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(54) Title: INK CURING APPARATUS AND METHOD

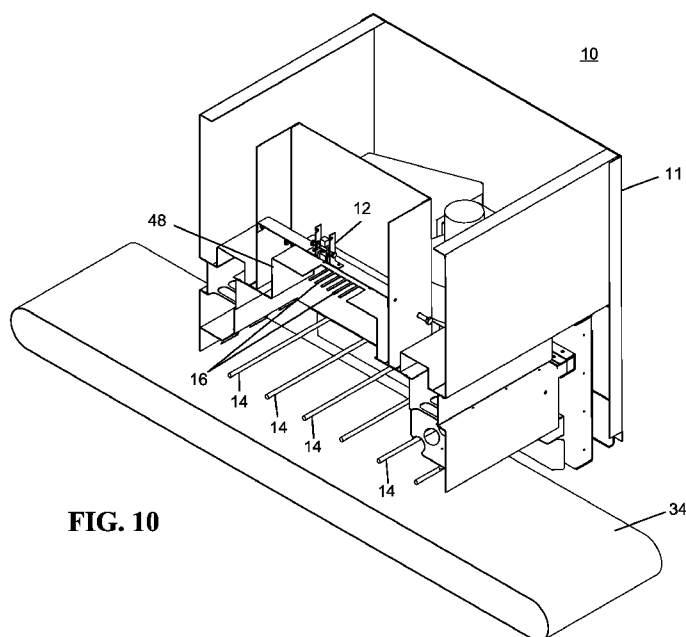


FIG. 10

(57) Abstract: An ink curing apparatus for curing ink on an object and method includes at least one thermal imaging sensor that is configured to image thermal radiation of the object and at least one heating element that is configured to generate heat energy. A control responsive to the imaging sensor controls the heating element. The control controls the heating element as a function of the thermal radiation of the object to heat the object to a particular radiation level. The method may be used to cure ink on the object. The object may be made of a textile. The method may be used with at least one chosen from screen printing, digital printing, sublimation ink printing, discharge ink printing, and pad printing.



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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - B41F 23/04; F26B 3/28; B41M 7/00 (2015.01)

CPC - B41J 11/002; B41M 7/009; B41F 23/044, B41F 23/045

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

CPC: B41J 11/002; B41M 7/009; B41F 23/044, B41F 23/045

IPC(8): B41F 23/04; F26B 3/28; B41M 7/00 (2015.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 347/102; 101/424.1, 101/487; **IPC(8):** B41F 23/04; F26B 3/28; B41M 7/00 (2015.01); **CPC:** B41J 11/002; B41M 7/009; B41F 23/044, B41F 23/045 (keyword limited; terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Patbase; Google Patents; Google Scholar

Search terms used: Ink; curing; thermal imaging sensor; camera; pixels; heating; controller; shield; dye migration; ink cure temperature

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y — A	US 5,908,000 A (SPYCHALLA et al.) 01 June 1999 (01.06.1999), entire document, especially; col. 2, ln 13-25; col. 3, ln 62-64; col. 8, ln 9-20	1-3, 7-13, 15-19, 21-31, 33, 37-43, 45-49, 51-56
Y — A	US 6,013,915 A (WATKINS) 11 January 2000 (11.01.2000), entire document, especially; 4, ln 37-59	4-6, 14, 20, 34-36, 44, 50, 57-60
Y — A	US 6,877,247 B1 (DEMOORE) 12 April 2005 (12.04.2005), entire document, especially; col. 10, ln 55-col. 11, ln 23	1-3, 7-13, 15-19, 21-31, 33, 37-43, 45-49, 51-56
Y — A	CN 203038893 U (XIANSONG et al.) 03 July 2013 (03.07.2013), entire document, especially; para [0008], [0013], (see Machine Translation	4-6, 14, 20, 34-36, 44, 50, 57-60
Y — A	US 5,276,978 A (HOPKINS et al.) 11 January 1994 (11.01.1994), entire document, especially; col. 4, ln 10-12	8, 38
Y — A		9-12, 39-42
Y — A		4-6, 14, 20, 34-36, 44, 50, 57-60
Y — A		13, 15-17, 43, 45-47
Y — A		4-6, 14, 20, 34-36, 44, 50, 57-60

☒ Further documents are listed in the continuation of Box C.



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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y — A	US 5,711,603 A (RINGERMACHER et al.) 27 January 1998 (27.01.1998), entire document, especially; col. 2, ln 61-col. 3, ln 46	19, 21, 49, 51 4-6, 14, 20, 34-36, 44, 50, 57-60
Y	US 2011/0131829 A1 (ZAGAR et al.) 09 June 2011 (09.06.2011), entire document, especially; para [0008], [0051], [0062]	25, 26, 55, 56
Y	US 2006/0143940 A1 (YIDI JR, et al.) 06 July 2006 (06.07.2006), entire document, especially; para [0075]	21, 51