
Additional sheet IIIA

Further Opponent:

Models and More

Scotland

United Kingdom

Facts and Arguments

Annex I (hereinafter referred to as A1) is opposed in the English language form.

1. Formal data are contained in the enclosed Form 2300

2. State of the Art used in this opposition

Annexes 2, 3, 4 are considered in the English language form and are hereinafter referred to as A2, A3, A4.

Annex 5 is considered in the German language form and is hereinafter referred to as A5.

3. Priority claims and their validity

Claims 1, 2, 3 and 6 benefit from the Priority Date of 9 August 1999, as the subject matter contained therein was disclosed in the Priority Document (Art 89 EPC).

Claims 4 and 5 (notwithstanding any added subject matter arguments) do not benefit from the priority date as effective date, because the features contained therein (i.e. the wiper blade) are not disclosed in the priority document (Art 87(i) EPC). Therefore the date of entitlement is the date of filing of the European Application, i.e. 7 August 2000.

4. Claim 1

Independent claim, effective date = priority date = 9 August 1999. The following documents will be used to assess the lack of novelty of the subject matter of claim 1:

A4 was published on 15 February 1999 (i.e. before the effective date of claim 1) and is therefore citeable under Art 54(2) EPC for both novelty and inventive step.

A5 is provided as evidence of a national prior right, further facts will be provided to show that the International Application entered the Danish National Phase if requested by the Opposition Division. A5 claims priority 6 August 1999 (i.e. before the effective date of claim 1) and was published on 20 February 2001 (i.e. after the effective date of claim 1). A5 designated, amongst other states, DK and so is prior national right for DK. A5 may be cited to occasion amendments to the patent for protection in DK (R 87 EPC, Guidelines D IV 5.3).

4.1 Novelty (Art 54(1) + (2) EPC)

It is submitted that claim 1 lacks novelty in the light of the first embodiment disclosed in A4. A4 discloses, in the words of claim 1 (References equate to those in A4):

- A method [suitable] for the layerwise construction of an object (the fact that the method need only be "suitable for" the purpose is the correct construction of claim 1 as clarified in the Guidelines C III 4.8). (See page 1, lines 10 and 11)

- [the method] comprising

- (a) selecting and irradiating portions of a solidifiable liquid to form a solidified layer (see page 1, line 20 - liquid 42, which solidifies on exposure to UV radiation, selected - page 1, line 24 - controlled by mask portion 47, the fact that the liquid forms a solid layer is apparent from page 1, lines 22-23 and 25),

- (b) moving the solidified layer to enable liquid to fill the space left by the movement of the solidified layer (page 1, line 25-26 the solidified layers are immersed (i.e. under

the fluid in the normal meaning of the word), plus the fact that on page 26-27 - a fresh layer of liquid 42 is exposed ...)

- (c) and, repeating steps a) and b) to form further solidified layers until the object is complete (page 1, lines 19-20 the said model 44 is “grown” and it is apparent from the passage on page 1, lines 19-29 that the process is repeated until the object is formed).

Thus the first embodiment of A4 discloses all the features of claim 1 and it is therefore submitted that claim 1 is not novel (Art 54(2) EPC).

4.2 Novelty (Art 54(1) + (2) EPC)

It is submitted that claim 1 lacks novelty in light of the second embodiment disclosed in A4. A4 discloses, in the words of claim 1 (references equate to those in A4):

- A method [suitable] for the layerwise construction of an object (see page 1, lines 10 and 11).
- [the method] comprising:
 - (a) selecting (page 2, lines 7 and 8 - “selected areas”) and irradiating (page 2, lines 6-7 “scanned with a laser beam”) portions of a solidifiable liquid (page 2, lines 1-2 “liquid 42a, which solidifies on exposure ...”) to form a solidified layer (see page 2, line 8 “... liquid layer solidifying ...”);
 - (b) moving the solidified layer to enable liquid to fill the space left by the movement of the solidified layer (see page 2, lines 8-10 - although it is not specified that the solidified layer is moved, since the liquid 42a enters the gap between the ... layer and the quartz window 48a it must be that the solidified layer is moved for the liquid to be in contact with the window 48a)
 - (c) repeating steps a) and b) to form further solidified layers until the object is complete (see page 2, lines 11-12 “this sequence ... is repeated until the object 44a is complete”).

