

Internal distribution code:

- (A) [-] Publication in OJ
- (B) [-] To Chairmen and Members
- (C) [-] To Chairmen
- (D) [X] No distribution

**Datasheet for the decision
of 10 February 2023**

Case Number: T 1942/19 - 3.2.08

Application Number: 07779280.2

Publication Number: 1993466

IPC: A61C5/06, A61C9/00, B01F7/00,
B01F15/00, B01F15/02

Language of the proceedings: EN

Title of invention:

DISPENSER AND METHOD FOR DISPENSING DENTAL MATERIAL

Patent Proprietor:

3M Innovative Properties Company

Opponents:

DMG Dental-Material Gesellschaft mbH
Renfert GmbH

Relevant legal provisions:

EPC Art. 54(2), 56, 123(2)

Keyword:

Main request - novelty - (no)
Auxiliary request 1 - amendments - allowable (no)
Auxiliary request 2 - inventive step - (no)



Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1942/19 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 10 February 2023

Appellant: 3M Innovative Properties Company
(Patent Proprietor) 3M Center
P.O.Box 33427
St. Paul, MN 55133-3427 (US)

Representative: Vossius & Partner
Patentanwälte Rechtsanwälte mbB
P.O. Box 86 07 67
81634 München (DE)

Respondent: DMG Dental-Material Gesellschaft mbH
(Opponent) Elbgaustrasse 248
D-22547 Hamburg (DE)

Representative: Glawe, Delfs, Moll
Partnerschaft mbB von
Patent- und Rechtsanwälten
Postfach 13 03 91
20103 Hamburg (DE)

Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 24 May 2019
revoking European patent No. 1993466 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairwoman P. Acton
Members: G. Buchmann
F. Bostedt

Summary of Facts and Submissions

- I. With the decision posted on 24 May 2019, the opposition division revoked European patent No. 1 993 466.
- II. The patent proprietor filed a notice of appeal against this decision.
- III. Oral proceedings took place before the Board on 10 February 2023.
- IV. At the end of the oral proceedings, the appellant's (proprietor's) requests were that the decision under appeal be set aside and that the patent be maintained on the basis of the main request or, in the alternative, of one of auxiliary requests 1 and 2, all of which had been filed with the statement setting out the grounds of appeal.

The respondent (opponent) requested that the appeal be dismissed.

- V. This decision refers to the following document.

E1 EP 1279379 A1

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

"A dispenser adapted for advancing and mixing dental material or components thereof, comprising:

(a) at least a first reservoir and a second reservoir, for containing a first and a second component for the dental material, respectively;

(b) a first and a second plunger driven by the first drive for advancing the first and the second components from the first and the second reservoirs, respectively;

(c) a dynamic mixer driven by the second drive for mixing the first and second components to form the dental material from the first and second components, the mixer comprising a mixing chamber with inlets on one end for receiving the initial components, and an outlet at the opposite end for dispensing the mixture;

wherein the mixer is adapted such that while the material, advanced by the plungers, passes through the mixing chamber from the inlets to the outlet it is mixed; and

wherein the first and second drives each are operated based on predetermined, non-uniform drive speed profiles, to advance and mix the material component(s), respectively,

wherein the dispenser further comprising a drive controller for storing the non-uniform drive speed profiles and for controlling the drives according to the non-uniform drive speed profiles."

VII. Claim 1 of auxiliary request 1 reads as follows.

Amendments to the main request are underlined.

