

Internal distribution code:

- (A) [-] Publication in OJ
- (B) [-] To Chairmen and Members
- (C) [-] To Chairmen
- (D) [X] No distribution

**Datasheet for the decision
of 8 March 2024**

Case Number: T 1955/22 - 3.2.04

Application Number: 10720683.1

Publication Number: 2521436

IPC: A01G9/24

Language of the proceedings: EN

Title of invention:

GREENHOUSE AND FORCED GREENHOUSE CLIMATE CONTROL SYSTEM

Patent Proprietor:

Houweling Intellectual Properties, Inc.

Opponent:

Van der Hoeven Horticultural Projects B.V.

Headword:

Relevant legal provisions:

EPC 1973 Art. 100(c), 123(2)

RPBA 2020 Art. 13(2)

Keyword:

Amendments

Inventive step (no)

Amendment after summons - exceptional circumstances (no)

Decisions cited:

Catchword:



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 1955/22 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 8 March 2024

Appellant: Houweling Intellectual Properties, Inc.
(Patent Proprietor) 1048 Beechwood Street
Camarillo, CA 93010 (US)

Representative: Boulton Wade Tennant LLP
Salisbury Square House
8 Salisbury Square
London EC4Y 8AP (GB)

Appellant: Van der Hoeven Horticultural Projects B.V.
(Opponent) Vrij-Harnasch 124
2635 BZ Den Hoorn (NL)

Representative: Cramwinckel, Michiel
Cramwinckel Consultancy
Kallenkoterallee 82 A
8331 AJ Steenwijk (NL)

Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
22 June 2022 concerning maintenance of the
European Patent No. 2521436 in amended form.**

Composition of the Board:

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

Summary of Facts and Submissions

- I. The appeals were filed by the appellant (proprietor) and appellant (opponent) against the interlocutory decision of the opposition division to maintain the patent in amended form.

- II. The division held inter alia that granted claim 1 did not extend beyond the original disclosure but lacked novelty over D12 and that the upheld claims (auxiliary request 3) were clear, did not contain added subject-matter, were new and involved an inventive step having regard to D3 and D12. During the oral proceedings before the opposition division, the proprietor demoted auxiliary requests 1 and 2 to be treated subsequent to AR3 as upheld, cf. section 6 of the minutes. These requests are therefore not addressed in the impugned decision.

- 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 on 8 March 2024.

- IV. The appellant proprietor requests cancellation of the decision under appeal and maintenance of the patent as granted, auxiliarily according to one of auxiliary requests 1-19, filed or refiled with the grounds of appeal, or according to one of auxiliary requests 20 and 21 filed during the oral proceedings before the Board.

The appellant opponent requests that the decision under appeal is set aside and the patent be revoked.

V. Independent claim 1 of the requests relevant for the appeal reads as follows:

(a) Main request (patent as granted)

"A greenhouse (10, 50), comprising:

a growing section (16, 56);
an air or gas distribution system within said growing section (16, 56), said distribution system comprising one or more conduits (18, 58) for distributing air or gas within said greenhouse (10, 50), said conduits (18, 58) comprising an inner conduit (104, 204) within an outer conduit (102, 202), said conduits (18, 58) carrying air or gas having different pressures along their length, said inner conduit (104, 204) comprising inner conduit holes (108, 208) to allow a main airflow within said conduits (18, 58) to pass from within said inner conduit (104, 204), and said outer conduit (102, 202) comprising outer conduit holes (106, 206) that allow air passing from said inner conduit (104, 204) to pass into said growing section (16, 56), wherein said inner (108, 208) and outer (106, 206) conduit holes are offset such that each inner conduit hole (108, 208) is offset from each outer conduit hole (106, 206), such that said inner (108, 208) and outer (106, 206) conduit holes are configured to compensate for turbulence or pressure differences within said conduits (18, 58) to provide substantially equal distribution of air or gas throughout said growing section (16, 56)."

