

WHAT IS CLAIMED:

1. A sensor for producing an electrical signal representing force transmitted through a linear medium comprising:

a body of elastically deformable material having a through passage for said linear medium therethrough to define a load transmission axis;

means for affixing said body to said medium only at spaced-apart end points along said passage;

said body including means for creating a stress concentration area between said end points which area can deform elastically in response to loads transmitted through said medium; and

strain sensing means affixed to said area and connected in circuitry configured to produce an electrical signal related to said transmitted force.

2. A sensor as described in claim 1 wherein said circuitry is a Wheatstone bridge circuit.

3. A sensor as described in claim 2 wherein said strain-sensing means include first strain gages affixed to a compression-responsive zone of said body and second strain gages affixed to a tension-responsive zone of said body.

4. A sensor as defined in claim 3 wherein said means for creating includes an aperture formed through the body substantially orthogonal to said load axis and intersecting said through passage between said end points.

5. A sensor as defined in claim 4 wherein said body has at least one flat exterior surface, a plurality of conductive pads attached to said surface for receiving electrical leads; said pads being interconnected with said Wheatstone Bridge.

6. A sensor as defined in claim 5 further including a plurality of conductive leads attached to said pads.

7. A sensor as defined in claim 6 wherein said leads are affixed to an insulative carrier that wraps around the flexure body orthogonally to said load axis.

8. A sensor as defined in claim 1 wherein said linear medium is one of a cable, wire, rod, rope, arm, ferrule or arm.

9. A sensor as defined in claim 1 wherein said body is made of one of stainless steel, aluminum and Inconel.

10. A sensor as defined in claim 9 wherein the material has a modulus of elasticity of about 28,000,000 to 29,000,000 psi.

11. A sensor as defined in Claim 3 further including an enclosure on the said body; said enclosure extending around said body orthogonally to the load axis and having a surface providing support for a lead carrier.

12. A sensor as defined in claim 11 wherein said enclosure fully wraps around said body only between said end points and includes a top arch providing a clearance passage thereunder for the wrapped-around lead carrier as it passes over the solder pad surface.