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Therefore, this

United States Patent

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Bence Lehman

Commissioner of Patents and Trademarks

Melvinia Gary

Attest



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United States Patent [19]

[11] Patent Number: **5,656,814**

Lurie et al.

[45] Date of Patent: **Aug. 12, 1997**

[54] **VERSATILE METHOD AND DEVICE FOR THERMOLUMINESCENCE COMPARATIVE ANALYSIS**

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[73] Assignee: **TSL Industrial Instruments Ltd., Misgav, Israel**

[21] Appl. No.: **598,450**

[22] Filed: **Feb. 8, 1996**

[30] **Foreign Application Priority Data**

May 29, 1995 [IL] Israel 113907

[51] Int. Cl.⁶ **G01T 1/11; G01T 1/115**

[52] U.S. Cl. **250/337; 250/484.3**

[58] Field of Search **250/337, 484.3**

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[57] **ABSTRACT**

Versatile method and device of thermoluminescence analysis are provided. Such a method and device can be applied to: exploration of petroleum, natural gas and minerals; forensic examination of objects; environmental monitoring; and production quality control. The device includes: a heating element; an optical readout system; and a rotating disk with openings for passage of light emitted by a heated sample. The device further includes a reference light source for controlling the optical readout system, and a computer system for controlling the operation of said device and for data storage, retrieval and processing. The method includes the steps of: (a) extracting reference and analysed samples for analysis; (b) performing thermoluminescence analysis, including the steps of: (i) heating a sample and recording a thermoluminescence curve associated with a natural irradiation; (ii) irradiating the sample; and (iii) heating the sample and recording a thermoluminescence curve associated with the artificial irradiation; (c) performing a comparative analysis of the thermoluminescence curves associated with natural and artificial irradiation of the reference and analysed samples; and (d) making a conclusion.

