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**Datasheet for the decision
of 29 October 2013**

Case Number: T 1760/10 - 3.2.06

Application Number: 02005876.4

Publication Number: 1344715

IPC: B62M11/16

Language of the proceedings: EN

Title of invention:

Hub transmission for a bicycle

Patent Proprietor:

SHIMANO INC.

Opponent:

SRAM Deutschland GmbH

Relevant legal provisions:

EPC 1973 Art. 56, 84, 114(2)

EPC R. 117

RPBA Art. 13(1)

Keyword:

Prohibition of reformatio in peius - main request, first,
seventh and eighth auxiliary requests (yes)
Taking of evidence - public prior use (yes)
Inventive step - second, third and fourth auxiliary requests
(no)
Late filed requests - fifth and sixth auxiliary requests -
admitted (no)

Decisions cited:

G 0001/99, T 0978/99, T 0098/06, T 0033/08



**Beschwerdekammern
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Case Number: T 1760/10 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 29 October 2013

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
14 June 2010 concerning maintenance of the
European Patent No. 1344715 in amended form.**

Composition of the Board:

Chairman: M. Harrison
Members: G. Kadner
W. Sekretaruk

Summary of Facts and Submissions

- I. The mention of grant of European patent No. 1 344 715, on the basis of European patent application No. 02005876.4 filed on 14 March 2002, was published on 14 May 2008.
- II. Notice of opposition, in which revocation of the patent on the grounds of Article 100(a) and 100(b) EPC was requested, was filed against the granted patent.

By way of its decision posted on 14 June 2010, the opposition division found that account being taken of the amendments made by the patent proprietor during the opposition proceedings, the patent and the invention to which it related met the requirements of the Convention. Reference was made in the decision, in particular, to the following:

D1: Cluster of evidence (9 pages) for alleged public prior use "Kettler" regarding hub transmission "Spectro S7"

Claim 1 as found allowable by the opposition division reads:

"A hub transmission for a bicycle comprising:
a hub axle (1);
a drive member (2) and a hub body (3) rotatably supported on said hub axle (61);
a planetary gear mechanism (7, 70) interposed between said drive member (2) and said hub body (3) for transmitting rotational force from the drive member (2) to the hub body (3) through multiple rotational force transmission paths, said planetary gear mechanism comprising at least one

planet gear (70) arranged to engage with at least one ring gear (7);
a change speed control mechanism (E) comprising at least one clutch for selecting the rotational force transmission path; and
a ring gear guide ring (30, 130) arranged between the ring gear (7) and the hub body (3), so as to define a spacing therebetween,
characterized in that
the material of the ring gear guide ring (30, 130) is a resin material."

- III. Notice of appeal was filed against this decision by the appellant (opponent) on 13 August 2010, and the appeal fee was paid on the same day. With its grounds of appeal dated 25 October 2010, the appellant pursued its request for revocation of the patent.
- IV. With its reply to the appeal dated 13 May 2011 the respondent (patentee) filed an amended main request together with first, third and fourth auxiliary requests. As its second auxiliary request, the respondent requested dismissal of the appeal. It also contested the alleged public prior use.
- V. In a further submission dated 13 March 2013 the appellant relied on the prohibition of *reformatio in peius* concerning the main request and the first auxiliary request, and nominated a new witness to replace a previous witness in respect of providing evidence regarding the alleged public prior use.
- VI. In a communication accompanying the summons to oral proceedings, the Board expressed its preliminary view that the main request and the first auxiliary request seemed to contravene the prohibition of *reformatio in*

peius. The exception established in G1/99 did not seem to apply in the present case. The alleged public prior use considered as being proven by the opposition division seemed to require further discussion and inventive step with respect to the second, third and fourth auxiliary requests respectively appeared to require further consideration.

VII. With its letter of 26 September 2013 the respondent filed fifth and sixth auxiliary requests. It also stated that if the prohibition of *reformatio in peius* would lead to the main request and the first auxiliary request being inadmissible, these requests should be ranked as seventh and eighth auxiliary requests respectively.

