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File Number: T 599/89 - 3.2.3

Application No.: 82 301 488.1

Publication No.: 0 061 342

Title of invention: Combination spray gun and pressure regulator

Classification: B05B 5/02, B05B 7/32, B05B 12/00

D E C I S I O N
of 30 March 1992

Proprietor of the patent: NORDSON CORPORATION

Opponent: I) Wagner International AG
II) Behr Industrieanlagen GmbH & Co

Headword:

EPC Article 56

Keyword: "Inventive step (main request, yes)"

Headnote



Case Number : T 599/89 - 3.2.3

D E C I S I O N
of the Technical Board of Appeal 3.2.3
of 30 March 1992

Appellant :
(Proprietor of the patent)

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Decision under appeal :

Decision of Opposition Division of the European
Patent Office dated 31 July 1989 revoking
European patent No. 0 061 342 pursuant to
Article 102(1) EPC.

Composition of the Board :

Chairman : C.T. Wilson
Members : F. Brösamle
W. Moser

Summary of Facts and Submissions

- I. European patent application No. 82 301 488.1, filed on 23 March 1982 and published on 29 September 1982 under publication No. 0 061 342 was granted on 27 August 1986.
- II. The patent was opposed by Wagner International AG (Opponent I and Respondents) and by Behr Industrieanlagen GmbH & Co. (Opponent II and party as of right). Both Opponents requested revocation of the patent on the grounds of Article 56 EPC. The following documents were cited in this respect:
- (D1) US-A-3 385 522,
 - (D2) US-A-3 870 233,
 - (D3) "Industrie-Lackier-Betrieb", 44. Jahrg. No. 5, 1976, pages 181 and 182,
 - (D4) DE-C-2 157 710 (Offenlegungsschrift published 6.7.82), and
 - (D5) DE-C-2 349 268 (Offenlegungsschrift published 25.4.74)
- whereby the Opponents contended that the combination of documents (D1) and (D3) deprives the subject-matter of Claim 1 of an inventive step.
- III. Following oral proceedings before the Opposition Division held on 24 January 1989 the Opposition Division, by its decision of 31 July 1989, revoked the European patent pursuant to Article 102(1) EPC due to lack of inventive step of the apparatus defined in Claim 1.
- IV. The Proprietor in suit (Appellant) appealed against this decision on 7 September 1989 paying the appeal fee on the same day. The Statement of Grounds of Appeal was received

on 29 November 1989 (teletype); the patent was defended on the basis of Claim 1 submitted with letter of 20 December 1988 and the dependent claims as granted (main request in the following).

Claim 1 according to the main request has the following wording (typing error rectified):

"Apparatus to regulate the pressure of liquid to devices for the electrostatic spray coating of articles comprising a plurality of regulator valves each having an outlet connected to an electrostatic spray coating device, an inlet in communication with a source of pressurised liquid and a valve member positioned between the inlet and the outlet to regulate the pressure of liquid supplied from the source to the spray device characterized in that the regulator valves (32) each have a straight through bypass passage (35) connected via a T-connection to the inlet (74), the passages of successive valves being connected in series with each other so that liquid may be supplied from the source (30) to each inlet (74) with the minimum drop of pressure across any valve, in that the regulator valves (32) are substantially made of non-metallic and low capacitance material and in that the outlet (77, 85) of each regulator valve (32) is connected directly to the inlet port (33) of the corresponding spray coating device (10), the arrangement being such that the length of the path between the passage (35) and the inlet port (33) of the spray device is reduced to a minimum."

The Appellants argued for the existence of an inventive step, since the claimed apparatus would overcome the problems of known parallel systems such as dead-ending and of known series systems such as pressure drops, and since the claimed combination of features should not be looked at in isolation. Without inadmissible hindsight no way is

seen of how a skilled person should arrive at the claimed apparatus according to Claim 1 when considering the prior art documents on an objective basis.

In conclusion the Appellants requested to set aside the impugned decision.

- V. The Respondents contested the argumentation brought forward by the Appellants and pointed to the fact that in their contention the Appellants have not clearly stated in their letters which statements of the impugned decision were not correct, so that reference is made to the reasons of the impugned decision and to their former letters. They requested therefore to dismiss the appeal.
- VI. In a communication pursuant to Article 110(2) EPC dated 31 January 1991 the Board expressed its provisional opinion asking for unambiguous requests concerning the claims and indicated why the granted description is felt to be not consistent with the claims. In respect of Claim 1 it was developed why its subject-matter is seen to be obvious.
- VII. With letter of 9 August 1991 the Appellants clarified that the main request would be the version of the patent underlying the impugned decision.

As auxiliary requests 1 to 3 the Appellant filed independent claims as Claims "A", "B" and "C" and requested to maintain the patent according to the main or to one of the auxiliary requests, whereby the questions of which dependent claims are maintained and how the description is to be amended should be postponed until a decision is reached as to which request, if any, is allowable.