(b) Auxiliary request 1

Claim 1 as in the main request with the following features added at the end of the claim (emphasis by the Board to indicate added text):

"...to provide substantially equal distribution of air or gas throughout said growing section (16, 56); and wherein said conduits (18, 58) are arranged to reduce directional forces experienced by air distributed in said growing section (16, 56) from said main air flow in said conduits (18, 58), and/or are arranged to reduce the temperature differential between said main air flow and said growing section (16, 56)."

(c) Auxiliary request 2

Claim 1 as in the main request with the following features added at the end of the claim (emphasis by the Board to indicate added text):

"...to provide substantially equal distribution of air or gas throughout said growing section (16, 56); and wherein the number and sizes of said outer conduit holes (106, 206) are arranged to provide even distribution of air or gas throughout said growing section (16, 56)."

(d) Auxiliary request 3

Claim 1 as in the main request with the following features added at the end of the claim (emphasis by the Board to indicate added text):

"...to provide substantially equal distribution of air or gas throughout said growing section (16, 56); and wherein said outer conduit holes (106, 206) are arranged in a pattern that varies along the length of the outer conduit (102, 202), such that said inner conduit holes (108, 208) and said outer conduit holes (106, 206) compensate for pressure variations in the airflow within said conduits (18, 58)."

(e) Auxiliary request 4

Claim 1 as in the main request with the following added features (emphasis by the Board to indicate added text):

"...distribution system comprising one or more conduits (18, 58) for distributing air or gas within said greenhouse (10, 50), said conduits (18, 58) comprising one or more air distribution tubes and an inner conduit (104, 204) within an outer conduit (102, 202),

...

...to provide substantially equal distribution of air or gas throughout said growing section (16, 56);

one or more compartments (114, 214) between said inner (104, 204) and outer (102, 202) conduits, and wherein said inner conduit holes (108, 208) are equally spaced around the circumference of said inner conduit (104, 204) and said outer conduit holes (106,

206) are arranged on opposite sides of said outer conduit (102, 202)."

(f) Auxiliary request 5

Claim 1 as in the main request with the following features added at the end of the claim (emphasis by the Board to indicate added text):

"...to provide substantially equal distribution of air or gas throughout said growing section (16, 56); and wherein said one or more conduits (18, 58) are placed below gutter tables in said growing section (16, 56)."

(g) Auxiliary request 6

Claim 1 as in the main request with the following amendments (emphasis by the Board to indicate added or deleted text):

"A greenhouse (10, 50), comprising:
a growing section (16, 56);
an air or gas distribution system within said growing section (16, 56), said distribution system comprising one or more conduits (18, 58) for distributing air or gas within said greenhouse (10, 50), said conduits (18, 58) comprising an inner ~~conduit~~air distribution tube (104, 204) within an outer ~~conduit~~air distribution tube (102, 202), said conduits (18, 58) carrying air or gas having different pressures along their length, said inner ~~conduit~~air distribution tube (104, 204) comprising inner ~~conduit~~tube holes (108, 208) to allow a main airflow within said conduits (18, 58) to pass from within said inner ~~conduit~~air distribution tube (104, 204), and said outer ~~conduit~~air distribution tube

(102, 202) comprising outer ~~conduit~~tube holes (106, 206) that allow air passing from said inner ~~conduit~~air distribution tube (104, 204) to pass into said growing section (16, 56), wherein said inner (108, 208) and outer (106, 206) ~~conduit~~tube holes are offset such that each inner ~~conduit~~tube hole (108, 208) is offset from each outer ~~conduit~~tube hole (106, 206), such that said inner (108, 208) and outer (106, 206) ~~conduit~~tube holes are configured to compensate for turbulence or pressure differences within said conduits (18, 58) to provide substantially equal distribution of air or gas throughout said growing section (16, 56); and one or more compartments (114, 214) between said inner (104, 204) and outer (102, 202) air distribution tubes."

(h) Auxiliary requests 7-12

Claim 1 respectively as in the main request or as in auxiliary requests 1-5 only amended to substitute the term "conduit" by the term "tube".

(i) Auxiliary request 20

Claim 1 of this request includes the amendments of both auxiliary request 3 and auxiliary request 4.

