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Datasheet for the decision of 26 January 2018

Case Number: T 1307/16 - 3.2.04

Application Number: 07747312.2

Publication Number: 2018100

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Language of the proceedings: EN

Title of invention:
USE OF A DEVICE FOR DISTRIBUTING BENEFICIAL ARTHROPODS

Patent Proprietor:
Koppert B.V.

Opponent:
Biobest Belgium NV

Headword:

Relevant legal provisions:
EPC Art. 100(b), 54, 56, 111(1)

Keyword:
Grounds for opposition - insufficiency of disclosure (no)
Novelty - (yes)
Inventive step - main request (no)
Appeal decision - remittal to the department of first instance

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

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Case Number: T 1307/16 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 26 January 2018

Appellant: (Patent Proprietor)	Koppert B.V. Veilingweg 14 2651 BE Berkel en Rodenrijs (NL)
Representative:	Patentwerk B.V. P.O. Box 1514 5200 BN 's-Hertogenbosch (NL)
Respondent: (Opponent)	Biobest Belgium NV Ilse Velden 18 2260 Westerlo (BE)
Representative:	Gevers Patents Intellectual Property House Holidaystraat 5 1831 Diegem (BE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 27 May 2016 revoking European patent No. 2018100 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	A. de Vries
Members:	S. Oechsner de Coninck
	W. Van der Eijk

Summary of Facts and Submissions

I. The appellant (proprietor) lodged an appeal received on 31 May 2016 against the decision of the opposition division dispatched on 27 May 2016 on the revocation of the patent EP 2 018 100, and simultaneously paid the appeal fee. The statement setting out the grounds of appeal was received on 6 October 2016.

II. The opposition was based on Article l00(a) together with 52(1), 54(1) and 56 EPC, Article 100(b) together with 83 EPC and Article 100(c) together with 123(2) EPC. The opposition division came to the conclusion that the subject-matter of the independent claim according to the main and auxiliary request 1 was not novel. In its decision the division considered the following documents inter alia:

D4: Takano-Lee et al., "Biological control of oligonychus perseae (Acari: Tetranychidae) on avocado: IV. Evaluating the efficacy of a modified mistblower to mechanically dispense Neoseiulus californicus", Internat. J. Acarol., Vol. 27, No.2, 2001

D5: Opit et al., "Survival, horizontal distribution, and economics of releasing predatory mites (Acari: Phytoseiidae) using mechanical blowers", Biological Control, Vol. 33, 2005, 344-351

D6: Van Driesche et al., "Greenhouse trials in Massachusetts and New York with Amblyseius cucumeris: effects of formulation and mechanical application" IOBC/wprs Bulletin, Vol. 25, 2002,273-276

D11: Pezzi et al., "Mechanical distribution of Phytoseiids in greenhouse crops" Riv. di Ing. Agr., Vol. 3, 2002

D12: DE 44 24 499 A1
D19a: Cengel and Cimbali: Fluid Mechanics: Fundamentals & Applications 1st ed., 2004, McGraw-Hill; pp. 321-343
D21: Vreeburg et al., "Toepassing van roofmijten tegen bollen- en stromijten tijdens de vermeerdering van hyacint", Bloembollen, October 2005
D21a: Translation of D21 into English

III. Oral proceedings were held on 26 January 2018.

IV. The appellant requested:
-cancellation of the decision under appeal
-remittal of the case to the department of first instance for evaluation of inventive step for the main request (patent as granted) or one of auxiliary requests 1-11 filed with the grounds of appeal
-alternatively maintenance of the patent as granted or maintenance of the patent in amended form according to one of auxiliary requests 1-11.

The respondent requested:
-that the appeal be dismissed
-that auxiliary requests 5-11 are not admitted into the proceedings
-that the Board decides on inventive step in light of D11 and D12.

