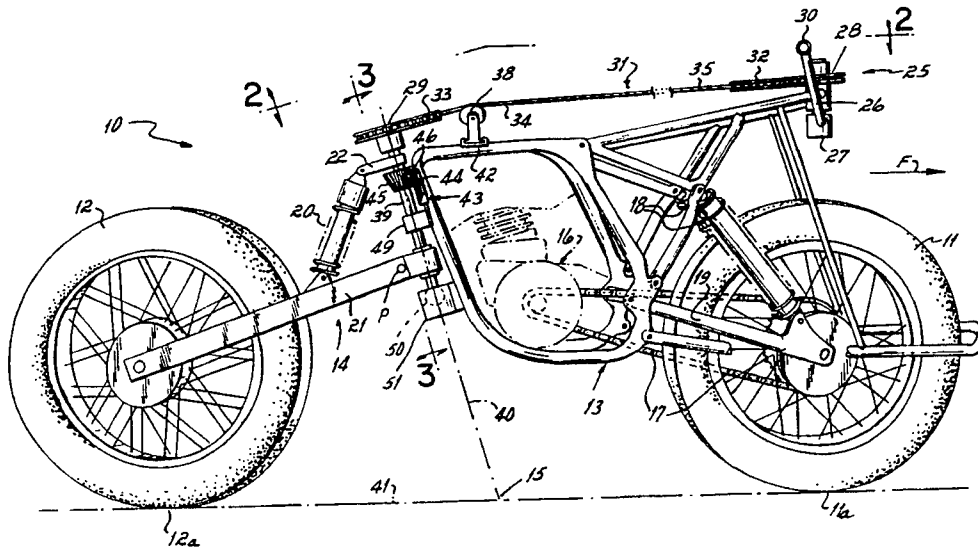


## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification <sup>6</sup> : B62K 21/00, 21/12</p>	<p>A3</p>	<p>(11) International Publication Number: <b>WO 95/01276</b> (43) International Publication Date: 12 January 1995 (12.01.95)</p>
<p>(21) International Application Number: PCT/US94/07120 (22) International Filing Date: 23 June 1994 (23.06.94) (30) Priority Data: 08/084,428 29 June 1993 (29.06.93) US (71)(72) Applicant and Inventor: SUMMERS, Thomas, Wade [US/US]; 3012 Kent Road, Louisville, KY 40205 (US). (74) Agents: STALLARD, David, S. et al.; Wood, Herron &amp; Evans, 2700 Carew Tower, Cincinnati, OH 45202 (US).</p>	<p>(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LU, LV, MD, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments</i></p> <p>(88) Date of publication of the international search report: 23 February 1995 (23.02.95)</p>	

(54) Title: VEHICLE WITH REAR WHEEL STEERING AND FRONT WHEEL DRIVE



## (57) Abstract

A single track vehicle (10) includes at least one front drive wheel (11) and one rear steered wheel (12). A steering mechanism (25) causes the front and rear wheels (11, 12) to substantially track each other during a turn and also causes the center of gravity (CG) of the vehicle (10) to be raised during a turn. The steering mechanism (25) further allows simultaneous variance of both the camber angle and turn angle of the rear wheel (12) for even more exact tracking of the front (11) and rear (12) wheels. The steering mechanism (25) further provides for a more linear relationship between the rate of change in the angle of rotation of the steering head (27) of the vehicle and the rate in change of the turn radius of the vehicle. In other aspects, a steering mechanism (60-64, 66, 67, 70, 71, 76, 77) is provided which allows the operator to maintain a constant width between his hands while turning a vehicle incorporating the steering mechanism. Preferred embodiments of the vehicle are shown in the form of a bicycle (110) and a motorcycle (10).

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**INTERNATIONAL SEARCH REPORT**

Internatic Application No  
PCT/US 94/07120

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 6 B62K21/00 B62K21/12		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) IPC 6 B62K		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used)		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US,A,5 042 608 (HORIKE ET AL.) 27 August 1991 cited in the application see column 4, line 49 - column 5, line 42; figure 4	1,2,4-7, 9,10,29
X	DE,A,40 27 643 (WALDOW) 5 March 1992	1,3,4,6, 8,9,11, 32
Y A	see claim 1; figures	9,15,33 13,14, 21,26-28
Y	DE,C,117 016 (SCHÜLERET AL.) 4 August 1899 see claim; figures	9,15,33
-/--		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <span style="margin-left: 200px;"><input checked="" type="checkbox"/> Patent family members are listed in annex.</span>		
* Special categories of cited documents :		
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family
Date of the actual completion of the international search  <p align="center">25 October 1994</p>		Date of mailing of the international search report  <p align="center">25. 01. 95</p>
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+ 31-70) 340-3016		Authorized officer  <p align="center">GRUNFELD, M</p>

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US,E,32 681 (RANDOLPH ET AL.) 31 May 1988 see column 3, line 21 - column 4, line 2; figure 1 ---	16,17,22
A	DE,A,37 27 771 (TRZASKA) 2 March 1989 see claim 1; figure 1 -----	1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 94/ 07120

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. Claims 1-33 : Vehicle with rear wheel steering and front wheel drive.
2. Claims 34,35: Vehicle steering apparatus and bicycle equipped with this steering apparatus.

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1. Claims 1-33

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

Internatic Application No  
PCT/US 94/07120

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DE-C-117016		NONE	
US-E-32681	31-05-88	US-A- 4408776	11-10-83
DE-A-3727771	02-03-89	NONE	