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D E C I S I O N
of 5 May 2003

Case Number: T 0531/01 - 3.2.4

Application Number: 96105895.5

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Language of the proceedings: EN

Title of invention:
Starter

Patentee:
DENSO CORPORATION

Opponent:
Robert Bosch GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
"Novelty - public prior use (no) - insufficient evidence"
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-



Case Number: T 0531/01 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 5 May 2003

Appellant: Robert Bosch GmbH
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Representative: -

Respondent: DENSO CORPORATION
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Decision under appeal: Interlocutory decision of the Opposition Division
of the European Patent Office posted 7 March 2001
concerning maintenance of European patent
No. 0 725 216 in amended form.

Composition of the Board:

Chairman: M. G. Hatherly
Members: T. Kriner
H. Preglau

Summary of Facts and Submissions

I. The Appellant (Opponent) lodged an appeal, received at the EPO on 9 May 2001, against the interlocutory decision of the Opposition Division posted on 7 March 2001 on the amended form in which the European patent No. 0 752 216 could be maintained. The appeal fee was paid simultaneously and the statement setting out the grounds of appeal was received at the EPO on 16 July 2001.

II. Opposition was filed against the patent as a whole and based on Article 100(a) together with 52(1), 54 and 56 EPC. The Opposition Division held that the corresponding grounds for opposition did not prejudice the maintenance of the patent as amended according to the auxiliary request 1 filed with letter of 10 July 2000.

III. The following documents have been considered in the appeal proceedings:

D3: US-A-2 332 986

D4: DE-A-2 439 981

D5: VDI-Richtlinie 2201, Blatt 1 und 2

D11: US-A-1 330 326.

Moreover, the following documents referring to an alleged public prior use of a starter having the order number 0 001 208 053 and produced by the Appellant himself have been considered:

- D6.1: List concerning starters 0 001 208 053...056,
058...059,060...061 (1.1973);
- D6.2: List concerning starters 0 001 208 040(1.1973);
- D6.3: List concerning an overrunning clutch
1 006 209 400 (08.03.00);
- D6.31: Modification sheet Nr: 00E5148 concerning
overrunning clutch 1 006 209 400 and pinion
1 000 384 557
- D6.32: Modification sheet Nr: 00E 6936 concerning
spring 2 004 616 040 of overrunning clutches
(amongst others 1 006 209 400) (6.7.98)
- D7: Drawing of overrunning clutch 1 006 209 400
(5.8.76)
- D7.1: Modification sheet Nr: 00E 7014 concerning
overrunning clutches (amongst others
1 006 209 101 400)
- D8.1: Drawing of ring 2 000 120 002 (17.3.71)
- D8.2: Drawing of disk 2 000 500 023 (17.3.71)
- D8.3: Drawing of disk 2 000 113 007 (17.3.71)
- D8.4: Drawing of disk 2 000 102 003 (17.3.71)
- D8.5: Drawing of retaining ring 1 000 500 016
- D8.6: Drawing of snap ring 1 004 601 005 (18.10.62)

- D9: Drawing of forked lever 2 001 933 056 (21.6.67)
- D9.1: Modification sheet Nr: 98EG611 concerning switch lever 2 001 933 056
- D10.1: List concerning order numbers and positions
- D10.2: Drawings of the components of a starter
- D12: "Vergleichsnummernliste Frimatec komplett", page 9 of 880, excerpt from the Internet page "<http://www.frimatec.org/start.htm>".

IV. Oral proceedings took place on 5 May 2002.

The Appellant requested that the decision under appeal be set aside and the European patent EP 0 725 216 be revoked.

The Respondent (Patentee) requested that the appeal be dismissed and that the patent be maintained as per the interlocutory decision (main request), or that the decision under appeal be set aside and the patent be maintained in amended form according to auxiliary requests 1 or 2 filed with letter of 18 March 2003.

V. Claim 1 of the main request reads as follows:

"A starter comprising:
an output shaft (220) having a helical spline (221);
a pinion transmittal member having a pinion (200) for meshing with a ring gear (100) of an engine and mounted on the output shaft axially movably through mating with the helical spline of the output shaft;
a motor (500) for rotating the output shaft thereby to

move the pinion toward the ring gear for meshing with the ring gear; and
a return preventing member (231) for restricting a return of the pinion from the ring gear when the pinion meshes with the ring gear under a rotation of the ring gear of the engine; characterized by
a slide member (215) disposed between the pinion transmittal member and the return preventing member, said slide member being rotatably mounted on the pinion transmittal member."

Claim 1 of the auxiliary request 1 and claim 1 of the auxiliary request 2 differ from this claim by additional features.

VI. In support of his request the Appellant relied essentially on the following submissions:

With respect to the public prior use of the starter having the order number 0 001 208 053, the subject-matter of claim 1 of the main request was not new. This starter was used in the "Opel GT" having a 1.9 l engine since 1971. Although there was no evidence for this public prior use, each of D6.1, D6.2 and D12 showed that it was more likely than not that the starter 0 001 208 053 had been used in the "Opel GT". The starter comprised the overrunning clutch shown in D7 and the forked lever shown in D9. During starting, the forked lever was permanently pressed against the disk 15 of the overrunning clutch so that it worked as a return preventing member. Since the disk was rotatable with respect to the overrunning clutch and with respect to the neighbouring disks, it worked as a slide member as described in claim 1. Hence, the public prior used starter comprised all features of claim 1 of

the main request.