66 Claims, 7 Drawing Sheets

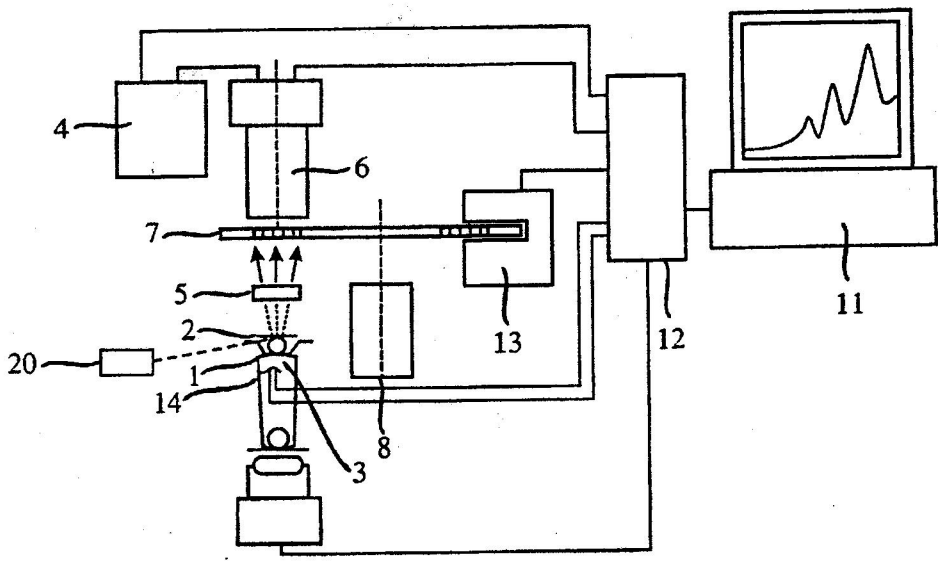


FIG. 1

