

# Strain Sensitive Surfaces for Aircraft Structural Analysis and Health Monitoring

## Abstract of the Disclosure

A system comprising a geometric pattern of grooves on a structural component having a first set of grooves having a first groove width, a first illumination source projecting a first light at a first wavelength corresponding to the first groove width to create diffraction when the first light hits the geometric pattern of grooves and corresponding changes in wavelength of the light reflected from the geometric pattern of grooves indicating changes in the first groove width due to strain caused when the structural component is exposed to environmental conditions, a detector detecting the wavelength of the light reflected from the geometric pattern of grooves as the first illumination source illuminates the geometric pattern of grooves, and a processor connected to the detector for receiving the detected wavelength of the light from the detector and correlating the detected wavelength of the light from the geometric pattern of grooves to the strain.

FIG. 5