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[54] **METHOD OF FRACTURING INTERFACES WITH AN ULTRASONIC TOOL**

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[58] Field of Search **433/3, 24, 118, 119, 433/4, 159, 215**

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,947,082	8/1960	Epstein	433/119
3,332,150	7/1967	Mumaw	433/24
3,526,219	9/1970	Batamuth	433/119
3,924,335	12/1975	Balamuth et al.	433/119
4,169,984	10/1979	Parisi	310/323
4,281,987	8/1981	Kleesattel	433/103

4,406,284	9/1983	Banko	128/303
4,608,019	8/1986	Kumgle et al.	433/178
4,773,855	9/1988	Levy	433/102
4,824,366	4/1989	Hohmann et al.	433/32
4,907,965	3/1990	Martin	433/3

OTHER PUBLICATIONS

Comparisons of Different Debonding Techniques for Ceramic Brackets: An In Vitro Study, Samir E. Biskara, DDS, BDS, D. Ortho., MS* and Timothy S. Trulove, DDS, MS**, Iowa City, Iowa and Montgomery, Ala., Aug. 1990.

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[57] **ABSTRACT**

Method for fracturing the interface between dental structures that have been secured together. The device comprises an ultrasonic tool for providing bi-directional movement of a preferred amplitude and frequency. The tool is applied against one of the dental structures at an acute angle with respect to a plane in which the interface between the dental structures lies.

5 Claims, 3 Drawing Sheets

