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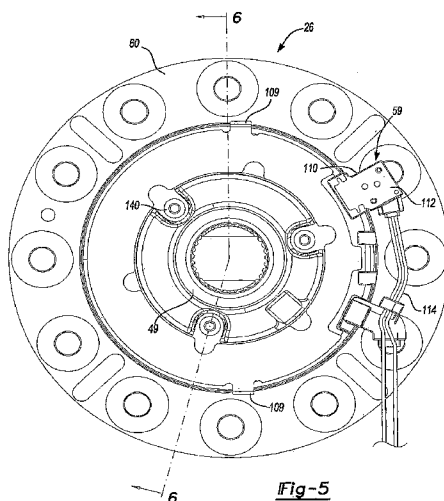
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Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

[Continued on next page]

(54) Title: TWO WIRE DUAL SENSOR DIFFERENTIAL LOCKING STATE DETECTION SYSTEM



(57) Abstract: An axle assembly includes a housing, a first shaft rotatably positioned in the housing, and a second shaft rotatably positioned in the housing. A power transfer mechanism is also positioned in the housing and operable to selectively transmit rotary power between the first and second shafts. An actuator having a linearly moveable member is operable to drivingly engage the moveable member with the power transfer mechanism to cause power transmission between the first and second shafts. A sensor circuit is positioned within the housing and operable to output a signal indicative of the linear position of the moveable member. The sensor circuit includes first and second Hall effect devices electrically connected such that only two electrical terminals extend through the housing.

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- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - F16H 48/06,48/20;B60T 7/12;G05D 1/00;G06F 7/00,17/00 (2008.04)

USPC - 475/234; 701/74

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8): F16H 48/06,48/20;B60T 7/12;G05D 1/00;G06F 7/00,17/00 (2008.04)

USPC: 475/234; 701/74

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

IPC(8): F16H 48/06,48/20;B60T 7/12;G05D 1/00;G06F 7/00,17/00 (2008.04) - see search terms below

USPC: 475/220, 223, 231, 234; 180/6.5; 701/71, 72, 74, 75, 82, 88 - see search terms below

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST(USPT,PGPB,EPAB,JPAB); DialogPRO(Engineering); Google Scholar

Search Terms: Limited, slip, differential, linear, actuator, solenoid, sensor, torque, transfer, electronic, hysteresis, position, distance, first, second, clutch, hall, effect, control, DC, load, resistor, housing, terminal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2005/0250613 A1 (LUDWIG et al.) 10 November 2005 (10.11.2005), entire document especially Fig 1, 2, 3, 5, para [0004], [0026], [0028], [0030], [0037], [0042], [0043], [0047], [0068]	1-22
Y	US 5,867,092 A (VOGT) 02 February 1999 (02.02.1999), Fig 3, Tables I, II, III,	1-22
Y	US 4,733,101 A (GRAHAM et al.) 22 March 1988 (22.03.1988), Fig 3, 4, col 5, ln 12-18, col 5, ln 22-31	1-10, 12-13, and 19-22
Y	US 2005/0215394 A1 (BOLANDER et al.) 29 September 2005 (29.09.2005), Fig 1, para [0030]	8

☐ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

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"E" earlier application or patent but published on or after the international filing date

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"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

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