

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
 filed in the U.S. District Court for the District of Delaware on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO.	DATE FILED 10/24/2022	U.S. DISTRICT COURT for the District of Delaware
PLAINTIFF MASCHIO GASPARDI S.p.A.		DEFENDANT PRECISION PLANTING LLC
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 8,770,121 B2	7/8/2014	Maschio Gaspardo S.p.A.
2		
3		
4		
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/521,896	07/08/2014	8770121	0808.069.US02	2599

43446 7590 06/18/2014
CASTELLANO PLLC
P.O. Box 1555
Great Falls, VA 22066

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Enrico Bragatto, Caorle (VE), ITALY;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

43446 7590 02/20/2014
CASTELLANO PLLC
P.O. Box 1555
Great Falls, VA 22066

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/521,896	10/08/2012	Enrico Bragato	0808.069.US02	2599

TITLE OF INVENTION: SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT

APPL. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	05/20/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
NOVOSAD, CHRISTOPHER J	3641	111-174000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1. Krishna Castellano
 2. CASTELLANO PLLC
 3. _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Maschio Gaggardo S.P.A. Cam Podarseggo (PD), Italy

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☒ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____
- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 50-3120 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature

Date

Typed or printed name

Registration No.

Krishna Castellano

5/19/2014
41092

Electronic Patent Application Fee Transmittal				
Application Number:		13521896		
Filing Date:		08-Oct-2012		
Title of Invention:		SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT		
First Named Inventor/Applicant Name:		Enrico Bragatto		
Filer:		Kristina M. Castellano		
Attorney Docket Number:		0808.069.US02		
Filed as Large Entity				
U.S. National Stage under 35 USC 371 Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	1501	1	960	960
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				960

Electronic Acknowledgement Receipt

EFS ID:	19072135
Application Number:	13521896
International Application Number:	
Confirmation Number:	2599
Title of Invention:	SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT
First Named Inventor/Applicant Name:	Enrico Bragatto
Customer Number:	43446
Filer:	Kristina M. Castellano
Filer Authorized By:	
Attorney Docket Number:	0808.069.US02
Receipt Date:	19-MAY-2014
Filing Date:	08-OCT-2012
Time Stamp:	21:46:20
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$960
RAM confirmation Number	7421
Deposit Account	503120
Authorized User	CASTELLANO, KRISTINA M.

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. 1.492 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	0808_069_IF.pdf	602470	no	1
			023b33dbbffe2899e52db2620b07c0263b7277d2		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30267	no	2
			312e2274b9f95fac1f84922422a81f86ab749409		

Warnings:

Information:

Total Files Size (in bytes):			632737
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/521,896	10/08/2012	Enrico Bragatto	0808.069.US02	2599
43446	7590	05/01/2014		
CASTELLANO PLLC P.O. Box 1555 Great Falls, VA 22066			EXAMINER NOVOSAD, CHRISTOPHER J	
			ART UNIT 3641	PAPER NUMBER
			MAIL DATE 05/01/2014	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Response to Rule 312 Communication	Application No. 13/521,896	Applicant(s) BRAGATTO, ENRICO
	Examiner Christopher J. Novosad	Art Unit 3641
-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address -- 1. ☒ The amendment filed on <u>11 April 2014</u> under 37 CFR 1.312 has been considered, and has been: a) ☐ entered. b) ☒ entered as directed to matters of form not affecting the scope of the invention. c) ☐ disapproved because the amendment was filed after the payment of the issue fee. Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue. d) ☐ disapproved. See explanation below. e) ☐ entered in part. See explanation below.		
		/Christopher J Novosad/ Primary Examiner, Art Unit 3641

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Enrico BRAGATTO

Appl. No.: 13/521,896

Filed: October 8, 2012

For: SEED DISTRIBUTION ELEMENT FOR
PRECISION SEED DRILLS, SEED DRILL
INCLUDING SAID ELEMENT

Art Unit: 3641

Examiner: Christopher NOVOSAD

Atty. Docket: 0808.069.US02

Confirmation No.: 2599

Customer No.: 43446

AMENDMENT UNDER 37 CFR 1.312

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Please amend the above-identified application as set forth herein.

Amendments to the **claims** begin on page 2 of this paper.

Remarks begin on page 6 of this paper.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Enrico BRAGATTO

Appl. No.: 13/521,896

Filed: October 8, 2012

For: SEED DISTRIBUTION ELEMENT FOR
PRECISION SEED DRILLS, SEED DRILL
INCLUDING SAID ELEMENT

Art Unit: 3641

Examiner: Christopher NOVOSAD

Atty. Docket: 0808.069.US02

Confirmation No.: 2599

Customer No.: 43446

AMENDMENT UNDER 37 CFR 1.312

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Please amend the above-identified application as set forth herein.

Amendments to the **claims** begin on page 2 of this paper.

Remarks begin on page 6 of this paper.

AMENDMENTS TO THE CLAIMS

Please amend the claims as set forth below:

1. (Currently amended) A seed distribution element for precision pneumatic seed drills, comprising:
 - a sowing disc which is rotated by a motor-driven transmission drive shaft at controlled speed,
 - a housing with a fixed portion ~~in which the shaft is supported~~ and a portion which is movable relative to the fixed portion and can be closed against the fixed portion,
 - a seed collection chamber being defined in the fixed portion,
 - a pneumatic suction chamber being defined in the movable portion,
 - the sowing disc being interposed between the fixed and movable portions and having opposed surfaces delimiting the chambers,
 - the sowing disc having at least one ring of selector holes extending between the opposed surfaces, and
 - a seal which is arranged on the movable portion and is capable of sliding contact with the facing surface of the disc when the fixed and movable portions are closed against one another,

wherein a pressure differential is provided between the opposed surfaces in the region of a circumferential segment of the ring of holes,

wherein the seed distribution element further comprises a thrust-bearing element of the sowing disc, which thrust-bearing element is supported rotatably in the movable portion in order to withstand at least some of the axial load produced by the disc on the seal.

2. (Previously presented) The seed distribution element according to Claim 1, wherein the thrust-bearing element is rotated with the disc when the fixed and movable portions are closed against one another.
3. (Previously presented) The seed distribution element according to Claim 1, wherein the thrust-bearing element comprises a thrust-bearing plate which can bear on that surface of the sowing disc which faces the seal, in a zone radially inside of the ring of holes.
4. (Previously presented) The seed distribution element according to Claim 3, wherein the thrust-bearing element comprises a drive element which is fixed for rotation with the plate and can be coupled with the drive shaft of the disc when the fixed and movable portions are closed against one another.
5. (Previously presented) The seed distribution element according to Claim 4, wherein the drive element is self-centring relative to the drive shaft.
6. (Previously presented) The seed distribution element according to Claim 4, wherein the drive element comprises a coupling member which rotates jointly with the thrust-bearing plate but has radial and/or circumferential clearance so as to be self-centred during rotational coupling with the drive shaft of the disc.
7. (Previously presented) The seed distribution element according to claim 1, wherein the movable portion is hinged to the fixed portion.

8. (Previously presented) A sowing element for precision seed drills comprising a frame on which a seed distribution element according to claim 1 is mounted.

9. (Previously presented) A seed drill comprising a supporting structure on which a plurality of sowing elements according to Claim 8 are mounted.

10. (Currently amended) A kit for the retrofitting of seed distribution elements of precision pneumatic seed drills wherein the distribution elements are of the type including:

- a sowing disc which is rotated by a motor-driven transmission drive shaft at controlled speed,
- a housing with a fixed portion ~~in which the shaft is supported~~ and a portion which is movable relative to the fixed portion and can be closed against the fixed portion,
- a seed collection chamber being defined in the fixed portion,
- a pneumatic suction chamber being defined in the movable portion,
- the sowing disc being interposed between the fixed and movable portions and having opposed surfaces delimiting the chambers,
- the sowing disc having at least one ring of selector holes extending between the opposed surfaces, and
- a seal which is arranged on the movable portion and is capable of sliding contact with the facing surface of the disc when the portions are closed against one another,

wherein a pressure differential is provided between the opposed surfaces in the region of a circumferential segment of the ring of holes,

wherein the kit comprises:

– the movable portion pre-assembled with: a thrust-bearing element of the sowing disc, which thrust-bearing element is supported rotatably in the movable portion in order to withstand at least some of the axial load produced by the disc on the seal.

11. (Previously presented) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 2.

12. (Previously presented) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 3.

13. (Previously presented) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 4.

14. (Previously presented) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 5.

15. (Previously presented) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 6.

16. (Previously presented) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 7.

REMARKS

This Amendment is being submitted after receiving the Notice of Allowance in the above-identified matter, but prior to payment of the Issue Fee.

SUMMARY OF THE SUBSTANCE OF THE INTERVIEW

The Examiner is thanked for the courtesies extended to the Applicant's representative during a telephone interview conducted on April 10, 2014 in the above-identified matter.

During the interview, Applicant's representative and the Examiner discussed the above-proposed amendments to independent claims 1 and 10 to remove an unnecessary extraneous recitation from the claims.

As discussed during the interview, the claim recitation removed herein is not critical to the claimed invention. The Examiner confirmed that patentability of the claims does not rest on this recitation and the removal of the above-recitation would not affect the patentability of the claims.

Accordingly, Applicant respectfully requests entry of the present 312 amendments prior to payment of the issue fee and issuance of a patent based on this application.

No extensions of time or fees are believed to be due in connection with the present filing.

If however, any extensions of time are deemed necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. §1.136(a), and any fees required, including fees for net addition of claims, are hereby authorized to be charged to deposit account number 50-3120.

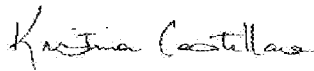
Respectfully submitted,

Date April 11, 2014

Customer Number: 43446

Telephone: (571) 278-8233

Facsimile: (202) 318-1288

By 

Kristina M. Castellano
Registration No. 41,092

Electronic Acknowledgement Receipt

EFS ID:	18736070
Application Number:	13521896
International Application Number:	
Confirmation Number:	2599
Title of Invention:	SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT
First Named Inventor/Applicant Name:	Enrico Bragatto
Customer Number:	43446
Filer:	Kristina M. Castellano
Filer Authorized By:	
Attorney Docket Number:	0808.069.US02
Receipt Date:	11-APR-2014
Filing Date:	08-OCT-2012
Time Stamp:	10:23:37
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		312_amendment.pdf	39401 ed2d9e1436cf6d02733126b471cddabb284fd408	yes	7

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Amendment after Notice of Allowance (Rule 312)	1	1
	Claims	2	5
	Applicant Arguments/Remarks Made in an Amendment	6	7
Warnings:			
Information:			
Total Files Size (in bytes):		39401	
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.			



UNITED STATES PATENT AND TRADEMARK OFFICE

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NOTICE OF ALLOWANCE AND FEE(S) DUE

43446 7590 02/20/2014
CASTELLANO PLLC
P.O. Box 1555
Great Falls, VA 22066

EXAMINER

NOVOSAD, CHRISTOPHER J

ART UNIT

PAPER NUMBER

3641

DATE MAILED: 02/20/2014

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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13/521,896

10/08/2012

Enrico Bragatto

0808.069.US02

2599

TITLE OF INVENTION: SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	05/20/2014

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**
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Alexandria, Virginia 22313-1450
or Fax **(571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

43446 7590 02/20/2014
CASTELLANO PLLC
P.O. Box 1555
Great Falls, VA 22066

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/521,896	10/08/2012	Enrico Bragatto	0808.069.US02	2599

TITLE OF INVENTION: SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	05/20/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
NOVOSAD, CHRISTOPHER J	3641	111-174000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached. ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.	2. For printing on the patent front page, list (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 1 _____ 2 _____ 3 _____
---	--

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted: ☐ Issue Fee ☐ Publication Fee (No small entity discount permitted) ☐ Advance Order - # of Copies _____	4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above) ☐ A check is enclosed. ☐ Payment by credit card. Form PTO-2038 is attached. ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).
---	---

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/521,896	10/08/2012	Enrico Bragatto	0808.069.US02	2599
43446	7590	02/20/2014	EXAMINER	
CASTELLANO PLLC P.O. Box 1555 Great Falls, VA 22066			NOVOSAD, CHRISTOPHER J	
			ART UNIT	PAPER NUMBER
			3641	
DATE MAILED: 02/20/2014				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 13/521,896	Applicant(s) BRAGATTO, ENRICO	
	Examiner Christopher J. Novosad	Art Unit 3641	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to See Continuation Sheet.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 1-16. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☒ All b) ☐ Some *c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. ☐ Notice of References Cited (PTO-892) | 5. ☒ Examiner's Amendment/Comment |
| 2. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 6. ☐ Examiner's Statement of Reasons for Allowance |
| 3. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 7. ☐ Other _____. |
| 4. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____. | |

Continuation of Item 1. This communication is responsive to : the amendment dated January 16, 2014 and the Supplemental Response dated January 22, 2014.

The present application is being examined under the pre-AIA first to invent provisions.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In the specification:

In line 12 of the abstract, the recitation “-means” has been changed to -- -structure-- to remove legal language from the abstract.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher J. Novosad whose telephone number is (571)272-6993. The examiner can normally be reached on Monday-Thursday 7:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached at 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3641

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher J Novosad/
Primary Examiner, Art Unit 3641

February 10, 2014



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BIB DATA SHEET

CONFIRMATION NO. 2599

SERIAL NUMBER 13/521,896	FILING or 371(c) DATE 10/08/2012 RULE	CLASS 111	GROUP ART UNIT 3641	ATTORNEY DOCKET NO. 0808.069.US02	
APPLICANTS INVENTORS Enrico Bragatto, Caorle (VE), ITALY; ** CONTINUING DATA ***** This application is a 371 of PCT/EP2011/069875 11/10/2011 ** FOREIGN APPLICATIONS ***** ITALY PD2010A000338 11/12/2010 ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 10/10/2012					
Foreign Priority claimed ☒ Yes ☐ No 35 USC 119(a-d) conditions met ☒ Yes ☐ No Verified and /CHRISTOPHER J NOVOSAD/ Acknowledged Examiner's Signature	☒ Met after Allowance /CJN/ Initials	STATE OR COUNTRY ITALY	SHEETS DRAWINGS 2	TOTAL CLAIMS 16	INDEPENDENT CLAIMS 2
ADDRESS CASTELLANO PLLC P.O. Box 1555 Great Falls, VA 22066 UNITED STATES					
TITLE SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT					
FILING FEE RECEIVED 1260	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

Search Notes 	Application/Control No. 13521896	Applicant(s)/Patent Under Reexamination BRAGATTO, ENRICO
	Examiner CHRISTOPHER J NOVOSAD	Art Unit 3641

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

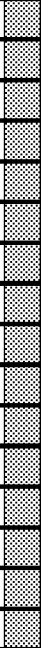
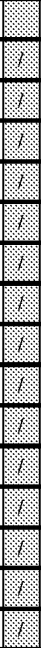
US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
111	Update subclasses 170, 174-185	02/10/2014	CJN

SEARCH NOTES		
Search Notes	Date	Examiner
International Search Report completed on 02/09/2012 and cited in the instant application 13/521,896 on 07/12/2012 consulted	11/17/2013	CJN
Written Opinion of the International Searching authority cited in the instant application 13/521,896 on 07/12/2012 consulted	11/17/2013	CJN

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
111	All subclasses noted supra	02/10/2014	CJN

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Issue Classification 	Application/Control No. 13521896	Applicant(s)/Patent Under Reexamination BRAGATTO, ENRICO	
	Examiner CHRISTOPHER J NOVOSAD	Art Unit 3641	

CPC			
Symbol		Type	Version
			

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version
				
				

NONE		Total Claims Allowed:	
(Assistant Examiner)		16	
(Date)			
/CHRISTOPHER J NOVOSAD/ Primary Examiner.Art Unit 3641	02/10/2014	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Enrico BRAGATTO

Appl. No.: 13/521,896

Filed: October 8, 2012

For: SEED DISTRIBUTION ELEMENT FOR
PRECISION SEED DRILLS, SEED DRILL
INCLUDING SAID ELEMENT

Art Unit: 3641

Examiner: Christopher NOVOSAD

Atty. Docket: 0808.069.US02

Confirmation No.: 2599

Customer No.: 43446

SUPPLEMENTAL RESPONSE TO QUAYLE ACTION

Mail Stop **Amendment**
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is in further response to the November 19, 2013 Quayle Action and to the January 16, 2014 response thereto.

Remarks begin on page 2 of this paper.

REMARKS

This Amendment is being submitted in further response to the November 19, 2013 Quayle Action (the "Action") in the above-identified matter.

The amendments that were timely submitted on January 16, 2014, amending claims 1 and 10 as set forth in the Quayle Action should put the application in condition for allowance.

Applicants note however, that the remarks page submitted with those amendments appeared to have had erroneous information from another matter and ask that those remarks be disregarded. Applicants' representative apologizes for any confusion.

In view of the January 16, claim amendments, Applicants respectfully request that the application be allowed.

No extensions of time or fees are believed to be due in connection with the present filing. If however, any extensions of time are deemed necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. §1.136(a), and any fees required, including fees for net addition of claims, are hereby authorized to be charged to deposit account number 50-3120.

Respectfully submitted,

Date January 22, 2014

Customer Number: 43446

Telephone: (571) 278-8233

Facsimile: (202) 318-1288

By Kristina Castellano

Kristina M. Castellano
Registration No. 41,092

Electronic Acknowledgement Receipt

EFS ID:	17991420
Application Number:	13521896
International Application Number:	
Confirmation Number:	2599
Title of Invention:	SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT
First Named Inventor/Applicant Name:	Enrico Bragatto
Customer Number:	43446
Filer:	Kristina M. Castellano
Filer Authorized By:	
Attorney Docket Number:	0808.069.US02
Receipt Date:	22-JAN-2014
Filing Date:	08-OCT-2012
Time Stamp:	15:13:57
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Supplemental Response or Supplemental Amendment	supplemental_808_069.pdf	26155 87074add885e409032712f4852f806e3d5603bb7	no	2

Warnings:

Information:

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Enrico BRAGATTO

Appl. No.: 13/521,896

Filed: October 8, 2012

For: SEED DISTRIBUTION ELEMENT FOR
PRECISION SEED DRILLS, SEED DRILL
INCLUDING SAID ELEMENT

Art Unit: 3641

Examiner: Christopher NOVOSAD

Atty. Docket: 0808.069.US02

Confirmation No.: 2599

Customer No.: 43446

RESPONSE TO QUAYLE ACTION

Mail Stop **Amendment**
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the November 19, 2013 Quayle Action, please amend the above-identified application as set forth herein.

Amendments to the **claims** begin on page 2 of this paper.

Remarks begin on page 6 of this paper.

AMENDMENTS TO THE CLAIMS

Please amend the claims as set forth below:

CLAIMS

1. (Currently amended) A seed distribution element for precision pneumatic seed drills, comprising:
 - a sowing disc which is rotated by a motor-driven transmission drive shaft at controlled speed,
 - a housing with a fixed portion in which the shaft is supported and a portion which is movable relative to the fixed portion and can be closed against the fixed portion [[it]],
 - a seed collection chamber being defined in the fixed portion,
 - a pneumatic suction chamber being defined in the movable portion,
 - the sowing disc being interposed between the fixed and movable portions and having opposed surfaces delimiting the chambers,
 - the sowing disc having at least one ring of selector holes extending between the opposed surfaces, and
 - a seal which is arranged on the movable portion and is capable of sliding contact with the facing surface of the disc when the fixed and movable portions are closed against one another,

wherein a pressure differential is provided between the opposed surfaces in the region of a circumferential segment of the ring of holes,

wherein the seed distribution element further comprises a thrust-bearing element of the sowing disc, which thrust-bearing element is supported rotatably in the movable portion in order to withstand at least some of the axial load produced by the disc on the seal.

2. (Previously presented) The seed distribution element according to Claim 1, wherein the thrust-bearing element is rotated with the disc when the fixed and movable portions are closed against one another.
3. (Previously presented) The seed distribution element according to Claim 1, wherein the thrust-bearing element comprises a thrust-bearing plate which can bear on that surface of the sowing disc which faces the seal, in a zone radially inside of the ring of holes.
4. (Previously presented) The seed distribution element according to Claim 3, wherein the thrust-bearing element comprises a drive element which is fixed for rotation with the plate and can be coupled with the drive shaft of the disc when the fixed and movable portions are closed against one another.
5. (Previously presented) The seed distribution element according to Claim 4, wherein the drive element is self-centring relative to the drive shaft.
6. (Previously presented) The seed distribution element according to Claim 4, wherein the drive element comprises a coupling member which rotates jointly with the thrust-bearing plate but has radial and/or circumferential clearance so as to be self-centred during rotational coupling with the drive shaft of the disc.
7. (Previously presented) The seed distribution element according to claim 1, wherein the movable portion is hinged to the fixed portion.

8. (Previously presented) A sowing element for precision seed drills comprising a frame on which a seed distribution element according to claim 1 is mounted.

9. (Previously presented) A seed drill comprising a supporting structure on which a plurality of sowing elements according to Claim 8 are mounted.

10. (Previously presented) A kit for the retrofitting of seed distribution elements of precision pneumatic seed drills wherein the distribution elements are of the type including:

- a sowing disc which is rotated by a motor-driven transmission drive shaft at controlled speed,
- a housing with a fixed portion in which the shaft is supported and a portion which is movable relative to the fixed portion and can be closed against the fixed portion [[it]],
- a seed collection chamber being defined in the fixed portion,
- a pneumatic suction chamber being defined in the movable portion,
- the sowing disc being interposed between the fixed and movable portions and having opposed surfaces delimiting the chambers,
- the sowing disc having at least one ring of selector holes extending between the opposed surfaces, and
- a seal which is arranged on the movable portion and is capable of sliding contact with the facing surface of the disc when the portions are closed against one another,

wherein a pressure differential is provided between the opposed surfaces in the region of a circumferential segment of the ring of holes,

wherein the kit comprises:

– the movable portion pre-assembled with: a thrust-bearing element of the sowing disc, which thrust-bearing element is supported rotatably in the movable portion in order to withstand at least some of the axial load produced by the disc on the seal.

11. (Previously presented) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 2.

12. (Previously presented) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 3.

13. (Previously presented) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 4.

14. (Previously presented) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 5.

15. (Previously presented) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 6.

16. (Previously presented) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 7.

REMARKS

This Amendment is being submitted in response to the May 6, 2011 Quayle Action (the “Action”) in the above-identified matter.

As a preliminary matter, the Examiner is thanked for the indication in the Office Action summary that claims 45, 46 and 48 are allowed and the application is in condition for allowance except for formal matters. In particular, the Action indicates that the application is in condition for allowance except for the fact that non-elected claims 49-56 remain active in the present application. The withdrawn claims are cancelled herein. In view of the present cancellation of the non-elected claims, Applicants respectfully request that the application be allowed.

No extensions of time or fees are believed to be due in connection with the present filing. If however, any extensions of time are deemed necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. §1.136(a), and any fees required, including fees for net addition of claims, are hereby authorized to be charged to deposit account number 50-3120.

