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**Cucitore et al.**

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(54) **HIGH DURABILITY PHOTOCATALYTIC PAVING FOR REDUCING URBAN POLLUTING AGENTS**

(58) **Field of Classification Search** ..... 428/323;  
404/31, 70  
See application file for complete search history.

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(56) **References Cited**

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U.S. PATENT DOCUMENTS

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 372 days.

3,385,181 A *	5/1968	Stoll	404/70
4,392,335 A *	7/1983	Heiman	52/309.17
5,628,822 A *	5/1997	Hogan	106/802
6,454,489 B1 *	9/2002	Murata et al.	404/17
6,632,309 B1 *	10/2003	Hendrix et al.	156/148

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FOREIGN PATENT DOCUMENTS

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EP	0 505 010 A1	9/1992
EP	0 919 667 A1	6/1999
EP	1 020 564 A1	7/2000
JP	2003/096707	4/2003

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\* cited by examiner

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(57) **ABSTRACT**

The present invention concerns a composite cement paving with photocatalytic action for reducing urban polluting agents, composed of a bituminous or cement foundation, a resin having the function of interface, a superficial cement layer with photocatalytic properties able to reduce organic and inorganic polluting agents, said paving also comprising reinforcing materials and possible suitably positioned fibrous materials. The paving thus realised presents a strong photocatalytic action, prolonged overtime, even in the presence of high mechanical stress caused by heavy traffic.

(30) **Foreign Application Priority Data**

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**18 Claims, 4 Drawing Sheets**

(51) **Int. Cl.**  
**B32B 5/24** (2006.01)

(52) **U.S. Cl.** ..... 428/323; 404/31; 404/70

