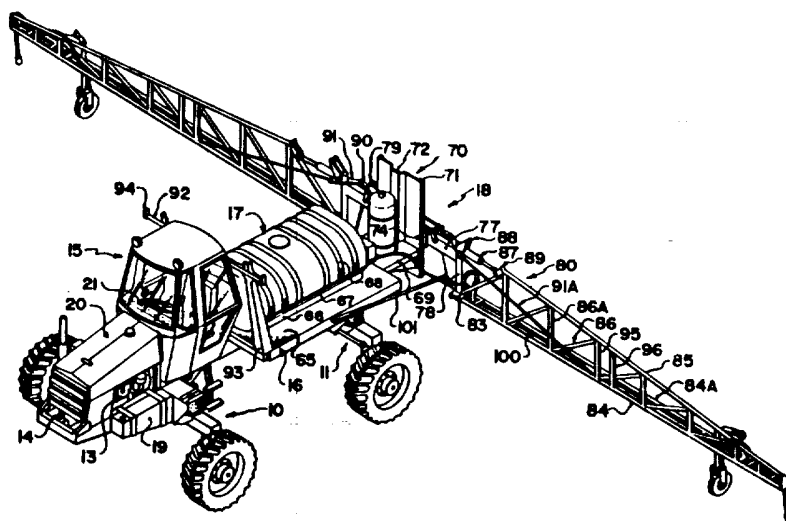




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5 : B62D 49/06, 53/02, B60G 3/04	A3	(11) International Publication Number: WO 91/04902 (43) International Publication Date: 18 April 1991 (18.04.91)
(21) International Application Number: PCT/CA90/00325 (22) International Filing Date: 28 September 1990 (28.09.90) (30) Priority data: 614,672 28 September 1989 (28.09.89) CA (71)(72) Applicant and Inventor: BALMER, Charles [CA/CA]; Box 34, Elie, Manitoba R0H 0H0 (CA). (74) Agent: ADE & COMPANY; 1700-360 Main Street, Winni- peg, Manitoba R3C 3Z3 (CA). (81) Designated States: AT (European patent), AU, BE (Euro- pean patent), CH (European patent), DE (European pa- tent)*, DK (European patent), ES (European patent), FR (European patent), GB (European patent), IT (European patent), LU (European patent), NL (European patent), NO, SE (European patent).		Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the</i> <i>claims and to be republished in the event of the receipt of</i> <i>amendments.</i> (88) Date of publication of the international search report: 16 May 1991 (16.05.91)

(54) Title: VEHICLE



(57) Abstract

A field sprayer is self propelled and includes a frame (22, 23) with an engine (13) mounted on the frame, four wheels hydraulically driven, a tank (17) and a boom (18) supported by the frame and extending outwardly to the sides. The frame includes a longitudinally beam (24), a front transverse channel (10A) and a rear transverse channel (11A). Each of the channels supports a pair of axle members (36, 37) separately pivotal about axis adjacent the centre line of the frame. Each axle member (36, 34) includes a horizontal portion (39) which can be extended on-the-go and a vertical portion (46) which is attached to the wheel. A gas spring (50) is connected between the channel (10A, 11A) and the upper surface of the axle member (36, 37). Articulated steering is provided by a vertical pin (123) connecting the front portion of the frame (10) relative to the rear portion of the frame (11) with the pin being arranged just rearward of the front axle. The boom (18) is adjustable in height to accommodate both fully grown crops and ground spraying conditions.

DESIGNATIONS OF "DE"

Until further notice, any designation of "DE" in any international application whose international filing date is prior to October 3, 1990, shall have effect in the territory of the Federal Republic of Germany with the exception of the territory of the former German Democratic Republic.

