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Datasheet for the decision of 17 March 2010

Case Number: T 0344/09 - 3.2.01

Application Number: 01310661.2

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IPC: B62M 25/08

Language of the proceedings: EN

Title of invention:
Power control circuit for a bicycle electromotive unit

Patentee:
SHIMANO INC.

Opponent:
SRAM Deutschland GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 123(2),(3)

Relevant legal provisions (EPC 1973):
-

Keyword:
"Amendments - added subject-matter (no)"
"Amendments - opposition proceedings"

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-

Catchword:
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Case Number: T 0344/09 - 3.2.01

D E C I S I O N
of the Technical Board of Appeal 3.2.01
of 17 March 2010

Appellant: (Patent Proprietor)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 10 December 2008 revoking European patent No. 1216916 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman: S. Crane
Members: J. Osborne
T. Karamanli

Summary of Facts and Submissions

I. The appeal is directed against the decision posted 10 December 2008 revoking European patent No. 1 216 916.

II. Opposition had been filed on the grounds of insufficiency of disclosure, lack of novelty and lack of inventive step. In response to those grounds the patent proprietor made amendments to the claims. The opposition division found that amendments according to both a main request and a first auxiliary request extended the subject-matter of the respective claims 1 beyond the content of the application as originally filed.

III. In an annex to a summons to oral proceedings the board raised *inter alia* the question of admissibility of amendments made to claims other than claim 1 since they appeared not to be associated with meeting a ground for opposition.

IV. At oral proceedings held on 17 March 2010 the appellant requested that the decision under appeal be set aside and the patent maintained in amended form on the basis of claims according to a main request filed with a letter of 16 March 2009. It withdrew the auxiliary requests on file. The respondent requested that the appeal be dismissed.

V. Claim 1 according to the appellant's now single request reads as follows and essentially differs from the claim as granted (and as originally filed) by the deletion of wording in parentheses and the addition of the italicised wording:

"A power control circuit (4) connectable between a power source (1) and a bicycle electromotive unit (3) for controlling the communication of power to the electromotive unit (3), the circuit comprising:
an input for receiving power from said power source;
an output for driving said bicycle electromotive unit (3);
a storage unit (10) operatively coupled between the input and the output;
a first switching element (11) disposed between the storage unit (10) and the output such that the first switching element (11), when open, disconnects the output from both the storage unit (10) and the input;
a voltage sensor that senses a voltage associated with the storage unit (10); and
a switch control circuit (13) operatively coupled to the voltage sensor and to the first switching element (11) [to disable the communication of power] for controlling the operation of the first switching element (11);
characterised in that said switch control circuit (13) operates said first switching element (11) to disable the communication of power from both the storage unit (10) and the input to the output when the voltage associated with the storage unit (10) is less than a first reference voltage and to enable the communication of power to the output when the voltage associated with the storage unit (10) is greater than the first reference voltage."

Claim 2, which is identical to its form both as originally filed and as granted, reads:

"The circuit according to claim 1, further comprising a second switching element (12) disposed between the input and the storage unit (10), wherein the switch control circuit (13) is operatively coupled to the second switching element (12) to enable the communication of power to the storage unit (10) when the voltage associated with the storage unit (10) is less than the first reference voltage and to disable the communication of power to the storage unit (10) when the voltage associated with the storage unit (10) is greater than a third reference voltage."

Claims 3 to 7 replace claims 3, 4, 11, 9 and 10 as granted (and originally filed) respectively and claim 8 replaces claim 5 as granted (and originally filed).

VI. The appellant's submissions may be summarised as follows:

The opposition division was wrong to find that the introduction into claim 1 of the features that the first switching element "when open, disconnects the output from both the storage unit and the input" to disable the communication of power "from both the storage unit and the input" to the output extends the subject-matter beyond that of the application as originally filed. It is clear from the application as originally filed, both the description and claims 1, 2 that the second switching element is an optional feature. The primary problem addressed is the malfunctioning of electromotive units caused by

"undervoltage". This problem is addressed by the first switching element only. It is clear to the skilled person how the circuit would operate to prevent "undervoltage" in the absence of a second switching element, namely in exactly the same manner as in the presence of a second switching element. The second switching element addresses a problem of avoiding "overvoltage" being applied to the storage unit, which is secondary to and essentially independent of the problem addressed by the first switching element. Moreover, from the disclosed embodiment the skilled person learns that at all times when the first switching element opens the second switching element is closed so that also as explicitly disclosed the former does disconnect the output from both the storage unit and the input.