VIII. Oral proceedings were held before the Board on 29 October 2013, during which the Board decided to hear Mr Steuer as a witness. The following documents within the proceedings played a role:

D1:

Page 1: SRAM Drawing No. 07 0300 201 201

Page 2: SRAM Drawing No. 00 0334 112 000

Page 3: SACHS Amendment request; Amendment notice
("Änderungsantrag Änderungsmitteilung")
Nr. 85331

Page 4: Telefax SRAM to Kettler dated 20.08.99

Page 5: SRAM Retrofit instructions ("Umbauanleitung")
SPECTRO S7

Page 6: SPECTRO S7 Service ("WARTUNG")

Page 8: SACHS Amendment request; Amendment notice
("Änderungsantrag Änderungsmitteilung")
Nr. 99214

Page 9: SRAM Drawing No. 00 0334 113 000

- K5: Fahrradtechnik, Winkler/Rauch, Bielefelder
Verlagsanstalt KG, Bielefeld, pages 116-125
Annex 2: Chemie Band 2/L-Z, VEB F.A.Brockhaus
Verlag Leipzig, page 913
WUE-3: SRAM 1999 OEM products
WUE-4: SRAM 2001 products ("Produkte")

During the oral proceedings the appellant filed new documents (numbered by the Board):

- D6: Visit report ("Besuchsbericht") Fa. Kettler,
Kleinbittersdorf am 5.7.99 by W. Günder, dated
6.7.99
D7: Increased cost clatter-free hubs ("Mehrkosten
klapperfreie Naben"), dated 24.02.05 Knaup
D8: Reference: Decision on further procedure with
clatter-free hubs ("Betrifft: Entscheidung über
weitere Vorgehensweise bei klapperfreien Naben"),
dated 31 Aug 99

- IX. The appellant (opponent) requested that the decision under appeal be set aside and the European patent No. 1344715 be revoked.

The respondent (patentee) requested that the European patent be maintained on the basis of the main request or on the basis of auxiliary request 1, both dated 13 May 2011, or the appeal be dismissed, or the European patent be maintained on the basis of one of the auxiliary requests 3 or 4, dated 13 May 2011, or on the basis of one of the auxiliary request 5 to 8, all submitted with the letter of 26 September 2013.

X. The claims

i. Claim 1 according to the main request reads as follows:

"A hub transmission for a bicycle comprising:
a hub axle (1);
a drive member (2) and a hub body (3) rotatably supported on said hub axle (61);
a planetary gear mechanism (7, 70) interposed between said drive member (2) and said hub body (3) for transmitting rotational force from the drive member (2) to the hub body (3) through multiple rotational force transmission paths, said planetary gear mechanism comprising at least one planet gear (70) arranged to engage with at least one ring gear (7);
a change speed control mechanism (E) comprising at least one clutch for selecting the rotational force transmission path; and
a ring gear guide ring (30, 130) arranged between the ring gear (7) and the hub body (3), so as to define a spacing therebetween,
whereby the ring gear guide ring (30) is disposed on an inner peripheral surface of the hub body, such that the spacing (37) is defined between the ring gear guide ring (30) and an outer peripheral surface of the ring gear (7) or the ring gear guide ring (130) is disposed on an outer peripheral surface (17a) of the ring gear (7), such that a spacing (137) is defined between the ring gear guide ring (130) and an internal peripheral surface (13a) of the hub body (3)."

ii. In claim 1 of the first auxiliary request the first alternative in the last feature has been deleted:

~~"the ring gear guide ring (30) is disposed on an inner peripheral surface of the hub body, such that the~~

~~spacing (37) is defined between the ring gear guide ring (30) and an outer peripheral surface of the ring gear (7) or"~~

- iii. Claim 1 of the third auxiliary request corresponds to that of the main request, into which after the wording "... so as to define a spacing therebetween," the following has been inserted:

"the material of the ring gear guide ring (30, 130) is a resin material,"

- iv. Claim 1 of the fourth auxiliary request corresponds to that of the first auxiliary request, whereby after the wording "so as to define a spacing therebetween" the following wording has been inserted:

"the material of the ring gear guide ring (30, 130) is a resin material,"

- v. Claim 1 of the fifth auxiliary request corresponds with that of the third auxiliary request, whereby however in the final feature, after "whereby the ring gear guide ring (30) is disposed on an inner peripheral surface of the hub body, such that the spacing (37) is defined between the ring gear guide ring and the outer peripheral surface of the ring gear (7)", the following has been inserted:

