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Aktenzeichen:
Case Number: T 22/81
N° du recours :

ENTSCHEIDUNG / DECISION
vom / of / du 7 February 1983

Anmelder:
Applicant: LUCAS INDUSTRIES LTD
Demandeur :

Stichwort:
Headword: *transducer system / Lucas*
Référence :

EPÜ / EPC / CBE Article 52, 56
"Inventive step"

Leitsatz / Headnote / Sommaire

If the applicant declares during the procedure that certain claimed features are not intended to provide an inventive step, then in such case, these features and any advantages resulting therefrom can be disregarded in assessing the inventive step and investigation as to non-obviousness can be confined to the remaining features of the claim.



Case Number : T22 81

DECISION
of the Technical Board of Appeal 3.2.1
of 7 February 1983

Appellant: LUCAS INDUSTRIES LIMITED
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Representative: PRUTTON, Roger
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Decision under appeal: Decision of Examining Division 55 of the
European Patent Office dated 25 February
1981 refusing European patent application
No. 79 300 291.6 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. 79 300 291.6 filed on 26 February 1979, published on 3 October 1979 under publication No. 0 004 416 and claiming priority of 18 March 1978 from a previous provisional application filed in Great Britain, was refused by decision of the Examining Division 55 of the European Patent Office dated 25 February 1981. That decision was based on claims 1-4 as originally filed.
- II. The reasons given for the refusal were that the subject matter of claim 1 did not involve an inventive step, since the publication FR-A-2 283 425 also disclosed a crankshaft position transducer system for the purpose of producing a triggering pulse at a predetermined rotational position of the rotary member differing from that claimed only in that one of the reference elements is radially spaced in addition to the circumferential spacing and that a second transducer associated therewith is provided.
- III. On 17 April 1981, the applicants lodged an appeal against this decision paying the fee for appeal and filing the statement of grounds in due time. The appellants asserted that FR-A-2 283 425 discloses reference elements magnetised with opposite polarity which could be incorrectly fitted and furthermore require a detection circuit to distinguish the pulses produced by one reference element from those produced by the other. The appellants requested the grant of a European Patent on the basis of new claims 1-5 submitted on 19 June 1981 and a revised description of the same date. After the first communication of 21 September 1981, the appellants filed an amended claim 1 limited to at least one

pair of non-magnetized reference elements specifying the circumferential spacing thereof as corresponding to maximum and minimum spark advance positions.

- IV. In the course of the written procedure before the Board of Appeal, DE-U-7 405 661 was cited as a further more pertinent reference.
- V. Finally, the appellants submitted an amendment to the description (new pages 2, 3 and 4) and new claims 1 and 2. Claim 1 now corresponding to a combination of claims 1, 2 and 5 previously on file, reads as follows:

A crankshaft position transducer system comprising an internal combustion engine (12) having a crankshaft (14) and a flywheel (16) mounted on the crankshaft (14), at least one pair of reference elements (34) mounted to rotate with the crankshaft (14), and a transducer head (18) mounted to co-operate with the reference elements (34), characterised in that the two reference elements (34) of the or each pair are mounted on the flywheel (16) at radially and circumferentially spaced locations, the circumferential spacing corresponding to maximum and minimum spark advance positions, each reference element (34) being formed from material which is not permanently magnetized, and the transducer head (18) comprises a pair of individual transducers (22,24) which are arranged so that each individual transducer (22,24) co-operates with a respective one of the or each pair of reference elements (34) to produce a triggering pulse at a predetermined rotational position of the flywheel (16), each transducer (22,24) including an axially extending part (26,28) and each reference element including an axially extending part which is

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arranged to pass beside the axially extending part (26,28) of its respective transducer (22,24).