Respectfully submitted,

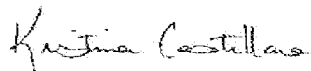
Date January 16, 2014

Customer Number: 43446

Telephone: (571) 278-8233

Facsimile: (202) 318-1288

By



Kristina M. Castellano

Registration No. 41,092

Electronic Acknowledgement Receipt

EFS ID:	17931079
Application Number:	13521896
International Application Number:	
Confirmation Number:	2599
Title of Invention:	SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT
First Named Inventor/Applicant Name:	Enrico Bragatto
Customer Number:	43446
Filer:	Kristina M. Castellano
Filer Authorized By:	
Attorney Docket Number:	0808.069.US02
Receipt Date:	16-JAN-2014
Filing Date:	08-OCT-2012
Time Stamp:	13:25:03
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response after Ex Parte Quayle Action	0808_069_quayle_response.pdf	38131 b74ba2b29281c7d6454557d4733a4994e6ea36ad	no	6

Warnings:

Information:

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/521,896	Filing Date 10/08/2012	☐ To be Mailed
---	---	----------------------------------	---------------------------------------

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO**APPLICATION AS FILED – PART I**

(Column 1)

(Column 2)

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	01/16/2014	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 16	Minus	** 20	= 0	X \$80 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X \$420 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE						0	

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =
	☐ Application Size Fee (37 CFR 1.16(s))					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
TOTAL ADD'L FEE						

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/BRENDA TURNER/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/521,896	10/08/2012	Enrico Bragatto	0808.069.US02	2599
43446	7590	11/19/2013		
CASTELLANO PLLC P.O. Box 1555 Great Falls, VA 22066			EXAMINER NOVOSAD, CHRISTOPHER J	
			ART UNIT 3641	PAPER NUMBER
			MAIL DATE 11/19/2013	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 13/521,896	Applicant(s) BRAGATTO, ENRICO	
	Examiner Christopher J. Novosad	Art Unit 3641	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on July 12, 2013.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-16 is/are pending in the application.
5a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 6) ☒ Claim(s) 1-16 is/are allowed.
- 7) ☐ Claim(s) _____ is/are rejected.
- 8) ☐ Claim(s) _____ is/are objected to.
- 9) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on July 12, 2012 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☒ All b) ☐ Some c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) ☐ Notice of References Cited (PTO-892) | 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>07/12/2012</u> | 4) ☐ Other: _____ |

Art Unit: 3641

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

This application is in condition for allowance except for the following formal matters:

In claim 1, line 7 and in claim 10, line 8, the recitation “it” must be corrected to --the fixed portion-- to clarify the element being referred to.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 25 USPQ 74, 453 O.G. 213, (Comm’r Pat. 1935).

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher J. Novosad whose telephone number is (571)272-6993. The examiner can normally be reached on Monday-Thursday 7:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Michael Carone can be reached at 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3641

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher J Novosad/
Primary Examiner, Art Unit 3641

November 17, 2013



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BIB DATA SHEET

CONFIRMATION NO. 2599

SERIAL NUMBER 13/521,896	FILING or 371(c) DATE 10/08/2012 RULE	CLASS 111	GROUP ART UNIT 3641	ATTORNEY DOCKET NO. 0808.069.US02	
APPLICANTS INVENTORS Enrico Bragatto, Caorle (VE), ITALY; ** CONTINUING DATA ***** This application is a 371 of PCT/EP2011/069875 11/10/2011 ** FOREIGN APPLICATIONS ***** ITALY PD2010A000338 11/12/2010 ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 10/10/2012					
Foreign Priority claimed ☒ Yes ☐ No 35 USC 119(a-d) conditions met ☒ Yes ☐ No Verified and /CHRISTOPHER J NOVOSAD/ Acknowledged Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY ITALY	SHEETS DRAWINGS 2	TOTAL CLAIMS 16	INDEPENDENT CLAIMS 2
ADDRESS CASTELLANO PLLC P.O. Box 1555 Great Falls, VA 22066 UNITED STATES					
TITLE SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT					
FILING FEE RECEIVED 1260	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

Search Notes 	Application/Control No. 13521896	Applicant(s)/Patent Under Reexamination BRAGATTO, ENRICO
	Examiner CHRISTOPHER J NOVOSAD	Art Unit 3641

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
111	170, 174-185	11/17/2013	CJN

SEARCH NOTES		
Search Notes	Date	Examiner
International Search Report completed on 02/09/2012 and cited in the instant application 13/521,896 on 07/12/2012 consulted	11/17/2013	CJN
Written Opinion of the International Searching authority cited in the instant application 13/521,896 on 07/12/2012 consulted	11/17/2013	CJN

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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Receipt date: 07/12/2012

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

13521896 - GAI: 3641

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13/521,896	
	Filing Date		2012-07-12	
	First Named Inventor	Enrico BRAGATTO		
	Art Unit	3641		
	Examiner Name	C. Novosad		
	Attorney Docket Number	0808.069.US02		

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Receipt date: 07/12/2012 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13521896 - GAU: 3641	
	Filing Date		2012-07-12	
	First Named Inventor	Enrico BRAGATTO		
	Art Unit	3641		
	Examiner Name	C. Novosad		
	Attorney Docket Number	0808.069.US02		

1	International Search Report and Written Opinion in parent application PCT/EP2011/069875.	☐
---	--	--------------------------

If you wish to add additional non-patent literature document citation information please click the Add button **Add**

EXAMINER SIGNATURE

Examiner Signature	/Christopher Novosad/ (11/17/2013)	Date Considered	11/17/2013
--------------------	------------------------------------	-----------------	------------

***EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

Receipt date: 07/12/2012 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13521896 - GAU: 3641
	Filing Date		2012-07-12
	First Named Inventor	Enrico BRAGATTO	
	Art Unit	3641	
	Examiner Name	C. Novosad	
	Attorney Docket Number	0808.069.US02	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- ☐ See attached certification statement.
- ☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- ☐ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/KristinaCastellano/	Date (YYYY-MM-DD)	2012-07-12
Name/Print	Kristina M. Castellano	Registration Number	41092

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/521,896	10/08/2012	Enrico Bragatto	0808.069.US02

CONFIRMATION NO. 2599

PUBLICATION NOTICE



OC000000058840912

43446
CASTELLANO PLLC
P.O. Box 1555
Great Falls, VA 22066

Title: SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT

Publication No. US-2013-0019788-A1

Publication Date: 01/24/2013

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <http://pair.uspto.gov/>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
13/521,896	Enrico Bragatto	0808.069.US02

43446
CASTELLANO PLLC
P.O. Box 1555
Great Falls, VA 22066

INTERNATIONAL APPLICATION NO.	
PCT/EP2011/069875	
I.A. FILING DATE	PRIORITY DATE
11/10/2011	11/12/2010

CONFIRMATION NO. 2599
371 ACCEPTANCE LETTER



Date Mailed: 10/12/2012

NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C 371 AND 37 CFR 1.495

The applicant is hereby advised that the United States Patent and Trademark Office in its capacity as a Designated / Elected Office (37 CFR 1.495), has determined that the above identified international application has met the requirements of 35 U.S.C. 371, and is ACCEPTED for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above and the relevant dates are:

10/08/2012
DATE OF RECEIPT OF 35 U.S.C. 371(c)(1),
(c)(2) and (c)(4) REQUIREMENTS

10/08/2012
DATE OF COMPLETION OF ALL
35 U.S.C. 371 REQUIREMENTS

A Filing Receipt (PTO-103X) will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE " FILING DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 (c)(1), (c)(2) and (c)(4) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN ABOVE.** *The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363).* Once the Filing Receipt has been received, send all correspondence to the Group Art Unit designated thereon.

The following items have been received:

- Copy of the International Application filed on 07/12/2012
- Copy of the International Search Report filed on 07/12/2012
- Copy of IPE Report filed on 07/12/2012
- Preliminary Amendments filed on 07/12/2012
- Information Disclosure Statements filed on 07/12/2012
- Oath or Declaration filed on 10/08/2012
- Request for Immediate Examination filed on 10/08/2012
- U.S. Basic National Fees filed on 07/12/2012
- Priority Documents filed on 07/12/2012
- Power of Attorney filed on 10/08/2012

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

KAREN M WILLIAMS

Telephone: (571) 272-9075

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 13/521,896				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	390			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	500			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	250			
TOTAL CLAIMS (37 CFR 1.16(j))	16	minus 20 = *			OR	x 62 =	0.00			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *				x 250 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00			
			TOTAL			TOTAL	1140			
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/521,896	10/08/2012		1260	0808.069.US02	16	2

CONFIRMATION NO. 2599

43446
CASTELLANO PLLC
P.O. Box 1555
Great Falls, VA 22066

FILING RECEIPT



Date Mailed: 10/12/2012

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Enrico Bragatto, Caorle (VE), ITALY;

Applicant(s)

Enrico Bragatto, Caorle (VE), ITALY;

Power of Attorney: The patent practitioners associated with Customer Number 43446

Domestic Priority data as claimed by applicant

This application is a 371 of PCT/EP2011/069875 11/10/2011

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)
ITALY PD2010A000338 11/12/2010

If Required, Foreign Filing License Granted: 10/10/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/521,896**

Projected Publication Date: 01/24/2013

Non-Publication Request: No

Early Publication Request: No

Title

SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT

Preliminary Class**PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES**

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER**Title 35, United States Code, Section 184****Title 37, Code of Federal Regulations, 5.11 & 5.15****GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage, facilitate, and accelerate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Enrico Bragatto
Group Art Unit: Not yet assigned
Examiner: Not yet assigned
Docket: 0808.069.US02
Customer #.: 43446
Application No.: 13/521,896
U.S. National Phase Application based on PCT/EP2011/069875
filed November 10, 2011
Nat. Stage Filed: July 12, 2012
Title: **SEED DISTRIBUTION ELEMENT FOR PRECISION SEED
DRILLS, SEED DRILL INCLUDING SAID ELEMENT**

RESPONSE TO NOTIFICATION OF MISSING REQUIREMENTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir: In response to the "Notification of Missing Requirements Under 35 U.S.C. 371"
mailed on August 9, 2012, Applicant submits herewith:

Declaration executed on July 23, 2012,
Application search and examination fees, and
Surcharge for late submission of Declaration.

Also submitted herewith is a Power of Attorney signed by the inventor.

Applicant authorizes any additional fees required to maintain the pendency of this
application to be charged to deposit account number 50-3120.

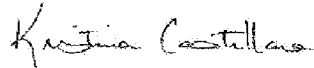
If any extensions of time or other fees are necessary to prevent abandonment of this
application, then extensions of time are hereby petitioned for under 37 C.F.R. §1.136(a).

Prompt and favorable consideration of this application is respectfully requested. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Date October 8, 2012

Castellano PLLC
Customer Number: **43446**
Telephone: (571) 278-8233
Facsimile: (202) 318-1288

Respectfully submitted,

By 

Kristina M. Castellano
Registration No. 41,092

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY and CORRESPONDENCE ADDRESS INDICATION FORM

Application Number	13/521,896
Filing Date	July 12, 2012
First Named Inventor	BRAGATTO, Enrico
Title	Seed distribution element for precision seed ...
Art Unit	
Examiner Name	
Attorney Docket Number	0808.069.US02

I hereby revoke all previous powers of attorney given in the above-identified application.

I hereby appoint:

☒ Practitioners associated with the Customer Number:

43446

OR

☐ Practitioner(s) named below:

Name	Registration Number

as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

Please recognize or change the correspondence address for the above-identified application to:

☒ The address associated with the above-mentioned Customer Number:

OR

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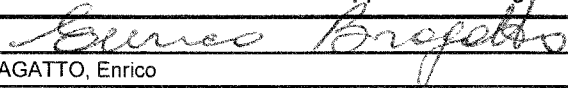
☐ Firm or Individual Name			
Address			
City	State	Zip	
Country			
Telephone	Email		

I am the:

☒ Applicant/Inventor.

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

SIGNATURE of Applicant or Assignee of Record

Signature		Date	July 23, 2012
Name	BRAGATTO, Enrico	Telephone	
Title and Company			

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal				
Application Number:		13521896		
Filing Date:				
Title of Invention:		SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT		
First Named Inventor/Applicant Name:		Enrico Bragatto		
Filer:		Kristina M. Castellano		
Attorney Docket Number:		0808.069.US02		
Filed as Large Entity				
U.S. National Stage under 35 USC 371 Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Natl Stage Search Fee - Report provided	1642	1	500	500
National Stage Exam - all other cases	1633	1	250	250
Pages:				
Claims:				
Miscellaneous-Filing:				
Oath/decl > 30 months from priority date	1617	1	130	130
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				880

Electronic Acknowledgement Receipt

EFS ID:	13927908
Application Number:	13521896
International Application Number:	
Confirmation Number:	2599
Title of Invention:	SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT
First Named Inventor/Applicant Name:	Enrico Bragatto
Customer Number:	43446
Filer:	Kristina M. Castellano
Filer Authorized By:	
Attorney Docket Number:	0808.069.US02
Receipt Date:	08-OCT-2012
Filing Date:	
Time Stamp:	10:50:23
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$880
RAM confirmation Number	15832
Deposit Account	503120
Authorized User	CASTELLANO, KRISTINA M.

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. 1.492 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	Missing_requirements.pdf	32912	no	2
			c73c87e4396cc7875ec8ac72740b02925ccde90e		
Warnings:					
Information:					
2	Oath or Declaration filed	dec.pdf	666309	no	2
			105fd19ed81c548135718e5e01cdc419e2c5c1ac		
Warnings:					
Information:					
3	Power of Attorney	poa.pdf	382840	no	1
			602e1ca6c615b00ceaf61298214aae1c54a40bdb		
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	35516	no	2
			798df78dd01d30cb62d54cdec7da25980c17b7a3		
Warnings:					
Information:					
Total Files Size (in bytes):			1117577		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

☐Declaration
Submitted
With Initial
Filing

OR

☒Declaration
Submitted after Initial
Filing (surcharge
(37 CFR 1.16 (f))
required)Attorney Docket
Number

0808.069.US02

First Named Inventor

BRAGATTO Enrico

COMPLETE IF KNOWN

Application Number

13/521,896

Filing Date

July 12, 2012

Art Unit

Examiner Name

I hereby declare that:

Each inventor's residence, mailing address, and citizenship are as stated below next to their name.

I believe the inventor(s) named below to be the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Seed distribution element for precision seed drills, seed drill including said element.

(Title of the Invention)

the specification of which

☐

is attached hereto

OR

☒

was filed on (MM/DD/YYYY)

11/10/2011

as United States Application Number or PCT International

Application Number

PCT/EP2011/069875

and was amended on (MM/DD/YYYY)

(if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application N ()	Country	Foreign Filing Date (/DD/YYYY)	Priority		Certified Copy Attached?	
			N	Claimed	YES	NO
PD2010A000338	ITALY	11/12/2010		☐	☐	☒
				☐	☐	☐
				☐	☐	☐
				☐	☐	☐

☐

Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 21 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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DECLARATION — ☐ Utility or Design Patent ApplicationDirect all
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Customer Number:

43446

OR ☐Correspondence
address below

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State

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WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

NAME OF SOLE OR FIRST INVENTOR:

A petition has been filed for this unsigned inventor

Given Name (first and middle [if any])

Enrico

Family Name or Surname

BRAGATTO

Inventor's Signature



Date

July 23, 2012

Residence: City

CAORLE (VE)

State

Country

ITALY

Citizenship

ITALIAN

Mailing Address

via Strada Nuova, 36

City

CAORLE (VE)

State

Zip

30021

Country

ITALY



Additional inventors or a legal representative are being named on the supplemental sheet(s) PTO/SB/02A or 02LR attached hereto.

[Page 2 of 2]



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
13/521,896	Enrico Bragatto	0808.069.US02

43446
CASTELLANO PLLC
P.O. Box 1555
Great Falls, VA 22066

INTERNATIONAL APPLICATION NO.	
PCT/EP2011/069875	
I.A. FILING DATE	PRIORITY DATE
11/10/2011	11/12/2010

CONFIRMATION NO. 2599
371 FORMALITIES LETTER



Date Mailed: 08/09/2012

**NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371
IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)**

The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as an Elected Office (37 CFR 1.495):

- Priority Document
- Copy of the International Application filed on 07/12/2012
- Copy of the International Search Report filed on 07/12/2012
- Copy of IPE Report filed on 07/12/2012
- Preliminary Amendments filed on 07/12/2012
- Information Disclosure Statements filed on 07/12/2012
- U.S. Basic National Fees filed on 07/12/2012
- Priority Documents filed on 07/12/2012

The applicant needs to satisfy supplemental fees problems indicated below.

The following items **MUST** be furnished within the period set forth below in order to complete the requirements for acceptance under 35 U.S.C. 371:

- Oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), identifying the application by the International application number and international filing date.
- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.492(h) of \$130 for a non-small entity, must be submitted with the missing items identified in this letter.

SUMMARY OF FEES DUE:

Total additional fees required for this application is **\$870** for a Large Entity:

- **\$130** Surcharge.
- The application search fee has not been paid. Applicant must submit **\$490** to complete the search fee. Note a surcharge will be required if submitted later than commencement of the national stage (37 CFR 1.492(h)) and the basic national fee was not paid before July 1, 2005.
- The application examination fee has not been paid. Applicant must submit **\$250** to complete the examination fee for a non-small entity. Note a surcharge will be required if submitted later than commencement of the national stage (37 CFR 1.492(h)) and the basic national fee was not paid before July 1, 2005.

ALL OF THE ITEMS SET FORTH ABOVE MUST BE SUBMITTED WITHIN TWO (2) MONTHS FROM THE DATE OF THIS NOTICE OR BY 32 MONTHS FROM THE PRIORITY DATE FOR THE APPLICATION, WHICHEVER IS LATER. FAILURE TO PROPERLY RESPOND WILL RESULT IN ABANDONMENT.

page 1 of 2

The time period set above may be extended by filing a petition and fee for extension of time under the provisions of 37 CFR 1.136(a).

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web.

<https://portal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

KAREN M WILLIAMS

Telephone: (571) 272-9075

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 13/521,896				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	380			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	490			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	250			
TOTAL CLAIMS (37 CFR 1.16(j))	16	minus 20 = *			OR	x 60 =	0.00			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *				x 250 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1120			
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										

MULTIPLE DEPENDENT CLAIM FEE CALCULATION SHEET Substitute for Form PTO-1360 (For use with Form PTO/SB/06)							Application Number 13521896		Filing Date	
							Applicant(s) Enrico Bragatto			
							* May be used for additional claims or amendments			
CLAIMS	AS FILED		AFTER FIRST AMENDMENT		AFTER SECOND AMENDMENT			*	*	*
	Indep	Depend	Indep	Depend	Indep	Depend				
1	1		1							
2		1		1						
3		2		1						
4		2		1						
5		2		1						
6		(1)		1						
7		(1)		1						
8		(1)		1						
9		(1)		1						
10	1		1							
11		(1)		(1)						
12				(1)						
13				(1)						
14				(1)						
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Total Indep	2		2		0					
Total Depend	12	↙	14	↙	0	↙				
Total Claims	14		16		0					
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A SUBMISSION UNDER 35 U.S.C. 371		ATTORNEY'S DOCKET NUMBER 0808.069.US02
U.S. APPLICATION NO. (If known, see 37 CFR 1.5)		
INTERNATIONAL APPLICATION NO. PCT/EP2011/069875	INTERNATIONAL FILING DATE November 10, 2011	PRIORITY DATE CLAIMED November 12, 2010
TITLE OF INVENTION SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT		
APPLICANT(S) FOR DO/EO/US Enrico BRAGATTO		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
1. ☒ This is a FIRST submission of items concerning a submission under 35 U.S.C. 371. 2. ☐ This is a SECOND or SUBSEQUENT submission of items concerning a submission under 35 U.S.C. 371. 3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below. 4. ☒ The US has been elected (Article 31). 5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2)) a. ☐ is attached hereto (required only if not communicated by the International Bureau). b. ☒ has been communicated by the International Bureau. c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US). 6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)). a. ☐ is attached hereto. b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4). 7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) a. ☐ are attached hereto (required only if not communicated by the International Bureau). b. ☐ have been communicated by the International Bureau. c. ☐ have not been made; however, the time limit for making such amendments has NOT expired. d. ☐ have not been made and will not be made. 8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).		
Items 11 to 20 below concern document(s) or information included:		
11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13. ☒ A preliminary amendment. 14. ☐ An Application Data Sheet under 37 CFR 1.76. 15. ☐ A substitute specification. 16. ☐ A power of attorney and/or change of address letter. 17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.3 and 37 CFR 1.821- 1.825. 18. ☒ A second copy of the published International Application under 35 U.S.C. 154(d)(4). 19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).		

This collection of information is required by 37 CFR 1.414 and 1.491-1 .492. The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 15 minutes to complete, including gathering information, preparing, and submitting the completed form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEE S OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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U.S. APPLICATION NO. (if known, see 37 CFR 1.5)		INTERNATIONAL APPLICATION NO. PCT/EP2011/069875		ATTORNEY'S DOCKET NUMBER 0808.069.US02	
20. Other items or information:					
The following fees have been submitted				CALCULATIONS	
				PTO USE ONLY	
21.	☒	Basic national fee (37 CFR 1.492(a)).....	\$380	\$ 380.00	
22.	☐	Examination fee (37 CFR 1.492(c))			
If the written opinion prepared by ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4).....				\$	
All other situations.....				\$250	
23.	☐	Search fee (37 CFR 1.492(b))			
If the written opinion of the ISA/US or the International preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4).....				\$	
Search fee (37 CFR 1.445(a)(2)) has been paid on the international application to the USPTO as an International Searching Authority.....				\$120	
International Search Report prepared by an ISA other than the US and provided to the Office or previously communicated to the US by the IB.....				\$490	
All other situations.....				\$620	
TOTAL OF 21, 22 and 23 =				\$ 380.00	
☐ Additional fee for specification and drawings filed in paper over 100 sheets (excluding sequence listing in compliance with 37 CFR 1.821(c) or (e) in an electronic medium or computer program listing in an electronic medium) (37 CFR 1.492(j)). The fee is \$310 for each additional 50 sheets of paper or fraction thereof.					
Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof (round up to a whole number)	RATE		
- 100 =	/50 =		x \$310	\$	
Surcharge of \$130.00 for furnishing any of the search fee, examination fee, or the oath or declaration after the date of commencement of the national stage (37 CFR 1.492(h)).				\$	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$	
Total claims	- 20 =		x \$ 60	\$	
Independent claims	- 3 =		x \$250	\$	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$450	\$	
TOTAL OF ABOVE CALCULATIONS =				\$	
☐ Applicant claims small entity status. See 37 CFR 1.27. Fees above are reduced by ½.					
SUBTOTAL =				\$	
Processing fee of \$130.00 for furnishing the English translation later than 30 months from the earliest claimed priority date (37 CFR 1.492(i)).				\$	
TOTAL NATIONAL FEE =				\$	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				\$	
TOTAL FEES ENCLOSED =				\$ 380.00	
				Amount to be refunded:	\$
				Amount to be charged	\$ 380.00

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- a. ☐ A check in the amount of \$ _____ to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-3120.
- d. ☒ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038. The PTO-2038 should only be mailed or faxed to the USPTO. However, when paying the basic national fee, the PTO-2038 may NOT be faxed to the USPTO.

ADVISORY: If filing by EFS-Web, do **NOT** attach the PTO-2038 form as a PDF along with your EFS-Web submission. Please be advised that this is **not** recommended and by doing so your **credit card information may be displayed via PAIR**. To protect your information, it is recommended paying fees online by using the electronic payment method.

NOTE: Where an appropriate time limit under 37 CFR 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the International Application to pending status.

