YEDİTEPE ÜNİVERSİTESİ

YUTTO
YEDİTEPE ÜNİVERSİTESİ TEKNOLOJİ TRANSFER OFİSİ

Reference Number: 025418/0049

Title of the Invention

A POWER GENERATION SYSTEM FOR VEHICLES

Invention

The objective of the present invention is to provide a power generation system that does not require any changes in the tire, does not require any intervention in the vehicle's chassis and has a practical installation system and uncomplicated structure.

A further objective of the present invention is to provide a power generation system which does not require a new tire structure and production.

A power generation (harvesting) system (1) which meets the power requirement of tire (A) pressure monitoring systems or similar systems that might be provided in the tire (A) which require power, and which furthermore does not require any modification in the tire (A), does not require any intervention in the vehicle's chassis and has a practical installation system. The system does not hinder mounting and changing tires (A), and can return to its initial mounting position in case of a tire (A) blowout.

The components in the figures are given reference numbers as follows:

1. Power generation system
2. Electromechanical converter (EMC)
3. Mechanical drive system (MDS)
4. Pulley
5. Pulley shaft
6. Torsion spring
7. Dynamo
8. Dynamo shaft

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9. Wire
10. One way bearing
11. Flywheel
12. Conical spring
13. Lug
14. Ball

A. Tire
C. Wheel rim

Figure 1. is a perspective view of the electromechanical converter.

Figure 5. is a schematic view of the power generation system at the position where the tire is not deformed.

Figure 6. is a schematic view of the power generation system at the position where the tire is deformed.

FIGURE 1

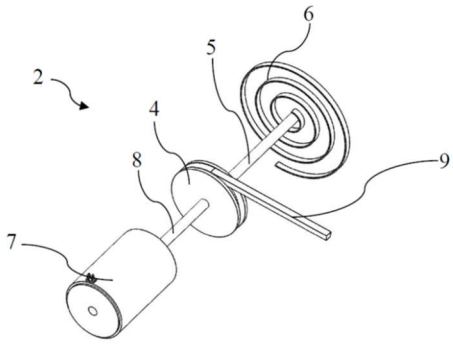

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FIGURE 5

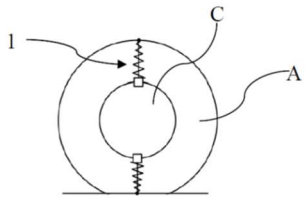
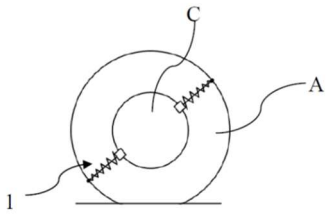


FIGURE 6



Advantages

Most of the tire pressure monitoring systems (TPMS) are operated to with an electrochemical battery. After use for a certain period of time, the battery of the TPMS should be replaced. In fact, since in most TPMS the system is designed to be integrated, replacement of the battery is not possible, thus a new system should be purchased. Nowadays, battery life for TPMSs varies between 1 and 7 years. In large vehicles such as trucks and buses, pressure information should be communicated to larger distances in a wireless manner. This further reduces battery life of TPMS. Due to these reasons, instead of using a battery, a TPMS which generates its own energy (harvests energy) is much more advantageous compared to the TPMS with battery. In addition, considering the environmental effects, a TPMS that generates its own energy will be much more environment friendly than a TPMS running on a battery.

Current Status

Turkey: Registered

Germany: Registered

EPO: Registered

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Keywords

TPMS which generates its own energy (harvests energy) in vehicles, energy efficiency

TRL:4

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