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**Datasheet for the decision
of 11 October 2018**

Case Number: T 1456/15 - 3.2.03

Application Number: 04101245.1

Publication Number: 1580299

IPC: C23C16/40, C23C16/02,
C23C16/32, C23C28/04

Language of the proceedings: EN

Title of invention:

A transparent high-temperature resistant and protective coating for domestic appliances and method for its deposition

Patent Proprietor:

WHIRLPOOL CORPORATION

Opponents:

Miele & Cie. KG
Schutzrechte/Verträge
BSH Bosch und Siemens Hausgeräte GmbH

Headword:

Relevant legal provisions:

RPBA Art. 12(4)
EPC Art. 123(2), 56

Keyword:

Late-filed request - submitted with the statement of grounds
of appeal - admitted (no)
Amendments - added subject-matter (no)
Inventive step - non-obvious solution

Decisions cited:

Catchword:



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Case Number: T 1456/15 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 11 October 2018

Appellant:
(Patent Proprietor)

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Decision under appeal:

**Decision of the Opposition Division of the
European Patent Office posted on 22 May 2015
revoking European patent No. 1580299 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman G. Ashley
Members: B. Miller
 E. Kossonakou

Summary of Facts and Submissions

- I. European patent No. 1 580 299 relates to a cooking appliance comprising a transparent high-temperature resistant and protective coating.
- II. Two oppositions were filed against the patent, based on the grounds of Article 100(b) EPC and Article 100(a) EPC together with both Articles 54 and 56 EPC. The opposition division revoked the patent, since it came to the conclusion that the subject-matter of claim 1 of the main and the auxiliary request lacked an inventive step.

The appellant (the patent proprietor) filed an appeal against this decision.

- III. The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of a main request or alternatively one of the 1st to 3rd auxiliary requests, all requests filed with the statement setting out the grounds of appeal.
- IV. The respondents 1 and 2 (the opponents 1 and 2) requested that the appeal be dismissed.
- V. The independent claims of the main and the 1st to 3rd auxiliary requests read:

(a) Main Request

Claim 1:

"Cooking appliance, comprising a stainless steel surface, characterized in that such surface is provided with a coating based on silicon oxide applied to the

metal surface by means of plasma enhanced chemical vapor deposition (PECVD) for improving protection against high-temperature oxidation."

Claim 6:

"Method for providing a stainless steel surface of a cooking appliance with a temperature-resistant coating, characterized in that a silicon oxide film is deposited on said surface by means of PECVD, the precursor being hexamethyldisiloxane (HMDSO) or hexamethyldisilane (HMDS)."

(b) 1st Auxiliary Request

Claim 1 corresponds to claim 1 of the main request wherein the following feature has been added:

"the thickness of the SiO_x layer is comprised between 2 and 8 microns."

(c) 2nd Auxiliary Request

Claim 1 corresponds to claim 1 of the 1st auxiliary request wherein the following feature has been added:

"the coating comprises at least a layer of SiO_x where x is comprised between 1,8 and 2".

(d) 3rd Auxiliary Request

Claim 1 corresponds to claim 1 of the 1st auxiliary request wherein the following feature has been added:

"between the stainless steel surface and the coating based on silicon oxide there is provided a layer based on silicon carbide (SiC)."

VI. State of the art

The following documents referred to in the contested decision were cited in the appeal proceedings:

- D1: US 5 192 410;
- D12: T.J.Lin et al. "Plasma treatment of automotive steel for corrosion protection - a dry energetic process for coating", Progress in organic coatings, 31 (1997), pages 351 to 361.

Respondent 2 filed in addition the following documents for the first time in the appeal proceedings:

- D16: EP 0 200 086 A2;
- D17: US 6,180,191 B1;
- D18: EP 0 373 377 B1;
- D19: KR 10 2003 0064942 A;
- D19a: English machine translation of D19;
- D20: Qualification of Mr. Ermanno Buzzi.

VII. With the summons to oral proceedings, the Board sent a communication pursuant to Articles 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA) indicating to the parties its preliminary, non-binding opinion of the case, in particular regarding admissibility of the appellant's requests and inventive step.

VIII. In reaction thereto the appellant provided further arguments on inventive step for the subject-matter of the 3rd auxiliary request with a letter dated 22 May 2018. Concerning the admissibility of the main

request and the 1st and 2nd auxiliary requests it did not provide any argument. In a further letter dated 21 September 2018 the appellant informed the Board that it would not attend the oral proceedings scheduled on 11 October 2018.

IX. Oral proceedings took place on 11 October 2018 in the absence of the appellant pursuant to Rule 115(2) EPC and Article 15(3) RPBA.

X. The appellant's arguments, as far as relevant for this decision, can be summarised as follows.

The 3rd auxiliary request corresponded to the main request of the opposition proceedings whereby the claimed subject-matter had been further limited. This request addressed therefore the reasoning in the contested decision and should be admitted into the proceedings.

