



US009409360B2

(12) **United States Patent**  
**Marchini et al.**

(10) **Patent No.:** **US 9,409,360 B2**  
(45) **Date of Patent:** **Aug. 9, 2016**

(54) **PROCESS FOR MANUFACTURING TYRES FOR VEHICLE WHEELS AND APPARATUS FOR BUILDING A CARCASS STRUCTURE OF A TYRE FOR VEHICLE WHEELS**

(75) Inventors: **Maurizio Marchini**, Milan (IT); **Gianni Mancini**, Milan (IT); **Gaetano Lo Presti**, Milan (IT)

(73) Assignee: **Pirelli Tyre S.p.A.**, Milan (IT)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 96 days.

(21) Appl. No.: **12/743,135**

(22) PCT Filed: **Nov. 15, 2007**

(86) PCT No.: **PCT/IB2007/003500**  
§ 371 (c)(1),  
(2), (4) Date: **May 14, 2010**

(87) PCT Pub. No.: **WO2009/063264**  
PCT Pub. Date: **May 22, 2009**

(65) **Prior Publication Data**  
US 2010/0276068 A1 Nov. 4, 2010

(51) **Int. Cl.**  
**B29D 30/32** (2006.01)  
**B29D 30/24** (2006.01)

(52) **U.S. Cl.**  
CPC ..... **B29D 30/245** (2013.01); **B29D 30/32** (2013.01)

(58) **Field of Classification Search**  
CPC ..... B29D 30/14; B29D 30/18; B29D 30/244; B29D 30/28; B29D 30/32  
USPC ..... 156/130.7, 131, 132, 398, 400, 402, 156/460, 403  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

1,524,861 A \* 2/1925 Grove ..... 156/399  
2,313,035 A \* 3/1943 Breth ..... 156/130  
(Continued)

**FOREIGN PATENT DOCUMENTS**

CN 2463166 \* 12/2001 ..... B29D 30/18  
CN 2463166 Y 12/2001  
(Continued)

**OTHER PUBLICATIONS**

English language Abstract of DE 1919184 (original document dated Oct. 1969).\*  
(Continued)

*Primary Examiner* — Martin Rogers

(74) *Attorney, Agent, or Firm* — Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P.

(57) **ABSTRACT**

A process for manufacturing tires for vehicle wheels includes building on a forming support a carcass structure including at least one carcass ply, and, at at least one end edge of the carcass ply, at least one annular anchoring structure including at least one substantially circumferential annular insert and at least one filling insert associated with the at least one substantially circumferential annular insert. Building the carcass structure includes positioning the annular anchoring structure on the carcass ply by moving the substantially circumferential annular insert into contact with an end edge of the carcass ply by means of a special positioning member, pulling down the filling insert on the end edge of the carcass ply and turning up a free end portion of the end edge of the carcass ply so as to form a turned up end portion of the carcass ply including the annular anchoring structure. The pulling down of the filling insert on the end edge of the carcass ply is carried out by a special pulling down member while the substantially circumferential annular insert is retained in a contact position with the end edge of the carcass ply by the positioning member.

**9 Claims, 3 Drawing Sheets**

