

(12) **United States Patent**  
**Morgan et al.**

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(54) **SYSTEM AND METHOD INCLUDING MULTI-CIRCUIT SOLUTION EXTRACTION FOR RECOVERY OF METAL VALUES FROM METAL-BEARING MATERIALS**

(58) **Field of Classification Search**  
CPC ..... C22B 3/0005  
See application file for complete search history.

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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 0 days.  
This patent is subject to a terminal disclaimer.

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(65) **Prior Publication Data**  
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(57) **ABSTRACT**

**Related U.S. Application Data**

The present disclosure relates to a metal recovery process comprising a solvent extraction process. In an exemplary embodiment, the solution extraction system comprises a plant with a first and second circuit. A high-grade pregnant leach solution (“HGPLS”) is provided to the first and second circuit, and a low-grade pregnant leach solution (“LGPLS”) is provided to the second circuit. The first circuit produces a rich electrolyte, which can be forwarded to a primary metal recovery, and a low-grade raffinate, which can be forwarded to a secondary metal recovery process. The second circuit produces a rich electrolyte, which can also be forwarded to the primary metal recovery process. The first and second circuits are in fluid communication with each other.

(60) Continuation of application No. 14/920,768, filed on Oct. 22, 2015, now Pat. No. 10,036,080, which is a (Continued)

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**C22B 5/00** (2006.01)  
**C22B 3/02** (2006.01)  
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(52) **U.S. Cl.**  
CPC ..... **C22B 3/02** (2013.01); **B01D 11/028** (2013.01); **B01D 11/0488** (2013.01);  
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**16 Claims, 5 Drawing Sheets**

