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D E C I S I O N
of 9 October 1998

Case Number: T 0963/97 - 3.2.4

Application Number: 92108330.9

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Language of the proceedings: EN

Title of invention:
Improvements relating to smoking articles

Patentee:
British-American Tobacco (Investments) Limited

Opponent:
H.F. & Ph.F. Reemtsma GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
T 0013/84, T 0002/83, T 0056/87, T 0005/81

Catchword:
-



Case Number: T 0963/97 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 9 October 1998

Appellant: H.F. & Ph.F. Reemtsma GmbH
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Respondent: British-American Tobacco (Investments) Limited
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Representative: Clarke, Margot Ruth
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 11 July 1997
rejecting the opposition filed against European
patent No. 0 514 804 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: C. A. J. Andries
Members: R. E. Gryc
J. P. B. Seitz

Summary of Facts and Submissions

- I. The appellant (opponent) lodged an appeal, received at the EPO on 10 September 1997 against the decision of the Opposition Division, dispatched on 11 July 1997, on the rejection of the opposition against the European patent EP-B-0 514 804.

The appeal fee was paid simultaneously and the statement setting out the grounds of appeal was received at the EPO on 12 November 1997.

- II. The appellant filed an opposition against the patent as a whole on the ground of lack of inventive step (Articles 100(a) and 56 EPC) of the subject-matter of Claims 1 and 2 mainly in view of the following prior art documents:

D1: EP-A-0 363 288 and

D2: EP-A-0 413 536

The opposition division held that the ground for opposition did not prejudice the maintenance of the patent unamended and rejected the opposition.

- III. In his statement setting out the grounds of appeal, the appellant (opponent) alleged that the combination of D1 and D2 deprives the subject-matter of Claims 1 and 2 of inventive step.

According to the appellant the main concern of D1 is more to change the nicotine to tar ratio of the smoke of a cigarette than to increase filtration efficiency of tar from smoke. He alleged that the complete disclosure of D1 relates to the addition of additives

like sodium carbonate in order to modify the nicotine to tar ratio of the smoke flowing through the filter material and that, when the matter is to increase the nicotine to tar ratio of the main stream of smoke, the skilled person would learn from D1 that an alkali compound like sodium carbonate must be added in order to increase the elution of nicotine to the smoke stream.

The appellant pointed also out that D2 and the opposed patent both concern "ultra low tar" cigarettes and that if adding the filter additives as described in D1 without additional ventilation may be sufficient for making "medium or low tar" cigarettes, it would be insufficient for making "ultra low tar" cigarettes and, in particular from D2, the skilled person would learn to ventilate additionally the mouth end located filter section.

The appellant argued also that since, according to the invention, the alkaline filter material is arranged upstream before the ventilation zone, the alkaline filter material is always impinged upon by the maximum possible quantity of smoke and the result stated at the end of Claim 1 is not to be obtained.

In his reply, the respondent (Patentee) alleged that D1 does refer to increasing the filter efficiency for tar filtration with respect to nicotine filtration, that no teaching is given with respect to an absorbent paper filter material containing an alkaline material and relatively little information is given about the tobacco rod. He contended also that, since the present invention refers to a low delivery tobacco rod compared with a conventional rod, there is no reason why the

skilled person would want to use a filter such as that described for the purpose of D1 with a low delivery tobacco rod which already has a reduced tar delivery potential by virtue of its composition, not by virtue of the filter element used therewith.

According to the respondent, the technical problem to be solved by D2 of matching the CO to PMWNF (particulate matter water nicotine free) ratio relates specifically to low sidestream smoking articles with high expanded tobacco levels and there is no reason to combine D1 and D2 as they both relate to solving problems in completely different technical areas.

The respondent pointed also out that the combination of D1 and D2 should be that of the teachings of the two documents in their entirety, that neither of these documents is concerned with improving the impact of the smoke from a low or ultra low delivery cigarette and that since drawing air into the filter instead of smoke decreases the amount of smoke drawn into the filter, the mere presence of ventilation perforations, regardless of their position, reduces exposure of the filter to smoke.

