US005298833A

United States Patent [19]

Hou

[11] Patent Number: 5,298,833

[45] Date of Patent: Mar. 29, 1994

[54] BLACK ELECTROPHORETIC PARTICLES FOR AN ELECTROPHORETIC IMAGE DISPLAY

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[21] Appl. No.: 901,755

[22] Filed: Jun. 22, 1992

[51] Int. Cl.[5] H05B 33/00

[52] U.S. Cl. 313/483; 313/54; 313/502; 252/570

[58] Field of Search 313/509, 502, 483, 358, 313/54; 359/886, 887, 888, 265, 274, 296; 428/402, 407; 252/570, 572; 427/213.3, 216, 221; 350/352

[56] References Cited

U.S. PATENT DOCUMENTS

3,668,106	6/1972	Ota	204/299
3,714,490	1/1973	Kell	313/92 R
3,792,308	2/1974	Ota	315/150
4,093,534	6/1978	Carter et al. .	
4,126,528	11/1978	Chiang	204/180 R
4,285,801	8/1981	Chiang .	
4,298,448	11/1981	Muller et al. .	
4,517,490	5/1985	Takahashi	313/502
4,655,897	4/1987	Disanto et al. .	
4,876,481	10/1989	Taniguchi et al.	313/502
4,889,603	12/1989	DiSanto et al.	204/180.1
4,891,245	1/1990	Micale	427/213.3
5,012,156	4/1991	Kadokura et al.	313/502
5,176,959	1/1993	Yamada et al.	428/407

FOREIGN PATENT DOCUMENTS

114829	8/1989	Japan .
141730	8/1990	Japan .

OTHER PUBLICATIONS

Encyclopedia of Polymer Science and Engineering, A Wiley-Interscience Publication, John Wiley & Sons, p. 245.

Electronics Engineer's Reference Book, 6th Edition Butterworth International Edition 1989, pp. 24–28.

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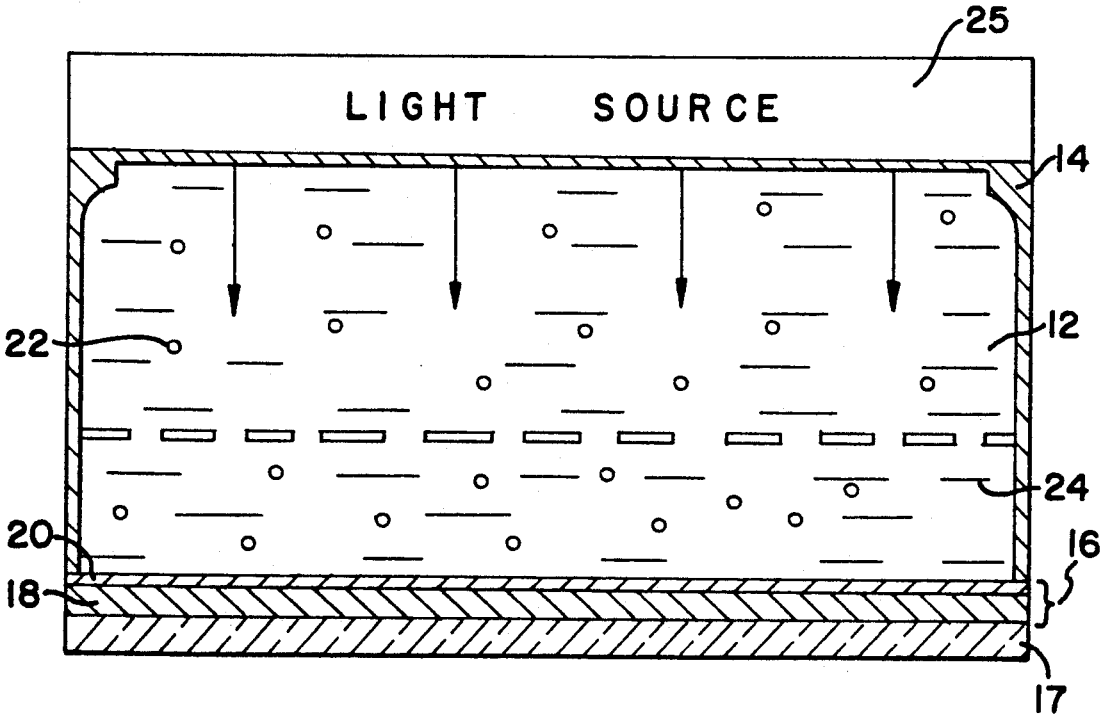
[57] ABSTRACT

The present invention are dielectric black particles for use in electrophoretic images displays, electrostatic toner or the like, and the corresponding method of manufacturing the same. The present invention black particles are latex particles formed by a polymerization technique, wherein the latex particles are stained to a high degree of blackness with a metal oxide.

15 Claims, 1 Drawing Sheet