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position where the coupler **78** engages a first wall section **80** at a first location to limit further rotation of the coupler **78** in a first direction where the pin **55** is in a lowered position, and a second position where the coupler **78** engages a second wall section **81** at a second location to limit further rotation of the coupler **78** in a direction opposite of the first direction, where the pin **55** is in a raised position. As illustrated in FIG. 7, the coupler **78** has a peripheral edge **79** which engages the first wall section **80** and second wall section **81** at respective locations to limit the further travel of the coupler **78** in that direction.

The unit **10** preferably may be provided with means for connecting the display unit **10** to the electronic means of a computer, such as for example, a bus, port, cable, or other suitable connection element. Communications between the unit **10** and the computer are made so that the transmission and receipt of electrical signals corresponding to the series of key strokes and characters, may be recorded by the computer and displayed on the display **12** of the unit **10**. Software is preferably provided and the computer is programmed to record and process the information typed by a user, so that each cell of the display **12** may be provided with a Braille character representation for the user to read.

Reference is now made to FIG. 8, where an alternate embodiment of a keyboard **110** for inputting Braille characters is shown. The keyboard **110** has a plurality of keys, including a first set of a plurality of keys **111** and a second set of a plurality of keys **112**. The first set of plurality of keys **111** is arranged in a first predetermined location on the keyboard **110**, and the second set of plurality of keys **112** is arranged in a second predetermined location on the keyboard **110**. The keyboard **110** is configured to have a first orientation and a second orientation. When the keyboard **110** is placed in the first orientation for use, such as, for example, the orientation viewed when looking at FIG. 8, the first set of plurality of keys **111** proximate one side of the keyboard **110** may be used. The second orientation presents the second set of plurality of keys **112** proximate one side of the keyboard **110** for use when the keyboard **110** is positioned for use in the second orientation (i.e., viewed when looking at FIG. 8 upside down). The keyboard **110** is illustrated with a refreshable display **114** for displaying a plurality of Braille characters. Preferably, the display **114** is comprised of a plurality of cells **115** which are provided to display Braille characters by raising and lowering pins, generally, **116**. The cells **115** of the keyboard display **114** may be constructed as herein described and shown in connection with the unit **110** illustrated in FIGS. 1 through 7. The display **114** is located on the keyboard **110** above the area of the first set of plurality of keys **111** when the keyboard **110** is positioned for use in a first orientation. The display **114** is located on the keyboard **110** below the area of the second set of plurality of keys **112** when said keyboard **110** is positioned for use in a second orientation, so that the user may read the display **114** below where the user's fingers are typing (or otherwise actuating the keys). The user may select the orientation for use by positioning the keyboard **110** so that the display **114** is above the first set of plurality of keys **111** or below second set of plurality of the keys **112**. With the single keyboard **110**, the user or users have the option of selecting the option of typing with the display **114** above the keys **111** or with the display below the keys **112**.

As illustrated in FIG. 8, a plurality of keys is provided on the keyboard **110**. For example, the first set of keys **111** has six Braille keys, numbered from left to right **3, 2, 1, 4, 5, 6**, which correspond to a Braille cell array. Space keys **127, 128** are provided and are centrally positioned so that the space

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keys **127, 128** may be used when using either the first set of keys **111** or the second set of keys **112**. In addition, function keys **121, 122, 123, 124, 125, 126** are provided, including ACC1 ACC1*b* (read the last typed character or word (anything after the last space)), ACC2 ACC2*b* (backspace (delete the last typed character)), ACC3 ACC3*b* (read the current line), and ACC4 ACC4*b* (Switch to regular keyboard). Other functions may also be included, or alternately provided or associated with the function keys. Preferably, the function keys are provided in duplicate sets, there being a first set of function keys (**121, 122, 123**) and a second set of function keys (**124, 125, 126**), each set being used when the keyboard **110** is positioned and used in a respective orientation, with a first set of function keys being used when the keyboard **110** is used in a first orientation, and second set of function keys being used when the keyboard **110** is used in a second orientation.

A computer (not shown) may be provided for processing information received by the keyboard **110**. Transmission means may be provided for transmitting an input in the form of an electrical signal from the keyboard **110** to the computer to detect a striking of one or more keys. Preferably, software is used for controlling the computer to read and compare the input associated with the striking of one or more keys of the keyboard **110**. The keyboard **110** preferably has switching means for switching the orientation of the characters displayed on the display **114** to correspond to one or the other of the first orientation or the second orientation. The switching means facilitates providing on the display characters oriented to correspond to the orientation of the keyboard **110** which the user is using. The computer or processor may be programmed to compare a plurality of input signals associated with a plurality of key strikes with stored data to determine whether the keyboard **110** is being used in a first orientation or a second orientation. Alternately, the switching means may comprise a user actuated switch **170, 171** disposed on the keyboard **110**. The computer may also be programmed or controlled to ignore inputs from the set of keys not being used with the selected or detected keyboard orientation.

The keyboard **110** preferably has means for connecting the keyboard **110** to the electronic means of a computer, which may, for example comprise a cable, bus or other suitable connector. The keyboard **110** also has means for sensing the input of a keystroke, such as for example, sensing the depression or actuation of one or more keys and the entry of the key combinations to represent a character, and for transmitting that input to the computer.

The display **114** is comprised of a plurality of cells **115** which are configured to display a Braille character by displaying the corresponding arrangement of pins, lowered and raised. Refreshing means may be provided for actuating the refreshment of the display **114**. The refreshing means may comprise a user actuated switch **150** disposed on the keyboard **110**. As shown in FIG. 8, the cells **115** are arranged in a bank having a first end **116** and a second end **117**. Alternately, the refreshing means may comprise a sensor **119** disposed to sense the position of the user's finger at at least one of the first bank end **116** and the second bank end **117**. A sensor **119** is preferably provided at each bank end **116, 117** so that regardless of the orientation of the keyboard **110**, the sensor **119** may detect the user's finger moving to the end of the display **114**. The computer may be configured to actuate the corresponding sensor **119** at one side of the display **114** only, and may actuate a sensor **119** based on the input, in the manner or routine that the computer uses to detect which orientation of the keyboard **110** is being used.