IV. Oral proceedings took place on 9 October 1998.

During the oral proceedings, the appellant did not dispute the novelty of the subject-matter of Claim 1 and considered that D2 disclosed the state of the art closest to the invention. He contended that the skilled person not only learns from D2, but also knows already how to make low particulate matter delivery cigarettes by using tobacco rods having a high content of expanded tobacco (more than 30% by weight) and a high ventilated

filter material (at least 50%) and that, the skilled person is faced to the generally known problem of increasing the smoke impact of conventional low delivery smoking products which have poor smoke impact.

According to both parties, the expression "smoke impact" can be defined as a physiological reaction of the body to the inhaling of a substance of an alkaline nature such as nicotine.

The appellant contended further that, in order to increase the smoke impact of ultra-low delivery smoking articles, it was common knowledge for the skilled person to compensate the reduction of nicotine by the addition of an alkaline substance to the filter material of said articles as disclosed, for example, in D1.

The appellant was therefore of the opinion that, for the skilled person who wants to increase the smoke impact of low delivery products according to D2, there is no inventive step in adding an alkaline substance in the filter material so as to arrive at the invention.

The respondent pointed out that the problem of increasing smoke impact of low delivery smoking articles was known neither from D1 and D2, nor from document US-A-3426763 (D3) referred to, in the opposed patent, as background art for the use of alkaline material in a filter element. The respondent argued also that D1 concerns cigarettes having a conventional delivery rod comprising little or no expanded tobacco and that there is no indication in D1 that the use of alkaline product plays a role in the smoke impact of a cigarette.

In reply the appellant drew attention to some indications given in D1 which, in combination, teaches the skilled person how to proceed in order to increase the nicotine content in the smoke stream.

V. At the end of the oral proceedings, the appellant requested that the decision under appeal be set aside and that the European patent No. 0 514 804 be revoked.

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

VI. The wording of independent Claims 1 and 2 as granted read as follows:

Claim 1:

"A low delivery smoking article (1, 10) comprising a filter element and a rod of tobacco material wrapped in a wrapper, the filter element comprising an alkaline filter material section, wherein the alkaline filter material section consists of alkaline filter material applied to a paper section of the filter element (3, 30), the loading level of alkaline filter material being less than 12% by weight of the alkaline filter material section (4, 40), the filter element (3, 30) further comprises a mouth end located section, the tobacco rod (2, 20) being a low particulate matter potential rod comprising at least 30% expanded tobacco and/or a blend of lower nicotine grades of tobacco, and the mouth end located section (5, 50) being ventilated to a ventilation level of at least 50% so that, when smoked, the alkaline filter material is not over-exposed to smoke and the mainstream particulate matter delivery of said smoking article is less than 9mg."

Claim 2:

"A smoking article (100) comprising a filter element and a rod of tobacco material wrapped in a wrapper, the filter element being a triple filter element comprising an alkaline filter material section, wherein the alkaline filter material section (400) consists of alkaline filter material applied to a paper section of the filter element (300), the loading level of alkaline filter material being less than 12% by weight of the alkaline filter material section (400), the filter element (300) further comprises a mouth end located section (500) and a tobacco rod end located high filtration efficiency paper section (900), the tobacco rod (200) is comprised of at least 30% expanded tobacco and/or a blend of lower nicotine grade tobaccos, and the mouth end located section (500) is ventilated, the degree of ventilation being balanced with respect to the filtration efficiency of the paper section (900) so that, when smoked, the alkaline filter material is not over-exposed to smoke and the particulate matter delivery of said smoking article is less than 9mg."

Reasons for the Decision

1. Admissibility of the appeal.

The appeal is admissible.

2. Claim 1 as granted

2.1 Novelty (Article 54 EPC)

The Board is satisfied that none of the cited documents D1 to D3 discloses a low delivery smoking article comprising in combination all the features described in Claim 1. Since this has not been disputed by the appellant, there is no need for further detailed substantiation and the subject-matter as set forth in Claim 1 is to be considered as novel within the meaning of Article 54 EPC.

