

The
United
States
of
America



**The Director of the United States
Patent and Trademark Office**

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.

If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.

If this application was filed on or after June 8, 1995, the term of this patent is twenty years from the U.S. filing date, subject to any statutory extension. If the application contains a specific reference to an earlier filed application or applications under 35 U.S.C. 120, 121 or 365(c), the term of the patent is twenty years from the date on which the earliest application was filed, subject to any statutory extensions.

Jon W. Dudas

Director of the United States Patent and Trademark Office

NOTICE

If the application for this patent was filed on or after December 12, 1980, maintenance fees are due three years and six months, seven years and six months, and eleven years and six months after the date of this grant, or within a grace period of six months thereafter upon payment of a surcharge as provided by law. The amount, number of timing of the maintenance fees required may be changed by law or regulation. Unless payment of the applicable maintenance fee is received in the United States Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period.

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,821,315 B2
DATED : November 23, 2004
INVENTOR(S) : Ottavio Milli

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 6,

Lines 30, 34, 39, 41, 50, 52, 55 and 58, change "claim 1" to -- claim 10 --.

Column 7,

Lines 12, 15 and 18, and change "claim 1" to -- claim 10 --.

Column 8,

Lines 6, 10, 12 and 14, change "claim 1" to -- claim 10 --.



Signed and Sealed this

Fourteenth Day of June, 2005

A handwritten signature in black ink, reading "Jon W. Dudas". The signature is written in a cursive style with a large initial "J".

JON W. DUDAS

Director of the United States Patent and Trademark Office



US006821315B2

(12) **United States Patent**
Milli

(10) **Patent No.:** **US 6,821,315 B2**
(45) **Date of Patent:** **Nov. 23, 2004**

(54) **APPARATUS AND METHOD FOR SPRAY-PAINTING**

(75) **Inventor:** **Ottavio Milli**, Istia d'Ombrone (IT)

(73) **Assignee:** **Eurosider S.a.S. di Milli Ottavio & C.**, Grosseto (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.

(21) **Appl. No.:** **10/349,313**

(22) **Filed:** **Jan. 23, 2003**

(65) **Prior Publication Data**

US 2003/0172807 A1 Sep. 18, 2003

(30) **Foreign Application Priority Data**

Jan. 25, 2002 (EP) 02425028

(51) **Int. Cl.**⁷ **B01D 53/22**

(52) **U.S. Cl.** **95/18; 95/19; 95/52; 95/54; 96/8; 55/DIG. 46**

(58) **Field of Search** **95/17-19, 22, 95/45, 52, 54; 96/4, 8, 10; 55/DIG. 46**

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,369,343 A * 2/1968 Robb 95/46
3,737,626 A 6/1973 Davis et al. 219/360

4,781,907 A * 11/1988 McNeill 423/351
5,131,929 A * 7/1992 Brockmann et al. 95/52
5,214,740 A 5/1993 Carroll 392/481
5,388,413 A * 2/1995 Major et al. 62/640
5,681,368 A * 10/1997 Rahimzadeh 95/19
5,840,098 A 11/1998 Barbe et al. 95/18
6,126,724 A * 10/2000 Martin et al. 96/4
6,235,087 B1 * 5/2001 Chevalier et al. 96/9
6,290,750 B1 * 9/2001 Ollivier et al. 95/19
6,579,344 B1 * 6/2003 Diserens 95/54
6,616,735 B1 * 9/2003 Burban et al. 96/8

FOREIGN PATENT DOCUMENTS

EP 0517570 A1 * 12/1992
EP 0 752 265 A1 1/1997

* cited by examiner

Primary Examiner—Robert H. Spitzer

(74) *Attorney, Agent, or Firm*—Arent Fox, PLLC

(57) **ABSTRACT**

Spray-painting apparatus and method in which provision is made for: an inlet for the air under pressure; a heating unit for the compressed air; an air drying/separation unit including hollow-fiber membranes; adjustment of the heating of the treated air; adjustment of the pressure of the treated air; adjustment of either the dew point or the percentage of oxygen in the treated air in the case of hollow fiber membranes for nitrogen separation; and an outlet for the treated air to be used as paint carrier fluid.

35 Claims, 4 Drawing Sheets

