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(12) **United States Patent**  
**Zhdanok**

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(54) **PYROLYSIS FURNACE WITH EXTERNAL HEATING FOR PROCESSING SOLID CARBON-CARBON-CONTAINING MATERIALS (VARIANTS)**

(52) **U.S. Cl.**  
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(58) **Field of Classification Search**  
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See application file for complete search history.

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(56) **References Cited**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 268 days.

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(57) **ABSTRACT**

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A pyrolysis furnace having a heating chamber which surrounds a cylindrical pyrolysis chamber. The heating chamber is assembled from an upper part and a lower part, which can be joined. Each part of the heating chamber is provided with two rows of heating elements, which are arranged along the length of the housing of the heating chamber symmetrically relative to a vertical plane passing through the axis of the pyrolysis chamber. The heating elements are in the form of units, containing at least one flameless gas burner. The heating elements in the upper part of the heating chamber are arranged in a checkerboard fashion relative to the heating elements in the lower part. The furnace relates to power generation and the environment and is intended for the thermal processing of solid and free-flowing materials, particularly in processes for the pyrolysis of solid carbon-containing materials, including municipal and domestic waste.

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**14 Claims, 2 Drawing Sheets**

