

Title (en)

APPARATUS AND METHODS FOR A SHAPE MEMORY SPRING ACTUATOR AND DISPLAY

Title (de)

EINRICHTUNGEN UND METHODE FÜR EINEN FORMGEDÄCHTNISFEDERAKTUATOR UND ANZEIGE

Title (fr)

APPAREIL ET PROCEDES DESTINES A UN ACTIONNEUR ET A UN AFFICHAGE AVEC RESSORT A MEMOIRE DE FORME

Publication

EP 1013144 A4 20010718 (EN)

Application

EP 98911756 A 19980318

Priority

- US 9805265 W 19980318
- US 4051897 P 19970318
- US 4187697 P 19970411
- US 6958197 P 19971212

Abstract (en)

[origin: WO9841962A2] Various apparatus and methods for an actuator and display using one or more shape memory springs. A shape memory spring is heated and urges a pin to a first or extended position. The pin may be supported in the first position by a supporting mechanism. The shape memory spring is heated electrically, and in some embodiments under the control of a processor. The present invention may be used to display information provided in a user interface from a computer program, including text, numerical data, and graphical images.

[origin: WO9841962A2] A refreshable haptic display includes an actuator (35) using one or more shape memory springs (46). A shape memory spring (46) is heated and urges a pin (34) to a first or extended position. The pin (34) may be supported in the first position (34a) by a supporting mechanism. The shape memory spring (46) is heated electrically (48). The device may be used for haptic displays provided in a user interface from a software program and display controller.

IPC 1-7

H05B 1/00; **G09B 21/00**; **F16F 3/04**

IPC 8 full level

G09B 21/00 (2006.01)

CPC (source: EP)

G09B 21/004 (2013.01)

Citation (search report)

- [E] PATENT ABSTRACTS OF JAPAN vol. 1999, no. 12 29 October 1999 (1999-10-29)
- [A] PATENT ABSTRACTS OF JAPAN vol. 1995, no. 08 29 September 1995 (1995-09-29)
- [A] PATENT ABSTRACTS OF JAPAN vol. 007, no. 089 (M - 207) 13 April 1983 (1983-04-13)
- See references of WO 9841962A2

Designated contracting state (EPC)

AT CH DE DK ES FR GB IE IT LI NL SE

DOCDB simple family (publication)

WO 9841962 A2 19980924; **WO 9841962 A3 19981203**; **WO 9841962 B1 20010412**; EP 1013144 A2 20000628; EP 1013144 A4 20010718

DOCDB simple family (application)

US 9805265 W 19980318; EP 98911756 A 19980318