

Europäisches Patentamt
Beschwerdekammern

European Patent Office
Boards of Appeal

Office européen des brevets
Chambres de recours

Veröffentlichung im Amtsblatt	Ja/Nein
Publication in the Official Journal	Yes/No
Publication au Journal Officiel	Oui/Non



Aktenzeichen / Case Number / N° du recours : T 140/84

Anmeldenummer / Filing No / N° de la demande : 80 303 800.9

Publikations-Nr. / Publication No / N° de la publication : 0 030 078

Bezeichnung der Erfindung: Rotor assembly for use in an ignition distributor
Title of invention: incorporating a contactless signal generator for an
Titre de l'invention : electronic ignition system

Classification: FO2P 7/06

ENTSCHEIDUNG / DECISION
vom / of / du 25 March 1985

Anmelder/Patentinhaber:
Applicant/Proprietor of the patent: Lucas Industries Ltd
Demandeur/Titulaire du brevet :

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Art. 52(1), 56
"Inventive step"

Leitsatz / Headnote / Sommaire

**Europäisches
Patentamt**
Beschwerdekammern

**European Patent
Office**
Boards of Appeal

**Office européen
des brevets**
Chambres de recours



Case Number: T 140 / 84

DECISION
of the Technical Board of Appeal 3.2.1
of 25 March 1985

Appellant: Lucas Industries Ltd.
Great King Street
Birmingham, B19 2XF (GB)

Representative: Carpenter, David et al
Marks & Clerk
Alpha Tower,
Suffolk Street Queensway
Birmingham B1 1 TT (GB)

Decision under appeal: Decision of Examining Division 103 of the European Patent
Office dated 24 January 1984 refusing European patent
application No 80 303 800.9 pursuant to Article 97(1)
EPC

Composition of the Board:

Chairman: G. Andersson
Member: M. Huttner
Member: P. Ford

SUMMARY OF FACTS AND SUBMISSIONS

- I. European Patent Application No. 80 303 800.9, filed on 27 October 1980, published on 10 June 1981 under publication Nr. 0 030 078 and claiming priority of 21 November 1979 from a previous application filed in the United Kingdom was refused by decision of the Examining Division 103 of the European Patent Office, dated 24 January 1984. That decision was based on the apparatus Claims 1 to 3 and method Claims 4 to 7 as originally filed.
- II. The reasons given for the refusal were that the subject matter of each of the independent Claims 1 and 4 did not involve an inventive step, as the publication US-A-3 875 920 previously disclosed the idea of modifying an already existing mechanical ignition system to a contactless controlled system by incorporating a contactless signal generator having a vane with a centrally disposed aperture closely fitted to the distributor shaft near the rotor arm. Consequently, the simple constructional change of attaching the vane to the cylindrical portion of the rotor arm instead would be within the scope of normal practice of the skilled person. Likewise, it would amount to normal manufacturing procedure to select existing rotor arms and secure a vane thereto in a predetermined angular and axial position for forming part of a contactless signal generator. Therefore, the method as set forth in Claim 4 would also lack the inventive step required.
- III. On 19 March 1984, the appellants lodged an appeal against this decision by telex, which was followed by a confirmation letter, the payment of the fee and a

statement of grounds, all received within the prescribed time limits.

The appellants asserted that US-A-3 875 920 nowhere discloses the suggestion that an existing distributor can be converted primarily by the owner or user of the vehicle or a local garage or service station, but in fact suggests a design change by the original equipment manufacturer who changes his product from a mechanical distributor to a contactless ignition distributor, while at the same time using as many mechanical ignition distributor components as possible.

Further, in the distributor according to the US-A-3 875 920, the vane is mounted on the distributor shaft rather than on the rotor arm and the replacement of both the mechanical braker and the braker cam is contemplated. Since the latter is an integral part of the distributor shaft, this inevitably necessitates replacement of the shaft, which in most mechanical ignition distributors requires a complex procedure not within the skill and capabilities of an average vehicle owner.

Hence, the Examining Division had been wrong to conclude that the teaching of US-A-3 875 920 would lead towards the present invention and render the subject matter of Claims 1 and 4 obvious.

- IV. As a result of objections raised by the Board of Appeal in a communication to the appellants, the latter submitted on 26 January 1985 a new set of Claims 1-7 together with a revised introductory portion of the description, requesting that the impugned decision be

set aside and that a European Patent be granted on the basis of these amended documents.

