

[0055] It is contemplated that various component parts may be incorporated into the panel of the invention. FIG. 16 illustrates collapsible microcomputer 200, comprising a keyboard 210, a pointing device 236, a display 202, microprocessor 204 and power supply 206. The keyboard element 210 is constructed as described above in reference to either the first or second embodiments. The microprocessor 204 and power supply 206 could be made in a sufficient small size to fit within one of the lobes of the panel 200, such that panel could be collapsed without damage to the processor or power supply.

[0056] The display 202 is preferably flexible so that it may be collapsed with the panel 200. For example, display 202 may be constructed by "electronic paper" techniques, currently under development by several companies such as E-ink Corporation, Cambridge, Mass. Cambridge Display Technologies is one company that is developing a computer display that utilizes electronic paper technology. Electronic paper technology is based on ink comprised of microcapsules that may be applied to surfaces, such as upper layer 212 of flexible sheet material. Each microcapsule contains colored chips that when appropriately energized form letters or other images. Whether utilizing electronic paper technology or other emerging technologies, such as organic light emitting diodes, it is intended that the display 202 should be flexible so that the panel 200 including display 202 may be collapsed as described above.

[0057] The several embodiments of the invention may be manufactured economically. Indeed the cost of the spring frame, fabric and conductive traces may be sufficiently small that the panel could be sold as a disposable keyboard.

[0058] The objects and advantages of the invention have therefore been shown to be attained in a convenient, practical, economic and facile manner. Although several preferred embodiments of the invention have been shown and described, it will be apparent to those skilled in the art that modifications and alternative embodiments of the invention may be made. The above description of the preferred embodiments is intended to be illustrative of the invention as defined by the appended claims, and is not intended to limit the scope of the invention or to preclude coverage of obvious modifications or equivalent embodiments.

What is claimed is:

1. A data entry panel comprising
 - an upper layer of flexible sheet material;
 - a lower layer of sheet material;
 - at least one electrical circuit at least partly between said upper and lower layers of sheet material;
 - at least one switch means between said upper and lower layers of sheet material whereby depression of said upper layer to said lower layer at said switch means will complete said electrical circuit; and
 - means for holding at least said upper layer of sheet material taut and spaced apart from said lower layer of sheet material.
2. A data entry panel as in claim 1, wherein said lower layer of sheet material is flexible.
3. A data entry panel as in claim 2 having both an extended, substantially planar configuration and a collapsed

configuration, the surface area of said panel in said collapsed configuration being less than ½ the surface area in said extended configuration.

4. A data entry panel as in claim 1, wherein said means for holding comprises a flexible frame at the peripheral margins of said upper and lower layers of sheet material.

5. A flexible data entry panel as in claim 4, wherein said frame comprises spring steel.

6. A flexible data entry panel as in claim 1, wherein said electrical circuit is on an inner surface of one of said layers of sheet material, and said switch means comprises a pair of contact points connected to said circuit and a conductive switch member on the inner surface of the other of said layers of sheet material, said switch member being juxtaposed relative to said pair of contact points, whereby depression of said upper layer to said lower layer at said switch member will cause said switch member to engage the corresponding said pair of contact points to complete said circuit.

7. A data entry panel as in claim 1, wherein said electrical circuit comprises a conductive trace on an inner surface of said upper layer of sheet material and a conductive trace on an inner surface of said lower layer of sheet material, and wherein said switch means comprises a pair of contact points, one point on said upper layer and the other point on said lower layer, whereby depression of said upper layer to said lower layer at said pair of contact points will cause that pair of contact points to meet and complete said circuit.

8. A data entry panel as in claim 1 wherein said upper layer of sheet material comprises a four-way stretch material and lower layer of sheet material comprises dimensionally stable fabric.

9. A data entry panel as in claim 1 wherein said electrical circuit comprises traces of conductive ink printed onto the inner surface of at least one of said layers of sheet material.

10. A data entry panel as in claim 1, further comprising a polymeric material adhered to said upper layer of sheet material adjacent said switch means to form a finger tip receptive key.

11. A data entry panel as in claim 1, wherein said upper layer of sheet material adjacent said switch means is embossed or molded to form a finger tip receptive key.

12. A data entry panel as in claim 1, further comprising,

- an intermediate layer of flexible sheet material between said upper and lower layers of sheet material, said intermediate layer having a plurality of openings therein.

13. A data entry panel as in claim 1, wherein an outer surface of said upper layer of sheet material has a plurality of indicia thereon, said data entry panel having a plurality of said switch means, each said indicia corresponding to a respective one of said switch means, each said indicia representing a key.

14. A collapsible data entry panel as in claim 1, further comprising a pointing device mounted to at least one of said layers of sheet material.

15. A data entry panel as in claim 1, wherein an upper surface of said upper layer of sheet material has indicia representing a piano keyboard and said data entry panel comprises a multiplicity of switching means, at least one said switching means corresponding to each said piano key.