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D E C I S I O N
of 4 July 2002

Case Number: T 0114/01 - 3.2.4

Application Number: 95200539.5

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Language of the proceedings: EN

Title of invention:
Domestic steam cleaning appliance

Patentee:
GENERAL TECHNOLOGY S.r.l.

Opponent:
Termozeta S.p.A.
Techtronic Industries Co. Ltd. Units B-F, 24/F CDW Building

Headword:
-

Relevant legal provisions:
EPC Art. 56, 123(2), 123(3)
EPC R. 71(2)

Keyword:
"Novelty (yes)"
"Inventive step (no)"
"Claims amended so as to extend the protection conferred -
main request (yes)"

Decisions cited:
-

Catchword:
-



Case Number: T 0114/01 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 4 July 2002

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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 6 December 2000
revoking European patent No. 0 672 377 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: C. A. J. Andries

Members: C. D. A. Scheibling
C. Holtz

Summary of Facts and Submissions

I. By its decision dated 6 December 2000 the Opposition Division revoked the European Patent 0 672 377. On 23 January 2001 the appellant (patentee) filed an appeal, the appeal fee was paid on 31 January 2001. The statement of the grounds of appeal was filed on 4 April 2001.

II. The decision of the Opposition Division to revoke the European Patent 0 672 377 was based on the ground that the subject-matter of claim 1 was found not to involve an inventive step as required by Article 56 EPC.

III. The following relevant documents played a role in the appeal proceedings:

A1: WO-A-94/00250

A2: FR-A-1 561 817 (= D1)

A5: EP-A-0 253 910.

IV. The appellant (patentee) and respondent I (opponent II) attended oral proceedings on 4 July 2002.

Although duly summoned respondent II (opponent III) did not appear. Respondent II informed the Board with letter of 29 April 2002 that he would not be attending the oral proceedings. According to the provisions of Rule 71(2) EPC the proceedings were continued without him.

V. The appellant requests that the decision under appeal be set aside and that the patent be maintained on the basis of a main or an auxiliary request both filed during the oral proceedings of 4 July 2002.

Respondent I (opponent II) requests that the appeal be dismissed.

Respondent II (opponent III) did not comment on the statement of the grounds of appeal filed by the patent proprietor.

VI. Claim 1 according to the main request reads:

"A domestic steam cleaning appliance comprising, enclosed within a single casing (13), a water vessel (24), an electric pump, an elongate boiler (1) having embedded within its wall a resistance, said pump being positioned between said vessel and said boiler; said boiler comprising an exit duct connected to a delivery nozzle (6), means for operating and controlling said pump and said boiler being provided within the casing, characterised in that the elongated boiler is of cast aluminium and comprises an exit duct connected to a delivery nozzle (6) having a hole of between 1 and 2 mm diameter, the resistance embedded therein is of between 800 and 2200 watts; and the pump has a capacity between 20 and 50 cm³/minute, so as the overall dimensions of the appliance are so small that it may be manoeuvred by one hand inside a small space".

Claim 1 of the auxiliary request reads:

"A domestic steam cleaning appliance comprising, enclosed within a single casing (13), a water vessel (24), an electric pump, an elongate boiler (1) having embedded within its wall a resistance, said pump being positioned between said vessel and said boiler; said boiler comprising an exit duct connected to a delivery nozzle (6), means for operating and controlling said

pump and said boiler being provided within the casing, characterised in that the elongated boiler is of cast aluminium alloy and comprises an exit duct connected to a delivery nozzle (6) having a hole of between 1 and 2 mm diameter, the resistance embedded therein is of between 800 and 2200 watts; and the pump has a capacity between 20 and 50 cm³/minute, so as the overall dimensions of the appliance are so small that it may be manoeuvred by one hand inside a small space".

