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(54) Title: COMBINED MOTOR GRADER STEERING AND CONTROL SYSTEM

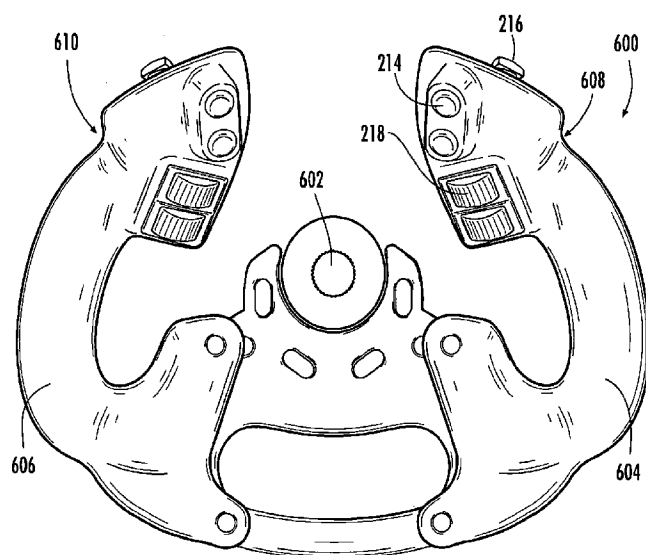


FIG. 6B

(57) Abstract: Combined steering and control system for a construction vehicle A plurality of control switches are arranged on a steering device, which has a limited range of rotation The control switches communicate with work tool actuators, which control and move the work tool as directed An operator manipulates control switches to direct the motion and position of a work tool As the steering device is displaced from its neutral position, a steering signal is generated to indicate a wheel angle A steering controller generates a steering control signal responsive to road speed, road wheel angle and steering wheel angle, to cause steerable road wheels turned at a requested road wheel angle The ratio of requested road wheel angle to steering wheel angle defines a steering scale ratio Varying the steering scale ratio with road speed and road wheel angle permits full turn of road wheels despite the limited range of rotation



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A01B 69/00 (2009.01)

USPC - 172/279

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)
USPC - 172/279Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 172/279; 172/781; 172/797; 37/348; 172/4.5 (keyword limited - see terms below)

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

Electronic Databases Searched: PubWEST (PGPB, USPT, EPAB, JPAB), Google

Search Terms Used: steer, drive, direct, pilot, guide, wheel, handle, tool, device, control, construction, forklift, tractor, grader, elongate, length, grip, handgrip, upper, top, face, edge, surface, switch, button, lever, toggle, tire, road, angle

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/0199436 A1 (Schroder et al.) 15 September 2005 (15.09.2005), entire document,	1-13,15, 17-21, 23, 25-29
--	especially para [0006]-[0007], [0010], [0013], [0024]-[0027], [0029], [0031]-[0032], [0036]-[0037],	-----
Y	[0039], [0041], [0043]-[0044], [0046], Fig. 2-3, 5 and 6-7	14, 16, 22, 24
Y	US 2006/0076741 A1 (Lim) 13 April 2006 (13.04.2006), para [0065]-[0067]	14, 16, 22
Y	US 2007/0216134 A1 (Padula) 20 September 2007 (20.09.2007), para [0047]	24
A	US 6,109,384 A (Bromley et al.) 29 August 2000 (29.08.2000), entire document	1-29

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Further documents are listed in the continuation of Box C.

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"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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