Candidate's answer - Paper C - EQE 2023

Notice of opposition is filed agaist EP 3 620 508 B1, grnated to Industrias Trueba S.L., Calle La Pulga, 3, 39300 Torrelavega (ES - Spain) and entitled Road racing pedal

THe opponet is Moga Kiyata B.V., Amstelstraat 3, Maastricht (NL - Netherlands)

THe oppoent is represented by Mr Fietsenmaker, European patent attorney, Zugerstrasse 57, 6341 Baar (CH - Switzerland)

We request revocation of the patent (Annex 1:A1) in its entirty (all calims opposed)

The patent is opposed under Art 100(a) EPC on the grounds of lack of novelty and lack of inventive step

THe fact and evdice in support tf these grounds are presented below

THe opposition fee has been paid by deposit account

if the opposition division intends to reach a decision other than revocation of the patent, oral proceedings are requested

Effective Dates of the claims

A1 filed in the name of Industrias Trueba S.L claims priorty from IT 201800008341 (P1). However, P1 was filed jointly in the names of Coppi S.r.l. and Industrias Trueba S.L. and no assignments of rights took place prior to the filing of A1. In accordinace with established EPO case law and paractice (see T844/18, T788/05 and GL A-III, 6.1), a valid claim to priorty from an applicaition with multiple applicaints requires all of the applicaints, or their successosrs in titles, to be applicaint on the priorty claiming appliacintion. Coppi S.r.l are not present on A1 and as no sassignment of rights took place, Industrias Trueba S.L are not their sucessors in title. As a result, the priorty claim ddoes not meet the requiremnts of Art 87(1) EPC and is not valid.

The effective date of all the claims is therefore the filing date of A1, 4 Sep 2019.

Document relied upon

Annex 2 (A2): Cycling Today, page 20, October 2019 edition. The publication took place after the effective date of the claims however provides evdice of a poster shown at a trade show in 2017. The trade show is an intnerantioal bicycle fair held every year that is open to the public. THe poster was therefore accesiable tyo the public and forms part of starte art under 54(2) EPC.
Annex 3 (A2): US 2018/0178879 A, published 28 Jun 2018. 54(2) art to all claims
Annex 4 (A2): DE 10 2016 118 903 A1, published 13 April 2017. 54(2) art to all claims
Annex 5 (A2): Screen capture from facebike.com taken 8 Feb 2019. The screen grab itself is after the effective dates of the claims however, the post was dated 3 Spe 2019 which is prior to the filing date (effective date) of A1. THe date of the post should be consdered reliable unless there is reason to consder othewise and should constutue state of the art (GL G-VI) The post is therefore Prior art under 54(2) EPC - see Gl G_VI 7.5

The trade show iteslef while open to the public is not prior art as it occured on the same date as the effective date of the claims (not before as required by 54(2) EPC)

Annex 7 (A2): EP 3 181 439 A1, PUblished 21 June 2017 - 54(2) art to all claims

Novelty and inventive step-

Claim 1

Art 54(2) using A5

A5 disclsoes a road racing pedal (See 2nd comment on page 2 of A5 + "Clipless pedel" - [1], A5. Clipless pedels are used for road racing - See [10] A1) comprising a pedal body (pedel housing - [3] A5, Housing and body are quiverlant terms - see [8] A4) with a pedal cavity (pedel axle chamber 502 - See [3] A5 + Figure. Cavities and chamberare equiveralnt terms (see [5] A4), a pedal spindle (Pedal axle - [4] A5. Pedal axle and pedal spindle are equiveralnt terms see [2] A4) for attaching the pedal body to a bicycle crank arm ("in the form of a pedal attachment arm that rotates inside the bearings placed in the crank arm, at the attachment hole - [4] A5. See also Figure of A5) and a sensor for detecting dead spots in the pedal stroke ("Pedal angle measurement sensor placed at the tip of the pedal attachment arm", [4] A5. See [6] pof A1 which states that measurments of heel-up, heel down movement only requires a pedal angle sensor and therefore by providing an angle sensor, recognition of dead spots is acehived).

Thus A5 discloses all the featuresa of claim 1 and claim 1 lacks novelty - Art 54(2) EPC.