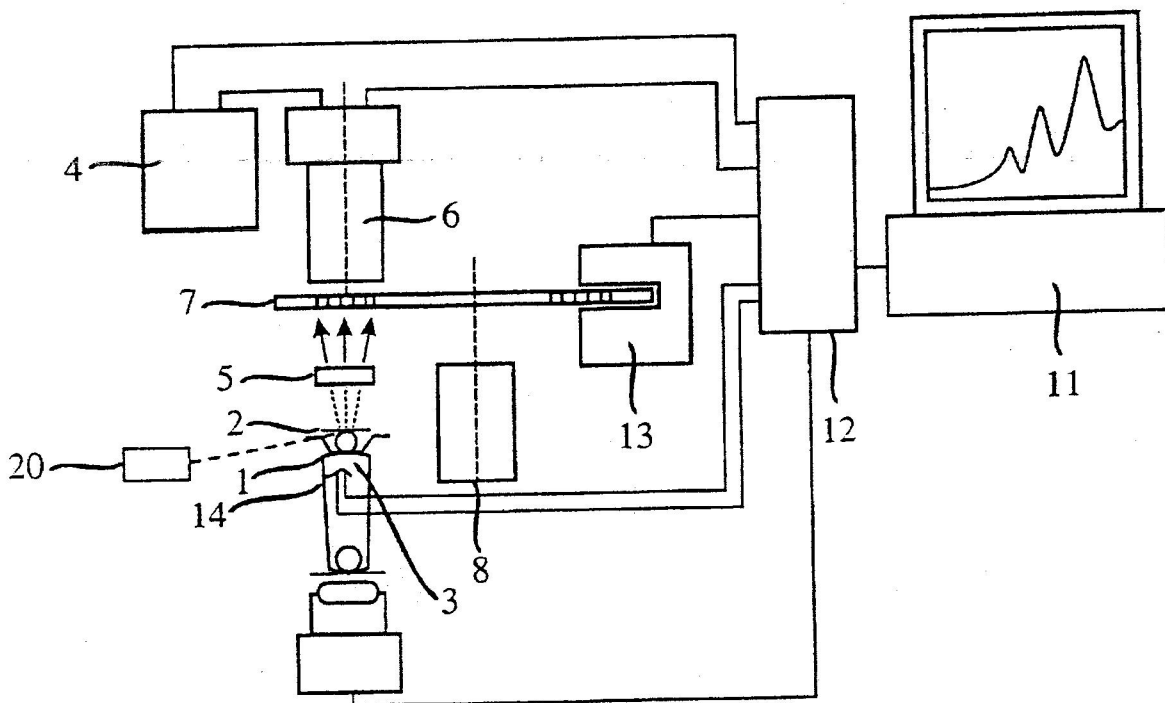


FIG. 4

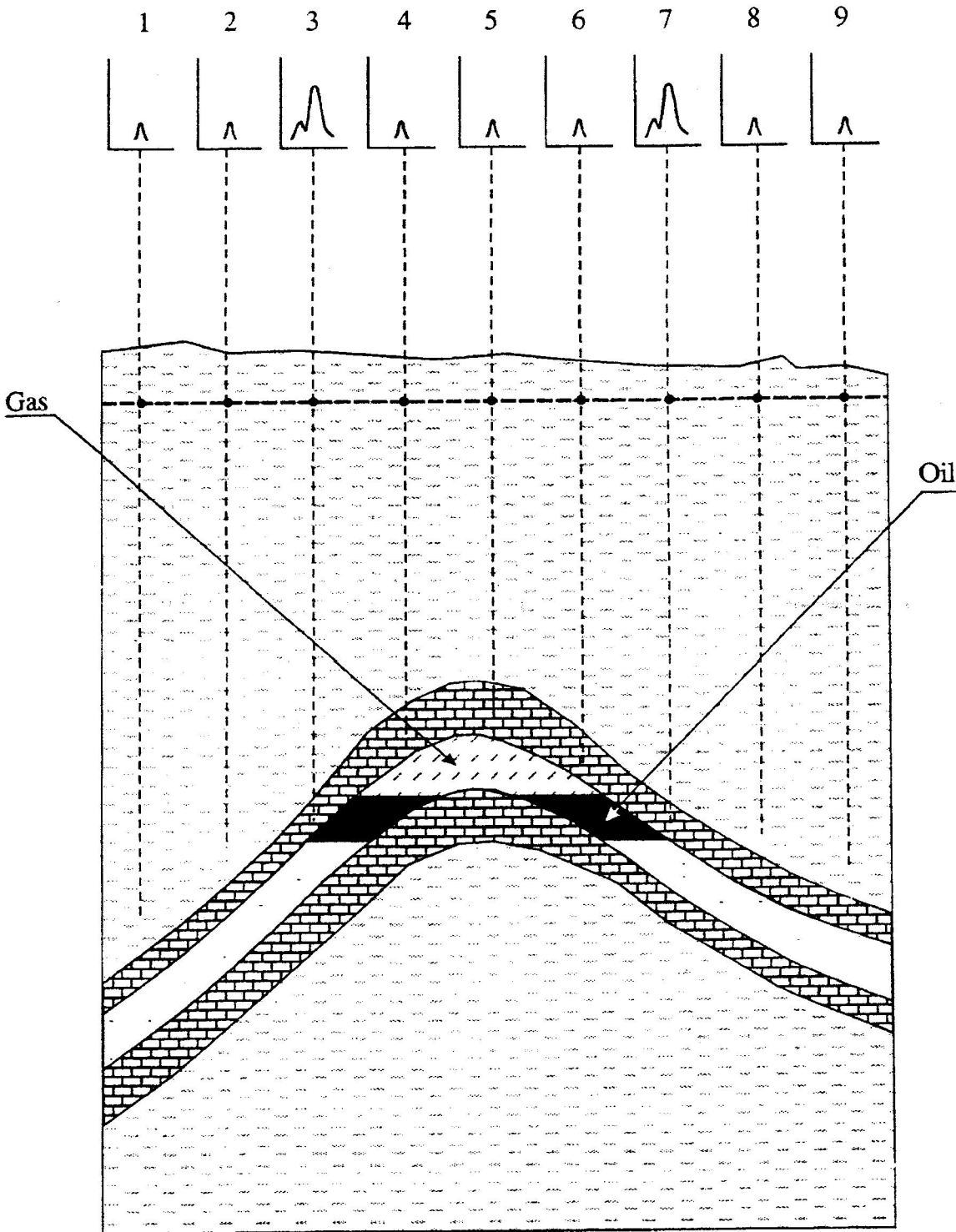


