

Internal distribution code:

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

**Datasheet for the decision
of 17 December 2025**

Case Number: T 0487/23 - 3.4.01

Application Number: 19168553.6

Publication Number: 3562267

IPC: H05B6/06

Language of the proceedings: EN

Title of invention:

CONTROL CIRCUITS AND METHODS FOR DISTRIBUTED INDUCTION HEATING
DEVICES

Patent Proprietor:

Whirlpool Corporation

Opponent:

Electrolux Rothenburg GmbH Factory and Development

Headword:

Control circuits for induction heating devices/ Whirlpool

Relevant legal provisions:

EPC Art. 52(1), 54(3), 54(2), 56
EPC R. 80, 103(4)(c)

Keyword:

Novelty - main request (no), auxiliary request 1 (no),
auxiliary request 2 (yes)
Inventive step - auxiliary request 2 (yes)
Amendment occasioned by ground for opposition - auxiliary
request 1 (yes)
Partial reimbursement of appeal fee - request for oral
proceedings withdrawn (yes)

Decisions cited:

T 0488/18



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

Case Number: T 0487/23 - 3.4.01

D E C I S I O N
of Technical Board of Appeal 3.4.01
of 17 December 2025

Appellant: Whirlpool Corporation
(Patent Proprietor) 2000 North M-63 MD 3601
Benton Harbor, MI 49022 (US)

Representative: Eisenführ Speiser
Patentanwälte Rechtsanwälte PartGmbH
Postfach 31 02 60
80102 München (DE)

Appellant: Electrolux Rothenburg GmbH Factory and
(Opponent) Development
Bodelschwinghstr. 1
91541 Rothenburg o. d. Tauber (DE)

Representative: v. Bezold & Partner Patentanwälte - PartG mbB
Ridlerstraße 57
80339 München (DE)

Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
23 December 2022 concerning maintenance of the
European Patent No. 3562267 in amended form.**

Composition of the Board:

Chair P. Scriven
Members: A. Medeiros Gaspar
R. Winkelhofer

Summary of Facts and Submissions

- I. Notice of opposition was filed, invoking grounds under Article 100(a) EPC.
- II. All claims of the patent were argued to lack novelty in view of one or both of
- D4 EP 3 422 815 A1
D5 WO2018/116053 A1,
- forming part of the state of the art under Article 54(3) EPC, or to lack inventive step in view of
- D6 US2011/0168694 A1
- taken either in isolation or combined with other prior art documents, among which
- D8 WO2015/032422 A1
D9 WO2014/090872 A1
D11 WO2013/064329 A1.
- III. During proceedings before the Opposition Division, the proprietor filed auxiliary requests 1 and 2.
- IV. In the appealed decision, the Opposition Division, inter alia, came to the conclusions that:
- (a) claim 1 of the patent (main request) lacked novelty in view of D4;

- (b) auxiliary request 1 contravened Rule 80 EPC; and
- (c) auxiliary request 2 defined subject-matter that was new in view of both D4 and D5, and inventive in view of D6, whether taken in isolation, or combined with one of D8, D9, and D11.

As a consequence, the patent was maintained on the basis of auxiliary request 2.

V. Both parties appealed this decision. The proprietor seeks to rebut (a) and (b), arguing in favour of the allowability of each request. The opponent seeks to rebut (c), arguing that none of the requests of the proprietor was allowable. Both parties also conditionally requested oral proceedings.

VI. In a communication issued ahead of the oral proceedings, the Board expressed the preliminary opinion that:

- (a) claim 1 of the patent lacked novelty in view of D4, although not in view of D5,
- (b) auxiliary request 1 did not contravene Rule 80 EPC, but defined subject-matter that also lacked novelty in view of D4;
- (c) auxiliary request 2 defined subject-matter that was new and inventive, in view of the documents on file.

Consequently, the Board indicated that it saw no reason to set the appealed decision aside.

VII. In response to this preliminary opinion, the proprietor submitted substantive observations and withdrew their requests for oral proceedings. Subsequently, the opponent announced that they would also not attend the oral proceedings.

VIII. The oral proceedings were cancelled.

IX. The proprietor requests are that the decision be set aside and the opposition rejected (main request), or that the patent be maintained in amended form on the basis of either auxiliary request 1 or auxiliary request 2, both as underlying the contested decision.