"A dispenser adapted for advancing and mixing dental material or components thereof, comprising:

(a) at least a first reservoir and a second reservoir, for containing a first and a second component for the dental material, respectively;

(b) a first and a second plunger driven by the first drive for advancing the first and the second components from the first and the second reservoirs, respectively;

(c) a dynamic mixer driven by the second drive for mixing the first and second components to form the dental material from the first and second components, the mixer comprising a mixing chamber with inlets on one end for receiving the initial components, and an outlet at the opposite end for dispensing the mixture;

wherein the mixer is adapted such that while the material, advanced by the plungers, passes through the mixing chamber from the inlets to the outlet it is mixed; and

wherein the first and second drives each are operated based on predetermined, non-uniform drive speed profiles, to advance and mix the material component(s), respectively

wherein the dispenser further comprising a drive controller for storing the non-uniform drive speed profiles and for controlling the drives according to the non-uniform drive speed profiles,

wherein the speed profile for driving the first drive comprises the following sections:

a first section with an increasing speed starting from 0;

a second section with a peak speed;

a third section with a decreasing speed;

a fourth section with a negative speed; and

a fifth section with a speed increasing from a negative

speed toward or to zero;

and wherein the speed profile for driving the second drive comprises the following sections:

a first section with an increasing speed starting from 0;

a second section with a peak speed;

a third section with a decreasing speed;

a fourth section with an essentially constant steady state speed;

a fifth section with a decreasing speed."

VIII. Claim 1 of auxiliary request 2 reads as follows.

Amendments to the main request are underlined.

"A dispenser adapted for advancing and mixing dental material or components thereof, comprising:

(a) at least a first reservoir and a second reservoir, for containing a first and a second component for the dental material, respectively;

(b) a first and a second plunger driven by the first drive for advancing the first and the second components from the first and the second reservoirs, respectively;

(c) a dynamic mixer driven by the second drive for mixing the first and second components to form the dental material from the first and second components, the mixer comprising a mixing chamber with inlets on one end for receiving the initial components, and an outlet at the opposite end for dispensing the mixture;

wherein the mixer is adapted such that while the

material, advanced by the plungers, passes through the mixing chamber from the inlets to the outlet it is mixed; and

wherein the first and second drives each are operated based on predetermined, non-uniform drive speed profiles, to advance and mix the material component(s), respectively,

wherein the dispenser further comprising a drive controller for storing the non-uniform drive speed profiles and for controlling the drives according to the non-uniform drive speed profiles,

wherein two or more speed profiles are provided which each are adapted for use with specific material or class of materials, and

wherein the speed profiles comprise sections of the following sections for driving the first drive and/or second drive:

- (a) a first section with an increasing speed starting from 0;
- (b) a second section with a peak speed;
- (c) a third section with a decreasing speed;
- (d) a fourth section with an essentially constant steady state speed;
- (e) a fifth section with a decreasing speed;
- (f) a sixth section with a negative speed;
- (g) a seventh section with a speed increasing from a negative speed toward or to zero;

wherein the speed profiles comprise at least the second to the fifth sections, in the order (b), (c), (d) and

(e)."

IX. The appellant's arguments can be summarised as follows.

Main request - novelty (Article 54(2) EPC)

In the dispenser according to E1, the drive speed was constant during advancing and mixing, in contrast to the non-uniform speed profile as claimed. Possible different speeds were only used during the initiation of the dispenser, which included a measurement phase used for identification of the material to be dispensed. This initial phase did not belong to the phase of advancing and mixing.

Therefore, the subject-matter of claim 1 of the main request was novel over E1.

Auxiliary request 1 - amendments (Article 123(2) EPC)

The feature added in claim 1 of auxiliary request 1 was based on either of the description, page 10, lines 22-31 and claim 32, or Figures 3a and 3b as originally filed.

Auxiliary request 2 - inventive step (Article 56 EPC)

The features added in claim 1 of auxiliary request 2 were not disclosed by E1. The problem to be solved was the provision of a longer working time for the practitioner using the dispensed material. The solution as defined in claim 1 was not obvious in view of E1.

- X. The arguments of the respondent can be summarised as follows.

Main request - novelty (Article 54(2) EPC)

E1 disclosed all the features of claim 1. In particular, measurement of material parameters and the subsequent adaptation of the speed of the plunger drive and the mixer drive represented predetermined, non-uniform drive speed profiles, to advance and mix the material component(s) according to claim 1.

