

Title (en)

Method and apparatus for printing with a drop-on-demand ink jet print head using an electric field.

Title (de)

Verfahren und Vorrichtung zum Drucken mit einem auf Abruf arbeitenden Tintenstrahldruckkopf mittels eines elektrischen Feldes.

Title (fr)

Méthode et appareil pour l'impression avec une tête d'impression à jet d'encre à la demande en utilisant un champ électrique.

Publication

**EP 0437062 A2 19910717 (EN)**

Application

**EP 90313723 A 19901214**

Priority

US 45108089 A 19891215

Abstract (en)

A drop-on-demand ink jet has an ink chamber (12) coupled to a source of ink (14), and an ink drop orifice (16) with an outlet (18). An acoustic driver (30) produces a pressure wave in the ink and causes the ink to pass outwardly through the ink drop orifice and outlet (18). A high voltage electric field is oriented to accelerate ink drops along a path from the outlet to print medium (20). The electric field is time invariant and is the only electric field present along the path during drop formation and acceleration. The size of the ink drops may be varied, such as by driving the acoustic driver with varying drive signals. One preferred form of acoustic drive signal comprises of individual or combinations of plural bipolar drive pulses. The combination of energy imparted by the acoustic driver (30) and the electric field accelerates small and large drops such that the time for the drops to travel to the print medium (20) is substantially the same. The ink jet printer of the present invention may be used to print with a wide variety of inks, including phase change inks. <IMAGE>

IPC 1-7

**B41J 2/06**; **B41J 2/205**

IPC 8 full level

**B41J 2/045** (2006.01); **B41J 2/055** (2006.01); **B41J 2/21** (2006.01)

CPC (source: EP)

**B41J 2/2128** (2013.01)

Cited by

US6149260A; EP1780016A1; US6123406A; EP0832742A3; US5838349A; US6042219A; US6059395A; US6036303A; US5963230A; US6439696B1; US6142607A; EP0648606A3; US6053600A; US6126263A; EP0562786A3; US5508722A; US6048046A; US6036302A; US6109715A; EP0575204A3; US6030065A; EP0608105A3; US5903289A; US5828393A; US5477249A; EP0608879A1; US5898446A; US6467868B2; US6174040B1; US6290317B1; US6513909B1; US7735975B2; US8282195B2; US6281913B1; WO9851504A1; US8210630B2

Designated contracting state (EPC)

DE FR GB IT NL

DOCDB simple family (publication)

**EP 0437062 A2 19910717**; **EP 0437062 A3 19911227**; JP H07125193 A 19950516

DOCDB simple family (application)

**EP 90313723 A 19901214**; JP 41096690 A 19901214