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Haddy

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(54) **DETECTION OF BURIED ASSETS USING CURRENT LOCATION AND KNOWN BUFFER ZONES**

(58) **Field of Classification Search**
CPC G01R 31/023; G01V 3/12; G01V 3/15; G01V 3/08; G08C 17/02
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See application file for complete search history.

(71) Applicant: **Alan Haddy**, Naples, FL (US)

(72) Inventor: **Alan Haddy**, Naples, FL (US)

(73) Assignee: **IPEG Corporation**, Naples, FL (US)

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(56) **References Cited**

U.S. PATENT DOCUMENTS

3,192,747	A	7/1965	Etal	
7,311,526	B2	12/2007	Rohrbach	
7,517,222	B2	4/2009	Rohrbach	
8,435,042	B2	5/2013	Rohrbach	
8,612,271	B2	12/2013	Nielsen	
2009/0121933	A1	5/2009	Tucker	
2009/0167308	A1	7/2009	Lomes	
2010/0045517	A1	2/2010	Tucker	
2010/0188245	A1*	7/2010	Nielsen et al.	340/686.1
2010/0211354	A1	8/2010	Park	
2013/0065406	A1	3/2013	Rohrbach	

* cited by examiner

Primary Examiner — Jay Patidar

(74) *Attorney, Agent, or Firm* — Mark Terry

(57) **ABSTRACT**

A method on a mobile computing device for locating electromagnetic signals radiating from a buried asset is disclosed. The method includes receiving buried asset data points corresponding to a buried asset, reading a predefined value, generating, based on the buried asset data points, a two dimensional area comprising a buffer zone at an above-surface location, wherein a width of the buffer zone corresponds to the predefined value, and wherein the buffer zone corresponds to the buried asset, and iteratively executing the following four steps: a) calculating an above-surface location, b) determining whether the above-surface location is located within the two dimensional area, c) if the above-surface location is not located within the two dimensional area, displaying a first graphic in a display, and d) if the above-surface location is located within the two dimensional area, displaying a second graphic.

7 Claims, 14 Drawing Sheets

