

Title (en)  
TWO-STAGE LAMINATOR APPARATUS

Title (de)  
ZWEI-STUFIGE KASCHIERMASCHINE

Title (fr)  
APPAREIL DE STRATIFICATION A DEUX ETAGES

Publication  
**EP 0821650 A1 19980204 (EN)**

Application  
**EP 96911694 A 19960409**

Priority  
• US 9604952 W 19960409  
• US 41945795 A 19950410

Abstract (en)  
[origin: WO9632255A1] A laminator apparatus (10) includes upper and lower belt assemblies (20, 22) which are supported in closely spaced adjacent relation. The lower belt assembly (22) includes a stainless steel belt (30) received around first and second metallic rollers (32, 34), and the upper belt assembly (20) includes a teflon impregnated, fiberglass belt (36) received around third and fourth metallic rollers (38, 40). The belt assemblies (20, 22) are positioned such that the first and third rollers (32, 38) form an input nip, and the second and fourth rollers (34, 40) form an output nip, with the endless belts (30, 36) positioned in facing relation. The first roller (32) is heated by an internal cartridge heater (66) to about 200 DEG C, and a heating platen (68), positioned in abutting relation with an upper portion of the metallic belt adjacent to the first roller, is heated to about 160 DEG C. Fan-cooled heat sinks (72, 74) are positioned in abutting relation adjacent to the output nip for cooling the metallic fiberglass belt passing therebetween. The belts are rotated for transporting thermoplastic sheet (14, 16) materials between the endless belts from the input nip to the output nip, wherein the lower thermoplastic sheet (16) is initially laminated to the upper thermoplastic sheet (14) under the heat and pressure of the input nip rollers (32, 38), and then fully laminated by passage over the heating platen (68). The laminated plastic sheets are thereafter cooled by passage between the fan-cooled heat sinks (72, 74).

IPC 1-7  
**B32B 31/00**; **B30B 5/06**

IPC 8 full level  
**B32B 37/10** (2006.01); **B29C 63/02** (2006.01); **B30B 5/06** (2006.01); **B29L 9/00** (2006.01)

CPC (source: EP)  
**B32B 37/06** (2013.01); **B32B 37/08** (2013.01); **B32B 37/1027** (2013.01)

Citation (search report)  
See references of WO 9632255A1

Designated contracting state (EPC)  
AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)  
**WO 9632255 A1 19961017**; BR 9604949 A 19991130; CA 2216207 A1 19961017; EP 0821650 A1 19980204; JP H11503677 A 19990330; KR 19980703773 A 19981205

DOCDB simple family (application)  
**US 9604952 W 19960409**; BR 9604949 A 19960409; CA 2216207 A 19960409; EP 96911694 A 19960409; JP 53114996 A 19960409; KR 19970707173 A 19971010