V. The wording of the independent claim 1 of the relevant requests reads as follows:

Main request
"Use of a device for distributing beneficial arthropods comprising adult life stages, said device comprising a reservoir (5) suitable for holding a number of beneficial arthropods to be distributed in a crop,

which reservoir (5) is provided with a number of exits (6) for the arthropods, a gas displacer suitable for generating a forced gas flow (26,27) in a blow direction, which forced gas flow (26, 27) is suitable to carry along the beneficial arthropods in the blow direction, and means for directing the arthropods from the reservoir (5) via the exits (6) in the forced gas flow (26, 27), wherein the device further comprises means (3,21,24,25,30) for generating an axial velocity gradient in the forced gas flow, and the means for directing the arthropods in the forced gas flow are designed to introduce the arthropods in or in the proximity of a part of the forced air flow having an axial velocity gradient (26, 27), such that the arthropods in their radial path, meaning perpendicular to the blow direction, move in the direction of the increasing velocity in a part of the forced gas flow (26,27) having an axial velocity gradient."

Auxiliary request 1 (Amendments shown)

1. Use of a device for distributing beneficial arthropods comprising adult life stages, said device comprising a reservoir (5) suitable for holding a number of beneficial arthropods to be distributed in a crop, which reservoir (5) is provided with a number of exits (6) for the arthropods, a gas displacer suitable for generating a forced gas flow (26, 27) in a blow direction, which forced gas flow (26, 27) is suitable to carry along the beneficial arthropods in the blow direction, and means for directing the arthropods from the reservoir (5) via the exits (6) in the forced gas flow (26, 27), wherein the device further comprises means (3,21,24,25,30) for generating an axial velocity gradient in the forced gas flow, and the means for directing the arthropods in the forced gas flow are designed to introduce the arthropods in or in the proximity of a part of the forced air flow having an axial velocity gradient (26, 27), such that the arthropods in their radial path, meaning perpendicular to the blow direction, move in the direction of the increasing velocity in a part of the forced gas flow (26, 27) having an axial velocity gradient wherein said means (3, 21, 24, 25, 30) for forming an axial velocity gradient comprise expansion means (3, 21, 24, 25, 30).

Auxiliary request 2 (Amendments shown)

1. Use of a device for distributing beneficial arthropods comprising adult life stages, said device comprising a reservoir (5) suitable for holding a number of beneficial arthropods to be distributed in a crop, which reservoir (5) is provided with a number of exits (6) for the arthropods, a gas displacer suitable for generating a forced gas flow (26, 27) in a blow direction, which forced gas flow (26, 27) is suitable to carry along the beneficial arthropods in the blow direction, and means for directing the arthropods from the reservoir (5) via the exits (6) in the forced gas flow (26, 27), wherein the device further comprises means (3,21,24,25,30) for generating an axial velocity gradient in the forced gas flow, and the means for directing the arthropods in the forced gas flow are designed to introduce the arthropods in or in the proximity of a part of the forced air flow having thean ~~an~~ axial velocity gradient (26, 27), such that the arthropods in their radial path, meaning perpendicular to the blow direction, move in the direction of the increasing velocity in a part of the forced gas flow (26, 27) having thean ~~an~~ axial velocity gradient, wherein said means (3, 21, 24, 25, 30) for forming thean ~~an~~ axial velocity gradient comprise expansion means (3, 21, 24, 25, 30).

Auxiliary request 3 (Amendments shown)

1. Use of a device for distributing beneficial arthropods comprising adult life stages, said device comprising a reservoir (5) suitable for holding a number of beneficial arthropods to be distributed in a crop, which reservoir (5) is provided with a number of exits (6) for the arthropods, a gas displacer suitable for generating a forced gas flow (26, 27) in a blow direction, which forced gas flow (26, 27) is suitable to carry along the beneficial arthropods in the blow direction, and means for directing the arthropods from the reservoir (5) via the exits (6) in the forced gas flow (26, 27), wherein the device further comprises means (3,21,24,25,30) for generating an axial velocity gradient in the forced gas flow, and the means for directing the arthropods in the forced gas flow are mechanical means designed to introduce the arthropods in or in the proximity of a part of the forced air flow having the~~an~~ axial velocity gradient (26, 27), such that the arthropods in their radial path, meaning perpendicular to the blow direction, move in the direction of the increasing velocity in a part of the forced gas flow (26, 27) having the~~an~~ axial velocity gradient, wherein said means (3, 21, 24, 25, 30) for forming the~~an~~ axial velocity gradient comprise expansion means (3, 21, 24, 25, 30).

