

phases, of the flow rate, density and dielectric response of the well fluid. The dielectric response measurement is related to the established reference to determine the apparent proportion or volumetric fraction of one fluid phase of the well fluid. The density measurement is utilized to determine the volumetric fraction of the same phase of the well fluid. These equivalent volumetric fraction determinations are utilized to adjust the established reference in response to the density-determined volumetric fractions such that subsequent dielectric response measurements within the well fluid may be correlated to such adjusted reference and thus may be translated into appropriate volumetric fraction values with improved accuracy. These volumetric fraction determinations may then be related to the flow rate measurement made within the well to obtain the flow rates of the individual phases of the well fluid at the depths at which the described measurements were made.

4442080

**FLUID BED SOX/NOX PROCESS-
HYDRATED CALCINE
ABSORPTION**

James Donnelly, Karsten Felsvang, Per Morsing, Preston Veltman, Bailerup, Denmark assigned to A/S Niro Atomizer

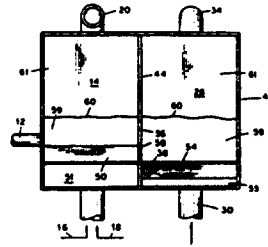
A process for simultaneous removal of sulfur oxides (SOx) and nitrogen oxides (NOx) from gaseous mixtures (such as flue gases and industrial waste gases) containing them which comprises contacting the gaseous mixture with a particulate alkaline earth hydroxide and reaction products of the gaseous mixture and the hydroxide maintained in a moving bed reactor (preferably a fluid bed reactor) at a temperature of about 85 degrees C. to about 150 degrees C. in the presence of water vapor and oxygen and in the substantial absence of liquid water. A baghouse or other particle removal means preferably is employed to extract solid material such as fly ash and reaction products from the gaseous mixture being treated and to further capture unreacted SOx/NOx.

4447297

**COMBINED FLUIDIZED BED
RETORT AND COMBUSTOR**

Jer-Yu Shang, John E Notestein, Joseph Mei, Li-Wen Zeng assigned to The United States of

America as represented by the United States Department of Energy

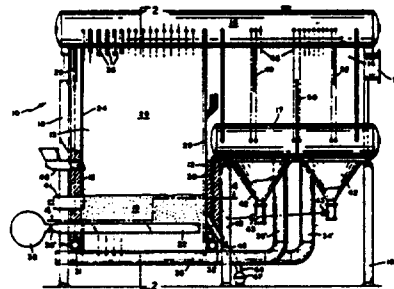


The present invention is directed to a combined fluidized bed retorting and combustion system particularly useful for extracting energy values from oil shale. The oil-shale retort and combustor are disposed side-by-side and in registry with one another through passageways in a partition therebetween. The passageways in the partition are submerged below the top of the respective fluid beds to preclude admixing or the product gases from the two chambers. The solid oil shale or bed material is transported through the chambers by inclining or slanting the fluidizing medium distributor so that the solid bed material, when fluidized, moves in the direction of the downward slope of the distributor.

4449482

FLUIDIZED BED BOILERS

Albert Leon, Daniel E McCoy assigned to Dorr-Oliver Incorporated



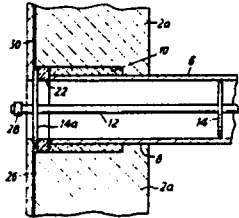
A fluidized bed boiler having a water-wall type construction has a steam-water natural circulation system for heat exchange. Vertical in-bed heat exchange tubes are provided and the steam drum of the boiler extends across the full length of the boiler combustion chamber and the convection heat exchange chamber. An air distributor grate is provided for introduction of

fluidizing air into the combustion chamber and the air flow therefrom can be controlled to afford a flexible turn-down capability.

4449575

FLUIDIZED BED HEATING APPARATUS

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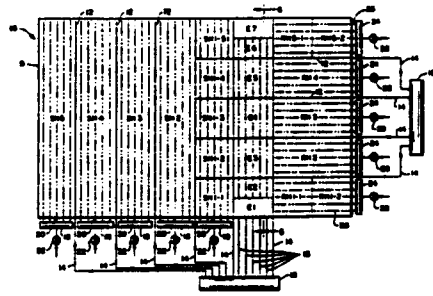
A heat exchanger for high temperature operation has a ceramic-walled chamber traversed by ceramic tubes and is capable of use inter alia in fluidised bed applications. The tubes are arranged in series of successive banks and to give a compact arrangement the successive banks of tubes at different levels are disposed transversely to each other. The tubes may have internal and external reinforcing means to allow them to withstand the loads imposed by the fluidised bed and generally to allow longer tubes to be used in ceramic constructions. The internal reinforcing means may also provide restrictions that in fluidised bed applications can function to minimise the effects of tube wall fracture by reducing carry-over of bed particles seeping into the tubes. For improved end sealing, means can be provided to hold resilient ceramic seals compressed against the tube ends while permitting axial thermal movement of the tubes.

4453494

FLUIDIZED BED BOILER HAVING A SEGMENTED GRATE

Richard E Waryasz assigned to Combustion Engineering Inc

A fluidized bed furnace (10) is provided having a perforate grate (9) within a housing which supports a bed of particulate material including some combustibles. The grate is divided into a plurality of segments (E2-E6, SH1-SH5, RH1-

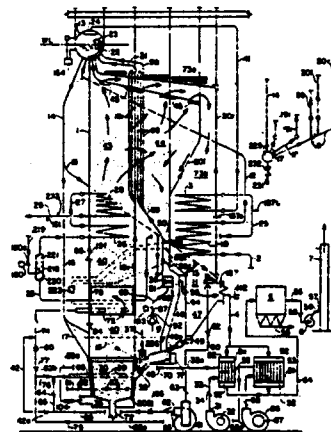


RH5), with the airflow to each segment being independently controlled. Some of the segments have evaporating surface imbedded in the particulate material above them, while other segments are below superheater surface or reheater surface. Some of the segments (E1, E7) have no surface above them, and there are ignitor combustors (32, 34) directed to fire into the segments, for fast startup of the furnace without causing damage to any heating surface.

4453495

INTEGRATED CONTROL FOR A STEAM GENERATOR CIRCULATING FLUIDIZED BED FIRING SYSTEM

Charle Strohmeyer assigned to Electrodyne Research Corporation



The invention comprises an integrated control means, and particularly at partial loads, for a steam generator having a circulating fluidized bed combustion system wherein gas recirculation means is used to supplement combustion air flow to maintain gas velocity in the circulation