

## Title (en)

Process for weaving thick reinforcement with several undelaminable layers for composite material and loom for its manufacture.

## Title (de)

Verfahren zum Weben von dicker Armierung mit mehreren nicht-ablösbaren Schichten für Verbundmaterialien und Webmaschine für die Fabrikation.

## Title (fr)

Procédé de tissage d'armature épaisse à couches multiples indélaminables pour matériaux composites et machine à tisser pour sa mise en oeuvre.

## Publication

**EP 0570318 A1 19931118 (FR)**

## Application

**EP 93450002 A 19930513**

## Priority

FR 9206154 A 19920515

## Abstract (en)

The subject of the invention is a process for weaving a thick reinforcement with multiple undelaminable layers of the structure of the 2.5 D or 3 D type, in which the warp threads pass successively through a lapping comb, through a calibrating comb and then through a dobby-type weaving unit, characterised in that, upstream of the calibrating comb (27), the warp threads (5) are separated into n superposed laps, n being equal to N-1 DIVIDED 2, and n being the number of layers of the said reinforcement, so as to cause N-1 DIVIDED 2 warp threads (5) to pass into each tooth of the calibrating comb (27), and two adjacent threads of the same tooth of the calibrating comb (27) are threaded into the eyes (11) of two healds (12) of the same rank as two shafts of the dobby, so that the planes of displacement of two adjacent threads form with one another, during the formation of the thread, an angle which is sufficient to prevent the threads from catching with one another. The invention is used for weaving reinforcements made of composite materials. <IMAGE>

## IPC 1-7

**D03D 41/00**; **D03D 25/00**

## IPC 8 full level

**D03C 13/00** (2006.01); **D03D 1/00** (2006.01); **D03D 25/00** (2006.01); **D03D 41/00** (2006.01)

## CPC (source: EP US)

**D03D 25/005** (2013.01 - EP US); **D03D 41/004** (2013.01 - EP US)

## Citation (search report)

- [A] US 4019540 A 19770426 - HOLMAN HARRY A, et al
- [A] EP 0424216 A1 19910424 - CHAIGNAUD IND [FR]
- [A] FR 2583072 A1 19861212 - APPLIC REALISA TISSUS INDL [FR]
- [AD] FR 2610951 A1 19880819 - AEROSPATIALE [FR]

## Cited by

CN103061004A; EP0856601A1; FR2759096A1; US5899241A; CN103061003A

## Designated contracting state (EPC)

BE DE ES GB IT NL

## DOCDB simple family (publication)

**EP 0570318 A1 19931118**; **EP 0570318 B1 19961127**; CA 2096202 A1 19931116; DE 69306163 D1 19970109; DE 69306163 T2 19970612; ES 2096901 T3 19970316; FR 2691174 A1 19931119; FR 2691174 B1 19940729; JP H0649734 A 19940222; US 5353844 A 19941011

## DOCDB simple family (application)

**EP 93450002 A 19930513**; CA 2096202 A 19930513; DE 69306163 T 19930513; ES 93450002 T 19930513; FR 9206154 A 19920515; JP 13911093 A 19930517; US 6107593 A 19930514