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Datasheet for the decision of 14 November 2023

Case Number: T 0698/22 - 3.2.04

Application Number: 11779702.7

Publication Number: 2637492

IPC: A01C7/04

Language of the proceedings: EN

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

Patent Proprietor:
Maschio Gaspardo S.p.A.

Opponent:
Precision Planting LLC

Headword:

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (yes)

Decisions cited:

Catchword:

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Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0698/22 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 14 November 2023

Appellant: (Opponent)	Precision Planting LLC 23207 Townline Road Tremont, IL 61568 (US)
Representative:	Uexküll & Stolberg Partnerschaft von Patent- und Rechtsanwälten mbB Beselerstraße 4 22607 Hamburg (DE)
Respondent: (Patent Proprietor)	Maschio Gaspardo S.p.A. Via Marcello 73 35011 Campodarsego (PD) (IT)
Representative:	Locas, Davide Cantaluppi & Partners S.r.l. Piazzetta Cappellato Pedrocchi, 18 35122 Padova (IT)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 7 January 2022 concerning maintenance of the European Patent No. 2637492 in amended form.**

Composition of the Board:

Chairman	A. de Vries
Members:	G. Martin Gonzalez
	C. Almberg

Summary of Facts and Submissions

I. This is the second appeal in the opposition proceedings against the patent. In a first appeal in case **T 0305/18** the Board(in a different composition) held that independent claims 1 and 10 of a seventh auxiliary request, filed on 27 March 2018, did not contain added subject-matter and were new, but remitted the case for further prosecution for examination of the presence of an inventive step.

II. In the present appeal, the opponent appeals the interlocutory decision of the opposition division to maintain the patent in amended form according to that seventh auxiliary request (main request in the present appeal).

III. In preparation for oral proceedings the Board issued a communication setting out its provisional opinion on the relevant issues.

Oral proceedings before the Board were held by videoconference on 14 November 2023.

IV. The appellant opponent requests that the appealed decision be set aside and that the patent be revoked in its entirety.

The respondent proprietor requests that the appeal be dismissed, i.e. that the patent be maintained as upheld in the appealed decision (main request). In the alternative, they request that the patent be maintained based on the claims of one of auxiliary 1 to 4 filed or re-filed with letter submitted on 27 September 2022.

V. The independent claims of the main request (as upheld by the opposition division) read as follows:

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), wherein the thrust-bearing element (26) is mounted on the movable portion, the thrust-bearing element (26) comprising a

shaft (27) rotatably mounted by means of bearings (28) in a seat (29) of the movable portion (12), the shaft (27) having flanging (30) by means of which it is fixed to a thrust-bearing plate (31) which can bear on the 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)."

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:
- 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), wherein the thrust-bearing element (26) is mounted on the movable portion, the thrust-bearing element (26) comprising a shaft (27) rotatably mounted by means of bearings (28) in a seat (29) of the movable portion (12), the shaft (27) having flanging (30) by means of which it is fixed to a thrust-bearing plate (31) which can bear on the 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)."

VI. In the present decision, reference is made to the following documents:

D1 US 7,228,807 B1
D4 US 4,664,290
D5 EP 0 140 699 A2
D10 US 2003/0183647 A1

VII. The appellant's relevant arguments can be summarised as follows:

Starting from D10 or similar D1, D4 or D5 it would be obvious to place the thrust bearing element on the movable suction side in view of common general knowledge taught in paragraph [0006] of the patent itself, while its other structural features are also common general knowledge. Alternatively, the claimed subject-matter results from an obvious, common general

knowledge modification of the knockout assembly of D10 or D1.

VIII. The respondent's relevant arguments can be summarised as follows:

The claimed subject-matter involves an inventive step, considering the cited prior art and common general knowledge.

Reasons for the Decision

1. The appeal is admissible.

2. Background

The invention is directed to a seed distribution element for pneumatic seed drills, see patent specification paragraph [0001]. Pneumatic seed drills use an air pressure differential between the opposed faces of a rotating sowing disc (or selector), the disc having a ring of through holes of smaller section than the size of a seed. As a result of the pressure differential between the 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. Thus, in use, on one of the faces of the disc a strong air suction is exerted, see paragraph [0003]. The disc effects a substantial compression force against the seal, which delimits the suction chamber as it slides on it, see paragraph [0004]. According to the claimed invention, in order to avoid severe abrasion of the seal, a thrust-bearing element is included to withstand

some of the axial load produced by the disc, see paragraphs [0004], [0010] and claim 1.

3. Main request - Inventive step

3.1 The appellant challenges the opposition division's conclusions that claims 1 and 10 lack an inventive step when starting from D10 or from similar D1, D4, or D5.

3.2 D10 describes a seed distribution element with a sowing disc 60 featuring selector holes, the disc being rotated by a motor-driven transmission shaft 55 and supported by a fixed housing portion 50. The sowing disc is keyed to the transmission shaft 55 and secured by handle 58 (see Figs. 5-8). Additionally, D10 discloses a movable housing part 90 with a pneumatic suction chamber and corresponding seal 99 (see paragraphs [0052], [0053}.

