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Datasheet for the decision of 27 April 2017

Case Number: T 0810/12 - 3.4.03

Application Number: 01108390.4

Publication Number: 1143460

IPC: H01C7/12, A01M29/00

Language of the proceedings: EN

Title of invention:
Surge arrester

Patent Proprietor:
Kabushiki Kaisha Toshiba

Opponent:
ABB Schweiz AG, Intellectual Property CH-LC/IP

Headword:

Relevant legal provisions:
EPC 1973 Art. 54, 56, 100(a), 100(c)
RPBA Art. 13(1), 13(3)

Keyword:
Grounds for opposition - fresh ground for opposition - not admitted into appeal proceedings
Novelty - main request (yes)
Inventive step - main request (yes)
Claims - construction using the description and drawings
Late-filed objection - complex issues - admitted (no)

Decisions cited:
G 0010/91, G 0001/95

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

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Case Number: T 0810/12 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 27 April 2017

Appellant: (Opponent)	ABB Schweiz AG, Intellectual Property CH-LC/IP Brown Boveri Strasse 6 5400 Baden (CH)
Representative:	ABB Patent Attorneys C/o ABB Schweiz AG Intellectual Property (CH-LC/IP) Brown Boveri Strasse 6 5400 Baden (CH)
Respondent: (Patent Proprietor)	Kabushiki Kaisha Toshiba 72 Horikawa-cho, Saiwai-ku Kawasaki-shi (JP)
Representative:	Henkel, Breuer & Partner Patentanwälte Maximiliansplatz 21 80333 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 30 January 2012 rejecting the opposition filed against European patent No. 1143460 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	G. Eliasson
Members:	T. M. Häusser
	T. Bokor

Summary of Facts and Submissions

I. The appeal of the opponent concerns the decision of the opposition division rejecting the opposition filed against the European patent No. EP-B-1 143 460 (Article 101(2) EPC).

II. The opposition had been filed against the patent as a whole. Grounds of opposition were lack of novelty and lack of inventive step (Articles 100(a), 54(1) and (2), and 56 EPC 1973).

In the course of the opposition proceedings the opponent raised a further ground of opposition under Article 100(c) EPC 1973. This new ground of opposition was not admitted into the proceedings by the opposition division.

III. At the oral proceedings before the board 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 dismissed (main request), or that the decision under appeal be set aside and the patent be maintained in an amended form on the basis of the auxiliary request filed with letter dated 24 March 2017.

IV. Reference is made to the following documents:

E3: EP 0 545 038 A,

E5: EP 0 683 496 A,

R1: Printout of the entry for "mesh" in the free dictionary "Wiktionary", retrieved from "http://en.wiktionary.org/wiki/mesh",

E12: Oxford English dictionary, 2nd edition, 1989, Oxford University Press, Oxford, U.K., page 646,

E13: Oxford English reference dictionary, revised second edition, 2002, Oxford University Press, Oxford, U.K., page 906.

V. The wording of independent claim 1 as granted (main request) is as follows (board's labelling "(A)"):

"1. A surge arrester comprising:
at least one nonlinear resistive element (1) made mainly of zinc oxide and having two ends and one axis;
at least two electrode terminals (2) electrically connected to the two ends of said at least one nonlinear resistive element (1), respectively;
a plurality of elongated insulating supports (4) arranged around the at least one nonlinear resistive element (1), extending parallel to the axis of the at least one nonlinear resistive element (1) and spaced apart from one another, each insulating support (4) having both ends secured to the electrode terminals (2); and
a molded insulating container (5) made of silicone resin, surrounding the at least one nonlinear resistive element (1) and the insulating supports (4) and exposing parts of the electrode terminals (2);
characterized in that
(A) the at least one nonlinear resistive element (1) is covered with a mesh (9) made of a fiber reinforced plastic."

VI. The parties argued essentially as follows in relation to the main request:

(a) Added subject-matter

The *appellant* argued that the characterizing feature (A) of claim 1 as granted did not have a basis in the original application documents so that the subject-matter of the patent extended beyond the content of the application as filed. The new ground of opposition of added subject-matter was *prima facie* relevant and should be admitted into the proceedings.

