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Holcombe et al.

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(54) **PROBE ASSEMBLY WITH CONTROLLED IMPEDANCE SPRING PIN OR RESISTOR TIP SPRING PIN CONTACTS**

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* cited by examiner

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(57) **ABSTRACT**

Uncontrolled characteristic impedance along a spring biased pin probe assembly is avoided by providing a stepped shelf of ground plane that extends outward along the pin and toward the target signal. The length of outward extension is chosen such that even when there is only (or at least) an expected minimum amount of compression of the spring while producing and maintaining contact, the entire exposed portion of the pin is over the shelf, whose depth of step has been selected to produce a selected Z_0 for the exposed pin that matches Z_0 for existing transmission lines already within the probe assembly. The spring biased pin may be a resistor tip spring pin that includes a small resistor in its tip.

(21) Appl. No.: **11/261,178**

(22) Filed: **Oct. 27, 2005**

(51) **Int. Cl.**
G01R 31/02 (2006.01)

(52) **U.S. Cl.** **324/754; 324/757**

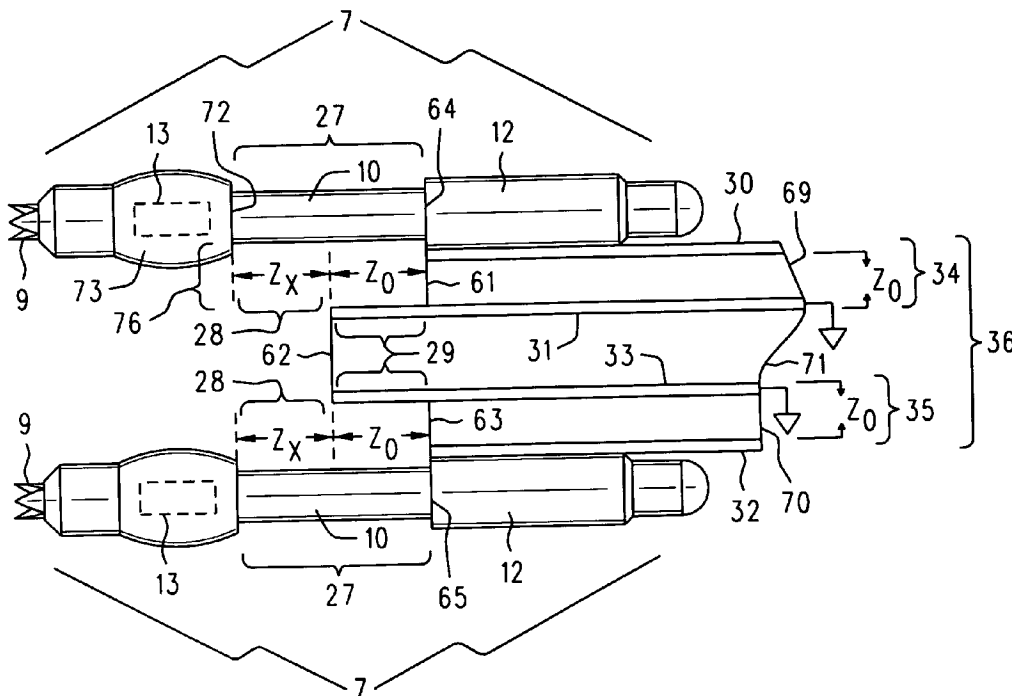
(58) **Field of Classification Search** None
See application file for complete search history.