Auxiliary request 1 - amendments (Article 123(2) EPC)

The feature added in auxiliary request 1 was not directly and unambiguously disclosed by the description, page 10, lines 22-31 and claim 32 as originally filed. Furthermore, it represented an unallowable generalisation of the disclosure of Figures 3a and 3b.

Auxiliary request 2 - inventive step (Article 56 EPC)

The subject-matter of claim 1 differed from the prior art only in that the speed profile for driving the first drive comprised the sections (b)-(e) in the given order. This feature had no particular technical effect. The problem to be solved was therefore the provision of an alternative speed profile. The speed profile of claim 1 was obvious in view of E1.

Reasons for the Decision

1. Main request - lack of novelty (Article 54(2) EPC)

1.1 It was undisputed that document E1 disclosed all of the features of claim 1 of the main request apart from the feature according to which "the first and second drives each are operated based on predetermined, non-uniform drive speed profiles, to advance and mix the material component(s), respectively."

1.2 A predetermined speed profile, according to paragraph [0026] of the patent, excludes "a speed profile which is just a result of a starting phase of a motor or a controlling interaction by a user during a cycle". A non-uniform speed profile, according to paragraph [0027] of the patent, means that the speed "is essentially not constant over a cycle".

The patent (paragraph [0029]) mentions two possible kinds of speed profiles. The first kind is stored in a memory and executed by the device. The second kind is based on an algorithm that is in turn based on one or more variables including material properties and component temperature. The variables are fed into the algorithm and the algorithm determines the speed profile. This can also be done during the cycle.

1.3 The latter is the case with the dispenser of E1. According to paragraphs [0004] and [0005] of E1, the plunger drive speed is first set to a value that is not further specified, then the material is identified by a measurement (e.g. of pressure or current). Finally, the plunger drive speed is set to a value adapted to the particular material. This procedure involves different

speeds of the plunger drive, and the speed profile is determined by the initial speed and by the speed adapted to the measured values. This represents a predetermined non-uniform speed profile within the meaning of claim 1.

The mixing speed of E1 also has a predetermined, non-uniform speed profile: according to paragraph [0009], by measuring the load of the mixing drive motor (at a first speed), the mixed material is identified and the speed of the mixing drive motor is adapted to a suitable (second) value.

For both the plunger drive speed and the mixing drive speed, it is implicitly disclosed that the first and second speed values are stored in the controller of the dispenser.

- 1.4 The appellant argued that in E1 (see paragraph [0019]) the speed was constant during advancing and mixing, rather than non-uniform as required by claim 1. Possible different speeds were only used during initiation of the dispenser, which included the advancing of the plunger towards the cartridge (paragraphs [0019]-[0025]), and during the measurement phase used to identify the material to be dispensed (paragraphs [0004]-[0009]).

Neither the initial placement of the plunger nor the measurement phase were part of the mixing/delivery phase. The measurement required to identify the material could be extremely short (e.g. 100 ms or a rotation angle of the mixer of 10°), so that almost no advancement of the plungers and almost no mixing took place during the measurement. Therefore, the measurement phase could not be regarded as part of the

mixing and delivery of the dental material. The remainder of the speed profiles was constant, contrary to the claimed non-uniform speed profiles.

1.5 It is correct that the initial placement of the plunger is not part of the mixing/delivery phase. However, the measurements can only be carried out during mixing and delivery, even if the measurement time is short. Paragraph [0005] of E1 clearly refers to the delivery of the material during which the measurement is taken ("beim Auspressen"). The same applies to the mixing referred to in paragraph [0009]. Without actual mixing and delivery, the material properties cannot be identified by the dispenser of E1. Therefore, the Board regards the measurement phases of the material properties described in E1 as included in the "non-uniform drive speed profiles, to advance and mix the material components" according to claim 1.

1.6 Therefore, E1 discloses all the features of claim 1, including the feature according to which "the first and second drives each are operated based on predetermined, non-uniform drive speed profiles, to advance and mix the material component(s), respectively."

