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(71) **Applicant: ARION TECHNOLOGIA BRASIL-GESTAO DE ATIVOS S/A** [BR/BR]; Avenida Santos Dumont, 2828 Sala 701 e 702., Bairro Aldeota, Fortaleza Ceara (BR).

(72) **Inventors: DA SILVA, Sebastiao, Florentine;** Rua Visconde Piraja, Apt. 402, Bairro Ipanema, Rio De Janeiro (BR). **PAIVA, Gerson, Silva;** Rua Visconde Do Piraja N. 411, Apto. 402, Bairro Ipanema, 22410-970 Rio De Janeiro (BR).

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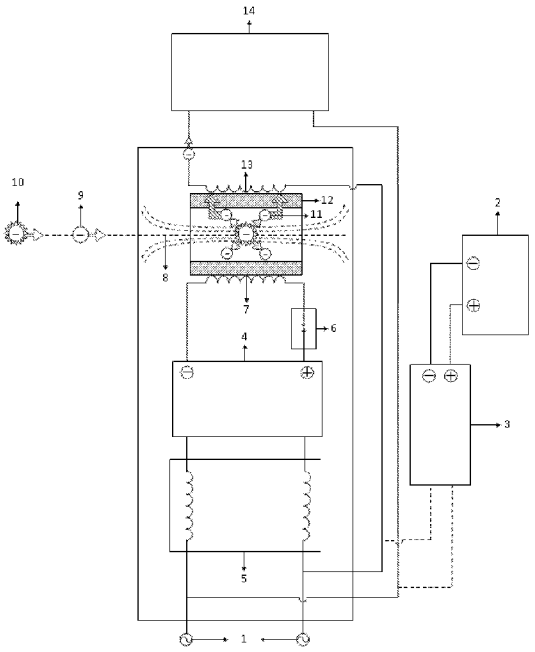
(54) Title: APPARATUS AND METHOD FOR GENERATION OF ELECTRICITY FROM MUONS AND MUONIC ELECTRO-MAGNETIC GENERATOR

Fig. 1



(57) Abstract: Provided is an apparatus and a method for generation of electricity from the decay of muons created from cosmic particles called pions. The system includes a primary source of power connected to an inverter, which feeds an oscillator, whose frequency is an integer multiple of the Compton wavelength of the muon through the protection of an inductive filter. The terminals of the oscillator are connected in series with a sparker and an external oscillating coil that generates a variable magnetic field, with the same frequency of the oscillator, capable of attracting and concentrating the muons, which decay spontaneously in large amounts of electrons that are attenuated by the coil core and absorbed by the internal coil wires in the form of electricity. The system described herein can be used to supply both low and high power devices.

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APPARATUS AND METHOD FOR GENERATION OF ELECTRICITY FROM MUONS AND MUONIC ELECTROMAGNETIC GENERATOR

This application claims priority to U.S. Provisional Patent Application Serial No. 61/545,631, the complete disclosure of which is incorporated herein by reference.

Field of the Invention

This invention relates to an apparatus and a method for generation of electricity from the decay of muons created from cosmic particles called pions.

Background of the Invention

There are several electricity generation technologies currently in use. Also called solar cells, the photonic generators, for example, are used to capture and transform into electrical energy the particles of light (called photons) from the sun (Patent No. 20090127773). Nevertheless, this technology is restricted to the weather conditions as it depends on the sunlight, which limits its industrial applicability.

There is a need for an improved electrical generator.

Summary of the Invention.

An objective of the present invention is to provide an improved electrical generator.

There are devices called muon detectors which are already available for industrial applications (Patent No. 20090101824). These devices are used to detect and/or count the number of muons originated from cosmic rays that reach naturally the earth' s surface, without using these particles for electricity generation. However, such muons have very high energies, typically 3 to 4 Gev. In this context, the "Muonic Electromagnetic Generator" (FIGS. **1** and **2)** according to the present invention can produce electricity from the decay of muons, which are present in a large quantity at the ground level, during day

and night, independently of the weather conditions, which allows a continuous supply of electricity for various uses, including high powered. Therefore, the present system is an improved alternative to the conventional forms of energy.

