

Internal distribution code:

- (A) [-] Publication in OJ
- (B) [-] To Chairmen and Members
- (C) [-] To Chairmen
- (D) [X] No distribution

**Datasheet for the decision
of 19 April 2021**

Case Number: T 1297/16 - 3.5.02

Application Number: 09172183.7

Publication Number: 2306482

IPC: H01H33/66

Language of the proceedings: EN

Title of invention:

Main circuit terminal assembly for vacuum circuit breaker

Patent Proprietor:

LS Industrial Systems Co., Ltd.

Opponent:

Siemens Aktiengesellschaft

Relevant legal provisions:

EPC Art. 108, 56, 100(a), 123(2)

EPC R. 99(2)

RPBA 2020 Art. 13(2)

Keyword:

Admissibility of appeal - sufficiently substantiated (yes)

Inventive step - main request, auxiliary requests 1, 2, 4 (no)

Amendment after summons - order of requests - exceptional
circumstances (yes)

Amendments - auxiliary request 3 - intermediate generalisation



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1297/16 - 3.5.02

D E C I S I O N
of Technical Board of Appeal 3.5.02
of 19 April 2021

Appellant: Siemens Aktiengesellschaft
(Opponent) Werner-von-Siemens-Straße 1
80333 München (DE)

Representative: Siemens AG
Postfach 22 16 34
80506 München (DE)

Respondent: LS Industrial Systems Co., Ltd.
(Patent Proprietor) 1026-6, Hogye-Dong, Dongan-Gu
Anyang, Gyeonggi-Do (KR)

Representative: K&L Gates LLP
Karolinen Karree
Karlstraße 12
80333 München (DE)

Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 22 March 2016
rejecting the opposition filed against European
patent No. 2306482 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman R. Lord
Members: G. Flynn
J. Hoppe

Summary of Facts and Submissions

I. The opponent is appealing against the decision of the opposition division rejecting the opposition against the European patent number EP 2 306 482.

II. In the contested decision the opposition division referred to the following prior art documents:

E1: WO 2006/040243 A1 **E3:** DE 10 2004 058 764 A1

E2: WO 2009/074016 A1 **E4:** EP 1 914 768 A1

The opposition division interpreted the feature "horizontal" in claim 1 of the patent (see paragraph IX. below) as being relative to the direction of gravity. They considered that starting from E1 or E2 the characterising features of claim 1 were not obvious because in E3 and E4 the slits were vertical, not horizontal, and because there was no incentive to combine these slits with the clamp of E1 or E2. Furthermore, they considered the feature "to be connected thereto by welding" to be inventive because welding needed much higher temperatures than soldering and it was not obvious in their view to interchange these connection methods. Also, E1 and E2 did not state that the materials of the clamp and the shunt were the same, such they could be welded to each other.

III. In the grounds for appeal the appellant (opponent) requested that the decision under appeal be set aside and the patent be revoked in its entirety. The appellant submitted in essence that the subject-matter of claim 1 of the patent was rendered obvious *inter alia* by a combination of document E1 with document E3.

IV. In the reply to the appeal the respondent (patent proprietor) requested that the appeal be dismissed (main request), auxiliarily that the patent be maintained in amended form on the basis of one of the sets of claims of **auxiliary requests I or II** as filed during the first-instance proceedings with the letter of 8 February 2016. The respondent submitted that the appeal was not admissible as the statement of grounds for appeal was a repetition of the first-instance submissions, that did not address the reasons set out in the decision. The respondent submitted that the appeal was unfounded, arguing in essence that the subject-matter of claim 1 of the patent was based on an inventive step. Regarding the auxiliary requests I and II the respondent referred to their first-instance submissions in the letter of 8 February 2016.