Reasons for the Decision

1. The appeal is admissible.
2. *Interpretation of the terms "aluminium" and "aluminium alloy"*
 - 2.1 According to claim 1 as granted the boiler is of cast alloy. In the description as originally filed the sole reference to the material of the boiler is to be found page 3, line 6 where it is indicated: "Said figures show a cast aluminium boiler 1". Pure aluminium is rarely used in industry, since it is too brittle to be cast. The term "aluminium" is therefore commonly used in the manufacturing industry to also designate "aluminium alloy". This is all the more obvious in the present case, where the boiler is cast. Thus when reading the application, a skilled person would normally conclude that the term "aluminium" has to be understood as meaning "aluminium alloy".
 - 2.2 The respondent I agreed that a skilled person would normally understand that what is meant is an "aluminium alloy", unless it is clearly specified that said

"aluminium" has to be "pure aluminium".

- 2.3 The appellant however argued that the intention was to claim a boiler of pure aluminium and that in his view "aluminium" should be understood as meaning "pure aluminium", even if, according to this interpretation, the reference made to an "alloy" in claim 1 both as filed and as granted would be in contradiction with the description and thus would introduce an inconsistency between the description and the claims.

In view of the reasoning above, 2.2, the Board cannot share the view of the appellant. The appeal will therefore be examined with the understanding of "aluminium" as meaning "aluminium alloy".

3. *Main request - Amendments*

- 3.1 Claim 1 of the main request comprises the features of claim 1 as filed (and as granted) and *inter alia* the following additional feature: the boiler is of cast aluminium.

- 3.2 Although the Board came to the conclusion that aluminium does not mean pure aluminium, account must be taken of the fact that the appellant filed his main request in order to cover a domestic steam cleaning appliance comprising a boiler made of pure aluminium.

However, pure aluminium is not an alloy and thus, an appliance comprising a boiler made of pure aluminium does not fall within the scope of claim 1 as granted.

Thus, an amended claim directed to an appliance comprising a boiler made of pure aluminium would extend

the protection conferred by claim 1 as granted.

Therefore and in order to avoid any later misinterpretation of the scope of the claim, the Board concludes that claim 1 of the main request is an attempt to extend the protection as conferred by claim 1 as granted and thus, does not satisfy the requirements of Article 123(3) EPC.

3.3 Consequently, the main request is not allowable.

4. *Auxiliary request*

4.1 Amendments

4.1.1 Claim 1 of the auxiliary request comprises the features of claim 1 as filed (and as granted) and the following additional features:

- the boiler is of cast aluminium alloy,
- the delivery nozzle has a hole of between 1 and 2 mm diameter,
- the pump is an electric pump,
- the overall dimensions of the appliance are so small that it may be manoeuvred by one hand inside a small space.

4.1.2 These features are disclosed in the description as originally filed page 4, lines 29 to 31 (electric pump); page 2, lines 15 to 17 (nozzle hole diameter), lines 4, 5 and 26 to 29 (dimensions of appliance). Additionally, since the Board came to the conclusion

that in the meaning of the patent in suit aluminium and aluminium alloy are equivalent (see section 2.1 above) the feature "boiler of cast aluminium alloy" is implicitly disclosed in the description as originally filed, page 3, line 6 where reference is made to "a cast aluminium boiler".

These added features furthermore restrict the protection conferred.

4.1.3 Consequently, claim 1 of the auxiliary request meets the requirements of Article 123 EPC.

4.2 Novelty

4.2.1 None of the cited documents discloses an appliance comprising in combination a boiler of cast aluminium alloy, an electric pump having a capacity of between 20 and 50 cm³/minute, a resistance element of between 800 and 2200 watts and a delivery nozzle having a hole of between 1 and 2 mm diameter.

Indeed, novelty has not been disputed by respondent I.

