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File Number: T 169/91 - 3.3.1

Application No.: 88 309 008.6

Publication No.: 0 310 366

Title of invention: Chlorine-free silver protective lubricant composition

Classification: C10M 163/00

D E C I S I O N  
of 2 March 1993

Applicant: Amoco Corporation

Headword: Lubricants/AMOCO

EPC Articles 54 and 56

Keyword: "Novelty (confirmed)"



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Boards of Appeal

Chambres de recours

Case Number : T 169/91 - 3.3.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.1  
of 2 March 1993

Appellant : Amoco Corporation  
200 East Randolph Drive  
Chicago  
Illinois 60601 (US)

Representative : Ritter, Stephen David et al  
Mathys & Squire  
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London EC4Y 1AY (GB)

Decision under appeal : Decision of the Examining Division 029 of the  
European Patent Office dated 4 October 1990  
refusing European patent application  
No. 88 309 008.6 pursuant to Article 97(1) EPC.

**Composition of the Board :**

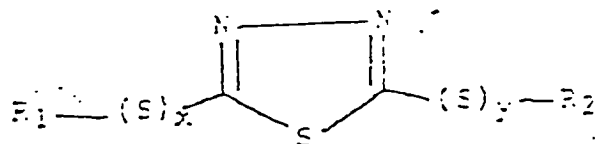
Chairman : K.J.A. Jahn  
Members : R.W. Andrews  
J.-C. Saisset

Summary of Facts and Submissions

- I. European patent application No. 88 309 008.6 (publication No. 0 310 366) was filed on 20 September 1988.
- II. By a decision dated 4 October 1990 the Examining Division refused the application on the ground that the subject-matter of the independent Claims 1 and 11 lacked novelty in the light of the disclosure of US-A-4 136 043 (1).
- III. An appeal was lodged against the decision on 30 November 1990 with payment of the prescribed fee. In his Statement of Grounds of Appeal filed on 14 January 1991, the Appellant argued that the Examining Division's conclusion regarding the disclosure of document (1) was wrong and that it had ignored the technical feature of the claim, that the claimed method and uses were for protecting silver parts. The Appellant also contended that the Examining Division had failed to apply properly the findings of the Enlarged Board of Appeal in Decision G 2/88.
- IV. In reply to communications of the Rapporteur dated 24 February 1992 and 14 August 1992 the Appellant filed amended statements of claim on 23 April 1992 and 10 December 1992. Independent Claims 1 and 11 of set of claims filed on 11 February 1993 read as follows:

"1. A method for protecting silver parts in an internal combustion engine against wear, extreme pressure and corrosion which method comprises the step of contacting the internal portion of said engine with a lubricating composition having a TBN of at least 7, which is essentially free of normal sulfurized calcium alkyl phenolate and of zinc or chlorine-containing compounds,

comprising: an oil of lubricating viscosity and (1) a thiadiazole compound having the general formula:



wherein x and y, being the same or different, are integers from 1 to 5, and R<sub>1</sub> and R<sub>2</sub>, being the same or different, are H, or C<sub>1</sub> to C<sub>50</sub> hydrocarbyl; (2) a carbonated overbased detergent; and (3) an ashless dispersant.

11. Use of a lubricating composition having a TBN of at least 7, which is essentially free of normal sulfurized calcium alkyl phenolate and of zinc or chlorine-containing compounds, comprising an oil of lubricating viscosity and (1) a thiadiazole compound as defined in Claim 1, (2) a carbonated overbased detergent, and (3) an ashless dispersant for protecting the silver parts in an internal combustion engine against wear, extreme pressure and corrosion."

V. The Appellant requested that the decision under appeal be set aside and a patent granted on the basis of Claims 1 to 20 filed on 11 February 1993.

Reasons for the Decision

1. The appeal is admissible.
2. In the Board's opinion, there are no objections under Article 123(2) EPC to the present claims since they do not contain subject-matter which extends beyond the content of the application as filed.

In particular, Claims 1 and 11 find a basis in Claims 1 and 11 as filed in combination with page 2, lines 9 to 12, the sentences bridging pages 6 and 7 and page 7, lines 15 to 25 of the published patent application. Claims 2 to 10 and 12 to 20 correspond to originally filed Claims 2 to 10. The proviso in Claims 1 and 11 is necessary to exclude the comparative compositions B and D disclosed in US-A-4 171 269 (document (3)) from the terms of these claims.

3. The present claims are directed to a method for protecting silver parts in an internal combustion engine against wear, extreme pressure and corrosion by contacting the internal portion of the engine with a lubricant having a TBN of at least 7, which is essentially free from normal sulphurised calcium alkyl phenolate and from zinc or chlorine-containing compounds, comprising an oil of lubricating viscosity, a thiadiazole defined by means of a general formula, a carbonated overbased detergent and an ashless detergent and the use of this lubricating composition for protecting the silver parts of an internal combustion engine against wear, extreme pressure and corrosion.

3.1 According to its decision G 2/88 of 11 December 1989 (OJ EPO 1990, 93), the Enlarged Board of Appeal held that a claim directed to the use of a known compound for a particular purpose should be interpreted as including the disclosed technical effect as a functional technical feature, and is accordingly not open to objection under Article 54 EPC provided such technical feature had not previously been made available to the public.

The Enlarged Board of Appeal also stated in this decision that a claim directed to the use of a compound or composition could be considered as notionally equivalent to a process including the step of using the compound or

composition (cf. paragraph 5.1). In the light of this statement, the Board considers that the Enlarged Board's ruling with respect to claims directed to the use of known compounds is also applicable to method claims for attaining the technical effect upon which the novelty of such use claims is based.

