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**Datasheet for the decision
of 7 February 2018**

Case Number: T 1094/13 - 3.2.04

Application Number: 02786807.4

Publication Number: 1455567

IPC: A01G25/00, B05B12/00, G05D11/13

Language of the proceedings: EN

Title of invention:

ELECTRONIC PROPORTIONER USING CONTINUOUS METERING AND
CORRECTION

Patent Proprietor:

Graco Minnesota Inc.

Opponents:

WIWA WILHELM WAGNER GMBH & CO. KG
Illinois Tool Works

Headword:

Relevant legal provisions:

EPC Art. 123(2), 123(3), 83, 54(2), 56

Keyword:

Amendments - allowable (yes)
Sufficiency of disclosure - (yes)
Novelty - (yes)
Inventive step - (yes)

Decisions cited:

Catchword:



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Case Number: T 1094/13 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 7 February 2018

Appellant: Graco Minnesota Inc.
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 13 March 2013
revoking European patent No. 1455567 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

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

Summary of Facts and Submissions

- I. The appellant-proprietor lodged an appeal, received on 2 May 2013, against the decision of the Opposition Division of the European Patent Office posted on 13 March 2013 to revoke European patent No. 1455567 pursuant to Article 101(3)(b) EPC and simultaneously paid the required fee. The statement of grounds of appeal was received on 27 June 2013.

- II. Two oppositions were originally filed based on grounds of lack of novelty and inventive step, Article 100(a) EPC, insufficiency of disclosure, Article 100(b) EPC, and added subject-matter, Article 100(c) EPC. The second opponent withdrew the opposition on 31 October 2012.

- III. In its written decision the Opposition Division held that the grounds mentioned in Article 100 (a) together with Articles 52(1) and 56, and in Article 100(c) together with Article 123(2) EPC prejudiced maintenance of the patent having regard *inter-alia* to following documents:
 - (E2) US 5 605 252 A
 - (E5) EP 0 630 810 A1
 - (E6) US 4 865 226 A
 - (E9) US 4 026 439 A:

- IV. Oral proceedings before the Board were held on 7 February 2018.

- V. The appellant-proprietor requests that the decision under appeal be set aside and that the patent be maintained according to the main request corresponding to previous auxiliary request 1 filed on 26 June 2013.

The respondent-opponent requests that the appeal be dismissed.

VI. Claim 1 of the main request at the time of the present decision (corresponding to auxiliary request 1 of 26 June 2013) reads as follows:

"A method for dispensing plural component materials having at least first and second parts to be mixed in a predetermined ratio, using an apparatus having first and second reciprocating pumps (12) connected to said first and second parts, each said pump having a displacement transducer (14) and a fluid valve (16) at the outlet of said pump, the method comprising the steps of:

predetermining the output of each said transducer (14), which corresponds with the resolution of said transducer (14) and said predetermined ratio;

running said first and second pumps with said fluid valves (16) open until one of said transducers (14) reaches said predetermined output; and

closing the fluid valve (16) associated with the pump which has reached said predetermined output and continuing to run the other of said pumps until it has reached said predetermined output; further comprising the steps of:

closing each said fluid valve (16) as the pump associated therewith reaches changeover to allow said pump to compress any gases and positively close a check valve associated with said pump;

when said pump stalls, opening the fluid valve (16); and

disregarding any travel and imputed flow during the portion of the cycle when said fluid valve (16) is closed."

VII. The appellant-proprietor argues as follows:

The subject-matter of new claim 1 finds clear and unambiguous basis in the originally filed application. The claimed invention can be carried out with the information of the whole disclosure and taking into account the common general knowledge of the skilled person. The claimed method steps of closing the fluid valve at pump changeover for compressing the gases within it, opening the fluid valve after the pump stalls and disregarding any travel when said fluid valve is closed provides a simple method for correcting cavitation, air entertainment, compressibility or poor inlet check performance. These steps are not suggested by the available prior art documents. The subject-matter of claim 1 is therefore new and involves an inventive step.

VIII. The respondent-opponent argues as follows:

The new wording of the claim represents an extension of subject-matter because it specifies that one different check valve is associated to each pump, for which there is no specific basis in the application as filed. There is no mention in the published patent specification what type of reciprocating pump should be used to carry out the method. Therefore the claimed method encompasses embodiments with single as well as with double action piston pumps. However a double action piston pump is unable to fulfil some features of the method. Hence, the claimed method cannot be carried out over the whole range of possible types of reciprocating pumps. The subject-matter of claim 1 is furthermore rendered obvious by the combination of teachings of E9, taken as closest prior art, and any one of documents E2, E5 or E6.