Brief Description of the Drawings

FIG. 1 is a diagrammatical view of the "Muonic Electromagnetic Generator" with its main components, in accordance with aspects of the present technique;

FIG. 2 is a diagrammatical view of an electro-mechanical alternative of the "Muonic Electromagnetic Generator" with high coefficient of performance (COP), in accordance with aspects of the present technique;

FIG. 3 represents a cross section and a longitudinal section of the coil ("Muonic Coil"), in accordance with aspects of the present technique;

FIG. 4 represents a cross section of the engine that composes the electro-mechanical system (FIG. 2) of the "Muonic Electromagnetic Generator", showing the details of the coils and terminals, in accordance with aspects of the present technique; and

FIG. 5 is a flow chart illustrating the method to capture and transform the decay of muons from cosmic rays into electrical energy by means of a high flow of electrons originated from this decay, in accordance with aspects of the present technique.

Detailed Description of Preferred Embodiments of the Invention

The invention will now be explained with reference to the attached non-limiting Figs. The muon is considered by quantum physics as a wave-particle (i.e., it behaves sometimes as a particle and sometimes as a wave) and can be captured by an oscillator tuned to the frequency of its wave function. Hence, the present muonic coil (FIG. 3) is able to capture and drive this inward flow of atmospheric muons in the form of particles. The electrical power can be expressed by the following equation: $P = U . I$, in which P = electrical power (kW), U = voltage (V), and i = current (A).

The table below presents sample results obtained from experimental tests performed using the "Muonic Electromagnetic Generator" (FIG. **1**):

Test #1	**Input**	**Output**
Voltage (V)	110	40,000
Current (A)	19	19
Electric Power (kW)	2	760
COP	380	

Defined as the ratio between power output and input in the "Muonic Electromagnetic Generator", the coefficient of performance (COP) shown in the table above demonstrates that a little input energy can be transformed into a very large amount of energy, without compromising the environment and emitting radiation.

The "Muonic Electromagnetic Generator" has wide industrial applications for the purpose of generating electricity for consumption in general (industrial, commercial and residential), motor vehicles, ships, trains, aircrafts and other means of transportation, among other devices that depend on electricity.

The system called "Muonic Electromagnetic Generator" relates generally to generation of power, and more particularly to an apparatus and a method for generation of electricity from the decay of muons created in the upper atmosphere from cosmic particles called pions.

The system comprises a primary source of power connected to an inverter, which feeds an oscillator, whose frequency is an integer multiple of the Compton wavelength of the muon through the protection of an inductive filter. The terminals of the oscillator are connected in series with a sparker and an external oscillating coil that generates a variable magnetic field, with the same frequency of the oscillator, capable of attracting and concentrating the muons, which decay spontaneously in large amounts of electrons that are attenuated by the coil core and absorbed by the internal coil wires in the form of electricity.

The system described above can be used to supply both low and high power devices. Therefore, it can be applied in a wide range of industrial scales, with better benefit/cost

ratio than the existing electricity generators and with no environmental impact and radioactive emissions.

The "Muonic Electromagnetic Generator" (FIG. 1) comprises a primary source of power grid 1 or battery 2 ("Input") connected to an inverter 3, which feeds an oscillator 4, whose frequency is an integer multiple of the Compton wavelength of the muon through the protection of an inductive filter 5, in which the terminals of the oscillator are connected in series with a sparker 6 and an external oscillating coil 7 that generates a variable magnetic field 8, with the same frequency of the oscillator, capable of attracting and concentrating the muons 9 from the pions originated from cosmic rays 10, where the muons decay (fragment) spontaneously in a large amount of electrons 11 that are attenuated by the coil core 12, until they are absorbed by the internal coil wires 13 in the form of electricity, which can supply any external load 14, after transformed to the tension of use.

