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(12) **United States Patent**
Silva

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(54) **DOWNHOLE CUTTING TOOL**

(56) **References Cited**

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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 628 days.

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ReedHycalog Flyer entitled "Concentric and Eccentric String Hole Opening Solutions," dated 2006 (3 p.).

(65) **Prior Publication Data**

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Related U.S. Application Data

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(57) **ABSTRACT**

(51) **Int. Cl.**
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E21B 7/00 (2006.01)
E21B 10/30 (2006.01)

A tool for reaming a borehole includes a tubular body having a central axis, an uphole reamer section mounted to the body, and a downhole reamer section mounted to the body. Each reamer section includes a first blade extending radially from the body. Each blade has an uphole end, a downhole end opposite the uphole end, and a formation-facing surface. The formation facing surface of the first blade of the uphole reamer section is disposed at a radius R1 that increases moving from the uphole end to the downhole end. The formation facing surface of the first blade of the downhole reamer section is disposed at a radius R1' that decreases moving from the uphole end to the downhole end. The tool also includes a cutter element mounted to the formation facing surface of the first blade of each reamer section.

(52) **U.S. Cl.**
CPC **E21B 10/26** (2013.01); **E21B 17/1078** (2013.01); **E21B 7/00** (2013.01); **E21B 10/30** (2013.01)

(58) **Field of Classification Search**
CPC E21B 10/26; E21B 10/28; E21B 17/10; E21B 17/1057; E21B 17/1078; E21B 17/1085; E21B 10/30; E21B 17/00
See application file for complete search history.

19 Claims, 7 Drawing Sheets

