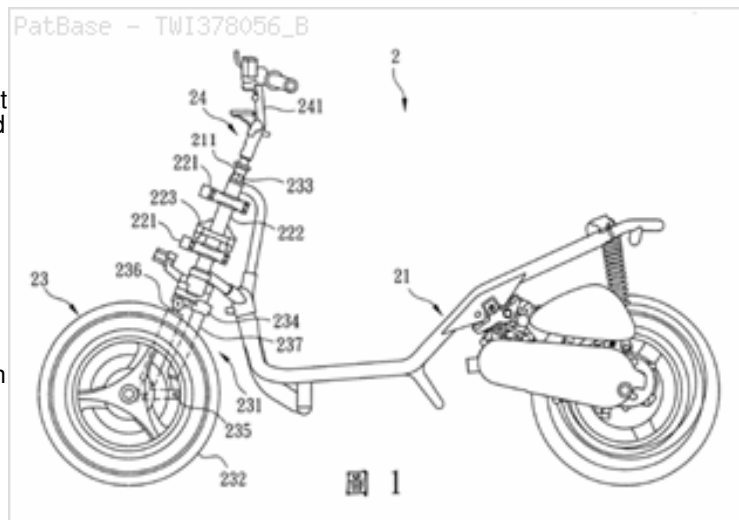
DE60012319 T2, CN201151444,

Forward Citations: WO15115110, WO15115109, WO15002173, WO14065385, WO14065381, WO14046287, WO14046280, WO13104335, WO12007819, US9493208, US9452806, US9452803, US9296420, US9278711, US9238494, US9227662, US9216790, US9211773, US8991542, TWI558600, TWI555666, TWI523790, TWI523789, TWI523788, TWI523787, JP5797367, JP5797366, JP5536967, JP2015115110, JP2015115109, JP2014046287, EP2998209, EP2937270, EP2923931, EP2923930, EP2921388, EP2921387, EP2921384, EP2913255, EP2899107, EP2899105, EP2810861, EP2593352, CN105339252, CN104487333, CN104487322, CN104487322,

Abstract:

Source: DE102010052716B4 Dreiraedriges Fahrzeug (2), mit: – einem Hauptrahmen (21) mit einem hohlen, zentralen Positionierelement (211), – einer Anti-Kippeinheit (20) umfassend – eine Gelenkstangeneinheit (22), die schwenkbar mit dem zentralen Positionierelement (211) verbunden ist und aufweist – ein Paar voneinander beabstandeter Gelenkstangen (221), die in einer horizontalen Richtung verlaufen, wobei jede der Gelenkstangen (221) einen schwenkbar mit dem zentralen Positionierelement (211) verbundenen mittleren Teil hat, – ein Paar seitlicher Stangen (222), von denen eine der seitlichen Stangen (222) schwenkbar mit linken Enden der Gelenkstangen (221) verbunden ist und die andere der seitlichen Stangen (222) schwenkbar mit rechten Enden der Gelenkstangen (221) verbunden ist, wobei

jede der Gelenkstangen (221) ein Paar Stabsegmente (224) umfasst, von denen jedes das zentrale Positionierelement (211) schwenkbar mit einer zugehörigen der seitlichen Stangen (222) verbindet, und jede der seitlichen Stangen (222) mit einem Eingriffsblock (2221) ausgebildet ist, – eine starre Kupplungsstange...



0) DE102011010727A1 – SCHLEPPFAHRZEUG FUER FLUGZEUGE, DAS INSBESONDER...

105) Family number: 46148911 (DE102011010727A1)

© PatBase

Title: Schleppfahrzeug fuer Flugzeuge, das insbesondere auf der Stelle drehen kann mit ebenso frei drehbarer Bugradaufnahmevorrichtung Tow vehicle for aircraft that can turn on the spot especially well with a freely rotatable Bugradaufnahmevorrichtung (Machine translation)

Priority: DE201020002355U 20100213 DE201110010727 20110209

Family:	Publication number	Publication date	Application number	Application date
	<u>DE102011010727 A1</u>	20120510	DE201110010727	20110209
	<u>DE202010002355 U1</u>	20100708	DE201020002355U	20100213

Probable Assignee: SCHICKLING AXEL

Assignee(s):^(std): SCHICKLING AXEL

Assignee(s): SCHICKLING

Inventor(s):^(std): SCHICKLING AXEL

International class B64F1/22 (Advanced/Invention)
(IPC 8-9):

CPC: B64F1/22 B64F1/227

European class: B64F1/22 B64F1/22E2

[Classification Explorer](#)

Cited documents: US818752 A, US4036384 A, US3825869 A, US2846018 A, US2732088 A, GB826344 A, DE80112938 T, DE60112938 T2,

Forward Citations: CN104773302, CN104590581,

Abstract:

Source: DE102011010727A1 Herkoemmliche Schleppfahrzeuge sind moeglichst schwere Traktoren die dann mittels einer, dem Flugzeugtyp entsprechend passende Schleppstange mit dem Bugrad des zu bewegenden Flugzeuges verbunden sind und diese dann so ziehen oder schieben. Ein Rangieren auf engstem Raum ohne sich der Gefahr der Bugradueberlenkung auszusetzen ist fast gar nicht moeglich und das staendige Wechseln der dem Flugzeugtyp entsprechender Schleppstange sehr aufwaendig. Der vorliegenden Erfindung liegt die Aufgabe zugrunde, ein von der Bugradauslenkung, Bugradgroesse und Bugradausfuehrung weitgehend unabhaengige, moeglichst selbsttaetig anpassbare und frei waagerecht um 360 degrees drehbare Bugradaufnahme, eines sich dann auch auf der Stelle drehbaren Schleppfahrzeug fuer Flugzeuge vorzuschlagen, das sich dann also um das aufgenommene Bugrad herum frei drehen kann, um so in jede Richtung das Bugrad und damit das zu bewegende Flugzeug zu verfahren. Es ist also auch ein sehr kleiner Wendekreis des schleppenden Flugzeuges, quasi nur auf der Stelle um das Hauptfahrwerk des Flugzeugs drehend, moeglich. Schleppen und rangieren von Flugzeugen auf den Flugplaetzen, Hangarvorplaetzen und in den Hangar.

