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D E C I S I O N
of 1 March 2000

Case Number: T 0132/97 - 3.4.2
Application Number: 87904459.2
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Language of the proceedings: EN

Title of invention:
Eyeglass frame including shape-memory elements

Patentee:
MARCHON EYEWEAR, Inc.

Opponent:
Tura LP

Headword:
-

Relevant legal provisions:
EPC Art. 100(a), 100(b)

Keyword:
"Disclosure - sufficiency - (yes)"
"Novelty and inventive step - (yes)"

Decisions cited:
-

Catchword:
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Boards of Appeal

Chambres de recours

Case Number: T 0132/97 - 3.4.2

D E C I S I O N
of the Technical Board of Appeal 3.4.2
of 1 March 2000

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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 27 November 1996
rejecting the opposition filed against European
patent No. 0 310 628 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: E. Turrini
Members: S. V. Steinbrener
B. J. Schachenmann

Summary of Facts and Submissions

- I. The appellant lodged an appeal against the decision of the Opposition Division rejecting the opposition against European patent No. 0 310 628.
- II. Six oppositions had been filed against the patent in suit, five of which were, however, withdrawn before the first instance. The opposition filed by the appellant (= former opponent 03, now the only remaining opponent) against the patent as a whole was based on Article 100(a) EPC since the subject-matter of the patent in suit allegedly lacked novelty or did not involve an inventive step. Moreover, an objection was raised under Article 100(b) EPC.
- III. In its decision, the Opposition Division held that the claimed invention was sufficiently disclosed for it to be carried out by a person skilled in the art, and that the subject-matter of claim 1 as granted, which was maintained in unamended form, was novel and inventive with respect to the available prior art comprising (according to the numbering of the Opposition Division), *inter alia*, the following documents:
- D1: Scripta METALLURGICA, vol. 14, 1980, pages 911 to 914
- D2: JP-A-58 186719 (and English translation thereof furnished by former opponent 04)
- D3: Scripta METALLURGICA, vol. 15, 1981, pages 287 to 292

- D6: Journal de Physique, Colloque C4, supplement to vol. 43, No. 12, December 1982, pages C4-267 to C4-272,
- D14: JP-A-56 89717 (and English translation thereof furnished by the respondent (= patent proprietor))
- D16: US-A-4 472 035
- D18: EP-A-0 146 317 (the pre-published A-document being numbered D5 in the impugned decision, whereas D18 originally related to the B-document published after the priority date of the patent in suit)
- D19: Matériaux et Techniques, October-November 1980, pages 350 to 354
- D20: JP-A-56 95215 (and English translation thereof furnished by the appellant)
- D21: JP-A-56 89715 (and English translation thereof furnished by the appellant)
- D23: Bulletin of Japanese Institute of Metals, vol. 23, No. 61, 1975, pages 175 to 182, and
- D29: Actual stress-strain data for eyeglass frame temples filed by former opponent 05 on 7 January 1994.

IV. The above documents were again referred to by the parties in the present appeal proceedings.

V. In an annex to the summons to oral proceedings dated

6 December 1999, the Board drew the parties' attention to the fact that objections under Article 84 EPC against claims, which have been maintained in unamended form after grant, must be disregarded in opposition appeal proceedings. If it were considered that the overall disclosure of the patent in suit was deficient, e.g. in that the claimed teaching, or at least part of it, could not be carried out by a skilled person even if due account was taken of the remaining patent documents, then objections might be raised under Article 100(b) EPC relating to Article 83 EPC. However, in the Board's provisional view, the subject matter of claim 1 as granted appeared to be sufficiently disclosed in the light of the patent specification.

As regards inventive step, the Board considered document D2 to come closest to the subject matter of claim 1. The conclusions which a skilled person would draw from the overall disclosure of D2, and in particular the issue of whether or not this disclosure could be considered to impart a clear consistent teaching, should be discussed at the scheduled oral proceedings. Furthermore, the relevance of the remaining prior art cited by the appellant, taken alone or in combination with the teaching of document D2, should be assessed on this occasion. On a provisional basis, the Board was, however, inclined to follow the line of argument used in the impugned decision.

VI. Oral proceedings which had been arranged at the parties' respective subsidiary requests took place on 1 March 2000. At the end of the oral proceedings, the decision of the Board was given.