Claim 2 + 1

Art 56 EPC - A4 + A2

A4 is the closest prior art as it a doucment that discloses a road racing pedal with cavity and a pedal spindle and sensor placed within the cavitiy

A4 disclsoes a a road racing pedal (Clipless bicycle pedal - see [1] A4 for on raod reacing [5] A4. n.b. see also [10] A1 Road racing pedals are clipless pedals) comprising a pedal body (pedal body 420, see [2] and [7] A4) with a pedal cavity (interior cavity 480 - [8] A4), a pedal spindle (pedle axel 410 - [7] A4, also refered to as spindle at [2] A4) for attaching the pedal body to a bicycle crank arm ("adapted to be coupled to a crank arm - [7] A4) and a sensor

(cadence sensor, GPS sensor or other type of sensor - [10, A4)

wherein the pedal spindle is placed within the pedal cavity ("interior cavity 480 is provided around the pedal axle" - see [8] A4)

and a pedal controller (see [10] A4)

The subject matter of claim 2 differs from A4 in that the sensor is a for detecting dead spots in the pedal stroke and comprises a pedal spindle drive, with at least four electromagnets (108) placed on the pedal spindle (103) and at least four permanent magnets (107) placed on the pedal body (101) within the pedal cavity (102) and facing the electromagnets (108).

This has the techincal effect of allowing the exact prosition of the pedal body with repect to the crank to be idnentfeered alloed dead spots to be indentified - see [17] A1

The objective techical problem is therefore how to identify dead spots.

A2 describes pedals that were shown at Eurobike 2017. The show included posters displayed at Eurobike showing the compoents of it also likley showed the instanous identification of dead spots to users

The pedal shown disclsoses a sensor for detecting dead spots in the pedal stroke (See [2] A2 "dead spot identification algrorithm"), based on a least four electromagnets (6 electromanetic 204 - see[2] A2 and Figure) placed on the pedal spindle (pedal shaft 203) and at least four permanent magnets (6 permenat magnest see[2] A2 and Figure) facing the electromagnets (see figure A2).

The skilled person therefore learns a sesnor for decting deadspots based on the use of at least four electromagnets placed on the pedal spindle and at least four permanent magnets.

There is no hindrence as A4 suggests that the uses, such as measuring and signalling the pedal position along the stroke could be envisioned for the cavity. - See [9] A4

Accordingly the skilled person would use the sensors shown at Eurobike 2017, evdinced by A2, in the cavity of A4 and thus arrive at the preasent invention without any inventive skill. Claim 2 trherefore lacks an inventive step - Art 56 EPC.

Claim 3 + 2 + 1

Art 56 - EPC

A4 + A2 + A3

i.e. contuniation of attack on claim 2

A4 is closest prior art for the reasons provided above for claim 2

A4 further describes a pedal systm with a bicycle computer and the present computer - see [11] A4

Claim 3 therefore differs from A4, apart from the features discussed for claim 2, by the fautres that the bicycle computer is adapted to receive pedal angle information and to identify instantaneous dead spots in the pedal stroke and further showing the position of said dead spots on a display of said computer.

The techincal effect of this additional features is that the cyclist is able to see in dead spots in real time from any irrgeualr heal movement - see [14] A1 allowing the cyclest to check and improve their pedalling techainque and effeicicy - [6] A1

The objective tehcial problem is to imporove the sustem to help the user improve their cycling effeicicncy.

THis effect has no syngery with the effect discussed in Claim 2 and therefopre will be discussed independly for inventive step (see partial problems GL G-VII 5.2, 6, 7

Annex 3 is a document that relates to bike computers and perfromace displace aimed at helping the skilled person improve their cycling performace. Accordingly it is a relevent source of informatiopn to the skilled person when faced with the above-mentiond problem.

Annex 3 discloses a bicycle computer (bicycle computer 310 - see [7] A3) adapted to receive pedal angle information (analysze datay provided by angle mauring sensors 322 - see [7] A3) and to identify instantaneous dead spots in the pedal stroke ("using this profile, dead spots in the stoke can be identified" - see [7] A3) and further showing the position of said dead spots on a display of said computer ("dispalyed in real-time to the cyclist" - [7] A3)

This has the effect that the cyclist can mmodify the pedal stroke accordingly to reduce the occurance of dead sporta and so improve pedelling effeicincy - [7] A3.

There is no hindrence to complying this as communicaytion uses a wireless BOT ensuring compatiabilty with pedals of sdifferent brans - see [8] of A3.

A4 suggests the caivty is big enough to fit a BOT eneabled pedal controller - see [10] of A4

Accordingly, The skilled person would arrive at the additional features of claim 3 without exercising any inventive skill

Therefore claim 3 + 2 + 1 lack an inventive step Art 52(1) and 56 EPC.

This represenset a contuation of part 1 so the opposition details are as provided in part 1.

In addition to the grounds provided at the start of part 1, A1 is also opposed on the ground of added subject matter under 100(c) EPC. The facts and evidennce for claims 4-7 are set out below.

Effective dates of the claims

As mentioned in part 1, A1's claim to priorty is invalid (see part 1 for details)

Claims 4, 5 and 7 therefore takes an effectrive filing date of 4 Sep 2019 (the filing date of A1)

Claim 6 was added during examiantion and does not have basis in the application as filed (see objection under art 100(c) EPC below). As a result, Claim 6 does not have an effective filing date.

