US009411017B2

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

(10) **Patent No.: US 9,411,017 B2**
(45) **Date of Patent: Aug. 9, 2016**

(54) **METHOD FOR INSPECTING WYE RING**

(71) Applicant: **General Electric Company**, Schenectady, NY (US)

(72) Inventors: **Thomas Earnest Moldenhauer**, Burnt Hills, NY (US); **Thomas James Batzinger**, Burnt Hills, NY (US); **Francis Alexander Reed**, Duanesburg, NY (US); **Michael Charles Freda**, Long Beach Township, NJ (US)

(73) Assignee: **General Electric Company**, Schenectady, NY (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 493 days.

(21) Appl. No.: **14/089,915**

(22) Filed: **Nov. 26, 2013**

(65) **Prior Publication Data**

US 2015/0145554 A1 May 28, 2015

(51) **Int. Cl.**
G01R 31/34 (2006.01)

(52) **U.S. Cl.**
CPC ***G01R 31/346*** (2013.01); ***F03D 17/00*** (2016.05); ***G01R 31/343*** (2013.01); *Y02E 10/722* (2013.01)

(58) **Field of Classification Search**
CPC G01R 31/346; G01R 31/343; F03D 17/00
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,238,733	A	12/1980	Freeman
5,548,214	A	8/1996	Yasohama et al.
6,868,357	B2	3/2005	Furse
7,139,668	B2	11/2006	Bechhoefer
8,028,581	B2	10/2011	Perkins et al.
2004/0000923	A1	1/2004	Fischer et al.
2005/0035768	A1	2/2005	Rabach et al.
2007/0057677	A1	3/2007	Koch et al.
2011/0169504	A1	7/2011	Pekola et al.
2013/0076389	A1	3/2013	Wilson et al.

FOREIGN PATENT DOCUMENTS

DE	2420166	A1	11/1975
EP	0228012	A1	7/1987
WO	2013/045541	A1	4/2013

OTHER PUBLICATIONS

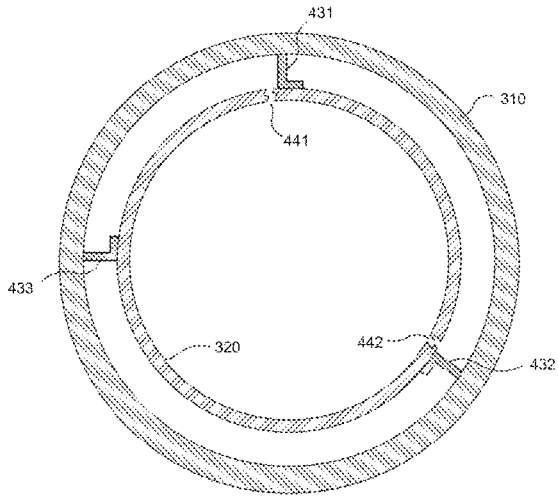
Yeboah et al., Refurbishment of the KCP&L La Cygne Hydrogen Cooled Brushless Exciter, Ninth EPRI Steam Turbine/Generator Workshop, Denver, 2005.*

European Search Report and Opinion issued in connection with corresponding EP Application No. 141947796 on May 7, 2015.

* cited by examiner

Primary Examiner — Daniel Miller
(74) *Attorney, Agent, or Firm* — James W. Pemrick; Ernest G. Cusick; Frank A. Landgraff

(57) **ABSTRACT**

A method for inspecting a wye ring in a generator includes the steps of dismantling the generator to gain access to the wye ring and at least a portion of a rotor, applying a test signal to the rotor and measuring an inductive voltage at two or more locations near the wye ring. A comparing step compares results from the measuring step to determine if a fault exists in the wye ring. A predetermined difference in inductive voltage measurements indicates presence of the fault.

20 Claims, 6 Drawing Sheets