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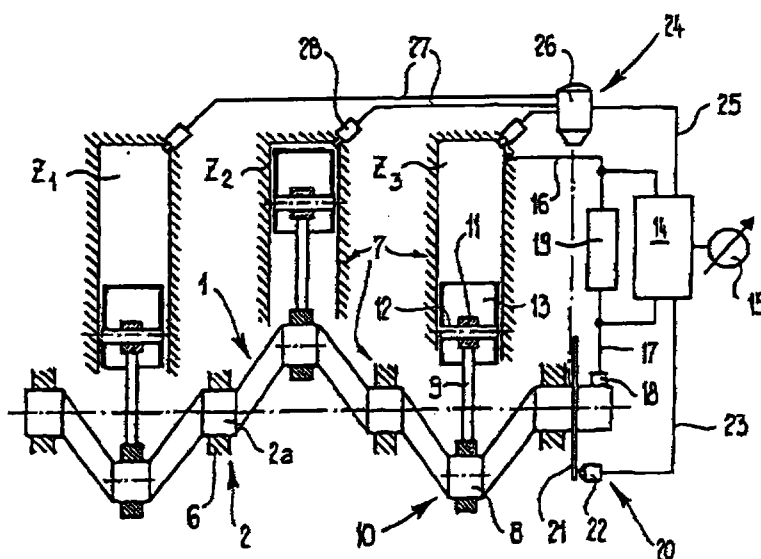
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(54) Title: METHOD AND DEVICE FOR MONITORING PLAIN BEARINGS OF A RECIPROCATING PISTON MACHINE, ESPECIALLY AN INTERNAL COMBUSTION ENGINE

(54) Bezeichnung: VERFAHREN UND EINRICHTUNG ZUR ÜBERWACHUNG VON GLEITLAGERN EINER HUBKOLBEN-MASCHINE, INSBESONDERE EINES VERBRENNUNGSMOTORS

(57) Abstract

A reciprocating piston machine, especially an internal combustion engine, comprises at least one cylinder (Z_1, Z_2, Z_3) having a displaceable piston (13) that is connected to a crankshaft (1) via a connecting rod (9). A thermocurrent (I) is generated when a lubricating film (5) is broken between bearing parts which move relative to one another and which are comprised of different electrically conductive materials, and is generated due to a temperature gradient on such a plain bearing (2a, 10, 11). The thermocurrent (I) is used as a control signal in a control device (14). In order to differentiate between different plain bearings (2, 10, 11) and/or bearing states, the curve of this generated thermocurrent (I) is composed by enlarging and spreading according to the angle of rotation of the crankshaft (1), and the curve obtained is interrogated during a complete operating cycle in order to determine significant symptoms of the plain bearings.



(57) Zusammenfassung

Eine Hubkolben-Maschine, insbesondere eines Verbrennungsmotors, weist mindestens einen Zylinder (Z_1, Z_2, Z_3) mit einem verschiebblichen Kolben (13) auf, der über eine Pleuelstange (9) mit einer Kurbelwelle (1) verbunden ist. Ein Thermostrom (I) entsteht jeweils beim Abreißen eines Schmierfilmes (5) zwischen sich relativ zueinander bewegendenden Lagereilen aus unterschiedlichen, elektrisch leitenden Werkstoffen und auf Grund eines Temperaturgradienten an einem solchen Gleitlager (2a, 10, 11). In einem Steuergerät (14) wird der Thermostrom (I) als Steuersignal benutzt. Zur Unterscheidung verschiedener Gleitlager (2, 10, 11) und/oder Lagerzustände wird die Kurve des erhaltenen Thermostromes (I) durch Vergrößerung und Spreizung in Abhängigkeit gesetzt vom Drehwinkel der Kurbelwelle (1) und die erhaltene Kurve wird über ein ganzes Arbeitsspiel nach jeweils signifikanten Symptomen der Gleitlager abgefragt.

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