

in FIGS. 13G and 13I. The battery 1516, which is received on the bottom of the docking station 1506, is capable of powering both the docking station 1506 and the cellular phone 1502.

[0191] Still referring to FIGS. 13G-13I, the docking system 1500 has a display subhousing 1520 which pivots relative to the base 1510 of the docking station 1506. The display subhousing 1520 has a foot pivot portion 1522 that rotates relative to the base 1510 of the docking station 1506 and an arm 1524. The arm 1524 extends laterally from the foot pivot portion 1522 in the operating position, as seen in FIG. 13H. The arm 1524 has a viewing housing 1526 with a lens, which moves outward, therein spacing the lens from the microdisplay located in the arm 1524.

[0192] FIGS. 13J and 13K show another alternative display docking system 1530. The display docking system 1530 has a cradle 1534 on the docking station 1536 similar to the embodiment shown in FIGS. 13G-13I. The docking station 1536 likewise is adapted to receive a battery 1538 capable of powering both the docking station 1536 and the cellular phone 1502.

[0193] Still referring to FIGS. 13J and 13K, the docking system 1530 forms a handset and has a display subhousing 1540 which has a display pod 1542 and a pair of sliding arms 1544. The display subhousing 1540 moves relative to the docking station 1536 by the arms 1544 moving translation relative to the side rails of the station 1536 as represented in FIG. 13K. The arms 1544 then are capable of rotating relative to the docking station 1536 as illustrated in phantom in FIG. 13K. The display pod 1542, which houses the microdisplay and a lens, can rotate relative to the arms 1544 to position the microdisplay for viewing.

[0194] FIG. 13L illustrates a keyboard 1550 having a conventional key layout. The keyboard has a cord 1552 with a plug 1554 adapted to be received by a data transmission system, such as a docking station, a cellular telephone or a pager. The keyboard 1550 has a mouse track point joy stick 1556 and a pair of mouse buttons 1558. The keyboard 1550 is capable of folding such that its thickness is less than 15 millimeters as illustrated in FIG. 13N. The keyboard 1550 can have a touch pad 1560 on one side, such as shown in FIG. 13M, for taking notes or drawing inputs.

[0195] An alternative display docking system 1570 is shown in FIGS. 13O-13P. A cradle 1574 in a cradle portion 1578 of a docking element or station 1576 receives a cellular phone 1572, shown in phantom in FIG. 13P, of the display docking system 1570. The cradle 1574 is formed by a pair of side rails and a top rail, in addition to a base 1580 and a back 1582. The back 1582 of the cradle portion 1578 has a hole 1588 such that the a battery 1586, as shown in phantom in FIG. 13P, of the cellular phone 1592 can be accessed when the phone 1592 is in the cradle 1584.

[0196] Still referring to FIGS. 13O-13P, the docking system 1570 has a display subhousing or portion 1590 which projects downward and outward away from the base 1580 of the cradle 1574. The display portion 1590 includes the microdisplay with a lens 1594.

[0197] FIGS. 13Q-13S illustrate another preferred embodiment of a docking system 2500. A docking element or station 2502 is shown in a bottom back perspective view in FIG. 13Q. A cradle 2504 in the docking element or station

2502 receives a cellular phone 2506, shown in FIGS. 13R and 13S. The cradle has sidewalls 2507 that extend partially up the sides of a telephone in the docked position, as well as a front border 2509 that partially envelopes the telephone while exposing the telephone keypad.

[0198] The docking element 2502 has a latch mechanism 2508 on the right side, the left side in FIG. 13Q, for securing to the side of the cellular phone 2506. The latch mechanism 2508 is released by a button 2510 located on the side of the docking element 2502.

[0199] The docking system 2500 has a display subhousing 2512 as seen in FIG. 13R in a storage position in a base 2538 of the docking element 2502. The display subhousing 2512 houses the microdisplay and a lens 2514. In a preferred embodiment, the lens 2514 for the microdisplay is not covered in the storage position, as seen in FIG. 13R. In this embodiment, images can also be shown on the display in the storage position.

[0200] The display subhousing 2512 moves relative to the docking station or element 2502. The display subhousing 2512 is carried by an extension 2516.

[0201] The back 2518 of the docking element 2502, the portion that underlies the back of the cellular telephone 2506, includes the extension 2516 as seen in FIG. 13Q. The extension 2516 has a first portion 2520 and a second portion 2522. The second portion 2522 of the extension 2516 is rigidly attached to the display subhousing 2512.

[0202] The docking station 2502 has a five key cursor control and select 2524. The center key 2526 is for selecting and the four surrounding keys 2528 are for movement of the cursor displayed on the microdisplay. The five key cursor control and select 2524 is located above the extension 2516.

[0203] At the top 2530 of the back 2518 of the docking station 2500, a memory card slot 2532 is located for receiving a memory card 2534 above the five key cursor control and select 2524. The docking station 2500 also has an accessory port 2536 on the right side of the base 2538 of the docking station 2500, the left side in FIG. 13Q.

[0204] The extension 2516 is moved from the storage position, as seen in FIG. 13Q, to an operating position, as seen in FIG. 13S, by moving the first, upper, portion 2520 of the extension 2516 downward by pushing against a raised nub 2540 at the lower end of the first portion 2520. The first portion 2520 moves laterally in a channel 2542 in the back 2518 of the docking station 2502. The second, lower portion 2522, the portion of the extension 2516 which holds the subhousing 2512, moves laterally downward and then is rotated upward into position. The extension 2516 is released from the operating position by operation of a positioning button 2544 which projects upward into the channel 2542 as the extension 2516 slides past.

[0205] A preferred embodiment of a display control circuit 2548 for use in a docking system 2500 is illustrated in connection with FIG. 13T. The docking element or station 2502 has a cradle or other area for receiving or securing to the cellular telephone 2506. The docking station 2500 has input ports 2552 and 2554 for both an analog phone 2506a with an antenna 2556 or a digital phone 2506d with an antenna 2556. The inputs 2552 from an analog phone 2506a are conveyed through a modem 2558. A switch 2560 on the