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Datasheet for the decision of 26 October 2020

Case Number: T 0417/17 - 3.2.08

Application Number: 10010227.6

Publication Number: 2295004

IPC: A61C7/00, A61C7/08

Language of the proceedings: EN

Title of invention:
Method for fabricating a plurality of dental incremental position adjustment appliances

Patent Proprietor:
Align Technology, Inc.

Former Opponent:
(1) Ortho Caps GmbH
(2) RKSOrtho GmbH

Relevant legal provisions:
EPC Art. 76(1), 56

Keyword:
Divisional application - added subject-matter (no)
Inventive step - (yes)

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Case Number: T 0417/17 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 26 October 2020

Appellant: (Patent Proprietor)	Align Technology, Inc. 2820 Orchard Parkway San Jose, CA 95134 (US)
Representative:	Small, Gary James Carpmaels & Ransford LLP One Southampton Row London WC1B 5HA (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 19 December 2016 concerning maintenance of the European Patent No. 2295004 in amended form.**

Composition of the Board:

Chairwoman	P. Acton
Members:	G. Buchmann
	Y. Podbielski

Summary of Facts and Submissions

I. The opposition division decided that, taking into account the amendments made during the opposition proceedings, in particular the then valid auxiliary request 2, the patent fulfilled the requirements of the EPC.

II. The opposition division decided that the description of the patent as granted extended beyond the original grandparent application (Article 76(1) EPC) and that the subject-matter of claim 1 as granted was not inventive (Article 56 EPC).

III. The patent proprietor filed an appeal against this decision.

IV. With letters dated 14 March 2017 opponents 1 and 2 withdrew their respective opposition and appeal.

V. The appellant (patent proprietor) requested that the decision under appeal be set aside and the patent be maintained as granted.

VI. Claim 1 of the main request reads as follows.

The numbering of the features has been added by the Board.

1.1
"A method for fabricating a plurality of dental incremental position adjustment appliances (100), said method comprising:
1.2

providing a digital data set representing an initial tooth arrangement;
1.3
providing a digital data set representing a final tooth arrangement;
1.4
producing a plurality of successive digital data sets based on the provided digital data sets,
1.5
wherein said plurality of digital data sets represent a series of successive tooth arrangements progressing from the initial tooth arrangement to the final tooth arrangement;
1.6
and fabricating appliances (100) based on at least some of the produced digital data sets."

VII. The following documents are referred to in the present decision:

E10: US 2,467,432
E37: US 5,338,198
E38: US 4,504,225

VIII. Abbreviations Used in the Patent

IDDS: Initial Digital Data Set
FDDS: Final Digital Data Set
INTDDS: Intermediate Digital Data Set

IX. The arguments of the appellant can be summarised as follows:

Amendments - Article 76(1) EPC

On page 16 of the grandparent application (WO98/58596),

the last sentence was incomplete: "Based on both the IDDS and the FDDS, a plurality of intermediate digital data sets (INTDDS's) are generated to correspond to".

This sentence had been completed in the present application, paragraph [0044], in the following way: "...successive intermediate tooth arrangements. The system of incremental position adjustment appliances can then be fabricated based on the INTDDS's, as described in more detail below".

The fact that the plurality of intermediate digital data sets corresponds to successive intermediate tooth arrangements, was disclosed on page 9, lines 3-13 in combination with page 10, line 3-6, of the grandparent application.

The information that the incremental position adjustment appliances can be fabricated based on the intermediate digital data sets, was disclosed in the grandparent application in claim 29 and on page 10, lines 6-8. From these passages, it was clear that the fabrication of the appliances needed not be based on both the intermediate digital data sets and the final digital data set, but that it might be based on the intermediate digital data sets only. The use of final digital data set was optional.

The corrected paragraph was present in all subsequent divisional applications, including the application of the patent in suit.

Inventive Step - Article 56 EPC

Contrary to the decision of the opposition division, the documents E38 and E10 did not disclose all features

of the claimed method, even if transferred from digital data sets to real world models. In particular, the step corresponding to feature 1.4 was missing from the methods disclosed by E38 and E10, i.e. no model representing the final tooth arrangement was provided before producing a plurality of successive models.

Furthermore, the successive models of E38 and E10 were not produced on the basis of the models of an initial and a final tooth arrangement.