VII. The appellant requested that the decision under appeal be set aside and that the European patent be revoked.

VIII. The respondent requested that the appeal be dismissed and that the patent be maintained as granted.

IX. The wording of claim 1 reads as follows:

"1. Eyeglass frame having at least a portion thereof fabricated from a nickel-titanium based shape-memory alloy which is in the work-hardened pseudoelastic metallurgical state, having been subjected to at least about 30% work-hardening, so as to be elastic to strains of at least 3% over a temperature range for eye-glass frame usage from -20°C to +40°C."

Claims 2 to 6 are appended to claim 1.

X. The appellant advanced the following arguments:

The overall disclosure of the contested patent is such that the claimed teaching cannot be carried out by a skilled person.

According to claim 1 of the patent in suit, the nickel-titanium based shape-memory alloy is in the work-hardened "pseudoelastic" metallurgical state existing in a temperature range above the martensite start temperature M_s and below the maximum temperature M_d at which martensite can be stress-induced (see Figure 2H of the patent in suit). On the other hand, the specification (see column 5, lines 53 to 57 of the patent in suit) describes the claimed invention as being based on an achievement of "superelastic" and

"pseudoelastic" properties, which combination contradicts the definition given in claim 1 since "superelasticity" as used in the contested patent only exists at temperatures below M_s (see Figure 2F of the patent in suit). Hence, it is unclear how different types of elasticity defined for disjunctive temperature ranges may be combined in one of these ranges.

Furthermore, since the claimed material is in the work-hardened "pseudoelastic" state, i.e. above M_s , the claimed temperature range of -20°C to $+40^{\circ}\text{C}$ cannot be reached as is apparent from the example given at column 6, lines 5 to 15 of the patent in suit where an initial M_s temperature of 0°C is provided, said temperature being shifted to higher values by work-hardening and thus lying well above -20°C .

Nor does the patent in suit give any information about the details of the work-hardening treatment provided, in particular at which temperature or in which metallurgical state such work-hardening is carried out.

Finally, the terminology employed in the contested patent is confusing in that the conventional term "superelasticity" (see e.g. the respondent's own earlier document D18) has been replaced by the term "pseudoelasticity". According to the only prior art mentioning "pseudoelasticity", i.e. document D19, "superelastic" behaviour means full elastic recovery, whereas the term "pseudoelastic" relates to rubber-like and shape memory effects involving plastic deformation. Thus, the claimed type of elastic behaviour does not seem to be unambiguously defined.

This lack of clarity is also apparent from the claimed elasticity to strains of "at least 3%" in that this definition leaves it open whether an elongation of at least 3% is fully recovered or whether there is at least 3% recovery, any higher elongation being possibly not recovered.

For these reasons, the objection raised under Article 100(b) EPC seems to be justified.

As regards inventive step, in the appellant's view document D2 is the nearest prior art which more or less discloses all features of claim 1 of the patent in suit, apart from the lower portion of the temperature range desired.

In particular, the temple of embodiment 3 is explicitly work-hardened, the amount of work-hardening of the initially round temple being about 50% as can be estimated from Figure 1 of D2. The "superelastic" ("pseudoelastic") range achieved is 6 to 8% strain elasticity (see embodiment 1 of D2). Furthermore, according to the nickel content of embodiment 1 of D2, which must be the same for embodiments 2 and 3, and taking account of Figure 3 of document D23, M_s of the prior art alloy is between 5°C and 10°C. Therefore, only the claimed lower temperature limit of -20°C cannot be derived from document D2. This lower limit would, however, be obvious to a skilled person who naturally would adjust the available M_s to M_d range of about 40 to 60°C or higher (see document D21) to the requirements of the intended use of the eyeglass frame.

The alleged discrepancy in D2 (see Figure 2 and

associated text) with respect to the numerical value of the Young's modulus after work-hardening only concerns embodiment 1 which does not correspond to the claimed invention because of the subsequent heat treatment. In any case, said discrepancy must be considered irrelevant since the Young's modulus does not figure in the invention as claimed.

The parameter ranges set out in claim 1 of the patent in suit are obvious from the remaining prior art as well.

Document D6 (see in particular Figure 2 and associated text) discloses the possibility of cold-working Ni-Ti alloys to obtain the claimed properties. The M_s values chosen in D6 are also close to those provided in the contested patent so that the claimed temperature range would be obtained without exercising inventive skill.

