This patent application shows the details of a device which it is claimed, can produce electricity without the need for any fuel. It should be noted that while construction details are provided which imply that the inventor constructed and tested several of these devices, this is only an application and not a granted patent.

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ENERGY SOURCE EMPLOYING ELECTRICAL ENERGISER

ABSTRACT

An energy producing system is provided which produces energy for use, for example, in an electric vehicle or in a home power plant. The system includes an electrical energiser (60) including a double-wound rotor and a double-wound stator for producing electrical energy which is stored in the system, e.g., in a battery (66) storage arrangement, which provides initial energisation of the system. The stored energy is supplied to an electric motor (68) which drives the energiser (60) to thereby create additional energy. The energiser is able to supply the needs of the system as well as to power a load.

BACKGROUND OF THE INVENTION

The present invention relates to energy producing systems and, more particularly, to an electrical energiser-motor system for providing energy, e.g., for an automotive vehicle or as part of a home energy plant.

With the advent of the so-called “energy crisis” and the consequent search for alternative energy sources to substitute for oil, considerable attention has been focused on automotive vehicles as chief users of oil products. One aspect of this search has fostered renewed interest in electrically driven vehicles such as electric cars and the like. A principal shortcoming of prior-art electrical vehicles has been the need to recharge the batteries which provide the power for the electrical motor drive system.

The present invention overcomes this problem through the provision of an electrical energiser-motor system which produces more energy than is expended, thereby enabling the excess energy to be stored in the battery system, to be drawn upon as required. Thus, the need for recharging of the batteries associated with conventional electrical vehicles is eliminated with the system of this invention. It should be noted that while the system of the invention has enormous potential in connection with its use in electrical vehicles, the system is clearly not limited to such use and would obviously be advantageous when used, for example, as the energy source for a home energy plant, as well as in many other applications.

In accordance with the invention, and energy producing system of the type described above is provided which comprises and electrical “energiser” comprising at least one double-wound stator and at least one double-wound shaft-mounted rotor located within a housing, electrical energy being collected from the rotor through a suitable electrical take-off device and being available for utilisation by the system, and an electric motor, powered by the energiser for driving the rotor shaft of the energiser. A battery arrangement is initially used to supply energy to the system and, as stated above, the excess energy generated by the energiser over and above that required by the system and the system load, is stored through charging of the batteries. The motor includes an armature with a plurality of winding slots in it and a plurality of windings being wound into two circumferentially spaced slots in the armature, i.e., such a winding is wound through a first slot (e.g., slot 1) and returned through a second spaced slot (e.g., slot 5). Depending on the energy demands, the energiser may include a pair of stators and rotors, with the rotors being mounted on a common shaft. The motor is preferably energised through an arrangement of a commutator and plural brushes, while a slip ring and associated brushes connected to an output bridge circuit form the energy take-off for the energiser.
Other features and advantages of the invention will be shown in the detailed description of the preferred embodiments which follows.

**Fig. 1**

Fig. 1 is a partially sectioned elevational view of the electrical “energiser” of the invention.

**Fig. 2**

Fig. 2 is a block diagram of the overall energy-producing system of the invention.
Fig. 3 is a partially sectioned side elevational view of a modified electrical motor constructed in accordance with the invention.

Fig. 4 is an exploded perspective view of the basic components of the motor of Fig. 3.

Fig. 5 is an end view of the brush holder also illustrated in Fig. 4.

Fig. 6 and Fig. 7 show details of the winding pattern of the motor of Fig. 3.
Referring to Fig. 1, a preferred embodiment of the "energiser" device of the invention is shown. The device includes a housing \(10\), in which are located, in a first chamber or compartment \(10a\), a first rotor \(12\) and a first stator \(14\) and, in a second compartment \(10b\), a second rotor \(16\), and a second stator \(18\). It should be noted that although two stator-rotor combinations are used in this embodiment, a single stator-rotor combination can be used for some applications. Housing \(10\) is divided into the compartments \(10a\) and \(10b\), by a centre plate \(20\) and it includes a pair of end plates \(22\) and \(24\). Both the rotors \(12, 16\) and the stators \(14, 18\) are double wound and the rotors \(12, 16\) are nested inside their respective stators \(14\) and \(18\) and mounted for rotation on a common shaft \(26\). Shaft \(26\) extends longitudinally through housing \(10\) and is mounted on bearings \(28\) and \(30\), supported by end plates \(22\) and \(24\), and a further bearing \(32\) which is supported by central plate \(20\).

A pair of slip rings \(34\) and \(36\), are mounted on shaft \(26\) and connect with their corresponding brush pairs \(38\) and \(40\).