"and the spacing (37) between the ring gear guide ring (30) and the ring gear (7) is sufficient to allow the ring gear (7) to rotate without contacting the ring gear guide ring (30), when the ring gear (7) is precisely in balance, and the spacing (37) is small enough that a slight imbalance or wobbling of the ring gear (7) will lead to engagement with the ring gear guide ring (30) in

a manner that the ring gear (7) is prevented from imbalanced motion,"

and after the wording "or the ring gear guide ring (130) is disposed on an outer peripheral surface (17a) of the ring gear (7), such that the spacing (137) is defined between the ring gear guide ring (130) and an internal peripheral surface (13a) of the hub body (3)", the following has been inserted:

"and the spacing (137) between the ring gear guide ring (130) and the internal peripheral surface (13a) of the hub body (3) is sufficient to allow the ring gear (7) to rotate without the ring gear guide ring (130) disposed on the outer peripheral surface (17a) of the ring gear (7) contacting the internal peripheral surface (13a) of the hub body (3), when the ring gear (7) is precisely in balance and the spacing (137) is small enough that a slight imbalance or wobbling will lead to engagement with the internal peripheral surface (13a) of the hub body (3) in a manner that the ring gear (7) is prevented from imbalanced motion."

- vi. Claim 1 of the sixth auxiliary request is based on that of the fifth auxiliary request wherein the penultimate paragraph has been deleted:

~~"whereby the ring gear guide ring (30) is disposed on an inner peripheral surface of the hub body, such that the spacing (37) is defined between the ring gear guide ring (30) and an outer peripheral surface of the ring gear (7) and the spacing (37) between the ring gear guide ring (30) and the ring gear (7) is sufficient to allow the ring gear (7) to rotate without contacting the ring gear guide ring (30), when the ring gear (7) is precisely in balance, and the spacing (37) is small~~

~~enough that a slight imbalance or wobbling of the ring gear (7) will lead to engagement with the ring gear guide ring (30) in a manner that the ring gear (7) is prevented from imbalanced motion,"~~

such that only the alternative of the ring gear guide ring (130) being disposed on an outer peripheral surface (17a) of the ring gear (7) is claimed.

XI. The arguments of the appellant can be summarized as follows:

It was generally known that the complete business of hubs for bicycles was transferred from SACHS to SRAM in 1997, whereby the former product range was maintained in all but name. Documents WUE-3 and WUE-4 showed that the same hubs indeed changed only their name from SUPER7 to SPECTRO S7 as a result of the transfer.

The problem of noise from the hub during pedalling was first noticed with the introduction of bicycles having sprung mounted rear wheels in 1999, and this required measures for preventing the clattering noise of the hubs. This situation was proven by D6 to D8, and therefore these documents should be admitted into the proceedings. The Kettler company was an important customer for bicycle hubs for SRAM and it had threatened to stop orders from SRAM. In order to satisfy this customer, a solution for the problem was developed, which included a bush (D1, page 1, part No. 0334 112 000) and a supporting ring (part No. 0334 113 000) made from plastic, which prevented the ring gear from contacting the hub shell if imbalance occurred when pedalling on uneven ground.

The part numbers in connection with the notices of amendment ("Änderungsantrag/Änderungsmitteilung") on page 3 and page 8 of D1, indicated that these parts were fitted in the hub shown on page 1. Therefore the public prior use of hubs having that construction was evident. The witness had confirmed that only one solution was used and only one existed, and that was the one shown in D1. The statements which the first nominated witness (Mr Günder) was intended to make, had been provided in writing. Since this witness had died in the meantime, the replacement witness Mr Steuer should be heard on the same facts as asserted in writing.

The only difference between the subject-matter claimed and that of D1 was that the ring gear guide ring was made from a resin material whereas the bush and the supporting ring in D1 were made from plastic (POM). There was no indication or any information in the patent in suit that the resin provided any specific advantage in respect of the function of silencing. Since resins and polymers worked in a similar manner, it was obvious to the skilled person to replace a plastic material with a resin material having comparable properties.

Auxiliary request 4 was also not allowable since the supporting ring mounted on the ring gear had the same function as was achieved by the ring gear guide ring, a tapered spacing in cross-section was evidently present, thus providing a spacing as defined in claim 1, and in this configuration the supporting ring was disposed on an outer surface of the ring gear (notably also without any problem arising when mounting it at that position from the right hand side).