Auxiliary request 4

1. Use of a device for distributing beneficial arthropods comprising adult life stages, said device comprising a reservoir (5) suitable for holding a number of beneficial arthropods to be distributed in a crop, which reservoir (5) is provided with a number of exits (6) for the arthropods, a gas displacer suitable for generating a forced gas flow (26, 27) in a blow direction, which forced gas flow (26, 27) is suitable to carry along the beneficial arthropods in the blow direction, and means for directing the arthropods from the reservoir (5) via the exits (6) in the forced gas flow (26, 27), wherein the device further comprises means (3,21,24,25,30) for generating an axial velocity gradient in the forced gas flow, and the means for directing the arthropods in the forced gas flow are designed to introduce the arthropods in or in the proximity of a part of the forced air flow having ~~an~~the axial velocity gradient (26, 27), such that the arthropods in their radial path, meaning perpendicular to the blow direction, move in the direction of the increasing velocity in a part of the forced gas flow (26, 27) having ~~an~~ the axial velocity gradient wherein said means (3, 21, 24, 25, 30) for forming ~~an~~the axial velocity gradient comprise expansion means (3, 21, 24, 25, 30) and wherein in the use of the device the forced gas flow (26,27) is generated above the crop and the arthropods are introduce in the forced gas flow above the crop.

VI. The Appellant's arguments are as follows:

- Support for obtaining the velocity gradient defined in claim 1 can be found in figure 1 to 3, where the person skilled in aerodynamics finds sufficient information to carry out the invention as claimed.
- In D21/D21a the mites are shown in a separate container held apart from the ventilator. Such a system does not correspond to the definition of a device that should consist of a single piece of equipment.
- Remittal is requested to deal with the question of inventive step which was not decided upon by the opposition division.
- D21/D21a is not a promising starting point for inventive step, as it teaches away by indicating that the experimental method was not successful.
- Concerning auxiliary request 4, D11 does not disclose expansion means according to claim 1, less so generated above the crop. In figure 1 of D21a, the skilled person can only guess the flow behaviour in the exhaust area.

VII. The respondent's arguments are as follows:

- With respect to sufficiency, an undue burden lies on the skilled person to provide the velocity gradient defined in claim 1.
- Claim 1 defines the use of a device, therefore the bottle held by an operator as shown in photos 2 and 3 of D21a also represents a part of a device comprising several components. This device is novelty destroying.
- Remittal should not be granted as the question of inventive step can be dealt with during oral proceedings. The case should be finally decided because of a threat of an infringement action.
- D21a describes a system in the same field and for the same purpose, and represents a suitable starting point.

The only difference being that the bottle is not provided in a device, it would be obvious for the skilled person to provide a supporting device for this bottle.
- The feature added in claim 1 of auxiliary request 4 does not require the point of generation of the velocity gradient to be located above the crop. D11 discloses a tube in which a velocity gradient has to be present, and also describe a distribution of phytoseiids taking place above the plants of a greenhouse (page 35, paragraph 3). D11 is therefore novelty destroying.
The photo 1 of D21a also shows an operator holding an air flow tube having an exhaust above the plants. The mites are injected close to this exhaust therefore in an area where there is a velocity gradient. For that D21a also shows all the features of claim 1.

Reasons for the Decision

1. The appeal is admissible

2. Sufficiency of disclosure - Article 100(b) EPC

Claim 1 is directed to the use of a device for distributing arthropods by gas flow. The dispute regarding sufficiency of disclosure turns on the ability of the skilled person to provide without undue burden the velocity gradient defined in claim 1 in a forced gas flow, so as to be able to obtain the requirement that the arthropods in their radial path, move in the direction of the increasing velocity in a part of the forced gas flow having an axial velocity gradient.