Machine translation: Conventional towing vehicles as possible are heavy tractors which are connected by one, according to the type of aircraft suitable tow bar with the nose wheel of the aircraft to be moved and then they then draw or slide. Suspend a maneuvering in confined spaces without the risk of Bugradueberlenkung is hardly possible and the continual changing of the appropriate type of aircraft tow bar very expensive. The present invention has for its object, one of the NWS, Bugradgroesse and Bugradausfuehrung largely independent, as possible selbsttaetig customizable and freely horizontally rotated 360 degrees Bugradaufnahme, one is then to propose on the spot rotating tow vehicle for aircraft, which then also to the recorded around nose wheel can rotate freely, so the nose wheel in any direction and therefore to proceed to the moving plane. So it's a very small turning circle of sluggish aircraft, turning on the spot to speak, only the main landing gear of the aircraft, possibly. Tow and maneuver of aircraft on the airfields, and Hangarvorplaetzen in the hangar.

PatBase - DE202010002355_U1

DE 20 2010 002 355 U1 2010.08.12

Anhängende Zeichnungen

Fig. 1

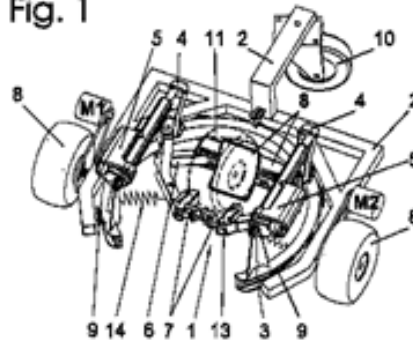
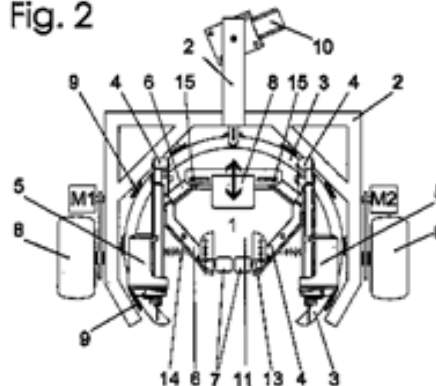


Fig. 2



5/6

0) FR2807729A – TILT STEERING FOR TRICYCLE HAS SEAT SUPPORTED O...

106) Family number: 15704722 (FR2807729A)

© PatBase

Title: TILT STEERING FOR TRICYCLE HAS SEAT SUPPORTED ON FRAME WITH PIVOT CONNECTION TO REAR WHEEL CARRYING FRAME

Priority: FR20000004892 20000414

Family:

Publication number	Publication date	Application number	Application date
<u>FR2807729 A1</u>	20011019	FR20000004892	20000414
<u>FR2807729 B1</u>	20041015	FR20000004892	20000414

Probable Assignee: ANQUETIL BRUNO EMILE PIERRE

Assignee(s):^(std) ANQUETIL BRUNO EMILE PIERRE

Inventor(s):^(std) ANQUETIL BRUNO EMILE PIERRE

International class B62K21/00 B62K5/02 B62K5/04 B62M1/14 (Advanced/Invention)
(IPC 8-9):

International class B62K5/04 B62K5/08
(IPC 1-7):

CPC: B62K5/02 B62K5/10 B62K21/00 B62M1/14

European class: B62K21/00 B62K5/02 B62K5/10 B62M1/14

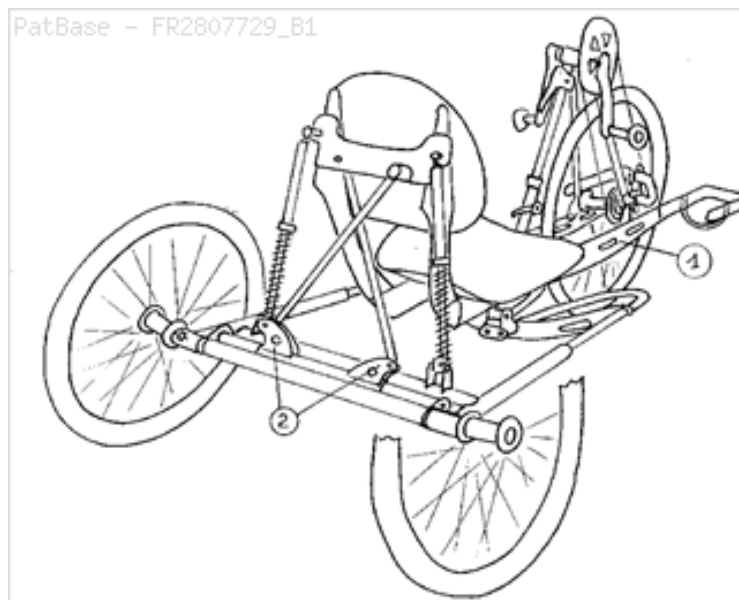
[Classification Explorer](#)

Cited documents: US5354084 A, JP5085453, FR2773766 A1,

Forward Citations: US7694986,

Abstract:

The human powered tricycle has a tilting seat supported on a frame with a front beam (1) extending to support a front wheel (R) and a hand pedal assembly (M). The seat and beam assembly is attached to the rear wheel carrying frame by three pivot points. Two of the pivot points (D) are situated behind the seat and form a vertical support.