VII. The respondent's reply in as far as relevant to this decision was essentially that:

The disclosure of the application as originally filed was of a first switching element which only interrupted the connection between the input and the output when a second switching element between the input and the storage unit was closed. There was no disclosure of a circuit having no second switching element or in which the opening of the first switching element necessarily interrupts the connection between the input and the output. The further disclosure which the appellant alleges to be present derives only from the imagination of the skilled person. The presence of additional subject-matter is illustrated by the use of the novelty test. The appellant has listed various combinations of the open/closed conditions of the switching elements

and a transfer from the first to the third occurs by opening the first switching element. However, since the second is open no disconnection "from the input" occurs. The second switching element is, furthermore, not restricted to "overvoltage" protection of the storage unit since it equally protects the electromotive unit. Although there was an original disclosure of only a first switching element, the connection which is implied by the amended wording of claim 1 occurred only through the second switching element. Alternative, technically sensible circuit constructions fell within the scope of the original disclosure so that a circuit in accordance with the presently claimed subject-matter, which results from an intermediate generalisation of the originally disclosed embodiment, was not implicit to the skilled person. A further problem results from the fact that in accordance with the original disclosure disconnection occurs only when the dynamo produces power, which is not presently claimed. The necessary closed state of the second switching element alleged by the appellant depends on the relationship between the various reference voltages which are not specified in claim 1. The amendment furthermore extends the protection conferred by the patent in as far as the amended wording no longer specifies that all power supplied to the output is disabled and so leaves open the possibility that power from some source flows by another route to the electromotive unit.

Reasons for the Decision

1. The patent relates to a circuit for controlling the supply of power between a dynamo on a bicycle and an electromotive unit such as an electrically driven gear shifter. In view of the variable supply of power from a dynamo the circuit includes a storage unit such as a capacitor for limited supply of power to the electromotive unit when the supply from the dynamo is insufficient or absent. Loss of power to an electromotive unit when not in a pre-determined position could be problematic so that a first switching element is provided for disconnecting the power supply to the electromotive unit when the supply voltage becomes unreliably low. A further problem which arises with such a circuit is potential overcharging of the storage unit, for which reason a second switching element is provided to disconnect the dynamo from the storage unit. In the application as originally filed a single embodiment of the circuit was described, having a dynamo and electromotive unit connected to the input and output respectively of the circuit and both first and second switching elements. In the broadest claim 1 only the first switching element was mentioned whilst claim 2 added the second switching element. During the opposition procedure claim 1 was amended to introduce a feature that the first switching element disconnects both the input and the storage unit from the output. The opposition division found this to extend the subject-matter beyond that of the application as originally filed because, it argued, the original disclosure was only of the disconnection of the input occurring when the second switching element was both present and closed.

2. It is undisputed between the parties that there is a disclosure in the application as originally filed of a circuit having only a first switching element. However, there is no corresponding described embodiment. The circuit of the single described embodiment comprises both switching elements in series connection between the input and output. The input is connected to the second switching element which in turn is connected to the first with a connection to the storage unit between them. The circuit operates by comparing the voltage of the storage unit with three reference values to determine operation of the first and second switching elements. The first switching element connects the storage unit to the electromotive unit as long as there is sufficient voltage for satisfactory operation; when that is no longer so, the first switching element is opened. The second switching element, on the other hand, operates to connect the dynamo to the storage unit as long as there is a need for power to be supplied to it; when that is no longer so the second switching element is opened to prevent overcharging. It was clear to the skilled person when reading that original disclosure that the first and second switching elements were functionally independent and served to solve different problems. The disclosure of the circuit in the preferred embodiment correspondingly extended in the eyes of the skilled person to a disclosure of a circuit in which the second switching element was not present. In such a circuit the input would be directly connected to the first switching element such that "when open, [it] disconnects the output from both the storage unit and the input … to disable the communication of power

from both the storage unit and the input to the output" as presently claimed.

3. The respondent put forward a series of arguments against admissibility of the amendment made to claim 1.

3.1 A first argument was that the composition of the circuit comprising only the first switching element results from the imagination of the skilled person. The board cannot agree with that argument for the reasons explained above, namely that the subject-matter of the present claim results from the implicit disclosure of the application as originally filed in the light of the teaching of a circuit having only the first switching element. It is not an intermediate generalisation of the original disclosure and whether the skilled person could have imagined alternative circuit constructions is immaterial.