The main request and first auxiliary request violated the prohibition of *reformatio in peius*, the hub transmissions according to the second to fourth auxiliary requests were not inventive, and the fifth and sixth auxiliary requests should not be admitted into the proceedings since they did not meet the requirement of clarity.

XII. The respondent argued that the proof of the alleged public prior use was not sufficient and the chain of evidence was incomplete. When considering page 1 of D1, there was no link to page 3 (amendment request 85331) but only to page 8 of D1 (amendment request 99214). The time lapse was contradictory since page 5 bore the date of week 39/1998 (end of September) whereas the change noted on page 3 of D1 was confirmed on 5 October 1998, i.e. at a date after the "Umbauanleitung" had been published. Therefore, no conclusion could be drawn about the type or presence of any bush ("Buchse") No. 0334 112 000 mentioned on page 3 of D1 in connection with the drawing on page 1 of D1.

On page 8 of D1 (amendment request 99214) it was not clear whether part 0334 112 000 (bush) and part 0334 113 000 (supporting ring) were omitted together with other parts, due to the wording "Neu: 0334 112 00 u. 0334 113 000; 0321 102 000 entfällt" (in English: "New: 0334 112 000 and 0334 113 000; 0321 102 000 not included"). On page 6 of D1, no bush and no supporting ring were shown, such that it was not clear whether the hubs provided at that time were equipped with these parts or not. Likewise, it was not proven which hubs had been delivered to Kettler as alleged on the basis of page 4 (telefax), because at that time there were also hubs available without the damping equipment, as also admitted by the appellant.

Furthermore, it was unclear whether "SPECTRO S7" relied on by the appellant was the same as "SUPER7" belonging to Sachs.

The nomination of Mr Steuer as a witness was late, and the appellant had not indicated the matters on which he should testify. Therefore the hearing of this witness should have been refused. Also, after Mr Steuer had been heard, it was anyway, as previously, not proven which kind of Super 7 hubs - as mentioned in the telefax of 20 August 1999 - had been supplied to Kettler, nor was it proven whether any hubs in fact had even been shipped to and arrived at Kettler.

D6 to D8 were late filed and should not be admitted into the proceedings. Moreover, although D6 ("Besuchsbericht") bore a date of 5.7.99, it mentioned a start of production as of 23.09.99 for the plastic rings, which date would then have been after the report, so it could not be stated with certainty that the rings had been produced earlier or indeed when they had been produced; at best the document was not unambiguous as to the production start date.

As correctly assessed by the opposition division, the subject-matter of the claims of the patent in an amended form involved an inventive step. Firstly, D1 did not disclose a spacing inside or outside the ring gear guide ring, and the skilled person was not given any indication towards the use of a resin material for the ring gear guide ring. The same applied with respect to the third auxiliary request.

The fourth auxiliary request should be allowed since the wording "the ring gear guide ring ... disposed ... such

that", in the last feature, defined clearly that a spacing had to be present between the ring gear guide ring and the internal peripheral surface of the hub body and that no contact was therefore present. The wording "is disposed on" in the claim was different to "in contact with" which was the situation in D1. In D1, further, there was no such spacing because the bush in D1 was adjacent and in contact with both the ring gear and the internal surface of the hub body. As could be seen in the cross-section on e.g. page 1 of D1, the spaces within the concave form of the bush towards the hub or the tapered spaces on both sides of the bush towards the ring gear were not defined in a way "such that" they were defined by the arrangement of the bush. A spacing, i.e. no contact, in the meaning of the patent, was not shown at all.

The claims of the fifth and sixth auxiliary requests were clear *per se*. The skilled person understood that the spacing was necessary so as to allow the ring gear to rotate without friction within the hub. Only in the case that an imbalance or wobbling arose, would - due to the spacing - the wobbling then be eliminated by contact. D1 taught the skilled person away from the solution in claim 1, since in D1 the ring gear and the bush were in continuous frictional contact during motion.

K5 clearly showed that in the field of bicycles, resin materials had been applied in practice. No indication at all was present however that these resins could replace other plastic materials such as those in D1 or the like.