0) DE102006042118A1 – FRONT CARRIAGE FOR E.G. BICYCLE, HAS SHANK ADAP...

107) Family number: 34352555 (DE102006042118A1)

© PatBase

Title: FRONT CARRIAGE FOR E.G. BICYCLE, HAS SHANK ADAPTER FOR FIXING SHANK OF VEHICLE, WHERE ADAPTER HAS BOWDEN CABLE FOR TRANSMITTING STEERING MOVEMENT OF SHANK TO WHEELS, WHICH ARE FASTENED AT FRAME

Priority: DE200510044457 20050916 DE200610042118 20060907

Publication number	Publication date	Application number	Application date
<u>DE102006042118 A1</u>	20070329	DE200610042118	20060907

Probable Assignee: CONSTIN GMBH

Assignee(s):^(std): CONSTIN GMBH

Inventor(s):^(std): CONSTIEN HANS PETER

International class B62K27/00 B62K5/08 B62K7/04 (Advanced/Invention)
(IPC 8-9).

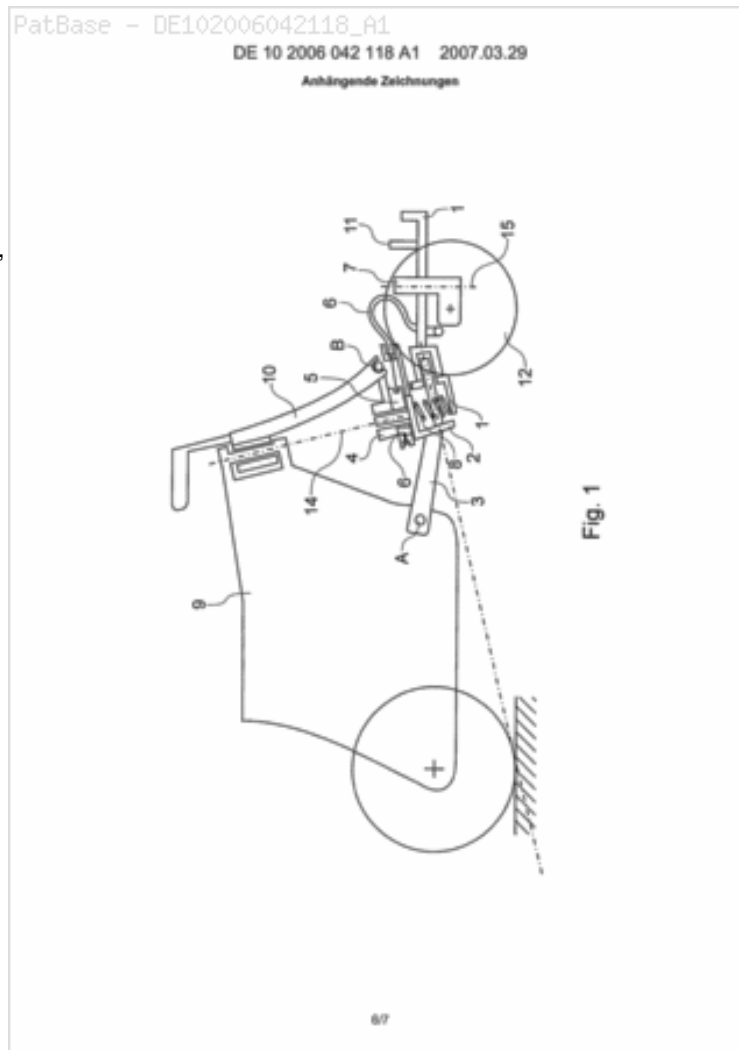
CPC: B62K7/04 B62K5/08 B62K5/05 B62K13/04

European class: B62K13/04 B62K5/05 B62K5/08

[Classification Explorer](#)

Abstract:

The carriage has two wheels, which are fixed at a chassis (1). A frame (2) is swivelably connected with the chassis. A shank adapter (4) is rotatably fixed at the frames around a steering shaft (14). The adapter is formed for accommodating and fixing a shank (10) of the vehicle, where the adapter has a Bowden cable (5), which is formed for transmitting steering movement of the shank to the wheels, which are fastened at a frame.



0) GB728116A – IMPROVEMENTS RELATING TO TIPPING VEHICLES

108) Family number: 19672898 (GB728116A)

© PatBase

Title: Improvements relating to tipping vehicles

Priority: GB19530027501 19531007

Family:	Publication number	Publication date	Application number	Application date
	<u>GB728116 A</u>	19550413	GB19530027501	19531007

Probable Assignee: LESLIE BASIL THWAITES

Assignee(s):^(std): LESLIE BASIL THWAITES

International class B60P1/16 B60P1/50 (Advanced/Invention);
(IPC 8-9) B60P1/00 B60P1/04 (Core/Invention)

CPC: B60P1/16 B60P1/50

European class: B60P1/16 B60P1/50

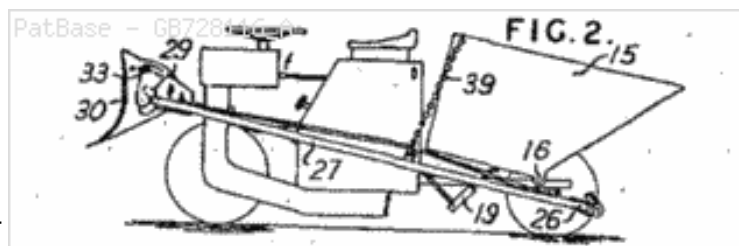
[Classification Explorer](#)

Forward Citations: GB2305640,

Abstract:

Source: GB728116A 728,116.