The *respondent* did not agree that the new ground of opposition of added subject-matter be introduced into the appeal proceedings.

(b) Novelty

The *appellant* argued with reference to documents E12 and E13 relating to the definition of "mesh" that this term related to any kind of structure with holes in it. Document E5 disclosed compression loops 14-17 which were arranged in axial direction and spaced from each other. Moreover, rings 21 surrounded the varistor stack and could be connected to the loops. The loops as well as the rings were made of fibre-reinforced plastic and could in combination be considered to form the claimed mesh, which was suitable for retaining the fragments of the varistor resulting e. g. from bursting due to high currents at the center of the varistor after a lightning strike. Therefore, the subject-matter of granted claim 1 lacked novelty over document E5.

The *respondent* referred to documents R1, E12 and E13 and argued that the term "mesh" related to a structure of interconnected strands of fibre with evenly spaced openings between them. Document E5 disclosed the

features of the preamble of granted claim 1 but did not disclose the characterizing feature. Rather, document E5 disclosed a plural of fibre reinforced rings 21 surrounding the varistor stack outside the axial fibre loops. The contact between the loops and rings was confined to small portions. Such a structure could not provide the function of the mesh of catching fragments of the resistive elements. Moreover, it followed from the wording of granted claim 1 that the elongated insulating supports and the mesh were separate elements. As the loops were identified as the elongated insulating supports they could not at the same time be part of the claimed mesh. Hence, the unidirectional wound structure of the fibres of the loops and rings did not correspond to the claimed mesh within the stated meaning.

(c) Inventive step

(i) Amendment to the appellant's case

The *appellant* stated for the first time at the oral proceedings before the board that it would prefer to argue inventive step on the basis of document E5 in combination with document E10. The latter document had already been admitted into the proceedings by the opposition division. Moreover, the objection was not advanced earlier because this could have been considered by the board as an implicit concession of the appellant that the subject-matter of feature (A) was not disclosed in document E5 thereby weakening the objection of lack of novelty.

The *respondent* requested that this new line of attack not be admitted into the proceedings.

(ii) Combination of documents E5 and E3

The *appellant* argued that, in case the board considered that the compression loops were not anchored to the electrodes, reference was made to an alternative attachment dislosed in document E3.

The *respondent* argued that document E3 did not disclose any cover around the varistors or other means for preventing the darting of fragments of the varistors in case of explosive failure and would not render feature (A) obvious.

Reasons for the Decision

1. Main request - added subject-matter

1.1 The ground of opposition under Article 100(c) EPC 1973 was raised by the opponent (present appellant) after the expiry of the time limit laid down in Article 99(1) EPC, thus constituting a late-filed ground of opposition. In exercising its discretionary power under Article 114(1) and (2) EPC 1973 (decision G 10/91 of the Enlarged Board of Appeal, point 16 of the Reasons), the opposition division did not admit this ground of opposition into the proceedings as it was not deemed *prima facie* relevant (contested decision, point 2 of the Reasons).

1.2 The *appellant* argued that the characterizing feature (A) of claim 1 as granted did not have a basis in the original application documents so that the subject-matter of the patent extended beyond the content of the application as filed. The new ground of opposition of

added subject-matter was *prima facie* relevant and should be admitted into the proceedings.

1.3 The appellant did not object to the *manner* in which the opposition division exercised its discretion concerning the admission of the new ground of opposition of added subject-matter, e. g. by referring to the principles to be applied in such a discretionary decision. Nor does the board see any fault in this respect. Indeed, the opposition division considered whether the new ground was *prima facie* relevant in accordance with the principles set out in the decision G 10/91 of the Enlarged Board of Appeal (see point 16 of the Reasons). Accordingly, there is no reason to overrule the opposition division's discretionary decision on this account.

1.4 Moreover, the Enlarged Board held in the above decision G 10/91 that a *fresh ground* may in principle not be introduced at the appeal stage and that an exception to this principle is justified in case the patentee agrees that the fresh ground for opposition may be considered (see point 18 of the Reasons).