D16 did not relate to a cooking equipment and therefore was not a suitable starting point for the assessment of inventive step for the subject-matter of claim 1 of the 3rd auxiliary request. D12 on the other hand described a primer layer for automotive steel rather than stainless steel. Thus, it would not be consulted by a skilled person aiming at providing stainless steel cooking appliances which exhibit an improved protection against high-temperature oxidation.

XI. The respective arguments of the respondents can be summarised as follows.

(a) Main Request and 1st and 2nd Auxiliary Requests

These requests were not admissible, since they related to subject-matter which was broader than the subject-matter of the main request on which the impugned decision was based. Moreover, the limitation to cooking appliances should have been done during the opposition proceedings. The requests therefore did not meet the purpose of appeal proceedings.

(b) 3rd Auxiliary Request

Although the 3rd auxiliary request was based on the main request of the opposition proceedings, it should have been filed during the opposition proceedings.

The thickness of the SiO_x layer recited in claim 1 of the 3rd auxiliary request was disclosed in claim 4 as originally filed which referred back to claim 2 only. The features of claim 2 as filed had not been incorporated into the wording of claim 1. Therefore the teaching of claim 1 of the 3rd auxiliary request went beyond the teaching of the application as originally filed.

Claim 1 of the 3rd auxiliary request lacked an inventive step when starting from D16 as the closest prior art and taking into account the teaching of D12 which disclosed the benefits obtained by applying a primer layer of silicon carbide (SiC) on steel substrates.

Reasons for the Decision

1. Admissibility of the Requests Submitted by the Appellant

1.1 The appellant filed 4 new requests with the grounds of appeal replacing all requests (i.e. the main request and auxiliary requests) on which the impugned decision is based.

According to Article 12(4) RPBA the admittance of such new requests lies within the discretion of the Board (see also Case Law of the Boards of Appeal, 8th edition, 2016, Chapter IV.E.4.1.4 and 4.3.1).

1.2 Main Request and 1st and 2nd Auxiliary Requests

1.2.1 Compared to the main request submitted during opposition proceedings the claimed subject-matter of the main request and the 1st and 2nd auxiliary requests is limited by a more restricted intended use ("domestic appliance" changed to "cooking appliance").

1.2.2 In addition the claimed subject-matter is broadened with respect to the definition of the layers present on the steel surface, since in comparison to claim 1 submitted during opposition proceedings the claims 1 of the main request and of the 1st and 2nd auxiliary requests of the appeal proceedings do not require the presence of a SiC primer layer.

1.2.3 In the Board's view, the requests filed in appeal do not address the reasoning in the contested decision in regard of inventive step, but are directed to

alternative approaches in order to better distinguish the claimed subject-matter from the prior art D1.

It is constant jurisprudence that the purpose of appeal proceedings is not to file requests which clearly do not address the reasons of the contested decision (Case Law of the Boards of Appeal, 8th edition, 2016, Chapter IV.E.4.3.2 b) and IV.E.4.1.4). The admission of the new sets of claims at this stage of the proceedings would thus in fact amount to a continuation of the opposition proceedings, since it would become necessary to reconduct the discussion on novelty, instead of being a revision of the decision under appeal which is only concerned with inventive step.

Therefore these requests could and should have been submitted already during the opposition proceedings.

Hence the Board in exercise of its discretion according to Article 12(4) RPBA does not admit the main request and the 1st and 2nd auxiliary requests into the proceedings.

1.3 3rd Auxiliary Request

1.3.1 The 3rd auxiliary request is based on the main request of the opposition proceedings, whereby the subject-matter of claim 1 has been further limited to cooking appliances according to the preferred option already defined in the then pending claim.

Moreover, the method claims 4 to 6 of the main request in opposition have been deleted.

1.3.2 The respondents 1 and 2 argue that the appellant should have submitted this request in the opposition proceedings.

1.3.3 The Board observes that in the annex to the summons the opposition division did not indicate which document could form the closest prior art.

Therefore the appellant, then proprietor, could not have known before the oral proceedings that it would be necessary to limit the claimed subject-matter in the manner as proposed by the 3rd auxiliary request.

1.3.4 The proprietor was made aware during oral proceedings that the opposition division considered that the claimed subject-matter lacked an inventive step in view of D1 as the closest prior art (see points 11 and 12.3 of the minutes of the oral proceedings before the opposition division).

In the Board's view, an amended request in form of the 3rd auxiliary request represents a reaction to the contested decision, since it distances the claimed subject-matter further from D1, which does not disclose cooking appliances.

Rethinking the strategy used during oral proceedings in light of the grounds for the decision and reacting to the reasons presented therein by submitting a new request can be considered as a normal reaction of a losing party (see also Case Law of the Boards of Appeal, 8th edition, 2016, Chapter IV.E.4.3.2 e)).

1.4 Exercising its discretion according to Article 12(4) RPBA the Board therefore admits the 3rd auxiliary request into the appeal proceedings.

2. Admissibility of Documents D16 to D19

Documents D16 to D19 were filed by respondent 2 for the first time with its reply to the appeal in reaction to the appellant's new requests, in which the claimed subject-matter was amended from a "domestic appliance" to a "cooking appliance".

Exercising its discretion according to Article 12(4) RPBA the Board therefore admits documents D16 to D19 into the appeal proceedings.