The same is true for document D14 disclosing cold-working of Ni-Ti wires for eyeglass frames, said wires having very similar elastic properties. A broad range of Ni-Ti alloys suitable for frame manufacture and covering the specific alloys employed in the patent in suit are known from documents D16 and D18, the latter also proposing the use of a work-hardened "pseudoelastic" material for eyeglass frames.

Document D20 utilises M_s temperatures equal to, or lower than, room temperature and work-hardening at higher temperatures. Finally, a very broad temperature range for frame use (-30°C to 80°C) is disclosed in document D21, this range being achieved by the use of Ni-Ti alloys which have similar Ni contents and may be cold

drawn. Therefore, a combination of documents D2 and D21 would lead to the subject matter of claim 1 of the contested patent in a straightforward way.

XI. The respondent's argument in support of its request may be summarised as follows:

Although the subject matter of the patent in suit is complex, it is fully elucidated by the working example given in columns 5 and 6 of the patent specification so that the problem of insufficient disclosure does not arise. The claimed teaching can, indeed, be carried out by a skilled person as was explicitly shown by test report D29. In particular, the aspect of carefully work-hardening the frame material in the pseudoelastic state and retaining said work-hardening by not performing any anneals leads to highly desirable elastic properties over a broad temperature range.

According to said working example, the fabrication process starts with fully annealed material having an M_s temperature of about 0°C. The material is then work-hardened in the "pseudoelastic metallurgical state", which means work-hardening is carried out between M_s and M_d . As a result, the initial M_s point is shifted to higher temperatures and lies somewhere between 0°C and 10°C.

Though document D19 does not specifically deal with Ni-Ti alloys and thus is not particularly relevant, it is admitted that the use of the terms "superelastic" and "pseudoelastic" is not consistent in literature. For this reason, said terms have been thoroughly redefined in the contested patent. The isolated phenomena of

fully annealed pseudoelastic behaviour above M_s (see Figure 2C of the patent in suit) and work-hardened superelastic behaviour below M_s (see Figure 2F of the patent in suit) were known at the priority date. However, in the prior art there is no indication of advantageously combining both phenomena for the design of eyeglass frames: by work-hardening the material in the pseudoelastic state the elastic properties between M_s and M_d are specifically modified to resemble the more "springy" superelastic behaviour (see Figure 2H of the patent in suit), whereas the material is purely superelastic below M_s . As can be seen from Figure 2A of the patent in suit, there is no abrupt change of elastic properties at the M_s point but rather a gradual transition from one state to the other.

Finally, the claimed temperature range should not be confused with the M_s temperature before work-hardening, and the claimed elasticity of at least 3% is meant to relate to complete elastic spring back (see column 6, second paragraph of the patent in suit).

Concerning the assessment of inventive step, document D2 focuses on achieving a very soft earlap segment which is not exposed to freezing temperatures because of the skin contact. A lot of different materials are provided, and no recovery data are disclosed.

According to embodiment 1 of D2, the material is work-hardened and then annealed so that the final state seems to be correctly described by the lower curve of Figure 2 of D2. Since an 8% strain is not obtainable for a material having a modulus of 6000 kg/mm² (see the modified Figure 2 submitted by the respondent at the

oral proceedings), the upper curve of Figure 2 of D2 cannot be considered to relate to the work-hardened state of embodiment 1 before annealing. After the heat treatment, the material of embodiment 1 must be in the annealed pseudoelastic state corresponding to that shown in Figure 2C of the patent in suit, i.e. the elastic properties must be completely different from those achieved by the patent in suit.

Moreover, the amount of work-hardening is neither disclosed for embodiment 1 nor for embodiment 3 of D2. Similarly, the alloy compositions are not specified for embodiments 2 and 3, respectively. From the tests submitted by the respondent before the first instance (see Pelton Declaration dated 13 September 1996), it must be concluded that hot-working would be applied by a skilled person if an alloy composition identical to that of embodiment 1 were assumed for embodiment 2. Therefore, all attempts for a problem-and-solution approach starting from document D2 appear to be based on hindsight.

There is no reason why a skilled person should have considered a combination of documents D2 and D6 since the latter does not relate to eyeglass frames and discloses brittle material having an M_s point above room temperature.

Document D18 in substance relates to a material which has an M_s point of about 50°C and aims at a combination of elastic and shape memory properties. Curve B of Figure 4 shows the behaviour at a temperature above 50°C which does not fall within the claimed range. The materials of D18 are, thus, not useful for eyeglass

frames.