(56) **References Cited**

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15 Claims, 8 Drawing Sheets



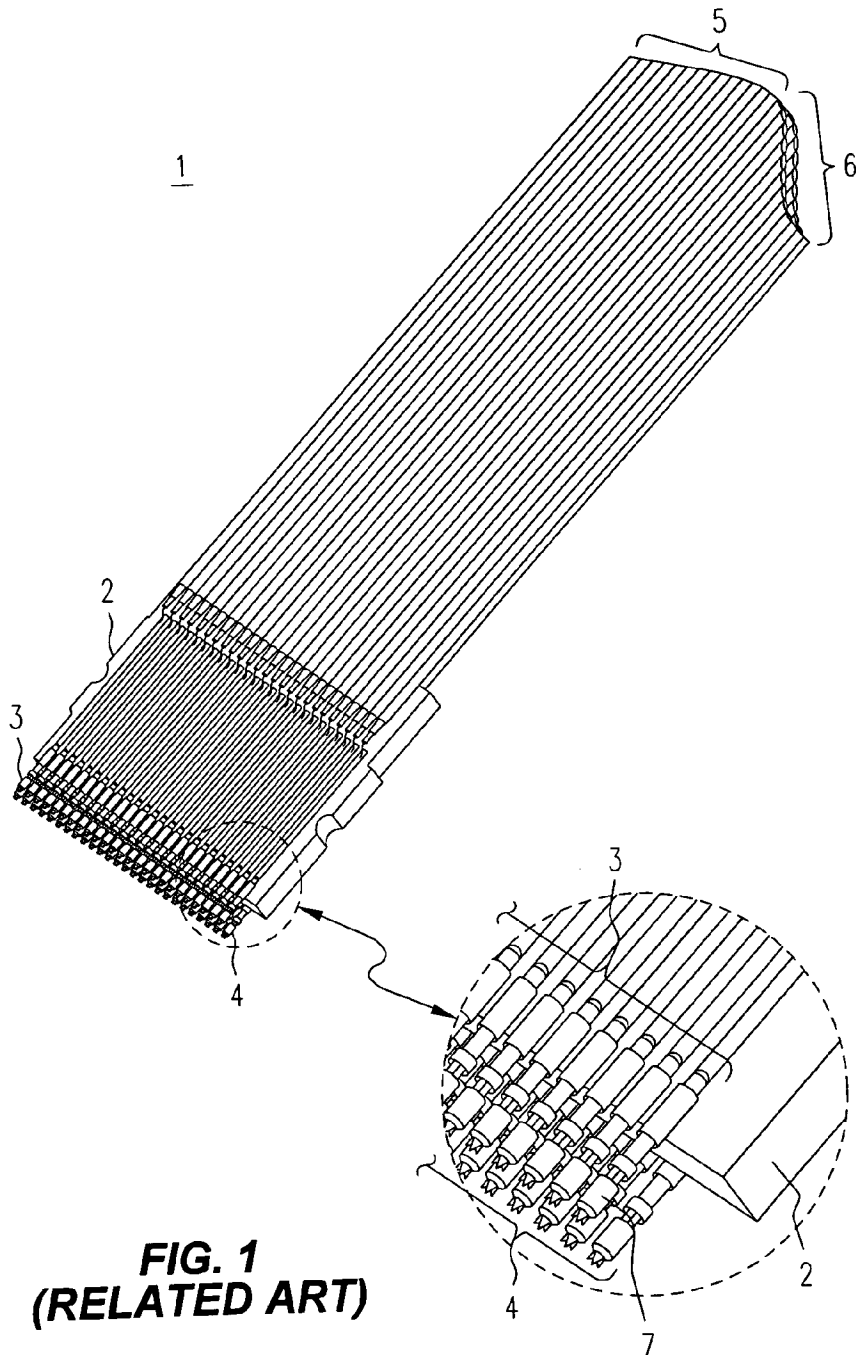


FIG. 1
(RELATED ART)

