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Schena

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(54) **HAPTIC DEVICES USING ELECTROACTIVE POLYMERS**

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This patent is subject to a terminal disclaimer.

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(51) **Int. Cl.**
G09G 5/00 (2006.01)

(52) **U.S. Cl.** **345/156**; 345/157

(58) **Field of Classification Search** 345/156, 345/157, 163, 167, 168, 173
See application file for complete search history.

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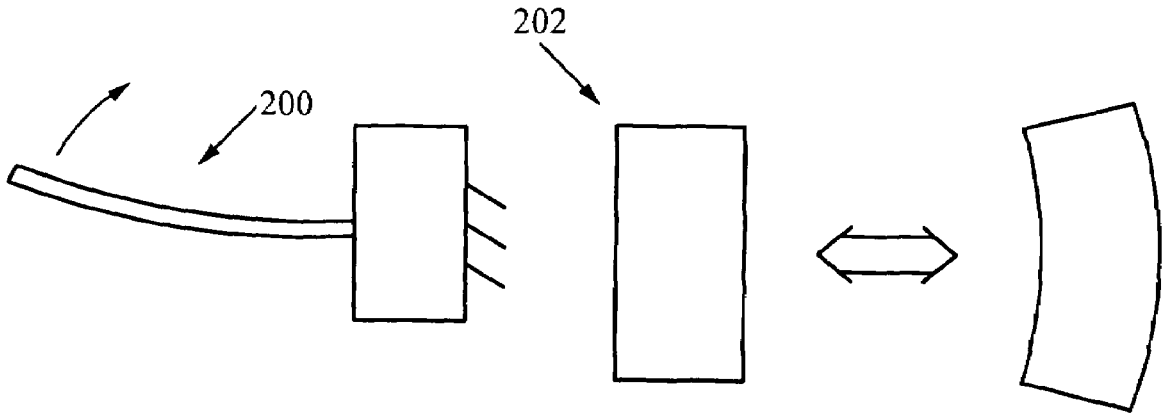
(57) **ABSTRACT**

Haptic feedback device and method for using an electroactive polymer (EAP) actuator to provide haptic feedback force sensation to a user. The device includes a sensor that detects the a user's touch on a touch surface and an electroactive polymer actuator responsive to input signals from the sensor outputs a haptic feedback force to the user caused by motion of the actuator.

20 Claims, 15 Drawing Sheets