

Internal distribution code:

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

**Datasheet for the decision
of 5 March 2024**

Case Number: T 0445/21 - 3.5.02

Application Number: 16207568.3

Publication Number: 3229254

IPC: H01H33/662

Language of the proceedings: EN

Title of invention:

Vacuum interrupter for a vacuum circuit breaker

Patent Proprietor:

LSIS Co., Ltd.

Opponent:

Siemens Aktiengesellschaft

Relevant legal provisions:

EPC Art. 100(a), 54, 56
RPBA 2020 Art. 12(3), 13(2), 12(4), 12(5)

Keyword:

Novelty - main request (yes)
Inventive step - main request (no)
Auxiliary requests I and II - Sufficient substantiation in the
reply to the appeal (no)



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 0445/21 - 3.5.02

D E C I S I O N
of Technical Board of Appeal 3.5.02
of 5 March 2024

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

Representative: Michalski Hüttermann & Partner
Patentanwälte mbB
Kaistraße 16A
40221 Düsseldorf (DE)

Respondent: LSIS Co., Ltd.
(Patent Proprietor) 127, LS-ro
Dongan-gu
Anyang-si
Gyeonggi-Do 14119 (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 23 February 2021 rejecting the opposition filed against European patent No. 3229254 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman R. Lord
Members: C.D. Vassoille
J. Hoppe

Summary of Facts and Submissions

I. The appeal of the opponent lies against the decision of the opposition division rejecting the opposition against European patent no. 3 229 254.

II. The following document is relevant for the present decision:

D1: JP 2015-125838 A

III. In the contested decision, the opposition division concluded that the ground for opposition under Article 100(a) in combination with Articles 54 and 56 EPC did not prejudice the maintenance of the patent as granted.

IV. The parties were summoned to oral proceedings. In a communication under Article 15(1) RPBA annexed to the summons to oral proceedings, the board informed the parties, *inter alia*, of its preliminary opinion that the subject-matter of claim 1 of the main request was new over document D1 and also involved an inventive step in respect of documents other than D1.

V. Oral proceedings before the board took place on 5 March 2024.

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

The respondent (patent proprietor) requested that the appeal be rejected as inadmissible, further that the appeal be dismissed, and still further as an auxiliary measure, that the decision under appeal be set aside

and the patent be maintained in amended form in accordance with either of the auxiliary requests I and II filed with the reply to the appeal.

VI. Claim 1 of the main request (patent as granted) has the following wording (feature numbering added in brackets by the board):

"**(a)** A vacuum interrupter for a vacuum circuit breaker
(b) installed in a vacuum circuit breaker and configured to interrupt introduction of a load current or an accident current, the vacuum interrupter comprising:
(c) an upper insulating envelope (111);
(d) a lower insulating envelope (113) arranged below the upper insulating envelope (111);
(e) a fixed electrode portion (115) installed to be fixed to the inside of the upper insulating envelope (111);
(f) an actuating electrode portion (117) installed inside the lower insulating envelope (113) to face the fixed electrode portion (115) and to be in contact with or detached from the fixed electrode portion (115);
(g) a center shield (119) arranged between the upper insulating envelope (111) and the lower insulating envelope (113), receiving the fixed electrode portion (115) and the actuating electrode portion (117), and
(h) first and second auxiliary shields (121; 123),
(i) wherein the first auxiliary shield is provided inside the upper insulating envelope (111) and the lower insulating envelope (113),
(j) wherein the second auxiliary shield (123) is formed between the upper insulating envelope (111) and the center shield (119), between the lower insulating envelope (113) and the center shield (119), characterized in that

(k) the second auxiliary shield (123) is provided with a protrusion (123a), and that the protrusion (123a) is formed to be outwardly protruded and **(1)** having one end formed to be inwardly bent in a circular or curved shape."

VII. In view of the board's decision not to admit auxiliary requests I and II into the appeal proceedings, it was not necessary to reproduce the wording of these requests here.

VIII. The arguments of the appellant can be summarised as follows:

The appeal was admissible as the appellant made sufficient reference to the reasons of the contested decision.