1.7 Hence, the subject-matter of claim 1 of the main request lacks novelty with respect to the disclosure of E1.

2. **Auxiliary request 1 - added subject-matter (Article 123(2) EPC**

2.1 In claim 1 of auxiliary request 1, a feature was added according to which

"the speed profile for driving the first drive

comprises the following sections:

- a first section with an increasing speed starting from 0;
- a second section with a peak speed;
- a third section with a decreasing speed;
- a fourth section with a negative speed; and
- a fifth section with a speed increasing from a negative speed toward or to zero; and

wherein the speed profile for driving the second drive comprises the following sections:

- a first section with an increasing speed starting from 0;
- a second section with a peak speed;
- a third section with a decreasing speed;
- a fourth section with an essentially constant steady state speed;
- a fifth section with a decreasing speed."

2.2 According to the appellant, the added feature was based on either of the description, page 10, lines 22-31 and claim 32 as originally filed, or Figures 3a and 3b.

2.3 The description on page 10, lines 22-31 and claim 32 of the application as originally filed disclose a list of seven different sections (designated a-g in claim 32) of a speed profile.

The claimed sections of the first drive speed profile correspond to sections a, b, c, f and g in this list. The claimed sections of the second drive speed profile correspond to sections a, b, c, d and e in this list. Hence, the feature added in claim 1 of auxiliary request 1 represents two different selections of five items from a list of seven items. Without taking any chronological order into account (see below), there

already exists a considerable number (21) of possibilities when selecting five items out of seven. In addition, in the amended claim two such selections were made, one for the first drive and one for the second drive. This results in a total number of more than 400 possible selections. Singling out the one particular claimed combination of sections for the two different drives is therefore not directly and unambiguously derivable from the cited passage in the description or from claim 32 as originally filed.

- 2.4 Regarding Figures 3a and 3b, these figures disclose the sections listed in the claim. However, in the figures the sections are arranged in the specific chronological order indicated by the time axis in the figures.

The claim, on the other hand, does not contain this particular order of the sections, for the following reason: the description on page 10, line 32 to page 11, line 2 explains that the "names and numbers [of the sections of page 10] are not intended to provide any preference or order of steps". The paragraph continues (page 11, lines 2-4) by stating that "[i]n a more preferred embodiment at least the fifth to the seventh sections and in another preferred embodiment at least the second to the fifth sections are present, in the order shown above". From this context, it must be concluded that a list of sections which does not indicate a specific order of the sections is not intended to have such an order.

Therefore, the claim encompasses drive speed sections arranged in a different chronological order from that shown in the figures. These different arrangements are not originally disclosed by the figures.

2.5 The appellant argued that no order of sections other than that listed in the claim would make sense to a skilled person. The Board, however, considers that there could be further sections present before, after and between the sections listed in claim 1. Even if it is correct that the sections as claimed make technical sense in the order given, there are a large number of potentially useful arrangements in a different order which still fall within the scope of the claim.

2.6 Therefore, the subject-matter of claim 1 of auxiliary request 1 goes beyond the content of the application as originally filed, and contravenes Article 123(2) EPC.

3. **Auxiliary request 2 - lack of inventive step (Article 56 EPC)**

3.1 Based on the main request, features were added in auxiliary request 2, according to which

"two or more speed profiles are provided which each are adapted for use with specific material or class of materials,"

and

"the speed profiles comprise sections of the following sections for driving the first drive and/or second drive:

- (a) a first section with an increasing speed starting from 0;
- (b) a second section with a peak speed;
- (c) a third section with a decreasing speed;
- (d) a fourth section with an essentially constant steady state speed;
- (e) a fifth section with a decreasing speed;

(f) a sixth section with a negative speed;
(g) a seventh section with a speed increasing from a negative speed toward or to zero;
wherein the speed profiles comprise at least the second to the fifth sections, in the order (b), (c), (d) and (e)."