Document D20 discloses a material which is purely pseudoelastic at room temperature without applicaiton of any work hardening.

The material proposed in document D14 also has an M_s temperature of 50°C (see Figure 3 of D23) and is work-hardened in the martensitic state. Moreover, hot-drawing is preferred, and the elasticity range of the contested patent is not achieved.

A cladde structure comprising a Ni-Ti core which is pseudoelastic at normal temperatures is known from document D16. Neither temperature ranges nor recovery data are given.

Finally, document D21 relates to thermally treated material involving a very broad range of initial M_s temperatures. There is no indication of work-hardening above M_s , and hot-processing or thermal treatment are provided. Therefore, a pseudoelastic material is obtained which corresponds to the earlap material of document D2 as can be seen from a comparison of Figure 2 of D21 with the lower curve of Figure 2 of D2. Only relatively low elongations are admissible for full elastic recovery. Besides, document D21 does not assert that the same amount of elasticity exists over the whole temperature range envisaged for frame use.

Reasons for the Decision

1. *Admissibility of appeal*

The appeal meets the requirements of Rule 65 EPC and is therefore admissible.

2. *Article 100(b) EPC*

2.1 In the Board's view, the contested patent as a whole discloses the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

In accordance with the patent in suit (see column 5, line 17 to column 6, line 27), the desired elasticity property of at least 3% throughout the temperature range for eyeglass frame usage from -20°C to +40°C is realised by choosing an alloy whose pseudoelastic temperature range matches the upper portion of the desired service temperature range, i.e. from about 10°C to 40°C, and applying work-hardening of at least about 30% to achieve satisfactory superelastic behaviour in the lower portion of the service temperature range.

The patent then gives a specific example (see column 6, lines 5 to 15) by selecting a (Ni-Ti) shape memory alloy having a transformation temperature of 0°C. A skilled person would interpret this to mean an initial M_s point of 0°C corresponding to a well-defined alloy composition available from literature (see e.g. Figure 3 of document D23). The material is swaged to 1.52 mm diameter and annealed at 600°C for 15 minutes, apparently to restore the initial pseudoelastic state. In a further work-hardening step which must be assumed carried out at room temperature since no other temperature is mentioned, it is then pressed to a flattened section of 0.92 mm x 2.11 mm without

additional annealing (see column 5, lines 17 to 20 of the patent in suit), thereby causing a plastic deformation of greater than 45%. The component will support a stress of over 1.033 MPa at 4% tensile strain and show complete elastic spring back at room temperature. These experimental results have not been called into question by the appellant.

Therefore, the Board has no doubts that the contested patent as a whole imparts sufficient information to a skilled person for putting the claimed invention into practice.

- 2.2 Having regard to the meaning of the expression "in the work-hardened pseudoelastic metallurgical state" objected to by the appellant, the Board holds the following view:

As can be derived from the patent specification (see the passages cited above) and was confirmed by respondent's declarations at the oral proceedings, the expression "in the work-hardened pseudoelastic metallurgical state" in claim 1 of the contested patent has to be understood to refer to work-hardening carried out in the pseudoelastic metallurgical state without subsequent annealing. Since a complete definition of the term "pseudoelasticity" is provided in the patent in suit (see column 1, line 21 to column 2, line 5), i.e. it designates the behaviour of stress-induced martensite between M_s and M_d , in the Board's view any deviating definitions existing in literature do not detract from understanding of the term. Nevertheless, as can be seen from document D6, said term has already been used with an identical meaning in the prior art

(see Figure 2 and associated text of D6).

When work-hardened in the pseudoelastic state between M_s and M_d , the material shows "work-hardened pseudoelastic" behaviour in this temperature range, which behaviour combines "superelastic" and "pseudoelastic" properties according to Figure 2H of the patent in suit (for a definition of "superelastic", see column 3, lines 23 to 26 of the patent). If the material is cooled down to temperatures below M_s , all "pseudoelastic" properties must disappear and "superelasticity" as the result of a sufficient amount of work-hardening prevails (see column 5, lines 43 to 49 of the contested patent). Therefore, the appellant's understanding of claim 1 such that the "work-hardened pseudoelastic state" should exist over the whole temperature range claimed for frame usage does not agree with the overall disclosure of the patent in suit.