XIII. At least the fourth auxiliary request should be allowed because in D1 it was impossible to mount the ring gear

bearing the bush within the hub because the diameter was larger than the opening of the hub body, such that it clearly was not disposed "on the outer peripheral surface" as claimed, but instead disposed on the inner peripheral surface of the hub.

Reasons for the Decision

1. The appeal is admissible.
2. *Public prior use "Kettler"*
 - 2.1 Novelty of the subject-matter claimed was contested by the appellant based on the public prior use of a hub transmission in the form of a delivery to a customer. The respondent contested that there was no proof that the hubs as mentioned in the telefax dated 20.8.99 had in fact had been delivered at all and that it was not clear whether they were anyway of the configuration as shown in D1 since other situations than those alleged were also realistic possibilities which could not be ruled out.
 - 2.2 The Board considers the statement given by the witness Mr Steuer concerning the problems of the noisy (clattering) bicycle hubs experienced by Kettler, which required a solution, as entirely credible. As was commonly known in the technical field at the time, a transfer of the bicycle hub branch from SACHS to SRAM took place in 1997. In the following years, the SACHS SUPER 7 hub was renamed to SRAM SPECTRO S7, but kept the same construction. This is also confirmed for example by the evidence WUE-3, WUE-4, where for example the Spectro S7 appears in the SRAM brochure from 2001 which also continued to quote company products with reference to both Spectro and Sachs (see e.g. item 12

on page 2/3 of WUE-4 where the nomenclature Spectro / Sachs is used, while on page 3/3 reference is again made to the Spectro S7).

2.3 According to the witness Mr. Steuer, in answer to the question of how he could be certain that the hubs supplied to Kettler had the configuration using the parts 0334 113 000 (i.e. part 113) and 0334 112 000 (i.e. part 112) shown in D1, he replied (see page 5/7 of the minutes, first three sentences) that there was only one solution. This was as shown in D1 (page 1) consisting of a bush and a supporting ring for silencing the hubs shown in the drawings of D1. It is also entirely credible in accordance with the chain of evidence that, after Kettler had threatened SRAM with stopping obtaining further supplies from them, intensive activity had started in order to solve the problem since this was a major customer. Since Kettler remained SRAM's customer, the conclusion must logically be drawn that the noise (clattering) problem was indeed solved. Therefore, since this sequence of events complies with the normal life situation to be expected, the Board has no doubt that the intended delivery of hubs "1000 Super 7" according to the telefax (D1, page 4) had indeed been delivered by SRAM to Kettler before the priority date of the patent in suit, that the hubs were fitted with the bush 0334 112 000 and the supporting ring 0334 113 000 and that the hubs depicted in D1 with supporting documentation are part of the prior art according to Article 54 EPC 1973.

2.4 Although page 7 of D1 does not show the bush or the support ring, the Board accepts, as entirely consistent with the remaining evidence, Mr Steuer's statement that the bush is not visible in the exploded view because the bush is in the hub (minutes; end of page 5/7).

Indeed this makes technical sense, as during servicing - which was what page 6 related to - the ring would not be extracted if it were, as indicated in other parts of D1, sprung into contact with the inner surface of the hub. In this regard it is important to note that page 6 does not relate to a retrofit (see minutes page 6/7). Likewise, the Board accepts Mr Steuer's statement that the drawing of the ring gear is not technically accurate so that the support ring is not visible (see minutes page 6/7), since there are many other parts on the ring gear which are not shown, even though logically these have to be present; in particular it can be seen that on page 5 for example, this discloses the integral support ring in the explanation but does not depict this. The incorrect graphic representation of sizes on page 5 of D1 is also understood by the Board logically as a mere draughtsman's inaccuracy.

- 2.5 Although the respondent objected to the hearing of Mr Steuer as a witness at all, the Board was not persuaded by the objection. In its grounds of appeal, the appellant had offered a different witness to testify to the public prior use if required. The opposition division had not found hearing a witness necessary based on the documents in proceedings. With its response to the appeal, the respondent had continued to contest the public prior use and, due to the death of the first witness offered, a replacement witness, Mr Steuer, had been offered. Nothing should have surprised the respondent in this regard. In the communication issued with the summons to oral proceedings, the Board had indeed indicated that the chain of alleged public prior use contained certain irregularities and did not seem to be sufficiently proven and that the appellant was at liberty to request Mr Steuer to attend oral proceedings at which he might

be heard, albeit that it remained unclear at that time as to how Mr Steuer had relevant knowledge of the events.