V. The Board summoned the parties to oral proceedings, setting out their provisional opinion in a communication pursuant to Article 15(1) RPBA annexed to the summons. The Board expressed the preliminary opinion that the appeal was admissible (Article 108 and Rule 99(2) EPC). As regards inventive step, the Board considered that starting from document E1 the subject-matter of claim 1 of the patent seemed to differ from the disclosure of E1 broadly in the manner set out by the appellant, but perhaps more specifically in that:

- (a) the clamp had slit portions, with two side walls and an end face, rather than step-shaped cut-outs with one side wall and an end face; and
- (b) the slit portions were suitable for being connected to the flexible shunts by welding, rather than soldering.

Concerning the effects achieved by these differences, and the objective problems thus to be solved, the Board considered the appellant's arguments more persuasive

than those of the respondent. On the basis of the prior submissions, it seemed to the Board that document E3 demonstrated that it was known to solder or weld flexible connectors into (three-sided) slits of an electrical terminal in a power switch, and that it would be obvious for the skilled person to use such a known fixing arrangement in E1 to hold the shunts in place better during assembly. The Board stated that for auxiliary request I they may wish to hear the parties on the questions of clarity and added subject-matter, Articles 84 and 123(2) EPC and for auxiliary request II they may wish to hear the parties on the question of inventive step in the light of E1 combined with E3.

- VI. In a letter dated 8 September 2020, filed after notification of the summons to oral proceedings, the appellant argued in essence that:
- the appeal was admissible,
 - auxiliary request I did not meet the requirements of Articles 56, 84 and 123(2) EPC, and
 - auxiliary request II did not meet the requirements of Article 56 EPC
- VII. With a letter dated 11 September 2020, filed after notification of the summons to oral proceedings, the respondent filed sets of claims according to replacement **auxiliary requests 1 to 18**, auxiliarily requested maintenance of the patent on the basis of these requests and presented further substantive arguments. Auxiliary requests 3 and 4 corresponded to the former auxiliary requests I and II.

VIII. Oral proceedings were held on 19 April 2021 by videoconference, with the consent of both parties.

The appellant (opponent) requested finally that the decision under appeal be set aside and that the European patent be revoked.

After withdrawing the auxiliary requests 5 to 18 the respondent (patent proprietor) requested finally that the appeal be rejected as inadmissible or that the appeal be dismissed (main request), or as an auxiliary measure that the decision under appeal be set aside and the patent be maintained in amended form on the basis of one of the auxiliary requests 1 to 4 filed with letter dated 11 September 2020.

IX. **Claim 1 of the patent (main request)** reads as follows:

"A main circuit terminal assembly for a vacuum circuit breaker which is electrically connected to a vacuum interrupter, comprising:

a clamp (2) electrically connected to a movable unit of the vacuum interrupter, and includes a pair of conductors that supports the movable unit by clamping;

a heat sink (3) fixed to the clamp (2) that increases a surface area of the clamp (2);

a flexible shunt (4) having one end thereof electrically and mechanically connected to the clamp (2), and includes a flexible conductor to allow the movable unit to move;

a terminal block (5) electrically and mechanically connected to the other end of the flexible shunt (4), and configured as an electrical conductor; and

a contactor unit (6) electrically connected to the terminal block (5) and having a plurality of clip-shaped contactors,

characterized in that the clamp (2) has horizontal slit portions (2b, 2b') configured to insert end portions of the flexible shunt (4) therein and to be connected thereto by welding, so as to secure an installation space of the heat sink (3) by minimizing an area being contacted by the flexible shunt (4)."

Claim 1 of auxiliary request 1 differs from claim 1 of the patent in that the characterising portion has been amended as follows:

"characterized in that the clamp (2) has horizontal slit portions (2b, 2b') ~~configured to insert~~having end portions of the flexible shunt (4) inserted therein and ~~to be~~ connected thereto by welding, so as to secure an installation space of the heat sink (3) by minimizing an area being contacted by the flexible shunt (4)."

Claim 1 of auxiliary request 2 differs from claim 1 of the patent by the addition of the following feature at the end:

"wherein the end portions of the flexible shunt (4) are fitted into the horizontal slit portions (2b and 2b') and are connected thereto by welding".

