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#### (54) Method and apparatus for moisturizing dusting material

(57) Arrangement for mixing a liquid with a flowing solid substance, comprising a reaction chamber (1), a connection (2) for feeding the flowing solid substance to the reaction chamber (1), a connection (3) for removing the mixed substance from the reaction chamber (1), and a connection (13) for feeding the liquid to the reaction chamber (1). For mixing the liquid there are elements (10) for feeding the liquid to the reaction chamber (1) in

the form of droplets and elements (11,12,15) for feeding a compressed gas to the reaction chamber (1). On the central axis of the reaction chamber (1) is preferably arranged a mixer shaft (6), which comprises elements (9-12) for feeding the liquid and the gas to the reaction chamber from the outer surface of the shaft (6).

EP 1 955 759 A3



### **EUROPEAN SEARCH REPORT**

Application Number EP 08 39 7504

	DOCUMENTS CONSID	ERED TO BE RELEVANT				
Category	Citation of document with i	ndication, where appropriate, ages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)		
A	US 4 527 902 A (CHF 9 July 1985 (1985-6 * figures 1,3 * * column 2, lines 1 * column 5, lines 3	1-12	INV. B01F3/12 B01F7/08			
A	US 5 246 288 A (JET 21 September 1993 ( * figures 1,2 * * column 1, lines 4 * column 2, lines 1	I-14, 58-60 *	1-12			
4	US 4 546 013 A (SCH 8 October 1985 (198 * figure 1 *	HLUETER WILHELM [DE]) 85-10-08)	1-12			
4	GB 520 966 A (T S M FRANCIS WEBER) 8 Ma * figure 1 *	KELSEY LTD; ALBERT By 1940 (1940-05-08)	1-12			
A	DE 44 11 201 A1 (SC SPRITZMASCH [DE]) 5 October 1995 (199 * figure 1 *		1-12	TECHNICAL FIELDS SEARCHED (IPC)		
4	US 4 116 163 A (TOP 26 September 1978 ( * figure 1 *	1-12				
A	DE 16 67 071 A1 (BU 9 September 1971 (1 * figures 1,2 *	JETTNER SCHILDE HAAS AG) 971-09-09)	1-12			
	The present search report has	been drawn up for all claims				
	Place of search		Examiner			
	The Hague	13 January 2009	Kra	senbrink, B		
CATEGORY OF CITED DOCUMENTS  T: theory or principle E: earlier patent doc after the filing dat Y: particularly relevant if combined with another document of the same category A: technological background				e underlying the invention burnent, but published on, or e n the application		

#### ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 08 39 7504

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

13-01-2009

JS 4527902		Publication date		Patent family member(s)		Publication date
	A	09-07-1985	DE ES FI FR IT JP	3304129 8407419 840451 2540428 1173139 59152838	A1 A A1 B	09-08-198 16-12-198 09-08-198 10-08-198 18-06-198 31-08-198
JS 5246288	А	21-09-1993	NONE			
JS 4546013	А	08-10-1985	CA DE ES IT US	1192091 3137109 8308712 1191006 4572100	A1 A1 B	20-08-198 07-04-198 16-12-198 24-02-198 25-02-198
GB 520966	А	08-05-1940	NONE			
DE 4411201	A1	05-10-1995	NONE			
JS 4116163	А	26-09-1978	CH DE FI FR SE	597926 2750696 773445 2371972 7712503	A1 A A1	14-04-197 01-06-197 27-05-197 23-06-197 27-05-197
DE 1667071	A1	09-09-1971	NONE			

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