

Title (en)

Conditioning roller and method of operation for use with a photoconductive drum in an electrophotographic color printer.

Title (de)

Walze-Aufbereiter und Betriebsverfahren zur Verwendung für eine photoleitende Trommel in einem elektrofotografischen Farbdrucker.

Title (fr)

Rouleau de conditionnement et méthode d'utilisation pour un tambour photoconducteur dans une imprimante électrophotographique couleur.

Publication

EP 0513820 A2 19921119 (EN)

Application

EP 92108240 A 19920515

Priority

- US 70192691 A 19910517
- US 74812091 A 19910821

Abstract (en)

Liquid toner conditioning apparatus and method for use in an electrophotographic color printer and including a stabilizing roller (76) (Figure 3) positioned adjacent to the surface of a photoconductive drum (10) and operative for transforming discrete color toner particles on the surface of the drum (10) into a stabilized unitary polymeric film structure which may be directly transferred onto an adjacent print medium. Advantageously, the stabilizing roller (76) comprises a deformable roller member including a soft open cell conductive foam (78), such as a wettable polyurethane foam which is disposed on a biased slip ring (80). The bias slip ring (80) is in turn formed on the outer surface of a central motor driven metal roller core member (82), and a suitable DC bias connection (86, 88) is applied to the slip ring. The applied DC bias voltage (88) has the same polarity as the desired charge on the toner and of an opposite polarity to the counter ions within the isopar carrier fluid for transporting the toner on the surface of the photoconductive drum (10). Therefore, when the conductive deformable conditioning roller (76) is rotatably driven (48, 50) against the surface of the photoconductive drum (10), it provides three (3) critically important functions. First, it absorbs isopar fluid from the surface of the photoconductive drum (10) which reduces isopar carry out on the media (30). Secondly, it compresses the toner image electrostatically on the drum (10) to preserve its fidelity inasmuch as the polarity of the applied DC bias (88) repels the like charged toner ions into the surface of the photoconductive drum. Thirdly, the DC bias (88) applied to the slip ring (80) pulls counter ions in the isopar fluid from the surface of the drum (10) to thereby leave a desirable positive net charge on the toner as its proceeds to the print media (30). <IMAGE>

IPC 1-7

G03G 15/01; **G03G 15/16**

IPC 8 full level

G03G 15/01 (2006.01); **G03G 15/16** (2006.01)

CPC (source: EP)

G03G 15/0131 (2013.01); **G03G 15/0157** (2013.01); **G03G 15/0163** (2013.01); **G03G 15/169** (2013.01)

Cited by

EP0602339A1; US5916718A; EP0513819A3; US5650253A; EP0684530A1; EP0636948A3; US5493369A

Designated contracting state (EPC)

DE FR GB IT

DOCDB simple family (publication)

EP 0513820 A2 19921119; **EP 0513820 A3 19930519**

DOCDB simple family (application)

EP 92108240 A 19920515