Tipping-vehicles. THWAITES, L. B. Nov. 9, 1953 [Oct. 7, 1953], No. 27501/53. Class 108 (1). [Also in Group XXI] A tipping vehicle has a body 15 pivoted at 16 to the chassis frame and connected by chains 39 to a pair of arms 27 pivoted at 26 to the chassis at the rear end and at 29 to a scoop, pusher blade or scarifier at the forward end. The hydraulic jack 19 which tips the body thus actuates the implement.



109) Family number: 20278824 (GB422098A)

© PatBase

Title: Improvements in automobile road vehicles**Priority:** GB19340011460 19340416

Family:	Publication number	Publication date	Application number	Application date
	<u>GB422098 A</u>	19350104	GB19340011460	19340416

Probable Assignee: FRITZ SPATZ**Assignee(s):**^(std): FRITZ SPATZ

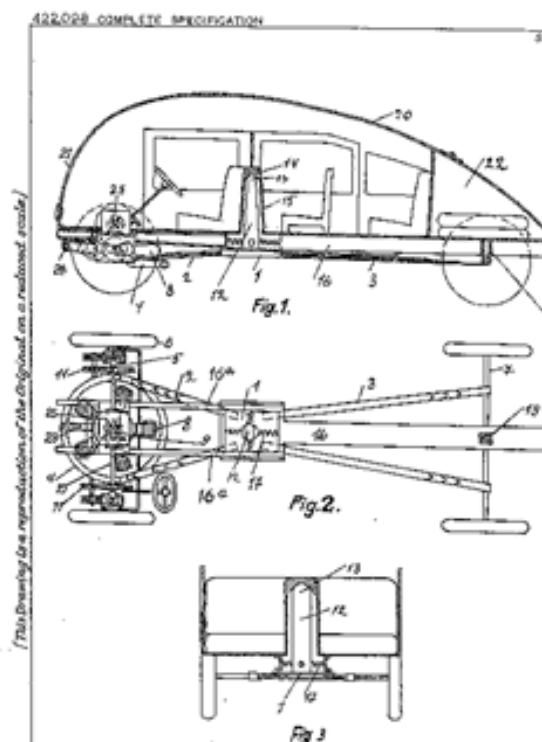
International class B60K17/30 (Advanced/Invention);
 (IPC 8-9): B60K17/00 (Core/Invention)

International class B60K5/00
 (IPC 1-7):

CPC: B60K17/30**European class:** B60K17/30[Classification Explorer](#)**Abstract:**

Source: GB422098A 11460. [Class 108 (ii)]
 [See also Group XXXI] In a motor road vehicle, the axle of the driven wheels is of annular formation surrounding the engine which is fixed to the chassis frame whilst the axle is connected thereto by springs. In conjunction therewith, the vehicle body may be pivotally supported above the plane of its centre of gravity upon a central pillar. The invention is shown applied to a front wheel drive but is not limited thereto. A foundation plate 1 attached to radiating suspension springs 2, 3, carries a vertical pillar 12 with a rounded top forming a seating for a cap 14 with a depending skirt 15 within which are cushioning springs 17 and from the base of which extend front and rear frame members, 16, 16, respectively. The rear springs 3 are supported on an axle 7 connected to the frame member 16 by a pin or pins 18 engaging a rubber and c. lined socket 19. The forward ends of the springs 2 are attached to a ring 4 of welded iron or steel tubing which in effect constitutes the front axle, the front portion of the ring being raised above the plane of the rear portion and being connected to the frame 16 by a leaf spring 23, whilst laterally projecting arms 5 carry the steering-wheels 6. A horizontal radial cylinder engine 8 carried by the frame 16 is located within the ring and drives the wheels 6 through bevel gearing 9, a transverse shaft 10 and gearing 11. In a modification, the wheels are driven through a differential and articulated shafting 29, 28, Fig. 6, each stub axle working in a spherical shell 34 connected to the ring 4, the shell carrying gudgeons 35 for the steering fork 36. A body 20 of stream line formation is erected on the frame 16, 16, the suspension member 15 being incorporated in the seating structure. The tapered rear portion 22 forms a luggage and c. compartment.

PatBase - GB422098_A



0) EP1553010A1 – STABILIZING DEVICE FOR MOTORCYCLES AND THE LIKE...

110) Family number: 32066136 (EP1553010A1)

© PatBase

Title: Stabilizing device for motorcycles and the like

Priority: IT2004MO00002 20040109

Family:	Publication number	Publication date	Application number	Application date
	EP1553010 A1	20050713	EP20040030235	20041221
	ITMO20040002 A1	20040409	IT2004MO00002	20040109

Probable Assignee: META SYSTEM SPA

Assignee(s):^(std): META SYSTEM SPA

Assignee(s): META SYSTEM S P A

Inventor(s):^(std): SIMONAZZI GIUSEPPE

Designated states: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR

International class
(IPC 8-9): [B62H1/12 B62K11/00](#) (Advanced/Invention);
[B62H1/00 B62K11/00](#) (Core/Invention)

International class
(IPC 1-7): [B62H1/12 B62K11/00](#)

CPC: [B62H1/12](#)

European class: [B62H1/12](#)