3.2 The first of these added features is disclosed by E1, which explains that the optimum speed for different (i.e. at least two) materials is stored and used by the dispenser (paragraphs [0005]-[0010] and claim 10).

3.3 The second of the added features comprises an "and/or" combination which results in three independent options, which have to be treated as three independent claims. One of the options is the situation in which the selected sections (b), (c), (d) and (e) are used for the first drive only.

The respondent referred to this option in its submissions.

3.4 Accordingly, the subject-matter of claim 1 differs from the prior art in that

the speed profiles comprise the following sections in the given order, for driving the first drive:

- (b) a second section with a peak speed;
- (c) a third section with a decreasing speed;
- (d) a fourth section with an essentially constant steady state speed;
- (e) a fifth section with a decreasing speed.

3.5 The appellant argued that the distinguishing feature had the technical effect of increasing the available working time of the hardening material. They referred

to the description of Figures 2a and 2b: the first drive speed profile of Figure 2a corresponded to the claimed speed profile, and the technical problem was described in the patent from paragraph [0073] onwards and in example C.

However, these passages do not mention that the particular speed profile of the first drive alone solves the problem of increasing the working time. On the contrary, paragraph [0074] explains that the undesired generated heat is caused by the mixer and depends on the mixing speed. Example C, also referred to by the appellant, describes a dispenser in which the plunger speed does not have the speed profile as defined in the claim.

Contrary to the appellant's argument, the overall teaching of the patent is that the working time for the practitioner can be extended by reducing the second (mixing) drive speed during dispensing, thereby reducing the generated heat. See for example paragraph [0060], which explains that the material is dispensed at a high speed, whereas the mixing speed is reduced. According to paragraph [0078] (referring to Figures 2a and b), the material is sensitive to a temperature increase due to the mixing. In this example, both the first and second drive speeds are reduced. Paragraph [0083] even discusses the possibility of increasing the advancing speed in order to dispense the material more quickly.

All in all, the appellant could not convincingly demonstrate that the distinguishing feature had the technical effect of increasing the available working time of the hardening material and that the problem to be solved could be formulated accordingly. Therefore,

the problem to be solved is regarded as the provision of an alternative procedure for advancing the first and the second components from the first and the second reservoirs.

As discussed above in relation to the novelty of the main request, according to E1, paragraphs [0004] and [0005], the plunger drive speed is first set to a value that is not further defined, then the material is identified by a measurement (e.g. pressure or current). Finally, the plunger drive speed is set to a value adapted to the particular material. Since the first speed value is not defined by E1, there are three possibilities for the speed profile that is actually performed: the initial speed is high and is reduced to the material-specific speed; the initial speed is low and is increased to the material-specific speed; or (less probably) both speed values are identical. Therefore, when starting from E1, the skilled person has only two (or three) possible ways to implement the speed profile. One of these corresponds to sections b-d according to claim 1 of auxiliary request 2, namely

- (b) a second section with a peak speed (measurement phase);
- (c) a third section with a decreasing speed (adaptation to the material-specific speed);
- (d) a fourth section with an essentially constant steady state speed (material-specific speed).

This selection of one speed profile from three possible speed profiles does not involve an inventive step, in particular if the problem to be solved is merely the provision of an alternative solution.

Finally, according to E1, paragraph [0025] the dispensing procedure is terminated by reducing the

advancing speed to a negative speed ("Rücklauf"). This corresponds to section e) of claim 1, which requires a decreasing speed.

- 3.6 It is correct, as submitted by the appellant, that E1 does not explicitly teach the application of the speed sections b-d as claimed. However, this is not necessary when assessing inventive step.

The appellant further argued that E1 taught away from the invention because, according to paragraph [0022], the speed was increased after sensing of the load. However, this increase applies to the mixing speed, not to the advancing speed.

- 3.7 Therefore, when starting from E1, the skilled person would arrive at the subject-matter of claim 1 of auxiliary request 2 without performing an inventive step (Article 56 EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairwoman:



C. Moser

P. Acton

Decision electronically authenticated