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(54) **TRAY-FED SCANNING MICROSCOPE SYSTEM AND METHOD PRIMARILY FOR IMMOBILIZING PARTS DURING INSPECTION**

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This patent is subject to a terminal disclaimer.

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(51) **Int. Cl.**
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(58) **Field of Classification Search** 73/818, 73/620, 644, 606, 618

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,737,573	A	6/1973	Kessler	
3,790,281	A	2/1974	Kessler et al.	
3,850,027	A	11/1974	Nakaniishi et al.	
3,886,793	A	6/1975	Cramer et al.	
3,898,839	A	8/1975	White	
4,008,602	A	2/1977	Love	
4,012,951	A	3/1977	Kessler	
4,208,915	A	6/1980	Edwards	
4,332,016	A	5/1982	Bernsten	
4,518,992	A	5/1985	Kessler et al.	
4,563,900	A	1/1986	Harada et al.	
5,077,695	A	12/1991	Khuri-Yakub et al.	
5,431,054	A	7/1995	Reeves et al.	
5,600,068	A	2/1997	Kessler et al.	
5,684,252	A	11/1997	Kessler et al.	
6,460,414	B1	10/2002	Erickson et al.	
7,181,969	B2 *	2/2007	Busch et al.	73/618

OTHER PUBLICATIONS

PCT Written Opinion, International Application No. PCT/US04/10911, dated Feb. 16, 2005 (5 pages).
PCT International Search Report, PCT/US04/10911, dated Feb. 16, 2005 (2 pages).

* cited by examiner

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(57) **ABSTRACT**

An improved scanning station and method for a tray-fed scanning acoustic microscope has a vacuum system which at least assists in immobilizing loosely held parts in the trays during insonification by an ultrasonic beam generator.

20 Claims, 8 Drawing Sheets