Thus the second embodiment of A4 discloses all the features of claim 1 and it is therefore submitted that claim 1 is not novel (Art 54(2) EPC).

4.3 Novelty (National Prior Right)

For Denmark it is submitted that claim 1 lacks novelty in light of A5. A5 discloses, in the words of claim 1:

- A method for the layerwise construction of an object (page 1, lines 23-24 - process for producing a 3-D object from layers)
- comprising:
 - (a) selecting and irradiating portions of a solidifiable liquid to form a solidified layer (page 1, lines 29-30)
 - (b) moving the solidified layer to enable liquid to fill the space left by movement of the solidified layer (page 1, lines 29-30, new fluid flows onto the last layer)
 - (c) repeating steps (a) and (b) to form further solidified layers until object complete (page 1, lines 23-25).

It is therefore submitted that since A5 discloses all the features of claim 1 that claim 1 lacks novelty for Denmark in light of A5.

5. Claim 2

Dependent on claim 1 and therefore comprises all the features of claim 1, plus the additional features claimed in claim 2.

Effective date = 9 August 1999

The following documents will be used to assess the lack of inventive step of the subject matter of claim 2:

A4 - citeable for the reasons as described in relation to claim 1.

5.1 Inventive step (Art 56 EPC)

It is submitted that claim 2 lacks an inventive step from A4 as the closest prior art. A4 lies in the same technical area of fabricating 3-D models and in particular from a solidifying liquid. As discussed in section 4.1 the first embodiment of A4 discloses all the features of claim 1. In addition, the first embodiment is disclosed using a solidifiable liquid of a viscosity of below 30 mPa.s at 20°C (see page 2, line 27). The fact that the solidified layer is lowered into the liquid is disclosed on page 1, line 25. However, the first embodiment of A4 does not disclose the use of a laser to scan the surface of the liquid.

The technical problem that can be identified can therefore be said to be easily and rapidly solidify layer, thereby enabling complex models to be produced (a problem acknowledged in A1, page 7, lines 28-29). A person skilled in the art considering A4 would obviously be motivated to consider both the first and second embodiments of A4 since they are in the same document. A person wishing to make more complex models would use a laser to scan the surface of the liquid in the first embodiment because this is what is taught in the document on page 2, lines 12-14 to solve the problem and make complex models. The advantages of the first embodiment of A4 would be retained.

Hence claim 2 lacks an inventive step as it represents an obvious modification of the first embodiment of A4 in the light of further teaching found within A4 itself.

6. Claim 3

Dependent on claim 2 and therefore comprising all the features of claims 1 and 2, plus the additional features of claim 3.

Effective Date = 9 August 1999

The following documents will be used to assess the lack of inventive step of the subject matter of claim 3:

A4 - citeable for the reasons discussed in relation to claim 1

A3 - was published on 26 November 1956 (i.e. before the effective date of claim 3)

and is therefore citeable for both novelty and inventive step against claim 3.

6.1 Inventive step (Art 56 EPC)

A4 is considered the closest prior art because it belongs to the same technical field of 3-D models from a solidifiable liquid medium. Moreover, it is also the known combination under Art 54(2) EPC which has the greatest number of features in common with claim 3.

As discussed in section 5.1, the 1st embodiment of A4 discloses all the features of claim 2, apart from the scanning of the surface with a laser, which has been shown to be obvious in light of further teachings within A4 itself. The modification of claim 3 is to initially lower the solid layer below the surface and then raise it back to the required level. The problem here is to overcome surface tension of the liquid to optimise the speed of construction of a 3-D object.

Starting from the 1st embodiment of A4 as previously discussed a person skilled in the art would be motivated to use a laser, since it is taught within the document itself, to speed up the process. The fact that a skilled person would be aware of the obvious solution of dunking an object to overcome surface tension is demonstrated by A3. A3 discloses an experiment that is known to have been taught in schools, and forms knowledge that would therefore be apparent to most people since the sort of experiments disclosed in this document have been carried out in schools for some time (as indicated by the date of publication of A3). The fact that school children would also have been taught that the solution applies to most liquids is additionally demonstrated in A3 on line 28.

