

The foregoing description of the embodiments of the invention has been presented only for the purpose of illustration and description and is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Numerous modifications and adaptations thereof will be apparent to those skilled in the art without departing from the spirit and scope of the present invention.

That which is claimed:

1. A device comprising:
  - a surface having a first channel comprising a first plurality of surface features, the first plurality of surface features configured to provide a first haptic profile, and
  - a second channel substantially parallel to the first channel and comprising a second plurality of surface features, the second plurality of surface features configured to provide a second haptic profile;
  - a follower configured to follow the first channel and the second channel; and
  - an actuator in communication with the follower and operable to move the follower between the first channel and the second channel, wherein the actuator comprises a member formed of shape memory alloy.
2. The device of claim 1, wherein the surface comprises the surface of a cylinder.
3. The device of claim 2, wherein the first channel comprises a first cam and the second channel comprises a second cam.
4. The device of claim 1, wherein at least one of said first plurality of surface features comprises a protrusion.
5. The device of claim 1, wherein at least one of said first plurality of surface features comprises a stop.
6. The device of claim 1, wherein at least one of said first plurality of surface features comprises a depression.
7. The device of claim 1, wherein the follower comprises one of a pin, a pawl, and a lever.
8. The device of claim 1, wherein the actuator comprises one of a solenoid and a DC motor.
9. The device of claim 1, further comprising a manipulandum in communication with said surface.
10. The device of claim 9, wherein the manipulandum comprises one of a knob, a slider, a push button, and a joystick.
11. A device comprising:
  - a first surface comprising a first plurality of surface features, the first plurality of surface features configured to provide a first haptic profile, and
  - a second surface substantially parallel to the first channel and configured to move with the first surface, the second surface comprising a second plurality of surface features, the second plurality of surface features configured to provide a second haptic profile;
  - a follower configured to follow the first surface and the second surface; and

an actuator in communication with the follower and operable to move the follower between the first surface and the second surface, wherein the actuator comprises a member formed of shape memory alloy.

12. A device comprising:

a haptic effect generator operable to provide a first haptic profile associated with a first mechanical configuration and a second haptic profile associated with a second mechanical configuration; and

an actuator in communication with the haptic effect generator and operable to switch the haptic effect generator between the first haptic profile and the second haptic profile, wherein the actuator comprises a member formed of shape memory alloy.

13. The device of claim 12, further comprising a manipulandum in communication with the haptic effect generator.

14. The device of claim 13, wherein the manipulandum comprises one of a knob, a slider, a push button, and a joystick.

15. The device of claim 12, wherein the haptic effect generator comprises: a cylinder comprising at least two cams, each of the two cams having different mechanical configurations; and a lever operable to engage at least one of the at least two cams.

16. The device of claim 15 wherein the lever comprises a spring-loaded lever.

17. The device of claim 15, wherein the lever comprises a spring-loaded pin.

18. The device of claim 12, wherein the haptic effect generator comprises a brake.

19. The device of claim 18, wherein the brake comprises a single part shoe brake.

20. The device of claim 18, further comprising a screw operable to vary a friction exerted by the brake.

21. The device of claim 20, wherein the actuator comprises a DC motor operable to turn the screw.

22. The device of claim 12, wherein the haptic effect generator is operable to alter a surface of the manipulandum.

23. The device of claim 22, wherein the haptic effect generator comprises a pin positioned below the surface of the manipulandum.

24. The device of claim 23, wherein the haptic effect generator further comprises a slider operable to project the pin above the surface of the manipulandum.

25. The device of claim 23, wherein the actuator comprises a solenoid.

26. The device of claim 22, further comprising a membrane proximate to the surface of the manipulandum.

27. The device of claim 12, further comprising a processor in communication with the actuator and operable to affect a switch between the first of the at least two haptic profiles and the second of the at least two haptic profiles.

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