It is undisputed that a forced flow of air within a tube of dimensions used in the present invention has such a high Reynolds number, that it is of the turbulent type. A (time averaged) velocity profile of turbulent flow in a pipe belongs to the general knowledge of the person skilled in aerodynamics and is for example shown in D19a, page 338 figure 8-24. Such a profile exhibits almost no significant gradient in its central region as the profile is quasi flat and has a very small boundary layer (viscous layer). The person skilled in aerodynamics knows that the required velocity gradient has to be implemented by additional conventional means and turns to the description of the patent, to more specifically learns which particular means are applied.

In the patent the above standard knowledge of the skilled person is supplemented by figure 1 in relation with the description paragraphs 53 and 55 where several ways of obtaining a velocity gradient as claimed: at or near the exhaust of the pressure duct (injection points 22,23) or at the exhaust of a second duct or deceleration means (injection points 28,29). These represent alternative ways of providing the claimed velocity gradient within turbulent flow. The skilled person is able to realise the velocity gradient on the basis of these various alternative examples, by way of straightforward application of his standard fluid dynamics skills, without excessive expertise and therefore without undue burden.

For the same reason, faced with a given velocity profile in a flow guiding device, the skilled person would also recognise within which one of the situations depicted (at arthropod entry points 22, 23, 28, 29) in figure 1 of the patent he is working, and therefore

know whether or not he is working within a velocity gradient according to claim 1.

In the present case the Board has no doubts that, on the basis of the information provided in the patent, the skilled person will have no great difficulty to realise the necessary velocity gradient and to arrive at the requirement that the arthropods in their radial path, move in the direction of the increasing velocity in a part of the forced gas flow having an axial velocity gradient.

With respect to the counter gas flow defined in claim 13 and 14, the addition of such an additional flow is not in principle incompatible with a main forced flow having a velocity gradient. The skilled person would automatically exclude any embodiments where the counter gas flow would be such as to prevent the occurrence of the velocity gradient as not forming part of the scope of these claims.

It follows that the ground of opposition based on Article 100 (b) EPC does not prejudice the maintenance of the patent. The board thus confirms the decision's positive assessment of this ground.

3. Main Request

3.1 Novelty

As noted above, given the pipe dimensions in the present case the gas flow is necessarily turbulent and has a (time averaged) velocity profile as shown in figure 8.24 and described on page 338 of D19a. The Board is of the firm opinion that the skilled person reading the claim with synthetical propensity (Case Law

of the Boards of Appeal, 8th edition, 2016 (CLBA), II.A.6.1) understands that the very thin viscous layer, "typically much less than 1 percent of the pipe diameter" is much too thin for the effectively step wise velocity increase to be experienced by arthropods into the flow as a velocity gradient in the sense of the patent, i.e. meant to cause *less* damage to the arthropods, paragraph 7 in the patent specification. For this reason the Board is unable to confirm the decision's finding in section 3.3 of lack of novelty over a variety of documents, D4-D6 and D11, showing the introduction of arthropods into a gas flow within a pipe. With respect to D12 also cited against novelty, it is unclear how the shielding pipe segment 32 (col.2, lines 58 - 62) exactly effects turbulent flow and whether or not it results in a velocity gradient as required, so that in this case lack of novelty cannot be conclusively decided.

3.2 Novelty with respect to D21/D21a

In D21/D21a Photos 2 and 3 of appendix 1 show an operator holding a reservoir containing sprinkle formulation with predatory mites in the neighborhood of a fan exhaust. The exhaust of an otherwise visible upper half of the expanding scroll of the ventilator is itself not visible in Photo 2 because it is hidden behind the bottle containing the mites. However the skilled person knows the standard and consistent configuration of such expansion scrolls and can directly and unambiguously infer the approximate height of the exhaust. Such exhaust must have a higher radial dimension than the scroll width recognisable underneath the left hand horizontal rib, and commensurate with the regular height increase around the circumference. Therefore the approximate location of the bottle neck

where the arthropods fall into the forced gas flow is also directly derivable from the same picture. Such an exhaust into free air produces a sudden expansion which undoubtedly results in a velocity gradient within the framework of claim 1. Indeed this corresponds to the situation of injection point 22 as depicted in figure 1 of the patent.