In E10, the plurality of successive models were each based on the current tooth arrangement which had been achieved by the previous appliance. After the patient had worn one appliance for some time, and if a further appliance was required, then a successive model was produced based on the so far achieved tooth arrangement, and a further appliance was fabricated based thereon. Apart from the first one, the successive models were neither based on the initial model nor on the final model. The final model was not even produced before the successive models.

Also in E38, when several treatment steps were required, each of the models of the single steps was based on a newly taken impression of the current tooth arrangement. This was clear from column 10, lines 40-48, according to which "each device can be prepared in accordance with the above-described procedures", i.e. for each device a model is formed based on the current tooth arrangement. Similar to E10, the successive models were not based on the initial model, and the final model was not produced before the successive models.

The conclusion of the opposition division that the user

had "the final tooth arrangement in mind", and therefore the successive models were based on the initial and final models, was incorrect. As each of the successive models was based on the so far achieved tooth arrangement, the idea of the technician of how the next step should look like would vary from step to step, depending on the achievements and the experience and instinct of the technician.

E37 related to a dental modeling simulator and taught to prepare a three-dimensional model of the teeth of a patient by taking molded impressions and scanning them. E37 taught the possibility of having an overlay of different digital models fabricated based on sequential impressions made during an orthodontic treatment process. The purpose of that was detection of abnormalities in the treatment, which was a completely different purpose compared to the claimed invention. Therefore, E37 would not have been taken into consideration when trying to improve the fabrication of a plurality of appliances.

Even if one had considered E37, one would not have arrived at the claimed invention, because E37 did not teach to base the intermediate models/data sets on both an initial and a final model/data set (feature 1.4). The fabrication of appliances was also not taught by E37 (feature 1.6).

The combination of E10 or E38 with E37 would not lead to features 1.4 or 1.6, so that the subject-matter of claim 1 of the main request was inventive.

Reasons for the Decision

1. **Amendments - Article 76(1) EPC**

1.1 G 1/06 requires that "in the case of a sequence of applications consisting of a root (originating) application followed by divisional applications, each divided from its predecessor, it is a necessary and sufficient condition for a divisional application of that sequence to comply with Article 76(1), second sentence, EPC that anything disclosed in that divisional application be directly and unambiguously derivable from what is disclosed in each of the preceding applications as filed" (headnote).

In the present case, the the preceding divisional applications EP 1 369 091 A1 and EP 1 929 974 A2 contain the same wording of paragraph [0044] as the patent in suit. For assessing whether the original application of the patent in suit complies with the requirements of Article 76(1) EPC, it is thus sufficient to assess whether its content is directly and unambiguously derivable from the originating application.

1.2 The opposition division had decided that paragraph [0044] of the granted patent contravened Article 76(1) EPC, because the text of the application extended beyond the original description of the grandparent application. Reference was made to Figures 2, 7 and 10 as well as paragraphs [0096] and [0107] (of the published patent application) which correspond to page

29, line 21 - page 30, line 7 and page 32, lines 18-22, of the grandparent application.

1.3 These cited passages and figures indeed do not form a basis for present paragraph [0044], because they describe the appliances to be fabricated based on both the intermediate digital data sets and the final digital data set.

However, claim 29 and the description page 10, lines 1-8, of the grandparent application form a basis for paragraph [0044].

According to claim 29 (lines 11-12), the appliances are produced "based on at least some of the produced digital data sets". The latter "produced digital data sets" are, however, neither the provided initial digital data set (lines 3-4) nor the final digital data set (lines 5-6), but they are the "plurality of successive digital data sets represent[ing] a series of successive tooth arrangements" which are produced based on said provided digital data sets.

This means that the fabricating step of the appliances disclosed in claim 29 does not mandatorily include the use of the final digital data set as a basis.

Therefore, the disputed passage in paragraph [0044] according to which "[t]he system of incremental position adjustment appliances can (then) be fabricated based on the INTDDS's" does not go beyond the content of the grandparent application.

The same technical information can also be derived from the description page 10, lines 1-8, of the grandparent application.

Therefore, the description of the patent in suit does not go beyond the original grandparent application and the ground of opposition according to Article 100(c) EPC does not prejudice the maintenance of the patent as granted.

2. **Inventive Step - Article 56 EPC**

2.1 The opposition division had decided that claim 1 of the main request lacked an inventive step over E38 or E10, in combination with E37.

