What is claimed:

1. A tripedal flexure comprising the unitary combination of:

a pair of substantially S-shaped outside beams with reversely curved upper and lower portions with edge surfaces; and

a single substantially S-shaped center beam having reversely curved upper and lower portions with edge surfaces;

the upper and lower portions of the outside beams being oriented in the same direction whereas the upper and lower curved portions of the center beam are oriented in the opposite direction;

the beams being spaced apart from one another along the upper and lower curved portions but integrally joined to form a common top structure and a common base structure; wherein

each of the beams provides strain concentration areas.

2. The flexure defined in claim 1, further including strain sensing elements applied to at least some of said areas.

3. The tripedal flexure defined in claim 1 wherein each of said outside and center beams has opposite exposed edge surfaces, the exposed edge surfaces of the center beam being oriented opposite to the edge surfaces of the outside beams; the edge surfaces on the inside of the S-portions being curved whereas the edge surfaces on the outside of the S-portions are flat.

4. The tripedal flexure as defined in claim 2 wherein said strain sensing elements are variable resistors applied to said flat edge surfaces.

5. The tripedal flexure as defined in claim 3 wherein all of the flat edge surfaces areas are provided with variable resistance strain sensing devices thereby to allow said flexure to measure all or any of tension forces, compression forces and/or torque.

6. The flexure as defined in claim 1 wherein the flexure is made from a single piece of stock.

7. A force and/or torque sensor comprising:

three substantially identical S-shaped flexure beams including a center beam oriented east to west and two side beams oriented west to east, all of said beams having outside edge surfaces;

the three S-shaped beams being arranged parallel to one another and laterally spaced apart but integrated structurally by a common mounting structure on one axial end and a common loading structure on the other axial end;

the three beams being structurally and flexurally separated from one another other than at the mounting and loading structures; and

the edge surfaces of one or more of the three beams being instrumented to produce electrical signals when loaded in one or more of tension, compression and torque.

8. The force and/or torque sensor defined in claim 7 wherein the center beam is approximately twice the thickness of the outside beams.

9. The force and/or torque sensor as defined in claim 7 wherein the overall structure has a height on the order of 4.01mm, a width on the order of 2.99mm and a depth on the order of 1.98mm.

10. The force and/or torque sensor as defined in claim 7 wherein the entire structure is manufactured from a single piece of stock using material selected from the group consisting of stainless steel and aluminum.

11. The force and/or torque sensor as defined in claim 7 wherein the edge surfaces consist of flat outside edge surfaces and curved inside edge surfaces on each of the substantially S-shaped flexure beams.