Reasons for the Decision

1. The appeal is admissible
2. *Background*

The patent relates to a method for dispensing mixed compositions of two or more fluid components. The method uses one reciprocating piston pump for each component, each piston being provided with a displacement transducer, the displacement value of each piston being correlated to the volume of dispensed fluid. The main objective is to maintain ratio of mixed formulation during dispensing as accurately as possible, see paragraph [0006] of the patent specification. To that end claim 1 of the main request calls for predetermining the required output for each pump corresponding to the desired ratio and the associated predetermined output of each transducer. Both components are dispensed simultaneously until one transducer reaches its predetermined output. The first pump to deliver its predetermined amount is then closed until the second pump delivers its full share or portion. In order to correct for inaccurate metering due to cavitation, air entertainment, compressibility or poor inlet check performance, additional method steps of claim 1 require closing the fluid valve at pump changeover for compressing the gases within it, when said pump stalls, opening the fluid valve and disregarding any travel and imputed flow during the portion of the cycle when said valve is closed, see paragraph [0008] of the patent specification.

3. *Amendments - Article 123(2) and (3) EPC*

Claim 1 of the main request is a combination of granted and originally filed claims 1 and 2, where the wording of original claim 2 has been amended as follows: "... to allow said pump to compress any gases and positively close ~~the~~ a check valve associated with said pump...".

The respondent-opponent disputes that the new wording of the feature now specifies that a different check valve is associated to each pump, for which there is no basis in the application as filed.

In the Board's view it is clearly derivable from the wording of the original feature itself that pump and check valve are associated with each other because the feature requires that action of the pump positively closes the check valve, which could not occur without them being associated in some manner. Thus the association is originally implicitly described and the new wording merely explicitly states an originally disclosed implicit feature. The Board thus holds that the inclusion of the expression is only a redrafting of the same technical feature using different wording.

The only other difference, replacing the definite article "the" with "a", is an obvious grammatical correction as in the original formulation "the" check valve lacked an antecedent. This correction does however not change the meaning of the claim and therefore does not add subject-matter.

As otherwise, new claim 1 is a combination of the features of originally filed and granted claims 1 and 2, the Board is satisfied that claim 1 meets the requirements of Article 123(2) and (3) EPC.

4. *Sufficiency of disclosure - Article 83 EPC*

4.1 The written decision holds that granted claim 1 according to the main request is not sufficiently disclosed because the skilled person cannot derive from the patent specification how many valves each pump requires and how or where they need to be placed or connected to produce the desired effect, see section 4.2. of the decision.

The Board notes that Article 83 EPC requires that the subject-matter of an application or a patent must be sufficiently disclosed based on the specification as a whole and taking into account the common general knowledge of the skilled person. The skilled person may thus use his common general knowledge to supplement the information contained in the patent, see Case Law of the Boards of Appeal, 8th edition July 2016 (CLBA), II.C.3.1.

Within this framework, the Board is of the opinion that the skilled person knows from basic knowledge of reciprocating pumps that at least one closing valve (normally a check valve) must be provided at the pump fluid inlet during the compression or delivery stroke. That valve is needed in order to avoid liquid going back to the supply container. It also belongs to his basic common knowledge that reciprocating pumps customarily have another valve at the pump outlet to be closed during the intake or suction stroke in order to apply suction only to the supply tank and not to the outlet. Drawing on that common general knowledge, the skilled person reading claim 1 would immediately understand that each pump has a check valve at the input, because it is the only option that would "positively close the check valve" during the

compression stroke, as required by the claim. It is furthermore explicitly required by the claim that the fluid valve is at the outlet of the pump. Such valve arrangement produces the desired effect required by claim 1 and enables the skilled person to carry out the invention as described in the contested patent. Thus, in the Board's understanding the skilled person based on the specification and taking into account his common general knowledge can without any effort above his ordinary skills devise a reciprocating pump with associated valves as previously described to carry out the invention.

- 4.2 The respondent-opponent further disputes that there is no mention in the published patent specification as to what type of reciprocating pump should be used to carry out the method of claim 1. Therefore it encompasses embodiments with single as well as with double action piston pumps. However a double action piston pump is unable to fulfil some features of the disputed claim. Hence, the claimed method cannot be carried out over the whole range of possible types of reciprocating pumps.

The Board disagrees. Assuming, for the sake of argument that it is true that embodiments with double action piston pumps would not be able to operate according to the claimed method as they could not carry out some of the claimed steps as argued by the respondent, this merely shows that such embodiments fail to meet all the features of the claim. This failure to meet claim requirements demonstrates a limitation of the claim scope rather than a lack of sufficiency of disclosure. In other words, those embodiments cannot be used to establish a lack of sufficiency of disclosure of the

invention because they do not form part of the claimed invention.

- 4.3 As otherwise the information in the patent specification, supplemented by common general knowledge, provides the skilled person with at least one way of carrying out the invention, the Board concludes that the invention is sufficiently disclosed, see also CLBA II.C.4.2.

5. *Novelty - Article 54(2) EPC*

None of the available prior art documents disclose, in combination, a method for dispensing plural component materials using reciprocating pumps, each said pump having a displacement transducer and comprising the steps of closing the fluid valve at pump changeover for compressing the gases within it, when said pump stalls, opening the fluid valve and disregarding any travel and imputed flow during the portion of the cycle when said valve is closed. The subject-matter of claim 1 is therefore new.

