

24. The apparatus of claim 22 wherein said spring is a compression coil spring.

25. The apparatus of claim 22 wherein said heater is a thermoelectric heater using the Peltier effect.

26. An apparatus comprising:

a first spring fabricated from a shape memory material; a first pin having a projection, said first pin being urged in a first direction by said first spring;

a member including a first guiding surface and a second guiding surface, each surface being adapted for sliding contact with said projection, the first guiding surface including a first rest, said member defining two channels; and

a heater for heating said first spring, wherein said heater is capable of applying a first amount of heat to said first spring and a second amount of heat to said first spring, the second amount being greater than the first amount;

wherein said projection moves from the first channel and along the first guiding surface to the first rest in response to heating said first spring by a first amount, and said projection moves from the first channel along the second guiding surface to the second channel in response to heating said first spring by a second amount.

27. The apparatus of claim 26 which further comprises a second spring for urging said first pin in a second direction generally opposite the first direction.

28. The apparatus of claim 26 which further comprises a second pin and a third pin, said first pin being intermediate of said second pin and said third pin.

29. The apparatus of claim 28 wherein said second pin represents a portion of a haptic braille display.

30. The apparatus of claim 26 wherein said first pin has an end with a first plurality of teeth, said second pin has an end with a second plurality of teeth, said first plurality of teeth being engageable with said second plurality of teeth.

31. The apparatus of claim 26 wherein said projection moves from the first rest to one of said first channel or said second channel in response to heating said first spring by the first amount or the second amount.

32. An apparatus comprising:

a coil spring fabricated from a shape memory material, said spring having a first section and a second section; and

an electrical power supply having a first circuit for heating the first section and a second circuit for heating said second section;

wherein said spring exhibits a first response to heating the first section, a second response to heating the second section, and a third response to heating the first section and the second section, the third response being different than the first response or the second response, and wherein said first section has a first number of coils, said second section has a second number of coils, and the first number is different than the second number.

33. The apparatus of claim 32 which further comprises a pin urged in a first direction by said spring, a member with a surface and defining a hole, wherein the first response of said spring causes a portion of said pin to pass through the hole.

34. The apparatus of claim 33 which further comprises a supporting mechanism for fixedly supporting said pin in a first position wherein a portion of said pin extends beyond the surface of said member.

35. The apparatus of claim 32 wherein the coils of said first section have a first pitch, the coils of the second section have a second pitch, and the first pitch is different than the second pitch.

36. The apparatus of claim 32 wherein said first section has a first outer diameter, said second section has a second outer diameter, and the first outer diameter is different than the second outer diameter.

37. The apparatus of claim 32 wherein said spring is a compression coil spring.

38. The apparatus of claim 32 wherein said first circuit heats said first section by passing current through the first section, and said second circuit heats said second section by passing current through the second section.

39. The apparatus of claim 32 which further comprises a first heater for heating said first section and a second heater for heating said second section, said first heater being proximate to said first section and said second heater being proximate to said second section.

40. The apparatus of claim 39 wherein said first heater is a resistance heater.

41. The apparatus of claim 39 wherein said first heater is a thermoelectric heater using the Peltier effect.

42. The apparatus of claim 1 wherein said thermoelectric heating element has an outer diameter that is less than the inner diameter of said first spring, and a portion of said thermoelectric heating element is within a portion of the interior of said first spring.

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