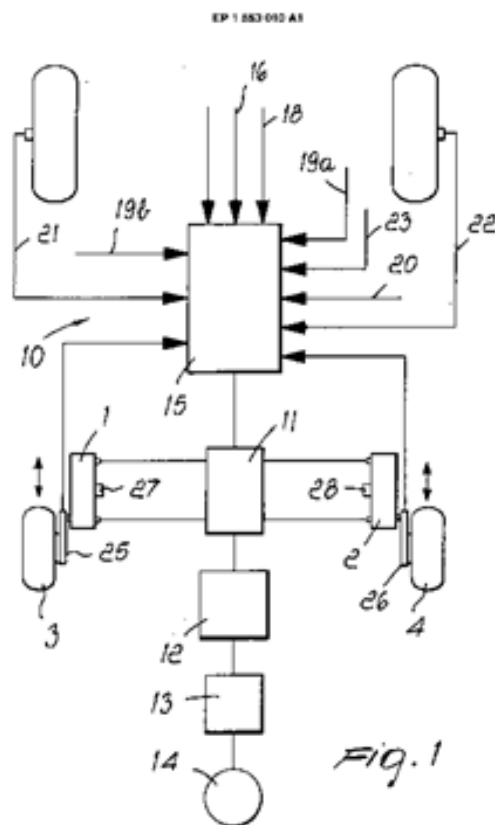
[Classification Explorer](#)

Cited documents: WO04014716 A1, WO0034112 A1, US4691798 A, FR2847224 A1, FR2678230 A1, FR2399354 A1,

Abstract:

Source: EP1553010A1 A stabilizing device for motorcycles and the like, comprising a first linear actuator (1) and a second linear actuator (2), which are suitable to be connected to the frame of a motorcycle or the like and support, at their respective ends, a first wheel (3) and a second wheel (4), and a control unit (10), which is suitable to actuate the first and second linear actuators (1, 2) so that they move down or up in order to make the first and second wheels (3, 4) touch the ground or not in accordance with signals in input to the control unit (10), which define trim conditions of the motorcycle.

PatBase - EP1553010_A1



0) ES2112677A – SELF-LOADING SWEEPING MACHINE MAQUINA BARREDOR...

111) Family number: 13794848 (ES2112677A)

© PatBase

Title: Self-loading sweeping machine

Priority: ES19940000088 19940118 ES19960000329 19960212

Family:	Publication number	Publication date	Application number	Application date
	ES2112677 AA	19980401	ES19940000088	19940118
	ES2112677 BA	19981101	ES19940000088	19940118
	ES2127099 AA	19990401	ES19960000329	19960212
	ES2127099 BA	19991216	ES19960000329	19960212

Probable Assignee: PIQUER HERMANOS SA

Assignee(s):^(std): PIQUER HERMANOS SA

Assignee(s): PIQUER HERMANOS S A

Inventor(s):^(std): PIQUER CASANOVAS JOSE MARIA

International class
^{(IPC 8-9):} [E01H1/04](#) (Advanced/Invention);
[E01H1/00](#) (Core/Invention)

International class
^{(IPC 1-7):} [E01H1/04](#)

[Classification Explorer](#)

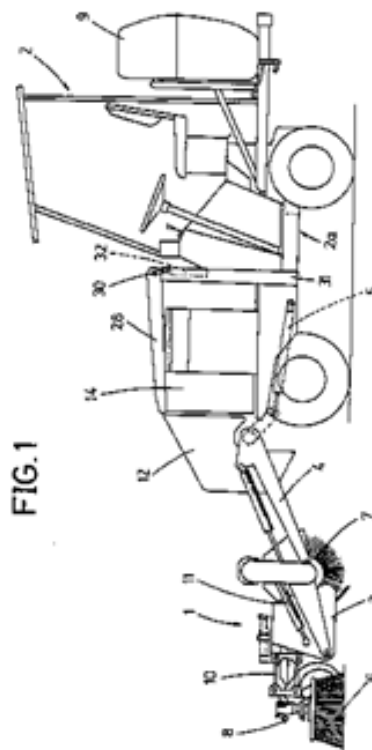
Cited documents: US5060334 A, US4178647 A, US4059942 A, US3293679 A, US3083058 A, GB2223659 A1, FR2702459 A1, FR2516566 A1, ES2007143 AF, ES2007143 A2, EP0482293 A1, EP0436273 A1,

Abstract:

The machine consists of a self-propelling group 1, in the front part of which a sweeper group 2 is mounted which discharges the rubbish into a hopper 26 mounted on an elevator mechanism 22. The hopper tips the rubbish out laterally. The cover 30 of the hopper is articulated on uprights 30a integral with the frame 17. The machine has a rocking pedal 40 which governs the forward and backward movement of the machine which is also equipped with a fluidodynamic circuit for releasing the wheels in the event of a failure in the electrical supply. The side discharge of the rubbish deposited in the hopper 26 and the possibility of the discharge taking place from a raised position of the hopper facilitate discharge of the rubbish into a container or other suitable place.

PatBase - ES2127099_BA

ES 2 127 099 B1



0) FR2912929A – ELECTRICAL MINIATURE CAR FOR TRANSPORTING INFAN...