- VI. The appellants further indicated that they would be willing to delete certain features of claim 1 which could possibly be considered as insufficiently disclosed thus avoiding rejection under any or all of Articles 83, 84 and 123(2) EPC. Such indication of amendment of claim 1 envisaged by the appellants in case the Board would affirm its position on insufficiency of disclosure must be considered as an alternative request by the appellants for the grant of the patent with such amended claim 1.
- VII. At the appellants' request, oral proceedings were appointed for 20 January 1983. On the day preceding the oral proceedings, the Board received a telex message from the appellants' representative stating that they had decided that the oral proceedings would not be attended but they were willing for the oral proceedings to take place in their absence. Further arguments in support of their case were set out in the telex. No letter confirming the contents of the telex was received prior to the oral proceedings which were adjourned until 7 February 1983 to await written confirmation of the contents of the telex message. Such confirmation having been duly received on 26 January 1983, the appeal was considered in the absence of the appellants at the resumed oral proceedings on 7 February 1983.
- VIII. For the original claims and description, reference should be made to publication No. 0 004 416.

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Reasons for the Decision

1. The appeal complies with Articles 106-108 and Rule 64 EPC; it is therefore admissible.
2. The questions whether the subject matter of the presently effective claim 1 is disclosed in a manner sufficiently clear as required by Article 83 EPC, whether it is sufficiently supported by the description as required by Article 84 EPC and whether the amendments are allowable under the terms of Article 123(2) EPC can be left open, since the application will have to be rejected for another reason (viz. lack of inventive step).
 - 3.1 Of the documents uncovered by the search report, or introduced during the appeal proceedings, FR-A-2 283 425 and DE-U-7 405 661 are concerned with a crank-shaft position transducer system of an internal combustion engine; whereas FR-A-2 123 016 and GB-A-946 638 deal with distributors coupled to such an engine, while US-A-3-753 429 reveals a magnetic ignition system.
 - 3.2 The subject matter of the application as set out in the present claim 1 proves to be new, in view of the fact that there is no crank-shaft position transducer system disclosed in the prior art having at least one pair of reference elements, each of which including an axially extending part which is arranged to pass beside the axially extending part of a transducer.
4. The appellants acknowledge that the crank shaft position transducer system disclosed in FR-A-2 283 425 corresponds to the preamble of the claim 1, and that DE-U-7 405 661 likewise discloses such a system being

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even closer to the subject matter claimed in respect of the salient features. In this latter document, a crank-shaft position transducer system for an internal combustion engine is disclosed, having at least one pair of reference elements which are mounted on a disc mounted on the crank-shaft and facing a pair of individual transducers mounted on a common supporting means forming the head piece for the two transducers fitted therein and thereby constituting the transducer head. The reference elements are located at radially and circumferentially spaced locations and each individual transducer, having an axially extending part, cooperates with a respective one of the reference elements to produce a triggering pulse at a predetermined rotational position of the disc.

Thus claim 1 differs from the prior art system according to DE-U-7 405 661 merely in that the reference elements are non-magnetized, the axially extending part of each of them is arranged to pass beside the axially extending part of its respective transducer; the spacing of the elements corresponds to maximum and minimum spark advance positions; and, finally, that the disc is a flywheel.

- 5.1 The appellants also noted in their observations of 26 April 1982 that the non-magnetisation of the reference elements as well as their arrangement at positions corresponding to maximum and minimum spark advance positions are not intended to provide an inventive step. From this, the Board concludes that these features and any advantages resulting therefrom can be disregarded in assessing the inventive step and the investigation as to non-obviousness can be confined to the remaining features of claim 1.

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- 5.2 Therefore the question to be considered is whether, in these circumstances the system according to claim 1 still involves an inventive step. From the assessment of the matter, the following points emerge:

According to what the appellants say in their submissions, there are disadvantages in using a crank-shaft mounted disc carrying the reference elements which are aligned, and cooperate with the stationary part of the transducer as disclosed in FR-A-2 283 425, because the crank-shaft is liable to axial shift as may be encountered when it is installed in a motor car with automatic transmission, and actual variation between the distance between the transducer parts facing each other is possible, causing undesirable variation of the transducer signals. The same thing appears when the position of the reference element changes as the thickness of the disc varies. There is no doubt that a device according to DE-U-7 405 661 suffers from the same drawbacks.

