Title (en)

METHOD AND DEVICE FOR MEASURING OR DETECTING A MECHANICAL CHANGE OF STATE OR ITS TIME DERIVATIVE.

Title (de)

VERFAHREN UND EINRICHTUNG ZUM MESSEN UND DETEKTIEREN EINER MECHANISCHEN ZUSTANDSVERÄNDERUNG ODER EINES ZEITDIFFERENZIALS.

Title (fr)

PROCEDE ET DISPOSITIF DE MESURE OU DE DETECTION D'UN CHANGEMENT D'ETAT MECANIQUE OU DE SA DERIVEE EN FONCTION DU TEMPS.

Publication

EP 0007963 A1 19800220 (FR)

Application

EP 78900287 A 19790704

Priority

SE 7714052 A 19771212

Abstract (en)

[origin: WO7900369A1] A method is described for measuring a change in the mechanical state aiming at detecting the disturbance the change in state has on a magnetic flux (o). This flux is brought to flow through at least a part of the body (1) under the influence of a driving magnetizing force (H0). In order to achieve an unambiguous measuring result the average length ((Alpha)) of the magnetic circuit is kept constant and independent of the change in the mechanical state. The flux (o) consists partly of a main flux (o0) having a definite direction and being of such a magnitude that the magnetic properties of the body depart from the region of irreversibility and partly of an alternating, gradually vanishing flux (oy) superimposed upon the main flux. The alternating flux must have such an initial magnitude that saturation is obtained in both directions of the alternating flux (ov). After the vanishing of the alternating flux (ov the disturbance generated through the change in the mechanical state is indicated or registered as a voltage which is induced by the change in flux corresponding to the disturbance. A device which works as explained above comprises means for generating the flux (o) through the body (1) which is arranged to form a magnetic circuit with at least a part of the body (1). This circuit should be essentially free from air gaps and have an average length ((Alpha)) for the driving magnetic force (H0) which is independent of the change in the mechanical state. The device is arranged to force partly the main flux (o0) and partly the superimposed alternating flux (ov) through the magnetic circuit. By means of a coil system (5) connected to a measuring or indicating device (8) the change in flux corresponding to the disturbance caused by the change in state is detected.

Abstract (fr)

On decrit un procede de mesure d'un changement d'etat mecanique qui consiste a detecter la perturbation d'un flux magnetique (o) induite par ce changement d'etat. Ce flux traverse au moins une partie du corps (1) sous l'influence d'une force magnetique (Ho). Afin d'obtenir un resultat de mesure sans ambiguite, on maintient la longueur moyenne () du circuit magnetique constante et independante du changement d'etat mecanique. Le flux (o) comprend d'une part un flux principal (o0) possedant une direction determinee et dont l'intensite est telle que les proprietes magnetiques du corps different de la region d'irreversibilite, et d'autre part un flux (ov) alternatif disparaissant progressivement, qui se superpose au flux principal. Le flux alternatif doit presenter une amplitude initiale telle que la saturation est atteinte dans les deux directions du flux alternatif (ov). Apres extinction du flux alternatif (ov), la perturbation provoquee par le changement d'etat mecanique est indiquee ou enregistree comme tension induite par la variation de flux correspondant a la perturbation. Un dispositif fonctionnant selon ce principe comprend des moyens pour produire le flux (o) traversant le corps (1) qui est dispose de facon a former un circuit magnetique a l'aide d'au moins une de ses parties. Ce circuit doit etre substantiellement exempt de lacunes d'air et posseder une longueur moyenne ((Alpha)) pour la force magnetique (Ho) qui est independante du changement d'etat mecanique. Le dispositif est concu de facon a diriger d'une part le flux principal (o0) et d'autre part le flux alternatif (ov) superpose a travers le circuit magnetique. La variation de flux correspondant a la perturbation provoquee par le changement d'etat est detectee a l'aide d'une bobine (5) connectee a un dispositif (8) de mesure ou d'indication.

IPC 1-7

G01L 1/12; G01B 7/24; G01N 27/83; G01R 33/12

IPC 8 full level

G01B 7/24 (2006.01); **E01F 9/669** (2016.01); **E01F 15/02** (2006.01); **E01F 15/08** (2006.01); **G01L 1/12** (2006.01); **G01N 27/72** (2006.01); **G01R 33/12** (2006.01)

CPC (source: EP US)

G01L 1/125 (2013.01 - EP US); **G01L 1/127** (2013.01 - EP US); **G01N 27/72** (2013.01 - EP US)

Cited by

CN112878225A

Designated contracting state (EPC)

FR

DOCDB simple family (publication)

WO 7900369 A1 19790628; CH 635935 A5 19830429; DE 2857236 A1 19810108; EP 0007963 A1 19800220; FR 2461247 A1 19810130; FR 2461247 B1 19840120; GB 2036329 A 19800625; GB 2036329 B 19821215; SE 403517 B 19780821; SU 973040 A3 19821107; US 4316146 A 19820216

DOCDB simple family (application)

SE 7800082 W 19781123; CH 766479 A 19781123; DE 2857236 T 19781123; EP 78900287 A 19790704; FR 8006005 A 19800313; GB 7926806 A 19781123; SE 7714052 A 19771212; SU 2806958 A 19790810; US 6818379 A 19790820