Therefore, it is submitted that this modification would be an obvious step which would be reasonably expected to be tested by a person skilled in the art as an application of a known measure. (See also Guidelines C IV 9.7(iii) - use of text bus and C IV - Annex 1).

7. Claim 4

7.1 Added Subject Matter (Art. 123(2) EPC)

Claim 4 concerns the feature that the movement of a wiper blade terminates the movement of the solid layer and that the wiper blade has a surface exhibiting a low surface adhesion with respect to the fluid. Although the surface of the wiper blade is actually an apparatus feature it has a technical effect on the method. However, from a file inspection it has been ascertained that this claim was added during prosecution. Such an amendment presents the skilled person with new information which is not clearly and unambiguously derivable from the original application because the passage in the description describing the wiper blade, i.e. paragraph 17 on page 3, lines 12-21 describes only a wiper blade having specific materials (i.e. high adhesion/low adhesion) on a leading and trailing edge to perform a specific technical function by virtue of this arrangement. Similarly Fig. 2, to which the aforementioned passage refers, also shows a wiper blade having two distinct materials as described. In order for subject matter to be added to the claims without contravening Art 123(2) EPC it must be clearly and unambiguously derivable from the application as originally filed. Claim 4 simply requires that the wiper blade has one surface (not specific surface) exhibiting low surface adhesion. It is therefore apparent that this surface could be either the leading or trailing edge, or indeed both, thereby extending the protection sought beyond that described in the application as originally filed contrary to Art 123(2) EPC.

Furthermore, in claim 4 the wiper blade is merely said to pass across the surface of the liquid with no mention of the direction or the fact that it should travel across the surface of the solidified layer and thereby encompasses the wiper blade moving across and part of the surface, again in contravention of Art 123(2) EPC. Claim 4 therefore adds matter, contrary to Art 123(2) EPC.

7.2 Subsidiary Attacks

In case the Opposition Division does not agree with the opponent's above-mentioned objection under Art 123(2) EPC, meaning that the subject matter of claim 4 was contained within the application as filed, the effective date of claim 4 is 7 August

2000. Claim 4 is dependent on claim 2 and therefore comprises all the features of claims 1 and 2, plus the additional features of claim 4.

The following document will be used to assess the lack of novelty of the subject matter of claim 4 in this instance: A2 was published on 1 February 2000 (i.e. before the effective date of claim 4) and is therefore citeable under Art 54(2) EPC for both novelty and inventive step.

7.3 Novelty (Art 54(1) + (2) EPC)

It is submitted that claim 4 lacks novelty in light of the disclosure of A2. A2 discloses, in the words of claims 1, 2 and 4 (references from A2);

- A method (suitable) for the layerwise construction of an object (see page 1, lines 18-19) comprising;
- (a) selecting and irradiating portions of a solidifiable liquid to form of solidified layer (page 2, lns 6-7)
- (b) moving the solidified layer to enable liquid to fill the space left by the movement of the layer (page 7, lines 22-23 and page 2, lines 11-12)
- (c) repeating steps a) and b) to form further solidified layers until the object is complete (page 1, lines 18-19 and page 7, lines 25-26 - the fact that it occurs until the model is complete is implicit in that the claimed apparatus is to manufacture 3-D models, not part of models)
- where the surface of the liquid is scanned by a laser beam (see page 2, lines 8-9 - preferably the surface is scanned by a laser beam)
- the solidified layer is lowered into the liquid (see page 2, line 11 - the platform is lowered - also page 2, lns 3-4)

-
- the liquid has a viscosity of less than 30 mPa.s at 20°C (the range disclosed on page 2, line 12 lies within this range and there is no specific technical reason for the difference)
 - the step (b) is terminated by passing a wiper blade (28) across the surface of the liquid (see page 2, lines 15-16 - a wiper blade 28 is moved along the liquid surface)
 - the wiper blade having a surface exhibiting a low surface adhesion with respect to the liquid (see page 2, line 26 where a wiper blade having a low adhesive force is disclosed).