3.2 The appellant's arguments concerning the novelty test also are not valid in this case because, for the reasons given above, the subject-matter of claim 1 as amended corresponds to the original disclosure to the skilled person.

3.3 The respondent refers to an argument presented by the patent proprietor during the opposition proceedings concerning combinations of open/closed conditions of the two switching elements resulting essentially from a combination of present claims 1 and 2 (letter of 10 October 2008). The respondent argues that moving from the first to the third of those conditions involves opening the first switching element whilst the second switching element is open, thereby representing

a situation in which the first switching element disconnects only the storage unit, and not the input, from the output. That argument falters, however, on the basis that the appellant's submission was a theoretical listing of logic states, the third of which was not disclosed in the application as originally filed. The respondent challenges that statement on the basis that there was a disclosure to the effect that opening the second switching element provides protection from overvoltage for not just the storage unit but also the electromotive unit, see the first full sentence on page 3 of the application as originally filed, and that the third condition therefore was clearly a sensible one. However, that condition would result from the voltage associated with the storage unit being both lower than the first reference voltage V_H and higher than the third reference voltage V_{HH} which, as may be seen by reading present claim 2, does not make technical sense.

3.4 As to the argument that the disclosure of the application as originally filed was that disconnection from the input occurs only when power is being generated, the broadest disclosure of the application as originally filed was equally of the circuit *per se*. In this respect the technical teaching of the wording in present claim 1 "to disable the communication of power from … the input" is no more than in claim 2 as originally filed which specified the second switching element as being operatively coupled "to disable the communication of power to the storage unit".

3.5 The respondent challenges the appellant's statement that the wording of present claim 1 also correctly represents the circuit of the described embodiment

comprising two switching elements. The respondent's view is that this is not so because the various reference voltages which determine the switching states are not specified in the claim. However, since the board finds that the subject-matter of the claim is supported by an implicit disclosure this point is immaterial in respect of claim 1. It is of relevance in respect of claim 2, however, which does additionally specify the second switching element. In the circuit according to claim 2 when the voltage associated with the storage unit falls below the first reference voltage V_H the second switching element closes to permit charging and remains closed until it reaches the implicitly higher third reference voltage V_{HH}. The first switching element opens under the same condition that causes the second switching element to close, namely that the voltage associated with the storage unit falls below the first reference value V_H. It follows that also in this configuration the second switching element will be closed at any time when the first switching element opens thereby "to disable the communication of power from both the storage unit and the input to the output".

4. In addition to the above objections regarding extension beyond the original disclosure (Article 123(2) EPC) the respondent submits that the amendment extended the protection conferred by the patent (Article 123(3) EPC). Essentially it argues that claim 1 as granted specified that the circuit disables the communication of all power to the output but that present claim 1 merely excludes delivery to the output of power from the input and the storage unit, thereby permitting power still to be delivered from another source. The board disagrees with that view. Claim 1 as granted specified "a switch

control circuit … to disable the communication of power …" and operation of the first switching element "to disable the communication of power to the output …". Present claim 1 similarly specifies a "power control circuit … for controlling the communication of power …" and operation of the "first switching element to disable the communication of power … to the output". The essential difference is that present claim 1 specifies that the power is disconnected from both the input and the storage unit, thereby restricting the scope in comparison with the claim as granted. In the light of the unchanged teaching of the described embodiment the skilled person would not interpret the scope of present claim 1 as including an additional, non-disabled power supply for which there is no basis in the disclosure.

5. On the basis of the foregoing the board finds that claim 1 has not been amended in such a way that it contains subject-matter which extends beyond the content of the application as originally filed (Article 123(2) EPC) or in such a way as to extend the protection which it confers (Article 123(3) EPC). Since the opposition division has not fully examined the grounds upon which the opposition was based the board exercises its discretion under Article 111(1), second sentence, EPC 1973 and remits the case for further prosecution. That further prosecution may result in further amendments to the claims which would have to be considered by the opposition division for conformity with the requirements of the EPC. The question of the admissibility of amendments which have been made to claims other than claim 1 is therefore left open for consideration by the opposition division.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance for further prosecution.

The Registrar: The Chairman:

A. Vottner S. Crane