

Title (en)

Microwave oven having the capacity to detect when a product is fully thawed.

Title (de)

Mikrowellenofen, welcher das Ende des Auftauens eines Produktes ermittelt.

Title (fr)

Four à micro-ondes détectant la fin de décongélation d'un produit.

Publication

EP 0294872 A1 19881214 (FR)

Application

EP 88201084 A 19880531

Priority

FR 8707684 A 19870602

Abstract (en)

[origin: JPS6450385A] PURPOSE: To decide the defrosting cycle of product so as to control the operation by providing a microwave source and a detecting unit, and computing a value of the secondary derivative of a curve, which shows temperature rise of the detecting unit. CONSTITUTION: A computing and control device for computing a value of the secondary derivative of a curve, which shows temperature rise of a detecting unit as a function of time, so as to decide an end of a defrosting cycle of a product and for controlling the operation of a microwave oven at the end of the defrosting cycle when the value of the secondary derivative at the predetermined value or less is detected is provided. This detecting unit is made of the material 31, which can absorb the microwave, and the material 31 is made to contact with a temperature measuring element 32. The detecting unit is arranged at a side of a product 41 to be defrosted. A microwave source 42 generates the microwave so that the product 41 and the detecting unit 30 are irradiated with the microwave. A result of the measurement of temperature of the detecting unit 30 is transmitted to the computing and control device 43, and this computing and control device performs the operation for changing the operation of the microwave source.

Abstract (fr)

Four à micro-ondes comprenant une source micro-ondes et un capteur placé dans le four à proximité d'un produit à traiter, l'énergie micro-onde absorbée se répartissant entre le capteur et le produit en provoquant leur élévation de température, la température du capteur étant mesurée par un organe de mesure. Il comprend un dispositif de calcul et de contrôle qui détermine la fin de la décongélation du produit en calculant les valeurs de la dérivée seconde de la courbe d'élévation de la température du capteur en fonction du temps. Le dispositif de calcul et de contrôle agit sur le fonctionnement du four en fin de décongélation lorsque les valeurs de la dérivée seconde sont inférieures à une valeur prédéterminée.

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H05B 6/68

IPC 8 full level

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CPC (source: EP US)

H05B 6/666 (2013.01 - EP US)

Citation (search report)

- [A] US 4210795 A 19800701 - LENTZ RONALD R [US]
- [A] US 3875361 A 19750401 - FUKUI YUKIO, et al
- [A] US 3663783 A 19720516 - MCKAGUE ELBERT L JR, et al
- [A] US 4553011 A 19851112 - NAKATA TAKESHI [JP], et al
- [A] US 4507530 A 19850326 - SMITH PETER H [US]
- [A] US 4341937 A 19820727 - STAATS JAMES E

Cited by

FR2677853A1; US2015173129A1; US9999103B2; NL9202189A; FR2685772A1; EP0526297A1; US5293019A; US10314119B2

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