In the present case, the ground of opposition under Article 100(c) EPC 1973 was neither raised and substantiated in the notice of opposition, nor introduced into the proceedings by the opposition division in application of Article 114(1) EPC 1973. Hence, this ground of opposition is a *fresh ground* within the meaning of the term intended in the decision G 10/91 (see decision G 1/95 of the Enlarged Board of Appeal, point 5.3 of the Reasons). Moreover, the respondent explicitly objected to the introduction of the new ground of opposition into the appeal proceedings.

Therefore, the board has no power to introduce this ground of opposition for the first time at the appeal stage.

1.5 In view of the above, the ground of opposition under Article 100(c) EPC 1973 is not admitted into the appeal proceedings.

2. Main request - novelty

2.1 The appellant argued that the subject-matter of granted claim 1 lacked novelty over document E5. There was agreement between the parties that the subject-matter of the preamble of granted claim 1 was disclosed in document E5.

2.2 Indeed, document E5 discloses (see page 3, lines 10-37; Figures 1-3) a surge arrester comprising a stack of five varistor elements 10 in the form of "circular-cylindrical" blocks of zinc oxide. The varistor stack is clamped between an upper and a lower end electrode 11 and 12, respectively. The axial compression of the varistor stack is achieved by means of four electrically insulating compression loops 14-17, which are wound from continuous glass-fibre wire with many turns and embedded in thermosetting resin. The compression loops 14-17 are clamped to the end electrodes 11, 12, which for this purpose are provided with four radially projecting shoulders 18. In order to prevent the arrester module from mechanically falling apart in the event of an electrical/thermal failure of the varistor stack, the module is provided with a bursting-preventive device consisting of five fibre-reinforced rings 21, which radially surround the varistor stack and the glass-fibre loops 14-17. The rings 21 are substantially of square shape and are placed in axially

spaced relationship to each other along the stack, such that annular openings 22 for pressure relief, in the event of arrester failure, are formed between them. The arrester unit is provided with a casing 23, cast onto the arrester unit, preferably of an elastomer, for example silicone rubber or ethylene propylene terpolymer.

Hence, using the wording of granted claim 1, document E5 discloses a surge arrester comprising: at least one nonlinear resistive element (varistor elements 10) made mainly of zinc oxide and having two ends and one axis (the varistor elements being in the form of circular-cylindrical blocks of zinc oxide);
at least two electrode terminals (upper and lower end electrodes 11 and 12) electrically connected to the two ends of said at least one nonlinear resistive element (varistor elements 10), respectively;
a plurality of elongated insulating supports (compression loops 14-17) arranged around the at least one nonlinear resistive element, extending parallel to the axis of the at least one nonlinear resistive element and spaced apart from one another, each insulating support (compression loops 14-17) having both ends secured to the electrode terminals (the compression loops 14-17 being clamped to the end electrodes 11, 12); and
a molded insulating container (casing 23) made of silicone resin (silicone rubber), surrounding the at least one nonlinear resistive element (varistor elements 10) and the insulating supports (compression loops 14-17) and exposing parts of the electrode terminals (electrodes 11 and 12).

2.3 The point of dispute between the parties is whether document E5 discloses the subject-matter of character-

izing feature (A) of granted claim 1 relating to the nonlinear resistive element being covered with a mesh made of a fiber reinforced plastic.

The appellant argued that the term "mesh" related to any kind of structure with holes in it. The rings 21 surrounding the varistor stack could be connected to the compression loops 14-17. The loops and the rings were made of fibre-reinforced plastic and could be considered to form in combination the claimed mesh. This arrangement of loops and rings was suitable for retaining the fragments of the varistor resulting e. g. from bursting due to high currents at the center of the varistor after a lightning strike.

The respondent argued that it followed from the wording of granted claim 1 that the elongated insulating supports and the mesh were separate elements. As the compression loops 14-17 disclosed in document E5 were identified as the elongated insulating supports, they could not at the same time be part of the claimed mesh.

2.4 According to established case law of the Boards of Appeal of the EPO the description and drawings of the patent are used to construct the claims of the patent and to determine the claimed subject-matter, in particular in order to judge whether it is new and involves an inventive step (see *Case Law of the Boards of Appeal of the EPO,* 8th edition 2016, section II.A.6.3.1).