(j) Auxiliary requests 13-19, 21

Each of these requests comprises only the independent claim of respectively the main request or auxiliary requests 1-6, 20, directed at a greenhouse air distribution system for mounting in a greenhouse growing section, the air distribution system having the same features as defined in the respective claim 1 to the greenhouse of those requests.

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

(D3) GB 1 242 500

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

The addition of the feature stating that *each* inner hole is offset with respect to *each* outer hole in granted claim 1 constitutes added subject-matter. This objection holds for all auxiliary requests 1-19. Auxiliary requests 4, 11 and 17 lack inventive step. Late filed auxiliary requests 20 and 21 are not admissible.

VIII. The appellant proprietor's arguments can be summarised as follows:

The amendments in granted claim 1 do not contain added subject-matter. All requests are new and involve an inventive step over the cited prior art. Special circumstances justify the admission of the late filed auxiliary requests 20 and 21.

Reasons for the Decision

1. The appeals are admissible. The opponent does not maintain their challenge to admissibility of the proprietor's appeal and the Board also sees no cogent reason to call admissibility into question.

2. Background

The contested patent relates to climate control systems in a greenhouse, see patent specification para 0001. The greenhouse comprises an air distribution system within the growing section. The distribution system comprises a plurality of tubes to distribute the air, each tube with an inner and an outer conduit. Both tubes have holes to allow air to exit from the tubes. The holes are formed with different offsets between inner and outer conduits or different patterns along their lengths to compensate for the pressure variations to allow the tubes to provide for a substantially uniform air distribution, see paras 0011 and 0060.

3. Main request - Added subject-matter - Unallowable intermediate generalisation

3.1 According to established case law it will normally not be allowable to base an amended claim on the extraction of isolated features from a set of features originally disclosed only in combination, e.g. a specific embodiment in the description or drawings of the original application. Such a generalisation is justified only in the absence of any clearly recognisable functional or structural relationship among the features of the specific combination or if the extracted feature is not inextricably linked with those features, see Case Law of the Boards of Appeal, 10th Edition, 2022 (CLBA), II.E.1.9.

3.2 Granted claim 1 of the contested patent has been amended during examination proceedings to include, amongst other features, that each inner conduit hole (108, 208) is offset from each outer conduit hole (106, 206).

- 3.3 There is agreement that there is no literal basis in the original description or claims for this added feature including a strict offset requirement for each inner hole with respect to each outer hole. A strict offset might be inferable from original Figs. 9-10 and 11-12, but those cross-sectional views show only specific examples of an *angular* offset, not just any offset, of individual inner and outer tube holes.

There, as best visible in the cross-sectional view of figures 10 and 12, the outer tube holes (106, 206) of both embodiments are arranged on opposite sides of the outer conduit offset vis-a-vis the inner holes 108 by a constant angle about the coincident axes of the two conduits (in figure 10 at 90° offset; in figure 12, see also paragraph 0070, the inner tube holes 208 are equally spaced around the circumference of the inner tube 204 and similarly angularly offset from the outer conduit holes positioned at roughly 0° and 180).

- 3.4 The division cited as basis original paragraph 0066, where it is stated that "[T]he inner tube holes 104 are offset from the outer tube holes 102 such that much of the turbulence or directional nature of the airflow is dissipated in the compartments 114 before exiting from the tube 100 through outer tube holes 106." According to the division, the use of the definite article "the" implies that each inner tube hole is offset from each outer tube hole.

The Board reads this passage differently. It does not simply or merely state that the inner tube holes are offset from the outer tube holes, which might have been open to interpretation. Rather, it links the offset between inner and outer tube holes to a desired result.

