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## High Temperature Strain Gages

INVENTORS • Otto Gregory, Tao You

### ABSTRACT

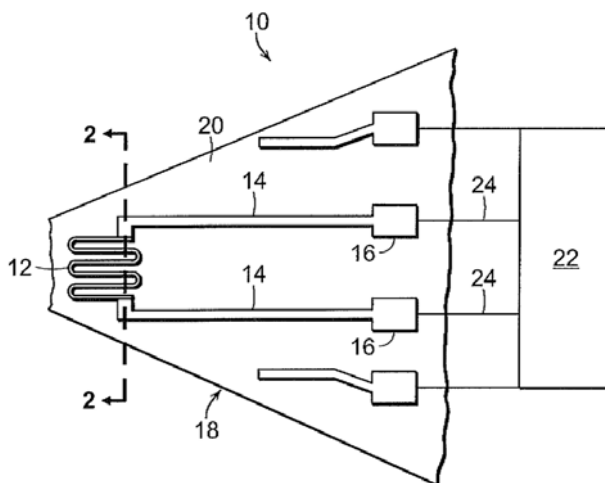
A ceramic strain gage based on reactively sputtered indium-tin-oxide (ITO) thin films is used to monitor the structural integrity of components employed in aerospace propulsion systems operating at temperatures in excess of 1500° C with little signal draft. Preferred semi-conductor is ITO and preferred metal is platinum.

### APPLICATION

Assess structural behavior of aerospace propulsion systems in harsh environments. Thin film sensors are ideally suited to make measurements of operational turbine conditions since they have negligible mass and thus, minimal impact on vibration patterns. Preferred semi-conductor is indium tin oxide and a particularly preferred metal is platinum.

### FEATURES & BENEFITS

Thin film strain sensors are particularly attractive in the gas turbine engine environment since they do not adversely effect the gas flow over the surface of a component and do not require adhesive or cements for bonding purposes. Excellent adhesion and similar thermal expansion coefficients to most oxides used for electrical isolation. Monitors both static and dynamic strain of components. ITO elements are oxidation resistant and do not undergo any phase changes when thermally cycled between room temperature and 1500° C.



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### CONTACT TO DISCUSS LICENSING OPTIONS

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### PATENT STATUS

US #7963171

### AVAILABILITY

Technology is available for licensing.