Device, Systems and Methods for Sensing Temperature of a Drag Cup in a Rheometer Motor

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Classification:
international: *G01N11/14; G01K13/08*
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Devices, systems and methods are disclosed for sensing the temperature of a drag cup within a motor of a rheometer. Such a device includes a coil in communication with a source of current and in close enough proximity to a drag cup such that the coil senses the temperature of the drag cup through fluctuations in electrical activity across the coil.

Wide Range Dynamic Rheomter

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A rheometer includes a holder assembly for coupling a test specimen to a motor assembly to effect rotational strain in the test specimen while enabling the determination of axial displacement effected by the test specimen normal to the direction of the rotational strain, the holder assembly having a first member coupled to the test specimen, a second member coupled to the motor assembly, and a suspension arrangement coupling the first member with the second member for simultaneous maximum resistance to relative rotational displacement between the first and second members and minimum resistance to relative axial displacement between the first and second members. Information pertaining to the axial displacement, and to the temperature of the test specimen, is obtained through measuring circuits which include sensors placed in moving component parts of the rheometer and is delivered to an external processor through information transmission systems which include an induction arrangement for transmitting the information while maintaining the desired minimum resistance to the relative axial displacement. Power is delivered to the measuring circuits through a power transfer system which includes a similar induction arrangement.

Liquid Detecting Apparatus

Patent number: *US2004237633*
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Inventor: *Shinsuke Miura (J)*
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A bending vibration of a piezoelectric vibrating plate is amplified and transmitted to a vibration shaft and a liquid detecting element, so that the liquid detecting element is soundly vibrated in a circular direction in a measuring liquid. A plurality of piezoelectric vibrating plates 19, which each contact a bending vibration, are axially symmetrically arranged in the axial direction with respect to the vibration shaft 1 so that the piezoelectric vibrating plates 19 conduct a bending vibration, lower vibrating ends 14 of the piezoelectric, vibrating plates 19 are rigidly connected (vibration suppressing connection) to a vibration suppressing member 13 and inner ends of upper vibration ends 15 of the piezoelectric vibrating plates 19 are rigidly connected (vibration connection) to the vibration shaft 1, an inner end edge of each of the piezoelectric vibrating plates 19 excluding the vibration connection part 17 is held free with respect to the vibration shaft 1, a bending vibration at the lower vibrating end 14 of each of the piezoelectric vibrating plates 19 is suppressed on the vibration suppression connection part 16 side and a bending vibration at the upper vibrating end 15 is amplified, the amplified bending vibration at each upper vibrating end is applied to the vibration shaft 1 and the liquid detecting element 3 which is disposed at a lower end of the vibration shaft 1, through the vibration connection part 17, so that the liquid detecting element 3 is vibrated in the circular direction in the measuring liquid 2.

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Viscometer Sag Test Shoe

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Methods and apparatus for measuring sag properties of a drilling fluid using a rotary viscometer. An insert, or shoe, is placed at the bottom of the heat cup containing the fluid to be tested. A rotating cylinder is disposed within the fluid and solid particles are allowed to settle toward the bottom of the heat cup. The shoe incorporates a curved and inclined upper surface that directs the settled particles toward a well non-centrally located in the shoe. As the test is performed, fluid samples can be withdrawn from the well and analyzed. The samples can then be returned to the well and the test continued. The insert concentrates, the settled solids into a single location, which increases the sensitivity of the test and provides a location for sample acquisition that is easily and repeatedly located, which allows for improved correlation with laboratory and flow loop results.

Magnetorheological Fluids with an Additive Package

Patent number: *US6824701*
Publication date: *2004-11-30*
Inventor: *John C. Ulicny, Anthony Smith, Mark A. Golden, Brian McDermott, Thomas J. Chapaton (US)*
Applicant: *Gen Motors Corp (US)*
Classification:
international: *H01F1/44*
european: *H01F1/44R*

One embodiment of the invention includes an MR fluid of improved durability. The MR fluid is particularly useful in devices that subject the fluid to substantial centrifugal forces, such as large fan clutches. A particular embodiment includes a magnetorheological fluid including 10 to 14 wt % of a hydrocarbon-based liquid, 86 to 90 wt% of bimodal magnetizable particles, 0.05 to 0.5 wt% fumed silica, and an additive package including a paraffin oil, a phenol and a sulfide.

Magnetic Fluid

Patent number: *US6815063*
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Inventor: *Eric Mayes (GB)*
Applicant: *Nanomagnetics (GB)*
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european: *C07K14/47; G11B5/855; H01F1/00E10M; H01F1/44*

There is disclosed a magnetic fluid medium which comprises a plurality of ferro- or ferrimagnetic particles, each of which particles has a largest dimension no greater than 100 nm, said particles having been prepared by a process which includes a step in which the particles are formed within an organic macromolecular shell.