Claim 1 of auxiliary request 3 differs from claim 1 of the patent by the addition of the following feature at the end:

"wherein the clamp (2) comprises two front surfaces, and the horizontal slit portions (2b, 2b') and the heat sink (3) are disposed at the two front surfaces of the clamp (2)".

Claim 1 of auxiliary request 4 differs from claim 1 of the patent by the addition of the features of dependent claim 2 of the patent at the end, namely:

"wherein the clamp (2) includes a pair of clamp pieces (2a, 2a'), and each of the clamp pieces (2a, 2a') comprises: an upper flat surface portion (2f) for mounting the heat sink (3) thereon; and the slit portion (2b, 2b') disposed at a lower portion thereof so as to insert the end portion of the flexible shunt (4) and to be connected thereto by welding".

- X. In essence, the appellant submitted *inter alia* that:
- The appeal was admissible, Article 108 EPC and Rule 99(2) EPC;
 - Claim 1 of the main request lacked an inventive step in view of document E1 combined with E3, Articles 100(a) and 56 EPC;
 - Auxiliary requests 1 and 2 should not be admitted to the proceedings, Article 13(2) RPBA 2020;
 - Claim 1 of each of auxiliary requests 1 and 2 lacked an inventive step in view of E1 and E3, Article 56 EPC;
 - Auxiliary requests 3 and 4 should not be admitted to the proceedings, Article 13(2) RPBA 2020;

- Claim 1 of auxiliary request 3 comprised added subject-matter, Article 123(2) EPC; and
- Claim 1 of auxiliary request 4 lacked an inventive step in view of E1 and E3, Article 56 EPC.

The appellant's detailed arguments are treated in the relevant sections of the reasons for the decision.

- XI. In essence, the respondent submitted *inter alia* that:
- The appeal was not admissible, Article 108 EPC and Rule 99(2) EPC;
 - Claim 1 of the main request involved an inventive step over document E1 combined with E3, Articles 100(a) and 56 EPC;
 - Auxiliary requests 1 and 2 should be admitted to the proceedings, Article 13(2) RPBA 2020;
 - Claim 1 of each of auxiliary requests 1 and 2 involved an inventive step over E1 and E3, Article 56 EPC;
 - Auxiliary requests 3 and 4 should be admitted to the proceedings, Article 13(2) RPBA 2020;
 - Claim 1 of auxiliary request 3 did not comprise added subject-matter, Article 123(2) EPC; and
 - Claim 1 of auxiliary request 4 involved an inventive step over E1 and E3, Article 56 EPC.

The respondent's detailed arguments are treated in the relevant sections of the reasons for the decision.

Reasons for the Decision

1. *Admissibility of the appeal*

1.1 In the grounds for appeal the appellant referred to the reasoning in the decision which was based on the assumption that E1 and E2 differ from the subject matter in claim 1 as regards features 1.8 and 1.9. Moreover, the appellant gave their interpretation of some features and - based thereon - presented what *prima facie* appears to be a complete chain of reasoning for lack of inventive step, based on the same documents as considered in the contested decision and the problem solution approach. It is readily identifiable that in doing so the appellant contradicted the opposition division's interpretation of "horizontal" and their finding that the skilled person would not combine E1/E2 with E3/E4. In the Board's view there is no need for further arguments in order to submit an admissible appeal, in particular because some of the arguments presented in that chain of reasoning were not treated in the contested decision, see for example the arguments regarding:

- the interpretation of the term "configured to insert" as "suitable for insertion of" (see statement of grounds, page 3, third paragraph);
- the effect achieved by providing slits instead of step-shaped cut-outs and the objective problem (page 4, fourth and fifth paragraphs);
- the disclosure in document E3 of welding as well as soldering (page 5, paragraphs 6 and 7).

1.2 For these reasons the appellant's arguments address the reasons in the decision sufficiently, so that the appeal fulfills the requirements of Article 108 EPC and Rule 99(2) EPC.

2. *Main request, inventive step, Articles 100(a), 56 EPC*

2.1 It is not in dispute that document E1 can be taken as a valid starting point for assessing inventive step (closest prior art), nor that E1 discloses all of the features of the preamble of claim 1 of the patent as granted.

