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Datasheet for the decision of 12 March 2018

Case Number: T 0836/16 - 3.2.07

Application Number: 10175071.9

Publication Number: 2258486

IPC: B05C5/02, D01D4/02, B05B7/08

Language of the proceedings: EN

Title of invention:
Multi-plate nozzle and method for dispensing random pattern of adhesive filaments

Applicant:
Nordson Corporation

Headword:

Relevant legal provisions:
EPC Art. 76(1)

Keyword:
Divisional application - subject-matter extends beyond content of earlier application (yes)

Decisions cited:
G 0001/93, T 0802/92

Catchword:

Europäisches Patentamt
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Beschwerdekammern

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Case Number: T 0836/16 - 3.2.07

D E C I S I O N
of Technical Board of Appeal 3.2.07
of 12 March 2018

Appellant: (Applicant)	Nordson Corporation 28601 Clemens Road Westlake, OH 44145-1119 (US)
Representative:	Eisenführ Speiser Patentanwälte Rechtsanwälte PartGmbB Postfach 10 60 78 28060 Bremen (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 13 November 2015 refusing European patent application No. 10175071.9 pursuant to Article 97(2) EPC**

Composition of the Board:

Chairman	I. Beckedorf
Members:	G. Patton
	G. Pricolo

Summary of Facts and Submissions

I. The applicant (appellant) lodged an appeal within the prescribed time limit and in the prescribed form against the decision of the examining division refusing European patent application No. 10 175 071.9. Said application, which is a divisional application of the earlier application No. 07 122 920.7 (parent application), was refused on the grounds that the then main request and first to fourth auxiliary requests did not fulfil the requirements of Article 76(1) EPC.

II. With a communication annexed to the summons to oral proceedings the Board presented its preliminary opinion that the appellant's main request and auxiliary request filed with a letter dated 18 March 2016 contravened Article 76(1) EPC.

In response to an objection pursuant to Article 76(1) EPC raised by the Board in said communication in addition to those raised in the impugned decision, the appellant filed a second auxiliary request with a letter dated 12 February 2018.

III. Oral proceedings took place on 12 March 2018. For a more detailed account thereof, in particular the issues discussed with the appellant, reference is made to the minutes. The present decision was announced at the end of the oral proceedings.

IV. The appellant requested

that the decision under appeal be set aside and that a patent be granted on the basis of one of the sets of claims filed with a letter dated 18 March 2016 as main request and as auxiliary request (first auxiliary request), and with a

letter dated 12 February 2018 as second auxiliary request.

V. Independent claim 1 of the **main request** reads as follows (amendments in bold, deleted features in strike-through compared to claim 7 of the earlier application; emphasis added by the Board):

"A method of dispensing multiple adhesive filaments **(180)** onto a substrate **(182)** in a random pattern, comprising:
moving the substrate along a machine direction;
discharging the multiple adhesive filaments from a row of liquid outlets **(154)** communicating with liquid slots **(150) contained in a plane** ~~in an adhesive shim plate~~;
discharging pressurized air streams from multiple first and second pairs of air slots **(160,162; 164,166)** ~~contained in respective first and second air shim plates secured~~, **the first pairs of air slots (160, 162) and the second pairs of air slots (164,166) each being contained in first and second parallel planes different from and** on opposite sides of the ~~adhesive shim plate~~**plane containing the liquid slots (150)** with respective ones of the first and second pairs being located on opposite sides of an associated one of the liquid slots **(150)**;
directing the air streams from each first pair of air slots **(160, 162)** in a converging manner toward one another **in the first plane** ~~and generally parallel to the discharging filaments~~;
directing the air streams from each second pair of air slots **(164, 166)** in a converging manner toward one another **in the second plane** ~~and generally parallel to the discharging filaments~~;
forming zones of air turbulence with the respective converging air streams below the liquid outlets **(154)**;

directing the filaments **(180)** respectively through the zones of turbulence to move the filaments back and forth in random directions; and
depositing the filaments **(180)** on the substrate **(182)** in a random pattern generally along the machine direction."

Independent claim 1 of the **first auxiliary request** reads as follows (amendments in bold, deleted features in strike-through compared to claim 7 of the earlier application; emphasis added by the Board):

