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(54) Title: A MECHANICAL OSCILLATOR ACTIVATED OR DEACTIVATED BY A PREDETERMINED CONDITION

Illustration Showing the Tip, Base and Diaphragm Regions
of the Tuning Fork

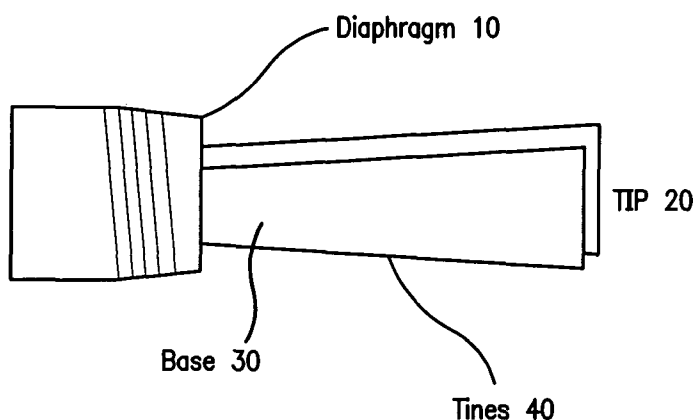


FIG. 1

(57) Abstract: The present invention is a mechanical oscillator for detection and measurement of corrosive or foreign materials. The elements include a means for mechanical excitation, and a mechanical oscillator, wherein said mechanical oscillator has a resonant frequency, f , and a quality factor, Q . A fuse fixed to the oscillator to change oscillator amplitude to or from essentially zero to resonance amplitude. In a preferred embodiment, the mechanical oscillator has the shape of a tuning fork where one region is compatible with the service fluid and the other region is incompatible with the service fluid or other contaminant. The sensor alarms when a measured amount of the incompatible material has been removed or the physical strength of the material has been compromised.