



(12) **United States Patent**
Thomas

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- (54) **ROTATING SWIVEL BRUSH FOR EXTERNAL CLEANING OF TUBULARS**
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- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 499 days.

- (56) **References Cited**
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- (63) Continuation of application No. 14/040,650, filed on Sep. 28, 2013.
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- (57) **ABSTRACT**
- Methods are disclosed for performing operations such as cleaning, inspection or data acquisition on an external surface of a hollow cylindrical tubular. Preferred embodiments include providing a fluid dispenser and an abrasion assembly on a buggy that travels up and down the length of the tubular as the tubular rotates. The fluid dispenser includes nozzles that dispense cleaning fluids onto the tubular's external surface. The abrasion assembly includes a swivel brush and a brush train providing different styles of abrasion cleaning of the tubular's external surface. Preferred embodiments of the buggy also carry a range finding laser generating samples of the distance from the laser to a sampled point on the tubular's external surface. The laser samples are processed in real time into surface contour data. Cleaning and inspection variables such as tubular rotational speed, or buggy speed, may be adjusted responsive to measured surface contour data.

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- (58) **Field of Classification Search**
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