3. 3rd Auxiliary Request - Article 123(2) EPC

3.1 The subject-matter of claim 1 of the 3rd auxiliary request corresponds to the technical teaching of the combination of claims 1, 3 and 5 in combination with the teaching in paragraph [00013] of the application as filed.

The subject-matter of claim 2 of the 3rd auxiliary request corresponds to the teaching of paragraph [0012].

Paragraphs [0012] and [0013] are consecutive paragraphs in the description, but are not directly linked to each other; in particular the features "where preferably x is comprised between 1,8 and 2" and "The thickness of the SiO_x coating is preferably between 2 and 8 microns" are described independently as preferred options.

Hence, it is not necessary to define that "x is comprised between 1,8 and 2" in claim 1, contrary to the submissions by the respondents.

3.2 The subject-matter of claim 3 of the 3rd auxiliary request is based on claim 5 as filed.

3.3 Therefore the Board concludes that the subject-matter of claims 1 to 3 of the 3rd auxiliary request fulfils the requirements of Article 123(2) EPC.

4. 3rd Auxiliary Request - Article 56 EPC

4.1 D16 relates to coated articles used for example in food processing such as a heating kettle (page 8, lines 12 to 17) and also aims at providing a coated surface maintaining the luster of the underlying substrate (page 8, lines 17 to 20) in line with the aim of the contested patent (paragraph [0009]).

The appellant argues that D16 does not relate to cooking appliances but addresses chemical processing equipment and food processing equipment on an industrial scale.

The Board considers that the expression "cooking appliance" is not limited to domestic or professional kitchen cooking equipment, such as a stove or oven. Rather, the expression "cooking appliance" has a broader meaning and encompasses all types of equipment which can be used in food processing, such as a heating kettle as specifically disclosed in D16.

D16 is therefore a suitable starting point for the assessment of inventive step.

4.2 D16 discloses a stainless steel article comprising a coating of $\text{SiO}_2\text{-}_x$, wherein x is from 0.0 to 0.4, which is deposited by microwave plasma assisted chemical

vapor deposition (claim 1) and has a thickness up to about 5 microns (page 9, line 36).

- 4.3 The subject-matter of claim 1 differs from the disclosure of D16 in that a silicon carbide (SiC) layer is present between the stainless steel surface and the coating based on silicon dioxide ("SiO_x layer").
- 4.4 The presence of a SiC layer improves the adhesion of the coating based on silicon dioxide and improves oxygen-barrier properties of the overall coating (paragraph [0013] of the contested patent).
- 4.5 The objective technical problem can therefore be formulated as providing a cooking appliance having a stainless steel surface comprising a coating with improved adhesion properties and providing better oxygen-barrier properties.
- 4.6 D12 teaches that plasma assisted deposition of a trimethylsilane (TMS) precursor leads to the formation of a primer layer of SiC on automotive steel (figure 10). The primer is used according to D12 to achieve anti-corrosion properties and to provide a good interfacial layer for bonding with the subsequent coating, e.g. electrocoating of polymers (page 352, left hand column, first paragraph and section "4. Conclusion").
- 4.7 The respondents argue that stainless steel is the same type of substrate as automotive steel. Hence, the skilled person would apply the primer layer described in D12 equivalently on the stainless steel kettle described in D16 to achieve its known effects.

4.8 The automotive steel of D12 has a surface layer primarily made up of iron oxide (D12: page 351, left hand column, first paragraph). In comparison, a stainless steel surface contains oxides of chromium (Cr) and nickel (Ni), which result in it being a different substrate to that of an automotive steel.

Hence, a skilled person considering D12 has no incentive to expect that the primer described therein can be applied equivalently on a different substrate, such as the one described in D16. In particular, D12 focuses on automotive steel and does not suggest that the primer layer used on this steel can be applied in the same manner to any other substrate, such as stainless steel.

4.9 Even if the skilled person would consider the primer layer described in D12 to be suitable for a stainless steel substrate, it is not evident that it would apply it to solve the underlying technical problem, since D12 does not provide a hint that the SiC primer layer is suitable to enhance the bonding properties of any subsequently applied coating, in particular a coating based on silicon dioxide, or to provide better oxygen-barrier properties as described in paragraph [0013] of the contested patent.

D12 merely describes that the SiC primer layer is applied in order to avoid problems generated by the inherent oxide layer on the steel surface (page 352, left hand column, first paragraph), in particular to provide better corrosion resistance and better adhesion (section "4. Conclusions").

4.10 In summary, it might be comprehensible that a SiC primer layer can be applied to a stainless steel

surface and that a further coating based on silicon dioxide can be applied thereon in view of the functional film surface of the primer layer illustrated in figure 10 of D12. However, starting from D16 and considering D12 the skilled person gets no incentive to do so.

Therefore the subject-matter of claim 1 of the 3rd auxiliary request is not obvious in view of the cited prior art.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent on the basis of claim 1 to 3 of the 3rd auxiliary request and a description to be adapted thereto.

The Registrar:

The Chairman:



C. Spira

G. Ashley

Decision electronically authenticated