

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
16 December 2004 (16.12.2004)

PCT

(10) International Publication Number
WO 2004/109757 A3

(51) International Patent Classification⁷: **F28F 27/00**

(21) International Application Number:
PCT/US2004/016495

(22) International Filing Date: 26 May 2004 (26.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/455,004 5 June 2003 (05.06.2003) US

(71) Applicant (for all designated States except US): **NIKON CORPORATION** [JP/JP]; 2-3, Marunouchi 3-chome, Chiyoda-ku, Tokyo 100-8331 (JP).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **HAZELTON, Andrew, J.** [US/US]; 409 Phelps Road, San Carlos, CA 94070 (US).

(74) Agent: **SU, Peggy, A.**; Ritter, Lang & Kaplan LLP, 12930 Saratoga Avenue, Suite D1, Saratoga, CA 95070 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

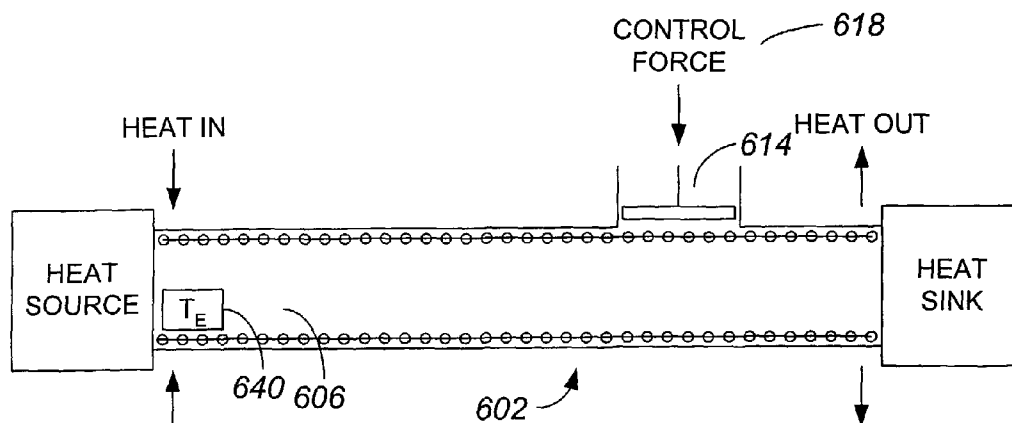
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
31 March 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: HEAT PIPE WITH TEMPERATURE CONTROL



(57) Abstract: Methods and apparatus for controlling the boiling temperature of a fluid within a heat pipe (404) are disclosed. According to one aspect of the present invention, a method for controlling a temperature associated with a heat pipe that contains a fluid and has an evaporator end (606) includes measuring (640) the temperature associated with the heat pipe and determining when the temperature associated with the heat pipe is at a desired level. The method also includes changing a pressure (614) within the heat pipe when it is determined that the temperature associated with the heat pipe is not at a desired level. Changing the pressure within the heat pipe causes the temperature associated with the heat pipe to change.

WO 2004/109757 A3