SEND ALL CORRESPONDENCE TO:

Kristina Castellano
CASTELLANO PLLC
P.O. Box 1555
Great Falls, VA 22066

/KristinaCastellano/

SIGNATURE

Kristina Castellano

NAME

41,092

REGISTRATION NUMBER

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A SUBMISSION UNDER 35 U.S.C. 371		ATTORNEY'S DOCKET NUMBER 0808.069.US02
U.S. APPLICATION NO. (If known, see 37 CFR 1.5)		
INTERNATIONAL APPLICATION NO. PCT/EP2011/069875	INTERNATIONAL FILING DATE November 10, 2011	PRIORITY DATE CLAIMED November 12, 2010
TITLE OF INVENTION SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT		
APPLICANT(S) FOR DO/EO/US Enrico BRAGATTO		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
1. ☒ This is a FIRST submission of items concerning a submission under 35 U.S.C. 371.		
2. ☐ This is a SECOND or SUBSEQUENT submission of items concerning a submission under 35 U.S.C. 371.		
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.		
4. ☒ The US has been elected (Article 31).		
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))		
a. ☐ is attached hereto (required only if not communicated by the International Bureau).		
b. ☒ has been communicated by the International Bureau.		
c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).		
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).		
a. ☐ is attached hereto.		
b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).		
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))		
a. ☐ are attached hereto (required only if not communicated by the International Bureau).		
b. ☐ have been communicated by the International Bureau.		
c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.		
d. ☐ have not been made and will not be made.		
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).		
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).		
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).		
Items 11 to 20 below concern document(s) or information included:		
11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.		
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.		
13. ☒ A preliminary amendment.		
14. ☐ An Application Data Sheet under 37 CFR 1.76.		
15. ☐ A substitute specification.		
16. ☐ A power of attorney and/or change of address letter.		
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.3 and 37 CFR 1.821- 1.825.		
18. ☒ A second copy of the published International Application under 35 U.S.C. 154(d)(4).		
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).		

This collection of information is required by 37 CFR 1.414 and 1.491-1.492. The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 15 minutes to complete, including gathering information, preparing, and submitting the completed form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEE S OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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U.S. APPLICATION NO. (if known, see 37 CFR 1.5)		INTERNATIONAL APPLICATION NO. PCT/EP2011/069875		ATTORNEY'S DOCKET NUMBER 0808.069.US02	
20. Other items or information:					
The following fees have been submitted				CALCULATIONS	PTO USE ONLY
21.	☒	Basic national fee (37 CFR 1.492(a)).....	\$380	\$ 380.00	
22.	☐	Examination fee (37 CFR 1.492(c))			
If the written opinion prepared by ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4).....				\$	
All other situations.....				\$250	
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Total claims	- 20 =		x \$ 60	\$	
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NOTE: Where an appropriate time limit under 37 CFR 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the International Application to pending status.

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Kristina Castellano
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Great Falls, VA 22066

/KristinaCastellano/

SIGNATURE

Kristina Castellano

NAME

41,092

REGISTRATION NUMBER

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number			
	Filing Date		2012-07-12	
	First Named Inventor	Enrico BRAGATTO		
	Art Unit			
	Examiner Name			
	Attorney Docket Number	0808.069.US02		

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		2012-07-12
	First Named Inventor	Enrico BRAGATTO	
	Art Unit		
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	1	International Search Report and Written Opinion in parent application PCT/EP2011/069875.	☐
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2012-07-12
First Named Inventor	Enrico BRAGATTO
Art Unit	
Examiner Name	
Attorney Docket Number	0808.069.US02

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☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

SIGNATURE

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Signature	/KristinaCastellano/	Date (YYYY-MM-DD)	2012-07-12
Name/Print	Kristina M. Castellano	Registration Number	41092

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(54) **Pneumatic precision seed drill.**

(57) Precision-type single-seed planter with a distributor in the form of a disk (13) provided with perforations (34) and co-operating with a seed container (11, 15) and an air suction device.

The perforations (34) in the disk (13) have an elongated shape and a reduced cross-section. A selector

element (14) is arranged to co-operate with the disk (13) by throttling the air suction area of the perforations.

An optimum seed separation and single-seed distribution effect is thereby achieved, regardless of the size and the shape of the seeds.

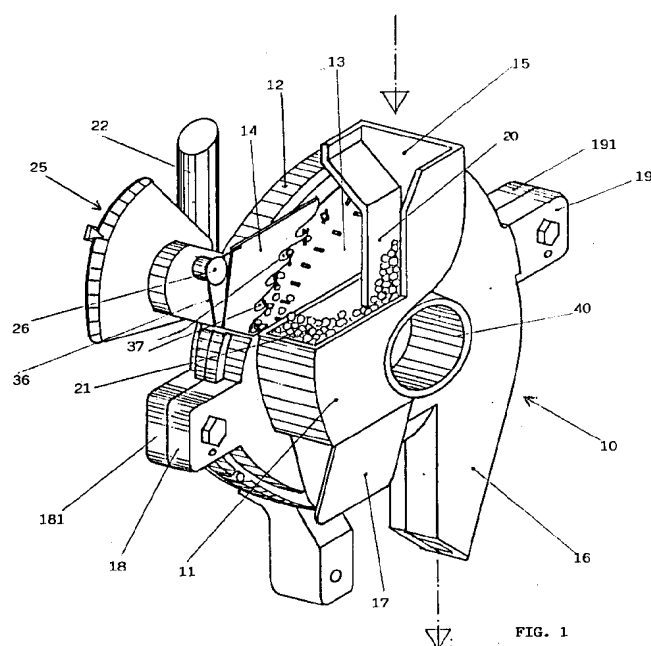


FIG. 1

The present invention relates to precision-type, single-seed drilling planters, which are adapted to deposit seeds in the ground on a one-by-one basis, at regular intervals, ie. regularly spaced, along sowing rows.

It is well-known that these machines are used in particular for such cultivations as maize, sugar beet, soya, horticultural-type vegetables and all those horticultural and agricultural species in general that require regularly spaced sowing or deposition of either peeled or unpeeled, bare or coated seeds. Precision-type single-seed planters have a number of advantages as compared with universal-type ones. These advantages include a reduction in or even the elimination of downtimes required to subsequently carry out a thinning out of the plants, a simplification in the tilling and harvesting operations, a saving in the quantity of seeds used.

Precision-type single-seed planters can essentially be divided into two categories based on the distribution system that they are actually implementing, ie. mechanical or pneumatic.

This invention refers to precision-type single-seed planters falling into the pneumatic-type category, in which the withdrawal of the seeds from the loading container, their separation and their distribution according to a one-by-one pattern are performed by means of a rotating perforated disk having one or more sequences of concentric circular perforations, and co-operating on one side with a suction blower, which creates a negative pressure of the air through the perforations of the disk and thereby keeps the seeds adhering to the disk until the unloading zone is reached, and on the other side with a mechanical separator which enables the seeds to be selected one by one and causes excess seeds to fall back into the container.

In single-seed planters of the known type, in which the perforations of said disk are generally circular in their shape, it is rather difficult to succeed in having a single seed in correspondence of each perforation of the disk, particularly in those cases in which the seeds have no regular shape and/or have differing sizes. It is therefore general practice to try to use disks with quite large perforations so as to ensure that at least one seed is in all cases captured for distribution. However, by increasing the size of the individual perforations so as to enable even the largest seeds in the lot to be sucked in, a further problem is created in that smaller seeds have then the opportunity of passing through the perforations, or else in that many smaller seeds may get stuck in the perforations, thereby obstructing them. It is therefore quite difficult to succeed in separating the seeds so as to ensure that a single seed is actually sucked and kept adhering to each single perforation. It may further occur that the seeds that get stuck in the

perforations are ultimately broken up by the separator when the latter interacts with the perforated disk.

It therefore ensues that precision-type single-seed planters have to be provided with several sets of perforated disks having perforations drilled to different diameter sizes, which must therefore be changed quite often according to the average size and shape of the seeds to be planted, so as to reduce the extent of the above described drawbacks.

Furthermore, the separators must be positioned and adjusted in such a way as to ensure that a single seed remains in each perforation. However, in the precision-type single-seed planters of the known type this is not possible when the seeds are irregular in their shape, since any adjustment enabling two smaller seeds that may possibly be inserted in a perforation to be effectively separated, would quite often prove inadequate in keeping a larger seed adhering to the disk, so that the same seed would fall back into the container and create a void in the sowing sequence. In the opposite case, any adjustment of the selector that enables large or ill-positioned seeds to be kept adhering to the disk for their correct deposition, may even enable several smaller seeds to pass through a perforation, thereby giving rise to an irregular seed deposition pattern.

The Italian patent specification no. 1.145.917 filed by F. Walter & H. Wintersteiger KG describes a precision-type single-seed drilling machine of the pneumatic type, in which the seed drilling disk is formed by two parts, ie. more precisely by a disk-type body member connected to the suction fan means and a thin disk-like plate adhering against said body member so as to cover it on its side facing the seeds. Said disk-type body member is fixed and is provided with a guide slot extending from the centre to the periphery of said body member so as to follow the ejection path of the seed. The disk-like plate is rotatable and is provided with a plurality of radial slots extending from the central portion to the periphery of the disk. This particular type of construction enables a slower speed to be implemented at which the seeds are extracted from the container, and therefore the disk to be facilitated in more effectively capturing the extracted seeds. This occurs owing to the fact that the conveying slots are arranged according to a radial pattern and start off from the central portion of the disk. However, in order to have said conveying slots adequately spaced so as to enable the seeds to adhere along a small central circumference of the disk, said slots have to be provided only in a limited number. It therefore ensues that, with the distribution of a small number of seeds for each rotation of the disk, it is necessary to work at

a very slow forward-moving speed on the field, otherwise there would be no effective or even acceptable sowing action, since the seeds would necessarily be subjected to an excessively high centrifugal force.

The therein described system proves quite effective in operation with seeds having a roundish shape, while it is clearly less effective when it comes to individually distribute single seeds being irregular in their shape, eg. tapered or pointed, or in their size. Furthermore, this particular arrangement appears to be rather complicate in its construction, since it practically requires a double disk body, each one of said two parts of the disk having further to be provided with a number of special slots.

It should further be stressed how, from a functional point of view, the seeds are with that particular arrangement coming into contact with both said parts of the disk and are subjected to a rolling action which, if it on the one side promotes separation of the seeds, may on the other side cause the seeds to become damaged owing to the considerable friction against the surfaces of said two parts of the disk along a considerable length of their path.

The European patent application no. 0.338.883 filed by ATELIERS RIBOULEAU describes a precision-type single-seed drilling machine of the pneumatical type, in which the distribution disk is provided with circular, equally spaced perforations drilled along one or two circular patterns near the outer edge of the disk.

The main feature of said solution is the suction device which has an inner channel with a differing cross-section branching off into two arms, of which one is provided with a shut-off member capable of isolating said channel arm from the suction device. In a particular embodiment, the distribution disk is provided with circular perforations arranged a long two circular rings, as well as a set of fins arranged in an alternate sequence with said perforations, which set the seeds in motion in the container and convey them from the release point in the suction device through to the point at which they fall into the ground.

In this particular embodiment, in the passage of the seeds from one ring of perforations to the other one there occurs a separation of the individual seeds which, within certain limits, is independent of the actual size and shape of the seeds. It is however quite apparent that the space taken up by the fins arranged in an alternate sequence with the perforations has a limiting effect on the quantity of perforations that can actually be drilled along each circular ring and, as a consequence, the number of seeds that can be distributed for each rotation of the disk.

It therefore ensues that the forward moving speed of the drilling machine in the field shall necessarily be reduced so as to esclude any excessively high rotation speed of the disk, which would negatively affect the seeds owing to the centrifugal forces generated. It will be also appreciated that such an arrangement implies quite an expensive, complicated construction.

In a further embodiment of said arrangement, which is adapted to operate in a likewise manner as the usual precision-type single-seed drilling machines of the pneumatic type, the distribution disk is not provided with any of such fins, but is associated with a selector element provided with rectilinear slits and adjustable into position with respect to the perforations of the disk, so that the sucked-in seeds are caused to impinge against the protrusions of the plate and are in this way selected. However, even such a constructional solution appears to have its drawbacks. As a matter of fact, the circular perforations in the distribution disk cannot be sized to any large diameter, in order to prevent seeds from getting stuck in them or passing unhindered through them. On the other hand, they cannot even be given too small a diameter, since suction would in such a case turn out to be inadequate to effect seed extraction from the hopper. Furthermore, the separator cannot work in a much efficient way in the case of irregularly shaped or sized seeds.

It is the purpose of the present invention to provide an improved type of pneumatically operated, precision-type, single-seed planter which is simpler in construction as compared with the currently known machines of the same category, and which is such as to ensure individual selection of single seeds in a really effective way, whichever the size and the shape of the seeds may also be within certain reasonable limits.

In particular, the advantage is in this way achieved of being able to use the same disk and the same adjustment thereof to individually sow or plant single seeds having different grain sizes. Furthermore, by adjusting the selector element correspondingly, the possibility is achieved to individually, ie. on a one-by-one basis, sow or plant a variety of seed species which is much wider than the one that can normally be handled with pneumatically operated single-seed planters of the hitherto known type.

The main features of the present invention are as detailed in the appended claims. Anyway, the invention, along with its peculiar characteristics and advantages, will be further described below by way of non-limiting example, with reference to the accompanying drawings in which:

- Figure 1 is a perspective, partially cross-sectioned view of the single-seed distributor

means according to the invention;

- Figure 2 is a cross-section view along the II-II line of the single-seed distributor means of Figure 1; and
- Figure 3 is a perspective, exploded view of the distributor means of Figure 1.

The single-seed distributor means 10 according to the invention can be applied to any known type of planters (not shown) whatsoever.

The single-seed distributor means 10 is essentially formed by a seed container 11 and a box-like casing 12, with a perforated disk 13, associated with a selector element 14, arranged therebetween.

The seed container 11 is provided on its upper portion with a hopper 15 for loading the seeds, and on its lower portion with an unloading conduit 16 for depositing the seeds into the ground, as well as in a preferred way with a lid 17 that can be opened to clean the container 11, particularly when it is required to change the type of seeds to be distributed.

Said seed container 11 is further provided with projections 18, 19 that are adapted to co-operate with respective projections 181 and 191 of the casing 12 to effect the connection and the closure (by means of holes, pins and bolts) of the container 11 with the casing 12.

In a preferred way, the hopper 15 extends downwards into the interior of the container 11 with a wall 20, which acts as an effective fending and conveying means for the seeds 21 in the same container, as shown in Figure 2.

The box-like casing 12 is connected with an air suction device (for instance, a motor-driven fan of known type, not shown in the Figure) through a suction conduit 22 which terminates in a hole 23 (Figure 3) in correspondence of a suction slit 24 that is provided along a circumferential arc in the body of the casing 12. Said slit 24 is open on the side facing the disk 13 which, when the distributor means is assembled, is enclosed between the container 11 and the casing 12.

The casing 12 further carries a hand-operated adjusting member with related indicator means 25, which is provided with an eccentric means 26, or a similar provision, so as to adjust the position of the selector element 14 as will be described hereinafter.

The casing 12 is also provided with a perforated hub 27 (Figure 2) through which passes, as supported by bearings 28, a shaft 29 that may for instance be driven through a cog-wheel 30 to rotatably drive the disk 13, to which it is connected by means of a driving disk 31, a centering dowel 32 and a driving pin 33 (Figures 2 and 3).

According to the main feature of the present invention, said disk 13 is provided with a ring of perforations 34, which are preferably arranged ac-

ording to an equally spaced pattern along a circumferential circle near the outer periphery of the same disk. Said perforations 34 have an elongated shape and a reduced cross-section, so as to prevent seeds with a smaller size from passing there-through, while at the same time ensuring the passage of a suction air flow which is sufficient to keep seeds with a larger size adhering to the perforations during the rotation of the disk 13. Said perforations 34 may in an advantageous manner be given an arrangement which is inclined with respect to the radial direction of the disk 13, as for instance shown in Figure 3.

The selector element 14, the profile of which is situated in front of the perforations 34, co-operates with that surface of the disk 13 which is facing the seed container 11. According to a particular embodiment, said profile of the selector element 14 is designed so as to divide the perforations into two portions, i.e. a seed suction portion situated in an area which is closer to the centre of the disk 13, and a single-seed selection portion that is closer to the periphery of the same disk. This enables the effectiveness of the action of the selector element to be considerably enhanced as far as both the separation of small sized seeds, without them passing through the perforation, and the retention of larger sized seeds, which are exposed to a larger flow of suction air, are concerned.

If the point is to achieve a basically low-cost planter, such as only adapted to handle seeds of the same kind, said selector element 14 may be of a fixed type. Even in this case, with the disk 13 provided with perforations 34 according to the invention, a significant improvement is achieved in the operation and the performance capabilities of the planter, under a more reliable and accurate distribution of the single seeds. In a preferred way, however, said selector element 14 as described in this patent specification is mounted so as to pivot about a pin 35 fixed inside the casing 12, and is retained in a position adhering against the eccentric means 26 by means of a spring fork 36.

By actuating the regulator member 25, the eccentric means 26 is shifted and, as a consequence, the selector element 14 is moved into a suitable position with respect to the surface of the disk 13, as well as with respect to the perforations 34, according to the type of seeds that have to be distributed.

Said shifting and adjustment of the selector element may of course be performed also by means of different mechanical elements, such as screws, levers or sliders, while in all cases achieving a similar result and effect.

According to a further feature of the present invention, the selector element 14 is provided with a number of slots 37 that are cut along the region

of its profile which is situated in front of the ring of perforations 34 around the disk 13, said slots 37 being further co-operating with said perforations 34.

Said slots 37 are arranged with their open ends following an inclined pattern in the direction of rotation of the disk 13 and are very deep in their extension so as to ensure, in co-operation with said selector element 14, the suction and the selection of the seeds, with the distribution of single seeds and the falling of multiple or excess seeds back into the container 11.

Each one of said slots 37 further terminates with an end portion having a sharp profile, so as to create a ridge that promotes leapfrogging into the next slot by the seed which is kept sucked in the perforation in a privileged position, regardless within certain reasonable limits of the shape and the size of the seed, and that also causes multiple or excess seeds to be released and come off.

It may be useful, although not strictly necessary, to provide the inner surface of the disk 13 with a circle of radially arranged lugs 38 or the like, so as to promote an agitation of the seeds in the container 11 during the rotation of the disk 13.

In the operation of the planter, after the seeds are filled into the container 11, the disk 13 is set rotating (in the direction as indicated by the arrow F in Figure 3) and the air suction device is started.

The seeds 21, owing to the air suction through the conduit 22, the hole 23, the slit 24 and the perforations 34, are caused to adhere to the disk 13 and are lifted off the same disk, and get progressively separated, as they proceed in front of the slots 37 of the selector element 14.

Through an appropriate selection of the position of said selector element 14 it is possible to achieve that, in correspondence of the last slot 37 in the direction of rotation of the disk 13, there will be only one seed for each perforation 34 that keeps adhering to the disk 13 and that will then come off the same disk when it reaches the unloading area in correspondence of the unloading conduit 16, where the seed is no longer subjected to the air suction effect, since the suction slit 24 is in fact terminated.

It will of course be appreciated that the above described arrangement may be the subject of any modification or integration considered to be appropriate, without departing from the scopes of the present invention. For instance, the perforations may be given an elongated shape, which however deviates from the herein shown shape, eg. rhomboidal. Furthermore, a hollow sealing ring 39 or similar gasketing means of plastic material may be appropriately provided between the casing 12 and the disk 13 so as to ensure correct positioning of said two elements and an effective sealing effect between them (Figure 2).

Furthermore, the seed container 11 may be provided with a central opening 40 (Figures 1 and 2) to possibly introduce the support and driving elements for the disk 13 from the opposite side of the device, as opposed to the arrangement shown in the accompanying drawing.

Claims

1. Precision-type single-seed pneumatic planter, provided with distributor means for single seeds comprising a disk (13) that is provided with perforations (34) arranged circumferentially in the vicinity of its outer edge and is rotatably operable, said disk (13) being adapted to co-operate on one side with a seed container (11, 15) and on the other side with a casing (12) provided with an opening (24) connected with an air suction device to extract the seeds from said seed container (11, 15) through the action of a negative air pressure created through said perforations (34), and a selector element (14) provided in correspondence of said perforations (34) on the seed facing side of said disk (13) to separate single seeds, **characterized in that** said perforations (34) of the disk (13) have an elongated shape and a reduced cross-section so as to prevent seeds of a smaller size from passing therethrough and to enable at the same time such a suction air flow to pass therethrough as necessary to keep seeds with a larger size adhering on to the disk (13), said selector element (14) being arranged so as to have its profile co-operating with said perforations by throttling the suction area thereof so as to select the single seeds.
2. Precision-type single-seed pneumatic planter according to claim 1, characterized in that said selector element (14) is arranged so that its profile co-operates with said perforations (34) by dividing them up into two portions, of which one is a seed suction portion situated in an area that is closer to the centre of the disk (13) and the other one is a single-seed selection portion situated in an area that is closer to the periphery of the same disk (13).
3. Precision-type single-seed pneumatic planter according to claim 1 or 2, in which the perforations (34) of the disk (13) are arranged at equally spaced intervals along a circle running circumferentially near the outer periphery of said disk (13), characterized in that said perforations (34) are arranged according to a pattern that is inclined with respect to the radial direction of the disk (13).

4. Precision-type single-seed pneumatic planter according to any preceding claims, characterized in that said selector element (14) is pivotally attached to said casing (12) and is connected through a spring fork (36) and a cam (26) with a hand-operated regulator means (25) adapted to adjust the position of said selector element (14) according to the type of seeds to be distributed.
5. Precision-type single-seed pneumatic planter according to any preceding claims, characterized in that said selector element (14) is provided with appropriately deep slots (37) having their edges protruding and terminating with a sharp contour so as to create an air suction effect that causes the seeds to adhere, as well as to cause single seeds to get over the ridge.
6. Precision-type single-seed pneumatic planter according to any preceding claims, characterized in that said casing (12) is provided with an annular slit (24) extending along an arc of circumference in front of the circumferential circle of perforations (34) of the disk (13), said slit (24) being in connection through a hole (23) with a conduit (22) connected to the air suction device.
7. Precision-type single-seed pneumatic planter according to any preceding claims, characterized in that said disk (13) is rotatably driven through a shaft (29), which is supported in the casing (12), a driving disk (31), which is attached to one end of said shaft (29), and an eccentric pin (33) fixed on said driving disk (31).