FIG. 2 shows a particular application of the "Muonic Electromagnetic Generator", with the aim to increase its nominal current, where the output is an Engine 15 connected to a metal disc 16; the Engine (FIG. 4) is internally formed by an external rotor 17 containing magnets 18 and a stator core 19, containing two sets of electrically independent and overlapping coils 20 and 21, with their respective terminals 22 and 23 connected externally to an electronic speed controller 24, comprising a bipolar transistor 25, a diode 26, a rheostat 27 and a continuous power source (battery or rectified and filtered source) 28 for starting the Engine, in which an inductive filter 29 connects the Muonic Coil (FIG. 3) to the Engine circuit in order to remove undesired harmonics. Therefore, the system described above can be used to supply both low and high power devices, depending on the demand.

FIG. 5 shows the flow chart illustrating the method of capturing and transforming the decay of the muons into electrical energy by means of high-energy electrons generated from this decay. As depicted in FIGS. 1 and 2, the process of power generation depends on the presence of muons 100 from pions 101 originated from cosmic rays 102; The muons are concentrated and driven by a magnetic field 103 generated by an oscillating coil 104 that works as an antenna, where the muons decay 105 into high-energy muonic electrons 106 that enter the wires of a second coil 107 located inside the first coil, generating

electricity in the form of high voltage at their terminals 108. This high voltage can perform work when applied properly to any external load 109.

The process captures atmospheric muons at their Compton frequency, or harmonics thereof and concentrates them efficiently into a muonic coil.

While only certain features of the invention have been illustrated and described above, several modifications and changes can be done by those skilled in this technique. Hence, it is to be understood that the following claims are intended to cover all such modifications and changes, including those resulting from associations or combinations of more than one apparatus, as fall within the true spirit of the invention.

CLAIMS:

1. An electricity generation system, comprising:

a primary source of power grid or battery ("Input") connected to an inverter, which feeds an oscillator, whose frequency is an integer multiple of the Compton wavelength of the muon through the protection of an inductive filter, in which the terminals of the oscillator are connected in series with a sparker and an external oscillating coil that generates a variable magnetic field, with the same frequency of the oscillator, capable of attracting and concentrating the muons from the pions originated from cosmic rays, where the muons decay (fragment) spontaneously in a large amount of electrons that are attenuated by the coil core until they are absorbed by the internal coil wires in the form of electricity, which can supply any external load, after transformed to the tension of use.

2. The system of claim 1 further comprising an engine, an output of the system connecting to the engine, which is connected to a metal disc.

3. The system of claim 2, wherein the engine, which is internally formed by an external rotor containing magnets and a stator core, contains two sets of electrically independent and overlapping coils, with their respective terminals connected externally to an electronic speed controller, comprising of a bipolar transistor, a diode, a rheostat and a continuous power source (battery or rectified and filtered source) for starting the Engine, in which an inductive filter protects the Muonic Coil and the Engine circuit in order to filter the harmonics.

4. The system of claim 1, wherein the frequency is an integer multiple of the Compton wavelength of the muon.

5. The system of claim 1, further comprising a device that presents a core and two coaxial coils, being the internal coil responsible for the absorption of muonic electrons, which will turn into electricity, while the external coil is responsible for generating the oscillating magnetic field at the same Compton frequency of the muons ("Muonic Coil ").

6. The system of claim 1, further comprising a device, the Engine, which is internally formed by an external rotor containing magnets and a stator core, containing two sets of electrically independent and overlapping coils, with their respective terminals connected externally to an electronic speed controller, comprising a bipolar transistor, a diode, a rheostat, a continuous power source (battery or rectified and filtered source), and an inductive filter, which is an efficient configuration for a better use of muonic electrons to perform work (output power).

7. A method of generating electricity, comprising:

transformation of muons created from particles called pions originated from cosmic rays into electricity.

8. The method of claim 7, further comprising capturing atmospheric muons at their Compton or harmonics thereof, and concentrating them efficiently into a muonic coil.

9. The method of claim 8, further comprising capturing and transforming the decay of muons from cosmic rays into electrical energy through the high number of electrons originated from this decay.

