

tained, the arterial blood pump is inactivated and a venous blood pump removes blood from the system for a given number of pump turns.

**4490157**

**INDIRECTLY HEATED  
FLUIDIZED BED GASIFIER**

John Fernandes assigned to Combustion Engineering Inc

A fluidized bed gasifier (10) for gasifying a first fuel (50) receives heat indirectly from a combusting fluidized bed (24) disposed at least partially within the gasifier fluidized bed (12). Fuel for the combusting bed (24) may be provided by removing a portion of the fluidized first fuel from the gasifier bed (12) and transporting (30,34) this removed portion into the combusting bed (12). Heat is transferred across the conductive walls of the combustor vessel (26). Product gas heating value is increased by separately removing (28) the products of combustion from the gasifier (10) and by recycling a portion of the product fuel gas (74) as the fluidizing gas (54) for the gasifier fluidized bed

(12). A radiation shield (18) is also provided to reduce heat loss from the gasifier bed (12) and to remove elutriated material from the product fuel gas.

**4490832**

**TECHNIQUE AND APPARATUS  
FOR TWO-PHASE SYSTEMS  
ANALYSIS DIRECTLY IN A FLOW**

Emil A Ab, Jerusalem, Israel assigned to Middle East Trade Alliance Inc

Method and apparatus for X-ray spectrum analysis of flowing material, and particularly where the material has two phases such as a suspension. A flow of gas or floats are used to separate the flowing material from an X-ray window in a casing containing an X-ray source and detector, which casing is located directly in the stream of flowing material. The gas flow provides a protective curtain across the window. An electrode structure is moveably mounted adjacent to the window and enables the solid state phase to be deposited for separate analysis of the solid and liquid phases of the flowing material.

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