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INTERNATIONAL SEARCH REPORT

International Application No PCT/CA 90/00325

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶ According to International Patent Classification (IPC) or to both National Classification and IPC IPC ⁵ : B 62 D 49/06, B 62 D 53/02, B 60 G 3/04																				
II. FIELDS SEARCHED Minimum Documentation Searched ⁷ <table style="width: 100%; border: none;"> <tr> <td style="width: 25%; border-bottom: 1px solid black; padding-bottom: 5px;">Classification System</td> <td style="border-bottom: 1px solid black; padding-bottom: 5px;">Classification Symbols</td> </tr> <tr> <td style="padding: 5px;">IPC⁵</td> <td style="padding: 5px;">B 62 D, B 60 K, B 60 G</td> </tr> </table> Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸			Classification System	Classification Symbols	IPC ⁵	B 62 D, B 60 K, B 60 G														
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III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%; text-align: left; padding: 5px;">Category ¹⁰</th> <th style="width: 70%; text-align: left; padding: 5px;">Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²</th> <th style="width: 20%; text-align: left; padding: 5px;">Relevant to Claim No. ¹³</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">A</td> <td style="padding: 5px;">FR, A, 982360 (M. MONTHUZET) 11 June 1951 see page 1, right-hand column, paragraph 2; figures 3,4 --</td> <td style="vertical-align: top; padding: 5px;">1,8,20,30</td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">A</td> <td style="padding: 5px;">DE, U, 8307401 (O & K ORENSTEIN & KOPPEL AG) 7 July 1988 see the whole document --</td> <td style="vertical-align: top; padding: 5px;">14,22,27, 10,12,18,25</td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">A</td> <td style="padding: 5px;">EP, A, 0136910 (STANDISH LTD) 10 April 1985 see the whole document --</td> <td style="vertical-align: top; padding: 5px;">14,22,10,24, 25</td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">A</td> <td style="padding: 5px;">US, A, 3154164 (H.H. SHAW et al.) 27 October 1964 see column 3, line 13 - column 4, line 28; figures 1-5 --</td> <td style="vertical-align: top; padding: 5px;">22,4,8,20</td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">A</td> <td style="padding: 5px;">FR, A, 2216787 (SOCIETE LESCURE & FILS S.A.) 30 August 1974 see page 1, line 29 - page 2, line 4; figures 1,2 -----</td> <td style="vertical-align: top; padding: 5px;">22,23</td> </tr> </tbody> </table>			Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³	A	FR, A, 982360 (M. MONTHUZET) 11 June 1951 see page 1, right-hand column, paragraph 2; figures 3,4 --	1,8,20,30	A	DE, U, 8307401 (O & K ORENSTEIN & KOPPEL AG) 7 July 1988 see the whole document --	14,22,27, 10,12,18,25	A	EP, A, 0136910 (STANDISH LTD) 10 April 1985 see the whole document --	14,22,10,24, 25	A	US, A, 3154164 (H.H. SHAW et al.) 27 October 1964 see column 3, line 13 - column 4, line 28; figures 1-5 --	22,4,8,20	A	FR, A, 2216787 (SOCIETE LESCURE & FILS S.A.) 30 August 1974 see page 1, line 29 - page 2, line 4; figures 1,2 -----	22,23
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¹⁰ 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 "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. "A" document member of the same patent family																		
IV. CERTIFICATION <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border-bottom: 1px solid black; padding-bottom: 5px;">Date of the Actual Completion of the International Search</td> <td style="width: 50%; border-bottom: 1px solid black; padding-bottom: 5px;">Date of Mailing of this International Search Report</td> </tr> <tr> <td style="text-align: center; padding: 5px;">14th December 1990</td> <td style="text-align: center; padding: 5px;">11 APR 1991</td> </tr> <tr> <td style="border-bottom: 1px solid black; padding-bottom: 5px;">International Searching Authority</td> <td style="border-bottom: 1px solid black; padding-bottom: 5px;">Signature of Authorized Officer</td> </tr> <tr> <td style="text-align: center; padding: 5px;">EUROPEAN PATENT OFFICE</td> <td style="text-align: center; padding: 5px;">Mme N. KUIPER </td> </tr> </table>			Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	14th December 1990	11 APR 1991	International Searching Authority	Signature of Authorized Officer	EUROPEAN PATENT OFFICE	Mme N. KUIPER										
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FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

V. ☐ OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE¹

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

1. ☐ Claim numbers because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claim numbers 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. ☐ Claim numbers because they are dependent claims and are not drafted in accordance with the second and third sentences of PCT Rule 6.4(a).

VI. ☒ OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING²

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

1. Claims 1-31: Articulated vehicle
2. Claims 32-38: Boom sprayer

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.
2. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:
3. ☒ 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 claim numbers:
1-31
4. ☐ As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

- ☐ The additional search fees were accompanied by applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL PATENT APPLICATION NO.

CA 9000325

SA 40310

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 03/04/91
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR-A- 982360		None	
DE-U- 8307401	26-05-88	None	
EP-A- 0136910	10-04-85	None	
US-A- 3154164		None	
FR-A- 2216787	30-08-74	None	