2.2 The closest state of the art

In agreement with the parties, the Board considers that the cigarettes A described in Example 1 of D2 (see D2: page 3, lines 31 to 47 and page 4, Table 1) are representing the state of the art closest to the invention since they are low delivery smoking articles comprising 40% expanded tobacco and a double filter element, the mouth end located filter section of which being ventilated to a ventilation level of 71 to 72% so that, when smoked, the particulate matter delivery of said smoking article is 4 mg/cig (see D2: page 4, Table 1, column PMWNF).

The subject-matter of Claim 1 differs from this closest state of the art in that the filter element comprises an alkaline filter material section consisting of alkaline filter material applied to a paper section of the filter element, the loading level of alkaline filter material being less than 12% by weight of the alkaline filter material section.

2.3 Problem and solution

Starting from the aforementioned closest state of the art and taking into account the above-mentioned differences between said prior art and the subject-matter of Claim 1, the Board sees the problem as objectively determined (see in particular decision T 13/84, OJ EPO 1986, 253) as being to increase the perceived smoke impact and to improve the perceived flavour of low delivery smoking articles (see the patent specification: page 2, lines 7 to 14).

Due to lack of contradictory arguments, the Board prima facie has no reason to doubt that the invention as claimed in Claim 1 brings effectively a solution to this problem.

2.4 Inventive step (Article 56 EPC)

- 2.4.1 When examining inventive step, it should be assessed whether not only all the characteristics of the invention but also incitements to combine these characteristics in the manner of the invention can be found in the state of the art (see Decision T 2/83, OJ EPO 1984, 265), keeping in mind that the technical disclosure in a prior art document should be considered

in its **entirety** (see decision T 56/87, OJ EPO 1990, 188) and that an excessively abstract approach removed from the practical thinking of the skilled person must be avoided since such an approach is merely the result of an a posteriori analysis (see decision T 05/81, OJ EPO 1982, 249).

2.4.2 The global teaching of D1 appears to be directed to smoking articles in general comprising a single-segment cellulose acetate filter (see D1: page 2, line 12).

Little information is given in D1 about the tobacco rod used in the concerned cigarettes, however, in view of the statement of D1, page 2, line 22, it seems reasonable to assume that the tobacco rod is of the conventional type, i.e. not a low particulate matter potential rod in the meaning of the invention (see the patent specification: page 2, lines 39 to 41).

The main concern of D1 is increasing filtration efficiency of tar from tobacco smoke (see for example D1: page 2, lines 3, 4 and 35, 36) and D1 teaches that, to obtain the expected efficiency, the additives to the filter material should not only be of alkali nature but also of a specific form (needle-like micro acicular crystals).

As regards to low delivery products, D1 reminds that ventilation of the filter tips is commonly used and adds extra costs for the cigarette manufacturers (see D1: page 2, lines 16 to 17) giving the impression that ventilation should be avoided for cost-reasons and replaced by the new kind of filter described in D1.

In D1 the problem of improving "smoke impact" is not even suggested and Examples 1 and 2 (see page 5, Tables I and II) show that an addition of up to about 12% of sodium carbonate content by weight of filter material increases not only the percentage of removed tar and the nicotine to tar ratio, but also the removal of nicotine by the filter.

- 2.4.3 Since the cigarettes A of D2 comprise a high ventilated filter plug and a low delivery tobacco rod that already has a low tar delivery potential by virtue of its own composition, the Board cannot see any reason why the skilled person starting from this state of the art and willing to improve the smoke impact would consult D1 which relates to conventional smoking products and is concerned with a different problem i.e. the problem of reducing tar delivery already solved within the cigarettes of D2.

Assuming now that the skilled person would consult D1, he would not be inclined to use the filter material described therein since it is disclosed that said filter element removes nicotine with increased efficiency (see D1: page 5, Table 2: control filter versus the other samples) and therefore reduces the smoke impact.