4.2.2 Thus, the subject-matter of claim 1 of the auxiliary request is new.

4.3 Closest prior art document

4.3.1 The Board considers A5 to be the closest prior art document.

From A5 (figure 10; page 5, line 31 to page 6, line 2) there is known a gun shaped domestic steam cleaning appliance of reduced bulk (page 1, lines 3, 4)

comprising, enclosed within a single casing (page 7, lines 2 to 5 and 12 to 15) grippable by one hand (figure 10), the following means:

a water vessel (15),
an electric pump (21),
an elongate boiler (flash steam generator 31) having embedded within its wall
a resistance element (32);

said pump being positioned between said vessel and said boiler (see page 4, lines 22 to 24; page 5, lines 2 to 7; figure 2);

said boiler comprising an exit duct (35) connected to a delivery nozzle (figure 8, 44),

means for operating and controlling said pump (page 4, lines 11, 12) and said boiler (page 5, lines 3 to 7; figure 9) being provided within the casing.

The fact that on the one hand the appliance according to figure 10 is not only shown but also described as being of reduced bulk and that on the other hand the wording of claim 1 of the patent in suit, particularly the expression "a small space" is not precise with respect to the overall dimensions of the appliance, (i.e. so that it can be manoeuvred by one hand inside a small space), brings the Board to conclude that the known appliance (A5, figure 10) is equally suitable to be used within a small space, so that no difference can be made in this respect between A5 and the appliance according to claim 1 of the patent in suit.

4.3.2 During the Opposition proceedings A1 was considered to

be the closest prior art document. However, in A1 page 1, lines 3 to 7 it is stated: "The present finding relates to a suitable apparatus for the end cleaning of the water closet (WC) bowls by means of concentrated water jets, and, for disinfecting them and their seat, by means of steam jets". Thus, it is doubtful whether the apparatus according to A1 would be able to deliver steam at a rate and pressure sufficient for cleaning purposes, since it uses steam only for disinfection, whereas cleaning is performed by a water jet.

Therefore, A1 cannot be considered to be a steam cleaning appliance in the meaning of the patent in suit.

Additionally A1 does not disclose means provided within the casing for controlling the boiler.

4.4 *Inventive step*

4.4.1 The cleaning appliance according to claim 1 of the auxiliary request differs from that known from A5 in that:

- the boiler is of cast aluminium alloy,
- the delivery nozzle has a hole of between 1 and 2 mm diameter,
- the resistance element is of between 800 and 2200 watts,
- the pump has a capacity of between 20 and 50 cm³/minute.

4.4.2 Since there is no clear interrelation between the feature according to which the boiler is of cast aluminium alloy and the features concerning the

diameter of the hole of the nozzle, the resistance power and the water flow rate, the patent in suit solves different problems, which are to specify the nozzle, the resistance and the pump in terms of hole diameter, resistance power and pump capacity, and to specify the boiler in terms of its method and material of manufacture.

That claim 1 solves the said problems is beyond doubt and has not been disputed by respondent I.

4.4.3 Concerning the feature according to which the boiler is of cast aluminium alloy:

In A5 page 7, lines 25 to 28 a skilled person is told "In practising the invention the materials used, ... may be any ones according to necessity".

Thus, and because the boiler has to withstand the temperature of the electric resistance embedded in it's wall, it appears to be obvious for a skilled person to use metal for manufacturing the boiler (see also for example A1, claim 5, figure 5).

Since the boiler is in continuous contact with steam, a skilled person would obviously manufacture it in a corrosion resistant metal i.e. alloyed (stainless) steel or aluminium alloy. However, aluminium being cheaper, easier to manufacture and having better thermal conductivity than stainless steel, selecting an aluminium alloy is an obvious choice for a skilled person.

Casting an aluminium alloy for manufacturing purposes is common practice for a skilled person.

Therefore, to realise a boiler of aluminium alloy by casting, is a manufacturing process which lies within the normal capability of a person skilled in the art, against which there was clearly no prejudice and with which no unexpected result is obtained.

