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D E C I S I O N
of 11 December 1997

Case Number: T 0147/96 - 3.5.2

Application Number: 89309021.7

Publication Number: 0358482

IPC: H01H 9/22

Language of the proceedings: EN

Title of invention:
Electrical switching device with cover interlock

Applicant:
EATON CORPORATION

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 52(1), 54, 56

Keyword:
"Novelty (yes)"
"Inventive step (no) - obvious modification"

Decisions cited:
-

Catchword:

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0147/96 - 3.5.2

D E C I S I O N
of the Technical Board of Appeal 3.5.2
of 11 December 1997

Appellant: EATON CORPORATION
Eaton Center
1111 Superior Avenue
Cleveland, Ohio 44114 (US)

Representative: van Berlyn, Ronald Gilbert
23, Centre Heights
London NW3 6JG (GB)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 30 June 1995 refusing European patent application No. 89 309 021.7 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: W. J. L. Wheeler
Members: M. R. J. Villemin
A. C. G. Lindqvist

Summary of facts and submissions

I. The Appellant contests the decision of the Examining Division to refuse European patent application No. 89 309 021.7. The reason given for the refusal was that the subject-matter of claims 1 and 2 filed with the letter of 1 December 1994 received on 9 December 1994 was not new or not inventive having regard of the cited prior art. The Examining division referred to the following documents (designated as documents D1 and D2 by the Board):

D1: FR-A-1 264 995,

D2: FR-A-1 248 487.

II. In reply to a communication of the Board, in which reference was made to document D3: EP-A-0 145 990, which is cited in the European Search Report and was referred to by the Examining Division in the official communication dated 23 November 1993, the Appellant filed a new claim 1 with the letter dated 6 November 1997. After replacing the obviously erroneous word "then" by "than" in the penultimate line of the prior art portion of Claim 1, this claim reads as follows:

"An electrical switching device (1) comprising first (27) and second (31) electrical contacts (21), an operating mechanism (23) operable to open and close said first and second electrical contacts, a trip means (25) responsive to abnormal current flow through said first and second contacts when closed to operate said operating mechanism automatically to a tripped condition when said first and second contacts are open, a handle (41) secured to said operating mechanism for manual operation thereof and for movement therewith during both manual and automatic operations between a

first (ON) position in which the first and second contacts are closed and a second (OFF) position in which the first and second contacts are open via an intermediate (TRIP) position in which the first and second contacts are open after automatic tripping of said operating mechanism, a housing (3) having an opening (7) through which said first and second contacts and said operating mechanism are inserted into said housing, a cover (9) removably secured to said housing over said opening to enclose said first and second contacts and said operating mechanism, an elongated slot (43) formed in the cover through which said handle extends permitting movement of the latter between opposite ends thereof, said handle having a terminal portion (53) extending beyond said cover which portion is enlarged (55) in both directions transversely of said slot, said slot having a width at said opposite ends in said ON and OFF positions of said handle which is respectively narrower and wider than the enlarged terminal portion of the handle, characterised in that said first and second contacts are in a closed condition after manually moving said handle (41) to said TRIP position, and said slot (43) also has a width at said TRIP position which is narrower than said enlarged terminal portion (53) of said handle (41) so that said cover (9) is only removable from said housing (3) when said handle is in said OFF position."

Claim 2 is dependent on Claim 1.

III. The Appellant argued essentially that the present invention resided in the Applicant having realised that when the handle was manually operated to be in the TRIP position, the contacts were closed, this being quite a different situation from when the handle was automatically brought into the TRIP position by operation of the trip means, and something needed to be

done to prevent the cover being removed when the handle was manually operated to be in the TRIP position. The present invention lay in the discovery and recognition of this problem. The fact that an invention seemed obvious once it had been disclosed was not a reason for refusing patent protection.

IV. The Appellant requested that the decision to refuse the application be set aside and that a patent be granted on the application in the following form:

Claims: 1, filed with the letter dated 6 November 1997, and 2, filed with the letter dated 1 December 1994.

Description: pages 1 and 5 to 8 originally filed, originally filed pages 4 and 9 to be amended according to the Applicant's request in the letter dated 1 December 1994; pages 2, 3 and 3A filed with the letter dated 1 December 1994.

Drawings: figures 1 to 7 originally filed.

Reasons for the decision

1. The appeal is admissible.

2. The features recited in claims 1 and 2 were all disclosed in the application documents as originally filed. The present claim 1 differs from claim 1 refused by the Examining Division only in that the feature, that the first and second contacts 27, 31 are in a closed condition after manually moving the handle 41 to the TRIP position, has been removed from the prior art portion and introduced into the characterising portion. The amendments performed or to be performed in the description and the deletion of Figures 8 and 9,

according to the request of the Applicant dated 1 December 1994 made before the Examining Division, do not result in the introduction of subject-matter extending beyond the content of the application as originally filed. Thus, the present form of the application does not infringe Article 123(2) EPC.

3. *Prior art and novelty*

3.1 Document D3 (EP-A-0 145 990) claims priority from the application for US-A-4 540 961, which is mentioned in the description of the present application as describing an electrical switching device to which the alleged invention of the present application is applied.