In the present case, it emerges from the description of the patent that it is the purpose of the claimed plurality of elongated insulating supports to compress and fix the nonlinear resistive element(s) between the electrode terminals in a rigid configuration. The spaces between the elongated insulating supports extend

in the direction of the axis of the surge arrester and allow internal pressure to be released in case the nonlinear resistive elements are damaged by excessive voltage and current (see paragraphs [0016]-[0022], [0042]-[0046], and [0051]).

On the other hand, the purpose of the mesh made of fiber reinforced plastic is to prevent small fragments of the nonlinear resistive elements, which result when these elements are destroyed due to short circuit currents, from being ejected at the openings between the insulating supporting elements (see paragraphs [0018] and [0052]). The mesh is therefore described as a distinct element having its own function. In particular, in view of the above purpose it is manifest that the mesh is an element which must be separate from the plurality of elongated insulating supports.

This is in line with the representation of the mesh in Figures 2A, 3A, 4A and 5, where it is shown as a separate element, distinct from the other elements of the surge arrester, designated by reference number 9.

2.5 As indicated above under point 2.2 the compression loops 14-17 of document E5 are considered to correspond to the claimed plurality of elongated insulating supports. This is not contested by the appellant. However, in accordance with the above construction of granted claim 1, this implies that these compression loops cannot be considered at the same time as constituting, in combination with the fibre-reinforced rings 21, the claimed mesh made of a fiber reinforced plastic.

Moreover, the appellant did not point out any other separate element disclosed in document E5, which is

distinct from the other elements of the surge arrester of document E5 and could be considered a mesh. Having regard to the normal meaning of the term "mesh" in the relevant technical field of basic electric elements and the purpose of the mesh described above, the skilled person would understand this term to refer to a grid-like structure suitable for containing the fragments of bursting nonlinear resistive elements. The board does not see any such grid-like structure in document E5, either.

In the absence of any element disclosed in document E5 which could be considered a mesh, it is not necessary for the board to decide what detailed characteristics are implied by the term "mesh", e. g. in relation to any flexibility of the intended element, uniformity of its spacings or whether a woven or non-woven structure would be considered a "mesh". Detailed consideration of documents R1, E12, and E13, which provide various definitions of the term "mesh", is therefore not necessary.

In view of the above, the board concludes that the subject-matter of feature (A) is not disclosed in document E5.

2.6 The subject-matter of granted claim 1 is therefore new over document E5.

During the appeal proceedings no other lack of novelty objection was raised by the appellant against granted claim 1.

Granted claims 2 to 13 are dependent on granted claim 1. Accordingly, the subject-matter of granted claims 1

to 13 is new (Article 52(1) EPC and Article 54(1) EPC 1973).

3. Main request - inventive step

3.1 Amendment to the appellant's case

3.1.1 The appellant stated for the first time at the oral proceedings before the board that it would prefer to argue inventive step on the basis of document E5 in combination with document E10. The latter document had already been admitted into the proceedings by the opposition division.

The respondent requested that this new line of attack not be admitted into the proceedings.

3.1.2 According to Article 12(2) RPBA, the statement of the grounds of appeal must contain a party's complete case. Any amendment to a party's case after it has filed its grounds of appeal may, according to Article 13(1) RPBA, be admitted and considered at the board's discretion. The discretion must be exercised in view of *inter alia* the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy. In particular, according to Article 13(3) RPBA, amendments sought to be made after oral proceedings have been arranged shall not be admitted if they raise issues which the board or the other party cannot reasonably be expected to deal with without adjournment of the oral proceedings.

In the present case the objection of lack of inventive step on the basis of document E5 in combination with document E10 was submitted for the first time during the appeal proceedings at the oral proceedings before

the board. Hence this objection was submitted after the statement of the grounds of appeal and is therefore an amendment to the appellant's case within the meaning of Article 13(1) and (3) RPBA. Consequently, the admission of this objection is at the board's discretion.

3.1.3 The appellant argued that it did not advance the objection earlier because this could have been considered by the board as an implicit concession by the appellant that the subject-matter of feature (A) was not disclosed in document E5 thereby weakening the objection of lack of novelty over E5.

