

NEW PATENTS

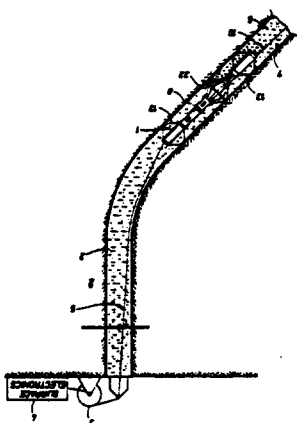
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4441361

METHOD AND APPARATUS FOR MEASUREMENT OF FLUID DENSITY AND FLOW RATES IN MULTI-PHASE FLOW REGIMES

Norman R Carlson, Raymond Roesner, Edward W Lanuke assigned to Dresser Industries Inc



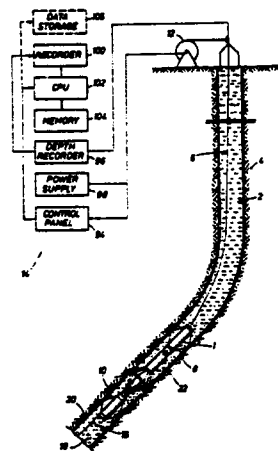
In a well containing a multi-phase fluid flow regime is disposed an elongated body member with a funnel configuration attached thereto for the purpose of collecting and mixing the multiple fluid phases. An aperture is provided in the body member, proximate to the apex of the funnel configuration, to allow discharge of the substantially homogeneous mixture of the fluid phases from the funnel through a passage in the body member. A rotor is acted upon by the flow of this mixture and generates a signal representative of the mixture flow rate. A portion of the mixture then enters a chamber in the elongated body member wherein a measurement is made of the degree of penetration of the mixture achieved by gamma radiation, thereby yielding a measure-

ment representative of the density of the mixture. The flow rates and volumetric fractions of each of the individual phases may then be determined in accordance with the mixture density and total flow rate.

4441362

METHOD FOR DETERMINING VOLUMETRIC FRACTIONS AND FLOW RATES OF INDIVIDUAL PHASES WITHIN A MULTI-PHASE FLOW REGIME

Norman Carlson assigned to Dresser Industries Inc



A reference is established indicating the functional relation between differing proportions of one fluid phase within a mixture of a plurality of fluid phases to the dielectric response of that mixture. Measurements are taken within a well wherein the well fluid consists of multiple fluid

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

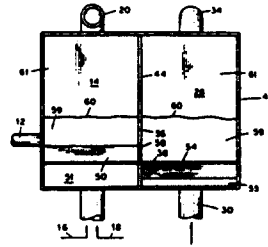
A process for simultaneous removal of sulfur oxides (SOx) and nitrogen oxides (NOx) from gaseous mixtures (such as flue gases and industrial waste gases) containing them which comprises contacting the gaseous mixture with a particulate alkaline earth hydroxide and reaction products of the gaseous mixture 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

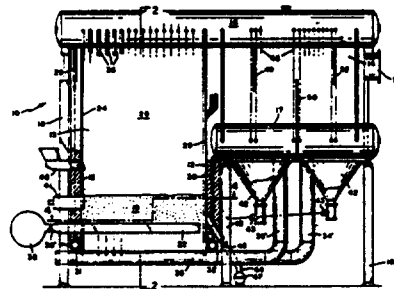


The present invention is directed to a combined fluidized bed retorting and combustion system particularly useful for extracting energy values from oil shale. The oil-shale retort and combustor are disposed side-by-side and in registry with one another through passageways in a partition therebetween. 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