

Title (en)  
THICKNESS DETECTOR FOR PAPER SHEET AND PAPER MONEY HANDLING DEVICE

Title (de)  
DICKENDETEKTOR FÜR PAPIERBLÄTTER UND PAPIERGELD-HANDHABUNGSEINRICHTUNG

Title (fr)  
DÉTECTEUR D'ÉPAISSEUR POUR FEUILLE DE PAPIER ET DISPOSITIF DE MANIPULATION DE PAPIER MONNAIE

Publication  
**EP 1764751 A4 20110323 (EN)**

Application  
**EP 05751338 A 20050617**

Priority  
• JP 2005011165 W 20050617  
• JP 2004180399 A 20040618

Abstract (en)  
[origin: EP1764751A1] A sheet thickness detecting apparatus, capable of accurate detection of a bill altered by a tape being bonded thereto, mounted on a bill handling machine. The sheet thickness detecting apparatus contains reference rollers 1a and 1b to be driven; detecting rollers 5a and 5b driven when pressed against the reference roller; displacement sensors 9a and 9b for detecting the movement of the outer ring 8 moving upward in response to the sheet thickness; and a determination unit 11 for checking thickness detection information 10a and 10b and bill position information to determine an altered bill bonded with a tape. The determination unit 11 determines the altered bill by checking the tape thickness information obtained by subtracting the bill thickness from the displacement detection information, and the tape thickness addition information gained by adding the aforementioned adjacent tape thickness information. This arrangement ensures high-precision detection of the presence of a tape even if one side of the tape comes in contact with the detecting roller, the detecting roller tilts in the axial direction, and the displacement detection information is reduced.

IPC 8 full level  
**G07D 7/16** (2006.01); **B65H 5/06** (2006.01); **B65H 7/06** (2006.01)

CPC (source: EP KR)  
**B65H 7/06** (2013.01 - EP KR); **G07D 7/164** (2013.01 - EP KR); **B65H 2404/143** (2013.01 - EP); **B65H 2404/144** (2013.01 - EP); **B65H 2511/13** (2013.01 - EP KR); **B65H 2511/20** (2013.01 - EP KR); **B65H 2511/518** (2013.01 - EP KR); **B65H 2701/1912** (2013.01 - EP KR); **G07D 2207/00** (2013.01 - KR)

C-Set (source: EP)  
1. **B65H 2511/13 + B65H 2220/03 + B65H 2220/01 + B65H 2220/02**  
2. **B65H 2511/20 + B65H 2220/01 + B65H 2220/11**  
3. **B65H 2511/518 + B65H 2220/03**

Citation (search report)  
• [IA] EP 0080309 A2 19830601 - DE LA RUE SYST [GB]  
• [I] US 2001035329 A1 20011101 - TODA KINYA [JP], et al  
• [IA] GB 2150297 A 19850626 - NCR CO  
• See also references of WO 2005124702A1

Cited by  
EP2249315A1; US9284144B2; US7612558B2; WO2020117828A1

Designated contracting state (EPC)  
DE FR GB

DOCDB simple family (publication)  
**EP 1764751 A1 20070321; EP 1764751 A4 20110323; EP 1764751 B1 20121024**; CN 1820286 A 20060816; CN 1820286 B 20141029; JP 2006004206 A 20060105; JP 4444738 B2 20100331; KR 100769374 B1 20071022; KR 20060030522 A 20060410; TW 200620164 A 20060616; TW I273516 B 20070211; WO 2005124702 A1 20051229

DOCDB simple family (application)  
**EP 05751338 A 20050617**; CN 200580000601 A 20050617; JP 2004180399 A 20040618; JP 2005011165 W 20050617; KR 20067001951 A 20060127; TW 94120434 A 20050620