



USQ07455096B2

(12) **United States Patent**
Bonacini

(10) **Patent No.:** **US 7,455,096 B2**
(45) **Date of Patent:** **Nov. 25, 2008**

(54) **MACHINE FOR FITTING AND REMOVING TIRES AND WHEEL RIMS FOR VEHICLES**

7,188,657 B2 * 3/2007 Boni 157/1.24
7,341,090 B2 * 3/2008 Gonzaga 157/1.17

(75) Inventor: **Maurizio Bonacini, Correggio (IT)**

(73) Assignee: **Giuliano S.p.A., Correggio (RE) (IT)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

FOREIGN PATENT DOCUMENTS

DE 4415064 12/1994
EP 1475252 11/2004
EP 1625954 2/2006

OTHER PUBLICATIONS

English abstract of DE 4415064.

* cited by examiner

Primary Examiner—David B Thomas

(74) *Attorney, Agent, or Firm*—Dykema Gossett PLLC

(21) Appl. No.: **11/892,865**

(22) Filed: **Aug. 28, 2007**

(65) **Prior Publication Data**

US 2008/0060766 A1 Mar. 13, 2008

(30) **Foreign Application Priority Data**

Sep. 8, 2006 (IT) MO 2006 A 000273

(51) **Int. Cl.**

B60C 25/138 (2006.01)

(52) **U.S. Cl.** 157/1.24; 157/1.17

(58) **Field of Classification Search** 157/1.17,
157/1.22, 1.24, 1.28, 1.1

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,581,796 A * 6/1971 Alm 157/1.28
5,226,465 A * 7/1993 Schon et al. 157/1.28
6,422,285 B1 * 7/2002 Gonzaga 157/1.24
6,823,922 B2 * 11/2004 Gonzaga 157/1.3
7,089,987 B2 * 8/2006 Gonzaga 157/1.4

(57) **ABSTRACT**

A machine for removing and fitting tires and wheel rims for vehicles includes a supporting structure of clamping and rotating device for clamping and rotating the rim of a vehicle wheel around a rotation axis, at least one operating unit which is movably associated with the supporting structure and which includes at least one operating head for fitting and removing a tire onto/from the rim provided with a pushing body for pushing at least one portion of the side surface of the tire and with a grip tool for gripping at least one section of the tire bead, an actuator element for operating the sideways movement of the operating head with respect to the structure and guide means of such sideways movement along a substantially curvilinear direction between a first position, in which the operating head is substantially close to the clamping and rotating device and a second position, in which the operating head is substantially moved away from the clamping and rotating device.

30 Claims, 3 Drawing Sheets