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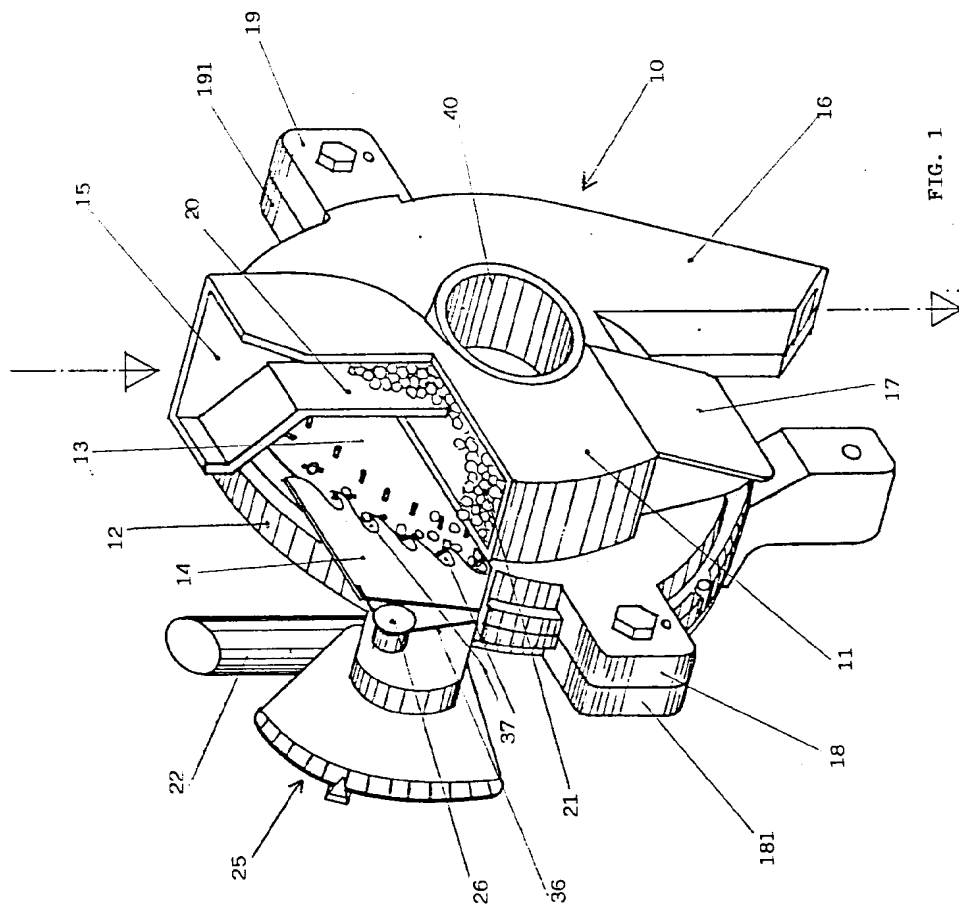
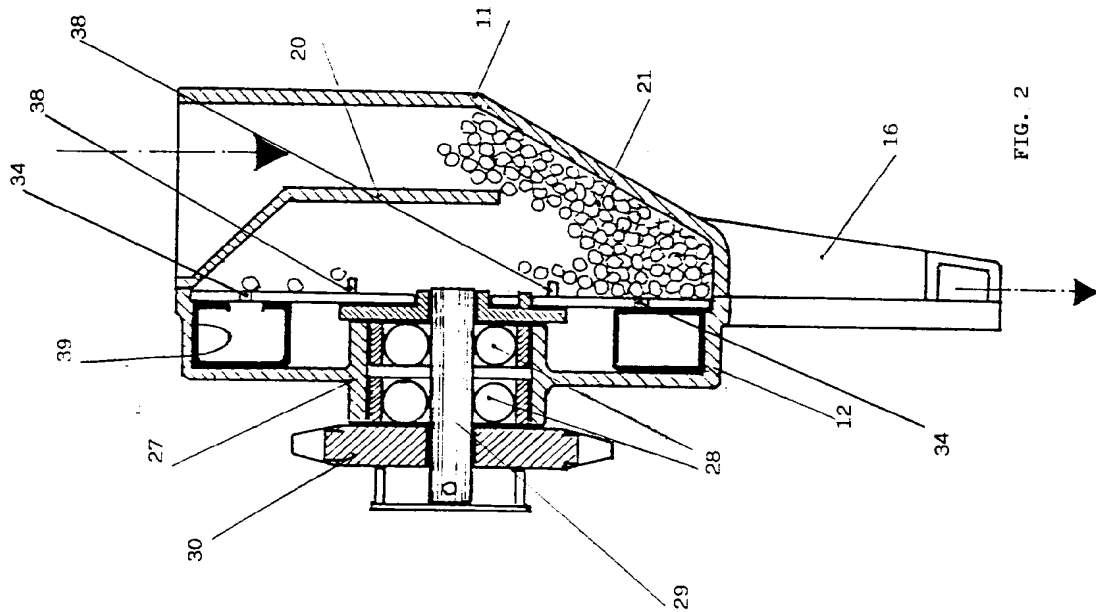
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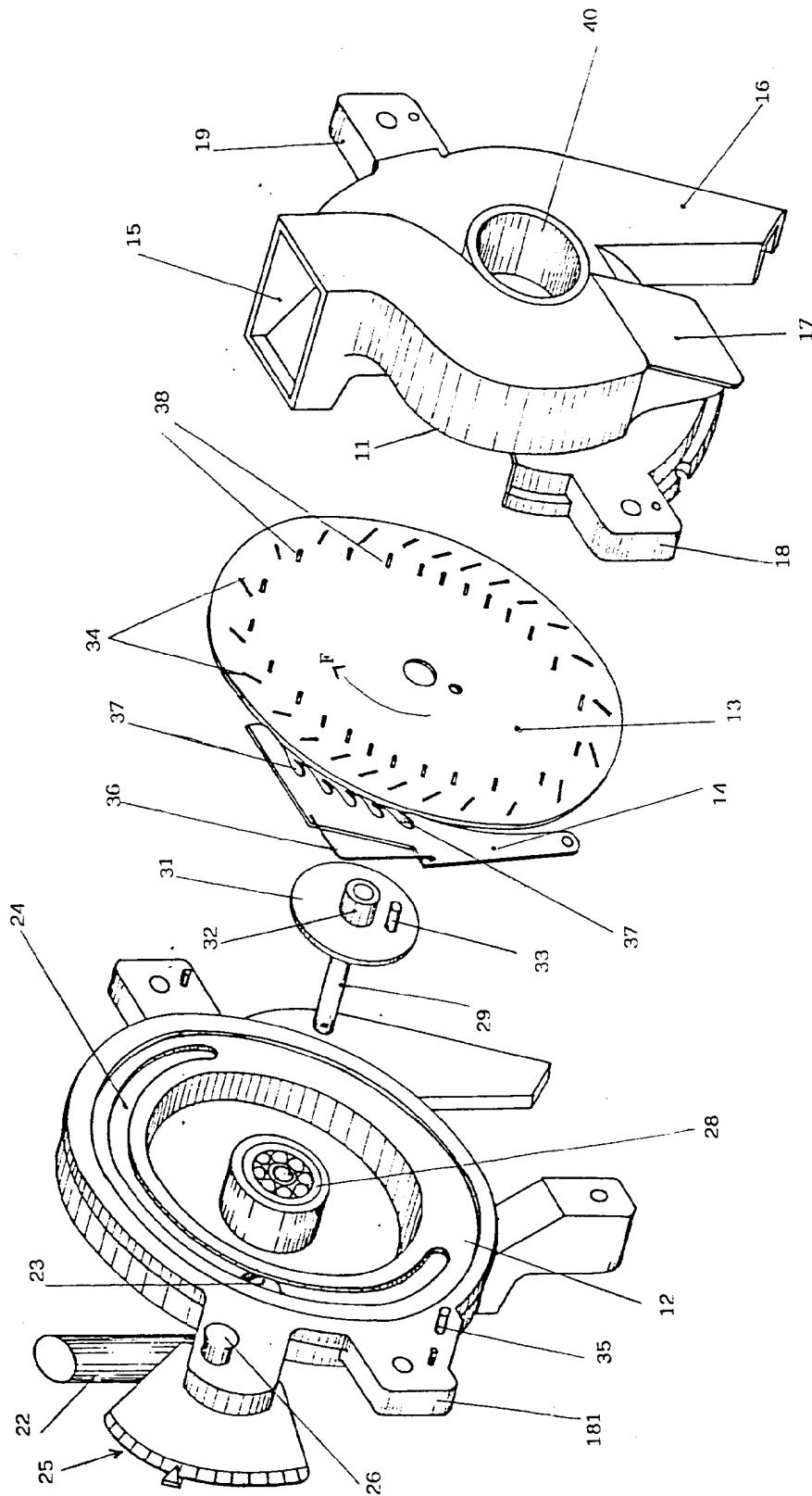
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European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 92 11 5258

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y	FR-A-2 643 212 (ATELIERS RIBOULEAU) * page 4, line 20 - page 10, line 21; figures 1-6 *	1	A01C7/04
A	---	2,5,6	
Y	GB-A-2 132 395 (FEDMECH HOLDINGS LTD.) * page 2, line 26 - line 72; figure 1 *	1	
A	---	1,2,4,5	
A	US-A-3 990 606 (GUGENHAN H.) * column 4, line 35 - column 7, line 62; figures 1-8 *	3	
A	---		
	US-A-4 074 830 (ADAMS C.E.) * column 3, line 22 - line 59; figures 10-14 *		

The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A01C
Place of search THE HAGUE		Date of completion of the search 02 DECEMBER 1992	Examiner ELSWORTH D.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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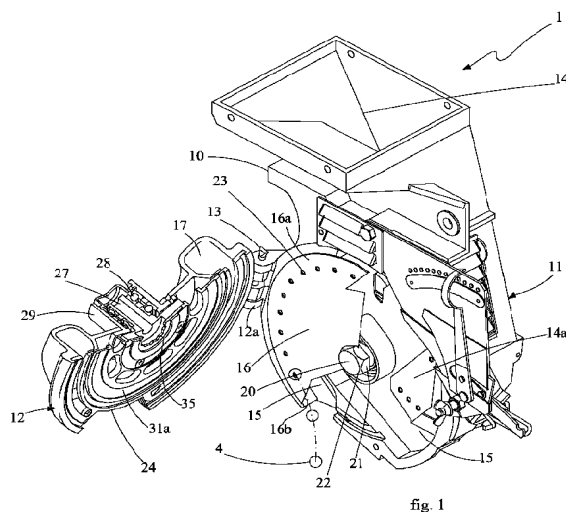
Declarations under Rule 4.17:

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(54) Title: SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT



(57) Abstract: A seed distribution element (1) includes: -a sowing disc (16) rotated by a motor-driven transmission shaft (20) -a housing (10) with a fixed portion (11) in which the shaft (20) is supported and a portion (12) movable relative to the fixed portion and can be closed against it, with a seed collection chamber (15) in the fixed portion (11) and a pneumatic suction chamber (17) in the movable portion (12), -the sowing disc (16) being interposed between the portions (11, 12) and having opposed surfaces (16a, 16b) delimiting the chambers, and provided with a ring of selector holes (23) extending between the opposed surfaces, -means for producing a pressure differential between the opposed surfaces in the region of a circumferential segment of the ring of holes, including the pneumatic suction chamber, and -a seal (24) on the movable portion (12) capable of sliding contact with the facing surface (16a) of the disc (16) when the portions are closed against one another, -a thrust-bearing element (26) of the sowing disc (16), supported rotatably in the movable portion (12), to withstand the axial load produced by the disc (16) on the seal (24).

"Seed distribution element for precision seed drills, seed drill including said element"

DESCRIPTION

The subject of the present invention is a seed distribution element for precision pneumatic seed drills, a sowing element for such machines and a
5 seed drill including a plurality of such sowing elements.

In precision pneumatic seed drills it is known to use sowing elements which are each equipped with a seed distribution element (hereinafter, in brief, distributor) for distributing one seed at a time in a controlled
10 delivery while the sowing element moves along a sowing track.

It is equally known to use seed distributors which use an air pressure differential between opposed faces of a sowing disc (or selector) provided with one or more rings of through holes. The operating principle is based on the fact that, as a result of the pressure differential between the
15 opposed faces of the disc, a seed adheres to each hole and is then transported by the rotation of the sowing disc from the seed selection zone to the point at which the pressure differential ceases and the seed is released to drop through a sowing pipe into the furrow or sowing track. In practice, on one of the faces of the disc a strong air suction is exerted
20 which retains the seeds on the opposite face in the region of the respective holes. An example of such devices is disclosed in US 7 228 807.

For the correct functioning of such distributors it is necessary to ensure an effective pneumatic seal between the face of the disc that is subjected to
25 suction and a seal which delimits the pneumatic suction chamber. The

suction effect itself effects a substantial compression of the disc against the seal. If on the one hand this ensures adequate adherence of the seal to the disc surface which is subjected to negative pressure, on the other hand it involves severe abrasion of the seal which limits the effective
5 service life thereof. It is therefore necessary periodically to replace the seal in order to prevent sowing errors arising from insufficient depressurization of the suction chamber.

On the other hand, even if replacing the seal is a simple operation, in each case it entails an unwanted machine stoppage, besides the cost of the
10 spare part itself.

In order to remedy this drawback, seed drills have been developed which are equipped with a thrust-bearing element which relieves the heavy load on the seal. In all cases, however, the thrust-bearing element, which must be rotated with the disc, is mounted on the fixed portion of the housing,
15 that is to say, that portion which is fixed to the framework of the sowing elements. This means that the disc must be attached to the thrust-bearing element; therefore an attachment system must be provided which in the stage of replacement of the disc must be removed, consequently lengthening the operation. This is inevitable in the known machines since
20 it is obligatory to mount on the fixed portion the transmission which drives in rotation the motor-driven shaft which rotates the disc.

However, positioning the thrust-bearing element on the fixed portion entails the pneumatic suction chamber being provided on the fixed portion, or on the same side at which the thrust-bearing element is
25 placed, while the seed collection chamber must be provided in the

movable portion. This is the source of numerous drawbacks, including the fact that the opening of the housing necessarily involves the removal of the portion containing the seed collection chamber from the hopper type store located above, which must necessarily be fixed to the framework of
5 the sowing element.

Furthermore, for the replacement of the sowing disc it is necessary to remove some parts of the distributor, such as the adjustable seed selector, and the seed ejector, where provided.

The problem underlying the present invention is that of providing a seed
10 distribution element structurally and functionally designed to make it possible to remedy all the drawbacks mentioned with reference to the prior art cited.

This problem is solved by the invention by means of a seed distribution element produced in accordance with one or more of the attached claims.

15 The features and advantages of the invention will become clearer from the following detailed description of a preferred exemplary embodiment thereof, illustrated by way of non-limiting example with reference to the appended drawings, in which:

- Fig. 1 is a perspective view of a seed distribution element produced
20 according to the present invention;
 - Fig. 2 is an exploded perspective view of a detail of the element of Fig. 1;
 - Fig. 3 is a perspective view of a seed drill equipped with sowing elements with a seed distribution element according to the invention.
- 25 In the drawings the reference 1 indicates as a whole a seed distribution

element intended for equipping a sowing element 2 of a precision pneumatic seed drill 3.

The distribution element 1 is the device intended to deposit one seed 4 at a time at a predetermined adjustable spacing in a sowing furrow opened
5 by a coulter 5. The sowing element 2, besides the distribution element 1, comprises a frame 6 and a seed store or hopper 7, besides other devices which are known per se and not necessary for the understanding of the present invention. The seed drill 3 itself comprises a bearing structure 8 on which a plurality of sowing elements 2 are mounted, all connected to a
10 pneumatic suction device 9.

The sowing element 1 itself comprises a housing 10 with a fixed portion 11 fixed in a stable manner on the frame 6 and a movable portion 12 hinged in the region of a hinge 12a on the fixed portion 11 by means of a removable hinge pin 13. The fixed portion includes a throat 14 by means
15 of which it is connected below an outflow mouth of the store or hopper 7 in such a way as to be fed directly by the latter.

From the throat 14 the seed flows through a gate 14a through which the seed flows into a seed collection chamber 15.

A sowing disc 16 separates the seed collection chamber 15 from a suction
20 chamber 17 provided in the movable portion 12. A suction device 18 mounted on the bearing structure 8 is connected to the suction chamber 17 by means of pipes 19 for producing a pressure differential between the opposed surfaces 16a, 16b of the selector disc 16.

The sowing disc 16 is removably mounted on a motor-driven drive shaft
25 20, supported in the fixed portion 11 and driven in rotation at

predetermined adjustable speeds by a transmission which is not shown. The presence of the transmission requires the shaft 20 to be mounted on the fixed portion 11 of the housing 10. The keying between the shaft 20 and the disc 16 is obtained by means of a polygonal profile 21 at the free
5 end of the shaft 20 which protrudes beyond the disc 16 and preferably has chamfers 22 which serve to facilitate the functions explained hereinafter.

At the periphery of the disc 16 is/are provided one (or several) ring(s) of holes 23 passing between the opposed faces of the sowing disc 16.

A seal 24 is fitted in the suction chamber 17 and is placed in sliding
10 contact with the facing surface of the disc 16, when the movable portion 11 is closed on the fixed portion 12, to delimit a circumferential segment in which the holes 23 are subjected to the aforesaid pressure differential. The circumferential segment extends between the seed collection chamber 15 and a seed fall pipe 25 in which the seeds are released one at a time
15 into the furrow formed by the coulter 5.

By reason of the pressure differential between the two opposed surfaces of the sowing disc, the seeds 4 are held, one to each hole 23, when the holes pass in the seed collection chamber 15, and are released in the region of the pipe 25 when the pneumatic effect of the pressure
20 differential ceases or owing to the presence of a seed ejector (not shown). In order to limit the wear on the seal 24 resulting from sliding against the surface of the disc 16, a thrust-bearing element indicated as a whole by 26 is mounted on the movable portion.

The thrust-bearing element 26 comprises a shaft 27 rotatably mounted by
25 means of bearings 28 in a seat 29 of the movable portion 12. The shaft 27

has flanging 30 by means of which it is fixed to a thrust-bearing plate 31 which can bear on that surface of the disc which faces the seal 24 in a zone radially inside the ring of holes 23 in order to withstand at least some of the axial load produced by the disc 16 on the seal 24.

- 5 The bearing between the thrust-bearing plate 31 and the disc 16 takes place in the region of a ring 31a in relief on the surface of the plate which faces the disc 16.

The thrust-bearing element 26 is driven in rotation with the sowing disc 16 when the fixed and movable portions 11, 12 are closed against one another by means of a drive element 32 which comprises a coupling
10 device constrained for rotation with the thrust-bearing plate but with radial and/or circumferential clearance in such a way as to be self-centred in the rotational coupling with the drive shaft of the disc 16. For this purpose, in the present form of embodiment, the drive element 32 is
15 coupled with limited radial and/or circumferential clearance to the element 26 by means of one (or more) appendage(s) 33 protruding radially towards the outside and fitted into corresponding seats 34 of the plate. The drive element 32 is coupled by means of an internal polygonal profile 35 (similar to that adopted for box-end wrenches) to the polygonal profile
20 21 of the free end of the shaft 20, the chamfers 22 of which serve to facilitate the centring of the two profiles and the respective engagement. The drive element 32 is thus self-centring relative to the drive shaft 20 by which it is driven. The positioning between seal 24 and plate 31 is such that the rotation of the latter will not be hindered by the presence of the
25 seal 24 and, at the same time, both will be kept bearing against the disc

16.

Provision is also made for the thrust-bearing element 26 to be made idle and not driven in rotation by the shaft 20.

The whole of the movable portion 12 complete with thrust-bearing
5 element 26 and seal 24 lends itself advantageously to the production of a
kit for the retrofitting of existing seed drills. It is sufficient in this case to
separate the old type of movable portion by removing the hinge pin 13
and replacing the old movable portion with the aforesaid kit. By re-
connecting the pneumatic pipes previously disconnected, the seed drill
10 becomes ready for use.

Among the principal advantages of the distribution element according to
the invention is the fact that the wear on the seal resulting from the
sliding contact with the seed selector disc is substantially reduced, if not
eliminated; the thrust-bearing element is self-centring, thereby allowing
15 easy opening and closing of the movable portion on the fixed portion of
the housing; the system additionally lends itself to easy retrofitting, all
without removing movable parts and/or operations of disconnecting the
sowing disc.

CLAIMS

1. A seed distribution element (1) for precision pneumatic seed drills (3), of the type including:
- a sowing disc (16) which is rotated by a motor-driven transmission shaft (20) at controlled speed,
 - a housing (10) with a fixed portion (11) in which the shaft (20) is supported and a portion (12) which is movable relative to the fixed portion (11) and can be closed against it,
 - a seed collection chamber (15) being defined in the fixed portion (11),
 - a pneumatic suction chamber (17) being defined in the movable portion (12),
 - the sowing disc (16) being interposed between the portions (11, 12) and having opposed surfaces delimiting the chambers (15, 17),
 - the sowing disc (16) having at least one ring of selector holes (23) extending between the opposed surfaces, and
 - a seal (24) which is arranged on the movable portion (12) and is capable of sliding contact with the facing surface of the disc (16) when the portions (11, 12) are closed against one another,
- wherein a pressure differential is provided between the opposed surfaces in the region of a circumferential segment of the ring of holes (23),
- characterized in that the seed distribution element (1) further comprises a thrust-bearing element (26) of the sowing disc (16), which thrust-bearing element (26) is supported rotatably in the

movable portion (12) in order to withstand at least some of the axial load produced by the disc (16) on the seal (24).

2. A seed distribution element (1) according to Claim 1, wherein the thrust-bearing element (26) is rotated with the disc (16) when the portions (11, 12) are closed against one another.
3. A seed distribution element (1) according to Claim 1 or Claim 2, wherein the thrust-bearing element (26) comprises a thrust-bearing plate (31) which can bear on that surface of the sowing disc (16) which faces the seal (24), in a zone radially inside of the ring of holes (23).
4. A seed distribution element (1) according to Claim 3, wherein the thrust-bearing element (26) comprises a drive element (32) which is fixed for rotation with the plate (31) and can be coupled with the drive shaft (20) of the disc (16) when the portions (11, 12) are closed against one another.
5. A seed distribution element (1) according to Claim 4, wherein the drive element (32) is self-centring relative to the drive shaft (20).
6. A seed distribution element (1) according to Claim 4 or Claim 5, wherein the drive element (32) comprises a coupling member (33) which rotates jointly with the thrust-bearing plate (31) but has radial and/or circumferential clearance so as to be self-centred during rotational coupling with the drive shaft (20) of the disc (16).
7. A seed distribution element (1) according to one or more of the preceding claims, wherein the movable portion (12) is hinged to the fixed portion (11).

8. A sowing element for precision seed drills (3) including a frame (6) on which a seed distribution element (1) according to one or more of the preceding claims is mounted.
9. A seed drill (3) comprising a supporting structure on which a plurality of sowing elements according to Claim 8 are mounted.
10. A kit for the retrofitting of seed distribution elements (1) of precision pneumatic seed drills (3) wherein the distribution elements (1) are of the type including:
- a sowing disc (16) which is rotated by a motor-driven transmission shaft (20) at controlled speed,
 - a housing (10) with a fixed portion (11) in which the shaft (20) is supported and a portion (12) which is movable relative to the fixed portion (11) and can be closed against it,
 - a seed collection chamber (15) being defined in the fixed portion (11),
 - a pneumatic suction chamber (17) being defined in the movable portion (12),
 - the sowing disc (16) being interposed between the portions (11, 12) and having opposed surfaces delimiting the chambers (15, 17),
 - the sowing disc (16) having at least one ring of selector holes (23) extending between the opposed surfaces, and
 - a seal (24) which is arranged on the movable portion (12) and is capable of sliding contact with the facing surface of the disc (16) when the portions (11, 12) are closed against one another,
- wherein a pressure differential is provided between the opposed

surfaces in the region of a circumferential segment of the ring of holes (23),

characterized in that the kit comprises:

– the movable portion (12) pre-assembled with:

- 5 – a thrust-bearing element (26) of the sowing disc (16), which thrust-bearing element (26) is supported rotatably in the movable portion (12) in order to withstand at least some of the axial load produced by the disc (16) on the seal (24).

11. A kit according to Claim 10 wherein the movable portion (12) and the
10 thrust-bearing element (26) comprise one or more of the features of Claims 2 to 7.