3.3 In its decision in the previous appeal, reasons 3.4 of T0305/18, the Board (in different composition) found the handle 58 in the related and very similar document D1 to already constitute a thrust bearing element located in the movable portion of the housing on the suction side and indeed confirmed the division's finding of lack of novelty for an earlier auxiliary request 4. Novelty was however established for auxiliary request 7, where features were added to the independent claims that further defined the thrust bearing element as being mounted on the movable portion, having a shaft that is rotatably mounted by bearings in a seat in the movable portion and that has flanges to fix a thrust bearing plate which bears on the suction side surface of the disc within the ring of holes. It held in particular, reasons 6.2 and 6.3, that a knockout assembly 120 supported on the movable

housing portion 90 shown in figures 13 and 6 and described in paragraphs [0005], [0054]-[0055], with prongs 132 that push out seeds wedged in selector holes 160 at the seed release area, was both structurally and functionally different from the thrust bearing element claimed, as it lacked a shaft rotatably mounted by bearings, flanging, and a thrust-bearing plate bearing on the disc surface in the zone within the ring of holes to withstand axial load produced by the disc on the seal.

3.4 The claimed rotating thrust-bearing plate arrangement, with these differentiating features is seen to be an alternative to the handle 58, which further reduces wear on the seal by partially taking the axial load produced by the seal on the disk. The technical problem can be formulated as how to provide an alternative thrust bearing element to further limit wear on the seal (cf. patent specification paragraph [0018]).

3.5 In their statement of grounds the appellant opponent in reference to paragraph [0006] of the opposed patent argued that it would be common general knowledge to incorporate a thrust-bearing element on the suction side of the chamber. Applying this common general knowledge to the D10 arrangement the skilled person would install a thrust-bearing element in the movable housing portion of D10, where the suction chamber is defined, as a matter of obviousness. The specifically claimed structural features of the thrust-bearing element would then represent an apparent implementation of a thrust-bearing element in the movable housing portion.

3.6 However, this argument fails. Firstly, in D10, the handle 58 is already located in the suction side,

movable portion of the housing. Irrespective of whether or not paragraph [0006] reflects common knowledge regarding placement of the thrust-bearing means on the suction side, this is thus already realized in D10 by means of the handle 58. The question then remains whether the skilled person, searching for an alternative, would as a matter of course have realized it in the manner claimed. None of the cited prior art shows a thrust bearing element with the claimed features. The appellant merely alleges, without any substantiating evidence, that it was common general knowledge to realize a thrust bearing element in the form of a rotatable shaft with a flange fixing a thrust bearing plate. However, absent any evidence, the Board has no compelling reason to believe that this was so.

3.7 Even if a thrust bearing element as claimed was common general knowledge, it seems difficult to reconcile such an element with fixing the disc to the driving shaft as taught by D10. If the handle 58, which fixes the disc to the driving shaft on the side of the fixed housing, is to be replaced by a thrusting element that has a plate that bears against the disc, it is unclear how the disc would then be fixed. This is compounded by the teaching disclosed in paragraph [0006] of the patent that the appellant opponent would like to see as common general knowledge, according to which "the disc must be attached to the thrust-bearing element". If the thrust-bearing element which is mounted on the movable, suction side portion of D10, is also attached to disc, and the disc is also fixed to the driving shaft on its other (fixed housing) side, it would not be possible to open the housing as the disc would be fixed on both sides.

3.8 Subsequently, at the oral proceedings before the Board the appellant argued that it would be obvious for the skilled person, also in the light of paragraph [0006], which teaches to place the thrust bearing element on the suction side, to modify the suction-side knockout assembly of D10 and, drawing on further common general knowledge, realize it as a thrust-bearing element having the features and function as claimed.

3.9 The Board is unconvinced. Modifying the knockout element 120 to have the features of the claimed thrust-bearing element would take away its knockout function. A thrust-bearing plate bearing on the surface of the disc in a zone radially inside the ring of holes, as claimed, would no longer be able to provide knockout of seeds wedged in the holes at the seed release area. The skilled person would thus have lacked motivation to alter the known knockout assembly to perform an entirely different function, even if seeking solutions to limit wear of the seal. Furthermore, as explained above, without any substantiating evidence, the Board is unconvinced that a thrust bearing element having the claimed features was common general knowledge.

3.10 The same conclusion holds when starting from D1, D4 or D5, either in combination with the knockout element of D10 and common general knowledge or with common general knowledge alone. The relevant features of these documents that are material for the present case are identical to those in D10.

4. In the light of the above the Board finds that the opposition division was correct in its conclusion that the subject-matter of upheld claims 1 and 10 of the main request involves an inventive step over the submitted prior art. The appeal thus fails.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

G. Magouliotis A. de Vries

Decision electronically authenticated