1806 as identified by arrow **1814**. Under these conditions, a near wall portion **1815** collapses and the upper portion **1806** rotates as illustrated by arrow **1816**, with respect to a far wall portion **1817**. As this rotation takes place, the contact position **1808** applies contact force to the sensor over a contact region **1818**.

A sensor may thus be provided with a layer that has a force concentration device on the underside. According to the example of FIGS. **18**A and **18**B, the force concentrating device is provided on the underside on an additional, and in this case overlying, layer. In alternative applications, a force concentrating device may be provided on the underside of a first knitted conductive textile layer.

The size, shape, location and orientation of a force concentrating device used in a sensor and the profile of the contact portion can be optimised for specific applications.

FIG. **19**

An assembled flexible sensor **1901** is shown in FIG. **19**. The flexible sensor **1901** is provided with a protective cover **1902** that overlies the first knitted conductive textile layer of the sensor. Flexible sensor **1901** is configured to determine the position of a mechanical interaction within a sensing area (X-axis and Y-axis data) and to detect an additional property of the mechanical interaction, for example pressure (Z-axis data).

A force concentration device is provided in the form of a stylus **1903**. The stylus **1903** has a stylus tip **1904** such that force applied to the stylus during manual operation by a user results in this force being concentrated at the tip **1904** of the stylus **1903**.

The use of a force concentration device with the same force as would otherwise be used with a direct contact increases the likelihood of recognition of a mechanical interaction. Therefore, in some applications, the likelihood of recognition of a mechanical interaction made using a force concentration device with less force than would otherwise be used may be increased.

FIG. **20**

The uniformity of response of a sensor may be improved by utilising compliant yarns within the construction of at least the first knitted conductive textile layer of the sensor.

FIG. **20** shows three yarns **2001**, **2002** and **2003**. First non-compliant yarn **2001** is a monofilament yarn, whereas first compliant yarn **2002** is a multifilament yarn. Multifilament yarns have a degree of inherent compliance however, the compliance thereof can be improved by the inclusion of elastic yarns, for example Lycra TM or Elastane TM. First compliant yarn **2002** is an untwisted multifilament yarn, however multifilament yarns are typically twisted, and the twisted type of multifilament yarn is considered to provide an equal or improved performance.

Second compliant yarn **2003** is a textured yarn. Such yarns are typically used to provide additional softness and compliance to enhance the feel of a fabric. Different processes may be used to produce textured yarn including processes utilising air jets during yarn cooling, or processes in which twisting, heating and untwisting of a multifilament yarn is performed. Irrespective of the manufacture process, the textured yarn is “fluffy”. The additional compliance introduced by using textured yarn in a first knitted conductive textile plane provides a more controlled collapse of the plane under applied pressure. This further improves the uniformity of sensitivity, and provides a sufficiently sensitive response to applied pressure.

Considering the second conductive textile layer, the layer may take the form of a woven fabric constructed using yarns with significant inherent elasticity. Thus, a degree of compliance of the layer may be provided by the elasticity of the yarn itself. Alternatively, for example, the layer may take the form of a warp knit constructed using non elastic yarns such that the compliance of the layer is provided by the nature of the fabricated material.

The invention claimed is:

1. A sensor comprising:

a first knitted conductive textile plane,

a second conductive textile plane, and

an intermediate separating plane penetrable by the first knitted conductive textile plane to allow the first conductive textile plane and the second conductive textile plane to make electrical contact under a mechanical interaction;

the intermediate separating plane defines the structural perimeter of each of a plurality of apertures from which the first knitted conductive textile plane deforms towards the second conductive textile plane under a mechanical interaction; wherein:

the first knitted conductive textile plane has conductive yam knitted to form a repeating pattern of stitches each comprising a stitch looping portion SLIP having a looping portion footprint LPF,

the separating plane defines apertures A having an aperture footprint AF,

at least one looping portion footprint LPF is wholly containable within at least one aperture footprint AF; and

said intermediate separating plane is provided in the form of a textile structure and said intermediate separating plane and said first knitted conductive textile layer are machined together to form a textile structure incorporating a predetermined loop-aperture alignment pattern.

2. A sensor according to claim **1**, wherein:

the first knitted conductive textile plane has conductive yarn knitted to form a repeating pattern of stitches comprising a wale pitch dimension WPD occurring in a first direction and a course pitch dimension CPD occurring in a second direction,

the separating plane has apertures having a first aperture dimension FAD measured in said first direction and a second aperture dimension SAD measured in said second direction, and

at least one of said wale pitch dimension WPD and said course pitch dimension CPD is smaller than at least one of said first aperture dimension FAD and/or second aperture dimension SAD.

3. A sensor according to claim **1**, wherein said first knitted conductive textile plane said second conductive textile plane, and said intermediate separating plane are each provided in the form of a separate layer.

4. A sensor according to claim **1**, wherein said predetermined loop-aperture alignment pattern incorporates loop-aperture alignment of a plurality of loops to an aperture.

5. A sensor according to claim **3**, wherein said intermediate separating plane is provided in the form of a plastic mesh.

6. A sensor according to claim **3**, wherein said intermediate separating plane is provided in the form of a compressible mesh.

7. A sensor according to claim **1**, wherein said sensor is provided with a force concentration device comprising one of: a key position contact portion and a stylus.

8. A sensor according to claim **1**, wherein said first knitted conductive textile plane includes at least one of: elastic yarn, textured yarn and multililament yarn.

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