3.2 The switching device according to D3 represents the closest prior art. This known electrical switching device is provided with a handle which can be manually moved to ON, OFF and TRIP positions. However, the outer terminal portion of the handle is not enlarged in both directions transversally of the slot and the width of the slot is constant over its whole length. The switching devices disclosed in D1 and D2 do not have a TRIP position. Therefore, the claimed switching device is new.

4. *Inventive step*

4.1 The Appellant mentioned in the reply dated 6 November 1997 to the Board's communication, that the operating mechanism 23 and trip unit 25 and their operation in the claimed switching device were disclosed in document US-A-4 540 961 cited in the application. The Appellant pointed out that the construction of the latch 51 (see Fig. 3) of the claimed switching device was such that

it was possible to **manually move** the operating handle against a spring bias from the ON position to the TRIP position. It had not been realised hitherto that, while **automatic** movement of the handle 41 to the TRIP position was accompanied by opening of the contacts, **manual** movement was not. This previously unrecognised deficiency originated from the construction of the latch 51 and the present invention lay in the discovery and recognition of this problem.

4.2 The Board is not convinced by the Applicant's argument, that this discovery confers an inventive step on the claimed switching device.

It was within the competence of the person skilled in the art of electrical switching devices, on analysing the functioning of the operating means and the trip unit of an actual device of the type described in US-A-4 540 961 or D3, at least to notice incidentally that the contacts remained closed when the handle 41 was manually moved from the ON position to the TRIP position. In the Board's judgement, this required no inventive ingenuity. Indeed, this discovery would inevitably be made, sooner or later, in the normal use of the device. This is a feature of the prior art switching device per se, even if it is not explicitly disclosed in document US-A-4 540 961 or D3. It follows that the switching device according to claim 1 differs from the known switching device only in that:

(a) the terminal portion (53) of the handle (41) extending beyond the cover (9) is enlarged in both directions transversally of the slot (43),

(b) the slot (43) has a width at the opposite ends in the ON and OFF positions of the handle (41) which is respectively narrower and wider than the enlarged terminal portion (53) of the handle (41),

and

(c) the slot (43) also has a width at the TRIP position which is narrower than the enlarged terminal portion (53) of the handle (41) so that the cover (9) is only removable from the housing (3) when the handle (41) is in the OFF position.

5. No means for preventing a user from removing the cover when the contacts are, or may be, closed are mentioned or suggested in D3. Thus, starting from the known prior art switching device, the problem to be solved by the switching device according to claim 1 of the present application is to provide a simple means from preventing removal of the cover unless it is certain that the electrical contacts are open.

5.1 Document D1 discloses an electrical switching device provided with an interlock which prevents removal of the cover 18 if the electrical contacts are not open (see in particular page 1, left-hand column, lines 1 to 8 and right-hand column, lines 1 to 6; page 2, from left-hand column, last line, to right-hand column, line 14; Figures 1 to 3). In this known device the cover 18 has a slot 18' ("fenêtre") whose width at the opposite ends in the ON and OFF positions of the handle 16 is respectively narrower and wider than the enlarged terminal portion 16' of the handle 16.

5.2 Document D2 also describes an electrical switching device provided with an interlock which prevents removal of the cover 35 ("capot protecteur") if the electrical contacts are not open (see in particular page 1, left-hand column, lines 1 to 6; page 2, left-hand column, line 55 to right-hand column, line 33; Figures 1 to 3). In this known device the cover 35 has a slot 41 ("lumière") whose width at the opposite ends in the ON and OFF positions of the handle 24 is

respectively narrower and wider than the enlarged terminal portion 42 of the handle 24.

6. It is obvious to a person skilled in the art, starting from the known prior art switching device (which, as explained in paragraphs 4.1 and 4.2 above, has the deficiency that the contacts are closed when the handle has ben manually moved to the TRIP position) and seeking a solution to the problem of preventing removal of the cover unless it is certain that the contact are open, in the light of D1 or D2 to dimension the outer end of the handle 42 and the slot 44 such that the end of the handle 42 will pass through the slot 44 **only** when the handle 42 is in the OFF position, this being obviously the safest position. In doing this, he will inevitably modify the switching device known from D3 to include the features (a), (b) and (c) identified in paragraph 4.2 above. This modification would not require a deep analysis of the TRIP position. Since the width of the slot 44 at the intermediate TRIP position of the handle 42 of the switching device known from D3 would require no modification, feature (c) would automatically result from features (a) and (b) obtained by the above-mentioned modification.

7. In view of the above, the Board concludes that the subject-matter of Claim 1 does not involve an inventive step within the meaning of Article 56 EPC.

8. It can be seen in Figures 1 and 2 of D1 that the handle 16 is adapted to move in the elongated slot 18' in a substantially arcuate path with a lower edge of the enlarged terminal portion 16' thereof in close proximity to the cover 18 when the handle 16 is in the ON position. It follows that the subject-matter of claim 2 does not involve an inventive step within the meaning of Article 56 EPC.

9. Furthermore, the Board sees no part of the application which could serve as a basis for a new, allowable claim. Consequently, the appeal has to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

M. Beer

The Chairman:

W. J. L. Wheeler