112) Family number: 42124584 (FR2912929A)

© PatBase

Title: ELECTRICAL MINIATURE CAR FOR TRANSPORTING INFANTS, HAS BUTTONS FOR SWITCHING CONTROL OF CAR BETWEEN INFANT AND OPERATOR, STOPPING CAR, PERFORMING FORWARD/REVERSE GEAR OPERATION AND STARTING/STOPPING REMOTE CONTROL, RESPECTIVELY

Priority: FR20070001455 20070228

Family:	Publication number	Publication date	Application number	Application date
	<u>FR2912929 A1</u>	20080829	FR20070001455	20070228

Probable Assignee: MAHTALI NOUREDDINE

Assignee(s):^(std): MAHTALI NOUREDDINE

Assignee(s): NOUREDDINE MAHTALI

Inventor(s):^(std): MAHTALI NOUREDDINE

Inventor(s): NOUREDDINE MAHTALI

Agent(s): NOUREDDINE MAHTALI

International class A63H17/00 A63H30/04 (Advanced/Invention);
(IPC 8-9): A63H17/00 A63H30/00 (Core/Invention)

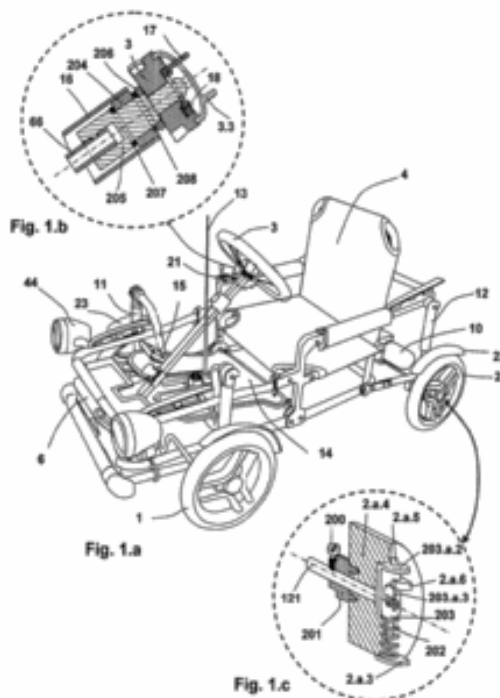
CPC: B62K9/00

European class: B62K9/00

[Classification Explorer](#)

Abstract:

The car has a chassis that is foldable at the center of the car, where the car is controlled locally by an infant and remotely by an operator using a remote control (5). A directional signal switch allows an infant to perform forward/reverse gear operation. A speed variator is connected to an accelerator pedal of the infant. The remote control has buttons (38–41) for allowing the operator to switch the control of the car between the infant and operator, stop the car in case of danger or anomaly, perform forward/reverse gear operation and to start/stop the remote control, respectively.



0) DE19636717A1 – HOLDING DEVICE WITH SUPPORT FUNCTION

113) Family number: 13219869 (DE19636717A1)

© PatBase

Title: Holding device with support function

Priority: DE19961036717 19960910

Family:	Publication number	Publication date	Application number	Application date
	<u>DE19636717 A1</u>	19980312	DE19961036717	19960910

Probable Assignee: ZIMLICH ERNST

Assignee(s):^(std): ZIMLICH ERNST

Assignee(s): ZIMLICH ERNST 80638 MUENCHEN DE

Inventor(s):^(std): ZIMLICH ERNST

Inventor(s): ZIMLICH ERNST 80638 MUENCHEN DE

International class
(IPC 8-9): B62H1/02 (Advanced/Invention);
B62H1/00 (Core/Invention)

International class
(IPC 1-7): B62H1/02

CPC: B62H1/02

European class: B62H1/02

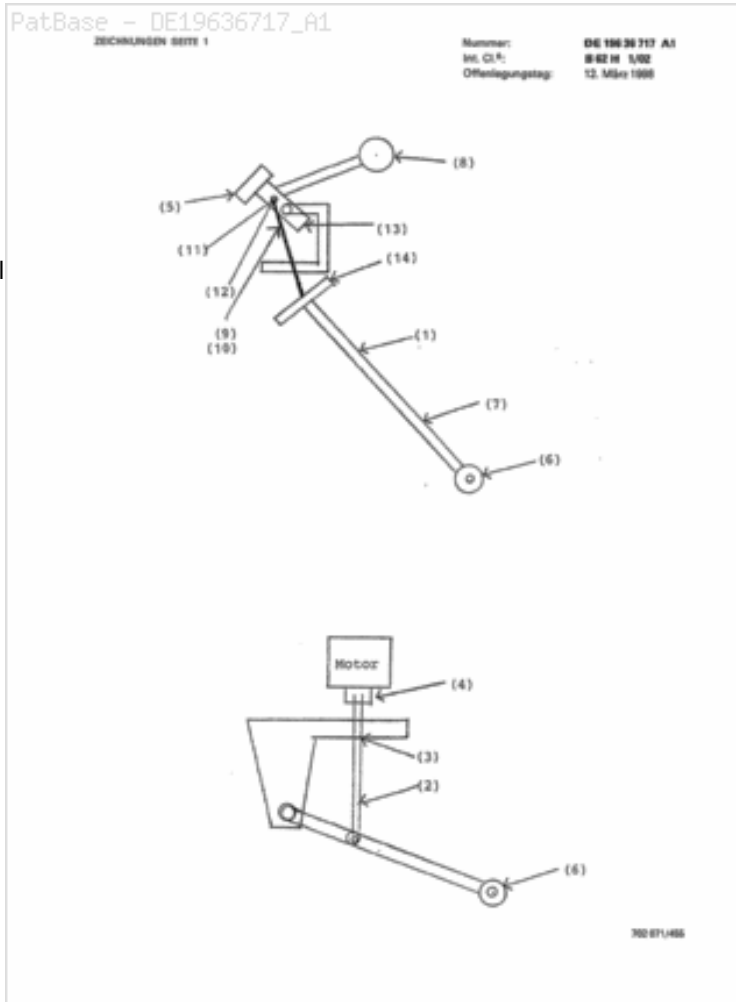
[Classification Explorer](#)