Since A2 discloses all the features of claim 4 it is therefore submitted that claim 4 lacks novelty (Art 54(2) EPC).

8. Claim 5

8.1 Added Matter (Art 123(2) EPC)

Claim 5 is dependent on claim 4 and, although claim 5 clarifies the arrangement of the wiper blade there is no clarification of the direction of movement of the wiper blade and it is therefore submitted, for the reasons discussed in relation to claim 4, that claim 5 adds subject matter in contravention of Art 123(2) EPC.

8.2 Subsidiary Attacks

In case the Opposition Division does not agree with the opponent's above mentioned objection under Art 123(2) EPC, meaning that the subject matter of claim 5 was contained within the application as filed, the effective date of claim 5 is 7 August 2000.

Claim 5 is dependent on claim 4 and therefore comprises all the features of claims 1, 2 and 4, plus the additional features of claim 5. The following document will be used to assess the lack of inventive step of the subject matter of claim 5: A2 which is citeable for the reasons set out in relation to claim 4.

8.3 Inventive Step (Art 56 EPC)

A2 is the closest prior art since it belongs in the same technical field of 3-D model making and more particularly in the field of increasing the speed of liquid layer formation.

As discussed A2 discloses all the features of claim 4. A2 differs from claim 5 in that it comprises 2 wiper blades, one displaying high surface adhesion and the other low surface adhesion. However the leading blade (30) exhibits high adhesion and the trailing blade (31) low adhesion. Furthermore, it is discussed in A2 that the blades should be as close together as possible for the effect to work and it is submitted that it would therefore be an obvious design modification for a person skilled in the art to combine the two blades into one to further enhance the speed of fluid flow over the surface.

Since it would be an obvious design modification it is submitted that claim 5 lacks an inventive step over the teaching of A2.

9. Claim 6

Sudo-independent claim (containing the features of claim 1). Effective date is 9 August 1999.

The following documents will be used to assess the lack of novelty and inventive step of the subject matter of claim 1: A5 as a prior national right document for the reasons discussed with respect to claim 1. A5 is also cited as evidence of common general knowledge that would be available to a person skilled in the art, as will be discussed in relation to inventive step.

A4 citeable for the reasons discussed in relation to claim 1.

9.1 Inventive step (art 56 EPC)

As discussed in sections 4.1 and 4.2 Document A4 discloses all the features of claim 1.

The difference between claim 6 and A4 is that the steps of claim 1 are controlled by a computer program directly loadable into the memory of a computer. A5 is furnished with evidence that at the effective date of claim 6 such an implementation would have been obvious to a person skilled in the art. We will of course be happy to provide further expert evidence if required by the Opposition Division. A5 has a priority date of 6 August 1999 and can therefore be assumed to contain knowledge relevant at the effective date of claim 6.

Looking at page 2, line 20-23 of A5 it is disclosed that the process disclosed therein for forming 3-D models is suitable for control using a computer. In this respect the expert can fall back on extensive experience of the last decade (i.e. back to the late 1980's) of the use of computers to control industrial processes. Such a statement provides evidence that long before the effective date of claim 6 such processes were being run using computer programs and that it would therefore have been obvious for a person skilled in the art to be motivated to use such a program in an industrial process used in claim 1. Therefore it is submitted that claim 6 lacks an inventive step in light of A4 and the knowledge that would have been available to a skilled person at the effective date of claim 6.

9.2 Novelty for Denmark (Nat. Prior Right)

A5 discloses all the features of claim 1, see section 4.3. In addition A5 discloses the use of a Computer Program to control the steps of the method disclosed in claim 1, page 2, lines 20-23. Therefore lacks novelty over A5.

Legal Points

Priority entitlement

Since the US application from which Annex 1 claims priority did not contain either Fig 2 or paragraph 17 or any reference to a wiper blade, the subject matter of claims 4 and 5

directed to a wiper blade are not entitled not the priority date of the US application only have an effective date of the filing date. This is because to be entitled to priority a specific combination of features in a claim must be specifically disclosed in the first (priority) application (G2/98 - consistent with Art 4 ParisConv and the EPC). This is notwithstanding any issues relating to added matter, which is discussed subsequently.

