



SMALL ENERGY SAVING WHEEL-TRACKED ELECTRIC TRACTOR

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Abstract

The article proposes the efficiency of a small-sized energy-saving wheeled-caterpillar electric tractor. The design of a small-sized wheeled caterpillar tractor is given.

Keywords: small-sized energy-saving wheel-caterpillar electric tractor, internal combustion engine, frame, lithium batteries, electrical panel

МАЛОГАБАРИТНЫЙ ЭНЕРГОСБЕРЕГАЮЩИЙ КОЛЕСНО-ГУСЕНИЧНЫЙ ЭЛЕКТРИЧЕСКИЙ ТРАКТОР

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Аннотация

В статье предлагается эффективности малогабаритного энергосберегающего колесно-гусеничного электрический трактора. Дано конструкция малогабаритного колесно-гусеничного трактора.

Ключевые слова: малогабаритный энергосберегающий колесно-гусеничный электрический трактор, двигатель внутреннего сгорания, рама, литиевые аккумуляторы, электрическая панель

The main disadvantage of existing wheeled and tracked tractors is its uneconomicality, since its engine is based on the use of liquid organic diesel fuel - diesel fuel obtained from oil. The burning of petroleum fuel leads to ambient air poisoning and environmental degradation, as well as the degradation of basic production resources such as topsoil, fresh water and traditional agricultural skills with an unsustainable production method, stimulated by decades of cheap natural energy.

Therefore, replacing agricultural tractors powered by an internal combustion engine with electric tractors that are powered by rechargeable batteries integrated into our twenty-first century with solar converters could eliminate or reduce this negative





consequence of dependence on organic fuels. Electric tractors, being transport, will contribute to the preservation of the environment and human health.

The task of the proposed small-sized energy-saving wheel-tracked electric tractor is to create a small-sized environmentally friendly tractor in operation, acceptable for agricultural work in cramped conditions, horticulture, forestry and developed mountain ranges. The tractor must run on battery electricity or on renewable energy by converting solar energy into electricity.

According to the performance indicators of a small-sized tractor, the following are important for the task:

- Widely used in areas with small contours due to its maneuverability,
- the possibility of aggregation with any agricultural unit and the adjustment should be minimal,
- the design of a small-sized tractor is simple, convenient, compact and can be operated even by people who do not have special qualifications
- The use of small-sized tractors differs in that they can perform various agricultural works not only when performing certain seasonal works, but also when performing certain works throughout the year [1,2].

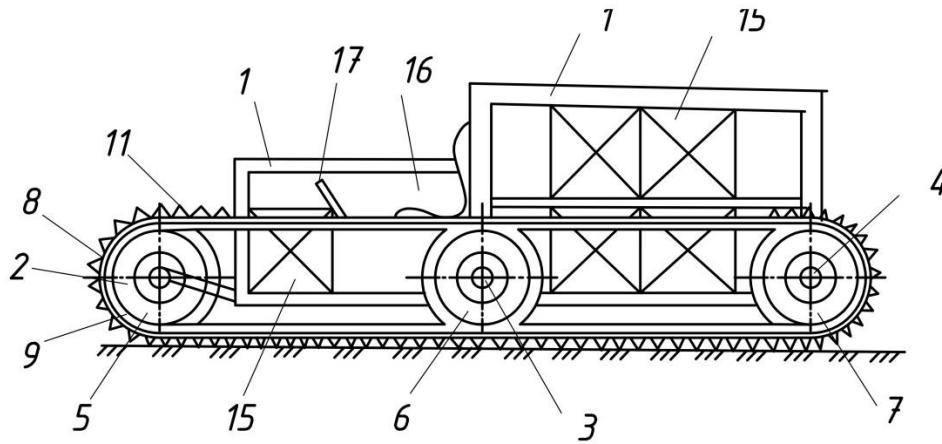
To achieve this task, in the well-known small-sized tractor containing a frame structure, which houses an electric motor articulated through a manual transmission with a gearbox of the rear axle of the drive mechanism and three pairs of pneumatic undercarriage system, which, if necessary, can be re-equipped with a rubber-cable tracked running system with treadmills, the pneumatic-wheeled running system is made in the form of pneumatic axles fixed on the axles in pairs. wheels and installed with the possibility of moving along the side track, which is an endless rubberized tape with a W-shaped cross-section, and on top of the treadmill there is a strip of conveyor belt and fixed with metal tracks located with a certain pitch, which are a segment of an equal-shelf corner, fixed from the inside by a tie screws with a secret head.

The proposed small-sized wheel-tracked electric tractor contains a welded volumetric two-storey frame 1, on which the axes 2, 3, 4 are attached, respectively, the front 5, middle 6 and rear 7 support wheels moved along a rubber-cable track consisting of an inner 8 and an outer 9 track. The inner 8 track is made in the form of an endless one-piece treadmill made of rubber-cord material, has side and central restrictive protrusions 10. On top of the inner 8 track there is an outer 9 track, which are fastened to each other by metal tracks 11, made of a standard equilateral angle (40x40x3) mm. The latter are reinforced with a longitudinally located screed 12, welded from the inside to the shelves and a welded nut 13 located on it. The track 11 is attached to the rubber-cable track by a secret screw 14. On the rear section of the frame 1 and its front





part there are six lithium batteries 15 In the middle of the frame there is a place 16 for the tractor driver and in front of him an electric panel 17 is installed to control the joysticks 18.



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