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**Datasheet for the decision  
of 14 March 2012**

**Case Number:** T 1681/08 - 3.2.02

**Application Number:** 05018618.8

**Publication Number:** 1629786

**IPC:** A61B 17/32, G08C 17/02,  
G08C 19/14

**Language of the proceedings:** EN

**Title of invention:**  
Foot switch and output system having foot switch

**Applicant:**  
Olympus Corporation

**Headword:**  
-

**Relevant legal provisions:**  
EPC Art. 56

**Keyword:**  
"Inventive step (yes, after amendment)"

**Decisions cited:**  
-

**Catchword:**  
-



Case Number: T 1681/08 - 3.2.02

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.02  
of 14 March 2012

**Appellant:**  
(Applicant)

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**Representative:**

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**Decision under appeal:**

Decision of the Examining Division of the  
European Patent Office posted 21 April 2008  
refusing European patent application  
No. 05018618.8 pursuant to Article 97(2) EPC.

**Composition of the Board:**

**Chairman:** E. Dufrasne  
**Members:** M. Stern  
D. Valle

## Summary of Facts and Submissions

I. The applicant lodged an appeal, by notice received on 23 June 2008, against the decision of the Examining Division dispatched on 21 April 2008 refusing European application No. 05 018 618.8 on the ground of lack of inventive step. The fee for appeal was paid on 23 June 2008. A statement setting out the grounds of appeal was received on 9 July 2008.

II. The Board presented its provisional opinion in a communication dated 28 December 2011 raising, inter alia, objections under Articles 123(2) and 84 EPC.

III. Oral proceedings took place on 14 March 2012.

The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request filed during oral proceedings before the Board. All previous requests were withdrawn.

IV. The following documents are of importance for the present decision:

D1: US-A-6 074 388

D2: WO-A-2004/008 413.

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

"An ultrasonic surgical system (12) including a foot switch (14) and an apparatus main body (20) having a function of producing active surgical output, the foot switch (14) comprising:  
- a pedal (16a, 16b);

- an output command signal generating section (42) configured to generate an output command signal upon operation of the pedal (16a, 16b);
- a foot switch communication section (19a) configured to perform communication directly with the apparatus main body (20);
- a transmit power adjusting section (54) configured to adjust the transmit power of the output command signal in the foot switch communication section; and
- a storage battery (55) configured to supply electric power to the output command signal generating section (42), the foot switch communication section (19a), and the transmit power adjusting section (54),  
the apparatus main body (20) comprising:
  - a main body communication section (19b) configured to perform communication with the foot switch (14);
  - an output producing section (40, 56) configured to produce the active surgical output in accordance with the output command signal transmitted to the main body communication section (19b) from the foot switch (14); and
  - a receiving-condition detecting section (48b, 50b, 52b) configured to detect receive power of the output command signal received in the main body communication section and to generate a signal indicative of the detected receive power,wherein  
the transmit power adjusting section (54) is configured to adjust the transmit power on the basis of a comparison result between a predetermined level (OL) settable at any value and the receive power, the signal indicative of the detected receive power being a) generated by the receiving-condition detecting section, b) transmitted from the main body communication section

and c) received by the foot switch communication section,

wherein

- the receiving-condition detecting section is configured to command (FSW-DOWN) the transmit power adjusting section to reduce the transmit power stepwise when the receive power of the output command signal in the main body communication section is equal to or higher than the predetermined level (OL)."

Claims 2 to 5 are dependent claims.

VI. The arguments of the appellant are summarized as follows:

The current amended application documents were filed in response to the objections raised by the Board, in particular concerning Articles 123(2) and 84 EPC.

The ultrasonic surgical system defined in claim 1 was considered to be novel over the closest prior art D1 and involving an inventive step over the combination of D1 with D2. None of these documents disclosed or suggested the claimed stepwise reduction of the transmit power of the foot switch when the power received in the apparatus main body is equal to or higher than a settable predetermined level. This distinguishing feature regarding D1 solved the problem of avoiding fast depletion of the battery of the foot switch. The person skilled in the art searching for a solution to this problem concerning surgical systems would not have considered the field of remote control in industries to which D2 relates. In any case, D2 only disclosed to start transmission at a low transmission

level and to increase its power until a satisfactory level was reached, in contrast to the claimed solution of stepwise reducing the transmission power from the foot switch if the power was determined to be higher than a settable predetermined level.