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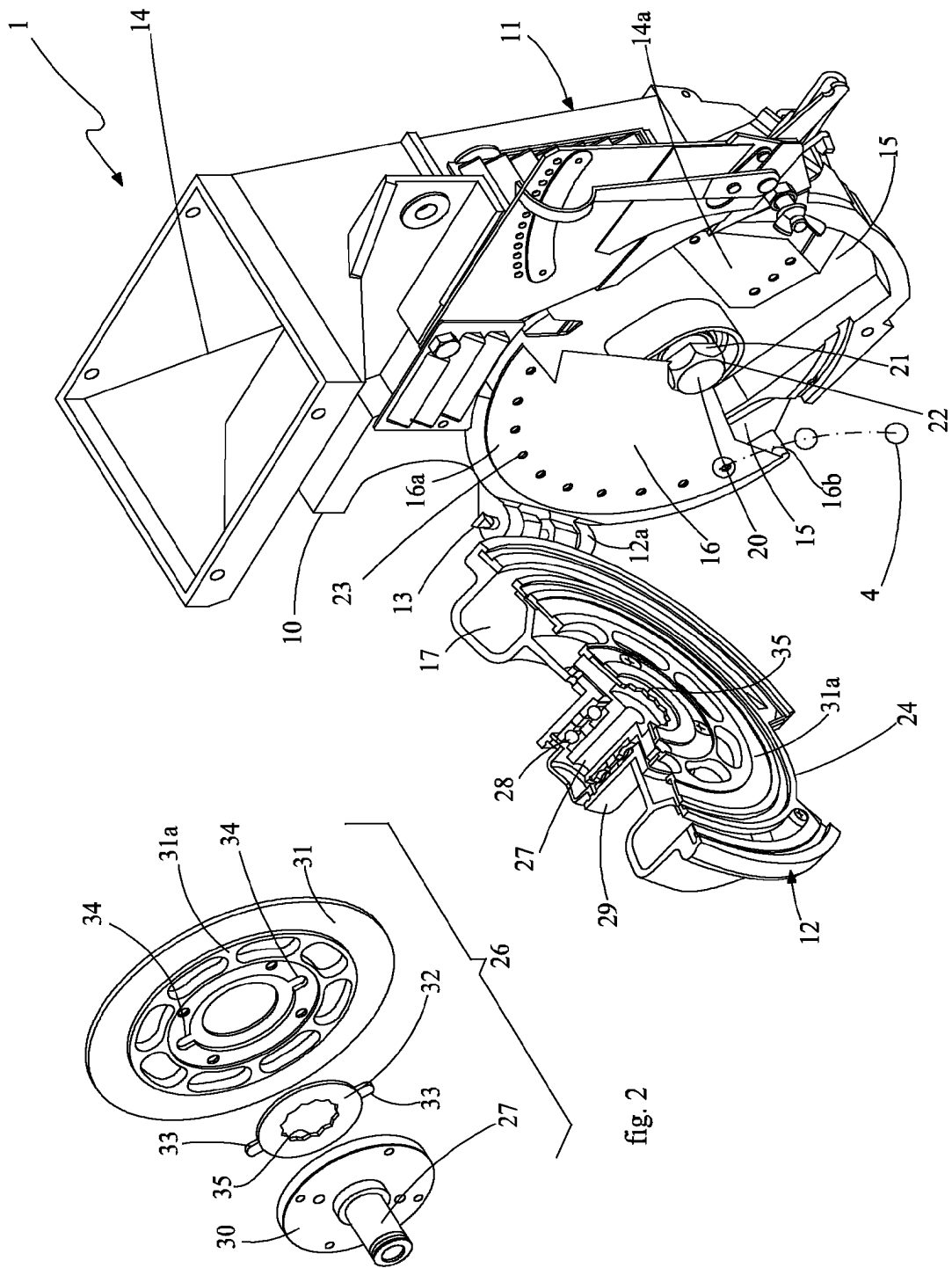


fig. 1

fig. 2

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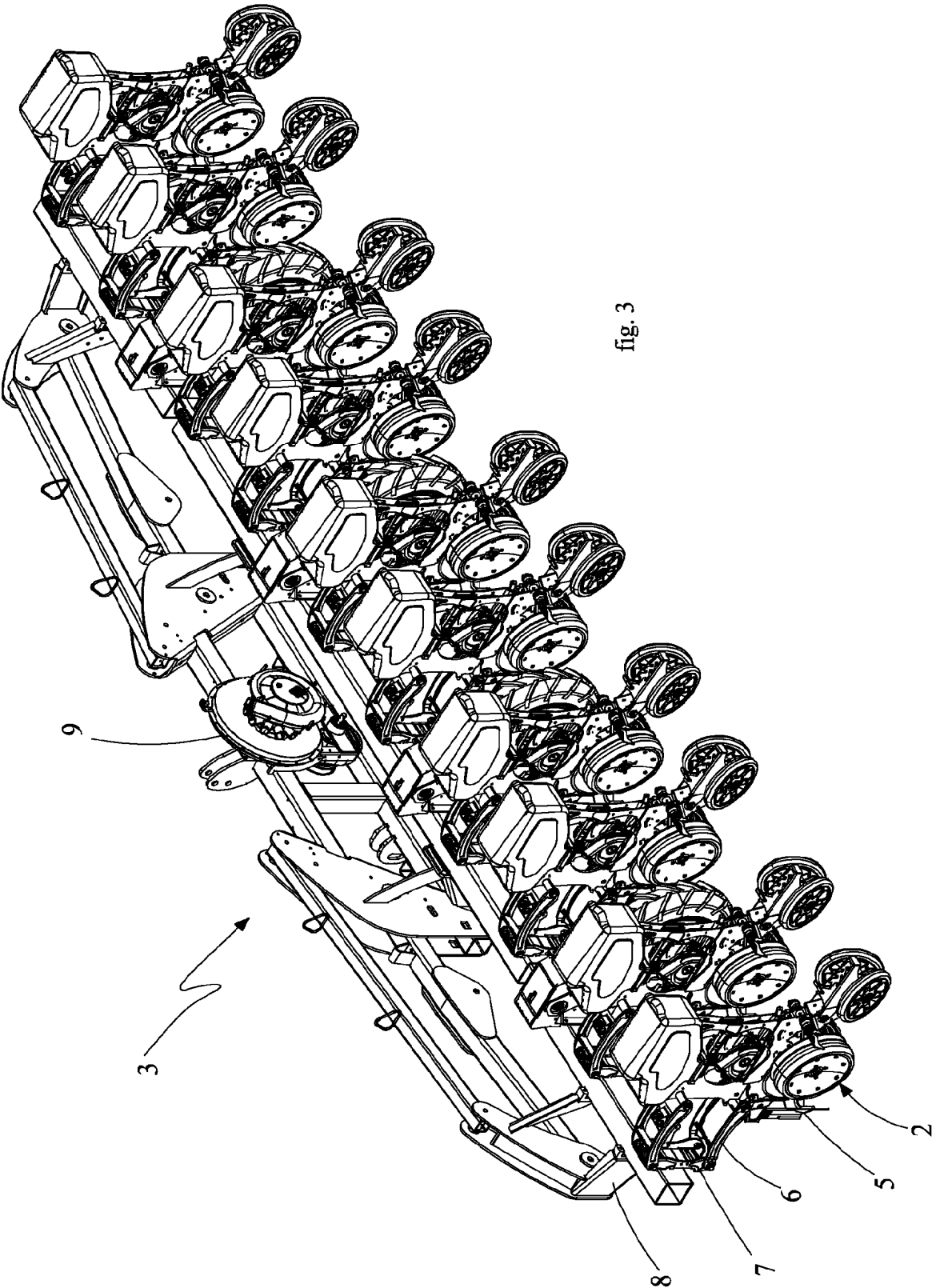


fig. 3

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2011/069875

A. CLASSIFICATION OF SUBJECT MATTER

INV. A01C7/04
ADD.

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)
A01C

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)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 7 228 807 B1 (VENHUIZEN DALE [US]) 12 June 2007 (2007-06-12) column 5, line 59 - column 7, line 37; figures 6-10	1
A	----- EP 0 536 543 A1 (MATERMACC SRL [IT]) 14 April 1993 (1993-04-14) column 5, line 7 - column 8, line 6; figures -----	1

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

☒ See patent family annex.

* 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

9 February 2012

Date of mailing of the international search report

17/02/2012

Name and mailing address of the ISA/
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Bunn, David

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2011/069875

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 7228807	B1	12-06-2007	NONE

EP 0536543	A1	14-04-1993	EP 0536543 A1 14-04-1993
		IT 1253373 B	08-08-1995
		US 5325801 A	05-07-1994

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:
Locas, Davide
CANTALUPPI & PARTNERS S.R.L.
Piazzetta Cappellato Pedrocchi 18
35122 Padova
ITALIE

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference PBW11900-PCT	Date of mailing (day/month/year) 17 February 2012 (17-02-2012)
International application No. PCT/EP2011/069875	FOR FURTHER ACTION See paragraphs 1 and 4 below International filing date (day/month/year) 10 November 2011 (10-11-2011)
Applicant MASCHIO GASPARDI S.P.A.	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the International Search Report.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 338.82.70

For more detailed instructions, see PCT Applicant's Guide, International Phase, paragraphs 9.004 - 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. Following the expiration of 30 months from the priority date, these comments will also be made available to the public.

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

Name and mailing address of the International Searching Authority



European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040
Fax: (+31-70) 340-3016

Authorized officer

LE BOLLOCH, Corine
Tel: +49 (0)89 2399-8091

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PBW11900 - PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/EP2011/069875	International filing date (day/month/year) 10/11/2011	(Earliest) Priority Date (day/month/year) 12/11/2010
Applicant MASCHIO GASPARD O S.P.A.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (see Box No III)

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant
☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☐ the text is approved as submitted by the applicant
☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 1
☒ as suggested by the applicant
☐ as selected by this Authority, because the applicant failed to suggest a figure
☐ as selected by this Authority, because this figure better characterizes the invention
b. ☐ none of the figures is to be published with the abstract

INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP2011/069875

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

A seed distribution element (1) includes: -a sowing disc (16) rotated by a motor-driven transmission shaft (20) -a housing (10) with a fixed portion (11) in which the shaft(20) is supported and a portion (12) movable relative to the fixed portion and can be closed against it, with a seed collection chamber (15) in the fixed portion (11) and a pneumatic suction chamber (17) in the movable portion(12), -the sowing disc(16) being interposed between the portions (11,12)and having opposed surfaces(16a,16b) delimiting the chambers, and provided with a ring of selector holes (23) extending between the opposed surfaces, -means for producing a pressure differential between the opposed surfaces in the region of a circumferential segment of the ring of holes, including the pneumatic suction chamber, and -a seal (24) on the movable portion(12) capable of sliding contact with the facing surface (16a) of the disc (16) when the portions are closed against one another, -a thrust-bearing element (26) of the sowing disc (16), supported rotatably in the movable portion (12), to withstand the axial load produced by the disc (16) on the seal (24).

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2011/069875

A. CLASSIFICATION OF SUBJECT MATTER

INV. A01C7/04

ADD.

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)

A01C

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 7 228 807 B1 (VENHUIZEN DALE [US]) 12 June 2007 (2007-06-12) column 5, line 59 - column 7, line 37; figures 6-10	1
A	----- EP 0 536 543 A1 (MATERMACC SRL [IT]) 14 April 1993 (1993-04-14) column 5, line 7 - column 8, line 6; figures -----	1

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

☒ See patent family annex.

* 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

9 February 2012

Date of mailing of the international search report

17/02/2012

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Bunn, David

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2011/069875

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 7228807	B1	12-06-2007	NONE
EP 0536543	A1	14-04-1993	EP 0536543 A1 14-04-1993
		IT 1253373 B	08-08-1995
		US 5325801 A	05-07-1994

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2011/069875

International filing date (day/month/year)
10.11.2011

Priority date (day/month/year)
12.11.2010

International Patent Classification (IPC) or both national classification and IPC
INV. A01C7/04

Applicant
MASCHIO GASPARDO S.P.A.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0
Fax: +49 89 2399 - 4465

Date of completion of
this opinion

see form
PCT/ISA/210

Authorized Officer

Bunn, David

Telephone No. +49 89 2399-2086



Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
- ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
- a. (means)
- ☐ on paper
 - ☐ in electronic form
- b. (time)
- ☐ in the international application as filed
 - ☐ together with the international application in electronic form
 - ☐ subsequently to this Authority for the purposes of search
4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-11</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	<u>1-11</u>
	No: Claims	
Industrial applicability (IA)	Yes: Claims	<u>1-11</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

V. Reasoned statement

- 1 US-B1-7 228 807 (D1) discloses a seed distribution element 36 including a sowing disk 60, transmission shaft 55, fixed housing portion 50, movable housing portion 90, seed collection chamber (col.6, l.36-41), pneumatic suction chamber (col.7, l.31-36), selector holes 67, pressure differential (col.7, l.31-36) and seal 99 as in the preamble of claim 1.

The distribution element of claim 1 differs from that of D1 in comprising a thrust-bearing element 26 supported rotatably in movable housing portion 12 to withstand axial load produced by disk 16 on seal 24. In this way, wear on the seal due to its sliding against the disk is reduced (description, para. [0020], [0021]). As such a solution is not derivable from the available prior art, it follows that the subject matter of claim 1 fulfils the requirements of novelty and inventive step, Article 33(2),(3) PCT.

- 2 Claims 8 & 9 relate to a sowing element and seed drill respectively each comprising the element of claim 1. Claim 10 relates to a kit capable of being fitted to the element of D1, and comprising a movable housing portion 12 preassembled with a thrust bearing element as defined in claim 1. Claims 2-7 & 11 relate to preferred embodiments of the element of claim 1 and to the kit of claim 10 respectively.

Consequently, the subject matter of claims 2-11 also fulfils the requirements of novelty and inventive step, Article 33 PCT.

VIII. Certain observations on the application (clarity)

- 1 The feature of claim 1 "wherein a pressure differential is provided..." relates to **a method of using** the apparatus, rather than clearly defining the apparatus in terms of its technical features. The intended limitations are therefore not clear, contrary to the requirements of Article 6 PCT. In this regard, reference is made to application IO19992, where this problem is avoided by using the wording "means for producing a pressure differential...".

Possible steps after receipt of the international search report (ISR) and written opinion of the International Searching Authority (WO-ISA)

General information	For all international applications filed on or after 01/01/2004 the competent ISA will establish an ISR. It is accompanied by the WO-ISA. Unlike the former written opinion of the IPEA (Rule 66.2 PCT), the WO-ISA is not meant to be responded to, but to be taken into consideration for further procedural steps. This document explains about the possibilities.
Amending claims under Art. 19 PCT	Within 2 months after the date of mailing of the ISR and the WO-ISA the applicant may file amended claims under Art. 19 PCT directly with the International Bureau of WIPO. The PCT reform of 2004 did not change this procedure. For further information please see Rule 46 PCT as well as form PCT/ISA/220 and the corresponding Notes to form PCT/ISA/220.
Filing a demand for international preliminary examination	In principle, the WO-ISA will be considered as the written opinion of the IPEA. This should, in many cases, make it unnecessary to file a demand for international preliminary examination. If the applicant nevertheless wishes to file a demand this must be done before expiry of 3 months after the date of mailing of the ISR/ WO-ISA or 22 months after priority date, whichever expires later (Rule 54bis PCT). Amendments under Art. 34 PCT can be filed with the IPEA as before, normally at the same time as filing the demand (Rule 66.1 (b) PCT). If a demand for international preliminary examination is filed and no comments/amendments have been received the WO-ISA will be transformed by the IPEA into an IPRP (International Preliminary Report on Patentability) which would merely reflect the content of the WO-ISA. The demand can still be withdrawn (Art. 37 PCT).
Filing informal comments	After receipt of the ISR/WO-ISA the applicant may file informal comments on the WO-ISA directly with the International Bureau of WIPO. These will be communicated to the designated Offices together with the IPRP (International Preliminary Report on Patentability) at 30 months from the priority date. Please also refer to the next box.
End of the international phase	At the end of the international phase the International Bureau of WIPO will transform the WO-ISA or, if a demand was filed, the written opinion of the IPEA into the IPRP, which will then be transmitted together with possible informal comments to the designated Offices. The IPRP replaces the former IPEA (international preliminary examination report).
Relevant PCT Rules and more information	Rule 43 PCT, Rule 43bis PCT, Rule 44 PCT, Rule 44bis PCT, PCT Newsletter 12/2003, OJ 11/2003, OJ 12/2003

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Enrico BRAGATTO
Group Art Unit: Not yet assigned
Examiner: Not yet assigned
Docket: 0808.069.US02
Customer #.: 43446
Application No.: Not yet assigned
U.S. National Phase Application based on PCT/EP2011/069875
filed 12 November 2010
Nat. Stage Filed: Herewith
Title: **SEED DISTRIBUTION ELEMENT FOR PRECISION SEED
DRILLS, SEED DRILL INCLUDING SAID ELEMENT**

PRELIMINARY AMENDMENT UNDER 37 C.F.R. §1.115

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In advance of prosecution in the above-captioned application, please amend the application as set forth herein.

Amendments to the **Specification** begin on **page 2** of this paper.

Amendments to the **Claims** begin on **page 3** of this paper.

Remarks begin on **page 7** of this paper.

The Basic National Fee is being paid herewith. The Examination and Search fees will be paid at a later date when the Declaration/Oath is paid. If any fees are required at this time in order to maintain the pendency of this application, however, including fees for net addition of claims, such fees are hereby authorized to be charged to account number 50-3120.

AMENDMENT TO THE SPECIFICATION

Please add the following to the specification before the first paragraph:

-- CLAIM FOR PRIORITY

This application is a U.S. National Stage Application of PCT/EP2011/069875 filed on November 10, 2011, claiming priority to Italian application PD2010A000338 filed November 12, 2010, the contents of both of which are incorporated herein by reference. --

AMENDMENTS TO THE CLAIMS

Please amend the claims as set forth below:

1. (Currently amended) A seed distribution element [(1)] for precision pneumatic seed drills [(3)], comprising of the type including:

- a sowing disc [(16)] which is rotated by a motor-driven transmission drive shaft [(20)] at controlled speed,
- a housing [(10)] with a fixed portion [(11)] in which the shaft [(20)] is supported and a portion [(12)] which is movable relative to the fixed portion [(11)] and can be closed against it,
- a seed collection chamber [(15)] being defined in the fixed portion [(11)],
- a pneumatic suction chamber [(17)] being defined in the movable portion [(12)],
- the sowing disc [(16)] being interposed between the fixed and movable portions [(11, 12)] and having opposed surfaces delimiting the chambers [(15, 17)],
- the sowing disc [(16)] having at least one ring of selector holes [(23)] extending between the opposed surfaces, and
- a seal [(24)] which is arranged on the movable portion [(12)] and is capable of sliding contact with the facing surface of the disc [(16)] when the fixed and movable portions [(11, 12)] are closed against one another,

wherein a pressure differential is provided between the opposed surfaces in the region of a circumferential segment of the ring of holes [(23)],

~~characterized in that~~ wherein the seed distribution element [(1)] further comprises a thrust-bearing element [(26)] of the sowing disc [(16)], which thrust-bearing element [(26)] is supported rotatably in the movable portion [(12)] in order to withstand at least some of the axial load produced by the disc [(16)] on the seal [(24)].

2. (Currently amended) [A] The seed distribution element [(1)] according to Claim 1, wherein the thrust-bearing element [(26)] is rotated with the disc [(16)] when the fixed and movable portions [(11, 12)] are closed against one another.
3. (Currently amended) [A] The seed distribution element [(1)] according to Claim 1 ~~or Claim 2~~, wherein the thrust-bearing element [(26)] comprises a thrust-bearing plate [(31)] which can bear on that surface of the sowing disc [(16)] which faces the seal [(24)], in a zone radially inside of the ring of holes [(23)].
4. (Currently amended) [A] The seed distribution element [(1)] according to Claim 3, wherein the thrust-bearing element [(26)] comprises a drive element [(32)] which is fixed for rotation with the plate [(31)] and can be coupled with the drive shaft [(20)] of the disc [(16)] when the fixed and movable portions [(11, 12)] are closed against one another.
5. (Currently amended) [A] The seed distribution element [(1)] according to Claim 4, wherein the drive element [(32)] is self-centring relative to the drive shaft [(20)].
6. (Currently amended) [A] The seed distribution element [(1)] according to Claim 4 ~~or Claim 5~~, wherein the drive element [(32)] comprises a coupling member [(33)] which rotates jointly with the thrust-bearing plate [(31)] but has radial and/or circumferential clearance so as to be self-centred during rotational coupling with the drive shaft [(20)] of the disc [(16)].

7. (Currently amended) [[A]] The seed distribution element [[(1)]] according to claim 1, ~~one or more of the preceding claims~~, wherein the movable portion [[(12)]] is hinged to the fixed portion [[(11)]].
8. (Currently amended) A sowing element for precision seed drills ~~(3) including~~ comprising a frame [[(6)]] on which a seed distribution element [[(1)]] according to claim 1 ~~one or more of the preceding claims~~ is mounted.
9. (Currently amended) A seed drill [[(3)]] comprising a supporting structure on which a plurality of sowing elements according to Claim 8 are mounted.
10. (Currently amended) A kit for the retrofitting of seed distribution elements [[(1)]] of precision pneumatic seed drills [[(3)]] wherein the distribution elements [[(1)]] are of the type including:
 - a sowing disc [[(16)]] which is rotated by a motor-driven transmission drive shaft [[(20)]] at controlled speed,
 - a housing [[(10)]] with a fixed portion [[(11)]] in which the shaft [[(20)]] is supported and a portion [[(12)]] which is movable relative to the fixed portion [[(11)]] and can be closed against it,
 - a seed collection chamber [[(15)]] being defined in the fixed portion [[(11)]],
 - a pneumatic suction chamber [[(17)]] being defined in the movable portion [[(12)]],
 - the sowing disc [[(16)]] being interposed between the fixed and movable portions [[(11, 12)]] and having opposed surfaces delimiting the chambers [[(15, 17)]],
 - the sowing disc [[(16)]] having at least one ring of selector holes [[(23)]] extending between the opposed surfaces, and

- a seal [(24)] which is arranged on the movable portion [(12)] and is capable of sliding contact with the facing surface of the disc [(16)] when the fixed and movable portions [(11, 12)] are closed against one another, wherein a pressure differential is provided between the opposed surfaces in the region of a circumferential segment of the ring of holes [(23)], ~~characterized in that~~

wherein the kit comprises:

- the movable portion [(12)] pre-assembled with:
- a thrust-bearing element [(26)] of the sowing disc [(16)], which thrust-bearing element [(26)] is supported rotatably in the movable portion [(12)] in order to withstand at least some of the axial load produced by the disc [(16)] on the seal [(24)].

11. (Currently amended) [A] The kit according to Claim 10 wherein the movable portion [(12)] and the thrust-bearing element [(26)] comprise at least one feature according to claim 2. ~~one or more of the features of Claims 2 to 7.~~
12. (New) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 3.
13. (New) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 4.
14. (New) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 5.

15. (New) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 6.
16. (New) The kit according to Claim 10 wherein the movable portion and the thrust-bearing element comprise at least one feature according to claim 7.

REMARKS

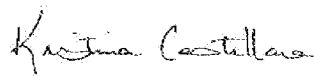
This amendment is being submitted in advance of prosecution. Applicant requests entry of this Amendment before calculation of the fees and consideration on the merits.

The claims are amended herein to put the claims in better U.S. format *e.g.*, by removing multiple dependencies and reference numerals from the claims. No new matter is believed to be added by these amendments.

Prompt and favorable consideration of this Preliminary Amendment is respectfully requested. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

Date July 12, 2012

By 

Castellano PLLC
Customer Number: **43446**
Telephone: (571) 278-8233
Facsimile: (202) 318-1288

Kristina M. Castellano
Registration No. 41,092

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT		
First Named Inventor/Applicant Name:		Enrico BRAGATTO		
Filer:		Kristina M. Castellano		
Attorney Docket Number:		0808.069.US02		
Filed as Large Entity				
U.S. National Stage under 35 USC 371 Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
National Stage Fee	1631	1	380	380
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				380

Electronic Acknowledgement Receipt

EFS ID:	13238168
Application Number:	13521896
International Application Number:	PCT/EP11/69875
Confirmation Number:	2599
Title of Invention:	SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT
First Named Inventor/Applicant Name:	Enrico BRAGATTO
Customer Number:	43446
Filer:	Kristina M. Castellano
Filer Authorized By:	
Attorney Docket Number:	0808.069.US02
Receipt Date:	12-JUL-2012
Filing Date:	
Time Stamp:	15:39:46
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 380
RAM confirmation Number	2303
Deposit Account	503120
Authorized User	CASTELLANO,KRISTINA M.

