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(54) **APPARATUS AND METHOD UTILIZING BI-DIRECTIONAL RELATIVE MOVEMENT FOR REFRESHABLE TACTILE DISPLAY**

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(51) **Int. Cl.**⁷ **G09B 21/00**

(52) **U.S. Cl.** **434/113**

(58) **Field of Search** 434/112, 113, 434/114, 117, 173, 174, 182; 340/407.1, 825.19

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(57) **ABSTRACT**

A refreshable Braille reader apparatus and method are disclosed, the apparatus preferably utilizing a rotating cylinder having endless rows of openings defined therethrough to a display surface with a pin held in each opening and freely movable therein. Static actuators at least equal in number to the rows of openings through the cylinder are maintained at a station adjacent to the surface of the cylinder, and are configured and positioned so that the pins are selectively contactable at either of their ends by different ones of the actuators during cylinder rotation in either forward or reverse direction thereby selectively positioning first ends of the pins relative to the surface of the cylinder to allow streaming of Braille text across a display area in either forward or backward order depending upon selected direction of cylinder rotation.

24 Claims, 6 Drawing Sheets

