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- (71) 申请人 (对除美国外的所有指定国): 武汉凯迪工程技术研究总院有限公司 (WUHAN KAIDI ENGINEERING TECHNOLOGY RESEARCH INSTITUTE CO., LTD.) [CN/CN]; 中国湖北省武汉市江夏区庙山开发区江夏大道特 1 号, Hubei 430212 (CN)。
- (72) 发明人; 及
(75) 发明人/申请人 (仅对美国): 宋侃 (SONG, Kan) [CN/CN]; 中国湖北省武汉市江夏区庙山开发区江夏大道特 1 号, Hubei 430212 (CN)。 姜满意 (JIANG, Manyi) [CN/CN]; 中国湖北省武汉市江夏区庙山开发区江夏大道特 1 号, Hubei 430212 (CN)。 孙钦 (SUN, Qin) [CN/CN]; 中国湖北省武汉市江夏区庙山开发区江夏大道特 1 号, Hubei 430212 (CN)。 张世荣 (ZHANG, Shirong) [CN/CN]; 中国湖北省武汉市江夏区庙山开发区江夏大道特 1 号, Hubei 430212 (CN)。 张海清 (ZHANG, Haiqing) [CN/CN]; 中国湖北省武汉市江夏区庙山开发区江夏大道特 1 号, Hubei 430212 (CN)。 张金桥 (ZHANG, Jinqiao) [CN/CN]; 中国湖北省武汉市江夏区庙山开发区江夏大道特 1 号, Hubei 430212 (CN)。
- (74) 代理人: 武汉开元知识产权代理有限公司 (WUHAN KAIYUAN INTELLECTUAL PROPERTY AGENT LTD.); 中国湖北省武汉市江岸区香港路 145 号远洋大厦 14 层, Hubei 430015 (CN)。

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(54) Title: PROCESS AND SYSTEM FOR PRODUCING SYNTHESIS GAS FROM BIOMASS BY PYROLYSIS

(54) 发明名称: 一种通过热解将生物质制造合成气的工艺方法及系统

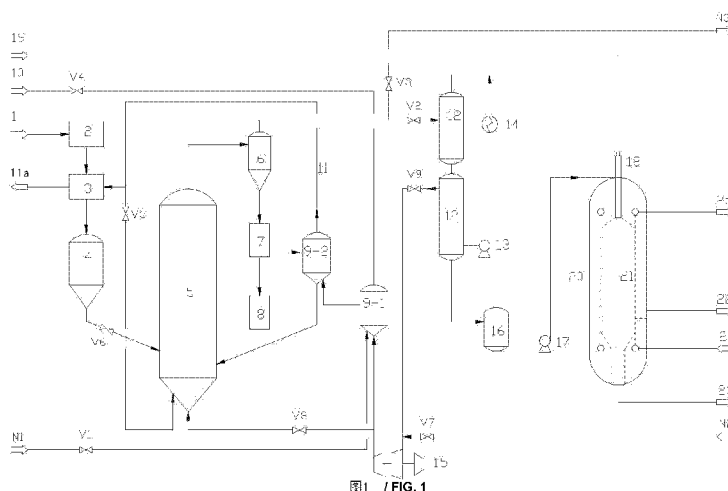


图1 / FIG. 1

(57) Abstract: A process and system for producing synthesis gas from biomass by pyrolysis are provided. The process comprises the following steps: 1) pre-treating biomass raw material (1); 2) performing pyrolysis on the biomass raw material (1) by fast biomass pyrolysis technology to obtain a pyrolysis gas and carbon powders in a pyrolysis bed (5); 3) separating the pyrolysis gas from the carbon powders and a solid heat carrier by a cyclone separator (7); 4) separating the carbon powders from the solid heat carrier by a solid-solid separator (7), with the carbon powders being collected via a carbon powder hopper (8) and the solid heat carrier being recycled in the pyrolysis bed (5) after being heated in a carrier heating fluidized bed (9-2); 5) delivering the generated pyrolysis gas to a condensation tank (12) for spray-condensing with the condensable part in the pyrolysis gas being condensed to generate biofuel oil which are compressed by a high-pressure oil pump (17) and then introduced into a gasification furnace (20) to be gasified; and 6) delivering a part of the uncondensed pyrolysis gas to a combustion bed (9-1) to combust with air, and delivering the other part to the pyrolysis bed (5) as a fluidizing medium. The raw material is directly dried by using hot flue gas produced by the carrier heating fluidized bed (9-2). The heat generated by combusting the uncondensed pyrolysis gas produced by the pyrolysis bed (5) with air in the combustion bed (9-1) is supplied to the pyrolysis bed (5).

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