Added matter? (Claims 4 and 5)

You will see from the enclosed Facts and Arguments (and more particularly sections 7.1 and 8.1) that I have raised the issue of added subject matter in relation to claims 4 and 5.

You asked whether the addition of claims 4 and 5 during examination had any consequences and, as you will see, the answer is yes. Added Subject Matter is a ground for opposition (Art 100(c) EPC) and this is why I have been able to raise the issue. If you have any queries having read my arguments please let me know. You will see that I have also attacked the claims in the form in which they were granted on the basis of a lack of novelty or inventive step. This is for completion and to give us the opportunity to raise these grounds again should the claims be amended to overcome the added matter objections.

Computer Programs

Computer Programs “as such” are excluded under Art 52(c) EPC. However, Computer Programs are patentable if they produce a technical effect (T38/86) and in particular if an invention is implemented by a computer program it is not excluded from patentability (T769/92). Furthermore, a computer program will be patentable if it has a technical character, such as control of an industrial process (as in claim 6) since it has the potential to produce the effect of generating the 3D model (T1173/97). If you would like further information on this subject of excluded matter under Art 52(2) and (3) EPC I will send you a copy of the relevant pages from the Guidelines, i.e. C-IV 2.3.

Because of this you will see I have attacked claim 6 as lacking an inventive step, rather than as being excluded from patentability.

Annex 5

A5 is only citeable as a prior national right for Denmark since it can not be a prior right against the European Patent as a whole. To be a prior right against the patent as a whole the International Application would have had to enter the European Regional Phase, in which case it would have been citeable for novelty only under Art 54(3) EPC. However you will see that Europe was not designated (and since publication is at 18 months from priority and precautionary designations would have had to have been made by 15 months from priority) this application will not now enter the EP Regional Phase. Nevertheless, you will see that I have used A5 against claims 1 and 6 for Denmark only as is allowable under R 87 EPC and as clarified in the Guidelines.

You will also see that I have used information from A5 that the use of computer to run industrial processes will have been known at the priority date of A1.

Joint Opponents

Yes it is possible for two companies to file a single opposition (G3/99). To do so only one opposition fee is payable. The joint opponents must act through a Common Representative, appointed by either the opponents or by the EPO under R 100 EPC. Since only one opposition fee is payable, you will see from the copy of the form 2300 enclosed for your reference, that I have filed the opposition in joint names of yourself and Models and More, with myself as the Common Representative. Since no extra costs have been incurred I felt this to be the best cause of action due to the closeness of the deadline (i.e. the 9 months for filing an opposition) and that Models and More would not be able to join after this date, other than as an intervener in special circumstances (which I will be happy to explain in more detail if you wish).

In particular, it will be possible to withdraw Models and More from the opposition without affecting your right to continue and I will be able to do this if you let me have your instructions (G3/99 - common representative communicates the withdrawal of a joint appointment to the EPO).

Please let me know if you wish this to continue as a joint opposition when you have spoken with M & M. Although you did not provide me with the address for Models & More, we will have an opportunity to provide this at a later date. The EPO will issue a communication under R 56(2) EPC since the omission of the address is a minor deficiency (D-IV, 1.2.2.2 Guidelines) but nevertheless a requirement under R 55(a) EPC.

Note to Examiner

Just realised that A5 doesn't actually disclose a computer program, but it would be arguable that such a program is implicit since it does say could be controlled by a computer. Therefore I've left the attack in, although I understand it would need more argumentation.



