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File Number: T 793/90 - 3.2.2

Application No.: 84 113 283.0

Publication No.: 0 145 922

Title of invention: Ejector holder and capsule-like cartridge therefor.

Classification: A61M 3/00

D E C I S I O N
of 13 January 1992

Applicant: DENTSPLY INTERNATIONAL, INC.

Headword:

EPC Article 56 EPC

Keyword: "inventive step (no)"

Headnote



Europäisches
Patentamt

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Boards of Appeal

Chambres de recours

Case Number : T 793/90 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 13 January 1992

Appellant : DENTSPLY INTERNATIONAL, INC.
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Decision under appeal : Decision of Examining Division of the European Patent Office dated 9.5.1990 refusing European patent application No. 84 113 283.0 pursuant to Article 97(1) EPC.

Composition of the Board :

Chairman : G. Szabo
Members : M. Noel
J. van Moer

Summary of Facts and Submissions

I. European patent application No. 84 113 283.0 (publication No. 0 145 922) was refused by a decision of the Examining Division on the grounds that the subject-matter of the claims did not involve an inventive step having regard to the combination of documents:

- (1) US-A-3 900 954 and
- (2) US-A-2 505 028

II. The Appellant lodged an appeal, filed a Statement of Grounds and paid the appeal fee in due time.

A new document (7) US-A-3 907 106 submitted by a third party under Article 115 EPC was admitted in the proceedings by the Board, in exercise of its discretion under Article 114(1) EPC.

In a communication accompanying the summons to oral proceedings, the Appellant was informed of the negative provisional opinion of the Board as to the patentability of the claim submitted with the Statement of Grounds, having regard to the particular relevancy of new document (7).

III. During oral proceedings held on 13 January 1992 the Appellant submitted a single amended claim, which reads as follows:

"A cartridge (10) which is filled with a viscous dental material in a measured quantity for a dental cavity and which is adapted to be mounted for discharge of its contents in an ejector-type holder, said cartridge comprising a hollow cylindrical body moulded from a rigid plastics material having uniform interior (d_1) and

exterior (d_2) diameters along the whole of its length (1) and one end (10_1) being open and having a circular integral flange (11) for reception in a corresponding seat of the ejector-type holder and the other closed end (10_2) having a discharge nipple (15) moulded integrally with the body and extending from said closed end at an angle (α) to the axis (A-A₁) of the body; and a piston (12_1) which is separately received in the body to form a combination closure and ejecting means by having sidewalls which are closely complementary to the inner walls of said hollow body, characterized in that

- (i) the closed end (10_2) of the hollow cylindrical body has a hemispherical wall (13) of substantially the same uniform thickness as said body:
- (ii) the discharge nipple (15) extends from said hemispherical end (10_2):
- (iii) the piston (12_1) has its uniform diameter over the major part of its length; and
- (iv) the piston (12_1) has an inner end (12_2) which is complementary in shape to the hemispherical wall (13) at the closed end (10_2) of said hollow body

to effect ejection of substantially the entire content of the cartridge when the piston (12_1) is fully inserted into the hollow body."

IV. In the course of the oral proceedings, the Appellant substantially argued that while document (1) represented the closest prior art upon which the present claim was based, bringing together the teachings of documents (1) and (7) resulted, however, from an ex post facto analysis.

The object of document (7) was principally to provide a compounding vessel for mixing components so as to form large amounts of a dental preparation, while the application referred to a cartridge filled with a unit dose of a viscous dental material to be ejected in accurately measured quantities. Further, the problem of avoiding the risk of the piston being pushed through the wall of the vessel was not set in document (7).

- V. The Appellant requests that the decision under appeal be set aside and that the case be remitted to the first instance with the order to grant a patent on the basis of the claim submitted at the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.
2. The question whether there are any formal objections to the current version of the claim need not be answered since the claim is anyway unallowable on other grounds as hereinafter explained.
3. Closest prior art

Document (1) represents unquestionably the closest prior art since this document addresses the basic problem of the present application of ejecting from a cartridge measured quantities of a dental filling of viscous material into a tooth cavity through a discharge tip disposed at a suitable angle with respect to the axis of the cartridge so as to facilitate the positioning of the filling material in the tooth cavity, by applying a great pressure onto the piston of the cartridge.

Document (1) describes all the features of the precharacterising portion of the claim, in particular a cartridge 14 which is adapted to be mounted in an ejector-type holder 11. The cartridge comprises a hollow cylindrical body 14a moulded from a rigid plastics material and having uniform interior and exterior diameters. A piston 27 having sidewalls which are closely complementary to the inner walls of the body is separately received in the body to form a combination closure and ejecting means. One end of the cartridge is open and has a circular integral flange 25 for reception in a corresponding seat of the ejector-type holder and the other closed end has a discharge nipple 26 moulded integrally with the body and extending at an angle to the axis of the body.