The Board does not share the appellant's view that since the exact location of the injection point with respect to the exhaust is hidden by the bottle, there would be no disclosure of the mites being exposed to a velocity gradient as defined in claim 1. Given the fact that in photo 2, the neck of the bottle is shown clearly downstream of the non-visible exhaust and at a height corresponding to the upper side of the first plane bottle standing on the table, the mite cannot exit the bottle right in the middle of the main flow stream from the ventilator. Such an injection point in the middle portion of the stream would be the sole location where the mites would be directly exposed to the maximum velocity of the flow, therefore not be radially moving in the direction of increased velocity according to claim 1. All other locations above the middle of the exhaust flow correspond to a height at which the flow exhibit the same velocity gradient as defined in claim 1, and at which the mites are moved in a direction of increased velocity as they drop from the bottle by gravity.

The Board however agrees with the appellant that the skilled person would not consider the hand-held supply shown in figure as falling within the normal definition of the term "device", i.e "a piece of equipment or a mechanism" (Merriam Webster). For that sole reason the

subject-matter of claim 1 must be considered novel with respect to D21a.

3.3 Remittal

The appellant formally requests remittal to the first instance for the question of inventive step. It is established case law that there is no absolute right to have an issue decided upon by two instances. This is the case even if as a consequence the patent is revoked for the first time by the board of appeal (CLBA (CLBA), IV.E.7.6.1). Remittal is thus at the discretion of the Board. In exercising the discretionary power of the Board under Art 111(1) EPC is amongst other criteria procedural economy, to be balanced against the interest of the appellant to have two instances examine the question of inventive step.

In the present case, the Board observes that the sole distinguishing feature (device rather than hand-held supply) is in its view of such a trivial nature that even if novel the claimed device would have very little prospect of success upon remittal. This appears to be particularly so in view of the disclosure of D21a, the content of which was thoroughly debated for the question of novelty, and common general knowledge. Therefore in the interest of procedural economy as well as in the interest of legal certainty, the board decided not to remit the case back to the first instance to deal with the question of inventive step of claim 1 according to the main request but to decide the issue itself.

3.4 Inventive step

Contrary to the appellant's opinion the skilled person would consider D21/D21a as a promising starting point to assess inventive step using the problem solution approach. The experimental system shown therein lies in the same agricultural field and is based on the use of beneficial arthropods (predatory mites) for biological pest control, i.e. to protect plants. Furthermore D21a uses a ventilator with an exhaust in free air, and pursues the same path of dispersing the arthropods by the same forced gas flow as foreseen by the patent.

As already identified above in relation of novelty, the subject-matter of claim 1 differs from the system disclosed in D21/D21a by the use of a device instead of a system comprising a ventilator and a separate hand-held container or bottle. This distinguishing feature removes the need for an operator to hold the bottle, and the objective technical problem can be formulated accordingly as how to minimize operator involvement in a system as in D21/D21a.

It is immediately obvious if not trivial for the skilled person that in order to reduce operator involvement, he should replace the operator where possible by appropriate means. The hand held supply bottle is a prime candidate: the operator is easily replaced by a simple holding arrangement associated with the fan and holding the bottle in a defined position in relation to the fan. This requires no particular insight or skill on the part of the skilled person, but is solidly within his routine skills and abilities. By adopting such a holding arrangement the thus modified system of a fan with an associated holding arrangement then constitutes a device, in the above sense of a piece of equipment or mechanism.

The Board does not concur with the appellant that the disclosure of D21/D21a leads the skilled person away from a solution to this problem. Page 9, item 3.2.1 in the board's view rather than teaching away on the contrary prompts the skilled person to improve the experimental system shown in D21/D21a, e.g. to allow application on larger (non experimental) scale and avoid inconvenience to an operator. Clearly the first line of this passage recognizes the overall success of the arrangement which "went off reasonably well"; see also page 5 which suggests further optimization.

Therefore the subject-matter of claim 1 according to the main request lacks an inventive step.

4. Auxiliary requests 1 to 3 : Inventive Step

The auxiliary requests 1 and 2 add as the last feature of granted claim 1 that the means for forming a -or the- velocity gradient comprise expansion means.
As is apparent from the above the entry into the exhaust results in expansion as in point 22 of figure 1 of the patent. The outlet of the fan then constitutes an expansion means in free air. This feature is thus already disclosed in D21a and cannot therefore contribute to inventive step.