VIII. The Respondents, see letter of 6 March 1991, fully agreed with the Board's communication pursuant to Article 110(2) EPC dated 31 January 1991 and gave notice that they would not intend to file additional observations.

By implication, it follows that they maintain their request to dismiss the appeal.

Reasons for the Decision

1. The appeal is admissible.

Main request:

2. Amendments

2.1 Claim 1 combines the features of originally filed Claims 1, 2 ("non-metallic and low capacitance") and of page 5, lines 16/17 and Figure 1 ("electrostatic"), Claim 3 ("straight through bypass passage"), page 10, lines 26 to 28, page 12, line 30 to page 13, line 2 and page 13, lines 6/7 ("connected directly ... such that the length ... to a minimum."). Claim 1 is, therefore, not open to an objection under Article 123(2) EPC.

2.2 This is also true for granted Claims 2 to 7 which correspond to originally filed Claims 2 to 7 and for granted Claims 8 to 10 whose features are based on Figures 1 and 2 (by-pass passage "35" is integral with the regulator valve "32"), Figure 1 and page 7, lines 29/30 (ring main) and page 10, lines 26 to 28, page 12, line 30 to page 13, line 2 as well as page 13, lines 6/7 ("connected directly to the inlet port 33 of ... device").

- 2.3 The combination of features of granted Claims 1, 2 and 10 in present Claim 1 is a restriction of the extent of protection. The feature "electrostatic" spray coating device is a further restriction of the extent of protection.

The term of Claim 1 (see last three lines) "the arrangement being such that ... reduced to a minimum" not contained in granted Claim 1 only defines the function of the feature of granted Claim 10 ("connected directly") and also does not extend the protection sought.

The Board comes to the conclusion that Claim 1 also meets the requirements of Article 123(3) EPC.

- 2.4 Since the granted dependent claims are defended unamended they cannot contravene the requirements of Article 123(3) EPC.

3. Novelty

Novelty of the subject-matter of Claim 1 not being under discussion this issue needs no further argument, so that the question of patentability of the claimed apparatus depends on the question of whether or not it is based on an inventive step within the meaning of Articles 100(a) and 56 EPC.

4. Inventive step

- 4.1 The nearest prior art document is document (D1) from which document not only the features of the precharacterising clause of Claim 1 are known but also straight through bypass passages connected via a T-connection to inlets of the successive valves being connected in series with each other so that liquid may be supplied from the source to

each inlet with the minimum drop of pressure, whereby the outlet of each regulator valve is connected to the inlet port of the corresponding spray coating device, (see Figure 2 and corresponding text of document (D1)).

4.2 It is true that

- (a) not each regulator valve is equipped with a straight through by-pass passage and that
- (b) not each valve is connected via a T-connection to the feed line of the pressurised liquid,

so that the features of Claim 1 corresponding to (a) and (b) above are not known from document (D1); in addition, the following features of Claim 1 are also not known:

- (c) the straight through by-pass passage is arranged inside the regulator valves "32",
- (d) the outlet "77, 85" of each regulator valve "32" is connected directly to the inlet port "33" of the corresponding spray coating device "10",
- (e) such that the length of the path between the by-pass passage "35" and the inlet port "33" of the spray device is reduced to a minimum,
- (f) the regulating valves are substantially made of non-metallic and low capacitance material.

4.3 The apparatus known from document (D1) suffers from the drawbacks that not all regulator valves and spray coating devices are supplied with liquid in one and the same way as clearly set out by the Appellant in his letter dated

9 August 1991 in response to the communication of the Board dated 31 January 1991, since only two of three regulator valves and spray coating devices are linked to the supply line in a favourable way, but not the third regulator valve and its associated spray coating device, (see reference signs "10c, 10b, 10a" and "35" of Figure 2 of document (D1)).

In addition, the apparatus known from document (D1) suffers from the drawbacks that the connections between the source of liquid "23" and the regulator valves "10c, 10b, 10a" and between the latter and the spray coating devices are relatively long, leading to a pressure drop of the liquid and to dead ends.

In document (D1) no specific arrangements are foreseen for enabling the apparatus to be used for electrostatic spraying, though electrostatic spraying is mentioned as an alternative in document (D1).

4.4 In view of the subject-matter of Claim 1 the objectively remaining technical problem to be solved appears to be to make the known apparatus according to document (D1) suitable for electrostatically spraying materials which contain a high percentage of solids compared to the percentage of liquid within which the solids are transported, (see last paragraph of column 8 of the attacked patent).