The board does not find this argument convincing. The appellant did in fact argue in the statement of the grounds of appeal that the subject-matter of granted claim 1 lacked inventive step in relation to the combination of documents E5 and E3. Since the appellant evidently did not consider that the lack of novelty objection was weakened by the submission of this inventive step objection, the board does not see any reason why the other objection of lack of inventive step over documents E5 and E10 could not have been advanced at that stage as well.

In any case, since the novelty objection was explicitly raised and argued by the appellant, it would have been manifestly unreasonable by the board to assume any hypothetical implicit concession as speculated by the appellant.

3.1.4 Furthermore, if this objection had been raised in good time, i. e. in the statement of the grounds of appeal, a thorough discussion of this issue could have taken place during the written proceedings. For example, arguments and, where necessary supporting evidence,

could have been exchanged between the parties on the follwing questions:

- whether the "tissu de fibres 300" disclosed in document E10 might be considered the claimed mesh and what could be regarded as the purpose of this element, and
- whether feature (A) was disclosed in document E10 and whether the skilled person would combine the teaching of documents E5 and E10 thereby arriving at the claimed subject-matter.

By contrast, if the new objection were admitted into the proceedings, complex discussions might well ensue, e. g. in relation to the above questions and the proprietor might find that it cannot properly argue its case within the limited time available at the oral proceedings. Hence, according to the board's assessment the proprietor cannot reasobly be expected to deal with the new objection during the scheduled oral proceedings.

3.1.5 In view of the above considerations, exercising its discretion under Article 13(1) and (3) RPBA, the board did not admit the new objection of lack of inventive step on the basis of document E5 in combination with document E10 into the proceedings.

3.2 Combination of documents E5 and E3

3.2.1 Closest state of the art / distinguishing features

Document E5 discloses subject-matter that is conceived for the same purpose as the invention, namely for providing a surge arrester, and has many relevant technical features in common with it, as detailed above. Document E5 is therefore considered the closest

state of the art. The subject-matter of granted claim 1 differs from the device of document E5 in comprising feature (A) (see points 2.2 to 2.5 above).

3.2.2 Objective technical problem

The purpose of the rings 21 in document E5 is to prevent the surge arrester from falling apart in the event of an electrical / mechanical failure of the varistor stack. On the other hand, the rings 21 are spaced in axially spaced relationship to each other such that the openings 22 between them provide pressure relief in the event of surge arrester failure (document E5, page 3, lines 23-27).

As pointed out above (see point 2.4) the effect of feature (A) is to prevent small fragments of the nonlinear resistive elements from being ejected at the openings between the insulating supporting elements. The objective technical problem is therefore to achieve this effect.

3.2.3 Obviousness

In relation to inventive step the appellant referred to document E3 disclosing plastic bars being attached by means of screws to connecting electrodes.

The board notes that this argument concerns the feature of granted claim 1 relating to the insulating supports having both ends secured to the electrode terminals. However, the subject-matter of that feature has already been disclosed in the closest prior art document E5 as pointed out above (see point 2.2). Moreover, document E3 does not disclose a mesh within the meaning of the term stated under point 2.5 above.

In order to solve the stated problem the skilled person would adjust the openings 22 between the rings 21 as far as necessary for preventing small fragments from being ejected from the surge arrester, keeping in mind that the openings must be large enough for being able to provide pressure relief in case of surge arrester failure. However, in the board's judgment the skilled person would not consider providing yet another element in addition to the rings 21 or replacing these rings 21 by another element for preventing fragments from being ejected from the surge arrester.

The skilled person would therefore not arrive at the claimed subject-matter in view of document E3 or common general knowledge.

Hence, the subject-matter of granted claim 1 involves an inventive step. Claims 2 to 13 are dependent on claim 1. Accordingly, the subject-matter of claims 1 to 13 involves an inventive step (Article 52(1) EPC and Article 56 EPC 1973).

4. Conclusion

Since all objections against the patent as granted (main request) fail, the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

S. Sánchez Chiquero G. Eliasson

Decision electronically authenticated