10. The method of claim 9, further comprising driving the electrons into wires, resulting in electricity.

Fig. 1

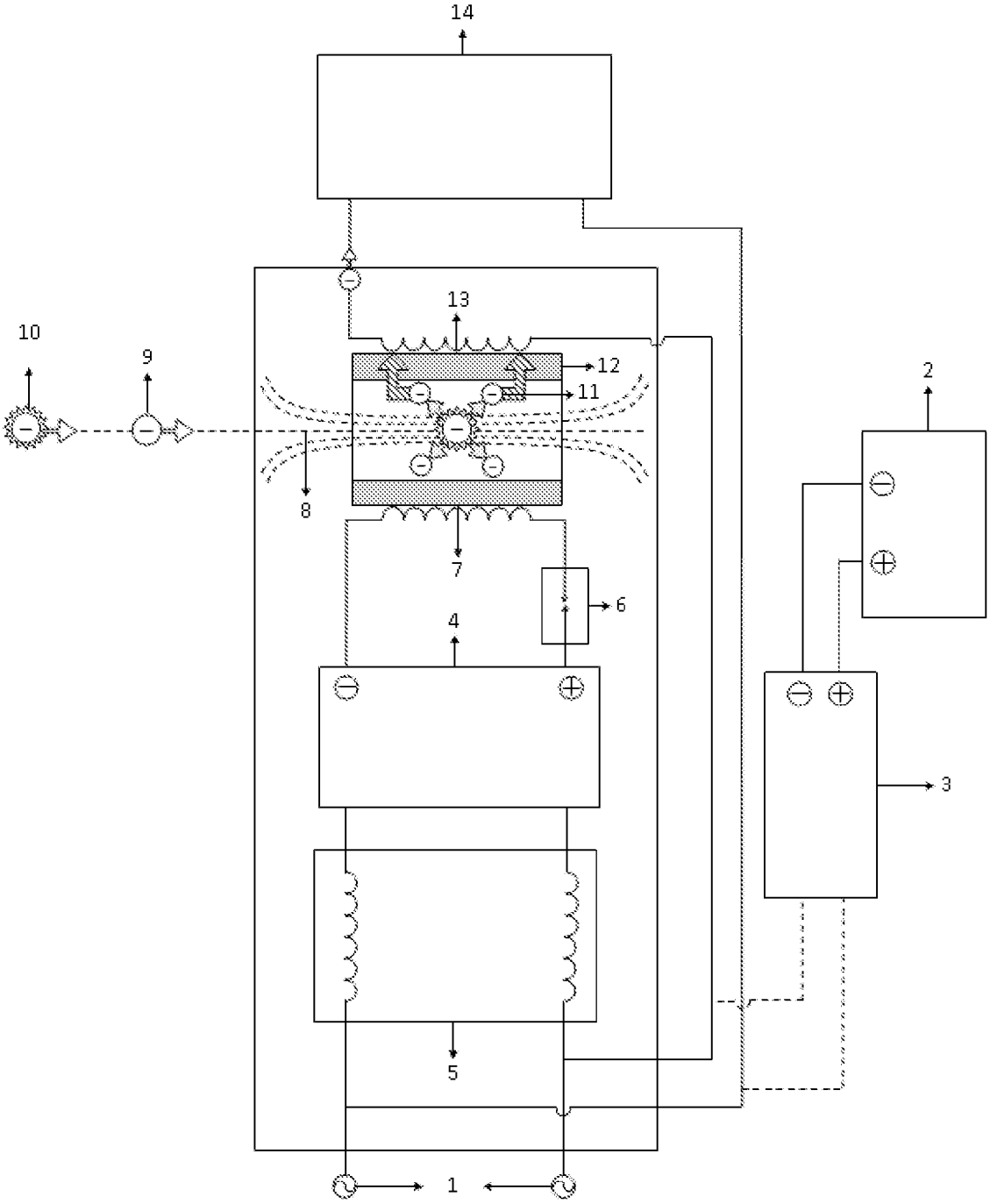


Fig. 2

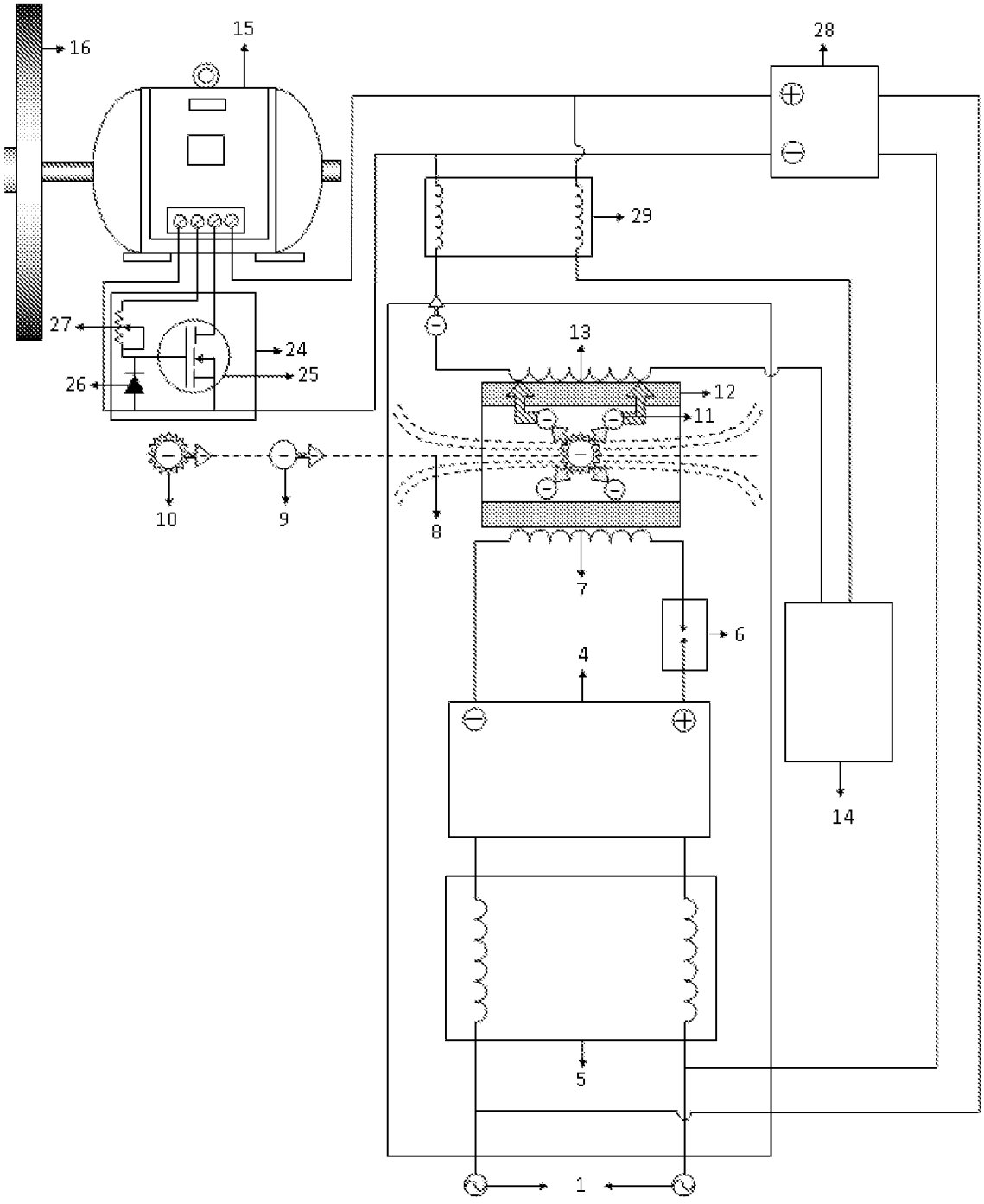


Fig. 3