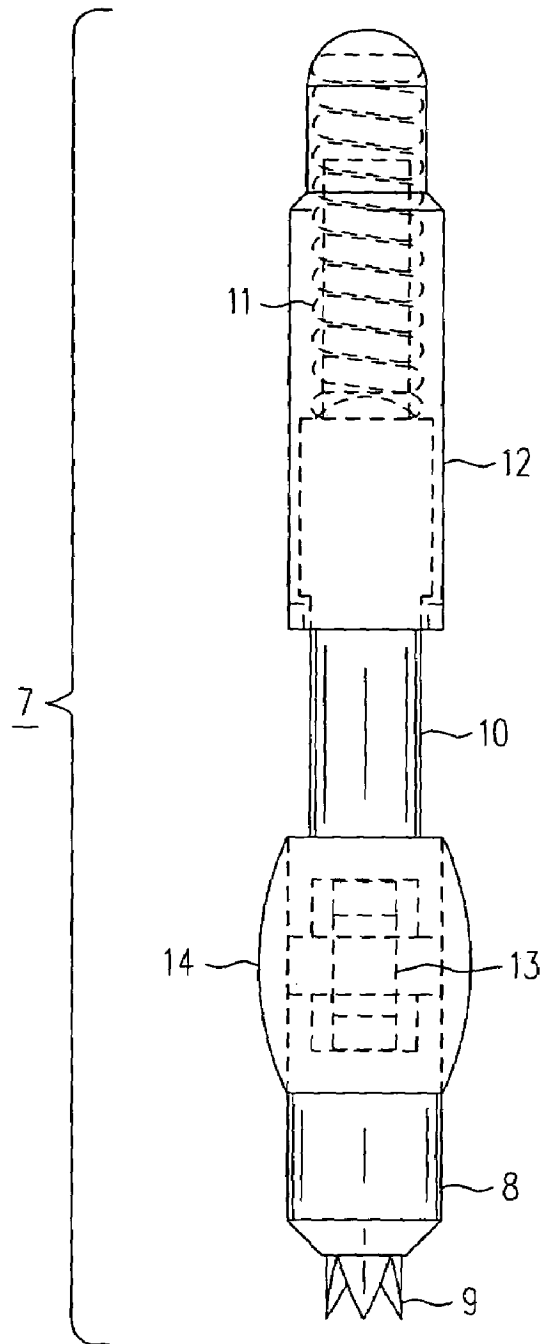


FIG. 2
(RELATED ART)

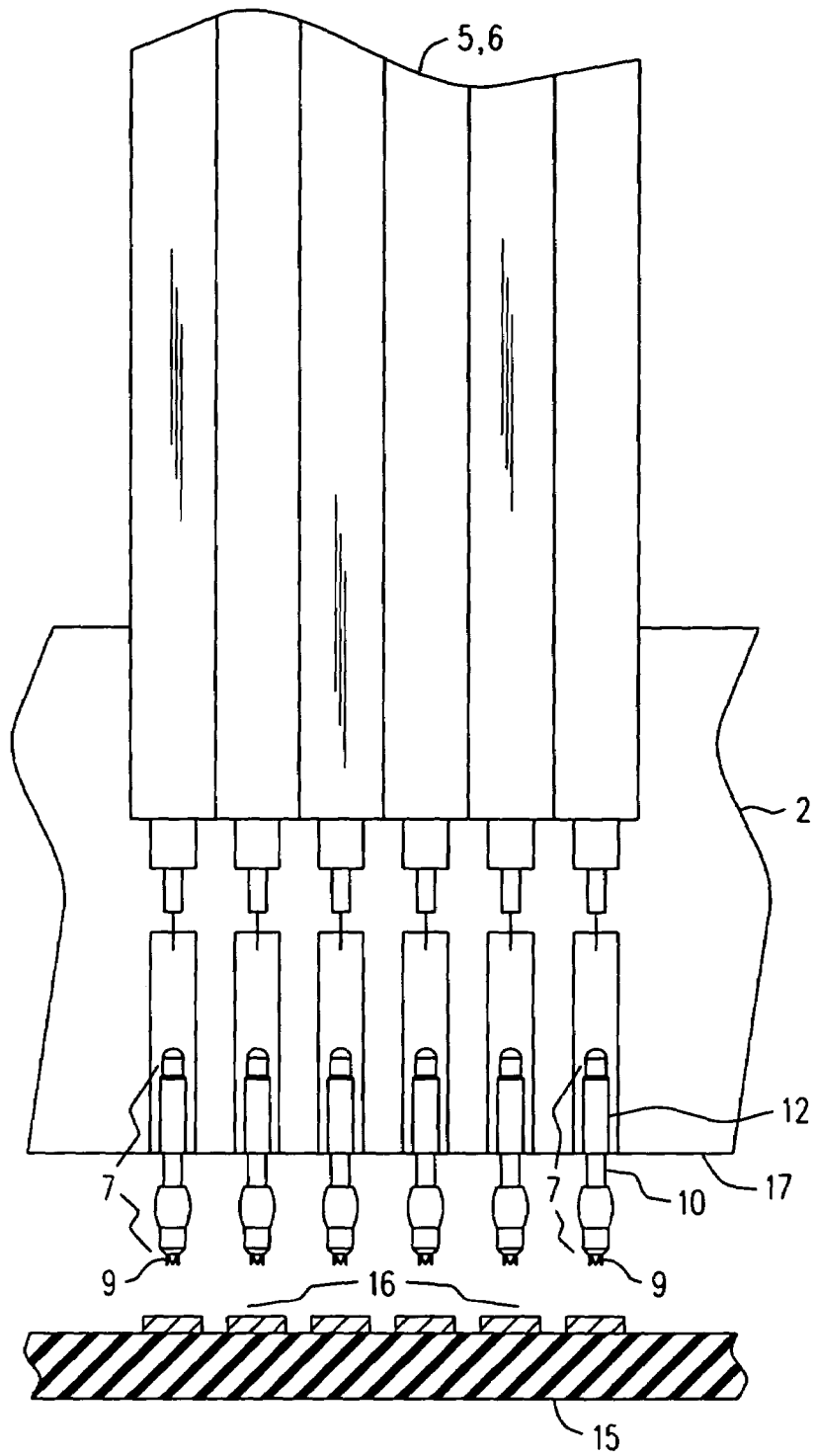


FIG. 3
(RELATED ART)