Thus, the offset must be such as to produce a desired dissipation of turbulence within the compartments (formed between outer and inner tubes). In the Board's understanding this qualification is meant to cover any offset of inner and outer tube holes that produces this result. The passage is thus not so much about defining the offset between individual holes but rather a catch-all meant to define offset in terms of the desired result, that is to offer a functional definition of the offset. In that reading, offset is meant in the most generic, broad sense as referring to some, otherwise undefined displacement of the *plurality* of inner tube holes considered as a whole with respect to the plurality of outer tube holes again considered as a whole. It says nothing of the degree or nature of offset overall, let alone how individual holes might be offset from each other. For example, it could cover an arrangement in which the two groups of inner and outer tube holes are offset by some overall offset value, with many inner and outer holes not individually offset. Or, as argued by the appellant, it might cover an arrangement in which the majority of inner tube holes, and thus inner tube holes as a whole, is offset from the majority of outer tube holes, as a whole, with a small number of inner and outer tube holes not being offset from each other.

Either arrangement would achieve the described effect, for example in a context of a large number of inner and outer holes distributed substantially evenly around the circumference of the tubes. This is all the more the case when the distance between the inner and outer tubes is greater, since the greater distance between the tubes alone produces considerable turbulence and dynamic pressure dissipation.

It follows from the above that this functional definition of the offset between inner and outer tube holes in paragraph 0066 does not unequivocally, that is directly and unambiguously, determine or define any specific offset between individual outer and inner holes, much less between each inner and each outer tube hole, contrary to the division's assertion.

3.5 This view is not changed by the reference to paragraph 0070 read in conjunction with Figure 12. Paragraph 0070 merely states that "the outer tube holes 206 and the inner tube holes 208 can have many different offsets" without committing to any particular offset, much less the very specific one now defined. Similarly, paragraphs 0029 and 0030 merely describe the problems of known conventional systems due to pressure differences and turbulence, but sheds no light on the solution.

3.6 The Board therefore concludes that the isolated addition of the feature stating that *each* inner hole is offset with respect to *each* outer hole in granted claim 1 constitutes added subject-matter, as it represents an unallowable intermediate generalization, Art 100(c) EPC.

4. Auxiliary requests 1-19, except auxiliary requests 4, 11 and 17 - Added subject-matter.

As also acknowledged by the appellant proprietor at the oral proceedings before the Board, claim 1 of these auxiliary requests contains the same amendment as granted claim 1 and therefore fails for added subject-matter for the same reasons as claim 1 as granted, Article 123(2) EPC.

5. Auxiliary request 4

- 5.1 Claim 1 of auxiliary request 4 has been amended to specify that the distribution system conduits have one or more compartments between said inner and outer conduits, wherein the inner conduit holes are equally spaced around the circumference of said inner conduit and said outer conduit holes are arranged on opposite sides of said outer conduit.

This arrangement corresponds to the specific layout of inner tube and outer tube holes and their offset as shown in figure 12, and described in original paragraph 0070. Claim 1 of this request includes all relevant features of that layout.

- 5.2 D3 describes an air distribution system that can be used in greenhouses, see p. 1, ln. 35. As in the claimed system, it has an inner tube 14 and an outer tube 15 that are concentrically arranged, see Fig. 1. D3 is also aimed at compensating turbulence or the effect of the dynamic pressure in the inner hose, effectively addressing the problem of providing more even air distribution, see p. 2, ln. 33-41. It therefore represents a suitable starting point for the assessment of inventive step. The concept of D3 focuses on maintaining low pressure in the space between the two hoses. This is achieved by having an outflow area of the inner holes, both individually and collectively, smaller than that of the outer holes, as stated in D3, p. 2, ln. 22-45.

Document D3 also discloses that the inner tube holes can be equally spaced around the circumference. In the embodiment shown in figure 1, see page 4, ln. 39-50, the holes 14a of the internal hose 14 are primarily

concentrated in the upper portion of the hose, covering roughly two-thirds of its circumference. However, as is apparent from page 2, ln. 71-79, this concentration is an optional feature aimed at creating an air cushion to support the outer hose, and can be dispensed with when not required.