FIG. 2

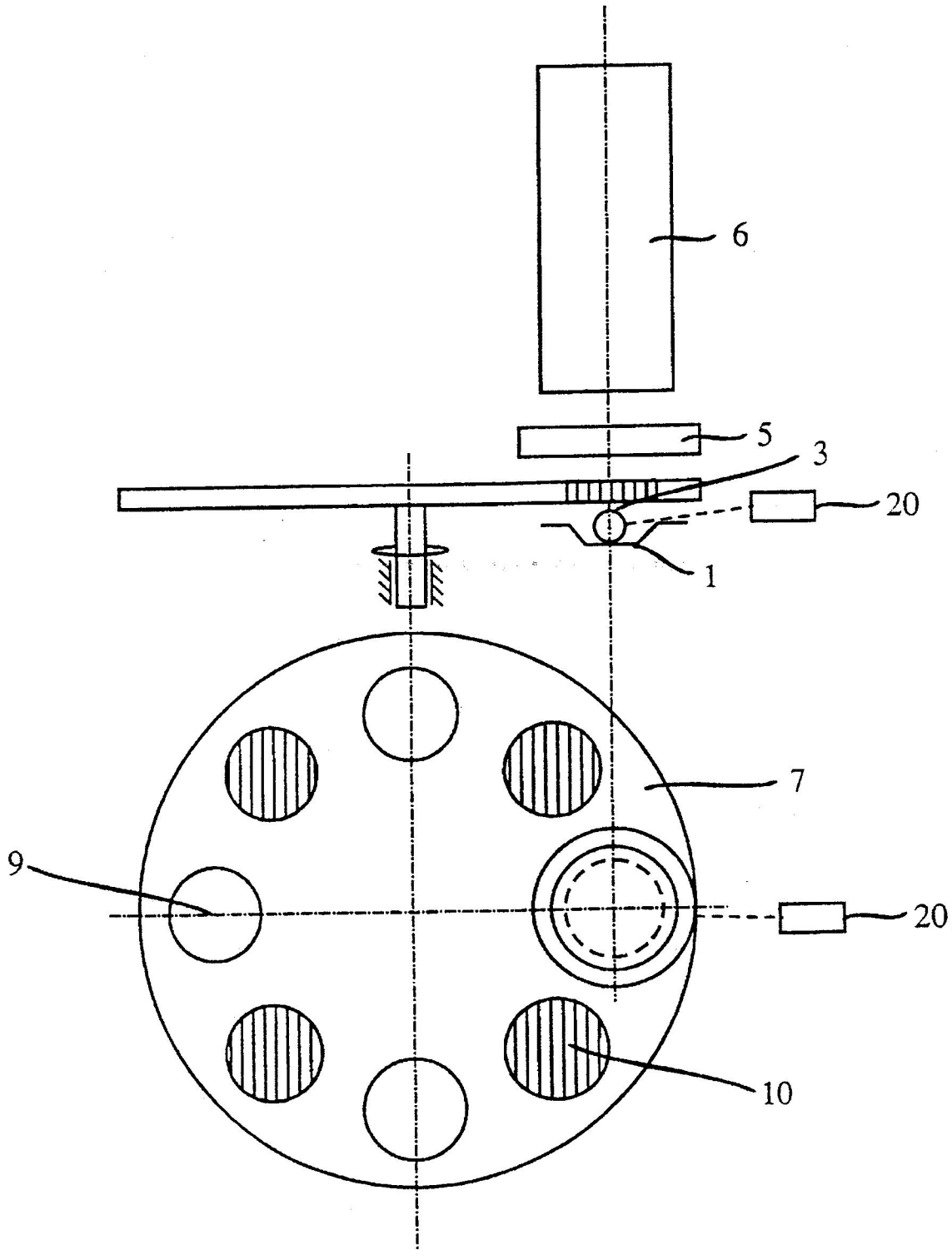


FIG. 3