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	pto_1390.pdf	242069	no	4
			1f69a3052b7e8c97a85d356c0e3e787b47f017c0		
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	updated_IDS.pdf	611961	no	4
			4f13fa6a04d2c31ee65eb8a2d08a764297faa298		
Warnings:					
Information:					
3	Foreign Reference	EP0536543A11.pdf	627981	no	9
			90cae9bd8856d3190f7d61d7f1f77310ea166635		
Warnings:					
Information:					
4	Documents submitted with 371 Applications	app_as_published_WO2012062876A11.pdf	596097	no	16
			7162a97b08ddc31a5dc4535898dd7d1fd350308b		
Warnings:					
Information:					
5	Non Patent Literature	ISR_WO_.pdf	1855124	no	10
			68d3af4d6ee06379fc0801ab3e80b92cbb6354a3		
Warnings:					
Information:					
6		preliminary_amendment_.pdf	46815	yes	8
			bd1361ed270aca267cff439ba1fa8eae04c8b27		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Preliminary Amendment		1	1	
	Specification		2	2	
	Claims		3	7	
	Applicant Arguments/Remarks Made in an Amendment		8	8	

Warnings:					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	29650	no	2
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Warnings:					
Information:					
			Total Files Size (in bytes):	4009697	
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Box No. VIII (iv) DECLARATION: INVENTORSHIP (only for the purposes of the designation of the United States of America)
The declaration must conform to the following standardized wording provided for in Section 214: see Notes to Boxes Nos. VIII, VIII (i) to (v) (in general) and the specific Notes to Box No. VIII (iv). If this Box is not used, this sheet should not be included in the request.

**Declaration of inventorship (Rules 4.17(iv) and 51bis.1(a)(iv))
 for the purposes of the designation of the United States of America:**

I hereby declare that I believe I am the original, first and sole (if only one inventor is listed below) or joint (if more than one inventor is listed below) inventor of the subject matter which is claimed and for which a patent is sought.

This declaration is directed to the international application of which it forms a part (if filing declaration with application).

This declaration is directed to international application No. PCT/EP2011/069875 (if furnishing declaration pursuant to Rule 26ter).

I hereby declare that my residence, mailing address, and citizenship are as stated next to my name.

I hereby state that I have reviewed and understand the contents of the above-identified international application, including the claims of said application. I have identified in the request of said application, in compliance with PCT Rule 4.10, any claim to foreign priority, and I have identified below, under the heading "Prior Applications," by application number, country or Member of the World Trade Organization, day, month and year of filing, any application for a patent or inventor's certificate filed in a country other than the United States of America, including any PCT international application designating at least one country other than the United States of America, having a filing date before that of the application on which foreign priority is claimed.

Prior Applications:

I hereby acknowledge the duty to disclose information that is known by me to be material to patentability as defined by 37 C.F.R. § 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the PCT international filing date of the continuation-in-part application.

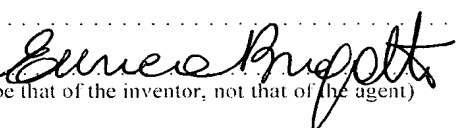
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name: BRAGATTO Enrico

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Mailing Address: via Strada Nuova, 36
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Citizenship: Italy

Inventor's Signature:  Date: JANUARY 16, 2012
 (The signature must be that of the inventor, not that of the agent)

Name:

Residence: ..
 (city and either US state, if applicable, or country)

Mailing Address:

Citizenship:

Inventor's Signature: Date:
 (The signature must be that of the inventor, not that of the agent)

☐ This declaration is continued on the following sheet, "Continuation of Box No. VIII (iv)".



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Dipartimento per l'impresa e l'internazionalizzazione
Direzione Generale Per La Lotta Alla Contraffazione - UIBM

Ufficio Italiano Brevetti e Marchi – Divisione IX

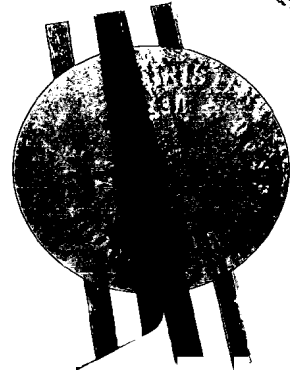
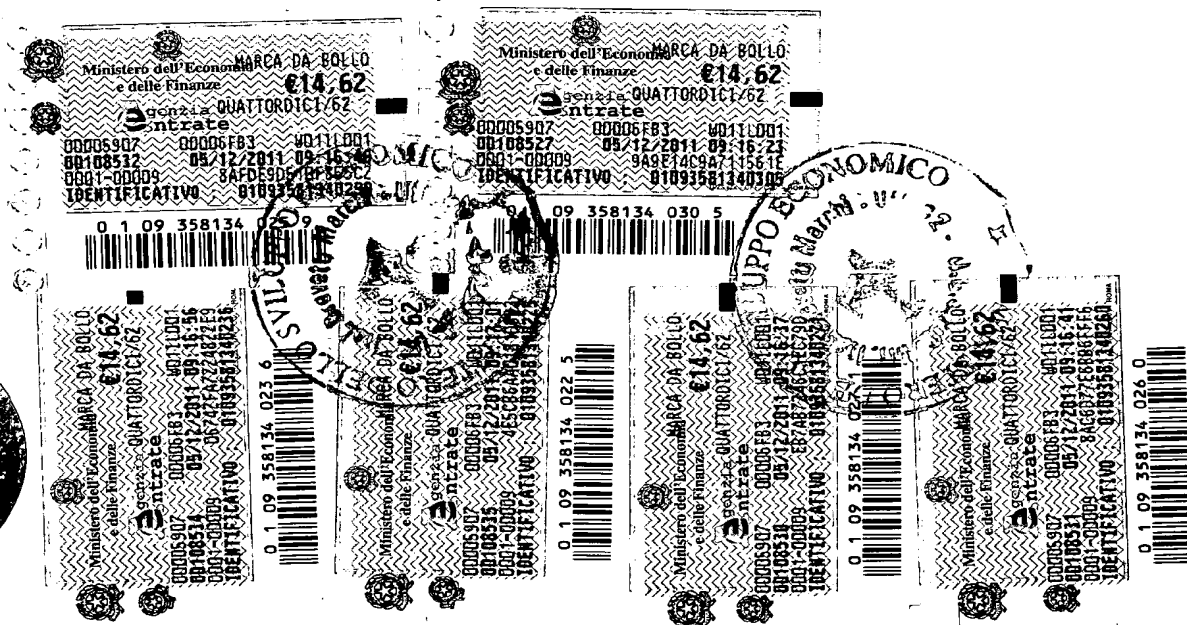
**Autenticazione di copia di documenti relativi alla domanda di brevetto per:
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Si compone di pagg. 21
06 DIC. 2011

ROMA li.....

IL FUNZIONARIO
Elena Marinelli
Sig.ra E. MARINELLI



Domanda di Brevetto per Invenzione Industriale

Richiedente/i

Denominazione: **MASCHIO GASPARDO S.P.A.;**

Natura Giuridica: **PG (Persona Giuridica);**

Codice Fiscale: **03272800289;**

Indirizzo: **VIA MARCELLO 73; Localita' Residenza: ; Comune: CAMPODARSEGO; Cap: 35011; Provincia Residenza: PADOVA (PD); Stato: ITALIA (IT);**

Recapito

Cognome/Denominazione: ; Nome: ;

Indirizzo recapito: ; Localita' Recapito: ; Comune: ; Provincia: (); Cap: ;

Titolo

Descrizione: **ELEMENTO DISTRIBUTORE DEL SEME PER SEMINATRICI DI PRECISIONE, SEMINATRICE INCLUDENTE DETTO ELEMENTO**

Inventori Designati

Cognome: ; Nome: ; Nazionalita':

Classi Proposte

Sezione: A; Classe: 01; Sottoclasse: C;

Centro Abilitato di Raccolta Colture di Microorganismi

Denominazione:

Mandatario abilitato presso UIBM

Numero Iscrizione Albo: 00436

Cognome: CANTALUPPI Nome: STEFANO

Denominazione Studio: CANTALUPPI & PARTNERS S.R.L.

Indirizzo: PIAZZETTA CAPPELLATO PEDROCCHI,18

Comune: PADOVA Cap: 35122 Provincia: PADOVA

Numero Domicilio Professionale: 865

Annotazioni Speciali

Descrizione:

Documentazione Allegata o con Riserva di Presentazione

Tipo Documento: Tavole Disegno; N. Es. All. : 1; N.Es.Ris.: 1; N. Pag. per Esemplare: 2;

Tipo Documento: Lettera di Incarico; N. Es. All. : 0; N.Es.Ris.: 1; N. Pag. per Esemplare: 0;

Tipo Documento: Riassunto in Italiano; N. Es. All. : 1; N.Es.Ris.: 0; N. Pag. per Esemplare: 1;

Tipo Documento: Rivendicazione in Italiano; N. Es. All. : 1; N.Es.Ris.: 0; N. Pag. per Esemplare: 4;

Tipo Documento: Rivendicazione in Inglese; N. Es. All. : 0; N.Es.Ris.: 1; N. Pag. per Esemplare: 0;

Tipo Documento: Designazione di Inventore; N. Es. All. : 0; N.Es.Ris.: 1; N. Pag. per Esemplare: 0;

Tipo Documento: Descrizione in Italiano; N. Es. All. : 1; N.Es.Ris.: 0; N. Pag. per Esemplare: 7;

Tipo Documento: Documento generico; N. Es. All. : 1; N.Es.Ris.: 0; N. Pag. per Esemplare: 1;

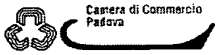
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Attestato di Versamento

Importo Pagato: 95.00 Euro; Importo in Lettere: NOVANTACINQUE/00 Euro;

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Data Compilazione: 2010-11-12



Camera di Commercio Industria, Artigianato e
Agricoltura di PADOVA

Verbale di Deposito
Domanda di Brevetto
per INVENZIONE INDUSTRIALE

Numero domanda: PD2010A000338
CCIAA di deposito: PADOVA
Data di deposito: 12/11/2010

In data 12/11/2010 il richiedente ha presentato a me sottoscritto la seguente domanda di brevetto per Invenzione Industriale.

PADOVA, 12/11/2010

L'Ufficiale Rogante

Diritti di Segreteria	15,00 EURO
Bollo Virtuale	20,00 EURO

A. RICHIEDENTE

Cognome Nome/ Denominazione MASCHIO GASPARDO S.P.A.
Codice fiscale: 03272800289
Indirizzo: CAMPODARSEGO (PD)
VIA MARCELLO 73 cap 35011
Natura Giuridica: Persona Giuridica

C. TITOLO

Titolo ELEMENTO DISTRIBUTORE DEL SEME PER SEMINATRICI DI PRECISIONE, SEMINATRICE INCLUDENTE DETTO ELEMENTO

E. CLASSE PROPOSTA

Classe A01C - PIANTAGIONE; SEMINAGIONE; FERTILIZZAZIONE

I. MANDATARIO ABILITATO PRESSO L'UIBM

Mandatario Numero iscrizione albo: 436
CANTALUPPI STEFANO
Denominazione CANTALUPPI & PARTNERS S.R.L.
Studio Indirizzo: PADOVA (PD)
PIAZZETTA CAPPELLATO PEDROCCHI, 18 cap 35122

M. DOCUMENTAZIONE DICHIARATA

Lista documenti **Attestato Versamento**
Numero esemplari allegati : 1
Numero esemplari di cui si riserva la presentazione: 0
Numero pagine per esemplare : 0

Tavole Disegno
Numero esemplari allegati : 1
Numero esemplari di cui si riserva la presentazione: 1
Numero pagine per esemplare : 2

Rivendicazione in Italiano

Numero esemplari allegati : 1

Numero esemplari di cui si riserva la presentazione: 0

Numero pagine per esemplare : 4

Rivendicazione in Inglese

Numero esemplari allegati : 0

Numero esemplari di cui si riserva la presentazione: 1

Numero pagine per esemplare : 0

Descrizione in Italiano

Numero esemplari allegati : 1

Numero esemplari di cui si riserva la presentazione: 0

Numero pagine per esemplare : 7

Riassunto in Italiano

Numero esemplari allegati : 1

Numero esemplari di cui si riserva la presentazione: 0

Numero pagine per esemplare : 1

Documento Generico

Numero esemplari allegati : 1

Numero esemplari di cui si riserva la presentazione: 0

Numero pagine per esemplare : 1

Designazione di Inventore

Numero esemplari allegati : 0

Numero esemplari di cui si riserva la presentazione: 1

Numero pagine per esemplare : 0

Lettera di Incarico/Autocertificazione

Numero esemplari allegati : 0

Numero esemplari di cui si riserva la presentazione: 1

Numero pagine per esemplare : 0

Versamento Importo: 95,00
in euro

Copia autentica Richiesta

Anticipata accessibilità Non concessa
al pubblico

PROSPETTO MODULO A
DOMANDA DI BREVETTO PER INVENZIONE INDUSTRIALE

NUMERO DI DOMANDA:		DATA DI DEPOSITO:	
A. RICHIEDENTE/I COGNOME E NOME O DENOMINAZIONE, RESIDENZA O STATO			
MASCHIO GASPARDO S.P.A.			
VIA MARCELLO 73			
35011 CAMPODARSEGO (PD)			
C. TITOLO			
Elemento distributore del seme per seminatrici di precisione, seminatrice includente detto elemento.			

SEZIONE	CLASSE	SOTTOCLASSE	GRUPPO	SOTTOGRUPPO
A	01	C		

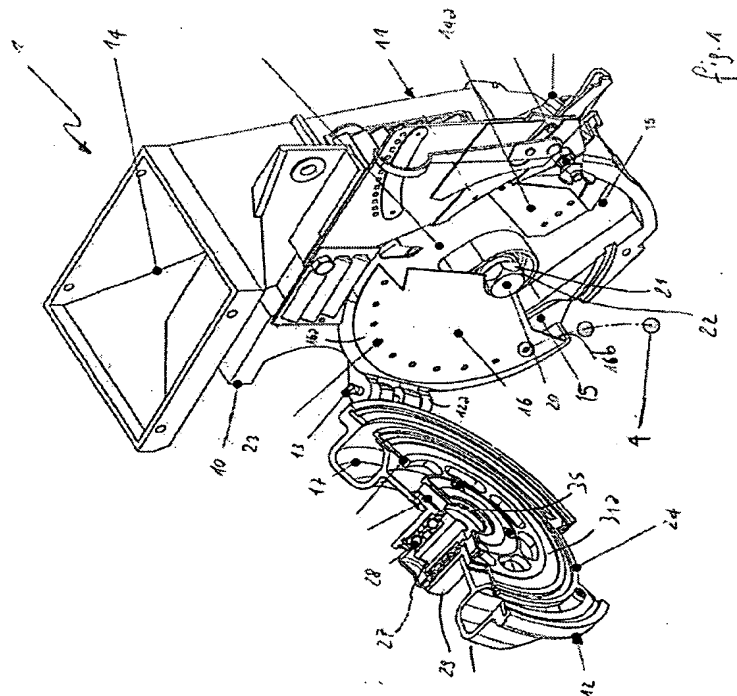
E. CLASSE PROPOSTA

O. RIASSUNTO

Un elemento distributore del seme per macchine seminatrici pneumatiche di precisione, include:

- un disco di semina trascinato da un albero motorizzato di trasmissione in rotazione a velocità controllata in solido con detto albero,
- un involucro con una parte fissa nella quale è supportato detto albero ed una parte mobile rispetto a detta parte fissa e richiudibile su di essa, con una camera di raccolta del seme nella parte fissa e una camera di aspirazione pneumatica nella parte mobile,
- il disco di semina essendo interposto tra dette parti ed avente superfici contrapposte delimitanti dette camere, ed essendo provvisto di almeno una corona di fori selettori passanti tra dette superfici contrapposte,
- mezzi per generare un differenziale di pressione tra le dette superfici contrapposte in corrispondenza di un segmento circonferenziale di detta corona di fori, includenti la camera di aspirazione pneumatica ed
- una guarnizione sulla parte mobile suscettibile di contatto di strisciamento con la superficie affacciata del disco quando dette parti sono chiuse l'una sull'altra,
- un elemento reggispinna del disco di semina girevolmente supportato nella parte mobile, per sostenere almeno parte del carico assiale generato dal disco sulla guarnizione.

P. DISEGNO PRINCIPALE



FIRMA DEL/DEI
RICHIEDENTE/I

DESCRIZIONE

La presente invenzione ha per oggetto un elemento distributore del seme per macchine seminatrici pneumatiche di precisione, un elemento di semina per tali macchine ed una macchina seminatrice includente una pluralità di tali elementi di semina.

Nelle macchine seminatrici pneumatiche di precisione vengono notoriamente utilizzati elementi di semina dotati ciascuno di un elemento distributore del seme (di seguito, in breve, distributore) per distribuire un seme alla volta in erogazione controllata mentre l'elemento di semina si muove lungo una traccia di semina.

E' parimenti noto l'impiego di distributori del seme che utilizzano un differenziale di pressione d'aria tra facce contrapposte di un disco di semina (o selettore) munito di una o più corone di fori passanti. Il principio di funzionamento si basa sul fatto che, per effetto del differenziale di pressione tra le facce contrapposte del disco, un seme aderisce a ciascun foro ed è quindi trasportato con la rotazione del disco di semina dalla zona di selezione del seme fino al punto in cui cessa il differenziale di pressione ed il seme è rilasciato per caduta attraverso un condotto di semina nel solco o traccia di semina. In pratica su di una delle facce del disco viene esercitata una forte aspirazione d'aria che trattiene i semi sulla faccia contrapposta in corrispondenza dei rispettivi fori.

Per il buon funzionamento di tali distributori è necessario garantire una tenuta pneumatica efficace tra la faccia del disco soggetta ad aspirazione ed una guarnizione che delimita la camera di aspirazione pneumatica. L'effetto stesso di aspirazione determina una sostanziale compressione del disco

contro la guarnizione. Se ciò da un lato garantisce una adeguata aderenza della guarnizione alla superficie del disco soggetta a depressione, dall'altro lato ciò comporta una forte abrasione della guarnizione che ne limita la durata efficace. E' quindi necessario sostituire periodicamente la guarnizione per prevenire errori di semina derivanti da una insufficiente depressurizzazione della camera di aspirazione.

D'altro canto, anche se sostituire tale guarnizione è una operazione semplice, in ogni caso essa comporta un indesiderato fermo macchina, oltre al costo in sé del ricambio.

- 10 Per ovviare a tale inconveniente sono state sviluppate macchine seminatrici dotate di un elemento reggispinta che allevia il carico gravante sulla guarnizione. In tutti i casi, tuttavia, l'elemento reggispinta, che deve essere condotto in rotazione con il disco, è montato sulla parte fissa dell'involucro, vale a dire quella che viene fissata all'intelaiatura degli elementi di semina.
- 15 Questo comporta che il disco debba essere agganciato all'elemento reggispinta; quindi deve essere previsto un sistema di aggancio che in fase di sostituzione del disco deve essere disinserito allungando conseguentemente tale operazione. Ciò è inevitabile nelle macchine note poiché sulla parte fissa deve obbligatoriamente essere montata la
- 20 trasmissione che conduce in rotazione l'albero motorizzato che conduce in rotazione il disco.

- Posizionare l'elemento reggispinta sulla parte fissa comporta tuttavia che la camera di aspirazione pneumatica sia realizzata sulla parte fissa, ovvero dalla stessa parte in cui è posto l'elemento reggispinta, mentre la camera di
- 25 raccolta del seme deve essere realizzata nella parte mobile. Ciò è fonte di

numerosi inconvenienti, tra i quali il fatto che l'apertura dell'involucro comporta necessariamente l'allontanamento della parte contenente la camera di raccolta del seme dal magazzino a tramoggia soprastante che deve necessariamente essere fissato alla intelaiatura dell'elemento di semina.

Inoltre per la sostituzione del disco di semina è necessario rimuovere alcune parti del distributore, quali il selettore registrabile del seme, e l'epulsore del seme, ove previsto.

Il problema alla base della presente invenzione è quello di mettere a disposizione un elemento distributore del seme strutturalmente e funzionalmente concepito così da consentire il superamento di tutti gli inconvenienti lamentati con riferimento alla tecnica nota citata.

Questo problema è risolto dall'invenzione mediante un elemento distributore del seme realizzato in accordo con una o più delle unite rivendicazioni.

Le caratteristiche ed i vantaggi del trovato meglio risulteranno dalla descrizione dettagliata che segue di un suo esempio preferito di realizzazione illustrato, a titolo indicativo e non limitativo, con riferimento agli uniti disegni in cui:

- la fig. 1 è una vista in prospettiva di un elemento distributore del seme realizzato in accordo con la presente invenzione;
- la fig. 2 è una vista prospettica a parti staccate di un particolare dell'elemento di fig. 1;
- la fig. 3 è una vista prospettica di una seminatrice dotata di elementi di semina con elemento distributore del seme secondo l'invenzione.

Nelle figure con 1 è complessivamente indicato un elemento distributore del

seme destinato ad equipaggiare un elemento di semina 2 di una seminatrice pneumatica di precisione 3.

L'elemento distributore 1 è l'organo destinato a depositare un seme 4 alla volta ad una prefissata distanza regolabile in un solco di semina aperto da un assolcatore 5. L'elemento di semina 2, oltre all'elemento distributore 1 comprende un telaio 6 ed un magazzino del seme o tramoggia 7, oltre ad altri organi in sé noti e non necessari per la comprensione della presente invenzione; La seminatrice 3 a sua volta comprende una struttura portante 8 sulla quale è montata una pluralità di elementi di semina 2, tutti collegati ad un aspiratore pneumatico 9.

L'elemento di semina 1 a sua volta comprende un involucro 10 con una parte fissa 11 fissata stabilmente sul telaio 6 ed una parte mobile 12 incernierata in corrispondenza di una cerniera 12a sulla parte fissa 11 tramite un perno di cerniera 13 rimovibile. La parte fissa include una imboccatura 14 tramite la quale essa è collegata al di sotto di una bocca di efflusso del magazzino o tramoggia 7 in modo tale da essere alimentata direttamente da questo.

Dall'imboccatura 14 il seme fluisce attraverso una porta 14a di afflusso del seme in una camera 15 di raccolta del seme.

Un disco di semina 16 separa la camera 15 di raccolta del seme da una camera di aspirazione 17 ricavata nella parte mobile 12. Un aspiratore 18 montato sulla struttura portante 8 è collegato alla camera di aspirazione 17 mediante tubazioni 19 per generare un differenziale di pressione tra le superfici contrapposte 16a,b del disco selettore 16.

Il disco di semina 16 è montato in modo rimovibile su di un albero di

trascinamento 20 motorizzato, supportato nella parte fissa 11 e condotto in rotazione a velocità prefissate e regolabili da una trasmissione non rappresentata. La presenza di tale trasmissione impone che l'albero 20 sia montato sulla parte fissa 11 dell'involucro 10. Il calettamento tra albero 20 e disco 16 è ottenuto mediante un profilo poligonale 21 alla estremità libera dell'albero 20 che sporge oltre il disco 16 ed ha preferibilmente smussi 22 i quali servono da invito per le funzioni chiarite di seguito.

Alla periferia del disco 16 è ricavata una (o più) corona di fori 23 passanti tra le facce contrapposte del disco di semina 16.

Una guarnizione 24 è applicata nella camera di aspirazione 17 ed è posta in contatto di strisciamento con la superficie affacciata del disco 16, quando la parte mobile 11 è chiusa sulla parte fissa 12, a delimitare un segmento circonferenziale in cui i fori 23 sono assoggettati al differenziale di pressione anzidetto. Tale segmento circonferenziale si estende tra la camera 15 di raccolta del seme ed un condotto di caduta del seme 25 in cui i semi sono rilasciati uno alla volta nel solco tracciato dall'assolcatore 5.

