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United States Patent

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Handwritten signature of Ronald Reagan

Commissioner of Patents and Trademarks

Melvinia Gary





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# United States Patent [19]

[11] **Patent Number:** **5,857,264**

**Debolini**

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[54] **DRYER, PARTICULARY FOR GRANULAR OR POWDERED PRODUCTS**

2,732,186	6/1956	Ivarsson .	
3,855,404	12/1974	Rotaru .	
4,183,673	1/1980	Kimmel .....	366/288
4,506,838	3/1985	Riniker et al. .	
4,882,851	11/1989	Wennerstrum et al. .	
5,150,968	9/1992	Inoue .....	366/288

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**FOREIGN PATENT DOCUMENTS**

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54-132298	12/1979	Japan .
1345000	1/1974	United Kingdom .

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[51] **Int. Cl.**<sup>6</sup> ..... **F26B 11/12**

[52] **U.S. Cl.** ..... **34/179; 366/288**

[58] **Field of Search** ..... 34/179, 180, 183;  
366/288, 312

[57] **ABSTRACT**

The dryer includes a double-walled casing, the inner wall of which defines a cylindrical drying chamber for receiving the products and the outer wall and the inner wall of which define between them an interspace for the circulation of a diathermic fluid. A shaft is mounted in the chamber and has a motor for rotating it about its own axis and at least one mixing blade fixed to it which, on rotation of the shaft, can exert a mixing action on the product and can detach it from the inner wall of the casing. The shaft is mounted eccentrically of the longitudinal axis of the chamber and has a motor rotating it about the longitudinal axis of the chamber.

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

2,552,360 5/1951 Zichis ..... 34/179

**10 Claims, 4 Drawing Sheets**