Claim 1 reads as follows:

1. A rotor arm assembly, for use in an ignition distributor of the kind which incorporates a contactless signal generator, the assembly comprising a rotor arm (18) and a vane (23), the vane having an aperture through which a region of the rotor arm extends, characterised in that said rotor arm is an existing rotor arm manufactured without the provision of a vane, and intended for a conventional mechanical ignition distributor, and in that said region (28) of the rotor arm is a cylindrical region received as a press fit within the centrally disposed aperture of the vane (23) whereby the vane (23) is attached to the rotor arm (18) to rotate therewith, the vane (23) being positioned on the rotor arm (18) with its intended axis of rotation coextensive with the axis of rotation with the rotor arm (18), in an angular position which is determined in relation to the rotor arm (18) such that the vane (23) will have the desired angular relationship to the rotor shaft (12) of the distributor when the rotor arm (18) is engaged in the conventional manner with the rotor shaft (12) of the distributor and in an axial position in relation to the axis of rotation of the rotor arm (18) such that the vane (23) will occupy a desired axial position in relation to the sensor (17) fitted within the distributor, again when the rotor arm (18) is engaged in the normal manner with the rotor shaft (12) of the distributor.

Claim 4 reads as follows:

A method of manufacturing a rotor arm assembly comprising a rotor arm (18) carrying a vane (23), the method being characterized by the steps of, selecting a rotor arm (1) from a stock of existing rotor arms, and, securing thereto in a predetermined angular and axial position, a vane (23) for a contactless signal generator, the vane (23) being secured to the rotor arm (18) by press fitting the vane (23) onto the rotor arm (18).

- V. For the original claims, description and drawings reference should be made to publication No. 0030078.

REASONS FOR THE DECISION

1. The appeal complies with Articles 106 and 108 EPC and Rule 64 EPC and is therefore admissible.
2. In the Board's view, no objection may be raised to the preamble of Claim 1 acknowledging as known a rotor arm assembly for use in an ignition distributor of the kind which incorporates a contactless signal generator, the assembly comprising a rotor arm and a vane having an aperture through which a region of the rotor arm extends, nor to the preamble of Claim 4, stating the method of manufacturing a rotor arm assembly comprising the selection of an existing rotor arm and securing a vane by press fitting thereonto.

These features are, in combination, part of the most pertinent state of the art such as DE-A-2 716 510, therefore Rule 29(1)(a) EPC is complied with.

Those features that are stated in the characterising portion of Claim 1 differ from the prior art referred to above with respect to the salient features which the appellant desires to protect, thus Rule 29(1)(b) EPC is likewise complied with. Compared with the wording of Claims 1 and 4, on which the decision is based, the effective Claims 1 and 4 contain the features properly redistributed between the preamble and the characterising clause without the addition of any additional subject matter. Therefore the subject matter of both Claims 1 and 4 respectively does not extend beyond the content of the application as filed, as required by Article 123(2) EPC.

3. The examination as to whether a rotor assembly and a method of manufacturing it according to Claims 1 and 4 respectively is disclosed in any of the documents uncovered by the search report leads to the Board's conclusion concurring with that of the Examining Division that the subject matter of each of these Claims is novel having regard to this state of the art, due to the fact that they all fail to disclose a rotor arm assembly having a vane secured to an existing rotor arm by a press fit.

4. In the ignition distributor of the kind which incorporates a contactless signal generator known from DE-A-2 716 510, now representing the closest prior art from which the invention sets out, a vane is moulded into a rotor arm to form a unitary item intended for use in converting a existing mechanical ignition distributor. Since a great variety of ignition distributors having many different forms and sizes exists, it would be

impossible to produce them all of the same form and size, thus, in following the disclosure of DE-A-2 716 510, it would be necessary to produce and store a wide variety of such unitary rotor assemblies. The appellants consider this as prohibitively expensive and a severe disadvantage.

5. Therefore, the technical problem to be solved underlying the present application resides in the provision of a rotor assembly whereby an existing mechanical distributor can be converted into a distributor including a contactless signal generator by any owner or service mechanic having the necessary skill, making use of the existing rotor arm.
6. The solution of this problem is based on the idea of making use of a fixed sensor and an appropriate rotating vane that can be attached subsequently to an existing rotor arm fitted in the conventional manner to the rotor shaft of the distributor.

According to the application, this is done by providing a vane with a centrally disposed aperture within which a cylindrical portion of the rotor arm is received in a press fit fashion, as stated in the characterising clauses of Claim 1 and Claim 4.

7. It remains to be examined whether the subject matter of Claims 1 and 4 involves an inventive step and the question now arises whether the publications cited would give the skilled person any indication how the distributor arm of the ignition distributor replacement kit such as disclosed in DE-A-2 716 510 could be modified to avoid the drawback pointed out above.