Documents relied upon

Documents A2 to A5 and A7 as described in part 1

Additional Document Annex 6 (A6). A6 is a journal article by Delgado et al, entitled Application of Carbon Fibre Reinforced Plastic (CFRP) in Cycling. The article was published in the journal of "composites and new materails" by KAS publishing on 03.01.2019 and therefore is prior art according to 54(2) EPC to all claims.

Added matter - Art 100(c) EPC

Claim 6

File inspection has revelaed that claim 6 was amended added during examination.

Claim 6 describes a bicycle with the features of claim 4 wherein the clipless pedals further comprise ceramic ball bearings.

The use of cermaic ball bearings was not contained in the claims as filed and is only disclosed in paragraph 24 of the application.

Pargraph 24 describes ceramic ball bearings made of zirconia combined with ceramic races which provide reduced friction and an increased life span as compared with standard steel
bearings.

Current claim 6 does not mentioned cermanic races and therefore the feature of cermaic ball bearings has been extracted in isolation from an originally disclosed combination of features.

This is only allowable under GL H-V 3.2.1 (inetremdiate generalisations) if there is no structural and functional relationship between the features.

In particalr the extracted feature needs to not be related or inextricably linked to the other feature of that embodiment and the overall disclosure needs to justify the generalising isolation of the feature and its introduction into the claim (see GL H-V 3.2.1)

This test is not staified in the case of claim 6. The cermaic races are not decribed as an optinal feautres. In contrast, the zirconia ball bearings and ceramic races are clearly described as needing to be combined to achieve the above-mentioned improvements. THe features are therfore inexdtricably linked.

As a result there is not justification for the isolation of cermaic ball bearnings and its introduceing into a claim without the ceramic races. The amendment introducing claim 6 therefore constitued an unallowable intermediate generalisation which contrevenes Art 123(2) EPC.

The claim therefore contrevenes Art 100(c) EPC.

Noveltly and Inventive step

Claim 4

Art 54(2) EPC - A7

A7 discloses a bicycle ("bicycle comprising this system" - [5] A7. See also [1] A7) with a pedalling efficiency improving system (pedalling improving system ..... to imporve the pedallling effciency of the cyclist - see [1] and [6] A7) comprising a chain drive (chain rings, sprockets and roller chain - [1] A7 in combination with [2] of A1 "A chain drive comprises front chainrings and rear sprockets connected by a roller chain"), clipless pedals ("clipless pedals" - [5] A7), a sensor (intergrated power sensors - [5] A7), and a bicycle computer ("bicycle computer" - [5] A7) in communication with said sensor (The intergrated sensors communicate with the bicycle computer using the BOT protocol - see [9] A7).

A7 therefore disclsoes all the features of Claim 4. Claim 4 lacks novelty - Art 54(2) EPC.

Claim 5

Art 56 EPC - A7 + A6

A7 is the closest prior art because it relates to the same techical field of a pedal improving system for improving the efficiceniy of a cyclist (i.e. it is dreicted to the same purpose - see [3] A1). It is also the only doucment that describes a bicycle with a pedalling efficiency improving system comprising a chain drive, sensor and computer. It therefore represents the most promising starting point.

Document A6 while describing the material properties of claim 5 is a less promising starting point as it does not describe the computer or the sensor and its purpose is not related to improving pedelling, it is merely about describing materails for cycling applicaitions.

A7 describes all the feautres of claim 4 as decribed above.

The subject matter of Claim 5 is distiguished from A7 in that the clipless pedals comprise a pedal body made of carbon fibre reinforced plastic (CFRP) with a carbon nanotube-reinforced epoxy matrix and with carbon fibre tows of 6 000 to 8 000 strands, with each tow having a tensile elastic modulus of between 350 GPa and 600 GPa.

As described at [25] of A1,

- The CFRP provides a stiff, strong and lightweight pedal body 101 that is capable of absorbing the high loads produced by the cyclist but still has a very low weight;

- The 6000 to 8000 strands provide an optimum balance between strength and weight; and

- The a carbon nanotube-reinforced epoxy provides an improved fracture toughness with respect to conventional epoxy

These advnatgaous / effects clearly have synergy and the overall the techical effect is an optimised strong and lightweight pedal body capable of absorbing the high loads while remaining at a low weight.

The objective techincal problem is to improve the absortion of high loads while remiaing low in weight.

It is noted that the skilled person is already taught in A7 that using a lightweight materail is important as saving weight is a constant concern in cycling. - [7] A7

A6 is a document related to materails for cycling which discuses materails that provide high tenisle strength and shock absorption but are low weight - See A6 abstract

Accordingly, it is a relevent source of infromation for the skilled person.

