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(54) MODULAR X-RAY SOURCE AND METHOD OF X-RAY SOURCE TUBE REPLACEMENT FOR MOTION COMPENSATED TOMOSYNTHESIS IMAGING SYSTEM

(71) Applicants: **Jianqiang Liu**, Campbell, CA (US); **Manat Maolinbay**, Gilroy, CA (US); **Chwen-yuan Ku**, San Jose, CA (US); **Linbo Yang**, Pleasanton, CA (US)

(72) Inventors: **Jianqiang Liu**, Campbell, CA (US); **Manat Maolinbay**, Gilroy, CA (US); **Chwen-yuan Ku**, San Jose, CA (US); **Linbo Yang**, Pleasanton, CA (US)

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(57) **ABSTRACT**

A modular X-ray source and method for replacement of such an X-ray source are disclosed. The source is inside a consumable modular enclosure where the entire assembly is swapped out during maintenance. The enclosure covers an X-ray tube, high voltage circuit boards **6** and cooling insulating oil are arranged inside the module enclosure. The enclosure structure includes an X-ray window, connector engagement alignment guide and electrical connectors. The modular X-ray source is used in a multiple source tomosynthesis imaging system where multiple pulsed X-ray sources are utilized. The easy replacement of X-ray tube assembly inside the consumable modular enclosure results in lower maintenance cost and overall reliable X-ray imaging machine. The modular source has potential to increase the machine volume in the field and create new standards for replaceable modular X-ray source.