Moreover, the claimed elasticity of at least 3% is based on the assumption of full recovery in accordance with the definition of pseudoelasticity employed in the contested patent (see column 1, lines 40 to 43 and column 5, lines 23 to 33 of the contested patent).

2.3 In addition, the completeness and sufficiency of disclosure has been confirmed by former opponent 05 who was able to rework the invention as claimed in its test report D29 submitted before the first instance (see Figure 1 of D29).

3. *Article 100(a) EPC*

3.1 Novelty has no longer been objected to in the present

appeal proceedings. The Board considers the subject matter of claim 1 of the patent in suit to be novel with respect to the available prior art as can be seen from the assessment of inventive step below.

- 3.2 In the Board's opinion, embodiment 3 of document D2 comes closest to the subject matter of claim 1. In this prior art, there is explicitly described an eyeglass frame (see page 1, penultimate paragraph of the English translation) having at least a portion thereof fabricated from a nickel-titanium based shape-memory alloy (see page 2, penultimate paragraph to page 3, first paragraph of the English translation) which is work-hardened (see embodiment 3 of the English translation: work-hardened temple extension). Document D2 does not give any details with respect to the work-hardening employed.

The Board cannot accept the further assumptions which the appellant has based mainly on Figure 1 and embodiment 1 of document D2. In particular, no alloy composition is specified for embodiment 3 which - in contrast to embodiment 2 - does not make any reference to embodiment 1 in this context. Therefore, the pseudoelastic properties of the alloy used in embodiment 3 are also unknown. In particular, the 6 to 8% elasticity range mentioned for embodiment 1 relates to annealed material and thus is not applicable. Furthermore, no conclusions on the amount of work-hardening can be drawn from Figure 1 since - again in contrast to embodiment 2 of D2 - the temple extension according to embodiment 3 is not pressed flat, but apparently remains round (see also page 4, fourth paragraph of the English translation in this context).

Moreover, dimensional conclusions derived from schematic drawings would in any case be pure speculation.

The subject matter of claim 1 therefore differs from the known frame in that

- (i) the alloy is in the work-hardened pseudoelastic state (i.e. work-hardening has been carried out between M_s and M_d without further annealing; see point 2.2 above);
- (ii) the amount of work-hardening is at least about 30%; and
- (iii) the amount of work-hardening is such that at least 3% elasticity over a temperature range for eyeglass frame usage from -20°C to $+40^{\circ}\text{C}$ is achieved.

3.3 Thus, in accordance with column 2, lines 29 to 39 of the patent in suit, the objective problem solved by the subject matter of claim 1 may be seen in providing eyeglass frames or components thereof which are highly resistant to permanent deformation over the whole temperature range of frame usage. In the Board's view, the posing of said problem would be obvious to an average practitioner.

3.4 Starting from embodiment 3 of D2 and looking for consistently high elastic properties over a broad temperature range in accordance with the above problem, the Board is convinced that a skilled person would not find any useful further information in the remaining

disclosure of document D2.

Although document D2 broadly refers to a larger elastic range involving less susceptibility to deformation and to maintenance of an initial shape for a long period (see page 4, third paragraph of the English translation), this prior art focuses on an optimisation of the "earlap segment" which should be flexible under very small stress conditions (see in particular the upper half of page 2 of the English translation).

The only alloy composition explicitly disclosed in D2 is that for embodiment 1 which admittedly corresponds to an M_s point of about 0°C. The alloy material is work-hardened by drawing and pressing, however no details as to the amount and type (cold-working or hot-working) of work-hardening are mentioned. If the amount of work-hardening were to be concluded from the dimensions given in D2 for embodiment 2, then a hot-working process, i.e. work-hardening above M_d , seems to be necessary to obtain an amount of about 56% work-hardening without cracking (see the "Pelton Declaration" submitted by the respondent before the first instance). The elastic properties of the resulting work-hardened material are unclear since the upper curve of Figure 2 of D2 is not compatible with the numerical values given in the first paragraph of "Embodiment 1" of said English translation.

In any case and contrary to the patent in suit, the material provided for embodiment 1 (and apparently also for embodiment 2) is heat-treated after work-hardening in order to achieve the desired flexibility of the "earlap segment".