Notice of Opposition to a European Patent

To the
European Patent Office

Tabulation Marks

for EPO use

StudentBounty.com

I. Patent opposed		Opp. No.	OPPO (1)
	Patent No.	1 141 007	
	Application No.	00 109 899.6	
	Date of mention of the grant in the European Patent Bulletin (Art. 97(4), 99(1) EPC)	3 July 2003	
Title of the invention:		Method for Production of three-dimensional objects	
II. Proprietor of the Patent first named in the patent specification		New Horizons, Inc.	
Opponent's or representative's reference (max. 15 spaces)		OREF	
III. Opponent		OPPO (2)	
Name	3D Models Ltd		
Address	29 Old Street London EC1 9BJ		
State of residence or of principal place of business	United Kingdom		
Telephone/Telex/Fax			
Multiple opponents	<input type="checkbox"/> further opponents see additional sheet		
IV. Authorisation		OPPO (9)	
1. Representative (Name only one representative to whom notification is to be made)			
Name	Harrison; Arthur		
Address of place of business	15 Privet Drive Royal Tunbridge Wells Kent. TN1 2TE. U.K.		
Telephone/Telex/Fax			
Additional representative(s)	<input type="checkbox"/> (on additional sheet/see authorisation)		OPPO (5)
2. Employee(s) of the opponent authorised for these opposition proceedings under act. 133(3) EPC		Name(s):	
Authorisation(s)		<input checked="" type="checkbox"/> not considered necessary	
To 1./2.		<input type="checkbox"/> has/have been registered under No.	
		<input type="checkbox"/> is/are enclosed	

V. Opposition is filed against

— the patent as a whole

— claim(s) No(s).

VI. Grounds for opposition:

Opposition is based on the following grounds:

(a) the subject-matter of the European patent opposed is not patentable (Art. 100(a) EPC) because:

— it is not new (Art. 52(1); 54 EPC)

— it does not involve an inventive step (Art.52(1); 56 EPC)

— patentability is excluded on other grounds, i.e.

Art.

(b) the patent opposed does not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Art. 100(b) EPC; see Art. 83 EPC).

(c) the subject-matter of the patent opposed extends beyond the content of the application/ of the earlier application as filed (Art. 100(c) EPC, see Art. 123(2) EPC).

VII. Facts and arguments

(Rule 55(c) EPC)

presented in support of the opposition are submitted herewith on a separate sheet (annex 1)

IX. Other requests:

In case that the Opposition Division decides to maintain the patent, either in its entirety or an amended form, Oral Proceedings are requested as a precaution.

IX. Evidence presented

Enclosed =

will be filed at a later date =

B. Publications:

Publication date

1

Particular relevance (page, column, line, fig.):

2

Particular relevance (page, column, line, fig.):

3

Particular relevance (page, column, line, fig.):

4

Particular relevance (page, column, line, fig.):

5

Particular relevance (page, column, line, fig.):

6

Particular relevance (page, column, line, fig.):

7

Particular relevance (page, column, line, fig.):

Continued on additional sheet

C. Other evidence

Continued on additional sheet

X. Payment of the opposition fee is made

as indicated in the enclosed voucher for payment of fees and costs (EPO Form 1010)

XI. List of documents:

Enclosure No.:		No. of copies
0	<input checked="" type="checkbox"/> Form for notice of opposition	<input type="text" value="2"/> (min. 2)
1	<input checked="" type="checkbox"/> facts and arguments (see VII.)	<input type="text" value="2"/> (min. 2)
2	Copies of documents presented as evidence (see IX.)	
2a	<input checked="" type="checkbox"/> — Publications	<input type="text" value="2"/> (min. 2 of each)
2b	<input type="checkbox"/> — Other documents	<input type="text"/> (min. 2 of each)
3	<input type="checkbox"/> Signed authorisation(s) (see IV.)	<input type="text"/>
4	<input checked="" type="checkbox"/> Voucher of payment of fees and costs (see X.)	<input type="text" value="1"/>
5	<input type="checkbox"/> Cheque	<input type="text"/>
6	<input type="checkbox"/> Additional sheet(s)	<input type="text"/> (min. 2 of each)
7	<input type="checkbox"/> Other (please specify here):	<input type="text"/>

FORM FOR ACKNOWLEDGEMENT OF RECEIPT

XII. Signature of opponent or representative

Place Harrison; Arthur EPA Tunbridge Wells, U.K.

Date 26 march 2004

Please print name under signature. In the case of legal persons, the position which the person signing holds within the company should also be printed.