In view of the unclear wording of feature (1), the subject-matter of claim 1 of the main request was not new over document D1. At the very least, the subject-matter of claim 1 of the main request did not involve an inventive step starting from D1 as closest prior art, because the only distinguishing feature (1) merely referred to an alternative design of the protrusion of the second auxiliary shield without any further technical effect.

The respondent had not sufficiently explained in the reply to the appeal why they considered auxiliary requests I and II to be suitable for overcoming the objections to the main request. These requests were therefore not to be admitted into the appeal proceedings.

IX. The arguments of the respondent can be summarised as follows:

The appeal was inadmissible because the statement of grounds of appeal only rarely referred to the reasons of the contested decision, but largely repeated the statement of grounds for opposition.

The subject-matter of claim 1 was new over document D1, because features (k) and (l) of claim 1 were not disclosed in this document. The subject-matter of claim 1 also involved an inventive step over document D1, because the skilled person would not have considered a structural change of the vacuum interrupter of D1 such as to arrive at the claimed invention.

Auxiliary requests I and II should be admitted into the appeal proceedings because detailed arguments could not have been presented in relation to each of the various objections raised by the appellant, who had used a "shotgun approach".

The detailed arguments of the parties are discussed in the reasons below.

Reasons for the Decision

1. *Admissibility of the appeal (Article 108 EPC and Rule 99(2) EPC)*

1.1 The respondent contested the admissibility of the appeal on the ground that the statement of grounds of appeal "rarely relate to the appealed decision". According to the respondent, the appellant had instead largely repeated the grounds for opposition without referring to the reasons given in the contested

decision, which the respondent considers to be an abuse of procedure.

1.2 The board agrees with the appellant that the statement of grounds of appeal sufficiently address the reasons for the contested decision. The board refers by way of example to pages 6, 9, 10, 13, 14, 18 and 23, where the appellant explicitly addressed the opposition division's reasoning in the contested decision.

1.3 It follows from the third sentence of Article 108 EPC in conjunction with Rule 99(2) EPC that the statement of grounds of appeal must state the grounds on which the decision is to be set aside. These conditions for an adequate statement of grounds of appeal are clearly met in the present case.

1.4 It is further noted that the appellant in the statement of grounds of appeal presented a new objection under Article 100(a) in combination with Article 54 EPC on the basis of a newly filed document (D14). For this reason alone, the appeal must be considered admissible - irrespective of whether or not the new objection were to be admitted into the proceedings.

1.5 The board therefore concluded that the appeal is admissible within the meaning of Article 108 EPC and Rule 99(2) EPC.

2. Main request - Novelty over document D1

2.1 The subject-matter of claim 1 of the main request is novel over document D1 (Article 100(a) in combination with Article 54 EPC).

2.2 The respondent argued that document D1 did not disclose features (k) and (l) of claim 1 of the main request. In particular, document D1 did not disclose a second auxiliary shield provided with a protrusion, the protrusion being outwardly protruded and having one end formed to be inwardly bent in a circular or curved shape.

Feature (k)

2.3 The board does not agree with the respondent to the extent that document D1 does not disclose feature (k). Rather, the appellant correctly identified the second auxiliary shield in D1 as corresponding to the element shown in figure 1 of D1 with reference number 72, which is a shield formed between the upper insulating envelope (reference number 51 in figure 1) and the centre shield (reference number 53 in figure 1), and between the lower insulating envelope (reference number 52 in figure 1) and the centre shield (53). Figure 1 of document D1 also clearly shows that the auxiliary shield 72 is provided with a protrusion which is formed to be outwardly protruded as defined by feature (k).

Feature (l)

2.4 As regards feature (l), the appellant considered the wording of it to be very unclear, which allowed for a broad interpretation of its wording. Such an interpretation included, in principle, any type of curved or circular shield and, in particular also included a completely closed curved or circular structure such as the bulged shield 72 in figure 1 of document D1. The "end" defined in feature (l) could be any end, in particular in the radial or axial direction

of the curved or circular shield. Moreover, claim 1 did not specify that it was the end of a metal sheet or the like.

