presence of two mechanical interactions. A condition would be detected to the effect that a mechanical interaction is taking place but the system would tend to perceive this as a single mechanical interaction having characteristics substantially similar to the average of the characteristics of the two independent interactions.

[0088] An alternative embodiment for overcoming problems of this type is shown in **FIG. 15**. In **FIG. 15, a** plurality of detectors **1501**, **1502**, **1503**, **1504**, **1505**, **1506** and **1507** have been connected together and each of these individual detectors has its own unique connectors **1511**, **1512**, **1513** and **1514**. In this way, each of the individual detectors may be connected to its own respective control circuit, such as circuit **121** shown in **FIG. 1** or, in an alternative embodiment, a single control circuit of the type shown in **FIG. 1** may be shared, using a switching arrangement, between all seven of the individual combined detectors. In this way, each individual detector, such as detector **1501**, provides the same level of accuracy as the detector shown in **FIG. 1**. However, if two or more mechanical interactions take place on different detector sections, it is possible to detect this condition and provide appropriate output responses. However, it is only possible to detect a plurality of mechanical interactions if these interactions take place on different sections and it is not possible for the embodiment shown in **FIG. 15** to detect a plurality of interactions if these interactions take place on the same section.

[0089] In the arrangement shown in **FIG. 15**, the detectors have been arranged in strips such that there is enhanced definition in the direction of arrow **1521** but the definition in the direction of arrow **1522** has not changed.

[0090] In the detector shown in **FIG. 1**, position detection is made possible using four electrical connection cables, a first two connected to opposing diagonal corners of the upper sheet and a further two connected to the alternative opposing diagonal corners of the lower sheet. An alternative configuration is shown in **FIG. 16** in which electrical connectors **1601**, **1602**, **1603** and **1604** are connected to respective corners **1611**, **1612**, **1613** and **1614** of a lower plane conducting sheet **1621**. An upper plane conducting sheet **1622** is connected to a single detecting cable **1631** connected at a position **1632** towards an edge of upper conducting sheet **1622**. A disadvantage of the configuration shown in **FIG. 16** is that five separate electrical connections are required whereas only four electrical connections are required in the configuration shown in **FIG. 1**. However, in some circumstances, the configuration shown in **FIG. 16** does have advantages over that shown in **FIG. 1**.

[0091] The configuration shown in **FIG. 16** may be used to effectively multiplex the operation of a detector so as to facilitate the detection of a plurality of mechanical interactions to a greater extent than the configuration shown in **FIG. 15**. In particular, it facilitates detecting multiple mechanical interactions in both dimensions of the planar detector.

[0092] As shown in **FIG. 17, a** lower planar sheet **1701** has connections **1702**, **1703**, **1704** and **1705** at each of its corners. Thus, sheet **1701** operates in a way which is substantially similar to the operation of sheet **1621** and all output voltages are generated within this sheet, either across diagonal **1702** to **1704** or across diagonal **1703** to **1705**, thereby giving a two-dimensional co-ordinate within the area of the sheet.

[0093] An upper planar sheet **1721** is divided into a plurality of portions. In the example shown, eight portions **1731** to **1738** are provided. Thus, the mechanical action results in conducting planes of at least one of said regions being brought into electrical interaction with the lower plane **1701**. Furthermore, if a mechanical interaction occurs at region **1731** and a second mechanical interaction occurs at region **1735** (for example) both of these mechanical interactions may be determined independently and an output to this effect may be generated by a processing system, such as system **131**.

[0094] In order to achieve the space division multiplexing provided by regions **1731** to **1738**, time division multiplexing of the electrical signals is performed in which, during each individual time slot, one individual region **1731** to **1738** is considered. This is achieved by each individual region **1731** to **1738** having its own respective electrical connector **1741** to **1748**. These connectors are preferably incorporated in to the structure of the sheet.

[0095] Control circuitry for the configuration shown in **FIG. 17** requires modification compared to that shown in **FIG. 2**. In particular, each of the eight output control lines **1741** is supplied to its own respective buffering amplifier, similar to amplifiers **2223** and **2223** and the output from each of these eight amplifiers is applied to appropriate switching devices, allowing one of eight inputs to be selected using a plurality of switches substantially similar to switch **2221**.

[0096] A complete scanning cycle consists of applying a voltage between input terminals **1702** and **1704**. An output is then considered from each individual output terminals **1741** to **1748**. The voltages are then reversed such that a voltage is applied between output terminals **1705** and **1703**. Each of the individual input terminals is then considered again so as to provide two-dimensional co-ordinates within each of the individual regions **1731** to **1748**. As described with respect to **FIG. 2**, both voltages and currents may be considered in order to provide additional mechanically related information, such as pressure related information etc.

[0097] In the detector configuration shown in **FIG. 1** and in alternative detector configurations, such as that shown in **FIG. 15** and that shown in **FIG. 16**, it is necessary to provide electrical connection between processing equipment and the detector fabric itself. Techniques for the addition of electrical connectors to current conveying fabrics are known. However, in the known techniques, continual wear and usage of the detector assembly often results in electrical connectors becoming disconnected from the material fabric, resulting in total system failure. It is therefore highly desirable to provide a system in which the electrical connector is held very securely to the material fabric itself so as to provide a robust system which does not become disconnected through continual use.

[0098] An improved approach to providing electrical connection to the electric current carrying conductors within the fabric is illustrated in **FIG. 18**. Further modification is shown in **FIG. 19**. In both of these systems, the fabric is constructed from electrically conducting fibres and from electrically insulating fibres by a mechanical process, such as weaving or knitting. An improved electrical connection is achieved by connecting electrical connection devices to the electrically conducting fibres of the fabric forming the detector during the mechanical fabric generating process.