- 5.3 The problem of undesirable signal variation produced by the transducer referred to above is said to be solved by the system as defined by the characterising portion of claim 1.
- 5.4. The solution of the problem underlying the application is based on the idea of utilising axially non-sensitive transducers. As proposed in the application, this idea is realised by arranging the axially extending parts of the reference elements so as to pass beside the axially extending part of its respective transducer. In this manner the signal magnitude is not subject to change if the position of the reference element with respect to the axially extending part of the transducer should vary.

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5.5 The question now arises whether the publications cited would give the skilled person any indication for making the system according to DE-U-7 405 661 non-critical to axial displacement of the reference elements. However, this is indeed the fact, because FR-A-2 123 016 discloses in Figure 2 an axially oriented transducer-reference element combination in an ignition distributor. A rotatable disc carries an axially extending projection or rod, i.e. a reference element, passing through an axially extending air gap within the transducer. Thus the reference element is allowed to pass beside an axially extending part of the transducer with which it is cooperating, thereby producing a single pulse that triggers an ignition spark. Due to the axial extension of the reference element-transducer combination disclosed, no signal variation is produced by an axial change of position of the reference element and so far from denying the occurrence of such change in a distributor the appellants have admitted that some variation of the axial position of the distributor disc will also occur. Thus the ignition specialist, being confronted with the problem of removing the disadvantages of axial variation of the reference element position and aware of some axial shift likewise occurring with distributor discs would take the hint from this prior art publication for the application of such an axial arrangement in the present case, although in FR-A-2 123 016 such a hint has not been given expressis verbis. It does, however, reside in the fact that one of the effects known to the person skilled in the art which the known arrangement produces, is the same as in the case to be decided.

Therefore, the teachings of this citation provided a clue to resolving the problem of undesirable displace-

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ment of the reference elements, regardless whether such displacement occurs with a distributor-mounted reference element or with one mounted on a flywheel disc.

As a further feature of claim 1 not known from DE-U-7 405 661 remains the flywheel on which the reference elements are located. The appellants have not denied that the pulley with the attached disc and being mounted on the crank-shaft disclosed in DE-U-7 405 661 also functions as a flywheel due to its inertia and, further, the flywheel is the most convenient place to mount a reference element carrying disc, as the applicants agree was common practice in the art.

In addition, the flywheel introduced into the preamble of claim 1 has no functional interrelationship with the axial arrangement of the reference-element-transducer combination avoiding sensitivity to axial displacement. The latter means can perform their desired function regardless whether they are associated with a flywheel or any other rotary disc mounted on the crank shaft. Therefore this feature does not add anything inventive to the subject matter of claim 1.

- 5.6 For the foregoing reasons, the subject matter of claim 1 lacks an inventive step as required by Article 56 EPC. Claim 1, therefore, cannot be allowed, having regard to Article 52(1) EPC.
6. The dependent claim 2 having as subject matter special embodiments of the invention according to claim 1, is not allowable either since its acceptance is contingent on the allowability of claim 1, which has been denied.

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7. Dealing with the alternative claim 1, which differs from the presently effective claim 1 by the mere omission of the limitations to the maximum and minimum spark advance positions and the non-magnetized property of the reference elements, it is noted that with the consent of the appellants these two features had been disregarded in the assessment of inventiveness of the presently effective claim 1 and therefore all reasons given above for denying an inventive step to such claim apply equally to the alternative claim 1. Hence it also does not involve an inventive step as required by Article 56 EPC and, therefore, cannot be allowed having regard to Article 52(1) EPC.

For these reasons, it is decided that:

The appeal against the decision of the Examining Division of the EPO dated 25 February 1981 is rejected.

The Registrar:

J. Ruckerl

The Chairman:

G. Andersson