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[54] **METHOD OF MAKING COFFEE PARTICLES CONTAINING AROMA**

5,182,926	2/1993	Cams et al.	62/352
5,342,638	8/1994	Koch	426/386
5,399,368	3/1995	Garwood et al.	426/307
5,474,792	12/1995	Arora et al.	426/594

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FOREIGN PATENT DOCUMENTS

837021	3/1970	Canada	.
0 008 015	10/1982	European Pat. Off.	.
0 133 636	1/1987	European Pat. Off.	.
0 354 810	2/1995	European Pat. Off.	.
94/23593	10/1994	WIPO	.
96/09773	4/1996	WIPO	.

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[51] **Int. Cl.**⁶ **A23F 5/00**

[52] **U.S. Cl.** **426/594; 426/388; 426/516; 426/474**

[58] **Field of Search** 426/594, 516, 426/387, 474, 448, 650, 651, 488

[57] ABSTRACT

A method of producing coffee particles containing entrapped aroma. Soluble coffee solids and up to 10% by weight water are introduced into a heating and mixing zone and to raise the temperature to about 85° C. to about 130° C. to form a molten mass. Aroma-containing substrate is introduced into the molten mass to form a molten mixture containing a gas under a pressure of about 2.0 MPa to about 7.0 MPa. The molten mixture is extruded into a pressure zone in which the pressure is greater than the pressure of the gas in the molten mixture and the molten mixture is retained in the pressure zone until it solidifies to form a hardened glass. The hardened glass is ground into coffee particles of size of about 0.5 mm to 3 mm.

[56] References Cited

U.S. PATENT DOCUMENTS

3,989,852	9/1976	Palmer	426/289
4,072,761	2/1978	Margolis et al.	426/387
4,262,029	4/1981	Kleiner et al.	426/512
4,837,039	6/1989	Escola Gallart et al.	426/572
4,919,962	4/1990	Arora et al.	426/594
4,952,417	4/1990	Escola Gallart et al.	426/572
5,035,908	7/1991	Arora et al.	426/388
5,079,026	1/1992	Arora et al.	426/594

17 Claims, 2 Drawing Sheets