4.5 It has now to be decided whether the documents (D1) to (D5) in combination with the knowledge of an average engineer can render obvious the claimed apparatus according to the main request:

Document (D1) does - as indicated above - not disclose the features (a) to (f) and there cannot be seen any reason

why a skilled person should modify the known apparatus exactly along the line of claimed features (a) to (f), since the known apparatus obviously is suitable working in combination with a liquid coating device. Only as a side aspect in column 4, line 24 of document (D1) is it mentioned that the "cleaning device" of the document under discussion may also be used with any liquid coating installation whether conventional or electrostatic. Any specific hints as to the way in which the known apparatus has to be modified for electrostatic spray coating cannot be derived from document (D1) so that already features (a) and (b) according to remark 4.2 are of inventive significance in respect of document (D1).

- 4.6 Document (D2) is silent in respect of an apparatus with a multitude of spray guns supplied by a single source of liquids so that a skilled person cannot derive any information in the direction of features (a) and (b). In document (D3) ring-lines are mentioned for supplying guns with spraying liquids. However, no detailed information is derivable from this document as to how the spray guns should be linked to the ring-line.
- 4.7 Concerning documents (D4) and (D5) it is doubtful whether a skilled person would at all consider these documents, since they relate to apparatuses applying for instance a hot melt adhesive, which apparatuses are basically characterised by the absence of regulator valves, since in these systems the viscosity is temperature-controlled. Appellant's argument that a skilled person would not turn to documents (D4) and (D5) when confronted with the objective problem to be solved is therefore convincing and is another reason for not maintaining the negative approach as outlined in the Board's communication dated 31 January 1991.

4.8 Turning now to feature (c) of Claim 1 it has to be observed that the skilled person cannot derive this feature from documents (D1) to (D5), since in document (D1), see Figures 1 and 2, the by-pass passage is not arranged inside the regulator valve, which statement is also true for documents (D2) and (D3) which relate either to a single gun apparatus or to a ring-line without disclosing a by-pass passage.

The remaining documents (D4) and (D5) have been commented on by the Appellant in his letter dated 9 August 1991 by pointing to the differences between the subject-matter of Claim 1 and that of documents (D4) and (D5). The latter is characterised by the absence of pressure regulating valves, since pressure drop in the technical field envisaged in documents (D4) and (D5) is of no importance due to the fact that the viscosity is mainly determined by temperature. This is, however, completely contradictory to the teaching of Claim 1 where the pressure regulators determine the flow of the liquid.

4.9 Under these circumstances it is indeed doubtful whether a skilled person would turn to documents (D4) and (D5) at all. Even if he did, however, he would not find T-connections nor a by-pass within the meaning of Claim 1. The known conduit in each gun is intersected by piston rods and thus hot melt material flows from one gun to the next and has to flow around the piston rods. It is obvious that such a path for the liquid entails a pressure drop, since in addition the liquid has to flow through ports of relatively small diameters, (see documents (D4) and (D5)).

4.10 Without an inadmissible ex post facto analysis of documents (D4) and (D5) and without considering features extracted from their interrelationship with other features

respectively suppressing their function in the known apparatus, the Board has reached the opinion that documents (D4) and (D5) are also not helpful for leading a skilled person to the apparatus according to Claim 1.

- 4.11 Under these circumstances it is of no crucial importance whether features (d), (e) and (f) of Claim 1 are obvious or not, since features (a), (b) and (c) already are of inventive significance. Feature (d) and its related feature respectively functional term (e) contribute(s) to the solution of the objective problem by minimising the length of the flow paths and as a consequence the pressure drop in such flow paths. On the other hand the Board maintains its opinion that feature (f) is of a trivial nature in respect of the disclosure of document (D2).
- 4.12 Since the combination of features has to be assessed when looking for an answer to the question of obviousness or nonobviousness it is irrelevant if a feature of this claimed combination per se is obvious as long as there is no direct lead to the claimed combination of features with respect to the prior art and the knowledge of the skilled person.
- 4.13 The subject-matter of Claim 1 according to the main request is therefore seen as inventive (Articles 100(a) and 56 EPC) so that this claim can form the basis for maintaining the patent in amended form.
5. The impugned decision has therefore to be set aside and the case is to be remitted for further prosecution to the first instance for clarifying the question of any dependent claims and of a revised opening of the description being consistent with the independent, and with any dependent, claims.

The Board has thus decided on the issue underlying the impugned decision i.e. the question of inventive step of the apparatus of Claim 1 according to the main request. The Appellants, (see their letter of 9 August 1991, page 2, first paragraph), suggested to decide on the main request (or on the auxiliary requests) before it should be decided which dependent claims should be maintained and how the description should be amended. The Board was therefore not in a position to decide on a complete case and makes therefore use of its power pursuant to Article 111(1) EPC to remit the case to the first instance for further prosecution (dependent claims, opening of the description).

6. Claim 1 of the main request being valid, the Board has not to decide on the three auxiliary requests.

Order

For these reasons, it is decided that:

1. The impugned decision is set aside.
2. Claim 1 of the main request is allowable.
3. The case is remitted to the first instance for further prosecution.

The Registrar:



N. Maslin

The Chairman:



C.T. Wilson