2.2 E38 discloses (column 2, line 54 - column 3, line 19) a method wherein a plaster model of the original denture is formed, the teeth are separated from the model and rearranged as desired. From the rearranged denture model, an orthodontic treatment device is formed from silicone by impression. When the device is applied to the misaligned teeth of the patient, the elastic force of the silicone moves the teeth to the desired positions. For greater corrections of the denture, E38 suggests to produce several devices, each of which moves the teeth for a short distance. Column 10, lines 46-48, describes that "where several devices are necessary for treatment, each device can be prepared in accordance with the above-described procedures". This means that for each of the devices, a plaster model of the current denture is formed, the teeth are separated from the model and rearranged as desired. From the rearranged denture model, the successive treatment device is formed from silicone by impression.

This is in contrast to the method of present claim 1 in which first the initial model/data set is provided,

then the final model/data set is provided, and based on these two models/data sets the intermediate models are produced. When applying this to the method disclosed in E38, it would mean that as a first step, the user would move the teeth of the plaster model from the initial arrangement to their final arrangement, and then back to the intermediate tooth arrangements, for forming the different models. This is, however, not the case in E38.

In particular, E38 does not disclose that the intermediate models are produced based on both the initial and the final tooth arrangement (corresponding to feature 1.4).

The opposition division started its argumentation from the point that "E38 and E10 disclose all the features of the real world model manufacturing presented on the right column in the handout", i.e. that E38 and E10 disclose all features of claim 1 when replacing the term "digital data set" by "model". However, as explained above, there is no disclosure in E38 of producing a plurality of models/data sets based on the provided models/data sets, i.e. the initial and the final model/data set.

The opposition division was of the opinion that when producing the successive models/data sets the skilled person had the initial and final tooth arrangements "in mind". According to the opposition division, therefore "the production of the intermediate aligners is based on the initial and the final models". This interpretation does not take into account that feature 1.4 requires the presence of both an initial model/data set and a final model/data set on which the successive (intermediate) models/data sets are to be based. The

fact that the practician has some idea of where the teeth should be moved to in order to improve the denture, does not correspond to a "model of the final tooth arrangement".

Therefore, the subject-matter of claim 1 as granted differs from the disclosure of E38 in that the plaster models are replaced by digital data sets, **and** in that the production of the plurality of successive digital data sets is based on the data sets representing the initial and the final tooth arrangement (feature 1.4).

2.3 E10 discloses a method of making a dental appliance, comprising the steps of providing a model of the denture which has already been partially corrected by conventional means (Figure 2), separating the teeth from this model and re-arranging them to a desired final configuration, so forming a model of the final tooth arrangement (Figure 3, column 3, lines 30-60). The dental appliance is formed from the final model by impression (Figure 5-7). Thereby, the method of E10 consists of first correcting the denture conventionally, and making only the last step of a treatment using a dental appliance in the sense of the patent in suit.

E10 does indeed also suggest to perform the complete correction of the denture (starting from Figure 1) using a plurality of such dental appliances (column 5, lines 21-32).

However, like E38, E10 does not disclose the making of intermediate models based on the final model (feature 1.4).

2.4 When starting from E38 or E10, the problem to be solved is to improve the orthodontic treatment. This is achieved by the distinguishing feature 1.4, because the presence of the final (target) model/data set for producing the plurality of successive models/data sets allows to fabricate the dental appliances so that they achieve the final tooth arrangement in an optimised way concerning the number of treatment steps needed and concerning the paths of moving the teeth.

E37 describes a method of modeling dentures, using an impression which is then laser scanned and digitised. The resulting model is viewed on a computer and can be modified. The system is used for simulation of orthodontic tooth movement (column 4, lines 17-20) by modifying the model of the denture (column 7, lines 7-10). However, E37 does not describe that intermediate models are based on an initial and a final model (feature 1.4).

Therefore, E37 does neither disclose nor suggest feature 1.4 as a solution of the problem posed.

Hence, the subject-matter of claim 1 as granted is not obvious in view of the presented prior art.

Order

For these reasons it is decided that:

The decision under appeal is set aside.

The patent is maintained as granted.

The Registrar: The Chairwoman:

D. Magliano P. Acton

Decision electronically authenticated