2.2 Document E1 discloses at page 6, line 34 to page 7, line 7 that (translation by the Board):

Figure 2 shows the coupling device 1 according to Figure 1 from behind. In this perspective view of the rear side, it can be seen that the clamping part 2 has a step-shaped milled recess 11 at each of its sections 6 and 7, at which the current strap 4 is firmly soldered to the clamping part 2 with its front end area. The step-shaped milled recess 11 enables soldering both on the end face 12 of each current strip 4 and on its flat side 13 in the end face region, whereby the current transfer areas are enlarged and the heat generated by current transfer is reduced.

2.3 The clamping part 2 and the current strap 4 of document E1 correspond to the clamp 2 and the flexible shunt 4 of the contested patent - that is not in dispute.

2.4 It is also not in dispute that the milled recesses 11 of document E1 are "horizontal" in the same sense as the slit portions 2b, 2b' are in the contested patent,

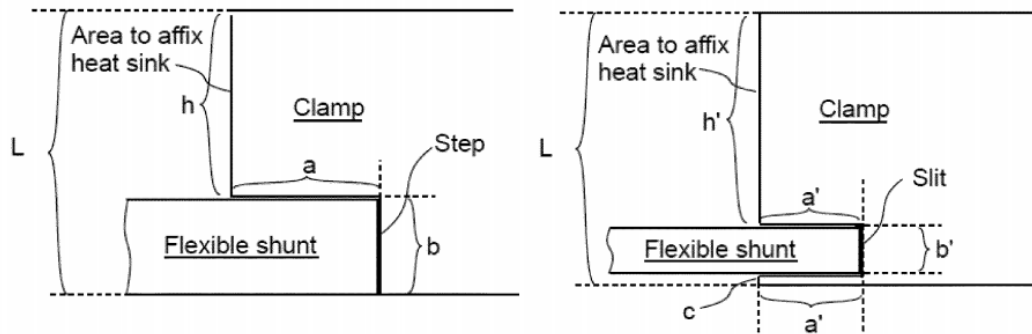
nor that the current strap 4 in E1 is connected to the the clamping part 2. For these reasons, the questions over the interpretation of these features in claim 1 of the patent can be left open when assessing inventive step.

2.5 Hence, it may be considered that the subject-matter of claim 1 of the contested patent differs from the disclosure of E1 at least in that:

- (a) the clamp has slit portions (with two side walls and an end face) rather than step-shaped milled recesses (with one side wall and an end face), into which end portions of the flexible shunts (i.e. current straps) are inserted; and
- (b) the end portions of the flexible shunts (i.e. current straps) are connected thereto by welding rather than soldering.

2.6 The respondent argued that the subject-matter of claim 1 of the contested patent differed from the disclosure of E1 also in that document E1 did not disclose the claimed effect that the provision of slit portions and the use of welding are "so as to secure an installation space of the heat sink (3) by minimizing an area being contacted by the flexible shunt (4)". According to the respondent, with slit portions having two side walls and an end face the current transfer areas between the shunt and the clamp were larger than in the arrangement of document E1 with step-shaped milled recesses having only one side wall and an end face. The respondent argued that the larger current transfer areas further reduced the heat generated by current transfer, and that this allowed the size of the connection between the shunt and the clamp to be reduced, thereby leaving more space free for installation of the heat sink. The respondent

demonstrated the improvement with the following diagrams, arguing that with slit portions rather than step-shaped milled recesses the area available to affix a heat sink was greater:



2.7 The Board did not find these arguments persuasive. As convincingly argued by the appellant, there is no basis for considering that the claimed arrangement of welding in a slit allows the cross-sectional area of the shunt to be reduced. Firstly, there is no disclosure to that effect in the contested patent. Secondly, it would be normal practice for any conductor, including the shunt of E1, to be designed such that its cross-sectional area is as small as possible, but as large as necessary to carry the required design current. Irrespective of how the shunt is connected to the clamp, any attempt to reduce the cross-sectional area of the shunt itself would cause it to heat-up unduly, leading to a failure. Hence, there is no reason to consider that the claimed arrangement of welding in a slit would allow the cross-sectional area of the shunt itself, and thus the area of the clamp contacted by the flexible shunt, to be reduced. That being given, there is no basis for considering that the claimed arrangement would secure (i.e. maximise) the installation space of the heat sink as claimed, indeed rather the opposite given the need to provide additional space on the clamp for the second side wall of the slit. Regarding the respondent's

argument concerning the provision of a larger current transfer area at the junction between the shunt and the clamp, the Board considers that this is already adequately provided for in E1 by the step-shaped milled recesses. This already significantly increases the current transfer area at the junction compared to the cross-sectional area of the shunt itself, such that it is not plausible that the provision of a second side wall would provide further benefit. As it is not considered plausible that the claimed effect of securing (i.e. maximising) the installation space of the heat sink results from the use of a slit and welding, the Board decided to disregard the claimed effect for the assessment of inventive step.

- 2.8 As to the technical effects achieved by the two differences (a) and (b) as identified in paragraph 2.5 above, and the objective problems thus to be solved, the Board finds the appellant's arguments more persuasive than those of the respondent.
- 2.9 Considering the difference (a), for the reasons set out in paragraph 2.7 above, mounting the shunt in a slit, rather than in a step-shaped milled recess as in E1, does not have the technical effect put forward by the respondent of "increasing the size of the heat sink which is fixed to the clamp".

Whilst it might be plausible that the slit arrangement for fixing the flexible shunt could, as set out in paragraph [0020] of the patent, increase the installation space for a heat sink 3 (mounted on the same face of the clamp), by reducing the area required to connect the flexible shunt 4, when compared to certain other fixing methods (eg. screws), it is not plausible that the connection area would be reduced

when compared to the fixing method shown in document E1.

For the difference (a) the technical effect as put forward by the appellant is more plausible, namely that the flexible shunts would be held in place better during assembly with slits compared to with step-shaped milled recesses. Hence, starting from E1 the objective technical problem solved by difference (a) would be to hold the flexible shunts better in place during assembly.

- 2.10 Considering the difference (b), the Board concurs with the appellant that welding is merely an alternative known connection method to soldering, for which the technical advantages and disadvantages are well known.
- 2.11 The Board is not convinced by the respondent's argument that the differences (a) and (b) achieve a synergetic effect in respect of reducing the space taken up by the connection between the shunt and the clamp. As set out above, the Board is not convinced that the difference (a) has this effect at all, quite the opposite.
- 2.12 With the objective problems (two partial problems) as set out above, the questions remain, whether it would be obvious in the light of the disclosure of document E3 to provide the clamp of E1 with (three-sided) "slits" instead of the disclosed (two-sided) cut-outs, and whether it would be obvious to make the slits suitable for connection to the shunts by welding.
- 2.13 The Board considers that it would be obvious for the skilled person to consult document E3 in seeking to solve the objective problems as E3 specifically deals with the manner of fixing the end of a flexible

stranded wire to a connecting rail in a low-voltage circuit breaker.

- 2.14 In the arrangement disclosed in E3 the end 6 of the flexible stranded wire 3 fits into a groove 8 in the connecting rail 2 (see figure 1 and paragraph [0016], last sentence). In the Board's view it would be immediately apparent to the skilled person that the groove 8 as proposed in E3 would hold the end of the flexible wire better during assembly than the horizontal step-shaped milled recess of E1. Furthermore E3 does not specify that the arrangement is in any particular orientation, such that the fact that the groove is depicted with its opening upwards in figure 1 would not dissuade the skilled person from using such a groove in other orientations, such as horizontal. Thus, it would be obvious to adapt E1 to use such a groove, which corresponds to the slit as claimed in the contested patent, in place of the horizontal step-shaped milled recess.
- 2.15 Furthermore, according to paragraph [0017] of E3, methods such as resistance soldering, resistance welding or electron beam welding (EB welding) are particularly suitable for the connection to the connecting rail 2. From this it would be obvious to the skilled person that soldering and welding are viable alternatives for the connection of such conductors. From this indication it would be obvious for the skilled person to use welding as an alternative to soldering in the arrangement of E1.
- 2.16 Thus, the skilled person would come to the subject-matter of claim 1 of the patent without involving an inventive step. Hence, the ground for opposition under Article 100(a) EPC in combination with Article 56 EPC