Cited documents: US4817977 A, US2633934 A, GB627553 A, DE697355 A, DE3822968 A1, DE293247 A, DE293247, DE2658056 A1, DE252816 A, DE252816, DE196774 A, DE196774, DE19533752 A1, DE1680538 A1, CH222675 A, CH222675, AT4856 B, AT301362 B,

Forward Citations: DE102010009258, CN104002894, CN103466004, CN103466004,

Abstract:

Source: DE19636717A1 Two high-level engaging supports (1) operated by handle or pedal or by rack, motor or hydraulically, or a double swivel, provide support simultaneously right and left and comprise tee elements pressed away from the frame by flange struts (14) or swivel support with lockable ground-wheels or skids (6). The supports operate on both sides of the machine at an angle to the rear and with two front supports all operated simultaneously with one or both brakes (11,12). The handlebars are held straight by rope or a spring etc. An energy storage spring (4) provides automatic and continuous regulating function for all types of support and actuation is assisted by auxiliary springs acting as compensators. In the motor version, a less steeply angled support or turnbuckle, rope, rack, chain etc is twisted round by hand or motor to swing the supports down for sideways spread off a second turnbuckle. Further twisting of the turnbuckle etc raises the machine for repair etc. When used for a bicycle, an additional support keeps the front wheel off the ground.



0) BE1012229A – BICYCLE FIETS.

114) Family number: 11633371 (BE1012229A)

© PatBase

Title: Bicycle

Priority: BE19980000734 19981013

Family:	Publication number	Publication date	Application number	Application date
	<u>BE1012229 AD</u>	20000704	BE19980000734	19981013

Probable Assignee: FOOD PRODUCTS BVBA

Assignee(s):^(std): FOOD PRODUCTS BVBA

International class B62K5/04 B62K9/02 (Advanced/Invention)
(IPC 8-9):

International class B62K5/04 B62K9/02
(IPC 1-7):

CPC: B62K5/10 B62K9/02

European class: B62K5/10 B62K9/02

[Classification Explorer](#)

Cited documents: US5240267, US3237961, FR2280539, FR2243105, DE91831,

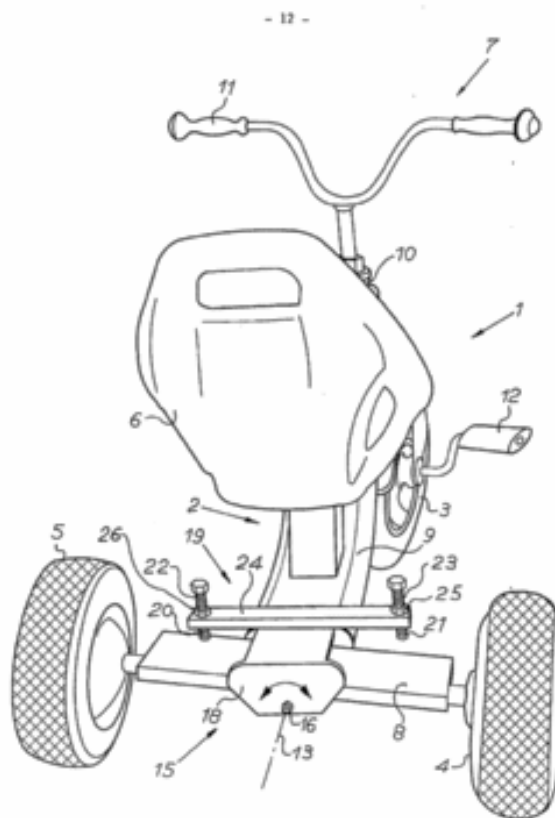
Forward Citations: DE102010018129, DE102010018129,

Abstract:

Bicycle, of a type that at least comprises a frame (2), at least three support points for this frame (2) created by wheels (3-4-5), at least one seat (6) supported by the frame (2), and steering means (7), characterised by the fact that at least a section (9) of the frame (2), can be tilted to the side together with the said seat (6), more specifically can be tilted in relation to the area formed by the said support points.

PatBase - BE1012229_AD

09800734



115) Family number: 7159741 (US3709314A)

© PatBase

Title: ALL TERRAIN VEHICLE
Priority: US19700081236 19701016
Family:

Publication number	Publication date	Application number	Application date
<u>US3709314 A</u>	19730109	US19700081236	19701016

Probable Assignee: FMC CORP

Assignee(s):^(std): FMC CORP

Assignee(s): FMC CORP US

Inventor(s):^(std): HICKEY V

Inventor(s): HICKEY V US

International class B60G11/50 B60G17/02 B60K17/34 B62D23/00 (Advanced/Invention);
 (IPC 8-9): B60G11/32 B60G17/02 B60K17/34 B62D23/00 (Core/Invention)

International class B60K17/34
 (IPC 1-7):