4. Problem and Solution

A drawback of the cartridge according to document (1) is that there is a risk of the ejecting plunger or the piston itself being pushed through the wall adjacent to the outer end of the cartridge because of the great pressure exerted by the projecting tip 20 of the plunger on the back of the piston 27 (cf. fig. 4) and because of the progressively inclined end portion of the tapered discharge tip 14B of the cartridge.

Therefore, the problem underlying the present application resides in the provision of a cartridge which is not subject to the difficulties of cartridges of the Dragon's patents, one of which is the document (1), as mentioned in the application (cf. last paragraph bridging pages 1 and 2).

This problem is solved by the features stated in the characterising portion of Claim 1, in particular by the essential feature (iv) according to which the end of the piston is complementary in shape to the hemispherical end wall of the body. This enables ejection of substantially the entire content of the cartridge, as specified at the end of the claim, while also avoiding the risk of piercing the wall of the body as the piston is complementarily shaped and constrained lengthwise in alignment with the hollow body.

5. Novelty

No other document than document (1) comes closer to the subject-matter of the claim in suit. Since the claim is distinguished from this closest prior art by the features of its characterising portion it is therefore new.

6. Inventive Step

6.1 The document (7) describes a compounding vessel for the production of dental preparations having all the features of the characterising portion of the claim, in particular (see Fig. 1):

- the closed end of the hollow body 10 has a hemispherical wall 11 of substantially the same uniform thickness as the body,
- the discharge nipple 12 extends from said hemispherical end wall,
- the piston 14 has a uniform diameter over the major part of its length and an end which is complementary in shape to the hemispherical end wall of the body,

to effect ejection of the entire content of the vessel, when the piston is fully inserted into the body (cf. column 4, lines 39 to 43).

- 6.2 For the assessment of the inventive step, the question to be considered is whether the skilled person was stimulated to generate the claimed combination at the time when the application was filed, or whether such conclusion is now based simply on hindsight in respect of the prior art selected, as was contended by the Appellant.

In the Board's view, the skilled person when faced with the problem of avoiding the piercing of the tapered end wall of the cartridge disclosed in document (1) and, in addition, who was aware of the solution described in document (7), was naturally and inevitably led to replace the corresponding inclined and tapered ends of the piston and of the body by straight elements with mating hemispherical ends, as suggested in document (7). Indeed, document (7) relates to the same narrow technical field of ejecting the totality of predetermined quantities of dental filling material directly into a dental cavity by pressing a plunger (cf. column 5, lines 25-27 and column 4, lines 39-43).

By combining the teachings of both documents (1) and (7), the skilled person arrived therefore directly and fully at the subject-matter of the present claim.

- 6.3 The fact that the device of document (7) is meant for dental preparations in greater amounts than that enclosed in capsule-like cartridges is irrelevant since the skilled person already knows from document (1) how to eject unit doses of dental filling material and, further, there is no mention in document (7) of any quantity of material or any vessel capacity. The skilled person is only looking for

means appropriate for solving his problem as defined in point 4 above. As already mentioned, these means are clearly disclosed in document (7), in particular the contribution of the mating hemispherical end surfaces of the piston and of the body. The size of the means can be appropriately adjusted.

6.4 The fact that the problem underlying the present application is not specified in document (7) is also irrelevant if, besides means which are described to be necessary for the resolution of the particular problem of this prior art, other means, which are perfectly suitable for the solution of the problem of the present application are also present and recognisable in this document. The problem relevant to the present case has not to be stated expressis verbis in the prior art (cf. Decision T 142/84, OJ 3/1987, page 118, point 8.1), as long as the provided effects include those desired in the other case in question. This is obviously the case here where, as mentioned in point 6.1 above, the document (7) describes all the features of the present claim and for the same purpose.

6.5 The Appellant further suggested that document (7) also differs from the claimed subject-matter in that the discharge nipple extends in alignment with the longitudinal axis of the piston while it is offset in the present application to facilitate the positioning of the nipple in a tooth cavity. Besides the fact that this difference is not to be taken into account since it is already known from document (1), the Board is of the opinion that such slight constructional change remains within the normal design practice of the skilled person, all the more as it is also suggested in the closest prior art to provide the cartridge with either a straight

discharge tip or disposed at an angle (cf. document (1), column 4, lines 31 to 37).

6.6 For the foregoing reasons, the Board is satisfied that the subject-matter of the claim in suit lacks an inventive step as required by Article 56 EPC.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



S. Fabiani



G. Szabo

R. Wolf
30.01.1992

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