



US009409389B1

(12) **United States Patent**
Donaldson et al.

(10) **Patent No.:** **US 9,409,389 B1**
(45) **Date of Patent:** **Aug. 9, 2016**

(54) **COORDINATION OF
PRINthead/SUBSTRATE POSITION WITH
TRANSFER OF MARKING MATERIAL**

6,494,558	B1	12/2002	Doval et al.
6,659,581	B2	12/2003	Schloeman et al.
7,014,378	B2	3/2006	Saito et al.
7,530,657	B2	5/2009	Thiessen et al.
8,179,564	B2	5/2012	Pyne et al.
8,491,081	B2	7/2013	Leighton et al.
2008/0186544	A1	8/2008	Lapstun et al.

(71) Applicant: **Xerox Corporation**, Norwalk, CT (US)

(72) Inventors: **Patricia J. Donaldson**, Pittsford, NY (US); **Michael B. Monahan**, Webster, NY (US); **Joseph L. Fillion**, Fairport, NY (US)

* cited by examiner

(73) Assignee: **Xerox Corporation**, Norwalk, CT (US)

Primary Examiner — Think Nguyen
(74) *Attorney, Agent, or Firm* — Gibb & Riley, LLC

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(57) **ABSTRACT**

Devices and methods load a firing distance into a distance counter of a printing device. The firing distance is the distance from the current position of a printhead of the printing device to a marking location on a substrate. These devices and methods count the firing distance in discrete distance increments using the distance counter, based on relative movement of the substrate and printhead. When the distance counter reaches the last discrete distance increment of the firing distance, these devices and methods load the fractional remaining distance of the firing distance into a time counter of the printing device. Then, such devices and methods count the fractional remaining distance in velocity-based distance increments at regular time intervals using the time counter. When the time counter reaches the last velocity-based distance increment of the fractional remaining distance, these devices and methods transfer the marking material from the printhead to the substrate.

(21) Appl. No.: **14/934,302**

(22) Filed: **Nov. 6, 2015**

(51) **Int. Cl.**
B41J 2/045 (2006.01)

(52) **U.S. Cl.**
CPC **B41J 2/04573** (2013.01); **B41J 2/04586** (2013.01)

(58) **Field of Classification Search**
CPC ... B41J 2/04573; B41J 2/04586; B41J 29/393
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,497,174 A * 3/1996 Stephany B41J 2/04568 347/13
6,325,480 B1 12/2001 Moghadam et al.

20 Claims, 2 Drawing Sheets

