

Title (en)

FLAT HEATING ELEMENT AND USE OF FLAT HEATING ELEMENTS

Title (de)

FLÄCHIGES HEIZELEMENT UND ANWENDUNGEN VON FLÄCHIGEN HEIZELEMENTEN

Title (fr)

ELEMENT CHAUFFANT PLAT ET UTILISATIONS D'ELEMENTS CHAUFFANTS PLATS

Publication

EP 1053658 B1 20030910 (DE)

Application

EP 99932426 A 19990202

Priority

- AT 16298 A 19980202
- DE 19823493 A 19980526
- DE 19823494 A 19980526
- DE 19823531 A 19980526
- DE 19823498 A 19980526
- EP 9900669 W 19990202

Abstract (en)

[origin: WO9939550A1] The invention relates to uses of a flat heating element in a heatable pipe, a heatable transportation device and a heat roller, and to a flat heating element comprising a thin resistance layer containing an intrinsically electroconductive polymer and at least two flat electrodes arranged on one side of the resistance layer at a distance from each other.

IPC 1-7

H05B 3/14

IPC 8 full level

G03G 15/20 (2006.01); **H05B 3/20** (2006.01); **H05B 3/00** (2006.01); **H05B 3/03** (2006.01); **H05B 3/14** (2006.01); **H05B 3/58** (2006.01)

CPC (source: EP US)

G03G 15/2053 (2013.01 - EP US); **H05B 3/0095** (2013.01 - EP US); **H05B 3/146** (2013.01 - EP US); **H05B 3/58** (2013.01 - EP US);
H05B 2203/02 (2013.01 - EP US)

Citation (examination)

- DE 3502838 A1 19850808 - NOGLER & DAUM ELTAC [AT]
- AT 313588 B 19740225 - OPPITZ HANS

Designated contracting state (EPC)

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

DOCDB simple family (publication)

WO 9939550 A1 19990805; AU 3252399 A 19990816; AU 753714 B2 20021024; BR 9908530 A 20001128; CA 2319341 A1 19990805;
CN 1296723 A 20010523; EA 002297 B1 20020228; EA 200000811 A1 20001225; EP 1053658 A1 20001122; EP 1053658 B1 20030910;
HR P20000522 A2 20011031; HU P0100676 A2 20010628; HU P0100676 A3 20030128; JP 2002502103 A 20020122; PL 342140 A1 20010521;
SK 11342000 A3 20010212; TR 200002272 T2 20001121; US 6392209 B1 20020521

DOCDB simple family (application)

EP 9900669 W 19990202; AU 3252399 A 19990202; BR 9908530 A 19990202; CA 2319341 A 19990202; CN 99804836 A 19990202;
EA 200000811 A 19990202; EP 99932426 A 19990202; HR P20000522 A 20000802; HU P0100676 A 19990202; JP 2000529879 A 19990202;
PL 34214099 A 19990202; SK 11342000 A 19990202; TR 200002272 T 19990202; US 62916200 A 20000731