

approximately a 45° angle to the interconnected support arm 112. A space is created between the lower extent of a biasing arm 114 and the support arm 112 of an adjacent contact 106. This space is the fulcrum point 116 into which a bimorph reed 72 is inserted. As noted, in the preferred embodiment, five different contacts 106 are secured to each side of PCB 68. This results in the formation of four fulcrum points 116 between the adjacent contacts 106. As illustrated, the biasing arm 114 of the lowermost contact can be eliminated. Likewise, the support arm 112 of the uppermost contact, while present, is unused.

Once the contacts 106 are soldered, the alignment guide 118 can be removed. This is achieved by bending the alignment guide 118 with respect to the soldered contacts 106. The user preferably uses the first surface 122 of the guide 118 as a handle to bend the guide 118 back and forth until the score line is broken. Once the score line is broken, the soldered contacts 106 are separated from alignment guide 118. The alignment guide 118 can thereafter be disposed. A new alignment guide 118 can then be used to align and solder another series of five contacts 106 to the opposite side of PCB 68. After the contacts 106 are secured to each side of PCB 68, the bimorph reeds 72 can be inserted into the corresponding fulcrum points 116. This process is the repeated for each Braille cell assembly 64 of the display 20.

The present disclosure includes that contained in the appended claims, as well as that of the foregoing description. Although this invention has been described in its preferred form with a certain degree of particularity, it is understood that the present disclosure of the preferred form has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention.

Now that the invention has been described,

What is claimed is:

1. A refreshable Braille display, the display including a series of individual Braille cells, the display comprising:

a housing having forward and rearward extents, the housing also having an interior, an upper cover, and a lower tray, the upper cover having apertures for receiving Braille pins, and a series of openings for receiving keys, a channel formed within the upper cover;

a motherboard mounted within the interior of the housing, the motherboard being interconnected to a series of Braille cell assemblies, each of the Braille cell assemblies corresponding to an individual Braille cell and supporting eight (8) bimorph reeds;

a series of mounting blocks, each mounting block having a housing with an array of pin apertures, the housing further including a depending edge, the mounting blocks being releasably secured within the channel within the upper cover;

a series of tactile pins, each of the tactile pins including an curved upper end and an length, the series of tactile pins being positioned within the pin apertures of the mounting blocks, each tactile pin including a collar located along its length;

a plate secured over top of the series of tactile pins, the plate including openings that permit the passage of the tactile pins, the openings having a size that is smaller than the diameter of the collars located on the tactile pins to thereby limit the upward movement of the tactile pins.

2. A Braille display including a number of Braille cells, the display comprising:

a housing having forward and rearward extents, the housing also having an interior, an upper cover, and a lower tray, the upper cover having apertures for receiving Braille pins;

a motherboard mounted within the interior of the housing, the motherboard being interconnected to a series of Braille cell assemblies, each of the Braille cell assemblies corresponding to one of the Braille cells;

a mounting block having a housing, the mounting block being positioned with the interior of the housing;

a series of tactile pins housed within the mounting block, whereby the mounting block keeps the tactile pins together as a modular unit.

3. The Braille display as described in claim 2 wherein the mounting block houses a number of tactile pins sufficient for four different Braille cells.

4. The Braille display as described in claim 2 wherein the mounting block houses a number of tactile pins sufficient for six different Braille cells.

5. The Braille display as described in claim 2 further comprising a plate secured over top of the mounting block, wherein the plate limits the upward movement of the tactile pins.

6. The Braille display as described in claim 2 further comprising:

a channel with opposing walls formed within an interior surface of the upper cover, each of the opposing walls having a series of male locking features;

the mounting block having a series of female locking features;

the mounting block being releasably secured within the channel by connecting the male and female locking features.

7. A Braille cell assembly adapted to be removably connected to a motherboard within a refreshable Braille display, the Braille cell assembly comprising:

a printed circuit board having a proximal end, a distal end, and an intermediate extent therebetween, the printed circuit board including opposing sides and upper and lower edges, a female electrical connector interconnected to the printed circuit board adjacent the proximal end, a series of stops formed on the opposing sides of the printed circuit board along the intermediate extent;

a motherboard with a male electrical connector, the female electrical connector of the printed circuit board being coupled to the male electrical connector of the motherboard;

a series of adjacent contacts mounted to each of the opposing sides of the printed circuit board, each contact formed from a base portion, a support arm, and a biasing arm, the biasing arm being angled with respect to the support arm, the base portion of each contact being soldered to the printed circuit board, with the series of adjacent contacts being mounted in a staggered arrangement, a series of fulcrum points, each fulcrum point created between the biasing arm of an upper contact and the support arm of a lower contact;

a series of bimorph reeds, each bimorph reed having a proximal end, a distal end, and an intermediate extent therebetween, each bimorph reed also having upper and lower surfaces, the proximal end of each bimorph reed being secured to a corresponding fulcrum point, with the biasing arm of the upper contact contacting the upper surface of the bimorph reed and the support arm of the lower contact contacting the lower surface of the bimorph reed, the intermediate extent of the bimorph reed being positioned adjacent a corresponding stop;