5.3 However, it cannot be definitively concluded that D3 unambiguously discloses that each inner conduit hole is offset from each outer conduit hole. D3 mentions that the inner outflow openings should ideally be significantly smaller in size than the outer outflow openings, while also being greater in number (page 3, ln. 95-102). This difference in number naturally results in hole patterns where the inner holes will be offset in relation to the outer holes, as illustrated in Fig. 1 of D3. Indeed, D3 on page 4, ln. 65 gives a specific example of a system, with 1500 18mm hole distributed uniformly on a 20m internal hose, and 360 50mm holes on a 22m outer hose. As 1500 is not divisible by 360 it is very difficult for the Board to imagine an arrangement in which almost each inner hose hole is not offset from almost each outer hose hole. However, without an accurate calculation it can not be said with absolute certainty that each inner hose hole is offset from each outer hose hole; a very small number of inner and outer holes might align and thus not be offset.

Likewise, D3 does not provide much detail as to how the holes 15a are distributed on the external hose 15, other than stating that their size and distribution is "chosen so as to effect in the room 2 the desired throw length and distribution" page 3, ln. 109 to 113. In the example of page 4, last paragraph, they are arranged to

produce the desired injection direction, which may be obliquely upwardly to the roof.

- 5.4 The invention as claimed in claim 1 of auxiliary request 4 therefore differs from the known system in that it requires that each of the inner conduit holes is offset from each of the outer conduit holes and in that the *outer* conduit holes are arranged on opposite sides of the outlet conduit.
- 5.5 The Board is unable to identify any clear technical effect associated with the above offset requirement compared to what is already achieved by the holes offset of D3. In this regard, the appellant proprietor was unable to associate any clear effect with this feature other than stating that it would be different. The system of D3 creates an equal pressure in the annular space between the two hoses, see page 3, ln. 70-77. This ensures that the dynamic pressure in the inner hose 14 does not affect the injection direction of the ventilation air coming out of the outer hose 15, see page 3, ln. 78-83. In other words, the turbulence or directional nature of the air flow is dissipated in the space between the inner and the outer tubes. This is the same effect as described for the offset in the contested patent, see specification paragraph 0056.

As stated in the example of D3, only a very small number of inner hose holes, if any, will not be offset from outer hose holes. The Board has no compelling reason to believe that the effect of such a small number of non-offset holes, if any, on dissipating the turbulence is anything but negligible. The effect is thus for all intents and purposes the same as in D3. Nor is the fact that each and every of the inner and outer tube holes are offset from each other, where in

D3 the greater majority of inner and outer hose holes is offset, make of the claimed arrangement an alternative. Rather, it can be seen as essentially the same solution as in D3, but reduced to its logical conclusion or essence so to speak, which though never expressly stated is implicit in D3's teaching.

Therefore, in the Board's assessment, requiring each inner tube hole to be offset from each outer tube hole, where in the prior art the greater majority of inner and outer holes is offset, is seen to be without effect and also not to represent an alternative solution. The Board can but conclude that this difference is technically arbitrary in that it does not contribute to the solution of any technical problem. It therefore cannot contribute to inventive step according to established case law, see Case Law of the Boards of Appeal, 10th Edition, 2020 (CLBA), I.D.9.6.

- 5.6 The remaining difference of arranging the outer conduit holes on opposite sides of the outer conduit is seen to produce air distribution in specific, predefined directions, making it suitable for use in rooms or greenhouses where airflow needs to be directed towards opposite sides, and the related objective technical problem can be formulated accordingly. In both its nature and effect, this difference is seen to be unrelated to that of the strict offset, and can thus be assessed separately for inventive step. Nor indeed did the appellant proprietor argue any synergy between the two features.

As stated above, document D3 already teaches that the size and placement of the outflow openings 15a in the external plastic hose 15 should be selected to achieve the desired throw length and distribution within the

room, page 3, ln. 109-113), for example to produce flow in a desired direction, obliquely upwardly, page 4, ln. 79 to 73. Consequently, in light of these explicit suggestions it would be obvious to arrange the outflow openings 15a of D3 on both sides of the outer hose 15 if it is desired to inject air from both sides of the hose arrangement, for example if the air distribution arrangement of D3 were to be provided centrally in the greenhouse. It has not been argued that such a central arrangement requires an inventive insight, nor does the Board believe that it does. This further difference thus also lacks an inventive step.

5.7 For the above reasons, the Board concludes that the subject-matter of claim 1 of auxiliary request 4 does not involve an inventive step.

