

3Shape A/S
Holmens Kanal 7, 4
1060 København K
Danmark

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Patent- og
Varemærkestyrelsen

Helgeshøj Allé 81
2630 Taastrup

Tlf. : 43 50 80 00
Fax : 43 50 80 01
E-mail : pvs@dkpto.dk
Web : www.dkpto.dk
CVR-nr. : 17 03 94 15

Økonomi- og
Erhvervsministeriet

 ^{Partner} ipd patent institute

28. januar 2011

Vores reference	PA 2010 00568
Din reference	P2010011 - 2D image arrangement
Ansøger/patenthaver	3Shape A/S
CVR-/P-nummer	25553489
Din frist	28. juli 2011

Reply to your patent application of 29/06/2010.

1st technical examination of your patent application

1. Conclusion

We are of the opinion that you will not be able to obtain a patent for your invention. When you filed your application, part of your invention was already known, and the new part of the invention does not differ significantly over the prior art, as stipulated in Section 2(1) of the Danish Patent Act. Below, please find an explanation of our conclusion.

2. Our evaluation of your invention

The relevant prior art is described in the following documents:

- (D1) EP 1124487 B1 (CADENT LTD) 23.05.2007, sec [0009], [0010], [0020], [0032], [0034], [0036], fig 1A, 1B, 3A, 3B, 4A, 4B.
- (D2) US 6068482 A (SNOW) 30.05.2000, col 1, line 38-44, col 2, line 59-67 to col 3, line 2, col 3, line 28-65, all figures.
- (D3) US 2003/0163291 A1 (JORDAN et al) 28.08.2003, sec [0080]-[0087], fig. 4A.
- (D4) US 6261248 B1 (TAKAISHI et al) 17.07.2001, col 2, line 10-20, fig 1 and 3.
- (D5) WO 2010/008435 A1 (DENTSPLY INTERNATIONAL INC.) 21.01.2010, sec [0029]

D1 describes a computer-implemented method of visualizing, designing and modelling a set of teeth for a patient (see section [0009], [0010]):

- providing one or more 2D digital images;
- providing a 3D virtual model of at least part of the patient's oral cavity (see section [0010], [0032], fig 1A, 1B, 4A, 4B);
- arranging at least one of the one or more 2D digital images relative to the 3D virtual model in a 3D space such that the at least one 2D digital image and the 3D virtual model are aligned when viewed

from a viewpoint, whereby the 3D virtual model and the at least one 2D digital image are both visualized in the 3D space (see section [0034], [0036] fig 2, 3A, 3B, 5);
-the one or more 2D image comprises a patient-specific image;
-the 2D image can be a picture showing the patient's lips (fig 3A, 3B);
-the 2D image and the 3D image can be scaled to fit each other (sec [0020])

D2 and D3 describe a technique similar to D1. D4 and D5 describe a computer implemented method where a 2D image of a set of teeth is placed behind the lips of a patient on a 2D photograph, in order to get an aesthetic impression.

The subject matter of claims 1 and 2 is described in D1-D3. These claims are, therefore, not patentable.

The subject matter of claims 3-6 differs from D1 in that a generic image, a template, a photograph showing lips and teeth seen from the front, and a photograph where a part of the teeth has been cut out, respectively, are chosen as 2D images. The problem addressed by the invention is to obtain different possibilities or targets in the modelling process.

We consider that the person skilled in the art, computer aided modelling of teeth, would be inspired by his specialist knowledge to use different 2D images in order to enable a suitable guide for the modelling process, and thereby suggest the solution mentioned in claims 3-6 of your application. We cannot see that your invention presents a surprising effect. Therefore, the subject matter of claims 3-6 does not differ significantly from the prior art. Thus you will not be able to obtain a patent for this invention.

The subject matter of claims 7 and 8 differs from D1 in that the 3D image, ^{model?} i.e. the teeth, is visible behind the lips. The addressed problem is to obtain a virtual impression of the final result, i.e. the patient with his new set of teeth. It is, however, common knowledge within the field that a ^{2D image?} 2D model of a set of teeth can be superposed on the teeth of a photograph of a patient's face, or that the teeth can be dropped into the open mouth area of a digital image (see for example D4 and D5).

We consider that the skilled person would be inspired by his specialist knowledge to suggest the invention according to claims 7-8. The invention according to claims 7-8 lacks an inventive step and is therefore not patentable.