### **Reasons for the Decision**

1. The appeal is admissible.
2. Amendments

The current application documents filed during the oral proceedings effectively remedy objections raised by the Board concerning the requirements of Articles 123(2) and 84 EPC.

Claim 1 is clear and adequately based on original claims 1 and 4 in combination with column 5, lines 45 to 49 and column 8, lines 50 to 54 of the published original application. Moreover, the dependent claims and the description have been adapted to the definition of the invention according to claim 1.

3. Inventive step
  - 3.1 The closest prior art is document D1, to which the application as filed makes reference in paragraphs [0009] and [0011]. D1 discloses a surgical system having an apparatus main body which is commanded by a battery-powered foot switch via radio communication. D1 discloses that the general problem with such battery-powered foot switches is the emptying of the battery

(column 2, lines 31 to 38), which is solved in D1 by providing an additional battery or accumulator (column 4, lines 55 to 59).

The application as filed states (in paragraph [0011]) that this solution proposed in D1 is unsatisfactory since an auxiliary battery increases the size and weight of the foot switch and reduces therefore its portability. Consequently, the application sets out to find an alternative solution to the problem of fast battery depletion (paragraph [0012] of the application as filed).

3.2 The system of claim 1 differs from D1 mainly in that the foot switch comprises a transmit power adjusting section configured to adjust the transmit power of the output command signal in the foot switch communication section, the transmit power adjusting section being configured to adjust the transmit power on the basis of a comparison result between a predetermined level (OL) settable at any value and the receive power of the output command signal received in the receiving-condition detecting section in the apparatus main body, wherein the receiving-condition detecting section is configured to command the transmit power adjusting section to reduce the transmit power stepwise when the receive power of the output command signal in the main body communication section is equal to or higher than the predetermined level (OL).

3.3 These differentiating features, notably the stepwise reduction of the transmit power of the foot switch when the power received in the apparatus main body is equal to or higher than a settable predetermined level, solve

the posed technical problem of avoiding a fast battery depletion.

- 3.4 These novel features are moreover not obvious regarding the available prior art.

In particular, document D2, which relates to wireless communication between battery-powered devices such as sensors or switches (page 1, lines 4 to 9) and aims at reducing power consumption and extending battery life (page 2, lines 11 to 12; page 13, lines 6 to 9), fails to disclose or suggest the aforementioned features. The adjustment of the transmission power of a device is performed on the basis of the reception of a reply signal from a second device indicative of the received power. If the data received by the second device is below a certain threshold (comparison 1112 in Figure 11), the transmission power level may have been insufficient so that the transmission power level is incremented (step 1110 in Figure 11; page 15, lines 1 to 18). This may be performed periodically to adjust to changes in the transmission environment (page 15, lines 22 to 25). That is, in D2, the transmission starts at a low transmission level, its power being increased until a satisfactory level is reached. In contrast, in the system of the invention, the power of the foot switch is stepwise reduced if the power is determined to be higher than a predetermined level.

Thus, even if the person skilled in the art were to apply the teaching of D2 concerning devices in industrial work sites (page 1, lines 7 to 9) to the technical domain of surgical systems of D1, it would not arrive at the claimed subject-matter.



The remaining documents on file are of lesser relevance.

- 3.5 In the Board's judgment, therefore, the system defined in claim 1 satisfies the requirements of novelty and inventive step within the meaning of Articles 54 and 56 EPC. This conclusion applies, a fortiori, to the preferred embodiments defined in dependent claims 2 to 5.

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to grant a patent on the basis of:
  - claims 1 to 5 of the main request filed during the oral proceedings before the Board;
  - pages 1, 1a, and 2 to 33 of the adapted description filed during the oral proceedings before the Board;
  - drawing sheets 1/15 to 15/15 as filed with letter dated 5 October 2005.

The Registrar:

The Chairman:

D. Hampe

E. Dufrasne