6. Auxiliary requests 11 and 17

These auxiliary requests are directed at alternative versions of auxiliary request 4.

In particular, claim 1 of auxiliary request 11 is as in auxiliary request 4 only amended to substitute the term "conduit" with "tube".

Claim 1 of auxiliary request 17 is identical to claim 10 of auxiliary request 4 which is directed at a greenhouse air distribution system, not the greenhouse as claim 1 of auxiliary request 4, but otherwise including all the features of the air or gas distribution system appearing in claim 1.

In either case the relevant subject-matter is the same as that of claim 1 of auxiliary request 4 and thus

lacks inventive step for the same reasons as discussed above for auxiliary request 4.

7. Auxiliary requests 20, 21 - Admission

7.1 These new auxiliary requests were filed by the proprietor during the oral proceedings. They are therefore an amendment to the proprietor's case. Their admission is at the discretion of the Board, Art 13(2) RPBA. According to this rule, the Board should in principle not take such amendment into account unless there are exceptional circumstances which have been justified with cogent reasons.

7.2 The new requests include the combination of the amendments to both auxiliary request 3 and auxiliary request 4 into claim 1. The appellant proprietor submits that the Board during the oral hearing changed its preliminary opinion regarding added subject-matter, and that they only realized at that point that the added subject-matter objection could potentially be addressed with the features of auxiliary request 4. Additionally, auxiliary request 3 was considered inventive by the opposition division. Therefore, it was only during the oral proceedings that they became aware of the possibility that a combination of both auxiliary requests could form a successful request.

7.3 It is clear from the above, however, that nothing has changed in the underlying facts. The issue of added subject-matter arising from the term "each" in the feature added before grant that each inner conduit hole is offset from each outer conduit hole is still the very same as at the outset of the opposition proceedings, as are the basic reasons that this would add subject-matter and the relevant passages cited

(original paragraphs 0066-0070 and Figs. 9-12), cf. notice of opposition of 27 March 2028, page 6; opponent letter of 1 July 2020, pages 2-3, and opponent's grounds of appeal of 24 October 2022, point 2.2.

7.4 Moreover, a change of a preliminary opinion during oral proceedings does not represent exceptional circumstances justifying the filing of a further auxiliary request, see CLBA, 10th edition, 2022, V.A. 4.5.6 i). It is an objectively possible and foreseeable outcome of the oral proceedings that this opinion may change in the light of the submissions made at the oral proceedings (if this were not so, then oral proceedings would serve little purpose).

The only issue that has changed is the appellant's awareness of the possibility that the added subject-matter objection could potentially be addressed with the features of auxiliary request 4, possibly because they saw no clear basis before. At best, this indicates an initial failure to identify a potential basis for their own reading of the added feature. In the Board's view, the appellant proprietor should know ab initio what is the basis in the original disclosure of their patent for a reading of a claim feature they are arguing. If they are unable or fail to do so earlier, then they must bear the consequences.

Thus, the Board is also unable to see a justification for the late submission of amendments only in appeal as a result of a belated realization on their part, however that realization may have come about.

- 7.5 Therefore, the Board at the oral proceedings concluded that no exceptional circumstance of the appeal case justify the admission of auxiliary requests 20 and 21, Art 13(2) RPBA. It therefore decided not to admit these requests.
8. For the above reasons, the Board finds that the decision was wrong in concluding that the main and upheld auxiliary request did not contain added subject-matter and that therefore it must be put aside. The Board also concludes that none of the further requests meet the requirements of the EPC for added subject-matter or for lack of inventive step, while it did not admit auxiliary requests 20 and 21. Consequently, taking into consideration the amendments made by the appellant proprietor, the patent and the invention to which it relates do not meet the requirements of the Convention and the patent must be revoked pursuant to Article 101(3)(b) EPC.

Order

For these reasons it is decided that:

1. **The decision under appeal is set aside.**
2. **The patent is revoked.**

The Registrar:

The Chairman:



G. Magouliotis

A. de Vries

Decision electronically authenticated