Auxiliary request 3 further adds to the amended claim 1 according to auxiliary request 2 that the means for directing the arthropods in the gas flow are mechanical means. In figure 2 of the patent the openings 6 of the appropriately held reservoir 5 serve that purpose. This corresponds to e.g. the neck of the appropriately held bottle (photo 2) in D21/D21a. This feature thus also fails to distinguish the claimed subject-matter from D21/D21a and does not contribute to inventive step.

5. Auxiliary request 4

5.1 Novelty

Claim 1 further adds the feature whereby in use of the device the forced gas flow is generated above the crop and the arthropods are introduced in the forced gas flow above the crop. The respondent opponent challenges novelty in view of D11 and D21a.

D11 discloses a mechanical distribution of Phytoseiids in greenhouse crops, using a portable equipment (page 34, item prototype), equipped with a metering device (page 34, figure 2). The injection takes place in a middle portion of the tube shown in figure 2 between the left hand side blower and the right hand side exhaust. As noted above the Board does not consider the step-wise velocity gradient at the very thin viscous layer as a velocity gradient in the sense of the patent. The point of introduction is also too far from the exhaust to result in significant expansion, cf. patent specification, paragraph [0022] (at most 2 diameters). Therefore the right hand exhaust of the device as shown cannot be considered to form the axial velocity gradient, in a part of which the arthropods radially move in the direction of increased velocity according to claim 1. This difference between the subject-matter of claim 1 and D11 is enough to establish novelty. The question whether the disclosure of the distribution -of vermiculite- described in paragraph 3, left-hand column of page 35 corresponds to an introduction above the crop cannot change this positive assessment on novelty.

A similar conclusion must also hold with respect to the location of the injection point of the mites as shown in the other embodiment of D21/D21a in its photo 1, which the respondent also cites against novelty. Here the bottle containing the mites is shown to be inclined with respect to the main air flow tube. The opening of the bottle in the "Y" connector is closer to the exhaust than to the hand held blower. However the apparent location of the opening is still too far upstream of the exhaust (more than 2 diameters), to directly and unambiguously infer that a velocity gradient is present in this radial section of the junction. Whether or not it can be inferred from photo 1 that a gas flow is generated and the arthropods are introduced above the crop can therefore be left undecided. The Board adds that this is indisputably not the case for the arrangement of photo's 2 and 3.

The Board therefore concludes that none of the available documents brought forward, is prejudicial to novelty of the subject-matter of claim 1 according to the auxiliary request 4.

5.2 Remittal

The above leaves undecided whether auxiliary request 4 involves an inventive step, which ground was not examined by the opposition division. This begs the question whether the Board should decide on this issue or remit the case for further prosecution.

The opposition division did not examine and decide the ground of inventive step, especially in respect of the additional and new distinguishing features concerning the location of the forced gas flow generation and the introduction point. In contrast to the question of

remittal of the main request, where the sole distinguishing feature was considered of trivial nature, the Board observes that the above difference , on the face appears less so, in particular in the context of the further features of gas flow generation and arthropod introduction above the crop. This combination of features has not been discussed during first instance proceedings, where the main critical issue was to assess the presence of a velocity gradient. The question of obviousness of this combination of features will need extensive discussion, possibly also taking into consideration other facts or evidence present in the proceedings, but not discussed during the procedure before the board.

In the present case, the threat of an infringement action submitted by the respondent to oppose remittal, cannot be seen as imminent. No evidence has been submitted that the letter of 2009 threatening proceedings has actually been followed by a court action
The board therefore considers it appropriate to exercise its discretion under Article 111(1) EPC to remit the case to the department of first instance, so that it may examine the remaining opposition ground of lack of inventive step for claim 1 of auxiliary request 4 in the light of the prior art submitted, as also requested by the appellant.

Order

For these reasons it is decided that:

1. **The decision under appeal is set aside**

2. **The case is remitted to the department of first instance for further prosecution.**

The Registrar: The Chairman:

G. Magouliotis A. de Vries

Decision electronically authenticated