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17

Aktenzeichen / Case Number / N° du recours : T 285/85

Anmeldenummer / Filing No / N° de la demande : 82 103 132.5

Veröffentlichungs-Nr. / Publication No / N° de la publication : 63 356

Bezeichnung der Erfindung: Time switch arrangement

Title of invention:

Titre de l'invention :

Klassifikation / Classification / Classement : G 01R 19/165

**ENTSCHEIDUNG / DECISION**

vom / of / du 15 October 1986

Anmelder / Applicant / Demandeur : Mitsubishi Denki Kabushiki Kaisha

Patentinhaber / Proprietor of the patent /  
Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Art. 52(1), 56

Kennwort / Keyword / Mot clé :

Inventive step

Leitsatz / Headnote / Sommaire

Europäisches  
Patentamt

Beschwerdekammern

European Patent  
Office

Boards of Appeal

Office européen  
des brevets

Chambres de recours



Case Number : T 285 /85

**D E C I S I O N**  
of the Technical Board of Appeal 3.4.1  
of 15 October 1986

**Appellant :** Mitsubishi Denki Kabushiki Kaisha  
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Japan

**Representative :** Eisenführ und Speiser  
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**Decision under appeal :** Decision of Examining Division 039 of the  
European Patent Office dated 2 July 1985  
refusing European patent application  
No 82 103 132.5 pursuant to Article 97(1)  
EPC

**Composition of the Board :**

**Chairman :** K. Lederer

**Member :** J. Roscoe

**Member :** R. Schulte

### Summary of Facts and Submissions

- I. European patent application No. 82 103 132.5 filed on 14 April 1982, published under No. 0 063 356 was refused by a decision of the Examining Division 039 dated 2 July 1985. The decision was based on a Claim 1 filed on 19 February 1985 and Claims 2 to 4 filed on 16 August 1984.

The reason given for the refusal was that the subject-matter of claim 1 did not involve an inventive step within the meaning of Article 56 EPC having regard to DE-A-2 751 836 and the prior art as acknowledged in the application.

- II. On 30 August 1985 the Appellant lodged an appeal against the decision with simultaneous payment of the appeal fee. The statement setting out the grounds of appeal was filed on 29 October 1985. Accompanying this statement was a new set of Claims 1 to 5 to replace the claims on which the decision was based.
- III. Following a communication from the rapporteur pursuant to Article 110(2) EPC raising objection under Article 84 EPC the Appellant filed a new set of Claims 1 to 5 and an amended description on 16 September 1986.

The valid Claim 1 reads as follows:

- "1. A time switch arrangement to be operated on either one of two selected mains voltages, including a motor driving circuit (4) for energising a motor (M), a dc converting circuit (5) for dropping, rectifying and smoothing the mains voltage, a path through which current generated by the converting circuit flows to the motor-driving circuit and a voltage indication

circuit (6, 7, 2) for detecting the presence of an output voltage of said dc converting circuit,

characterised in that said path comprises two parallel connected paths (72, 21; 73, 22) the first of which includes an element (21) emitting light of a first colour and the second of which includes an element (22) emitting light of a second colour, and in that the voltage indication circuit (6, 7, 2) comprises a voltage detection circuit (6) for discriminating between the two different levels of output voltage of said dc converting circuit corresponding to operation on the two selected mains voltages to generate an output signal at one of two discrete levels, the level of this signal determining the state of a switch (71, 72) which in turn determines through which one of said first and second paths the output current of the dc converting circuit flows to the motor driving circuit".

Claims 2 to 5 are appended to Claim 1.

- IV. The Appellant requests that a patent be granted on the basis of these new documents.

#### Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is, therefore, allowable.
2. The claims are supported by the description (Article 84 EPC) and contain no new subject-matter (Article 123(2) EPC).
3. A time switch arrangement having all the features of the precharacterising part of Claim 1, described with reference

to Fig. 3 of the application itself, is acknowledged by the Applicant to form part of the state of the art though there is no document on the search report to substantiate this. But the Board has no doubt that the described arrangement is to be considered to form part of the general technical knowledge of a person skilled in the art.

This prior art arrangement, however, though including a circuit comprising a light emitting element giving an indication of the presence of a voltage at the output of the d.c. converting circuit is unable to distinguish between or indicate which of two different levels of mains voltage the arrangement is being operated on.

The only one of the documents cited on the search report which at least refers to a timer actuating a relay, is the article at page 116 of the September 15, 1977 issue of Electronics but this lacks a motor driving circuit for energising a motor and includes no light-emitting elements.

Therefore the arrangement according to Claim 1 is to be considered novel.

4. The remaining question to be examined is therefore whether the subject-matter of this claim involves an inventive step.

4.1 The Board considers the closest prior art to be the arrangement disclosed with reference to Fig 3 of the application itself. Since this arrangement has all the features of the preamble of Claim 1 but none of the characterising features the claim satisfies the requirements of Rule 29(1) EPC.

- 4.2 According to the description the object of the invention is to provide a time switch arrangement according to the preamble of Claim 1 in which in addition a clear and automatic indication is given as to which one of the two selected mains voltages has been applied.

This object is achieved by the combination of features set forth in the characterising part of the claim.