Therefore, the subject-matter of Claims 1 to 20 may be considered to be novel within the meaning of Article 54 EPC provided that the protection afforded to silvers parts of internal combustion engines against wear, extreme pressure and corrosion by lubricating compositions having a TBN of at least 7, which are essentially free from normal sulphurised calcium alkyl phenolate and from zinc or chlorine-containing compounds, comprising the specified thiadiazole compounds, carbonated overbased detergents and ashless detergents had not been made available to the public before the relevant priority date.

- 3.2 Document (1) discloses a lubricating composition comprising a major amount of a lubricating oil and a minor amount, suitable to inhibit copper activity and "lead paint" deposition, of a composition obtained by preparing a mixture comprising at least one ashless dispersant soluble in a lubricating oil and at least one dimercaptothiadiazole and heating said mixture at about 100°C to 250°C until it is capable of forming a homogeneous blend with an oleaginous liquid of lubricating viscosity (cf. Claims 1 and 11). According to this document copper activity refers to the tendency of a lubricant to stain copper parts and "lead paint" deposition is the deposition on engine surfaces of a thin film of finely divided lead-containing material (cf. column 1, line 18 to 30).

The lubricating compositions are intended for use as crankcase lubricating oils for spark-ignited and

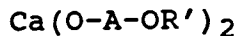
compression-ignited internal combustion engines including automobile and truck engines, two-cycle engines, aviation piston engines and marine and railroad diesel engines (cf. column 13, lines 39 to 44).

Although it is generally known that the vast majority of railroad diesel engines utilise silver plated piston pin insert bearings (cf. document (3), column 2, lines 4 to 15), in the absence of any evidence to the contrary the mere reference to the possible use of the lubricating compositions of document (1) in such engines does not make available to the public the silver protecting effect of such compositions even though this effect would occur when these prior art compositions were used in railroad diesel engines.

In the above-mentioned decision of the Enlarged Board it was emphasised (cf. paragraph 10.1) that the question to be decided is what has been made available to the public, not what may have been inherent in what was made available to the public. In other words, a clear distinction must be drawn between what is in fact made available and what remains hidden.

Therefore, in the Board's judgment, the subject-matter of the Claims 1 to 20 is novel having regard to the disclosure of document (1).

3.3 The document US-A-3 969 235 (2) discloses a lubricating oil composition comprising a hydrocarbon oil of lubricating viscosity containing about 0.1 and 90% by weight of a sulphurised calcium alkylphenolate which is produced by contacting an alkylphenol with a first addition of calcium alkoxyalkoxide of the formula



where A is C<sub>1-6</sub> alkanediyl and R' is C<sub>1-25</sub> alkyl at a temperature of 200° to 420°F at a mole ratio of calcium alkoxyalkoxide to alkylphenol of between about 0.225:1 to 0.45:1, contacting the resulting mixture with sulphur in the presence of 13 to 20% by weight of hydrocarbon lubricating oil at a temperature of 440° to 460°F at a mole ratio of sulphur to initial alkylphenol of between about 0.5:1 and 8:1 and subsequently contacting this mixture with a second addition of calcium alkoxyalkoxide at a temperature of 200° to 420°F in a mole ratio of calcium alkoxyalkoxide to initial alkylphenol of between about 0.15:1 to 0.375:1 in sufficient amount so that the total calcium alkoxyalkoxide employed in the first and third stages will total a mole ratio of calcium alkoxyalkoxide to initial alkylphenol of between about 0.5:1 and 0.6:1, and optionally 2,5-bis (octyldithio)thiadiazole (cf. Claim 1 in combination with Composition G of Table 1 in column 9). These compositions are less susceptible to undesired oxidation during engine operating and substantially less corrosive to metal engine parts such as silver, copper, iron, steel and iron and lead metal surfaces (cf. column 1, lines 58 to 64). However, this document does not disclose compositions containing carbonated overbased detergents. Thus, the subject-matter of the present claims is novel in the light of the disclosure of document (2).

- 3.4 Document (3) discloses a lubricating composition consisting of a base oil, a normal sulphurised calcium alkylphenolate, an alkenyl succinic anhydride, 2.5-bis(octyldithio)-thiadiazole, an overbased calcium sulphonate and, optionally a sulphurised naphthenic oil (cf. Formulations B and D in the Table in the column 15). Samples of these formulations were subjected to the Texaco Modified Silver Disc Friction-Test which is designed to determine whether a lubricating composition provides

adequate silver anti-wear properties (cf. column 15, lines 38 to column 16, line 1). According to column 16, lines 1 to 6, formulations B and D were characterised as poor. However, in view of the exclusion of compositions containing normal sulphurised calcium alkylphenolate from the terms of Claims 1 and 11, this document does not make available the silver protecting effect of the present compositions. Therefore, the subject-matter of Claims 1 to 20 is novel with respect to the disclosure of this document.

- 3.5 Therefore, in the Board's judgment the subject-matter of present independent Claims 1 and 11 and dependent Claims 2 to 10 and 12 is novel. Hence the sole ground for the refusal of the application has been overcome. However, the patent sought cannot be granted since the question of inventive step has still to be considered by the Examining Division. In these circumstances, the Board makes use of its power under Article 111(1) EPC to remit the case to the Examining Division for further prosecution.

#### Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Examining Division for further prosecution on the basis of Claims 1 to 20 filed on 11 February 1993 in which the spelling of "sulfurized" in Claim 1 has been corrected.

The Registrar

The Chairman

E. Görgmaier

K.J.A. Jahn