6. *Inventive step - Article 56 EPC*

- 6.1 E9 is considered as starting point for assessing inventive step by both parties, as it describes a method for dispensing plural component materials using at least two reciprocating pumps with displacement transducers and fluid valves at the outlet of each pump that can be closed when the associated pump has reached a predetermined output. It appears common ground that vis-a-vis E9 the claimed method differs at least in respect of the following method steps:

"... closing each said fluid valve (16) as the pump associated therewith reaches changeover to allow said pump to compress any gases and positively close a check valve associated with said pump; when said pump stalls, opening the fluid valve (16); and disregarding any travel and imputed flow during the portion of the cycle when said fluid valve (16) is closed."

These method steps correct for potential loss of correlation between pump travel and fluid dispensing due to contingent cavitation, air entertainment, compressibility or poor inlet check performance, achieving thereby an increased accuracy of the delivered final formulation. The technical problem can thus be formulated as the provision of a method for dispensing plural component materials that can dispense an accurate mixed composition even in case of cavitation, air entertainment, compressibility or poor inlet check performance, see patent specification paragraph [0014].

- 6.2 Applying the problem-solution approach, the critical question is whether it would be obvious for the skilled person in the light of the cited prior art to optimize the method taught by E9 in the manner claimed to compensate for any of the above problems. In this framework, it appears that E2, E5 and E6 teach some sort of corrective or compensating action before opening the corresponding fluid valve for fluid delivery.
- 6.2.1 E5 is directed to a device for force-feeding web-footed birds such as geese or ducks with food paste, see E5, column 1, lines 1-8. In the Board's view, the skilled

person starting from E9, a teaching concerned with mixing paint colours, inks or dyes, would not as a matter of obviousness consider teachings in the rather different field of force-feeding food paste to geese or ducks to modify the method taught by E9.

6.2.2 Both E2 and E6 teach devices and methods for metering fluids using reciprocating piston pumps. The pumps in E2 and E6 have only back and front limit switches - 50, 52, 54, 56 in E2 and X1, X2, X3, X4 in E6 - instead of a displacement transducer as is the case in E9 and in the contested patent. Thus, either device of E2 or E6 is unable to measure partial piston pump travel because they can only measure full stroke lengths. Therefore in the opinion of the Board said citations can hardly teach the differentiating features of disregarding travel and imputed flow during a portion of the cycle, i.e. between changeover and pump stalling, because partial piston travel cannot be measured with the devices disclosed therein.

The Board is also not convinced that the necessary teaching would be derivable from E2, especially when reading column 7, lines 45-67, as argued by the respondent. Those passages describe a data processing correction formula to compensate for deviations due to fluid compressibility. The formula uses measurements of internal cylinder pressure when the piston is at the front and at the back limit switch together with the distance values between said switches and the front end of the hydraulic cylinder. There is neither a suggestion to measure partial travel between said switches nor to control the piston pump to stall between them, as is required to satisfy the contested claim. Rather, any compensation is made purely by a computational correction.

The respondent also refers to E6, column 4, lines 9-45, arguing that the pump pre-compression step would be similar to or suggest claim 1's approach. However, the steps taught by E6 do not compensate compressibility of the metered fluid component but serve the rather different purpose of providing a fixed and precise initial delivery pressure, i.e. when fluid valve 9 switches over from pump A1 to pump A2 at the moment the piston of the second pump A2 is situated at the back limit switch X3, see E6, column 4, lines 10-15. These conditions "ensure a continuous procedure without difficulties on switching from one piston and cylinder unit to the other", see E6, column 1, lines 51-58, and thus address a different problem. Nor is there in E6 a suggestion to measure partial travel between limit switches X1-X2, X3-X4 or to control the piston pump to stall between them as claimed.

6.2.3 In conclusion, the cited prior art does not suggest the claimed method steps to control a reciprocating piston pump to stall after changeover and to disregard any travel and imputed flow during that portion of the cycle. In the Board's view the introduction of these steps in order to compensate for cavitation, air entertainment, compressibility or poor inlet check performance, goes well beyond the average skills and knowledge of the skilled person and confers the necessary inventive step required by Article 56 EPC to claim 1 of the main request.

7. For the above reasons the Board holds that the claims as amended meet the requirements of the EPC. The Board is further satisfied that the consequential amendments to the description bringing it into line with the amended claim do not add subject-matter, nor were they

objected to by the respondent-opponent. The Board concludes that the patent can be maintained as amended pursuant to Article 101(3) (a) EPC.

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 the first instance with the order to maintain the patent in the following version:
 - claim 1 according to the main request (was auxiliary request 1 as filed on 26 June 2013);
 - description page 2 as filed during oral proceedings, and pages 3 and 4 of the published patent specification;
 - drawings 1 and 2 of the patent specification.

The Registrar:

The Chairman:



G. Magouliotis

A. de Vries

Decision electronically authenticated