belt **802**. During the printing mode, the electric drive motor **700** drives the traveling printhead **300** along the linear motion undercarriage **600**. Because, the motor **700** is reversible, it enables the traveling printhead **300** to print the Braille display in either direction of travel.

As further seen in FIGS. **7**A, **7**B and **7**C, the belt power transmission system **800** includes a lightweight, toothed, plastic power transmission belt **802**, a fixed pulley **804**, an idler pulley **806**, pulley mounting brackets **808**, a spring loaded belt tensioning mechanism **810**, and a belt coupling clamp **812**. The belt **802** is held in tension by the tensioning mechanism **810** against the drive, fixed, and idler pulleys **702**, **804**, and **806** and is coupled to the traveling printhead **300** via the belt coupling clamp **812**, such that electric motor **700** operation transforms motor **700** output shaft rotational motion into linear motion along the linear motion undercarriage **600**. The structural relationship of the undercarriage **600** and the printhead **300** is shown in FIGS. **6**A and **6**B and.

As seen in the various figures, a support structure **900** such as the framework of the TCM serves as a foundation and mounting base for all other parts. Location of functional parts relative to one another is accomplished through precision machining and provision of vernier adjustment capabilities.

The user interface for the erasing mechanism **400** is a hand operated electronic switch that is surface mounted on the outer casing of the TCM, so as to be easily and readily accessible to the user for the purpose of erasing the Braille display. This normally open switch, when closed, connects an external TCM power supply to the devices that erase the display, e.g., the electro mechanical solenoids.

A standard computer interface is connector-mounted on the traveling printhead **300** and connects the TCM to a standard computer. The printhead solenoid **302** and optical switch **308** are hard wired to the connector. The outer casing of the TCM is a conformal shell or wrapper that provides a smooth interface for the user while preventing the user from exposure to the inner workings of the TCM.

The computer can be any computer which is compatible with the computer command and control electronics software adapted for the TCM. The computer command and control electronics hardware and software permits the user to read, write, and edit computer documents.

As can be understood from a review of FIGS. **4**A, **4**B and **4**C, as the printhead **300** travels linearly underneath the TCM display, the optical switch **308** lines up sequentially with one of a series of holes in the timing reference plate **310**. The linear spacing of the holes in the timing reference plate **310** is identical to the linear spacing of holes **201** and pins **200** in the retention plates **200** and in the eraser plate **402**. Just an instant before precise optical alignment occurs, the solenoids **302** mounted on the print head **300** fire against the dot pins **100** and thereby display Braille text. The solenoids **302** receive the signal to fire from the computer and the electronic control and software package.

The TCM provides means for a blind person to incrementally read, write, or edit a computer document directly from a display, rather than from paper. Thus, a blind person is enabled to read books, magazines, newspapers, and other articles of interest without being encumbered by paper. Further, a blind person is enabled to compose or edit computer documents in much the same way sighted computer users do.

There has been disclosed heretofore the best embodiment of the invention presently contemplated. However, it is to be understood that the various changes and modifications may be made thereto without departing from the spirit of the invention.

For example, more rows and cells could be added, or the TCM could be reduced to a single line display device, or other departures could be made from the descriptions made of various preferred embodiments.

In another example, a display consisting of a single sheet of material such as polyethylene containing Braille cells formed in a pattern of binary flaps, hemispheres, or other shapes that are arranged in an ASCII 8 bit 256 symbol code are used in lieu of the combination of dot pins **100** and retention plates **200**. The hemisphere bubbles are pushed up or down to display or erase Braille text after a manner developed above or utilizing peg punch technology.

We claim:

1. An apparatus for generating patterns of tactile characters, comprising:

a plurality of dimensionally and materially identical parallel plates each having a plurality of holes formed therein so as to define a plurality of discrete cells;

a plurality of pins having detents and movably guided through said holes in said plates, said plurality of holes in said plurality of dimensionally and materially identical parallel plates being aligned so as to define passages through said plurality of dimensionally and materially identical parallel plates for each of said plurality of pins;

a driver for driving said pins in a first direction through said passages;

an eraser for driving said pins in unison in a second direction through said passages and opposite to said first direction, and

a plurality of resilient members disposed between said plates and engaged with said detents of said plurality of pins, said resilient members being disposed along an axis that is parallel to said plates and perpendicular to a vertical plane extending through an axis of a column of pins.

2. The apparatus of claim **1**, wherein said resilient members comprise elastic cords.

3. The apparatus of claim **2**, wherein each pin is provided with a pair of adjacently positioned detents in which are seated a pair of longitudinally arranged elastic cords that are simultaneously and concurrently coupled to said detents for raising and lowering said pins relative to said plates.

4. The apparatus of claim **3**, wherein said elastic cords are formed from silicone rubber.

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