The most relevant published state of the art was represented by D3. This document disclosed all features of the pre-characterizing portion of claim 1 of the main request. It was obvious that there arose friction and abrasion between the pinion (7) and the return preventing member (15) when the latter was in contact with the face of the pinion for preventing a return from the ring gear (9). Thus, the object to be achieved could be regarded as to provide a starter having an improved durability.

In order to avoid friction and abrasion between a rotating element (4) and a fixed element (2), D5 suggested (see Blatt 1, page 3, Figure 2e) the provision of a slide member between these elements. Furthermore, D5 showed (see Blatt 2, Page 3, Figure 6) that such a slide member could also be arranged asymmetrically with respect to the rotating element. Therefore, the provision of a slide member as defined in the characterizing portion of claim 1 of the main request in a starter according to D3 was obvious for the skilled person dealing with the object mentioned above.

Moreover, the provision of a slide member in a starter to avoid friction and abrasion between a rotating and a fixed element was also suggested by D4 and D11. In the starter according to D4 the pressure disk (31) and the brake disk (26) had to be regarded as slide members, and in the starter according to D11 the anti-friction bearing (10) formed a slide member.

Therefore, with respect to the combination of D3 with

any of D5, D4 or D11, the subject-matter of claim 1 of the main request did not involve an inventive step.

VII. The Respondent's arguments can be summarised as follows:

The alleged public prior use of the starter 0 001 208 053 was not sufficiently substantiated. There was neither any evidence that this starter had been used in public, nor evidence that this starter comprised the overrunning clutch shown in D7 and the forked lever shown in D9. Consequently the alleged public prior use could not be regarded as state of the art.

The most relevant state of the art was in fact represented by D3. Starting from D3, the object to be achieved by the patent in suit was the provision of a starter having an improved durability of the pinion rotation regulating mechanism. This object was achieved by the provision of a slide member according to the characterizing portion of claim 1 of the main request.

D5 referred exclusively to slide bearings. Therefore the skilled person would not consider D5 in the present case. However even if he considered D5, this document could not suggest the provision of a slide member according to claim 1 of the main request since Figure 2e on page 3 of Blatt 1, and Figure 6 on page 3 of Blatt 2, did not show a bearing which was mounted on a rotating member.

D4 and D11 did not suggest the arrangement of a slide member between a pinion transmittal member and a return preventing member. Moreover, the brake disk (26) shown

in D4 could not be regarded as a slide member, since it did not support a sliding effect but rather a braking effect, and the anti-friction bearing (10) shown in D11 did not contact the pinion (5) when the pinion meshed with the fly wheel (6).

Consequently the subject-matter of the present claims was not obvious but was based on an inventive step.

Reasons for the Decision

1. The appeal is admissible.

2. *State of the art*

3.1 The alleged public prior use

2.1.1 According to the case law of the Board of Appeal the following circumstances have to be clarified for determining whether or not an invention has been made available to the public by prior use (see Case Law of the Boards of Appeal of the EPO, 4th edition 2001, page 474, section VII.C.8.6):

(a) when the act of prior use occurred,

(b) what was made available to the public through that use,

(c) the circumstances of that act of use, ie where, how and by whom the subject-matter was made public through that use.

Furthermore, the alleged public prior use has to be

proved beyond any reasonable doubt (see Case Law of the Boards of Appeal of the EPO, 4th edition 2001, pages 358, 359, section VI.J.5(b) "prior use").

2.1.2 With respect to the requirements (a) and (c) the Appellant merely stated that the starter of the type 0 001 208 053 had been fitted into the 1,9 l engine of the "Opel GT" since 1971. However there is no evidence which is suitable to support this allegation.

The Appellant's argumentation that D6.1, D6.2 and D12 showed that it is likely that the starter 0 001 208 053 had been used in the "Opel GT" is not convincing. These documents prove at best that a starter having the order number 0 001 208 053 exists. However, they are not suitable to prove that this starter has been used in public, let alone that it was used in an "Opel GT" since 1971. Moreover it is not sufficient to show that it is more likely that the starter 0 001 208 053 has been used in the "Opel GT" than it has not been used, since this does not prove the public prior use beyond any reasonable doubt.

Hence, the requirements (a) and (c) are not met in the present case.

2.1.3 Moreover, it is not clear what allegedly has been used.

The present documents, in particular D7 and D10.2 merely show that the starter of the type 0 001 208 053 comprises:

an output shaft having a helical spline (see D10.2);

a pinion transmittal member (see D7) having a pinion (1) suitable for meshing with a ring gear of an engine (implicit) and mounted on the output shaft axially movably through mating with the helical spline of the output shaft (see D10.2);

a motor (see D10.2) for rotating the output shaft thereby to move the pinion toward the ring gear for meshing with the ring gear (implicit).