Indeed, the specific conditions existing in D1 (additional sodium carbonate) can guarantee a sufficient available nicotine amount resulting in an still acceptable smoke impact and flavour in spite of an increased filter efficiency with respect to nicotine. However, the same result cannot be expected with a cigarette according to D2 since, due to its low particulate matter potential tobacco, it provides

already a decreased amount of nicotine and said amount would further decrease due to the increased nicotine filter efficiency of the specific alkaline filter (see D1, Tables I and II: the percentages of nicotine removed by the samples filters compared to the 28% removed by the control filter) and D1 neither teaches nor even suggests that an acceptable smoke impact and flavour still remain despite such a nicotine decrease.

If the skilled person would nevertheless envisage to use the alkaline filter of D1 on the cigarette of D2 and since the filter of said cigarettes corresponds to the ventilated filter tip described in D1 as commonly used with medium or low tar cigarettes (see D1: page 2, lines 16 to 17), the teaching of D1 would incite him not to add an alkaline filter section to the ventilated filter of D2 but to use it in replacement, as an alternative to save costs.

2.4.4 Therefore, the Board considers that, in view of D1 and for technical (further reduction of nicotine and thus of the smoke impact) and economical grounds, the skilled person would have good reasons not to add to the existing ventilated filter plug of D2 a supplemental alkaline filter section and that he would thus never arrive at the invention.

2.4.5 Since D3 also relates to conventional high particulate matter potential tobacco and solely uses an alkaline filter to remove selective phases from the smoke, a skilled person wanting to improve the smoke impact and the flavour of a cigarette cannot be guided by these informations to obtain, in an obvious way, the cigarette according to Claim 1.

3. Claim 2 as granted

3.1 Interpretation of Claim 2:

Since the weight of particulate matter delivery indicated at the end of Claim 2 (less than 9 mg) is the same as that described in Claim 1, the expression "smoking article" of the preamble of Claim 2 (see the patent specification: page 6, line 21) shall be interpreted as signifying: "low delivery smoking article" as described in Claim 1.

In the light of the description (see the patent specification: page 2, lines 13 to 14), the phrase: "the particulate matter delivery" at the end of Claim 2 shall be interpreted as signifying: "the mainstream particulate matter delivery", this interpretation having been confirmed by the respondent.

3.2 Novelty, closest state of the art, objective problem and inventive step.

Since the subject-matter of Claim 2 contains all the characteristics of the subject-matter of Claim 1, except the lower limit of 50% for the ventilation level, and comprises in addition the features that the filter element is a triple filter element comprising a high filtration efficiency paper section at the tobacco rod end side and that the degree of ventilation is balanced with respect to the filtration efficiency of the paper section, the complete argumentation given above in favour of novelty and inventive step regarding the subject-matter of Claim 1 remains valid as regards the subject-matter of Claim 2.

4. During the oral proceedings, the appellant also argued lack of inventive step starting from a so-called "commonly known low delivery smoking article" in general without further specifying its properties. He stated also that the problem solved by the invention was commonly known and that the solution was obvious and suggested by the common knowledge of the skilled person. The Board considers such an examining approach of inventive step as inappropriate since thereby, specific teachings of actual existing state of the art are generalised in such a way that, in particular, specific purposes or effects of certain measures completely disappear while only generalities which may guide the skilled person in the direction of the invention are taken into consideration. The Board cannot follow that kind of argumentation which does not apply objective criteria with respect to either the determination of the closest prior art or the problem to be solved and that results from an ex-post facto analysis which shall be avoided.

5. *Conclusion*

For the aforementioned reasons, the Board considers that to modify the low delivery cigarettes A of D2 in the manner described in Claims 1 or 2 as granted in order to increase the perceived smoke impact of these cigarettes does not follow plainly and logically either from the prior art or from the general knowledge of a skilled person and therefore implies an inventive step within the meaning of Article 56 EPC.

Therefore the invention as described and claimed in European Patent No. 0 514 804 meets the requirements of the EPC and said patent can be maintained as granted.

Order

For these reasons it is decided that:

. The appeal is dismissed.

The Registrar:



N. Maslin

The Chairman:



C. Andries

R. G. IPS