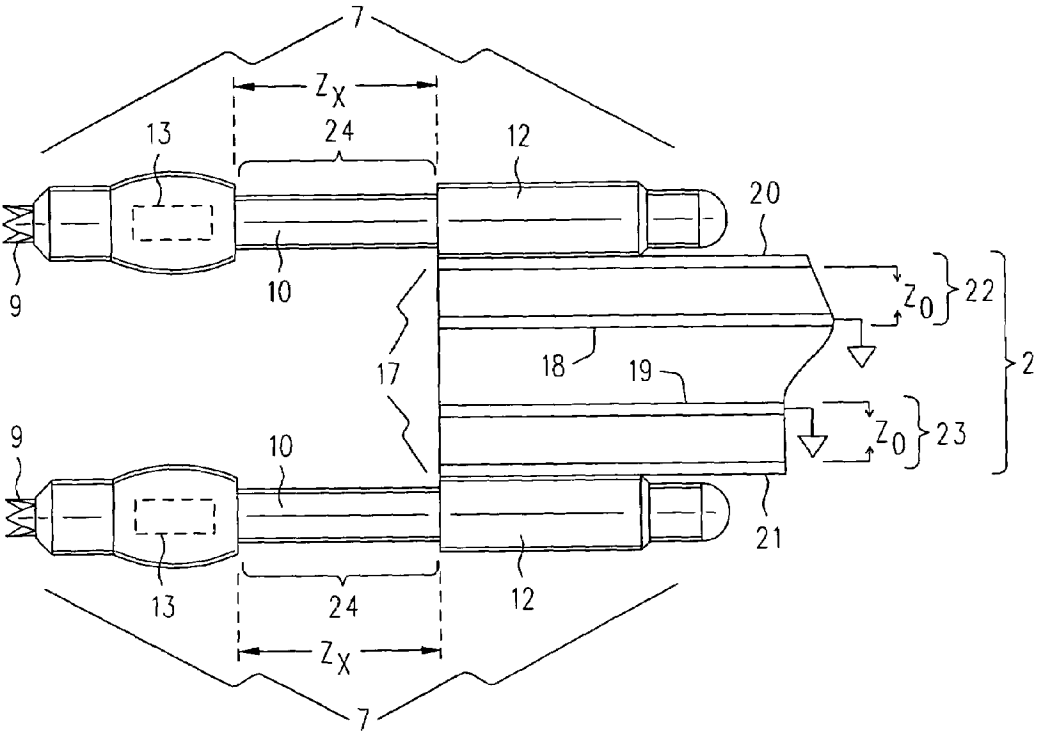


FIG. 4A
(RELATED ART)

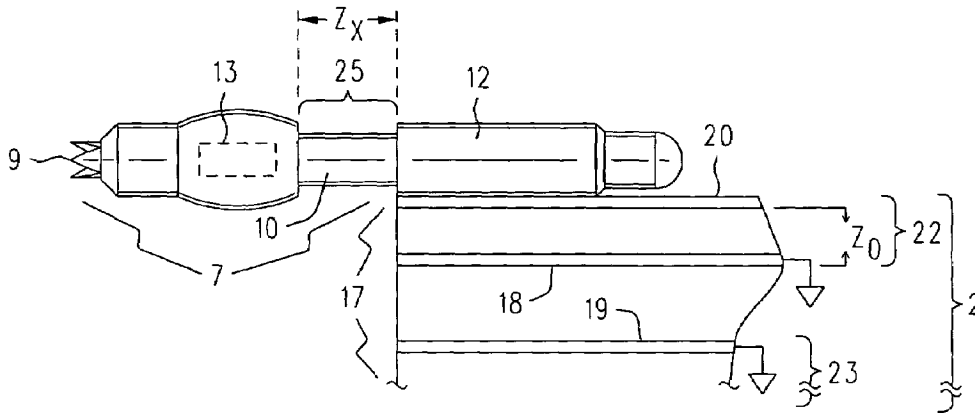


FIG. 4B
(RELATED ART)