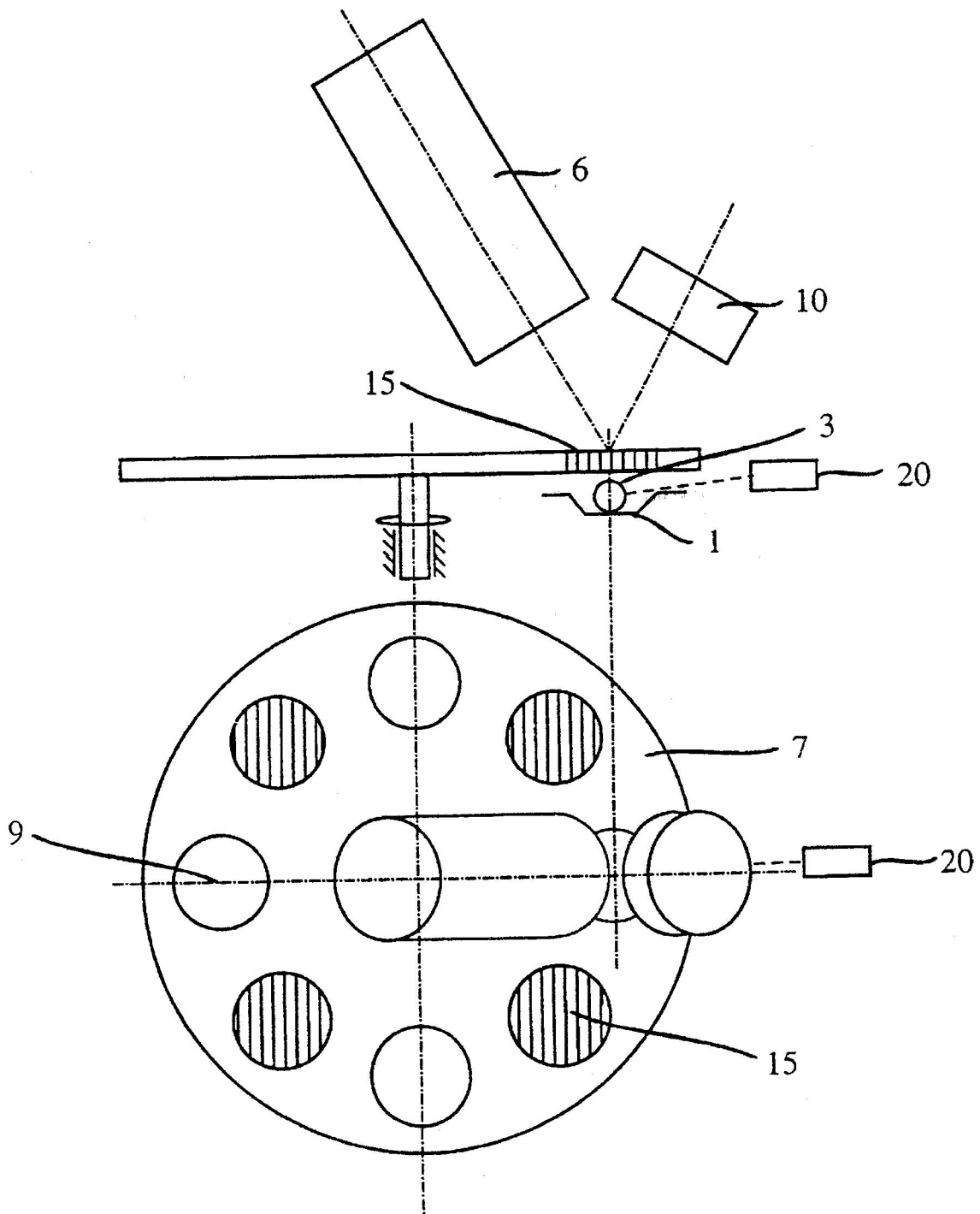
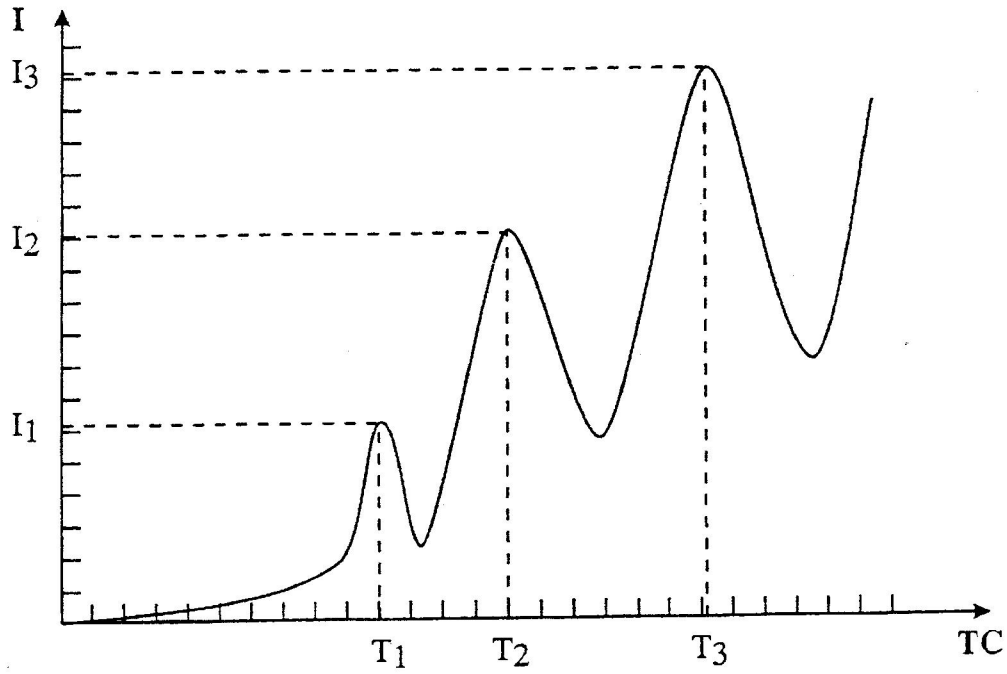