2.6 Although the respondent objected that it was not clear what exactly the witness would testify to, it was clear to the Board from at least D6 that Mr Steuer had worked with the initially offered (and now deceased) witness in the matter concerning the clattering hubs objected to by the Kettler company, and that he was aware of the circumstances surrounding the need to find a solution.

2.7 Likewise, although the respondent objected to the hearing of witness evidence since it was partly based on new material (D6 to D8) and had to involve new facts being heard, the Board was not convinced by this objection. The new material (D6 to D8) was not further material of the prior use itself, but merely indicative of Mr Steuer's involvement in the matter, and therefore knowledge of the circumstances and suitability as a witness. Likewise, there was no presumption that Mr Steuer would introduce any new evidence, but merely testify as to why the already filed evidence was sufficient substantiation of public prior use.

2.8 Since the witness was present at the oral proceedings, and since the Board had been informed that Mr Steuer was employed at the time of the telefax in D1 and could confirm that the drawings in D1 would correspond to the alleged public prior use in accordance with the delivery, the Board decided to hear the witness and took the required decision to this effect under Rule 117 EPC after having heard the parties on this matter (see page 2/7 of the minutes).

2.9 The production start date for the plastic rings being stated as "seit 23.09.99" (as of 23.09.99) compared to the date of D6 (06.07.1999) is evidently a typing error, when considering the witness's declaration in relation to D1. The wording "Kunststoffringe erst seit 23.09.99 KW 38" is given in the context of the start of production of Spectro at the end of June 1998 ("Produktions-start Spectro Ende Juni 98"), whereby the equipment with supporting rings made of plastic (Kunststoffringe) must logically have occurred before the date 5.7.99 of the "Besuchsbericht". Therefore the date 23.09.99 KW 38 is obviously incorrect and can only be understood as 23.09.98, not least since this date also logically follows in the sequence compared to the start of production "Ende Juni 98" (end of June 98) corresponding with KW 26/27 (calendar week 26/27) which is about week 26/27 in 1998. The Board thus does not accept the respondent's argument that D6 fails to establish a date of production of the rings in 1998 or that D6 would at best be ambiguous in this regard.

3. *Main request, first auxiliary request (prohibition of reformatio in peius)*

3.1 In its communication before the oral proceedings, the Board had indicated, with respect to the main request and the first auxiliary requests, that the removal of a restricting feature in the claims found allowable by the opposition division was likely to result in these requests being held inadmissible. The non-appealing patentee was essentially bound to defending the form of the patent as found allowable by the opposition division (the current second auxiliary request), or to adopt fallback positions from that. The exception to the prohibition of *reformatio in peius* in G 1/99 was seemingly not met by filing higher ranking requests

(i.e. compared to the second auxiliary request) containing broader terminology. In G 1/99, the non-appealing patentee was given the opportunity to remove the inadmissible amendment in the order of three possible steps as defined by the Enlarged Board of Appeal. Thus, only if the (current) second auxiliary request were found to be deficient under Article 83 EPC 1973 (presuming the objection under Article 100(b) EPC 1973 was admitted), would it have been appropriate to allow amendments to overcome that objection and then only in the order stated by the Enlarged Board.

- 3.2 Although the appellant had raised an Article 100(b) EPC 1973 objection in its grounds of appeal (see pages 5 and 6), this objection was based on the premise that a skilled person, in accordance with the opposition division's decision (page 12), would have to exercise inventive skill when considering which resin material might be suitable in the hub of D1 when taking into account the number of possible resins available. However, since the objection under Article 100(b) EPC 1973 was to be handled after having considered inventive step in relation to the form of the patent found allowable by the opposition division, the main request and first auxiliary requests were essentially being filed against an objection which had not yet even been admitted or considered by the Board. Indeed, the appellant stated that such an objection would only arise if the subject-matter of claim 1 of the second auxiliary request was found to involve an inventive step (which was not the case - see *infra*). Thus no necessity arose to consider an amendment as an exception to the prohibition of *reformatio in peius*, and the Board therefore confirmed its preliminary opinion that these requests were not admissible as a higher order request than the second auxiliary request.

