

INCREASE OF EFFICIENCY OF THE ALTERNATIVE SOURCE OF THE ELECTRIC POWER WITH USE OF THE MECHANICAL ENERGY STORAGE

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Abstract: in article the design and a principle of work of an alternative source of the electric power with use of renewed energy sources is stated. With the help эластической cords energy of weak air and water streams collects in the form of potential mechanical energy. The electric power source provides accumulation of mechanical energy during absence of consumption and, the smooth expense of the saved up energy generates the alternating current electric power in a consumption mode. The source allows to receive an alternating current with nominal frequency and pressure without intermediate transformations on a direct current. An alternative source it is intended for consumers with small capacity and with short-term an operating mode.

Keywords: alternative energy source, alternating current, the generator, renewed energy sources, the store of mechanical energy.

ПОВЫШЕНИЕ ЭФФЕКТИВНОСТИ АЛЬТЕРНАТИВНОГО ИСТОЧНИКА ЭЛЕКТРОЭНЕРГИИ С ИСПОЛЬЗОВАНИЕМ ХРАНЕНИЯ МЕХАНИЧЕСКОЙ ЭНЕРГИИ

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Аннотация: в статье изложена конструкция и принцип работы альтернативного источника электроэнергии с использованием возобновляемых источников энергии. С помощью эластической струны энергия слабых воздушных и водных потоков накапливается в виде потенциальной механической энергии. Источник электроэнергии обеспечивает накопление механической энергии при отсутствии потребления, и плавный расход накопленной энергии генерирует электрическую энергию переменного тока в режиме потребления. Источник позволяет получать переменный ток с номинальной частотой и давлением без промежуточных преобразований по постоянному току. Альтернативный источник предназначен для потребителей с небольшой емкостью и с кратковременным режимом работы.

Ключевые слова: альтернативный источник энергии, переменный ток, генератор, возобновляемые источники энергии, накопитель механической энергии.

With rise in price of power resources in the world energy conservation the urgency and efficiency increases in all branches of economy. One of effective ways of the decision of this problem is wide introduction of alternative energy sources. Diversification energy sources on the basis of renewed sources allows to save power resources, to raise reliability of electrosupply of consumers and to improve ecological conditions [1].

The electric power source consists of two parts: the store of mechanical energy and the alternating current generator (fig. 1). The store consists of the case 1 in which it is placed two cylinders 2 and 3 which have a rigid tooth gearing with four gear disks 4. Cylinders 2 and 3 are established on axes 7 and 8. The cylinder of a disk 2 has more diameter than a cylinder of a disk 3. Gear disks 4 have rigid gear communication which provides opposite rotation since identical angular speed (frequency of rotation) and rewinds elastic rubber rope 5 from one cylinder on another. The disk 4 cylinders 2 is set in motion gear 10 and a pedal of a foot drive 12 (or from a drive of an alternative energy

source: from a wind or water stream). Disks with cylinders are intended for accumulation of mechanical energy by a rewinding of a flexible material (a elastic rubber rope) from a cylinder in 3 smaller diameter on a cylinder 2 with the big diameter. Generator rotation is provided wedge-like belt with transfer 13 and pulleys 17 and 16.

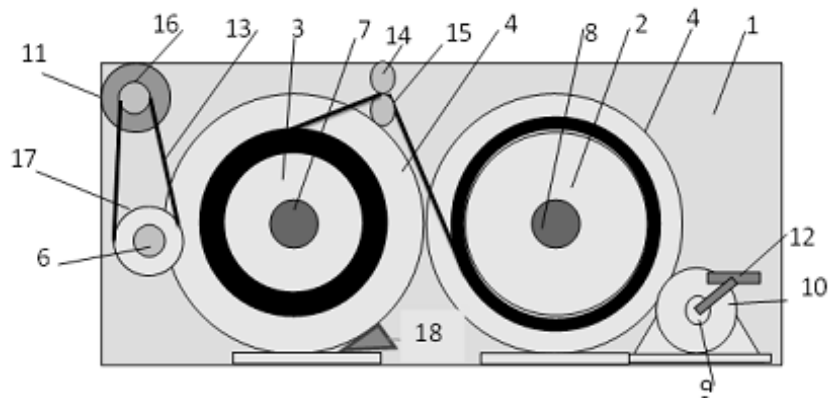


Fig 1. Design of an alternative energy source

Fig. 1. Design of an alternative energy source

For a full stretching elastic rope rollers 15 and 14 which constrain elastic rope 5 to a full stretching are used and do not allow extension elastic rope 5 in a cylinder 3 to rollers. The roller 15 has rigid gear communication with a disk 4 cylinders 3 which provides giving elastic rope on a cylinder 2 in conformity with speed of cylinders. Force of pressing of a roller 16 is defined by a full stretching rubber a plait 5 which is set by a regulating bolt.

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