FIG. 5

I



II

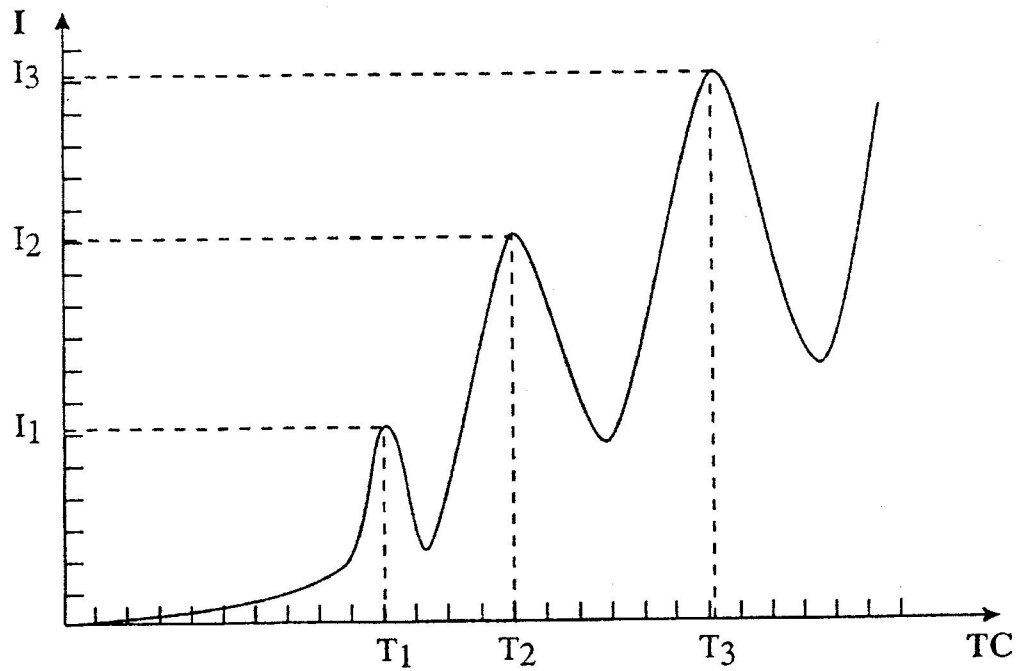


FIG. 6

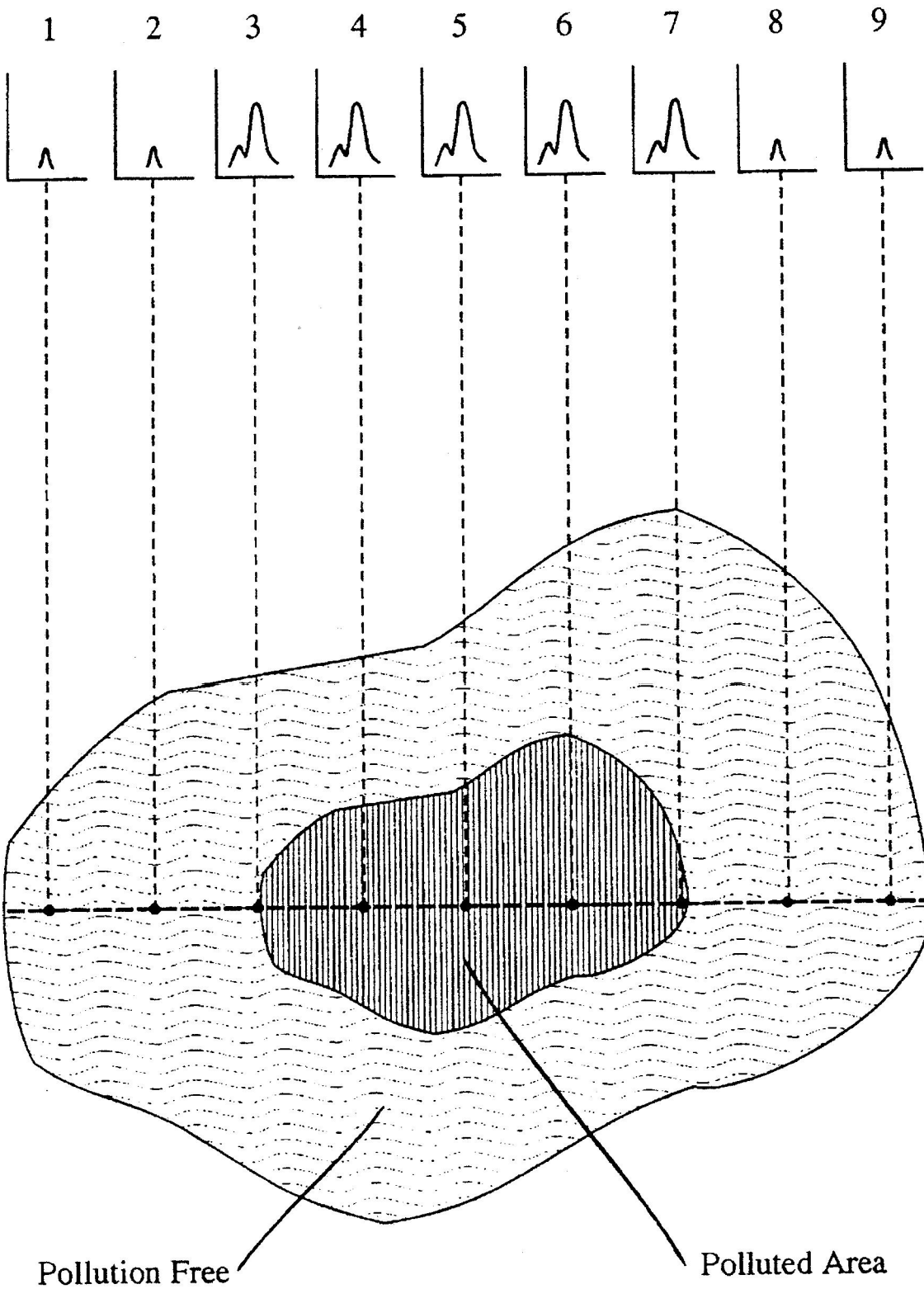


FIG. 7