This was also accepted by the respondent, who then relied on these requests being considered as ranked the seventh and eighth auxiliary requests.

4. *Second auxiliary request (Article 56 EPC 1973)*

4.1 Once the Board had concluded that the alleged public prior use was proven, the respondent asserted that compared to the drawings on page 1 of D1, D1 did not show a "spacing" since the bush was in contact with the ring gear and with the internal surface of the hub, and therefore was not "disposed on" the ring gear with a "spacing" as claimed. However, the arrangement in D1 is not distinguished from the feature defined in the wording of claim 1 which states "so as to define a spacing therebetween" (i.e. between the guide ring and the ring gear/hub body). Such a spacing of tapered form in cross-section can be seen at each of the axially left and right ends of the bush and a further spacing is located between the bush and the hub body in the concave portion of the bush. Importantly, the claim does not define or imply that a free spacing is present over the whole axial length of the guide ring. The further argument that the bush in D1 is disposed on the hub, because it must be inserted before the planetary gears, and therefore not disposed on the outer peripheral surface of the ring gear, is not accepted. The terminology "disposed on" in claim 1, does not relate to an order of assembly, but merely to the status as assembled. In the assembled state, the bush is in contact with both the ring and the hub, and is therefore "disposed on" both of these. Whether it was initially disposed on the hub and later became disposed on the ring by virtue of its contact therewith after insertion of the gear train thus lacks relevance.

- 4.2 Therefore the Board concludes that the only difference between the subject-matter claimed and the prior used hub of D1 is the feature that the material of the ring gear guide ring is a resin material.

The objective problem underlying the claimed invention can therefore be seen as the provision of an alternative suitable material for the ring gear guide ring.

- 4.3 The appellant attacked the version of the patent as found allowable by the opposition division based on lack of inventive step starting from D1 and combining this with common general knowledge of a person skilled in the art. First, the Board takes the position that the skilled person in respect of sufficiency of disclosure and inventive step is one and the same. The patent does not provide any information as to which resin material is used or which properties the resin material should have to be suitable as a material for the purpose of a ring gear guide ring. Therefore the skilled person would apply common general knowledge in selecting a suitable material. The POM-material disclosed in D1 is a plastic material having particular properties, which in the mind of the skilled person possibly would be achievable by a resin material, e.g. a fibre reinforced resin, which is not excluded by the wording of claim 1.

- 4.4 When considering the common general knowledge in the field of plastic materials, it is evident from e.g. K5 that resins are also kinds of plastic material (see e.g. page 118). The skilled person looking for an alternative material for the ring gear guide ring disclosed in D1 which is made from POM having e.g. sufficient rigidity, durability, sufficient sliding and

wear properties, would consider for example chemical encyclopaedias to find alternative suitable materials. In K5, alternative materials are listed, and the skilled person would find a resin material having comparable properties as POM for the purpose of a guide ring, thus arriving at the claimed solution without the involvement of inventive activity. The mere fact that the material is not quoted as being specifically for the purpose of a bearing ring in gearings in bicycles, lacks relevance, since the skilled person is aware of the properties generally required and is not required to select a "particularly" suitable material for all these purposes, but merely one that is suitable.

5. *Third auxiliary request (Article 56 EPC 1973)*

5.1 Claim 1 of this request specifies further that the ring gear guide ring can be located on the inner peripheral surface of the hub body or on the outer peripheral surface of the ring gear defining a spacing radially inside or outside the guide ring.

5.2 Regarding page 1 of D1, it is evident that the bush 0334 112 000 is situated between the inner peripheral surface of the hub body and the outer peripheral surface of the ring gear. A spacing is present radially outside and inside the bush (see point 4.1 above). Taking into account the wording of the claim, this feature is also disclosed in D1. The subject-matter of claim 1 is therefore also considered not to involve an inventive step for the same reasons as apply to the second auxiliary request.

6. *Fourth auxiliary request (Article 56 EPC 1973)*

6.1 Compared to claim 1 of the third auxiliary request, claim 1 is restricted to the alternative that the ring gear guide ring is arranged on the outer peripheral surface of the ring gear defining a spacing radially outside the guide ring towards the hub body.