- 7.1 Upon consideration of the teachings of US-A-3 875 920, the Board has reached the conclusion that the appellants' assertions in their submission are correct in as much as said publication actually pertains to the manufacture of a contactless ignition distributor as original equipment undertaken by the manufacturer, whereby as many components as possible of an existing range of mechanical ignition distributors are to be utilised.

It is also clear from the disclosure that the vane is mounted on the distributor shaft. According to Column 3, lines 35 to 40, the configuration shown and described in the context of Figure 1 indicates that the replacement of both the breaker cam and the contact type breaker is contemplated. Since the breaker cam almost always constitutes an integral part of the distributor shaft, the replacement of the cam necessarily entails the replacement of the shaft, which must be considered to be beyond the knowledge and skill of the average vehicle owner. Therefore, what the US-A-3 875 920 in fact teaches is the fitting of the shaft with a vane secured thereto as a unitary assembly to which the rotor arm is attached instead of the conventional mechanical distributor rotor assembly.

- 7.2 From the above, it becomes evident that the citation dealt with not only seeks to solve an entirely different problem but in addition teaches features that are different from the salient features of the invention and are pointing in a direction different from that of the invention. Consequently, no stimulus whatsoever for arriving at the subject matter of Claim 1 could possibly be given by this disclosure.

Thus it is the Board's view that the US-A-875 920 taken singly does not form a satisfactory basis for establishing obviousness of Claim 1.

- 7.3 The Examining Division further relied on DE-A-2 716 510 and applied its teachings to those of US-A-3 875 920. As disclosed in the former, the rotor arm actually moulded with the vane in position, represents the impracticable rotor arm assembly originally manufactured as an inseparable unit required to fit a variety of existing distributors currently "in use", which the invention precisely seeks to avoid.

The transfer of such assembly to US-A-2 716 510 thus could not possibly lead to the subject matter of Claim 1.

Moreover, any such attempt would appear unrealistic on account of the fact that DE-A-2 716 510 indisputably constitutes the most pertinent prior art. Starting from the wrong premise as to the closest art inevitably produces a false result. Conversely, adopting the proper approach by starting out with making the more logical attempt to apply the teachings of the remote piece of art US-A-3 875 920 to those of the most relevant DE-A-2 716 510 would not yield the result contemplated in the present case. Evidently, if the device of the latter were modified according to the former, one would have to abandon the combined rotor-vane arm assembly in favour of a distributor with a shaft-vane assembly. This would clearly not only run counter to the teachings of DE-A-2 716 510 but also to those of the invention. Therefore it becomes readily apparent

that no combination of the two disclosures suffices to establish the obviousness of the subject matter of Claim 1.

The Examining Division considered a rotor arm having a cylindrical portion such as e.g. disclosed in DE-A-2 636 291 and alleged that the attachment of the vane to the rotor arm by a pressfit would constitute nothing but the normal consideration of the skilled person. This implies that the forgoing combining of the two references still fails to lead to the subject matter of Claim 1 without the addition of two further steps. Thus one would actually have to perform a series of steps to proceed from the prior art to the invention, which in the Board's opinion is only possible with the assistance of hindsight. This however constitutes clear ex post-facto analysis which is unacceptable.

- 7.4 With respect to the independent method Claim 4, referring to the sequence of manufacturing steps for implementing a rotor arm assembly essentially in incorporating the salient features of Claim 1, the Board sees no reason to deviate from the findings exposed in the previous items 7.1 to 7.3, since none of the prior art documents dealt with in the proceedings taken singly or in combination hints or indicates to the skilled person the steps claimed in Claim 4.
8. The Board's view, therefore, is that the subject matter of Claims 1 and 4 respectively would not be obvious from either citation taken singly or together relied on in the Decision of the Examining Division. Hence, the required inventive step is not lacking and Article 56 EPC is fulfilled in either case. Claims 1 and 4 are therefore allowable having regard to Article 52(1) EPC.

9. The dependent Claims 2 , 3 and 5 to 7 having as subject matter special embodiments of the invention as claimed in the independent Claims 1 and 4 respectively on which they ultimately depend, are also allowable, since their acceptance is contingent on the allowability of Claim 1 and 4 which has to be approved.

Order

For these reasons, it is decided that:

1. The decision of the Examining Division 103 of the European Patent Office dated 24 January 1984 is set aside.
2. The application is remitted to the first instance with the order to grant a European patent on the basis of the following documents:
 - Claims 1 to 7 and
 - description, pages 2, 3 and 3a, as received on 26 January 1985
 - pages 4 to 9 and drawing sheet 1/1 as originally filed.

The Registrar

J. He

The Chairman

[Signature]