In ragione del differenziale di pressione tra le due superfici contrapposte del disco di semina , i semi 4 sono trattenuti, uno per ciascun foro 23, quando i fori transitano nella camera 15 di raccolta del seme e sono rilasciati in corrispondenza del condotto 25 quando cessa l'effetto pneumatico del differenziale di pressione ovvero per la presenza di un espulsore del seme (non rappresentato).

Per limitare l'usura della guarnizione 24 in conseguenza dello strisciamento contro la superficie del disco 16 sulla parte mobile è montato un elemento reggispinga complessivamente indicato con 26.

L'elemento reggispira 26 comprende un albero 27 montato girevolmente mediante cuscinetti 28 in una sede 29 della parte mobile 12. L'albero 27 reca una flangiatura 30 tramite la quale esso è fissato ad un piattello reggispira 31 suscettibile di appoggio alla superficie del disco affacciata alla
5 guarnizione 24 in una zona radialmente interna alla corona di fori 23 per sostenere almeno parte del carico assiale generato dal disco 16 sulla guarnizione 24.

L'appoggio tra il piattello reggispira 31 ed il disco 16 avviene in corrispondenza di una corona 31a in rilievo sulla superficie del piattello
10 affacciata al disco 16.

L'elemento reggispira 26 è condotto in rotazione con il disco di semina 16 quando le parti fissa e mobile 11,12 sono chiuse l'una sull'altra mediante un elemento di trascinamento 32 che comprende un organo accoppiatore vincolato al piattello reggispira in rotazione ma con gioco radiale e/o
15 circonferenziale in modo da auto-centrarsi nell'accoppiamento rotazionale con l'albero di trascinamento del disco 16. A tale scopo, nella presente forma di realizzazione, l'elemento di trascinamento 32 è accoppiato con limitato gioco radiale e/o circonferenziale all'elemento 26 tramite una (o più) appendice 33 sporgente radialmente verso l'esterno ed annidata in
20 corrispondenti sedi 34 del piattello. L'elemento di trascinamento 32 si accoppia tramite un profilo poligonale interno 35 (simile a quello adottato per le chiavi a stella o box-end wrench) al profilo poligonale 21 della estremità libera dell'albero 20, i cui smussi 22 servono da invito per facilitare la centratura dei due profili ed il rispettivo innesto.

25 L'elemento di trascinamento 32 risulta così auto-centrante rispetto all'albero

di trascinamento 20 da cui esso è condotto. Il posizionamento tra guarnizione 24 e piattello 31 sarà tale per cui la rotazione di quest'ultimo non sarà ostacolata dalla presenza della guarnizione 24 e, al tempo stesso, verranno entrambi mantenuti in appoggio al disco 16.

- 5 È altresì previsto che l'elemento reggispira 26 possa essere realizzato folle e non condotto in rotazione dall'albero 20.

L'assieme della parte mobile 12 completa di elemento reggispira 26 e guarnizione 24 si presta vantaggiosamente alla realizzazione di un kit per il retrofitting di seminatrici già esistenti. È sufficiente in tal caso separare la
10 parte mobile di vecchio tipo rimuovendo il perno di cerniera 13 e sostituirla con il kit anzidetto. Ricollegando le tubazioni pneumatiche preventivamente sganciate la seminatrice è pronta al lavoro.

Tra i principali vantaggi dell'elemento distributore secondo l'invenzione vi è il fatto che viene sensibilmente ridotta, se non eliminata, l'usura della
15 guarnizione per effetto del contatto di strisciamento con il disco selettore del seme; l'elemento reggispira è autocentrante il che consente una facilitata apertura e chiusura della parte mobile sulla parte fissa dell'involucro; il sistema si presta inoltre ad un agevole retrofitting, il tutto senza rimozioni di parti mobili e/o operazioni di sgancio del disco di semina.

20

RIVENDICAZIONI

1. Elemento distributore del seme per macchine seminatrici pneumatiche di precisione, del tipo includente:
 - un disco di semina trascinato da un albero motorizzato di trasmissione in rotazione a velocità controllata in solido con detto albero,
 - un involucro con una parte fissa nella quale è supportato detto albero ed una parte mobile rispetto a detta parte fissa e richiudibile su di essa,
 - in detta parte fissa essendo definita una camera di raccolta del seme,
 - in detta parte mobile essendo definita una camera di aspirazione pneumatica,
 - detto disco di semina essendo interposto tra dette parti ed avente superfici contrapposte delimitanti dette camere,
 - detto disco di semina avente almeno una corona di fori selettori passanti tra dette superfici contrapposte,
 - mezzi per generare un differenziale di pressione tra le dette superfici contrapposte in corrispondenza di un segmento circonferenziale di detta corona di fori,
 - detti mezzi includenti detta camera di aspirazione pneumatica ed una guarnizione sulla parte mobile suscettibile di contatto di strisciamento con la superficie affacciata del disco quando dette parti sono chiuse l'una sull'altra,
 - caratterizzato dal fatto di comprendere un elemento reggispira del disco di semina girevolmente supportato

in detta parte mobile, per sostenere almeno parte del carico assiale generato dal disco su detta guarnizione.

2. Elemento distributore del seme secondo la rivendicazione 1 in cui detto elemento reggispira è condotto in rotazione con detto disco
5 quando dette parti sono chiuse l'una sull'altra.
3. Elemento distributore del seme secondo la rivendicazione 1 o 2, in cui detto elemento reggispira comprende un piattello reggispira suscettibile di appoggio alla superficie del disco di semina affacciata a detta guarnizione in zona radialmente interna alla corona di fori.
- 10 4. Elemento distributore del seme secondo la rivendicazione 3 in cui l'elemento reggispira comprende un elemento di trascinamento solidale in rotazione al piattello e suscettibile di accoppiamento con l'albero di trascinamento del disco quando dette parti sono chiuse l'una sull'altra.
- 15 5. Elemento distributore del seme secondo la rivendicazione 4 in cui l'elemento di trascinamento è auto-centrante rispetto all'albero di trascinamento.
- 20 6. Elemento distributore del seme secondo la rivendicazione 4 o 5 in cui l'elemento di trascinamento comprende un organo accoppiatore vincolato al piattello reggispira in rotazione ma con gioco radiale e/o circonferenziale in modo da auto-centrarsi in accoppiamento rotazionale con l'albero di trascinamento del disco.
7. Elemento distributore del seme secondo una o più delle rivendicazioni precedenti in cui la parte mobile è incernierata alla parte fissa.
- 25 8. Elemento di semina per seminatrici di precisione includente un telaio

sul quale è montato un elemento distributore del seme secondo una o più delle rivendicazioni precedenti.

9. Seminatrice comprendente una struttura portante sulla quale è montata una pluralità di elementi di semina secondo la rivendicazione

5 8.

10. Kit per retrofitting degli elementi distributori del seme di seminatrici pneumatiche di precisione in cui gli elementi distributori sono del tipo includente:

- 10 - un disco di semina trascinato da un albero motorizzato di trasmissione in rotazione a velocità controllata in solido con detto albero,
- un involucro con una parte fissa nella quale è supportato detto albero ed una parte mobile rispetto a detta parte fissa e richiudibile su di essa,
- 15 - in detta parte fissa essendo definita una camera di raccolta del seme,
- in detta parte mobile essendo definita una camera di aspirazione pneumatica,
- detto disco di semina essendo interposto tra dette parti ed avente superfici contrapposte delimitanti dette camere,
- 20 - detto disco di semina avente almeno una corona di fori selettori passanti tra dette superfici contrapposte,
- mezzi per generare un differenziale di pressione tra le dette superfici contrapposte in corrispondenza di un segmento circonferenziale di detta corona di fori,
- 25 - detti mezzi includenti detta camera di aspirazione pneumatica ed

- una guarnizione sulla parte mobile suscettibile di contatto di strisciamento con la superficie affacciata del disco quando dette parti sono chiuse l'una sull'altra,

caratterizzato dal fatto di comprendere:

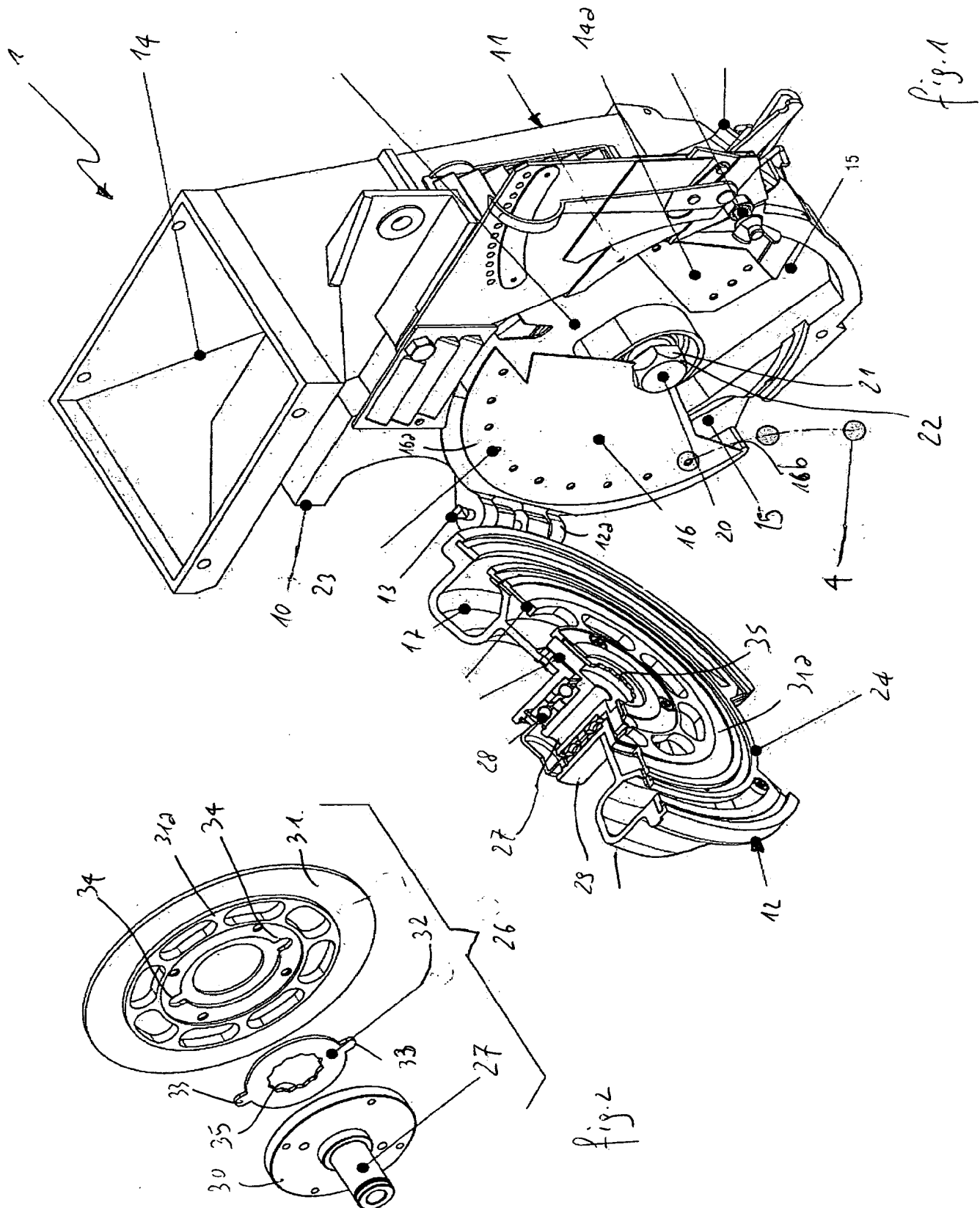
- 5 - detta parte mobile preassemblata con
- un elemento reggispira del disco di semina girevolmente supportato in detta parte mobile, per sostenere almeno parte del carico assiale generato dal disco su detta guarnizione.

10 11. Kit secondo la rivendicazione 10 in cui detta parte mobile e detto elemento reggispira comprendono una o più delle caratteristiche delle rivendicazioni da 2 a 7.

RIASSUNTO

Un elemento distributore del seme per macchine seminatrici pneumatiche di precisione, include:

- 5 - un disco di semina trascinato da un albero motorizzato di trasmissione in rotazione a velocità controllata in solido con detto albero,
- 10 - un involucro con una parte fissa nella quale è supportato detto albero ed una parte mobile rispetto a detta parte fissa e richiudibile su di essa, con una camera di raccolta del seme nella parte fissa e una camera di aspirazione pneumatica nella parte mobile,
- 15 - il disco di semina essendo interposto tra dette parti ed avente superfici contrapposte delimitanti dette camere, ed essendo provvisto di almeno una corona di fori selettori passanti tra dette superfici contrapposte,
- 20 - mezzi per generare un differenziale di pressione tra le dette superfici contrapposte in corrispondenza di un segmento circonferenziale di detta corona di fori, includenti la camera di aspirazione pneumatica ed
- una guarnizione sulla parte mobile suscettibile di contatto di strisciamento con la superficie affacciata del disco quando dette parti sono chiuse l'una sull'altra,
- un elemento reggispinga del disco di semina girevolmente supportato nella parte mobile, per sostenere almeno parte del carico assiale generato dal disco sulla guarnizione.



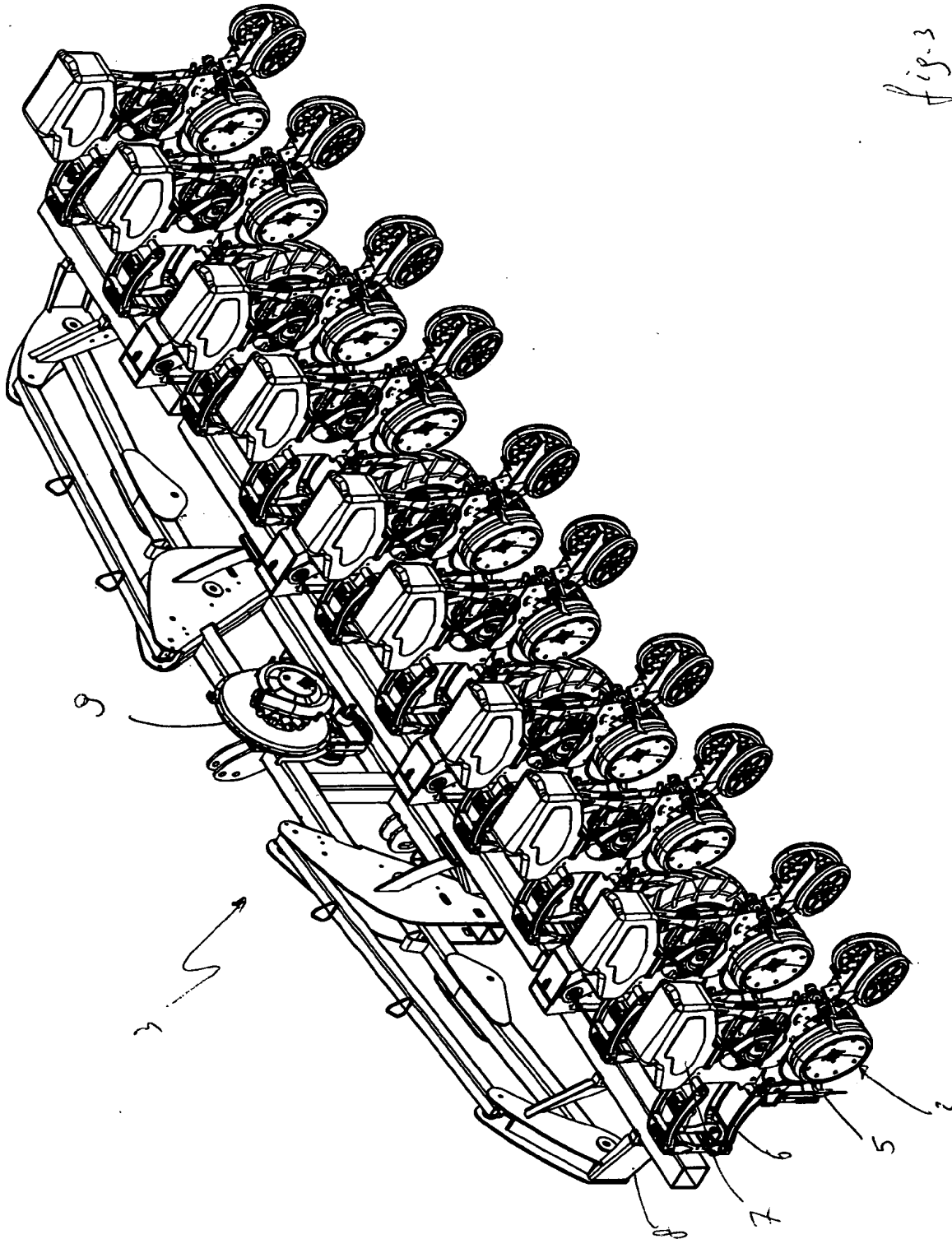


fig-3

DOCUMENT MADE AVAILABLE UNDER THE PATENT COOPERATION TREATY (PCT)

International application number:	PCT/EP2011/069875
International filing date:	10 November 2011 (10.11.2011)
Document type:	Certified copy of priority document
Document details:	Country/Office: IT
	Number: PD2010A000338
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Date of receipt at the International Bureau:	26 January 2012 (26.01.2012)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a),(b) or (b-bis)

PCT REQUEST

Print Out (Original in Electronic Form)

0	For receiving Office use only	
0-1	International Application No.	PCT/EP2011/069875
0-2	International Filing Date	10 NOV 2011 (10.11.2011)
0-3	Name of receiving Office and "PCT International Application"	RO/EP
0-4	Form PCT/RO/101 PCT Request	
0-4-1	Prepared Using	PCT Online Filing Version 3.5.000.225 MT/FOP 20020701/0.20.5.20
0-5	Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	Receiving Office (specified by the applicant)	European Patent Office (EPO) (RO/EP)
0-7	Applicant's or agent's file reference	PBW11900-PCT
I	Title of Invention	Seed distribution element for precision seed drills, seed drill including said element
II	Applicant	
II-1	This person is	Applicant only
II-2	Applicant for	All designated States except US
II-4	Name	Maschio Gaspardo S.p.A.
II-5	Address	via Marcello, 73 35011 Campodarsego (PD) Italy
II-6	State of nationality	IT
II-7	State of residence	IT
III-1	Applicant and/or inventor	
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III-1-7	State of residence	IT

PCT REQUEST

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IV-1	Agent or common representative; or address for correspondence The person identified below is hereby/ has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	Agent
IV-1-1	Name (LAST, First)	LOCAS, Davide
IV-1-2	Address	CANTALUPPI & PARTNERS s.r.l. Piazzetta Cappellato Pedrocchi, 18 35122 Padova Italy
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IV-1-5	e-mail	main@cantaluppi.com
IV-2	Additional agent(s)	additional agent(s) with same address as first named agent
IV-2-1	Name(s)	CANTALUPPI, Stefano; FABRIS, Stefano; SUSANETTO, Carlo; MONTEVECCHI, Emma; SPADARO, Marco; LEONE, Mario; MORABITO, Sara
V	DESIGNATIONS	
V-1	The filing of this request constitutes under Rule 4.9(a), the designation of all Contracting States bound by the PCT on the international filing date, for the grant of every kind of protection available and, where applicable, for the grant of both regional and national patents.	
VI-1	Priority claim of earlier national application	
VI-1-1	Filing date	12 November 2010 (12.11.2010)
VI-1-2	Number	PD2010A000338
VI-1-3	Country	IT
VI-2	Incorporation by reference : where an element of the international application referred to in Article 11(1)(iii)(d) or (e) or a part of the description, claims or drawings referred to in Rule 20.5(a) is not otherwise contained in this international application but is completely contained in an earlier application whose priority is claimed on the date on which one or more elements referred to in Article 11(1)(iii) were first received by the receiving Office, that element or part is, subject to confirmation under Rule 20.6, incorporated by reference in this international application for the purposes of Rule 20.6.	
VII-1	International Searching Authority Chosen	European Patent Office (EPO) (ISA/EP)

PCT REQUEST

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VII-2	Request to use results of earlier search; reference to that search		
VII-2-1	Filing date	12 November 2010 (12.11.2010)	
VII-2-2	Application Number	PD2010A000338	
VII-2-3	Country (or regional Office)	IT	
VII-2-5	Documents are available to the ISA in a form and manner acceptable to it and therefore do not need to be submitted by the applicant to the ISA (Rule 12bis.1(f)):	A copy of the results of the earlier search	
VIII	Declarations	Number of declarations	
VIII-1	Declaration as to the identity of the inventor	—	
VIII-2	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent	—	
VIII-3	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application	—	
VIII-4	Declaration of inventorship (only for the purposes of the designation of the United States of America)	—	
VIII-5	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty	—	
IX	Check list	Number of sheets	Electronic file(s) attached
IX-1	Request (including declaration sheets)	4	✓
IX-2	Description	7	✓
IX-3	Claims	4	✓
IX-4	Abstract	1	✓
IX-5	Drawings	2	✓
IX-7	TOTAL	18	
	Accompanying Items	Paper document(s) attached	Electronic file(s) attached
IX-8	Fee calculation sheet	—	✓
IX-18	PCT-SAFE physical media	—	—
IX-20	Figure of the drawings which should accompany the abstract	1	
IX-21	Language of filing of the international application	English	
X-1	Signature of applicant, agent or common representative	(PKCS7 Digital Signature)	
X-1-1	Name (LAST, First)	LOCAS, Davide	
X-1-2	Name of signatory	IT, Cantaluppi & Partners, D. Locas	
X-1-3	Capacity (if such capacity is not obvious from reading the request)	24895	
		(Representative)	

PCT REQUEST

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FOR RECEIVING OFFICE USE ONLY

10-1	Date of actual receipt of the purported international application	10 NOV 2011 (10.11.2011)
10-2	Drawings:	
10-2-1	Received	✓
10-2-2	~~No~~ received	
10-3	Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	
10-4	Date of timely receipt of the required corrections under PCT Article 11(2)	
10-5	International Searching Authority	ISA/EP
10-6	Transmittal of search copy delayed until search fee is paid	

FOR INTERNATIONAL BUREAU USE ONLY

11-1	Date of receipt of the record copy by the International Bureau	
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From the INTERNATIONAL BUREAU

PCTNOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

To:

LOCAS, Davide
Cantaluppi & Partners s.r.l.
Piazzetta Cappellato Pedrocchi, 18
I-35122 Padova
ITALIE

Date of mailing (day/month/year) 02 February 2012 (02.02.2012)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference PBW11900-PCT	
International application No. PCT/EP2011/069875	International filing date (day/month/year) 10 November 2011 (10.11.2011)

1. The following indications appeared on record concerning:

☒ the applicant

 ☒ the inventor

 ☐ the agent

 ☐ the common representative

Name and Address DONADON, Gianfranco c/o Maschio Gaspardo S.p.A. via Marcello, 73 I-35011 Campodarsego (PD) Italy	State of Nationality IT	State of Residence IT
	Telephone No.	
	Facsimile No.	
	E-mail address	

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☒ the person

 ☒ the name

 ☒ the address

 ☐ the nationality

 ☐ the residence

Name and Address BRAGATTO, Enrico Via Strada Nuova, 36 I-35021 Caorle (VE) Italy	State of Nationality IT	State of Residence IT
	Telephone No.	
	Facsimile No.	
	E-mail address ☐ Notifications by e-mail authorized	

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

☒ the receiving Office	☐ the International Preliminary Examining Authority
☒ the International Searching Authority	☐ the designated Offices concerned
☐ the Authority(ies) specified for supplementary search	☐ the elected Offices concerned
	☐ other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Bentobbal Ryad e-mail pt06.pct@wipo.int Telephone No. +41 22 338 74 06
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(72) Inventor; and

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(74) Agents: **LOCAS, Davide** et al.; Cantaluppi & Partners s.r.l., Piazzetta Cappellato Pedrocchi, 18, I-35122 Padova (IT).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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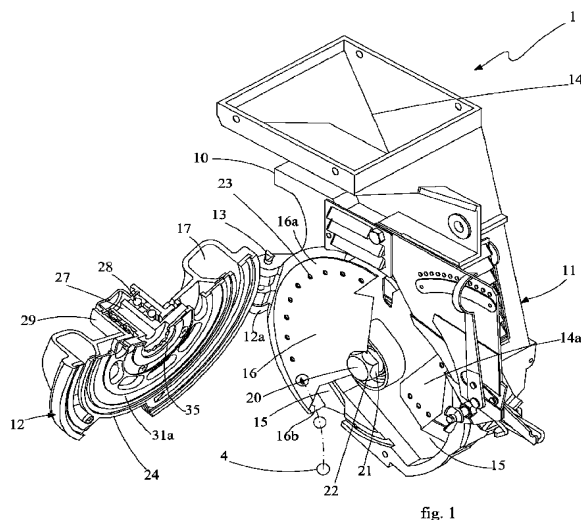
Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

— with international search report (Art. 21(3))

(54) Title: SEED DISTRIBUTION ELEMENT FOR PRECISION SEED DRILLS, SEED DRILL INCLUDING SAID ELEMENT



(57) Abstract: A seed distribution element (1) includes: -a sowing disc (16) rotated by a motor-driven transmission shaft (20) -a housing (10) with a fixed portion (11) in which the shaft (20) is supported and a portion (12) movable relative to the fixed portion and can be closed against it, with a seed collection chamber (15) in the fixed portion (11) and a pneumatic suction chamber (17) in the movable portion (12), -the sowing disc (16) being interposed between the portions (11, 12) and having opposed surfaces (16a, 16b) delimiting the chambers, and provided with a ring of selector holes (23) extending between the opposed surfaces, -means for producing a pressure differential between the opposed surfaces in the region of a circumferential segment of the ring of holes, including the pneumatic suction chamber, and -a seal (24) on the movable portion (12) capable of sliding contact with the facing surface (16a) of the disc (16) when the portions are closed against one another, -a thrust-bearing element (26) of the sowing disc (16), supported rotatably in the movable portion (12), to withstand the axial load produced by the disc (16) on the seal (24).