CPC: B60G11/50 B60G17/02 B60G2300/07 B60K17/34 B62D23/005

European class: B60G11/50 B60G17/02 B60K17/34 B62D23/00B L60G300/07

US class: 180/249 180/254

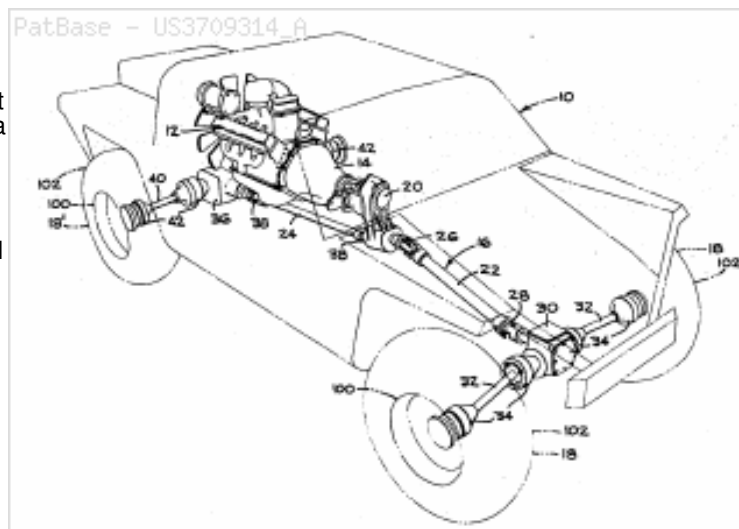
[Classification Explorer](#)

Cited documents: US3451497 A, US3407893 A, US3390593 A, US3379269 A, US3277975 A, US3246717 A, US3235021 A, US2978255 A, US2631681 A, US2092612 A, US1780370 A,

Forward Citations: US9434244, US9150070, US8944449, US8827028, US8596405, US8382125, US7931106, US7793951, US7717206, US7690472, US7690462, US7650959, US7559403, US7510199, US7506712, US7438147, US7367417, US7357211, US7311167, US7287619, US6105984, US4786075, US4779487, US4691593, US4216843, US2015108732, US2014374184, US2014374183, US2013161109, US2011240393, US2011094812, US2011048828, US2009178871, US2008053727, US2008023240, US2008015066, US2008015065, US2006278464, US2005077098, US2004231900, US2004216945, US2004206567, US2004195028, US2004195019, US2004195018, FR2842763, FR2443964, EP1520775, EP1057675, EP0186123, AT388712,

Abstract:

Source: US3709314A A high speed all terrain vehicle of the type having four wheel drive through a limited slip inter-axle differential that is effective to transfer driving torque between a front differential and a rear limited slip differential upon loss of traction of some of the wheels. Improved rough terrain mobility is achieved through an independent torsion bar suspension employing a power augmented roll steer characteristic to reduce the turning radius of the vehicle.



0) DE2947547A1 – ENTNAHMEMAGAZIN FUER GEBRAUCHSGERAETE, WIE GEPA...

116) Family number: 1839291 (DE2947547A1)

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Title: ENTNAHMEMAGAZIN FUER GEBRAUCHSGERAETE, WIE GEPAECK- ODER EINKAUFSWAGEN CHECK OUT GUIDE FOR SALES TROLLEYS – HAS ROLLER GUIDE TRACK FOR FRONT WHEEL THAT PREVENTS TROLLEY TILTING

Priority: DE19792947547 19791126

Family:	Publication number	Publication date	Application number	Application date
	<u>DE2947547 A1</u>	19810604	DE19792947547	19791126

Probable Assignee: MANSS FA AUGUST

Assignee(s):^(std): MANSS AUGUST FA ; MANSS FA AUGUST

Assignee(s): MANSS AUGUST

Inventor(s):^(std): MANSS AUGUST

International class
(IPC 8-9): G07F7/06 (Advanced/Invention);
G07F7/00 (Core/Invention)

International class
(IPC 1-7): G07F17/00

CPC: G07F7/0636

European class: G07F7/06C3

[Classification Explorer](#)

Cited documents: DE2249478,

Forward Citations: US5810541, DE4202969, DE4202969, DE10223901,

Abstract:

Source: DE2947547A1

PATENTANSPRRUECHE: Entnahmemagazin fuer Gebrauchsgeraete, wie Gepaeck- oder Einkaufswagen, bestehend aus einem durch wenigstens eine, mindestens eine Rolle jedes Wagens teilweise umgreifende Fuehrungsschiene gebildeten Aufnahmemagazin und einem mit einer die Entnahmeoeffnung des Magazines beherrschenden Entnahmesperre gekuppelten Muenzschaltwerk, dem ein mindestens eine Muenze als Pfand aufbewahrender Muenzspeicher mit einer von einer in die Entnahmeoeffnung des Magazines hineinragenden Betaetigungseinrichtung gesteuerten Pfandmuenzrueckgabevorrichtung zueordnet ist, wobei das Muenzschaltwerk wenigstens einen durch den Wagen betriebsfrei betaeigbaren Schalter aufweist und wobei saemtliche im Magazin befindlichen Wagen gegen ein Heraus heben aus dem Magazin gesichert sind, nach Patent (Patentanmeldung 29 41 732), dadurch gekennzeichnet, dass zur Sicherung gegen ein Ausheben aus dem Magazin an jedem Wagen wenigstens ein horizontal oder vertikal ausgerichtetes Eingriffsglied (106,112,122) angeordnet ist, welches mit mindestens einer neben einer der Rollenspuren (3,4) des Wagens angeordneten, sich im wesentlichen ueber die gesamte Laenge des Magazinrahmens erstreckenden Rueckhalteschiene (108,117 bzw. The check out station for a sales trolley includes a non contact sensing unit that requires that the trolley is located on the three wheels without tilting. The wheel arrangement is based upon a rear pair of fixed axle wheels and a leading wheel (5) that is free to move about a vertical axis (104). The wheel is guided into a track (3) that runs along the length of the checkout station. The frame (105) supporting the wheel also carries a smaller pair of rollers (106) on an offset axis (107). The side rollers located in separate side track (108) sections and prevent any vertical movement from taking place.