X. The opponent requests that the decision be set aside and the patent revoked.

XI. Claim 1 of the main request (the patent) reads (reference signs removed):

*An induction heating device comprising:
a D.C. power supply, referenced to a ground connection, configured to supply power to the induction heating device and comprising a voltage rectifier, configured to rectify an input voltage into a direct current and output the D.C. voltage to a D.C. bus and a ground connection;
a plurality of resonant loads arranged in a matrix comprising a plurality of columns and a plurality of rows, wherein each of the*

resonant loads is connected at a first end to a row and at a second end to a column; a plurality of first switching devices in connection with each of the columns between the D.C. bus and at least one of the resonant loads; and a plurality of second switching devices in connection with each of the rows between the resonant loads and the ground connection.

- XII. Claim 1 of each of auxiliary requests 1 and 2 adds to claim 1 of the main request:

*[... ground connection];
wherein the resonant loads comprise a capacitor and an inductor connected in parallel.*

- XIII. Claim 2 of auxiliary request 1 adds to claim 1 of the main request:

*[... ground connection];
a rectifying device connected in series on an anode side to each of the resonant loads and on a cathode side to each of the rows and the second switching devices.*

Reasons for the Decision

Context of the invention described in the patent

1. The invention relates to induction heating devices, comprising a plurality of inductions coils, such as induction cooktop assemblies. More specifically, it relates to control circuits of such devices and corresponding control methods for selectively providing current to the induction coils
2. Claim 1 of the patent defines an induction heating device comprising a D.C. power supply, a plurality of resonant loads arranged in a matrix comprising a plurality of columns and a plurality of rows, and two sets of switching devices in connection to each of the columns and each of the rows, respectively. Claim 14 of the patent defines a method of controlling such an induction heating device.

Main request (patent) - Novelty in view of D4

3. Document D4 forms part of the state of the art under Article 54(3) EPC, and is, therefore, relevant for novelty.
4. It relates, as does the patent, to induction heating devices and respective control circuits and methods.
5. The induction heating device of figure 12 of D4 comprises, like the induction heating device of claim 1 of the patent, a plurality of resonant loads arranged in a matrix comprising a plurality of columns and a plurality of rows.

6. The Board agrees with the Opposition Division's conclusion that the induction heating device of figure 12 of D4 comprises all the features of claim 1 of the patent.
7. The proprietor's arguments to the contrary overlook the fact that the rows and columns of the matrix depicted in figure 12 of D4 correspond respectively to the columns and rows of the matrix defined in the claim.
8. Consequently, the switching devices Sx1a to Sx4a correspond to the first switching devices of the claim, and the switching devices Sy1 to Sy4 correspond to the second switching devices.
9. In their response to the preliminary opinion, the proprietor also argued that the individual switches Sx1a to Sx4a in figure 12 of D4 could not be considered as standalone switching devices, but instead had to be considered as forming a functional unit with the respective switch of the plurality Sx1b to Sx4b, as only the cooperation of, for example, Sx1a with Sx1b provided for the required AC current or voltage to the loads.
10. However, claim 1 merely defines the first switching devices as being *in connection to each of the columns between the D.C. bus and at least one of the resonant loads*. This is the case for switching devices Sx1a to Sx4 of D4. The claim neither defines the function of these switching devices, nor does it exclude a cooperation with other switching devices.
11. Therefore, claim 1 of the patent lacks novelty in view of D4 (Article 54(3) EPC). Consequently, the main request is not allowable (Article 52(1) EPC).

Auxiliary request 1 - Rule 80 EPC

12. Auxiliary request 1 comprises 3 independent apparatus claims, namely claims 1, 2 and 4, defining the subject-matter of dependent claims 2, 3, and 5 of the patent, respectively.
13. The Opposition Division considered that the formulation of three independent apparatus claims directed at, in their opinion, unrelated aspects of the invention was not in line with Rule 80 EPC.
14. The Boards disagrees. A request comprising multiple independent claims, defining the subject-matter of (some of) the dependent claims of the patent is not ruled out by Rule 80 EPC. As each of the claims is more narrowly defined than claim 1 of the patent, the amendments are occasioned by a ground of opposition, namely the ground of lack of novelty or inventive step.
15. The fact that different independent claims might define different aspects of the invention is not relevant in the context of Rule 80 EPC.
16. Therefore, auxiliary request 1 does not contravene Rule 80 EPC.

Auxiliary request 1 - Novelty in view of D4

17. D4 also discloses the induction heating device of Figure 12 as comprising rectifying elements, as defined in claim 2 of this request (claim 3 of the patent).
18. Indeed, most of the diode elements depicted in Figure 12 are, on their anode side, connected to a resonant

load and, on their cathode side, to a row (column in figure 12 of D4), as defined in that claim.