2.5 The board considers that feature (1) is not disclosed in document D1. While the appellant may be correct that the wording of feature (1) requires interpretation, it is not appropriate to assume that the skilled person would understand any curved or circular shape, even a completely closed one, to fall within the definition of feature (1). It may therefore well be that feature (1), due to its broad formulation, encompasses a variety of embodiments of the protrusion of the second auxiliary shield. Notwithstanding this, however, the outwardly curved or bulged shape of the shield 72 clearly does not fall within the definition of feature (1).

Indeed, the wording of feature (1) defines that one end is formed to be inwardly bent. The board is satisfied that the person skilled in the art would not understand an inwardly bent end as corresponding to a mere outwardly bulged shield, even if that structure has a curved or circular outer shape as defined in the second part of feature (1). Consequently, although the shield 72, as illustrated in figure 1 of D1, is bulged outwards, it has no end of a protrusion that is "inwardly bent" within the meaning of feature (1) of claim 1.

It follows that the fact that the shield 72 of document D1 has a curved or circular structure, as specified in the further wording of claim 1, is irrelevant to the question of novelty, since in any event the first part of feature (1) is not disclosed in document D1.

2.6 The board therefore concluded that document D1 did not disclose feature (1) of claim 1 and that the subject-matter of claim 1 of the main request was therefore new over document D1.

3. *Main request - Inventive step in view of document D1 (Article 100(a) in combination with Article 56 EPC)*

3.1 The subject-matter of claim 1 of the main request does not involve an inventive step in view of document D1. While the appellant's objection based on D1 in combination with other documents was raised for the first time during the appeal proceedings, the objection based on D1 in combination with common general knowledge (routine measures) had already been raised in the opposition proceedings with letter of 22 September 2020 under point I.2 within the time limit under Rule 116(1) EPC. It was submitted to further elaborate the novelty objection based on D1 in reaction to the annex to the summons where the opposition division identified feature (1) as a distinguishing feature. Thus, the objection was admissibly raised in the opposition proceedings and is thus not to be regarded as an amendment according to Article 12(4) RPBA.

Distinguishing feature

3.2 In the assessment of novelty, the board came to the conclusion that the subject-matter of claim 1 differs from document D1 only in feature (1). This feature thus constitutes the distinguishing feature in the subsequent assessment of inventive step.

Technical effect

- 3.3 The board agrees with the appellant that feature (1) does not have a further technical effect which would go beyond the technical effect of the bulged protrusion of the second auxiliary shield 72 in figure 1 of document D1. The board must therefore assume that the specific shape of the protrusion according to feature (1), in particular the fact that the protrusion has an inwardly bent end, does not have a technical effect going beyond that of the shield 72 in document D1, namely a reduction of the electric field concentration at the junction of the central shield, the upper insulating sheath and the lower insulating sheath.
- 3.4 The respondent argued that the technical effect was to reduce the complexity of the structure of document D1. In particular, they argued that the structure of document D1 was complex, because the shield structure consisted of two parts, namely the outer shield 72 and the inner shield 53, wherein the first inner shield 53 and the outside shield 72 both provided relaxation to the electric field. On the contrary, the present invention only used one shield for the purposes of electric field relaxation, thus, leading to a reduced complexity of the overall structure.
- 3.5 The board is not convinced by the respondent's argument. Feature (1) relates exclusively to the shape of the protrusion and thus contains nothing that could suggest reduced complexity of the shield structure or of the overall structure of the vacuum interrupter. For the sake of completeness, the board notes that a corresponding technical effect is also not apparent in view of the other features of claim 1. As the board noted in the course of the novelty assessment above,

document D1 discloses a centre shield 53 as well as first and second auxiliary shields 70 and 72. Thus, claim 1 does not contain anything that could indicate a reduced complexity of the structure compared to the structure disclosed in D1. The board is therefore not convinced of the technical effect of feature (1), as argued by the respondent.

Objective technical problem

3.6 Consequently, in the absence of any further technical effect of feature (1) as compared with document D1, the appellant was also right to conclude that, on the basis of document D1 and in the light of feature (1), the objective technical problem was merely to provide an alternative design for the protrusion of the second auxiliary shield.

