

Title (en)
NEEDLE WITH AN ADAPTED OPENING EYE

Publication
EP 0373033 B1 19930519 (FR)

Application
EP 89403295 A 19891128

Priority
FR 8815969 A 19881206

Abstract (en)
[origin: EP0373033A1] In this needle with an opening eye, intended to be used in the lacing stage of the three-dimensional weaving of a composite-reinforcement element, for driving out rigid rods and replacing them with loops of yarn, comprising an axial blind hole at its end adjacent to the eye, the bottom of the said hole (13) is open and connected to the outside by a channel (14) oblique relative to the axis of the shaft of the needle (8) and opening out laterally by way of an orifice (15) in the vicinity of the eye (12), between the latter and the end of the shaft. <IMAGE>

IPC 1-7
D04H 3/07

IPC 8 full level
D03D 29/00 (2006.01); **B21G 1/04** (2006.01); **D03D 41/00** (2006.01); **D04B 35/04** (2006.01); **D04B 35/08** (2006.01); **D04H 3/115** (2012.01)

CPC (source: EP US)
B21G 1/04 (2013.01 - EP US); **D04B 35/08** (2013.01 - EP US); **D04H 3/115** (2013.01 - EP US)

Cited by
FR2941710A1; CN108486771A

Designated contracting state (EPC)
DE GB IT

DOCDB simple family (publication)
EP 0373033 A1 19900613; **EP 0373033 B1 19930519**; CA 2003487 A1 19900606; CA 2003487 C 19981229; DE 68906659 D1 19930624; DE 68906659 T2 19930826; FR 2639964 A1 19900608; FR 2639964 B1 19910111; JP H02200844 A 19900809; US 5038836 A 19910813

DOCDB simple family (application)
EP 89403295 A 19891128; CA 2003487 A 19891121; DE 68906659 T 19891128; FR 8815969 A 19881206; JP 31087489 A 19891201; US 44132389 A 19891127