Therefore, taking account of the overall disclosure of D2, it would not be obvious for a skilled person to consider sufficient work-hardening of the alloy of the temple extension of embodiment 3 of D2 in the pseudoelastic metallurgical state without subsequent annealing so as to become highly elastic over a broad temperature range in accordance with features (i) to (iii) above.

- 3.5 A broad temperature range for eyeglass frame usage (-30°C to 80°C) is, indeed, the objective of document D21 although this prior art does not claim a minimum amount of elasticity over the whole range but only asserts the frame's usefulness in said range (see page 3, penultimate paragraph of the English translation of D21). If a skilled person were to consider document D21 in view of the problem posed, he would learn that Ni-Ti alloys may be cold-drawn, but hot-drawing at 600°C to 850°C and/or annealing at 800°C to 900°C is preferable in order to achieve an elasticity of at most 3% (see claim 1 and page 4 of the English translation). Apparently, higher elasticities are also possible, and the M_s temperatures of suitable Ni-Ti alloys may be from -50°C to 100°C (see page 5, first paragraph and Table I of said English translation). However, in D21 there is no indication of work-hardening between M_s and M_d without further heat-treatment, nor is there any amount of work-hardening specified with a view of achieving constant elastic properties over a broad temperature range (see features (i) to (iii) above).

Therefore, the Board holds the view that a combination of documents D2 and D21 would also not lead to the

subject matter of claim 1 in an obvious way.

- 3.6 In the Board's opinion, the remaining documents referred to by the appellant in the oral proceedings are less relevant.

Document D6 is a scientific paper which does not relate to eyeglass frames nor to elastic properties over a temperature range for frame usage. A Ni-Ti alloy (Ni content 54.5 wt%) having an M_s temperature of about 50°C is apparently cold-worked at room temperature, i.e. below M_s , to an amount of 35%. However, there is no indication of work-hardening between M_s and M_d and of adjusting the amount of work-hardening to the achievement of desirable elastic properties over a broad temperature range (see features (i) and (iii) above).

Document D14 deals with frame usage between 0°C and 40°C by providing a Ni-Ti alloy (49 to 54 at% Ni content, however 50 to 50.5 at% Ni content is preferred, corresponding to M_s temperatures of about 30°C to 50°C; see Figure 3 of D23) and aiming at a low Young's modulus and a wide elastic regime of 3% elasticity (see the English translation of D14, upper half of page 3). Judging from the elongation at UTS (ultimate tensile stress) of 3 to 3.5% (see Table 1 of D14), one would however assume the effective elasticity (yield stress) to be less than 3% (see also page 4, third paragraph from the bottom of the English translation in this context). The possibility of cold-drawing is mentioned, but hot-drawing is preferred to apply appropriate work-hardening, the amount of which is not specified. It therefore has to be assumed that

work-hardening is either carried out in the martensitic state below M_s in case of cold-drawing or above M_d in case of hot-drawing. Hence, none of features (i) to (iii) is suggested in document D14.

Document D16 relates to eyeglass frames having at normal temperatures a "superelastic" (= "pseudoelastic" in the terminology of the contested patent) Ni-Ti core and a Ni-based cladding in order to avoid discomfort on the wearer due to plastic deformation of the frame (see in particular the abstract). After cold-working, the material is annealed to obtain the desired pseudoelasticity (see column 3, lines 15 to 18). Similarly, "superelastic" (= "pseudoelastic") material comprising Ni-Ti alloys is provided in document D20 (see claim 1 and page 4, last paragraph to page 5, first paragraph of the corresponding English translation). In order to obtain purely pseudoelastic behaviour at room temperature, the material is hot-drawn or annealed (see upper half of page 6 of said English translation).

These documents therefore relate to materials having completely different properties and cannot give any hint to the claimed invention.

Nor would a skilled person be incited by document D18 to apply features (i) to (iii): said prior art does make use of a work-hardened Ni-Ti alloy for eyeglass frames, said material being, however, in the martensitic state and exhibiting both elasticity and heat-recoverable shape-memory.

3.7 Finally, the Board does not consider any one of the

remaining prior art documents available in the present proceedings to be of particular relevance.

- 3.8 Therefore, the subject-matter of claim 1 as granted involves the inventive step required by Articles 52(1) and 56 EPC, and claim 1 is accordingly allowable.

Dependent claims 2 to 6 concerning specific embodiments of claim 1 and the remaining parts of the patent specification also meet the requirements of the EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

P. Martorana

E. Turrini