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**Pham et al.**

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(54) **EXTERNAL MOTOR DRIVE SYSTEM FOR WINDOW COVERING SYSTEM WITH CONTINUOUS CORD LOOP**

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(57) **ABSTRACT**

A motor driven system for raising and lowering a window covering executes motor ramp trajectory speed control. The motor ramp trajectory limits acceleration of an external motor from the idle (stationary) state to full operating speed, and limits deceleration of the motor from full operating speed back to the idle state. This function reduces stresses on a continuous cord loop drive mechanism. A control system manages solar heating effects in response to sunlight entrance conditions such as system sensor outputs, external weather forecasts, and other data sources. The system automatically opens or close the window covering to increase or decrease admitted sunlight under appropriate conditions. The input interface of the control system includes a visual display and input axis, which are aligned vertically if the window covering mechanism raises and lowers the window covering, and are aligned horizontally if the window covering mechanism laterally opens and closes the window covering.

**20 Claims, 22 Drawing Sheets**

