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Athanasίου et al.

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(54) **TISSUE PENETRATING DEVICE AND METHODS FOR USING SAME**

(75) Inventors: **Kyriacos A. Athanasίου; George Constantinides**, both of San Antonio; **Dan R. Lanctot, SA**, all of TX (US)

(73) Assignee: **Board of Regents of the University of Texas System**, Austin, TX (US)

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Primary Examiner—Jeffrey A. Smith

Assistant Examiner—Eduardo C. Robert

(74) *Attorney, Agent, or Firm*—Robert W Strozier

(57) **ABSTRACT**

The present invention involves a device for tissue, especially hard tissue, penetration device which incorporated a novel paddle-shaped needle for low friction rotatory penetration of hard tissue and a controlled delivery or extraction system for transfer of material from to device into a tissue site or transfer of material from the tissue site to the device. The delivery system or extraction system includes at least on solenoid or other similar device.

24 Claims, 8 Drawing Sheets

