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(Continued on next page)

(54) Title: PLANT INJECTION METHOD AND APPARATUS

(57) Abstract: The present invention relates to methods for injecting desired amounts of fluids into plants, in particular embodiments, woody plants, e.g., trees and woody vines. A metering device (26) is provided which dynamically measures an amount of fluid that is injected into the plant. A system and method are also provided for creating a pressurized reservoir (72) of injectable fluid in the plant to assist in the injection of the fluid. A pressure release valve (119) is also provided to prevent overpressurization of the pressurized reservoir (72) of injectable fluid. In one embodiment, fluid is returned to a metering device (26) of an injection system (10) when the pressure within the pressurized reservoir exceeds a predetermined amount of pressure. A pressure gauge (102) is also provided that measures pressure within the plant. A falling pressure indicates that fluid is being injected into the plant. Manual and battery-powered plant injection devices (10) are also provided.
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A01G7/06

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 7 A01G

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)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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Further documents are listed in the continuation of box C. Paten family members are listed in annex.

* Special categories of cited documents:

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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.

*"A* document member of the same patent family

Date of the actual completion of the international search: 29 January 2004

Date of mailing of the international search report: 17.02.2004

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: Merckx, A
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INTERNATIONAL SEARCH REPORT

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:

see additional sheet

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.:

1–23

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.:

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.

☒ No protest accompanied the payment of additional search fees.
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-13
   Metering device
   ---

2. claims: 14-23
   Plug
   ---

3. claims: 24-26
   Pressure gauge
   ---

4. claims: 27-29
   Manually operated injector
   ---

5. claims: 30-33
   Battery powered injector
   ---

6. claims: 34-39
   Pressure release valve
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7. claims: 40-42
   Needle assembly
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