

US008678550B2

## (12) United States Patent

Silverbrook

## (10) Patent No.: US 8,678,550 B2

(45) **Date of Patent:** \*Mar. 25, 2014

# (54) PRINTHEAD ASSEMBLY WITH LAMINATED INK DISTRIBUTION STACK

(75) Inventor: Kia Silverbrook, Balmain (AU)

(73) Assignee: Zamtec Ltd, Dublin (IE)

(\*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 793 days.

This patent is subject to a terminal dis-

claimer.

(21) Appl. No.: 12/834,893

(22) Filed: Jul. 13, 2010

#### (65) Prior Publication Data

US 2010/0277538 A1 Nov. 4, 2010

### Related U.S. Application Data

- (63) Continuation of application No. 11/779,845, filed on Jul. 18, 2007, now Pat. No. 7,758,181, which is a continuation of application No. 11/227,240, filed on Sep. 16, 2005, now Pat. No. 7,258,430, which is a continuation of application No. 10/974,751, filed on Oct. 28, 2004, now Pat. No. 6,966,625, which is a continuation of application No. 10/296,438, filed as application No. PCT/AU00/00597 on May 24, 2000, now Pat. No. 6,824,242.
- (51) **Int. Cl.** *B41J 2/155* (2006.01)

### (56) References Cited

#### U.S. PATENT DOCUMENTS

5,316,395 A	5/1994	Imai
5,451,991 A	9/1995	Saito et al.
5,565,900 A	10/1996	Cowger
5,757,398 A	5/1998	Anderson
5,929,877 A	7/1999	Hetzer
5,963,234 A	10/1999	Miyazawa
5,997,125 A	12/1999	Nishioka
6,003,971 A	12/1999	Hanks
6,050,679 A	4/2000	Howkins
6,250,738 B	1 6/2001	Waller
6,322,206 B	1 11/2001	Boyd
6,322,677 B	1 11/2001	Woodruff

(Continued)

#### FOREIGN PATENT DOCUMENTS

EP 0584823 2/1994 EP 0598701 A 5/1994

(Continued)

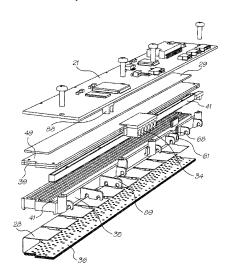
Primary Examiner — Anh T. N. Vo

(74) Attorney, Agent, or Firm — Cooley LLP

## (57) ABSTRACT

A print engine assembly includes an elongate chassis defining a print media exit slot; an elongate printhead assembly mounted relative to the chassis and configured to eject ink onto print media; a paper feed mechanism configured to transport the print media past the elongate printhead and out through the exit slot, the paper feed mechanism comprising a pair of bearing moldings received within and mounted on opposite ends of the chassis, the paper feed mechanism further comprising at least one roller mounted between the bearing moldings to drive said at least one roller; and a platen member extending parallel to the printhead, the platen member mounted in the bearing moldings. A pair of spacers is mounted to either end of the chassis and on which said printhead assembly is mounted.

### 4 Claims, 22 Drawing Sheets





## US 8,678,550 B2

Page 2

()	nces Cited  DOCUMENTS	2003/010	07619 A1		Kitahara	347/50
6,488,422 B1 12/2002	Silverbrook	FOREIGN PATENT DOCUMENTS				
6,788,336 B1 9/2004	Silverbrook					
6,966,625 B2 11/2005	Silverbrook	EP	09360	77 A	8/1999	
6,988,784 B2 1/2006	Silverbrook	GB	211574	18	9/1983	
7,114,868 B2 * 10/2006	Silverbrook 400/649	JP	04-2292	74	8/1992	
7,328,994 B2 * 2/2008	Silverbrook 347/104	JP	08-33698	34	12/1996	
7,407,259 B2 * 8/2008	Silverbrook 347/40	JP	09-1418	33	6/1997	
7,425,053 B2 * 9/2008	Silverbrook 347/42	JP	1117990	00	7/1999	
	Silverbrook 347/20	JP	2000-643	30	1/2000	
7,740,338 B2 * 6/2010	Silverbrook 347/42	JP	2000-14169	91	5/2000	
	Silverbrook 347/104					
7,789,485 B2 * 9/2010	Silverbrook 347/42	* cited by	y examiner			