The subject matter of claim 9 differs from D1 in that the images are scaled to fit. However, it is common knowledge within the field that the 3D and 2D images can be scaled to fit each other (see for example D1 to D3). We consider that a skilled person within the field would be inspired by his specialist knowledge to suggest the invention according to claim 9. The invention according to claim 9 is not patentable due to lack of an inventive step.

The subject matter of claim 10 differs from D1 in that the modelling process is performed automatically. However, it is common knowledge to automate processes in order to reduce the overall process time. The invention according to claim 10 does not differ significantly from D1 and is not patentable.

3. What happens next

We welcome any comments you may have to our letter. We must receive them within the time limit mentioned at the top of this letter. You can send us comments and/or new documents by post, e-mail or via IP Client. If you do not reply within the time limit, your application will be temporarily shelved, i.e. we will discontinue examination of the application.

If you exceed the time limit, it will still be possible for you to reply within an extended time limit of 4 months.

An extension of time limit requires that you pay a resumption fee of DKK 700 to resume the examination of your application. The fee must be paid when you send us your reply.

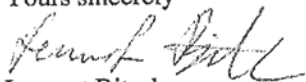
If you exceed the extended time limit, your application will be finally shelved.

4. Search report

For your information, we have enclosed a search report. The report shows the documents retrieved in our search.

We have enclosed a copy of the documents.

Yours sincerely



Lennart Bitsch

MSc, PhD, Senior Examiner

Encl.:

Search report

Copies: 5 documents


 DANISH PATENT AND TRADEMARK OFFICE

SEARCH REPORT		Application No. PA 2010 00568		
A. CLASSIFICATION OF SUBJECT MATTER A61C 7/00 (2006.01)				
According to International Patent Classification (IPC) or to both national classification and IPC				
B. FIELDS SEARCHED				
Minimum documentation searched (classification system followed by classification symbols) IPC: A61C; ECLA: A61C; ICO: A61C				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPODOC, WPI, TXTE				
C. CLAIMS SEARCHED 1-10				
D. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	EP 1124487 B1 (CADENT LTD) 23.05.2007, sec [0009], [0010], [0020], [0032], [0034], [0036], fig 1A, 1B, 3A, 3B, 4A, 4B.	1-10		
X	US 6068482 A (SNOW) 30.05.2000, col 1, line 38-44, col 2, line 59-67 to col 3, line 2, col 3, line 28-65, all figures.	1-10		
X	US 2003/0163291 A1 (JORDAN et al) 28.08.2003, sec [0080]-[0087], fig. 4A.	1-10		
A	US 6261248 B1 (TAKAISHI et al) 17.07.2001, col 2, line 10-20, fig 1 and 3.	1-10		
A	WO 2010/008435 A1 (DENTSPLY INTERNATIONAL INC.) 21.01.2010, ec [0029]	1-10		
<input type="checkbox"/> Further documents are listed in the continuation of Box D.				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> * Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance. "D" document cited in the application. "E" earlier application or patent but published on or after the filing date. "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified). "O" document referring to an oral disclosure, use, exhibition or other means. </td> <td style="width: 50%; border: none;"> "P" document published prior to the filing date but later than the priority date claimed. "T" document not in conflict with the application but cited to understand the principle or theory underlying the invention. "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone. "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family. </td> </tr> </table>			* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance. "D" document cited in the application. "E" earlier application or patent but published on or after the filing date. "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified). "O" document referring to an oral disclosure, use, exhibition or other means.	"P" document published prior to the filing date but later than the priority date claimed. "T" document not in conflict with the application but cited to understand the principle or theory underlying the invention. "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone. "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family.
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance. "D" document cited in the application. "E" earlier application or patent but published on or after the filing date. "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified). "O" document referring to an oral disclosure, use, exhibition or other means.	"P" document published prior to the filing date but later than the priority date claimed. "T" document not in conflict with the application but cited to understand the principle or theory underlying the invention. "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone. "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family.			
Danish Patent and Trademark Office Helgeshøj Allé 81 2630 Taastrup Denmark Tlf.: +45 4350 8000 Fax: +45 4350 8001		Date of completion of the search report 27.01.2011 Authorized officer Lennart Bitsch		