Slip rings \(34\) and \(36\) are connected to rotors \(12\) and \(16\) respectively, and permit the current flowing in the rotor windings to be collected through the associated pairs of brushes \(38\) and \(40\). Brush pairs \(38\) and \(40\) are mounted on respective brush holders \(42\) and \(44\). The terminals of respective bridge circuits \(46\) and \(48\) are connected to stators \(14\) and \(18\), while conversion bars \(50\) and \(52\) are connected to brush holders \(42\) and \(44\), as indicated.
A cooling fan 54, is also mounted on shaft 26 and a plurality of apertures 201, 22a and 24a are provided in centre plate 20 and end plates 22 and 24, to promote cooling of the device. The energiser of Fig. 1 is preferably incorporated in a system such as shown in a highly schematic manner in Fig. 2 where the output of the energiser is used to supply the energy for driving a motor. To this end, the energiser, which is denoted by 60 in Fig. 2, is connected through a regulator 62, to battery charger 64 for batteries 66 connected to a motor 68. These batteries 66 are used to provide the initial energisation of the system as well as to store energy produced by the energiser 60. It will be understood that the energiser 60 provides energy enough to power motor 68 (which, in turn, drives energiser 60 through rotation of shaft 26) as well as to provide storage for energy in the system. It will also be appreciated that the system illustrated schematically in Fig. 2 includes suitable controls (switches, rheostats, sensors, etc.) to provide initial energisation as well as appropriate operational control of the system.

In a preferred embodiment, motor 68 is of the form shown in Fig. 3. As illustrated, the motor is of a generally conventional form (with exceptions noted below) and comprises an armature 70, mounted on a shaft 72 within housing 74. Housing 74 includes a pair of end plates 76 and 78, which mount shaft bearings 77 and 79. Apertures 76a and 78a are provided in end plates 76 and 78 and a cooling fan 80 is mounted on shaft 72 to provide cooling.
A commutator 82 is also mounted on shaft 72, and co-operates with associated brushes (not shown in Fig.1), to conduct current to the windings of armature 70. This co-operation is shown best in Fig.4 which is an exploded view, illustrating the armature 70, commutator 82 and a brush holder 84.

As shown in Fig.5, the brush holder 84 includes eight brush mounts 86, each of which defines a slot 88 in which a pair of brushes is mounted. One brush 90 is shown in Fig.5, it being understood that two such brushes are mounted in each slot 88 so that sixteen brushes are required.

The motor of Fig.3 to Fig.6 includes eight pole shoes (not shown) which are secured to housing 74 and which serve to mount eight field coils or windings 92 (see Fig.3 and Fig.4) spaced out around the periphery of armature 72.

An important feature of the motor of Fig.3 to Fig.6 concerns the manner in which the windings for armature 70 are wound. As illustrated in Fig.3, Fig.6 and Fig.7, a typical winding W1 is wound in two slots, with the illustrated winding being doubled back and continuing from armature slot S1 to armature slot S5 (see Fig.3 and Fig.6). Similarly, the winding in slot S2 continues to slot S6, the winding of slot S3 continues to slot S7, and so on for the forty-nine windings.

In a specific preferred embodiment, the motor described above is a 48-volt, 412 horsepower motor having a top operating speed of 7,000 rpm. A rheostat control (not shown) is used to control the input voltage and, as discussed above, the motor is powered from the energiser of Fig.1. It will be appreciated that the energy take-off from the system is preferably from the output shaft of the motor, although the electrical energy may also be tapped off from the energiser output.

Although the invention has been described in relation to exemplary embodiments, it will be understood by those skilled in the art, that variations and modifications can be effected in these embodiments without departing from the scope and spirit of the invention.

CLAIMS

1. An energy-producing system providing an output for utilisation by a utilising device, the system comprising:

   An electrical energising means comprising a housing (10); at least one double-wound stator (14 or 18) located within the housing; at least one double-wound rotor (12 or 16) located within the housing; a rotor shaft (26), supported in the housing, and on which the double-wound rotor is mounted; and an energy take-off mechanism (34 or 36) including a mechanism for collecting electrical energy from the rotor, mounted on the shaft and connected to the rotor, the mechanism having at least one stationary output.

   A motor (68), including a connection to the electrical energiser through which to draw the power to operate the motor and drive the rotor shaft of the energiser, the motor having an armature (70) with a plurality of winding slots (S1 to S49) in it, and a plurality of windings (W1) wound in those slots, at least some of the windings being wound in two slots spaced out around the circumference of the armature (for example, S1 and S5), and an energy supply mechanism (66) for supplying electrical energy to the motor at least during initial energisation of the motor, and connected to the energiser for supplying energy to the motor during its operation.
2. A system as in Claim 1, where the energiser includes a pair of these rotors (12, 16) and a pair of stators (14, 18), the rotors being mounted on a common shaft (26).

3. A system as in Claim 1, where the energy take-off includes a slip ring (34 or 36) and at least one brush (38 or 40) for collecting electrical current from the rotor windings, the brush being connected to a bridge circuit (46 or 48).

4. A system as in Claim 1, where the motor contains a commutator (82) through which energy is supplied to the armature windings.

5. A system as in Claim 4, where the same winding (W1) is wound in the first and fifth slot positions of the motor armature, and the ends of that winding are connected to two positions spaced out around the circumference of the commutator (see Fig.3).