

15 JUL 2003

2003042409

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



162162

(43) International Publication Date
25 July 2002 (25.07.2002)

PCT

(10) International Publication Number
WO 02/057030 A1

(51) International Patent Classification⁷: **B07C 3/14, 3/00**

(21) International Application Number: PCT/US01/01543

(22) International Filing Date: 18 January 2001 (18.01.2001)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant: **FEDERAL EXPRESS CORPORATION**
[US/US]; 1980 Nonconah Boulevard, Memphis, TN
38132-1842 (US).

(72) Inventors: **BONNER, Brett, Bracewell**; 164 Walnut
Bend Cove, Cordova, TN 38018 (US). **SKAAKSUD,**
Ole-Petter; 6945 Stone Ridge Drive #33, Memphis, TN
38115 (US). **JANKEVICS, Andris**; 80R Carlisle Road,
Westford, MA 01886 (US).

(74) Agents: **GARRETT, Arthur, S. et al.**; Finnegan, Hen-
derson, Farabow, Garrett & Dunner, L.L.P., 1300 I Street,
N.W., Washington, DC 20005-3315 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ,
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,
TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

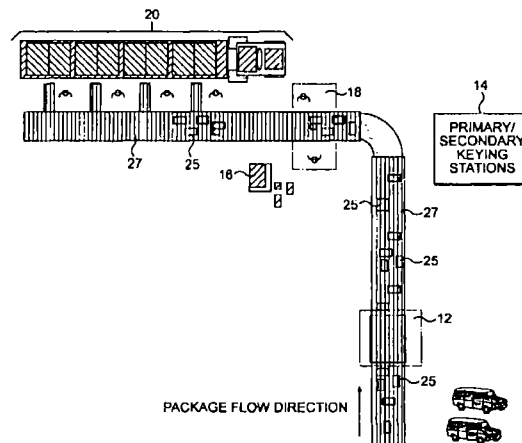
(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF,
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: **READING AND DECODING INFORMATION ON PACKAGES**



(57) Abstract: In the system of the present invention, packages (25) are randomly placed on a conveyor belt (27), with their labels facing a two-camera subassembly (12). As the conveyor belt (27) moves, the two-camera subassembly (12) continuously takes images of the belt underneath the overhead camera. The design of the camera permits it to take a high resolution image of a non-singulated, unjustified package flow. A digital image of the packages within the field of view of the camera is then transferred to the processing system for analysis. The processing system identifies individual packages (25) in the image, extracts them and then analyzes the information written on the package labels. The analysis process utilizes conventional Optical Character Recognition (OCR) and Intelligent Character Recognition (ICR) techniques to evaluate the information written on the package label. Once the information is decoded, the system either accesses a database record associated with the decoded machine-readable code, or creates a new record. When an unknown word image is encountered, the field-specific recognition process is aided by use of lexicon information, optimized based on installation-specific or user-specific criteria. The lexicon information is continuously revised based on processed form information.

WO 02/057030 A1



ACTION