However, documents D6.1 to D10.2 do not show whether or not the starter of the type 0 001 208 053 additionally comprises a return preventing member for restricting a return of the pinion from the ring gear when the pinion meshes with the ring gear under a rotation of the ring gear of the engine; and a slide member disposed between the pinion transmittal member and the return preventing member, said slide member being rotatably mounted on the pinion transmittal member.

The Appellant's statement that the forked lever shown in D9 formed a return preventing member and the disk 15 shown in D7 formed a slide member as defined in claim 1 (see letter of 16 July 2001, page 15, paragraph 3 to page 16, paragraph 1) is not supported by any evidence.

2.1.4 Consequently, none of the requirements (a), (b) and (c) mentioned in section 2.2.1 above is met, and the prior use has not been proved beyond any reasonable doubt.

Therefore, the Board comes to the conclusion that the alleged public prior use cannot be regarded as forming part of the state of the art according to Article 54(2) EPC.

2.2 Each of D3 and D4 discloses a starter comprising:

an output shaft (D3: 2 / D4: 2)) having a helical spline;

a pinion transmittal member (D3: 6, 7, 8 / D4: 6, 8, 12, 26, 27) having a pinion (D3: 7 / D4: 4) for meshing with a ring gear (D3: 9 / D4: 22) of an engine and mounted on the output shaft axially movably through mating with the helical spline of the output shaft;

a motor (D3: see page 1, left hand column, lines 21 to 24 / D4: 1) for rotating the output shaft thereby to move the pinion toward the ring gear for meshing with the ring gear; and

a return preventing member (D3: 15 / D4: 38) for restricting a return of the pinion from the ring gear when the pinion meshes with the ring gear under a rotation of the ring gear of the engine (D3: see page 1, right hand column, lines 8 to 15 / D4: see page 8, lines 5 to 12).

However, the starter according to D3 or D4 does not comprise a slide member disposed between the pinion transmittal member and the return preventing member.

2.3 D11 discloses a starter comprising:

an output shaft (3);

a pinion transmittal member having a pinion (5) for meshing with a ring gear (6, 6a) of an engine

and mounted axially movably on the output shaft;
and

a motor (A) for rotating the output shaft thereby
to move the pinion toward the ring gear for
meshing with the ring gear.

However, the output shaft does not have a helical
spline, and the starter does not comprise a return
preventing member for restricting a return of the
pinion from the ring gear when the pinion meshes with
the ring gear under a rotation of the ring gear of the
engine. Hence the starter also does not comprise a
slide member disposed between the pinion transmittal
member and the return preventing member.

2.4 D5 is a guideline which refers to the design of slide
bearings. Therefore this document does not disclose any
of the features of claim 1 of the main request.

2.5 In view of the above findings, the subject-matter of
claim 1 of the main request is novel.

3. *Inventive step*

3.1 The most relevant state of the art with respect to
claim 1 of the main request is represented by D3 or D4
which both refer to a starter as defined in the pre-
characterizing portion of claim 1 of the main request.

Starting from this state of the art, the object to be
achieved may be regarded as to provide a starter having
an improved durability of the pinion rotation
regulating mechanism (see the patent specification,
column 2, lines 10 to 13).

3.2 In accordance with claim 1 of the main request, this object is achieved by the provision of a slide member disposed between the pinion transmittal member and the return preventing member, said slide member being rotatably mounted on the pinion transmittal member.

3.3 In contradiction to the Appellant's opinion, the provision of such a slide member is not suggested by the available prior art.

The Board agrees with the Respondent that the skilled person would not consider D5 in the present case. Since D5 exclusively refers to slide bearings, and since the starter according to D3 or D4 does not involve a problem relating to a slide bearing, there would be no reason to take D5 into account when looking for a solution for the object set out above. However even if the skilled person were to consider D5, this document could at best suggest the provision of a slide member in form of a slide bearing between the pinion transmittal member and the return preventing member. However, there is no suggestion for rotatably mounting the slide member on the pinion transmittal member.

D4 and D11 also would not lead the skilled person in the direction of the subject-matter of claim 1 of the main request. It is true that both documents suggest the provision of slide members in a starter. These slide members are, however, not arranged between the pinion transmittal member and the return preventing member. The pressure element (37) shown in D4 which may be regarded as a slide member is arranged between the pinion transmittal member and a friction element (36), and the anti-friction bearing shown in D11 is arranged between the pinion transmittal member and a spring (8).

The brake disk (26) shown in D4 cannot be regarded as a slide member, since a brake disk and a slide member serve opposite purposes. Moreover, since this brake disk forms part of the pinion transmittal member, it is also not arranged between the pinion transmittal member and the return preventing member. Consequently D3 and D4 do not suggest the provision of a slide member between the pinion transmittal member and the return preventing member.

- 3.4 Therefore, the Board comes to the conclusion that the subject-matter of claim 1 of the main request involves an inventive step.

Since the patent in suit can be maintained on the basis of the main request, there is no reason to consider the auxiliary requests 1 and 2.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

G. Magouliotis

M. Hatherly