- 4.3 Since no prior published document is available giving the details of the prior art arrangement described with reference to Fig. 3 of the application the description given there has to be relied on.

In this there is no suggestion of the need to provide an indication of which of two different voltages has been applied to the arrangement and no indication is given as to how the existing arrangement might be modified to provide such an indication. The Board is however satisfied that there is nothing inventive to be seen in recognising the need for some means to be provided for automatically indicating in some way which voltage is being applied to such an arrangement at any given time.

Accordingly the question to be answered is whether the means for doing so set out in the characterising part of Claim 1 is obvious from the prior art.

- 4.4 The only prior document referred to in the appealed decision, DE-A-2 751 836 (hereafter doc. (1)) discloses a circuit arrangement designed for indicating the state of charge of an automobile battery circuit. In the embodiment described with reference to Fig. 1 two diodes emitting red and green light respectively are disposed in two parallel circuit paths extending between the

battery terminals, each path including a bipolar transistor switchable between a conductive and a blocking state.

The circuit parameters and connections are such that for voltages across the battery terminals below a certain level (8V) neither diode receives sufficient current to light up. For voltages between this level and a second higher level (12V) only the red diode emits, whereas at voltages between the second and <sup>a</sup>third still higher level (12.8V) both diodes emit. At voltages above the third level only the green diode emits.

- 4.5 For the skilled man it is evident that the basic function of the circuit is to produce different visual indications in response to different voltages between the terminals 11, 12 and that these indications, though in the described embodiment providing information on what is happening in the battery circuit, are essentially independent of the circuit in which terminals 11, 12 are located providing operation of the circuit of Fig. 1 would not substantially affect the voltage appearing across the terminals. It is also clear that by appropriate selection of the values of the circuit components used the voltage levels at which the respective diodes emit could be changed to accommodate different circumstances. Accordingly, the Board considers that no inventive step would be involved in connecting such a circuit, with appropriately chosen component values, across the output terminals of the d.c. converting circuit in the Fig. 3 prior art arrangement referred to above, instead of, or in addition to, the resistor-LED combination already provided, so as to give indications in the form of the illumination of the two diodes of different colours in

response to the connection of the arrangement to mains voltage of two different selected values.

- 4.6 However, as Fig. C of the appendix to the Appellant's Statement of Grounds of Appeal shows this does not result in an arrangement according to Claim 1, which requires the current to pass through one or other of the light emitting diodes to reach the motor driving circuit. In the Fig. C arrangement the diodes are connected in parallel with the motor driving circuit across the output terminals of the converting circuit (called "smoothing circuit" in Fig. C).
- 4.7 The Board can find nothing in the Fig. 3 arrangement nor in doc. (1) which would suggest to the skilled man modifying the Fig. C arrangement to a form fulfilling the requirements of Claim 1.
- 4.8 As pointed out by the Appellants, with the Fig. C arrangement, current additional to that required for operation of the motor driving circuit has to flow from the conversion circuit to operate the light emitting diodes and this will dissipate energy in one or other of the three resistors 19, 21, 24, which are essential to operation of the circuit in the manner described in doc. (1). In the claimed arrangement on the other hand the diodes are illuminated by the current operating the motor driving circuit, and resistors corresponding to 19, 21, 24 are not essential to operation of the arrangement.
- 4.9 Thus the Claim 1 arrangement has an advantage over that which would result from introducing the circuit of doc. (1) into the prior art arrangement of Fig. 3 and cannot be arrived at by the skilled man simply by combining this circuit and arrangement.

- 4.10 Careful study of the other documents cited on the Search Report leads to the conclusion that, whether read singly or in combination, they also contain nothing which could lead the skilled man to the Claim 1 arrangement or to modify the arrangement of Fig. 3 to produce such an arrangement.
- 4.11 Accordingly the subject-matter of Claim 1 cannot be regarded as obvious in the light of the prior art disclosed by the cited documents. Consequently Claim 1 is held to be allowable.
5. The dependent Claims 2 to 5 relate to particular embodiments of the arrangement claimed in Claim 1 and are likewise allowable.
6. The amended description filed on 16 September 1986 takes account of amendments made to the claims and involves certain clarifying amendments. It introduces no new subject matter and is not open to objection except that on page 1 at line 5 the word "part" should read "path" and the hyphen on the following line is erroneous.

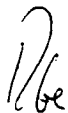
Order

For these reasons,

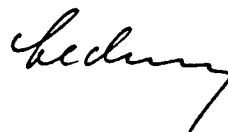
it is decided that:

1. The decision of the Examining Division dated 2 July 1985 is set aside.
2. The case is remitted to the first instance with the order to grant a European patent on the basis of the following documents:
  - (a) Claims 1 to 5 filed on 16 September 1986;
  - (b) pages 1, 1a, 2, 3, 3a, 3b and 4 to 7 of the description filed on 16 September 1986 subject to the proviso that the word "part" at line 5 of page 1 be replaced by the word "path" and the hyphen on the following line deleted;
  - (c) sheets 1/2 and 2/2 of drawings as originally filed.

The Registrar:



The Chairman:



Schmitt 22.10.86

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