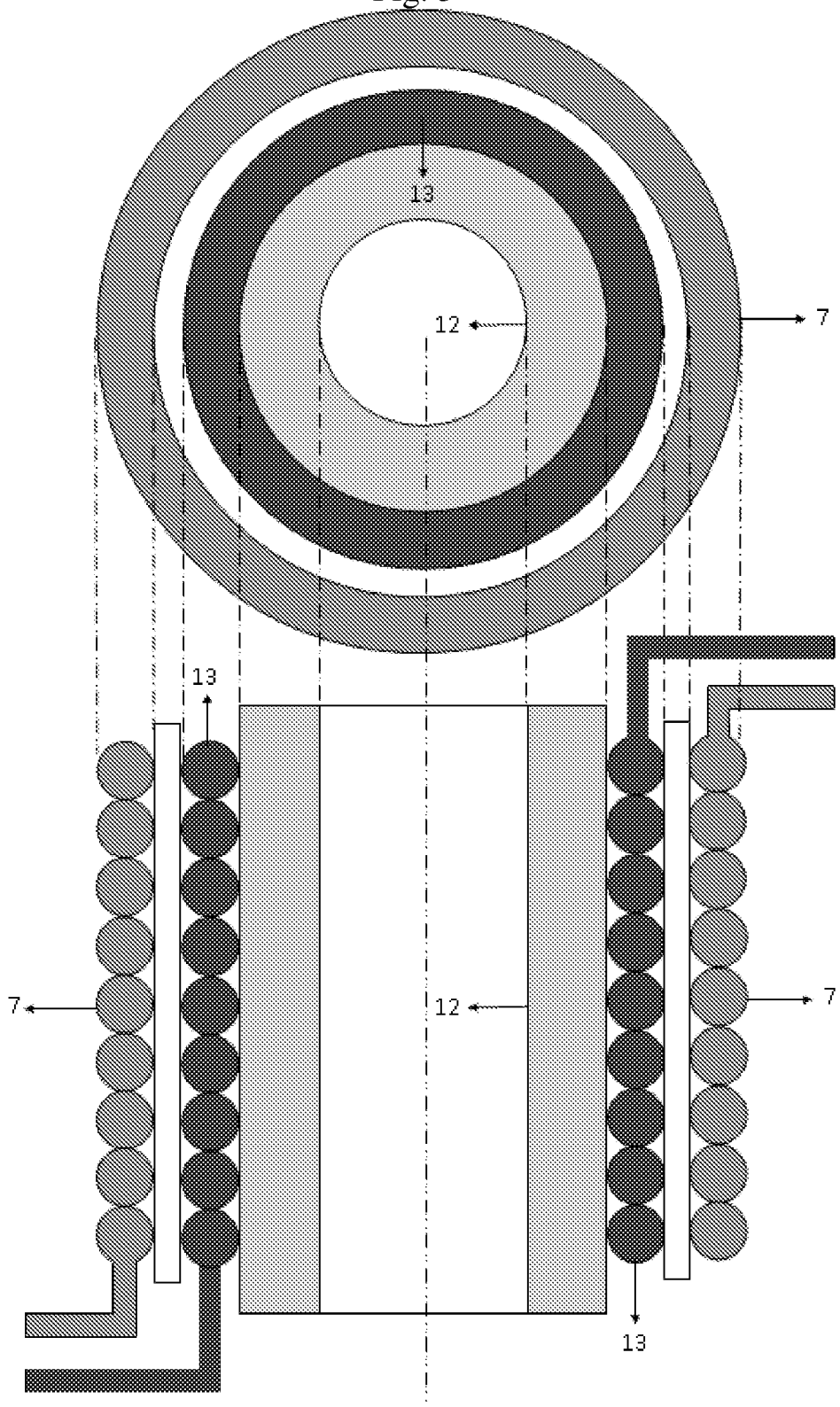


Fig. 4

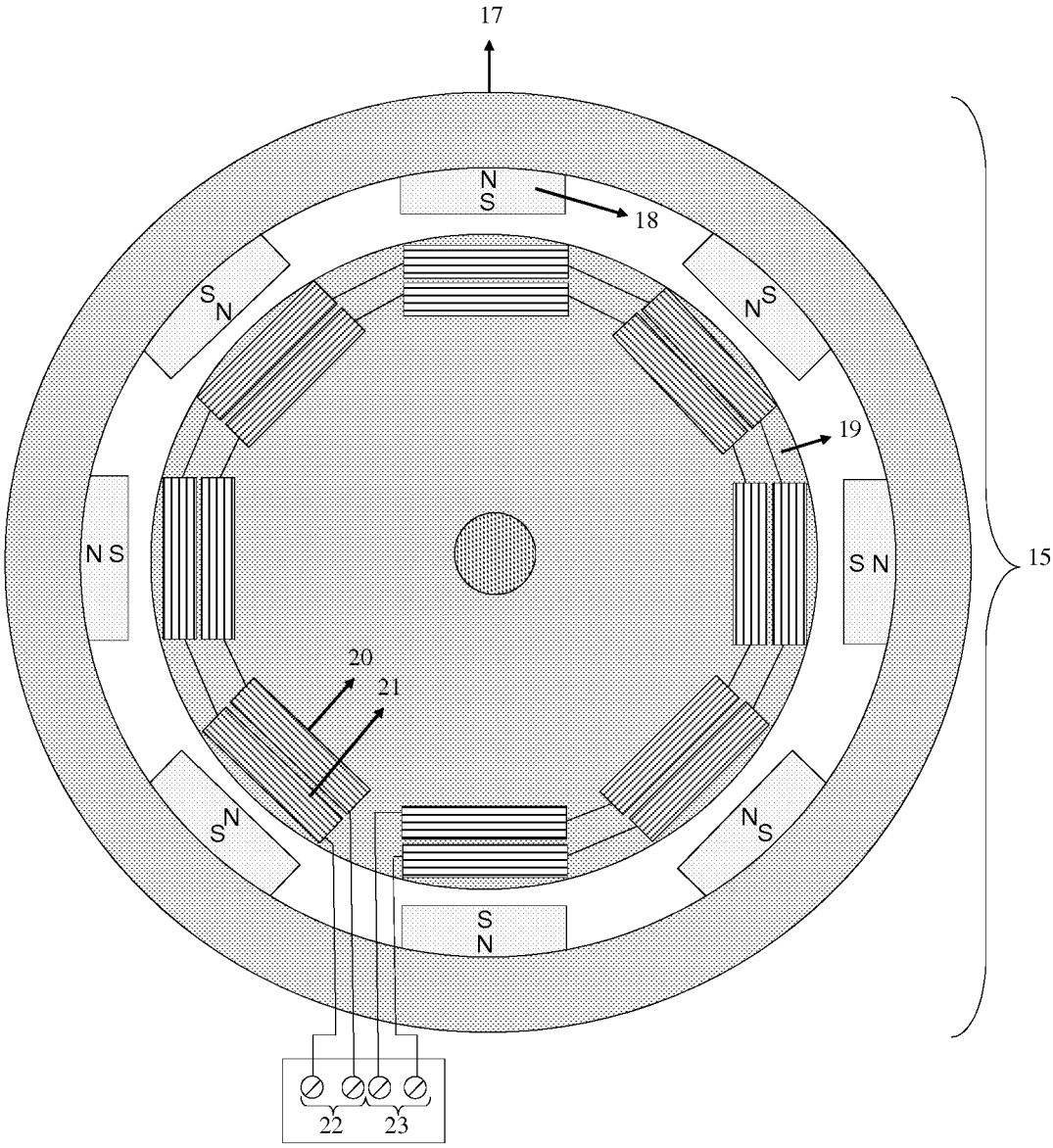
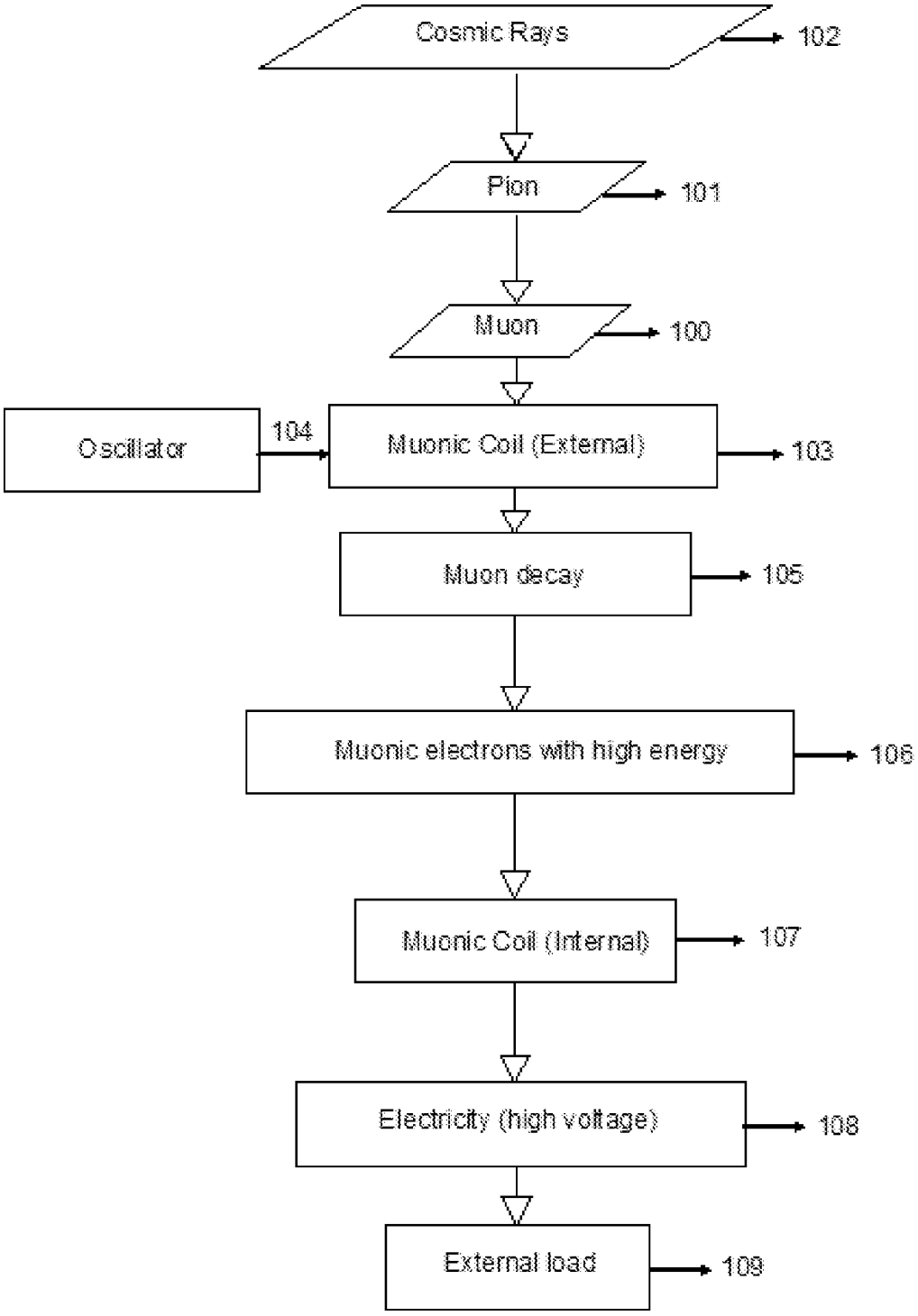


Fig. 5


Cosmic Rays
102
Pion
101
Muon
100
Oscillator
104
Muonic Coil (External)
103
Muon decay
105
Muonic electrons with high energy
106
Muonic Coil (Internal)
107
Electricity (high voltage)
108
External load
109