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(54) Title: PROCESS AND APPARATUS FOR MOLDING A SHINGLE, FOR COOLING A SHINGLE, FOR APPLYING A CURVATURE THERETO AND CARRIER PLATE FOR FACILITATING THE PROCESS

(57) Abstract: Shingle material, preferably comprising a core with a capstock applied thereto is extruded preferably by means of a co-extrusion process onto a series of individual carrier plates, with the shingle material then being severed such that each carrier plate carries its own layer of shingle material thereon and the carrier plates are then delivered to a compression mold in which the shingle is molded. The carrier plate and shingle is then removed from the mold and carried through a series of hold-down stations, after which the shingle is delivered to a trimmer, where flashing is simultaneously trimmed from its edges. The shingle is then cooled, preferably by sandwiching it between upper and lower retention members which are cooled via a cooling tower. The retention members impart a curvature to the shingle. The carrier plates are returned via a return conveyor to be heated, for re-use



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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - E04D 1/00 (2008.04)

USPC - 428/141

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
USPC - 428/141

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST (USPT, PGPB, USOC, JPAB, EPAB) and GooglePatents: shingle, tile, compression mold, curve, polymer, plastic, thermoplastic, coolant, mackinnon

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---- Y	US 2006/0029775 A1 (MacKINNON et al.) 9 February 2006 (09.02.2006). Entire document, particularly Fig 3-5; para [0033], [0037], [0039]-[0040], [0043], [0052], [0073].	1-17, 19, 30-44, 46, 57, 66-68 ----- 18, 21, 23-29, 45, 48, 50-56, 59, 61, 63, 65
X ---- Y	US 6,706,366 B2 (MEYER et al.) 16 March 2004 (16.03.2004) Entire document, particularly Fig 1, 2; col 1, ln 64-67; col 3, 8-22.	20, 22, 47, 49, 58, 60, 62, 64 ----- 18, 21, 23-29, 45, 48, 50-56, 59, 61, 63, 65
A	US 6,703,440 B2 (EDSON) 9 March 2004 (09.03.2004). Col 2, ln 1-14.	1-65

☐ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"O" document referring to an oral disclosure, use, exhibition or other means	
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