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A method for automatically converting of gear ratio and of torque depending on the required

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The inventive method is simple, cheap and can be used in various fields of engineering. It allows you to easily, securely and smoothly change the gear ratio of the transmission. At that speed of the engine there is constant and optimal. It is unique in that when converting the gear ratio in the same ratio is changed torque. This happens automatically with the changing needs of the load. The essence of the method lies in the fact that energy is supplied from the engine to the differential asymmetrical and is separated into two parts. One part goes to the driven shaft and the second for the rotation around its axis of the differential, thus changing the gear ratio and torque. Explanation is on the attached figure. Application of the method is possible in of different technical fields. The use of such devices on electrotransport allows at constant and optimum speed rotor motor of any system on startup, by automatically, and very easy to get on the driven shaft torque; repeatedly exceed motor torque, decreases smoothly during acceleration. Turnovers of the driven shaft can smoothly in a wide range vary with the changing needs of the load. This is especially important at the start of the movement, and when the vehicle is accelerating. The rotor is rotated at optimal speed. Application of the method is convenient and on vehicles. In hybrid car the asymmetric differential, the input is connected to the engine, one output is coupled to the output shaft, and a second with the generator rotor. Then the generator, which has an electric load, partially blocking an the differential forces the a differential to rotate around its axis, reducing the overall transmission ratio. By controlling the electrical load can be controlled the movement of the vehicle. An important element of the transmission is a clutch mechanism, which can also include asymmetrical differential. Then part of the energy transmitted to the driven shaft, bypassing the clutch and relieving its work, and when slip the clutch is automatic increase the torque and the gear ratio, to the driven shaft, which can significantly simplify the gearbox. For starting loaded machines, in order in order not to use of electronic starting devices, the use of such devices simplifies the process of, It reduces the need of the motor power, because there is no starting current , increase the torque on the shaft, but the motor will run at constant, optimal speed. For example, when using a synchronous motor with excitation generator which is coupled through asymmetrical differential. This mechanism is equivalent to an automatic gearbox with a smooth change of gear ratio.

Biography

Khadeev Ravil has completed his PhD from IPAN in Moscow (1988). He is the Chief Technologist in the production of composite materials. He has published 18 papers in reputed journals and 12 patents on the proposed topic.

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