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(54) Title: SYSTEM AND METHOD FOR GEARBOX HEALTH MONITORING

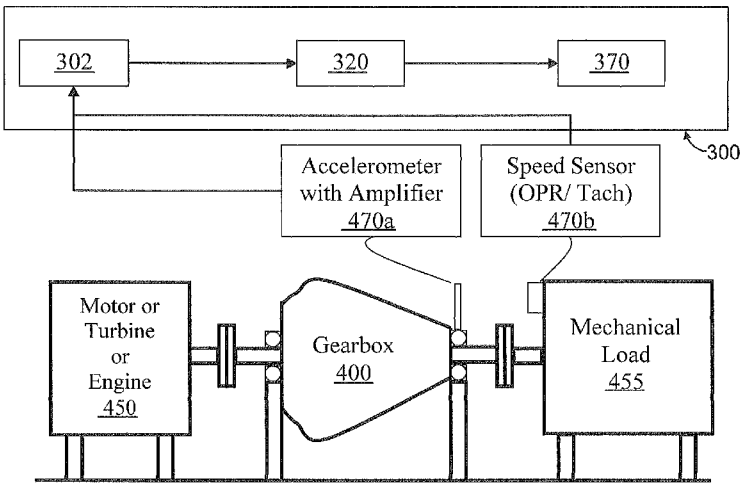

FIGURE 4A

(57) Abstract: A system includes a plurality of sensors (322-324) configured to measure one or more characteristics of a gearbox. The system also includes a gearbox condition indicator device (300), which includes a plurality of sensor interfaces (320) configured to receive input signals associated with at least one stage of the gearbox from the sensors. The gearbox condition indicator device also includes a processor (330) configured to identify a fault in the gearbox using the input signals and an output interface (370) configured to provide an indicator identifying the fault. The processor is configured to identify the fault by determining a family of frequencies (640) related to at least one failure mode of the gearbox, decomposing the input signals using the family of frequencies, reconstructing a gear signal using the deconstructed input signals, and comparing the reconstructed gear signal to a baseline signal (328). The family of frequencies includes a gear mesh frequency and its harmonics.

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G01M 13/02; G21C 17/00; G06F 11/30; B02C 25/00; G06F 15/00; G06F 17/00; B62D 6/00; G01H 1/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: "gearbox", "indicator", "frequency", "fault", "signal", "condition" and similar terms.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6175793 B1 (JOHN MICHAEL IRONSIDE) 16 JANUARY 2001 See abstract; figures 1-8; column 1, line 1-column 16, line 39; claims 1-21.	1-10
Y	EP 0442020 A1 (MONITORING TECHNOLOGY CORPORATION) 21 AUGUST 1991 See abstract; figures 1-7; page 3, line 3-page 8, line 2; claims 1-10.	1-10
Y	US 2005-0096873 A1 (RENATA KLEIN) 05 MAY 2005 See abstract; figures 1-8; paragraphs [0009]-[0162]; claims 1-62.	1-10
A	US 2005-0049835 A1 (CHRISTIAN-MICHAEL MAYER et al.) 03 MARCH 2005 See abstract; figures 1-3; claims 19-29.	1-10
A	US 2008-0319590 A1 (MITCHELL GABRIEL MIRCEA BALASU et al.) 25 DECEMBER 2008 See abstract; figures 7-10; claims 1-8.	1-10
A	US 2006-0266855 A1 (DOUGLAS G. MEYER) 30 NOVEMBER 2006 See abstract; figures 7-10; claims 1-8.	1-10

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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