- 4.4.4 To provide the nozzle with a hole of between 1 and 2 mm diameter appears to be normal practice in the art. Knowing that a nozzle's hole diameter is decisive to obtain an appropriate outlet pressure, it is the skilled's person daily routine work to determine a specific diameter value, taking into account the needed steam flow. See in that respect A5 itself, which states on page 6, lines 26 to 29 "The generated steam comes out of the calibrated hole of the nozzle 35 which ensures an appropriate outlet pressure and which is so conformed as not to let out any uncompletely steamed water" and on page 7, lines 25 to 28 "In practising the invention the materials used, so long as compatible with the specific use, as well as the dimensions and contingent shapes may be any ones according to necessity".

Thus, no inventive step can be seen in determining a nozzle hole diameter falling within the range as claimed, particularly since that range is rather wide and covers commonly used diameters for spraying.

- 4.4.5 In the introductory part of the description of the patent in suit, reference is made to known domestic appliances which absorb a power of 1500 to 2000 W (column 1, lines 18, 19) and which are said to have a water capacity not exceeding 30 to 50 cm³/minute (column 1, lines 30, 31).

Thus, despite the fact that the appellant states that these known types of cleaners are far from the invention because comprising "a base sliding on the floor and a movable terminal connected to the base by a hose" and that they comprise another type of boiler, said known appliances nevertheless disclose a water flow rate suitable for steam cleaning purposes and the correlation between the water flow rate and the power of the resistance. Furthermore, it appears to lie within the general knowledge of a skilled person to calculate the power of a resistance required to transform into steam a given flow rate of water, needed to clean.

Therefore, it is considered to be common practice in the technical field of domestic steam cleaning appliances to have a water flow rate of 30 to 50 cm³/minute in conjunction with a resistance power of 1500 to 2000 W.

Thus, to select a flow rate within the known range of 30 to 50 cm³/minute in conjunction with a resistance power within the known range of 1500 to 2000 W results in values within the claimed ranges, so that this selection does not involve an inventive step.

- 4.4.6 The crucial point in evaluating the invention is that the claimed device as such was already known, i.e. all constructional features of the device except the specific values, figures or materials for said features, so that the only contribution of the patent in suit to the state of the art consists in specifying the values, figures or materials for said constructional features.

In view of the considerations in sections 4.4.3 to 4.4.5 above, this contribution to the state of the art choosing a specific boiler material, a specific pump capacity value, a specific heating power value and a specific nozzle opening value can only be considered to be the normal putting into practice by a skilled person of what already existed in theory within the state of the art.

- 4.4.7 In the appellant's view, the high efficiency of the steam cleaning appliance, i.e. its capacity to produce a high steam quality in a compact appliance, is obtained by the combination of the given ranges for the resistance value, nozzle diameter and pump capacity and the use of aluminium alloy for the boiler.

This might have been accepted by the Board, if the skilled person were at least presented with a clear teaching in this respect, but, because the claimed ranges are so wide (nozzle hole section can vary by a factor 4, resistance power can vary by almost a factor 3 and pump capacity can vary by a factor 2.5) thereby covering the values usual in practice, such a clear teaching is missing in the patent in suit.

Additionally, all of the given ranges as well as the proposed material for the boiler correspond to the ranges and a material which are normally used in the technical field of steam producing appliances for domestic use.

Finally, it is obvious that not any combination of values within the given ranges can result in an optimum appliance performance. Consequently, it would require a lot of work for a skilled person to work out optimized

performances for a steam cleaning appliance, when starting from the rather general information given in claim 1 of the auxiliary request.

4.4.8 Consequently, the subject-matter of claim 1 of the auxiliary request consists merely of an association of commonly known features, with no synergistic effect beyond what could be expected from adding the effects of each single feature. Therefore, the subject-matter of claim 1 of the auxiliary request does not involve an inventive step as required by Article 56 EPC.

4.4.9 Thus, the auxiliary request cannot be allowed either.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

G. Magouliotis

C. Andries