

3. The Braille reader of claim 2 wherein said actuators in said actuator assembly each include first and second arms extending between said shaft and said first and second contact tips, respectively, said first arm for location at one side of said display assembly and said second arm for location at an opposite side of said display assembly.

4. The Braille reader of claim 2 wherein at least some of said actuators in said actuator assembly include offset constructs allowing side by side placement of said actuators while accommodating access by different actuators to said pins in different said rows.

5. The Braille reader of claim 1 further comprising a static position retainer adjacent to said surface of said display assembly for passively securing position of said pins during a selected extent of said relative movement between said actuating means and said display assembly.

6. The Braille reader of claim 5 wherein said pins each include a head at said second end and a shaft between said first and second ends, and wherein said static position retainer includes retainer elements at least equal in number to said rows of openings at said surface of said display assembly, said pin heads retained at one side or the other of said retainer elements during pin presentation to a reader.

7. The Braille reader of claim 5 wherein said actuating means includes at least first and second actuator assemblies each having actuators at least equal in number to number of said rows of said openings, said first actuator assembly positioned at one side of said static position retainer and said second actuator assembly positioned at an opposite side of said static position retainer, said first actuator assembly selectively causing controlled pin movement in said openings while relative movement occurs in a first of said two directions and said second actuator assembly selectively causing controlled pin movement in said openings while relative movement occurs in a second of said two directions.

8. The refreshable Braille reader of claim 7 further comprising a passive pin positioner for returning pins to a preselected default position relative to said outer surface of said display assembly, said passive pin positioner located between said first and second actuator assemblies.

9. The refreshable Braille reader of claim 1 further comprising a motor adapted for effecting said relative movement of said actuating means and said display assembly and a controller connectable with a text driver, wherein said motor and said actuating means are connected with said controller for controlling said relative movement and selected actuating means contact with said pins.

10. A refreshable Braille reader comprising:

a cylinder connected with a motor for rotation thereof in either of two directions, said cylinder having a cylindrical outer surface a part of which defines a tactile display area and a cylindrical inner surface, said cylinder having a plurality of openings therethrough between said surfaces, said openings arranged in at least three endless rows;

a plurality of pins having first and second ends, each one of said pins mounted in a different one of said openings and movable therein;

static actuators at least equal in number to said rows of openings through said cylinder maintained at a station adjacent to said cylinder, said actuators positioned and configured so that said pins are selectively contactable at either of said ends by different ones of said actuators

during cylinder rotation in either of said two directions so that said first ends of said pins are selectively positioned relative to said outer surface of said cylinder thereby streaming Braille text across said display area in either forward or backward order depending upon selected direction of cylinder rotation; and

user controls allowing control at least of direction of rotation of said cylinder.

11. The Braille reader of claim 10 wherein each said actuator includes a selectively extendible and retractable shaft and first and second contact tips at first and second arms, respectively, extending from said shaft, said first arm for location adjacent to said outer surface of said cylinder and said second arm for location adjacent to said inner surface of said cylinder, said contact tips of each said actuator positioned relative to said pins in a said row so that said first contact tip can selectively contact said first ends of said pins and said second contact tip can selectively contact said second ends of said pins.

12. The Braille reader of claim 10 wherein at least some of said actuators include offset constructs allowing side by side placement of said actuators while accommodating access by different actuators to said pins in different said rows.

13. The Braille reader of claim 10 wherein said actuators include at least first and second sets of actuators, each said set having actuators at least equal in number to number of said rows of said openings with said first actuator set positioned at one side of said tactile display area and said second actuator set positioned at an opposite side of said tactile display area, said first actuator set selectively causing controlled pin movement in said openings for streaming Braille text in said forward order and said second actuator set for causing controlled pin movement in said openings for streaming Braille text in said backward order.

14. The Braille reader of claim 10 further comprising a static position retainer adjacent to said inner surface of said cylinder opposite said part of said outer surface of said cylinder for passively securing position of said pins during rotation through said display area.

15. A method for streaming Braille text in either forward or backward order at a display area comprising the steps of:

effecting relative movement in either of two directions between a station and a display surface;

selectively activating actuators at said station while effecting said relative movement in a first of said two directions to set pins at selected positions relative to said display surface by contact with said pins; and

effecting relative movement in either said first or a second of said two directions to selectively reset said pins at selected positions relative to said display surface by selectively activating said actuators at said station to cause contact with said pins.

16. The method for streaming Braille text of claim 15 wherein said relative movement is rotary movement.

17. The method for streaming Braille text of claim 15 further comprising the steps of monitoring relative location of said actuators and said display surface pin positions and controlling said relative movement and actuator activation in response thereto.