prejudices the maintenance of the patent as granted and therefore the Board cannot accede to the respondent's main request.

3. *Auxiliary requests 1 and 2, inventive step, Article 56 EPC*

3.1 The amendments according to auxiliary requests 1 and 2 serve to clarify that the slit portions are horizontal and the end portions of the flexible shunt are actually fitted in the slit portions and connected to them by welding. As it has already been found in respect of the main request that these features would be obvious in view of E1 and E3, this clarification does not serve to establish an inventive step.

3.2 Hence, the respondent's first and second auxiliary requests do not meet the requirements of Article 56 EPC.

3.3 In view of this finding the questions raised over the admittance of these requests need not be addressed.

4. *Auxiliary requests 3 and 4, admissibility, Article 13(2) RPBA 2020*

4.1 In their substance, auxiliary requests 3 and 4 were already on file as auxiliary requests I and II during the first-instance proceedings and were maintained as such with the reply to the appeal. Nevertheless, the respondent amended their case after notification of the summons to oral proceedings (cf. Article 13(2) RPBA 2020) by introducing new auxiliary requests 1 and 2 and presenting auxiliary requests I and II in a new order

as auxiliary requests 3 and 4. Thus, the same provisions apply as for the filing of a completely new request.

4.2 The respondent argued that the fact that auxiliary requests 3 and 4 were already on file as auxiliary requests I and II during the first-instance proceedings and were maintained as such with the reply to the appeal, so that merely the given order of these requests had been changed, constituted an exceptional circumstance in the sense of Article 13(2) RPBA 2020 which justified their being taken into account.

4.3 The Board noted that auxiliary requests 1 and 2 had been introduced only to address relatively minor issues of clarity, that no significant issues of non-convergence between auxiliary requests 1 and 2 and auxiliary requests 3 and 4 are apparent, and that the introduction of auxiliary requests 1 and 2 and the resulting change of order had not been to the detriment of procedural economy given that they did not add anything as regards the assessment of inventive step. Taking these specific factors into account the Board considered the respondents reasons to be cogent and hence decided to admit auxiliary requests 3 and 4, as presented in that new order, into the proceedings.

5. *Auxiliary request 3, amendments, Article 123(2) EPC*

5.1 According to claim 1 of auxiliary request 3, "the clamp (2) comprises two front surfaces, and the horizontal slit portions (2b, 2b') and the heat sink (3) are disposed at the two front surfaces of the clamp (2)".

5.2 In the application as filed, see EP 2 306 482 A1, all of the disclosures which relate to the clamp 2 comprising two front surfaces are made in the context that the clamp 2 comprises a pair of clamp pieces, each of which has a front surface on which a heat sink 3 is disposed on an upper portion thereof and a slit portion 2b, 2b' is disposed at a lower portion thereof. There is no suggestion that the clamp could comprise two such front surfaces without comprising a pair of clamp pieces and without the heat sink and the slit portions being arranged in this way.

5.3 In particular, paragraph [0019], lines 12 to 19 of EP 2 306 482 A1 inextricably links the presence of two such front surfaces to the fact that the clamp 2 comprises a pair of clamp pieces and the heat sink and the slit portions are so arranged, stating:

"Referring to Fig. 3 , the clamp 2 is [sic] comprises a pair of clamp pieces: a first clamp piece 2a and a second clamp piece 2a'. The first and second clamp pieces 2a and 2a' include upper surface portions 2f for mounting the heat sink 3 thereon, and the slit portions 2b and 2b' disposed at a lower portion thereof for fitting the respective end portions of the flexible shunt 4 thereinto".