6.2 As stated above (point 5.2), this wording of the claim is fully covered by the situation of the bush 0334 112 000 in D1 disposed on the outside of the ring gear defining a spacing radially outside towards the hub body. For the resin material of the ring gear guide ring, the same reasons apply as given above (points 4.3 and 4.4)

6.3 Moreover, as asserted by the appellant, the subject-matter of claim 1 is also not inventive considering the arrangement of the supporting ring on the ring gear. The supporting ring 0334 113 000 is disposed on an outside peripheral surface of the ring gear, and a spacing of tapered form in cross-section is defined between the supporting ring and the internal surface of the hub body. To make the supporting ring from resin material instead of POM (as is the case in D1) is an obvious step for the skilled person, for the same reasons as apply to the bush in the hub of D1 (see above).

6.4 Thus the subject-matter of claim 1 does not involve an inventive step.

7. *Fifth and sixth auxiliary requests - non-admittance into the proceedings*

7.1 According to Article 114(2) EPC 1973 the European Patent Office may disregard facts or evidence which are not submitted in due time by the parties concerned. In Article 13(1) of the Rules of Procedure of the Boards of Appeal (RBPA) it is stated that it is within the Board's discretion to admit and consider any amendment to a party's case after it has filed its grounds of appeal or reply. The discretion shall be exercised inter alia in view of the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy. According to the established case law of the Boards of Appeal a late filed request should normally only be admitted into the proceedings if it overcomes all deficiencies and appears *prima facie* allowable.

7.2 The fifth and sixth auxiliary requests were filed about one month before the oral proceedings. The respondent argued that in its view the filing had become necessary in response to the preliminary opinion of the Board, and thus these requests were not late-filed. Reference was made to e.g. T 978/99, T 98/06 and T 33/08. The Board concludes however that the filing of a new request *per se* at a late stage of proceedings is not by itself necessarily a reason for not admitting it into the proceedings as long as it meets the above requirements (point 7.1). However, the new requests give rise to new problems under Article 84 EPC 1973 and are therefore not admitted into the proceedings, as explained below:

7.3 The amendments are taken from the description (paragraphs [0006] and [0007]), where it is described

under which conditions an imbalance or wobbling is prevented by the ring gear guide ring and how the distance to the neighbouring rotating part should be designed, in particular that the spacing between the ring gear guide ring and the internal peripheral surface of the hub body is sufficient to allow the ring gear to rotate without the ring gear guide ring contacting the internal peripheral surface of the hub body, when the ring gear is precisely in balance and the spacing is small enough that a slight imbalance or wobbling will lead to engagement with the internal peripheral surface of the hub body in a manner that the ring gear is prevented from imbalanced motion. The same applies when the ring gear guide ring is disposed on an outer peripheral surface of the ring gear.

- 7.4 The respondent asserted that the skilled person was therefore provided with clear information as to how to design the amount of space needed. However, the Board cannot follow this argument since on the one hand it is not defined what a "precise balance" is, noting that this is anyway technically not achievable since the ring gear is not guided in an exact bearing like a ball bearing. On the other hand there is also no definition given as to what is to be understood by a "slight imbalance or wobbling". There is no disclosure at all how the ring gear should be arranged to be "prevented from imbalanced motion" even supposing that it should be understood as "bringing it back from imbalanced motion to precise balanced motion". Since there is no disclosure of how the space indeed should be designed as to be able to be measured such as to be in accordance with the claim, the skilled person is unable to put any clear limitations on what this feature implies structurally and thus how it should be implemented. This lack of clarity is present in claim 1

of both the fifth and sixth auxiliary requests. The Board therefore exercised its discretion not to admit these requests into the proceedings.

8. Seventh and eighth auxiliary requests

9. The seventh and eighth auxiliary requests correspond to the main request and the first auxiliary request, merely re-ranked. These requests are also not allowable since their introduction would contravene the prohibition of *reformatio in peius* for the same reasons as apply to the main and the first auxiliary requests (in respect of the removal of a limiting feature compared to the second auxiliary request). The respondent provided no arguments to contest this point of view.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The European patent is revoked.

The Registrar:

The Chairman:



M. H. A. Patin

M. Harrison

Decision electronically authenticated