"A method of dispensing multiple adhesive filaments **(180)** onto a substrate **(182)** in a random pattern, comprising:
moving the substrate along a machine direction;
discharging the multiple adhesive filaments from a row of liquid outlets **(154)** communicating with liquid slots **(150) contained in a plane**~~in an adhesive shim plate~~;
discharging **first and second** pressurized air streams from **each one of** multiple first and second pairs of air slots **(160,162; 164,166)**~~contained in respective first and second air shim plates secured~~, **the first pairs of air slots (160, 162) being contained in a first plane, and the second pairs of air slots (164, 166) being contained in a second parallel plane, the first and second planes being** on opposite sides of the ~~adhesive shim plate~~**plane containing the liquid slots (150)** ~~with respective~~**so that each** one~~s~~ of the first and second pairs **of air slots is**~~being~~ located on opposite sides of an associated one of the liquid slots **(150)**;
directing the **first and second** air streams from each first pair of air slots **(160, 162)** in a converging manner toward one another **in the first plane**~~and generally parallel to the discharging filaments~~;

directing the **first and second** air streams from each second pair of air slots **(164, 166)** in a converging manner toward one another **in the second plane**~~and generally parallel to the discharging filaments~~;
forming **a** zone~~s~~ of air turbulence with the respective converging air streams below **each of** the liquid outlets **(154)**;
directing **each of** the filaments **(180)** ~~respectively~~ through ~~the~~ **a respective** zone~~s~~ of turbulence to move the filaments back and forth in random directions; and depositing the filaments **(180)** on the substrate **(182)** in a random pattern generally along the machine direction."

Independent claim 1 of the **second auxiliary request** reads as follows (amendments in bold, deleted features in strike-through compared to claim 7 of the earlier application):

"A method of dispensing multiple adhesive filaments **(180)** onto a substrate **(182)** in a random pattern, comprising:
moving the substrate along a machine direction;
discharging the multiple adhesive filaments from a row of liquid outlets **(154)** communicating with liquid slots **(150) contained in a plane** ~~in an adhesive shim plate~~;
discharging pressurized air streams from multiple first and second pairs of air slots **(160,162; 164,166)** ~~contained in respective first and second air shim plates secured~~, **the first pairs of air slots (160, 162) and the second pairs of air slots (164, 166) each being contained in first and second parallel planes different from and** on opposite sides of the ~~adhesive shim plate~~**plane containing the liquid slots (150)** with respective ones of the first and second pairs being

located on opposite sides of an associated one of the liquid slots **(150)**;
directing the air streams from each first pair of air slots **(160, 162)** in a converging manner toward one another **in the first plane** and generally parallel to the discharging filaments;
directing the air streams from each second pair of air slots **(164, 166)** in a converging manner toward one another **in the second plane** and generally parallel to the discharging filaments;
forming zones of air turbulence with the respective converging air streams below the liquid outlets **(154)**;
directing the filaments **(180)** respectively through the zones of turbulence to move the filaments back and forth in random directions; and
depositing the filaments **(180)** on the substrate **(182)** in a random pattern generally along the machine direction."

VI. The appellant essentially argued that claim 1 of the main request was based on claim 7 of the earlier application as originally filed and that the omission of the features "adhesive shim plate" and "first and second air shim plates" in the method of claim 1 of the main request did not contravene Article 76(1) EPC in respect of the parent application. This conclusion also applied to claim 1 according to both the first and second auxiliary requests. The appellant's arguments will be dealt with in more detail in the reasons for the decision (points 1.2 and 1.3).

Reasons for the Decision

1. Main request

The main request corresponds to the fourth auxiliary request underlying the impugned decision.

1.1 Claim 1 of the main request is based on claim 7 of the parent application, said claim 7 comprising the features "**adhesive shim plate**" and "**first and second air shim plates**".

The issue at stake with respect to the impugned decision, point 2.5.3, is whether the omission of said features in claim 1 of the main request contravenes the requirements of Article 76(1) EPC.

1.2 The appellant argued that said features did not provide any technical contribution to the method and so could be deleted from the method claim, with reference to the Case Law of the Boards of Appeal, 8th Edition 2016, II.E.10.3, where T 802/92 (OJ EPO 1995, 379) and G 1/93 (OJ 1994, 541) are mentioned. The only effect of having plates was to provide an extremely space-saving design of the nozzle, which was not linked to the claimed method, with reference to paragraph 24 of the parent application.

For the appellant said features were described in a specific embodiment of the parent application, paragraphs 24 to 32, but were not presented as being essential to the method. The disclosure in paragraphs 11 to 13 referred only to the nozzle, i.e. not to the method, so it could not be derived therefrom that the "shim plates" were essential for the method.

The appellant further held that in the parent application it was only necessary for the air streams and the filament to be directed as claimed for performing the method steps, i.e. the air and liquid outlets could be provided as small bores in a housing, for instance, so were not necessarily in shim plates. The disclosure in the second half of paragraph 27 of the earlier application, which related to the way the nozzle was operated, was to be seen as supporting this view, since the effect of creating the zones of turbulence was obtained by the orientation of the air slots (convergence towards each other by pairs of slots) and their location in planes, see figures 2 and 7, i.e. not by the "shim plates".

Again according to the appellant, the skilled person understood a shim plate to be a planar, flat body. The technical meaning of a "shim plate" was then a "planar body". So "shim plates" were technically equivalent to "planes", and their substitution by the following features introduced in claim 1 disclosed in paragraph 27 and figures 6 and 7 of the parent application:

> *"the first pairs of air slots are contained in a first common plane on one side of the adhesive outlets, whereas the second pairs of air slots are contained in a second plane parallel to and on an opposite side of the plane containing the liquid slots"*

did not provide any new teaching. They implemented the key feature of the claimed method by forming the zones of turbulence through which the filaments were deposited in a random pattern.

