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(54) **DEDICATED MOBILE HIGH RESOLUTION PROSTATE PET IMAGER WITH AN INSERTABLE TRANSRECTAL PROBE**

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See application file for complete search history.

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(57) **ABSTRACT**

A dedicated mobile PET imaging system to image the prostate and surrounding organs. The imaging system includes an outside high resolution PET imager placed close to the patient's torso and an insertable and compact transrectal probe that is placed in close proximity to the prostate and operates in conjunction with the outside imager. The two detector systems are spatially co-registered to each other. The outside imager is mounted on an open rotating gantry to provide torso-wide 3D images of the prostate and surrounding tissue and organs. The insertable probe provides closer imaging, high sensitivity, and very high resolution predominantly 2D view of the prostate and immediate surroundings. The probe is operated in conjunction with the outside imager and a fast data acquisition system to provide very high resolution reconstruction of the prostate and surrounding tissue and organs.

17 Claims, 7 Drawing Sheets