5.4 Similarly, dependent claim 3 of EP 2 306 482 A1 states that:

the clamp includes a pair of clamp pieces, and each of the clamp pieces comprises:

an upper flat surface portion for mounting the heat sink thereon; and
the slit portion disposed at a lower portion thereof so as to insert the end

portion of the flexible shunt and to be connected thereto by welding".

- 5.5 The Board was not convinced by the respondent's argument that the skilled person would recognise that the features that the clamp comprised a pair of clamp pieces was not relevant to the presence of two front faces.
- 5.6 For these reasons the Board concurred with the appellant that claim 1 of auxiliary request 3 constituted an unallowable intermediate generalisation, contrary to Article 123(2) EPC. At least for this reason the respondent's auxiliary request 3 could not be acceded to.
6. *Auxiliary request 4, inventive step, Article 56 EPC*
- 6.1 Claim 1 of auxiliary request 4 is a combination of granted claims 1 and 2 and has a basis in claims 1, 2 and 3 as originally filed. It defines the further features that:
- "the clamp (2) includes a pair of clamp pieces (2a, 2a'), and
each of the clamp pieces (2a, 2a') comprises:
an upper flat surface portion (2f) for mounting the heat sink (3) thereon; and
the slit portion (2b, 2b') disposed at a lower portion thereof so as to insert the end portion of the flexible shunt (4) and to be connected thereto by welding.
- 6.2 The clamp in document E1 includes a pair of clamp pieces which are referred to as 6 and 7 in the text, but indicated with 7a, 7b in figure 1. Each of the

clamp pieces comprises a step-shaped cut-out 11 disposed at a lower portion of one face thereof - i.e. the face on which the heads of the clamping screws 8 sit. The end portion of a current strap (i.e. flexible shunt) 4 is inserted into the step-shaped cut-out 11 and connected therein by soldering. That is not in dispute.

- 6.3 It has been established for the main request, that it would be obvious in the light of document E3 for the skilled person to replace the step-shaped cut-outs 11 of E1 with slits and to connect the flexible shunts therein by welding instead of soldering. That applies equally for auxiliary request 4.
- 6.4 The only remaining feature of claim 1 according to auxiliary request 4 is that the flat surface of each clamp piece on which a slit portion is disposed comprises "an upper flat surface portion for mounting [a] heat sink (3) thereon".
- 6.5 As can be seen in figures 1 and 2, document E1 does not disclose a heat sink mounted on the same flat surface of each clamp piece as the step-shaped cut-out. The heat sinks are rather mounted on a different surface to the side.
- 6.6 However as pointed out by the appellant, claim 1 of auxiliary request does not require that each clamp piece actually comprise a heat sink mounted on an upper portion of the flat surface on which a slit portion is disposed (front surface). It merely requires that each clamp piece's front surfaces comprise an upper flat surface portion for mounting a heat sink thereon, and in accordance with established practice such a formulation merely requires suitability for the stated

purpose. In this respect the Board finds the appellant's submission persuasive, that on each clamp piece the upper portion of the flat surface on which the slit portion is disposed has potential space for the mounting of a heat sink. Hence, the Board concurs with the appellant that this upper flat surface portion is suitable for the mounting of a heat sink, thus fulfilling the last remaining feature of claim 1.

6.7 The respondent submitted that it would require a complete redesign of E1 to provide each clamp piece with a heat sink mounted on the upper portion of the flat surface on which the slit portion is disposed. The Board does not find this argument persuasive as they can see no difficulty in mounting an additional heat sink in that location using the clamping screws already provided.

6.8 For these reasons the Board came to the conclusion that the subject-matter of claim 1 of the respondent's auxiliary request 4 did not involve an inventive step.

7. *Conclusion*

As none of the respondent's requests met the requirements of the convention, the Board acceded to the appellant's request to revoke the patent.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



U. Bultmann

R. Lord

Decision electronically authenticated