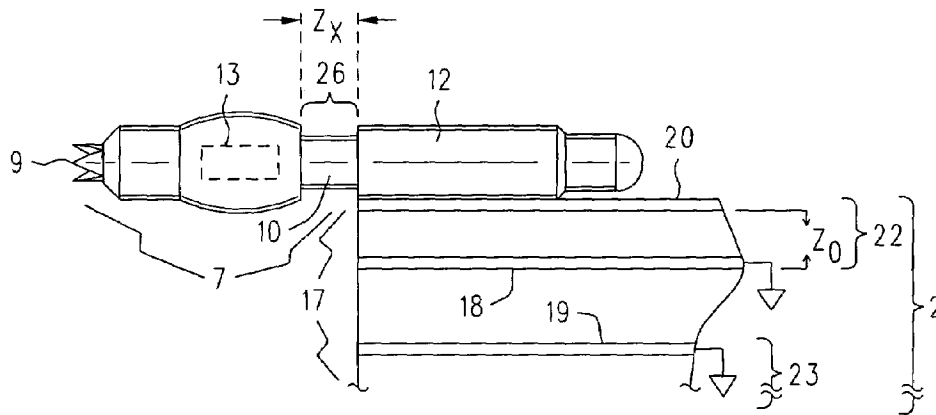


FIG. 4C
(RELATED ART)

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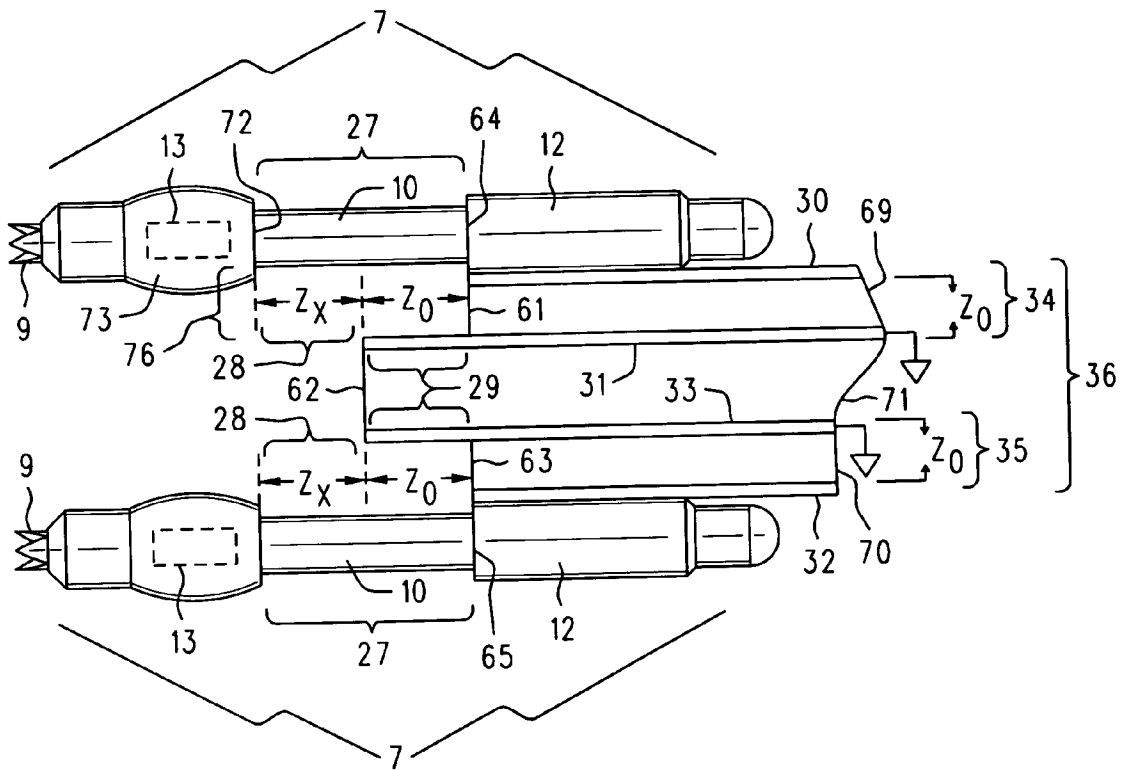


FIG. 5A