Obviousness of the alternative solution

3.7 The provision of the alternative solution according to feature (1) of claim 1 does not involve an inventive step. The appellant rightly argued that document D1 contains nothing which would prevent the skilled person from designing the shape of the protrusion of the second auxiliary shield 72 in document D1 in accordance with feature (1), i.e. in such a way that one end is formed to be inwardly bent in a circular or curved shape.

3.8 The respondent merely referred to the supposedly greater complexity of the structure of the vacuum interrupter in document D1. In particular, they argued that, because of the considerable structural differences, the person skilled in the art would not have been able to adapt the shape of the protrusion in

D1 in such a way as to lead to the subject-matter of claim 1. This modification would therefore not have been possible from a structural point of view alone.

- 3.9 The board is not persuaded by these arguments. Rather, as the appellant convincingly argued, from the wording of claim 1, no difference is apparent in terms of structural complexity of the vacuum interrupters. Furthermore, a different configuration of the second auxiliary shield 72 would at best require suitable standard measures in the production process, which would in any case not have prevented the skilled person from shaping the protrusion of the second auxiliary shield in such a way that it falls within the definition of feature (1).

Document D1 therefore does not teach away from the subject-matter of claim 1, nor is there any other reason apparent why the skilled person would have been prevented from implementing feature (1) in the vacuum interrupter according to D1. Rather, a skilled person would use their common knowledge to implement such alternative design.

- 3.10 In the light of the above considerations, the board concluded that the subject-matter of claim 1 was rendered obvious to the person skilled in the art and thus did not involve an inventive step, so that the ground for opposition under Article 100(a) in combination with Article 56 EPC prejudiced the maintenance of the patent as granted.

4. Auxiliary requests I and II - Admittance (Article 12 (3), (5) RPBA and Article 13(2) RPBA)

- 4.1 With the reply to the appeal, the respondent filed auxiliary requests I and II.
- 4.2 According to Article 12(3) RPBA, the statement of grounds of appeal and the reply shall contain a party's complete appeal case. Accordingly, they shall set out clearly and concisely the reasons why it is requested that the decision under appeal be reversed, amended or upheld, and should specify expressly all the requests, facts, objections, arguments and evidence relied on.
- 4.3 The respondent's statements on auxiliary requests I and II in the reply to the appeal do not meet these requirements. The relevant statements under point 8. on the last page of the reply to the appeal consist of only one paragraph and they do not indicate where the basis for the amendments is to be found, let alone how the auxiliary requests I and II are intended to overcome the objections raised by the appellant against the main request.
- 4.4 It was only during the oral proceedings before the board that the respondent put forward arguments concerning the relevance of auxiliary requests I and II, in particular their relevance in relation to the objections raised against the main request, and the argument that it had not been possible at the time of filing the reply to the appeal to respond to each of the various objections raised by the appellant against the main request.
- 4.5 The respondent's corresponding substantiation of auxiliary requests I and II, submitted for the first

time during the oral proceedings before the board, constitutes an amendment to the respondent's appeal case within the meaning of Article 13(2) RPBA, which was not disputed by the respondent. According to Article 13(2) RPBA, any amendment to a party's appeal case made after notification of a communication under Article 15(1), shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

4.6 No such exceptional circumstances are apparent to the board in the present case. In particular, given that there were only a relatively small number of objections (two novelty attacks, three for inventive step), and the inventive step arguments starting from document D2 and document D6 were very similar, it was reasonable to expect the respondent to address also the objection starting from document D1. These circumstances therefore do not represent exceptional circumstances, and no other such circumstances have been identified by the respondent. The board therefore exercised its discretion under Article 13(2) RPBA not to take into account the substantiation of auxiliary requests I and II made for the first time during the oral proceedings.

4.7 Since auxiliary requests I and II were not sufficiently substantiated in the reply to the appeal within the meaning of Article 12(3) RPBA and the substantiation submitted by the respondent only during the oral proceedings was not taken into account in the appeal proceedings, the board exercised its discretion under Article 12(5) RPBA not to admit auxiliary requests I and II into the appeal proceedings.

5. Result

Since the ground for opposition under Article 100(a) in combination with Article 56 EPC prejudiced the maintenance of the patent as granted, and since the auxiliary requests I and II were not admitted into the appeal procedure, the board had to accede to the appellant's main request.

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