

Title (en)
APPARATUS AND METHOD FOR REINFORCING VERTICAL COLUMNS

Title (de)
APPARAT UND VERFAHREN ZUM VERSTÄRKEN VON SENKRECHTEN SÄULEN

Title (fr)
DISPOSITIF ET PROCEDE DE CONSOLIDATION DE PILIERS VERTICAUX

Publication
EP 0773904 A1 19970521 (EN)

Application
EP 95928158 A 19950801

Priority
• US 9509489 W 19950801
• US 28415594 A 19940801
• US 48602395 A 19950607

Abstract (en)
[origin: WO9604197A1] An apparatus (30) for reinforcing an external surface of a stationary vertical column (20) with a reinforcing material (61) includes a supply (60) of the reinforcing material (61) and a guide (62) that directs the reinforcing material (61) from the supply (60) onto the stationary vertical column (20). A winding device (30) moves the guide (62) in a spiral pattern relative to the stationary vertical column (20), to wind spiral layers of the reinforcing material (61) onto the vertical column (20). The winding device (30) is provided as a multipart structure that may be assembled around the vertical column (20) and later disassembled to permit removal from around the vertical column (20). In one approach, the reinforcing material (61) is in the form of a curable composite material that is wound onto the vertical column (20) and later cured in place after the winding device (30) is removed.

IPC 1-7
B65H 81/08; **E04B 1/62**; **E04C 3/34**; **E04F 13/00**; **E04G 3/10**; **E04G 21/14**; **E04G 23/00**

IPC 8 full level
B65H 81/08 (2006.01); **E01D 19/02** (2006.01); **E01D 21/00** (2006.01); **E01D 22/00** (2006.01); **E04G 23/02** (2006.01); **E04H 9/02** (2006.01); **E04H 12/22** (2006.01); **F26B 3/28** (2006.01); **F26B 25/06** (2006.01); **F27D 23/00** (2006.01); **F27D 99/00** (2010.01); **E01D 101/00** (2006.01)

CPC (source: EP KR US)
B65H 81/08 (2013.01 - EP KR); **E01D 22/00** (2013.01 - EP); **E04G 23/0218** (2013.01 - EP); **E04G 23/0225** (2013.01 - EP); **E04H 9/0237** (2020.05 - EP KR US); **E04H 12/2292** (2013.01 - EP); **F26B 3/28** (2013.01 - EP); **F26B 25/066** (2013.01 - EP); **F27D 99/0006** (2013.01 - EP); **E04G 2023/0251** (2013.01 - EP); **F27D 2099/0058** (2013.01 - EP)

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

DOCDB simple family (publication)
WO 9604197 A1 19960215; AU 3201995 A 19960304; CA 2196313 A1 19960215; CN 1164846 A 19971112; EP 0773904 A1 19970521; EP 0773904 A4 19980513; JP H10504002 A 19980414; KR 970704620 A 19970906

DOCDB simple family (application)
US 9509489 W 19950801; AU 3201995 A 19950801; CA 2196313 A 19950801; CN 95194911 A 19950801; EP 95928158 A 19950801; JP 50661196 A 19950801; KR 19970700687 A 19970201