In the parent application no specific limitation of the distance between the air outlets and the liquid outlets was disclosed, either for the apparatus or for the method. There was even provision for separating shim plates of undefined thicknesses between the shim plates bearing the air slots and the shim plate bearing the liquid slots. Hence, since any distance between the air outlets and liquid outlets was covered by the original disclosure of the parent application, the skilled person would not infer that they had to be located at plate thickness distance from each other. The omission of "shim plates" did not add any new teaching with respect to such distance.

1.3 The Board cannot follow the appellant's view for the following reasons.

From the parent application as a whole, the skilled person derives that the omitted features identified above are **essential for the nozzle** to achieve the claimed effect of forming a zone of turbulence for moving the filament of liquid adhesive discharging from the liquid outlet in a random pattern.

In fact, in paragraph 11 of the parent application, for instance, or in the embodiment shown in the figures, the nozzle according to the invention is described with the omitted features. The skilled person then immediately and directly realises that this corresponds to the construction of the nozzle in order to obtain the claimed effect and hence concludes that, when performing the method of dispensing multiple adhesive elements, said construction of the nozzle is also necessary for achieving the same claimed effect. There is no indication in the parent application that the claimed method is to be performed by a nozzle which has

a configuration other than that with shim plates as disclosed.

Hence, by omitting these features the appellant introduces a new technical teaching, namely that the method with the claimed effect **can now be carried out with nozzles of any unknown configurations** other than those disclosed.

The effect of the shim plates mentioned by the appellant of providing an extremely space-saving design of the nozzle is not mentioned in the earlier application as originally filed, in particular not in paragraph 24 as alleged. In any case, the skilled person infers that the fact of having a compact construction, i.e. the liquid adhesive and air outlets being located **within plate thickness distance** from each other, is relevant for directing the filaments through the zones of turbulence and having their random deposit. The omission of "shim plates" therefore introduces a new technical teaching that the air outlets and the liquid outlets **can now be located at any distance** from each other, and the claimed effect of directing the filaments through the zones of turbulence can still be achieved. In this respect it is true, as argued by the appellant, that the creation of zones of turbulence is a key feature, such that the features for their creation (orientation of the air slots and their location in planes) can also be considered essential features for the method. This, however, cannot nullify the fact that directing the filaments through the zones of turbulence in order to obtain a random pattern is an essential step of the claimed method and that this is achieved, as derivable from the original disclosure of the earlier application, when air outlets and liquid outlets are located within plate thickness distance

from each other, i.e. not at any distance as now taught by the method.

There is indeed, as argued by the appellant, no clear specific limitation for the said distance disclosed in the earlier application as originally filed. Additional separating shim plates 18, 20 of undefined thicknesses are even provided for in the nozzle. However, contrary to the appellant's view, this cannot justify the claim that any distance other than plate thickness distance between the air and liquid outlets would enable the filaments to be directed through the zones of turbulence.

The Board agrees with the appellant that a basis can be found in the earlier application as originally filed for the features relating to the planes introduced in claim 1 of the main request, see paragraph 27. However, even though it may be conceded, as argued by the appellant, that a shim plate can be interpreted as a flat, planar body, the Board still fails to see why the planes now specified in the method of claim 1 would be considered as substituting for the shim plates in an equivalent manner. In fact, said planes represent a different limitation from those of the shim plates. In original method claim 7 of the earlier application, the multiple pairs of air slots do not need to be in a plane while still contained in a shim plate. Now with claim 1 of the main request, the opposite is true: the multiple pairs of air slots (and also the liquid slots) are specified as being in a plane but no longer in a shim plate, i.e. at any (possibly great) distance from the liquid outlets. As argued by the appellant, the planes can be seen as essential for creating the zones of turbulence. The shim plates are, however, essential for directing the filaments through said zones of

turbulence, i.e. linked to another technical contribution in the claimed method.

In T 802/92 (*supra*, Reasons 1 to 4), which is based on G 1/93 (*supra*), the Board concluded that the removal from a claim of a feature which does not provide a technical contribution to the subject-matter of the claimed invention does not contravene Article 123(2) EPC. This decision does not apply in the present case since, as already discussed above, the skilled reader would infer that the shim plates contribute technically to the method by having the air outlets and the liquid outlets located within plate thickness distance from one another so as to enable the filaments to be directed through the zones of turbulence and, thus, obtain the random pattern.

As a result of the above, the Board can find no fault in the reasoning and findings of the impugned decision in this respect, points 2.5.3 and 2.5.4.

2. First and second auxiliary requests

The above reasons given for claim 1 of the main request apply *mutatis mutandis* to claims 1 of the first and second auxiliary requests.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

G. Nachtigall I. Beckedorf

Decision electronically authenticated