A6 discloses that clipless pedals may be made of carbon fibre reinforced plastic (see abstract of A6). The CFRP provides strength lightness and impact abdsorption (see first 4 lines of section entitled Carbon Fibre Reinforced Plastic - col 1 page 2 A6).

The CFRP is described as being compsed of carbon fibles and a resin forming a matrix (see last two lines of the section entitled Carbon Fibre Reinforced Plastic - col 1 page 2 A6). A Carbon nanotube-reinforced epoxy matrix is described as most prefereable and frequently chosen because they further increase fracture toughness of the composite (see last 3 lines of section titled "2. resin" - page 2, col2 A6).

Further, the carbon firbes are described as preferably being used in a range of 7K to 9K filliments (see section titled "1. Carbon fibres"). Filaments is an equiveralnt term to strands (see 3rd line of section titled "1. Carbon fibres"). The 7K to 9K (correspodniong to 7000-9000, which is clear form the abreviation of 1000 to 1K a few lines earlier) range is specfied for lower stiffness compoents and pedals are consfiered lower stiffness (See abtract A6). n.b. 7K is explicilty disclosed in A6 by being the endpoint of the range and falls within requirements of claim 5.

Finally A6 describes the tows having an elastic modulus of 350 GPA to 500GPa to offer a good comprisimsise between stiffness and flexibilty (see last 3 lines of section titlesd 1.carbon fibres". n.b. both of these fall within the claimed range.

Accordingly, the skilled person learns from D6 that clipless medals can be made from CFRP to provide strength, lightness and impact adsoprtion and that optimisted properties can be are acheived by using fibre tows of 7K to 9K strands, with a tensile moduleus of 350GPa to 500 GPa and and a carbon-nanotrube reinforced exploxy resin. The use of the explicit endpoint 7K with either of the end points of the Gpa value would correspond to the distigusing features mentioned above.

There is no hindrence to incorpreating this materail into the system of A7 as A6 actively teaches that CFRP is increasingly being used to manaufacture a lot of different compoents. Further A7 already suggests that the compoents are already made of lightweight matal as saving weight is a oncstant concern - [7] A7.

Lastley, while A7 specfiys that all the compeonts are made of lightweight metal, CFRP could be used for the other compoents aswell (i.e. not just the pedal body), as Chain rings, cranks can also be made of CFRP (see abstract of A6). As a result, the lightweight metal of A7 could just be easily replaced with the optimised materail of A6.

Thus the skilled person would use the materail of A6 in the system of A7 and arrive at the subject matter of claim 5 without any inventive skill.

Claim 5 therefore lacks an inventive step over A7 in combination with A6 - Art 56 EPC

Claim 7

Art 56 EPC

Claim 7 comprises techicnal and non-techincal features. A mixed type inventive apporach appiles based on G-VII, 5.4

The techincal features are:

- A bicycle computer (110) for the pedalling efficiency improving system of claim 4, the

bicycle computer (110) displaying infromation on the computer display when the the pedalling efficiency improving system surpasses 80% and displaying infromation when the pedalling efficiency is below 80%.

The non-tehcincal features are:

displaying a heart icon and displaying an angry emoticon

These are non-techical features becuase they relate purely to the presentation of infromation within the meaning of Art. 52(2)(d). It is only about how information is conveyed to a user - See GL G-II 3.7.

The closest prior art is A3 has it relates to a bicycle computer that displays infromation to the user. It it therefore in the same filed and directed to the same puprose as claim 1.

A3 descibres a bicycle computer (bicycle computer 310 - see [1] and [4] of A3) for the pedalling efficiency improving system of claim 4 ("for" should be interprested as "suitable for" - GL vF-IV, 4.13. The computer in A3 is clearly suitable for use with the system of claim 4 as it will work with all other BOT pedals and sensor systems" - see end of [8] A3. Also see [22] of A1 discussing standard BOT transmission for the bicycle computer), the bicycle computer displaying infromation on the computer display when the pedalling efficiency of the pedalling efficiency improving system surpasses 80% and displaying infromation when the pedalling efficiency is below 80% (The computer of A3 displays or does not display an upward pointing arrow to indicate that the pedeling effeincy is below 80% - see end of [7] A3).

As a result, the subject matter of claim 7 only differs from A3 in that the computer displays a heart icon or an angry emoticon at the particaulr limits. These do not make a techincal contrubutions becuase they relate only to the presentation of infromation.

This is supported by EPO case law (T 1567/05) and GL G-II 3.7 which confrims that the choice of one or other manner of displaying the data is not considered to have a technical effect.

The above mentioned feautres therfore cannot support an inventive step

Therefore the subject matter of claim 7 lacks an inventive step in view of the A3 - Art 56 EPC.