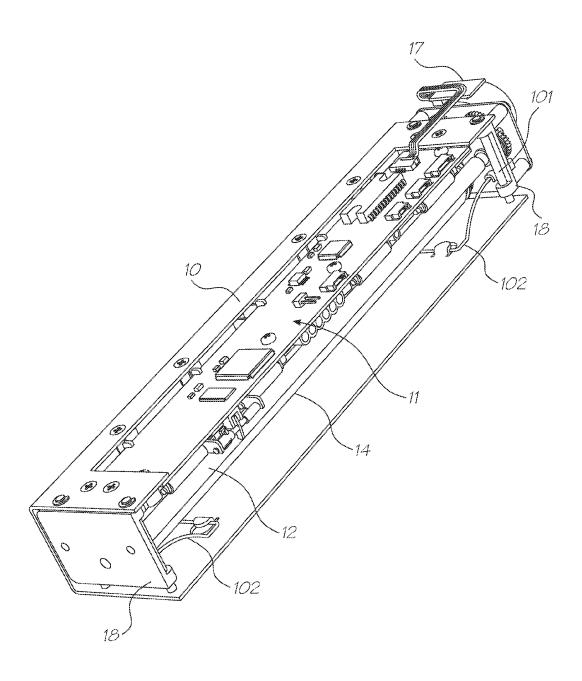


FIG. 1

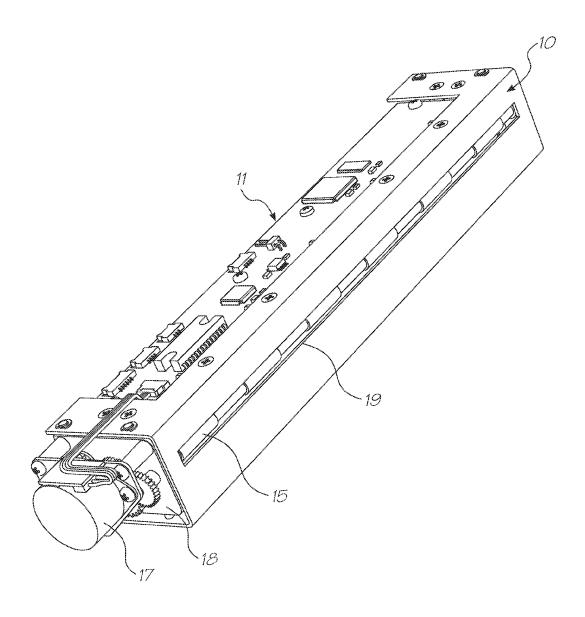


FIG. 2

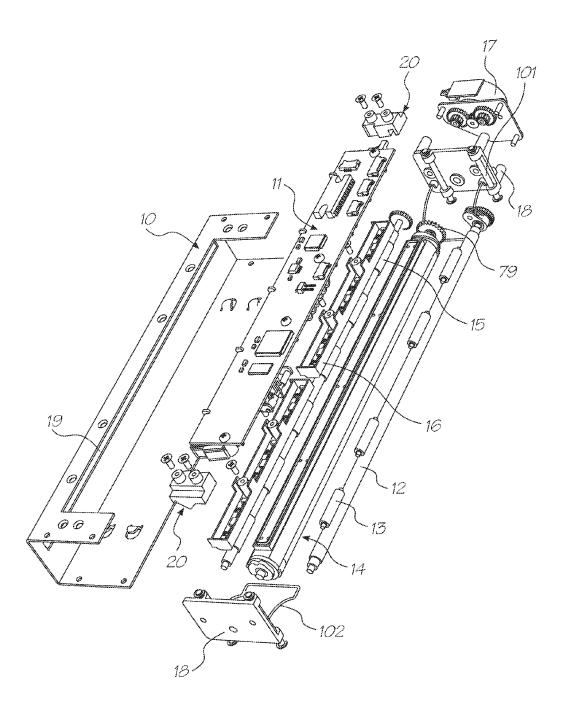


FIG. 3

# DOCKET

# Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

# **Real-Time Litigation Alerts**



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## **Advanced Docket Research**



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## **Analytics At Your Fingertips**



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## **LAW FIRMS**

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## **FINANCIAL INSTITUTIONS**

Litigation and bankruptcy checks for companies and debtors.

## **E-DISCOVERY AND LEGAL VENDORS**

Sync your system to PACER to automate legal marketing.