WO 2012/062876 A1

"Seed distribution element for precision seed drills, seed drill including said element"

DESCRIPTION

The subject of the present invention is a seed distribution element for precision pneumatic seed drills, a sowing element for such machines and a
5 seed drill including a plurality of such sowing elements.

In precision pneumatic seed drills it is known to use sowing elements which are each equipped with a seed distribution element (hereinafter, in brief, distributor) for distributing one seed at a time in a controlled
10 delivery while the sowing element moves along a sowing track.

It is equally known to use seed distributors which use an air pressure differential between opposed faces of a sowing disc (or selector) provided with one or more rings of through holes. The operating principle is based on the fact that, as a result of the pressure differential between the
15 opposed faces of the disc, a seed adheres to each hole and is then transported by the rotation of the sowing disc from the seed selection zone to the point at which the pressure differential ceases and the seed is released to drop through a sowing pipe into the furrow or sowing track. In practice, on one of the faces of the disc a strong air suction is exerted
20 which retains the seeds on the opposite face in the region of the respective holes. An example of such devices is disclosed in US 7 228 807.

For the correct functioning of such distributors it is necessary to ensure an effective pneumatic seal between the face of the disc that is subjected to
25 suction and a seal which delimits the pneumatic suction chamber. The

suction effect itself effects a substantial compression of the disc against the seal. If on the one hand this ensures adequate adherence of the seal to the disc surface which is subjected to negative pressure, on the other hand it involves severe abrasion of the seal which limits the effective service life thereof. It is therefore necessary periodically to replace the seal in order to prevent sowing errors arising from insufficient depressurization of the suction chamber.

On the other hand, even if replacing the seal is a simple operation, in each case it entails an unwanted machine stoppage, besides the cost of the spare part itself.

In order to remedy this drawback, seed drills have been developed which are equipped with a thrust-bearing element which relieves the heavy load on the seal. In all cases, however, the thrust-bearing element, which must be rotated with the disc, is mounted on the fixed portion of the housing, that is to say, that portion which is fixed to the framework of the sowing elements. This means that the disc must be attached to the thrust-bearing element; therefore an attachment system must be provided which in the stage of replacement of the disc must be removed, consequently lengthening the operation. This is inevitable in the known machines since it is obligatory to mount on the fixed portion the transmission which drives in rotation the motor-driven shaft which rotates the disc.

However, positioning the thrust-bearing element on the fixed portion entails the pneumatic suction chamber being provided on the fixed portion, or on the same side at which the thrust-bearing element is placed, while the seed collection chamber must be provided in the

movable portion. This is the source of numerous drawbacks, including the fact that the opening of the housing necessarily involves the removal of the portion containing the seed collection chamber from the hopper type store located above, which must necessarily be fixed to the framework of the sowing element.

Furthermore, for the replacement of the sowing disc it is necessary to remove some parts of the distributor, such as the adjustable seed selector, and the seed ejector, where provided.

The problem underlying the present invention is that of providing a seed distribution element structurally and functionally designed to make it possible to remedy all the drawbacks mentioned with reference to the prior art cited.

This problem is solved by the invention by means of a seed distribution element produced in accordance with one or more of the attached claims.

The features and advantages of the invention will become clearer from the following detailed description of a preferred exemplary embodiment thereof, illustrated by way of non-limiting example with reference to the appended drawings, in which:

- Fig. 1 is a perspective view of a seed distribution element produced according to the present invention;
- Fig. 2 is an exploded perspective view of a detail of the element of Fig. 1;
- Fig. 3 is a perspective view of a seed drill equipped with sowing elements with a seed distribution element according to the invention.

In the drawings the reference 1 indicates as a whole a seed distribution

element intended for equipping a sowing element 2 of a precision pneumatic seed drill 3.

The distribution element 1 is the device intended to deposit one seed 4 at a time at a predetermined adjustable spacing in a sowing furrow opened
5 by a coulter 5. The sowing element 2, besides the distribution element 1, comprises a frame 6 and a seed store or hopper 7, besides other devices which are known per se and not necessary for the understanding of the present invention. The seed drill 3 itself comprises a bearing structure 8 on which a plurality of sowing elements 2 are mounted, all connected to a
10 pneumatic suction device 9.

The sowing element 1 itself comprises a housing 10 with a fixed portion 11 fixed in a stable manner on the frame 6 and a movable portion 12 hinged in the region of a hinge 12a on the fixed portion 11 by means of a removable hinge pin 13. The fixed portion includes a throat 14 by means
15 of which it is connected below an outflow mouth of the store or hopper 7 in such a way as to be fed directly by the latter.

From the throat 14 the seed flows through a gate 14a through which the seed flows into a seed collection chamber 15.

A sowing disc 16 separates the seed collection chamber 15 from a suction
20 chamber 17 provided in the movable portion 12. A suction device 18 mounted on the bearing structure 8 is connected to the suction chamber 17 by means of pipes 19 for producing a pressure differential between the opposed surfaces 16a, 16b of the selector disc 16.

The sowing disc 16 is removably mounted on a motor-driven drive shaft
25 20, supported in the fixed portion 11 and driven in rotation at

predetermined adjustable speeds by a transmission which is not shown. The presence of the transmission requires the shaft 20 to be mounted on the fixed portion 11 of the housing 10. The keying between the shaft 20 and the disc 16 is obtained by means of a polygonal profile 21 at the free
5 end of the shaft 20 which protrudes beyond the disc 16 and preferably has chamfers 22 which serve to facilitate the functions explained hereinafter. At the periphery of the disc 16 is/are provided one (or several) ring(s) of holes 23 passing between the opposed faces of the sowing disc 16. A seal 24 is fitted in the suction chamber 17 and is placed in sliding
10 contact with the facing surface of the disc 16, when the movable portion 11 is closed on the fixed portion 12, to delimit a circumferential segment in which the holes 23 are subjected to the aforesaid pressure differential. The circumferential segment extends between the seed collection chamber 15 and a seed fall pipe 25 in which the seeds are released one at a time
15 into the furrow formed by the coulter 5. By reason of the pressure differential between the two opposed surfaces of the sowing disc, the seeds 4 are held, one to each hole 23, when the holes pass in the seed collection chamber 15, and are released in the region of the pipe 25 when the pneumatic effect of the pressure
20 differential ceases or owing to the presence of a seed ejector (not shown). In order to limit the wear on the seal 24 resulting from sliding against the surface of the disc 16, a thrust-bearing element indicated as a whole by 26 is mounted on the movable portion. The thrust-bearing element 26 comprises a shaft 27 rotatably mounted by
25 means of bearings 28 in a seat 29 of the movable portion 12. The shaft 27

has flanging 30 by means of which it is fixed to a thrust-bearing plate 31 which can bear on that surface of the disc which faces the seal 24 in a zone radially inside the ring of holes 23 in order to withstand at least some of the axial load produced by the disc 16 on the seal 24.

- 5 The bearing between the thrust-bearing plate 31 and the disc 16 takes place in the region of a ring 31a in relief on the surface of the plate which faces the disc 16.

The thrust-bearing element 26 is driven in rotation with the sowing disc 16 when the fixed and movable portions 11, 12 are closed against one another by means of a drive element 32 which comprises a coupling
10 device constrained for rotation with the thrust-bearing plate but with radial and/or circumferential clearance in such a way as to be self-centred in the rotational coupling with the drive shaft of the disc 16. For this purpose, in the present form of embodiment, the drive element 32 is
15 coupled with limited radial and/or circumferential clearance to the element 26 by means of one (or more) appendage(s) 33 protruding radially towards the outside and fitted into corresponding seats 34 of the plate. The drive element 32 is coupled by means of an internal polygonal profile 35 (similar to that adopted for box-end wrenches) to the polygonal profile
20 21 of the free end of the shaft 20, the chamfers 22 of which serve to facilitate the centring of the two profiles and the respective engagement. The drive element 32 is thus self-centring relative to the drive shaft 20 by which it is driven. The positioning between seal 24 and plate 31 is such that the rotation of the latter will not be hindered by the presence of the
25 seal 24 and, at the same time, both will be kept bearing against the disc

16.

Provision is also made for the thrust-bearing element 26 to be made idle and not driven in rotation by the shaft 20.

The whole of the movable portion 12 complete with thrust-bearing
5 element 26 and seal 24 lends itself advantageously to the production of a
kit for the retrofitting of existing seed drills. It is sufficient in this case to
separate the old type of movable portion by removing the hinge pin 13
and replacing the old movable portion with the aforesaid kit. By re-
connecting the pneumatic pipes previously disconnected, the seed drill
10 becomes ready for use.

Among the principal advantages of the distribution element according to
the invention is the fact that the wear on the seal resulting from the
sliding contact with the seed selector disc is substantially reduced, if not
eliminated; the thrust-bearing element is self-centring, thereby allowing
15 easy opening and closing of the movable portion on the fixed portion of
the housing; the system additionally lends itself to easy retrofitting, all
without removing movable parts and/or operations of disconnecting the
sowing disc.

CLAIMS

1. A seed distribution element (1) for precision pneumatic seed drills (3), of the type including:
- a sowing disc (16) which is rotated by a motor-driven transmission shaft (20) at controlled speed,
 - a housing (10) with a fixed portion (11) in which the shaft (20) is supported and a portion (12) which is movable relative to the fixed portion (11) and can be closed against it,
 - a seed collection chamber (15) being defined in the fixed portion (11),
 - a pneumatic suction chamber (17) being defined in the movable portion (12),
 - the sowing disc (16) being interposed between the portions (11, 12) and having opposed surfaces delimiting the chambers (15, 17),
 - the sowing disc (16) having at least one ring of selector holes (23) extending between the opposed surfaces, and
 - a seal (24) which is arranged on the movable portion (12) and is capable of sliding contact with the facing surface of the disc (16) when the portions (11, 12) are closed against one another,
- wherein a pressure differential is provided between the opposed surfaces in the region of a circumferential segment of the ring of holes (23),
- characterized in that the seed distribution element (1) further comprises a thrust-bearing element (26) of the sowing disc (16), which thrust-bearing element (26) is supported rotatably in the

movable portion (12) in order to withstand at least some of the axial load produced by the disc (16) on the seal (24).

2. A seed distribution element (1) according to Claim 1, wherein the thrust-bearing element (26) is rotated with the disc (16) when the portions (11, 12) are closed against one another.
3. A seed distribution element (1) according to Claim 1 or Claim 2, wherein the thrust-bearing element (26) comprises a thrust-bearing plate (31) which can bear on that surface of the sowing disc (16) which faces the seal (24), in a zone radially inside of the ring of holes (23).
4. A seed distribution element (1) according to Claim 3, wherein the thrust-bearing element (26) comprises a drive element (32) which is fixed for rotation with the plate (31) and can be coupled with the drive shaft (20) of the disc (16) when the portions (11, 12) are closed against one another.
5. A seed distribution element (1) according to Claim 4, wherein the drive element (32) is self-centring relative to the drive shaft (20).
6. A seed distribution element (1) according to Claim 4 or Claim 5, wherein the drive element (32) comprises a coupling member (33) which rotates jointly with the thrust-bearing plate (31) but has radial and/or circumferential clearance so as to be self-centred during rotational coupling with the drive shaft (20) of the disc (16).
7. A seed distribution element (1) according to one or more of the preceding claims, wherein the movable portion (12) is hinged to the fixed portion (11).

8. A sowing element for precision seed drills (3) including a frame (6) on which a seed distribution element (1) according to one or more of the preceding claims is mounted.
9. A seed drill (3) comprising a supporting structure on which a plurality of sowing elements according to Claim 8 are mounted.
10. A kit for the retrofitting of seed distribution elements (1) of precision pneumatic seed drills (3) wherein the distribution elements (1) are of the type including:
- a sowing disc (16) which is rotated by a motor-driven transmission shaft (20) at controlled speed,
 - a housing (10) with a fixed portion (11) in which the shaft (20) is supported and a portion (12) which is movable relative to the fixed portion (11) and can be closed against it,
 - a seed collection chamber (15) being defined in the fixed portion (11),
 - a pneumatic suction chamber (17) being defined in the movable portion (12),
 - the sowing disc (16) being interposed between the portions (11, 12) and having opposed surfaces delimiting the chambers (15, 17),
 - the sowing disc (16) having at least one ring of selector holes (23) extending between the opposed surfaces, and
 - a seal (24) which is arranged on the movable portion (12) and is capable of sliding contact with the facing surface of the disc (16) when the portions (11, 12) are closed against one another,
- wherein a pressure differential is provided between the opposed

surfaces in the region of a circumferential segment of the ring of holes (23),

characterized in that the kit comprises:

– the movable portion (12) pre-assembled with:

- 5 – a thrust-bearing element (26) of the sowing disc (16), which thrust-bearing element (26) is supported rotatably in the movable portion (12) in order to withstand at least some of the axial load produced by the disc (16) on the seal (24).

- 10 11. A kit according to Claim 10 wherein the movable portion (12) and the thrust-bearing element (26) comprise one or more of the features of Claims 2 to 7.

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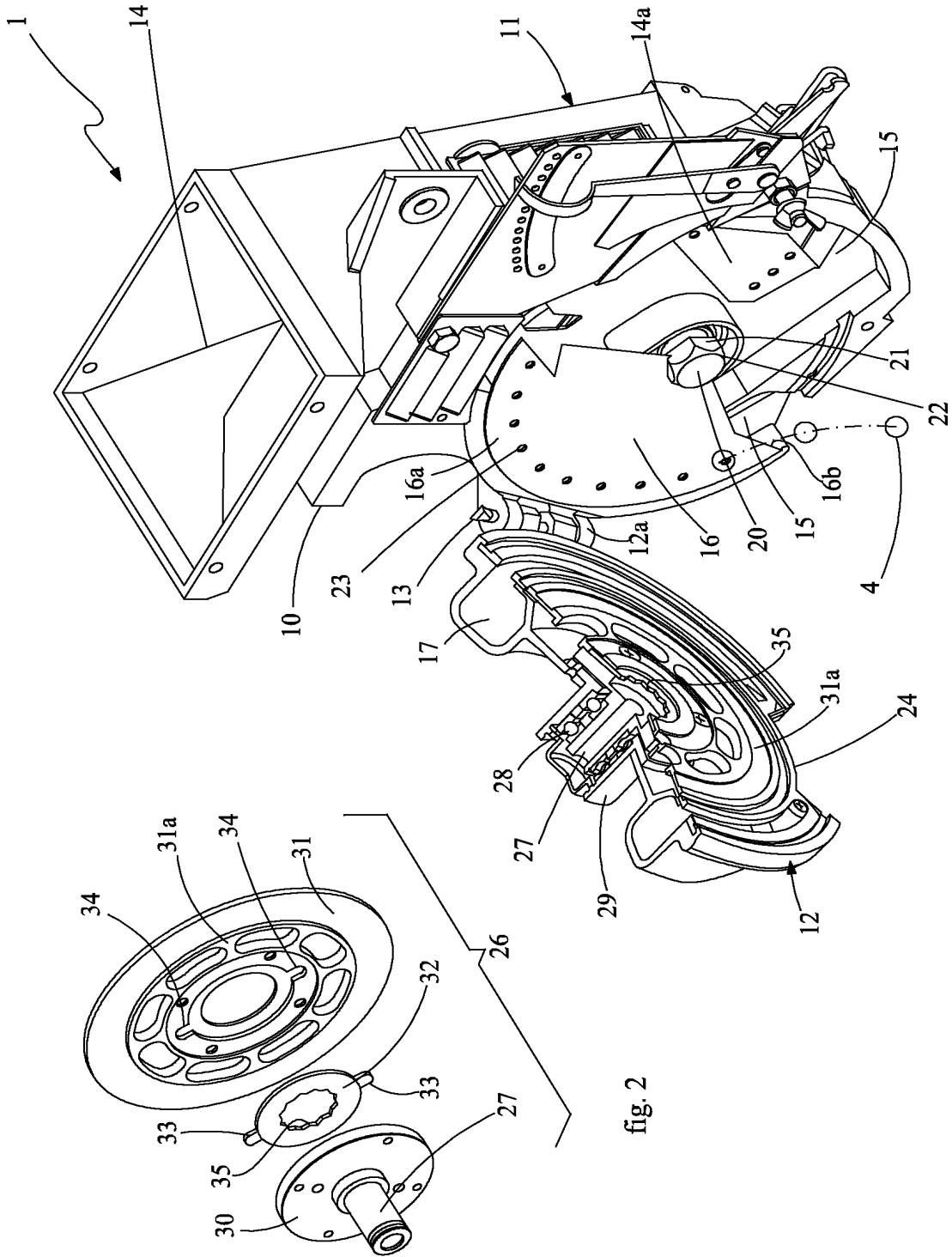
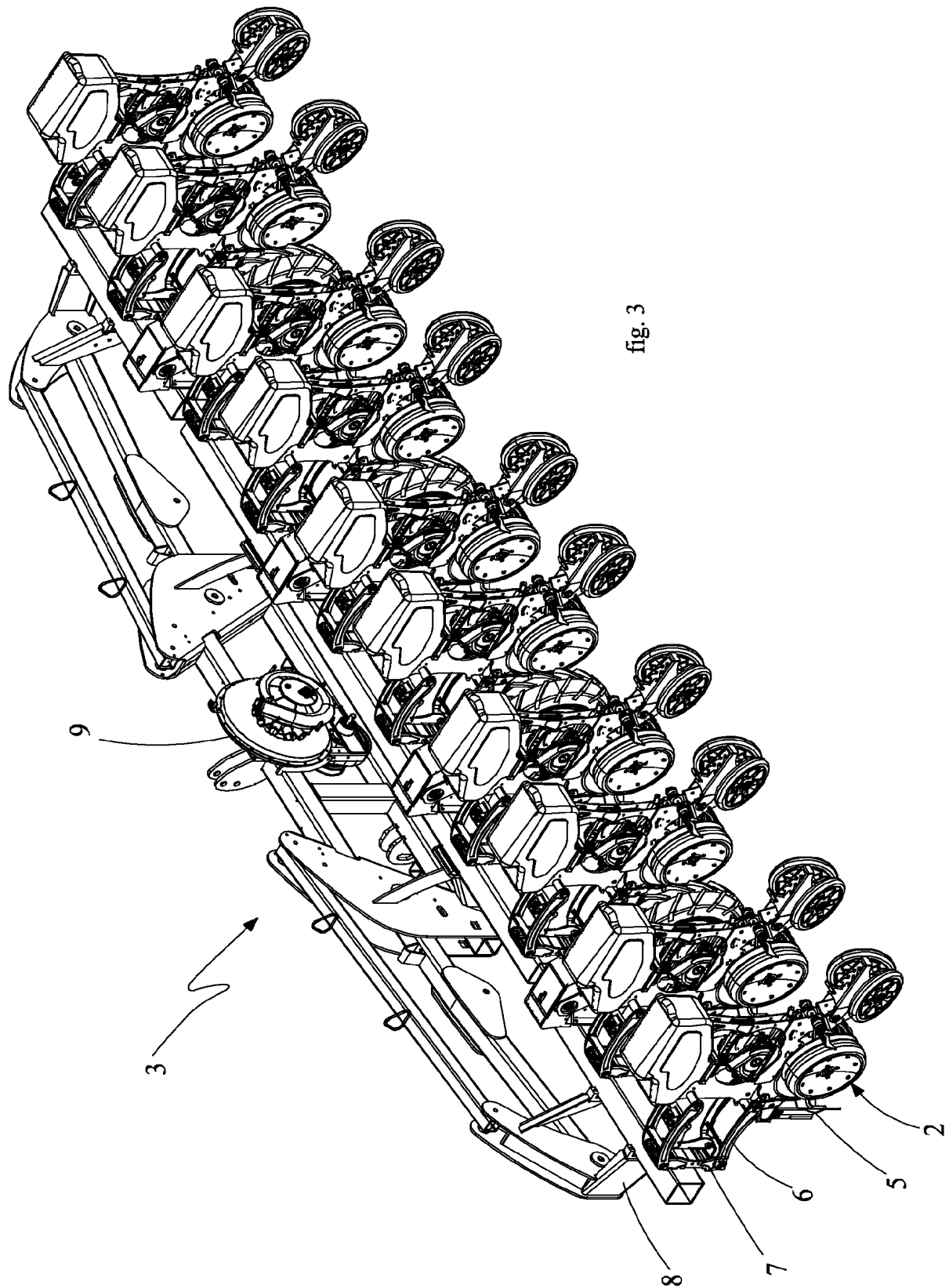


fig. 1

fig. 2

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 13/521,896		Filing Date 10/08/2012		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)			SMALL ENTITY ☐ OR		OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A				
TOTAL CLAIMS (37 CFR 1.16(j))	minus 20 =	*	X \$	=		X \$	=			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$	=		X \$	=			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.					TOTAL		TOTAL			
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT	07/12/2012	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 16	Minus	** 20	= 0	X \$	=		X \$60=	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0	X \$	=		X \$250=	0
☐ Application Size Fee (37 CFR 1.16(s))										
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$	=		X \$	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$	=		X \$	=
☐ Application Size Fee (37 CFR 1.16(s))										
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

Legal Instrument Examiner:
/MARSHA RICHARDS/

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