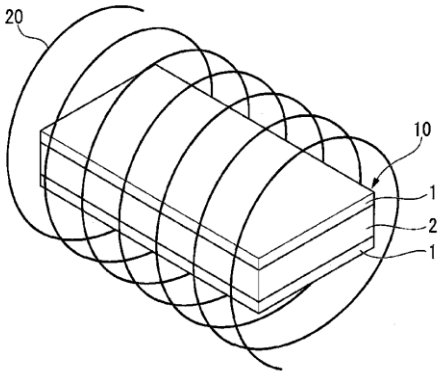
Tohoku Univ. Technology

Piezoelectric-magnetostrictive composite and power generation element

Mechanical energy conversion into electrical energy with more efficiency by interaction between piezoelectric and magnetostrictive films



1. Magnetostrictive film
2. Piezoelectric film
10. Piezoelectric-magnetostrictive composite
20. Coil

Overview

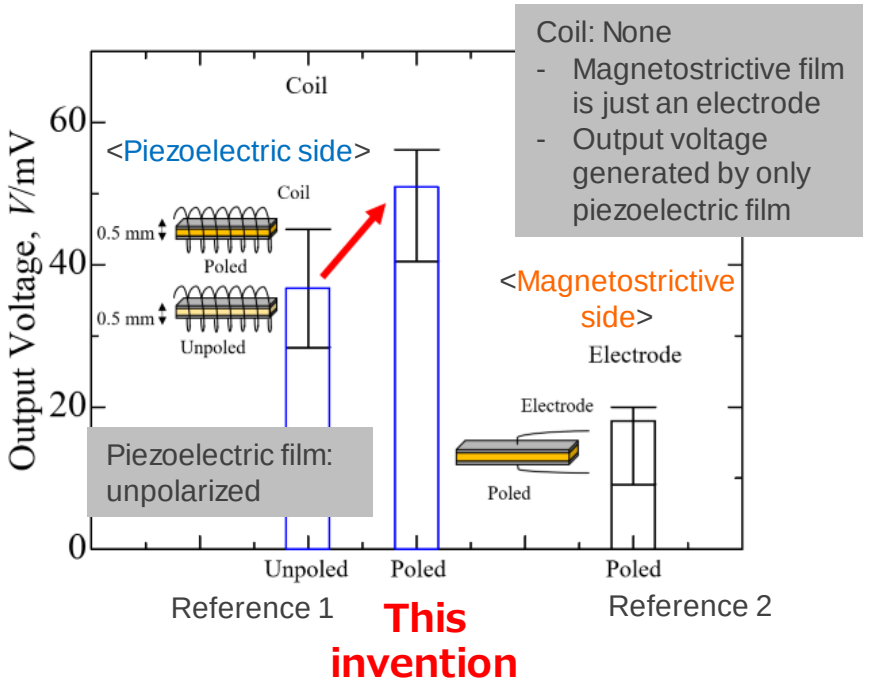
In recent years, power generation element that converts mechanical energy into electrical energy, such as vibration, has been attracting attention. For example, piezoelectric and magnetostrictive materials are known to convert mechanical energy into electrical energy. However, mechanical energy such as vibration has not been fully used so far. Therefore, there is a need for power generation element that can convert mechanical energy into electrical energy more efficiently.

This invention is able to provide a high power generating element and a piezoelectric-magnetostrictive composite to use for this device. This invention laminates a magnetostrictive film and a piezoelectric film and forms a microscopic irregularity at the interface between them. This configuration increases the frequency of contact between the 2 materials at the microscopic interface area, causing electromagnetic physical interaction between magnetostrictive film and piezoelectric film, which improves the power generation element's output characteristics. This allows mechanical energy to convert efficiently into electrical energy.

Product Application

- Vibration power generation element that uses vibration of everyday life (bridge, building, etc.) or micro vibration of factory equipment, etc.

High output voltage has been confirmed



IP Data

IP No.	:	JP7267597
Inventor	:	FURUYA Yasubumi, NARITA Fumio
Admin No.	:	T18-006

Contact

Tohoku Techno Arch Co., Ltd.
Please visit CONTACT here