19. The proprietor was correct in noting, in their response to the preliminary opinion, that the diodes D11, D12 or D13 in Figure 12 are not connected, on their cathode side, to a row as required by the claim.
20. However, that argument overlooks the fact that the plurality of resonant loads defined in the claim may be regarded as, for example, being just the loads L22, L23, L32 and L33 of figure 12 of D4. That being the case, the first switching elements of the claim are the elements Sx2a and Sx3a, and the diodes D22, D23, D32 and D33 are the rectifying elements. These are connected in series on an anode side to each of the resonant loads and on the cathode side to each of the rows comprised in the matrix defined that plurality of loads, as defined in the claim.
21. Consequently, the induction heating device of figure 12 of D4 also comprises all the features of claim 2 of the auxiliary request 1 (Article 54(3) EPC).
22. Therefore, auxiliary request 1 is also not allowable (Article 52(1) EPC).

Auxiliary request 2 - Novelty in view of D4

23. Independent claims 1 and 13 of auxiliary request 2 define the subject-matter of claims 2 and 15 of the patent.

24. D4 does not disclose the resonant loads as comprising a capacitor and an inductor connected in parallel, as defined in those claim.
25. Instead, in D4 (figure 12), the inductor and capacitor of each load are connected in series.
26. Consequently, D4 does not deprive the independent claims of this request of novelty (Article 54(3) EPC).

Auxiliary request 2 - Novelty and inventive step in view of D6

27. The opponent also argues that the independent claims of auxiliary request 2 lacked inventive in view of D6, in isolation or when combined with or one of D8, D9, and D11.
28. D6 also relates to induction heating devices and respective control circuits. Figure 2 of D6 depicts a "heating coil section", 8, formed of a plurality of heating coils arranged in a column.
29. It does not depict, however, *a plurality of resonant loads ... arranged in a matrix comprising a plurality of columns ... and a plurality of rows*, as defined in the independent claims of the patent.
30. The opponent's interpretation according to which one end of each of those loads could still be regarded as connected to a "column", and the other to a "row", contradicts the skilled person's understanding of the meaning of the words "column" and "row", and would, in any case, still not lead to a "matrix" arrangement of loads comprising a plurality of rows and a plurality of columns, as defined in the claims.

31. D6 also fails to disclose the two pluralities of switches defined in the claim. Instead, it discloses each induction coil of its induction heating as connected to an own inverter circuit comprising switching elements, as depicted in figure 6.
32. Figure 3 of D6 discloses the possibility of having inductors disposed in a matrix arrangement. However, even if this were regarded as suggesting a matrix arrangement of loads, such a matrix would still not be a matrix arrangement as defined in the independent claims, in which each load is connected, at one end, to a row and, at another end, to a column of a matrix comprising first and second switches as also defined in the claims.
33. It is also not apparent why or how, starting from the disclosure of D6, the skilled person would come to implement an induction heating device according to claim 1 of the patent.
34. It is not necessary to look into the further disclosures of any of the other prior art documents mentioned by the opponent, to come to the conclusion that, starting from the disclosure of D6, the skilled person would not arrive at the subject-matter of the independent claims of the patent in an obvious manner.
35. The opponent did not react to, let alone contest, this analysis of inventive step, which was presented in the communication expressing the preliminary opinion of the Board.
36. After reconsideration, the Board does also not see any reason to deviate from it.

37. Therefore, the Board agrees with the Opposition Division that this request defines subject-matter that entails an inventive step in view of D6 (Article 56 EPC).

Conclusion

38. In view of the above, there is no reason to deviate from the appealed decision.

Partial reimbursement of the appeals' fees

39. Both parties effectively withdrew their requests for oral proceedings; the proprietor's withdrawal was within one month of notification of the board's communication.
2. As no oral proceedings took place, both conditions of Rule 103(4)(c) EPC, that "any request for oral proceedings is withdrawn ... *within one month* ..." and "no oral proceedings take place" (emphasis by the Board), are met (Case Law of the Boards of Appeal 11th Edition (2025), V.A.11.12, e.g. T 488/18).
3. Consequently, both appeal fees are to be reimbursed at 25%.

Order

For these reasons it is decided that:

- 1. The appeals are dismissed.**
- 2. 25% of both appeal fees are to be reimbursed.**

The Registrar:

The Chair:



D. Meyfarth

P. Scriven

Decision electronically authenticated