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## ABOUT AUTOMATION OF LOADING AND UNLOADING OF COTTON RAW MATERIALS AT COTTON FACTORY STATIONS

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### ABSTRACT

For the result of analyse modern condition of storing and applying cotton row material to the production at the planet cotton sheds based on nessesserty of using new maker of using control of cotton press, using control of apply cotton with the help of closed automatic system. Stricture plan of AD-TPH systemis presented.

**KEYWORDS:** *Raw Cotton, Riot, Disassembly, Automation, Productivity, Control, Analysis, Technological Indicators.* 

### **INTRODUCTION**

Acceleration of the pace of development of the national economy of Uzbekistan today cannot be achieved without the implementation of measures to save material and labor resources. This is primarily due to the rational consumption of electricity by installations of technological equipment of enterprises of the cotton ginning industry. Automation of processes in which work is performed without service personnel, the comparative simplicity of electrical equipment leads to a decrease in energy consumption.

In the organization of long-term storage of cotton at the factory and outside the factory procurement points, two storage methods are used - closed (in barns, warehouses, sheds) and open - at riot sites, and the latter is the main type of storage of raw cotton and makes up about 75% of the total volume storage cotton.



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For the mechanization of the processes of disassembling cotton riots and supplying it to production, disassemblers of the RP brands and a pneumatic transport unit of the suction type are used, which require. Their work is accompanied by significant expenditures of manual labor, exceeding the normative ones, which reduces the efficiency and productivity of labor. In addition, the disassembly of raw cotton by RP feeders is carried out with a large uneven supply of cotton to production, the fluctuations of which, with a capacity of from 3 to 18 t/h, is 3-8 t/h. It follows that the share of downtime associated with insufficient supply of raw cotton to production accounts for 15.8 to 57% of the equipment downtime.

The above disadvantages are mainly explained by the imperfection of the technological scheme of the RP machine, which causes difficulty in creating an automatic control system for this machine in order to increase the uniformity and ensure a controlled supply of cotton with the required productivity.

When choosing a technological scheme for a device with a new working body capable of sorting cotton in an automated mode, the following were taken into account:

- the cotton is disassembled by the method of separation from the mass using pegs, as the simplest and most reliable in operation;

- since the bulk density along the height of the laid cotton mass is uneven and varies from 800 to 3000 kg / m, the disassembly of the stored cotton must be carried out with a peg drum with a vertical axis of rotation simultaneously along the entire stacking height;



Figure 1. Technological diagram of a raw cotton picker with a peeling auger working body - a high level of mechanization of disassembly and uniform supply of cotton to production with the use of automated control systems and regulation of productivity in the range of 8 - 20 t / h;



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The technological diagram of the developed disassembler (Fig. 1), taking into account the formulated requirements, contains a self-propelled bogie 1 with a drive 2. A platform 5 and a frame 3 are installed, which can rotate about the longitudinal axis to the left and right by 90  $^{\circ}$  by means of the drive 4 and move along the guides in the horizontal plane with the help of the mechanism 6. The boom 7 is mounted on the frame, carrying the peg drum 8 with the drive 9.

In the lower part of the boom, there is a screw conveyor (auger) 10 with a reverse rotation drive, equipped with pegs along the periphery.

The selected technological scheme provides for cotton sorting simultaneously along the entire height of its storage.

For the selected technology of raw cotton disassembly, a schematic electrical diagram of automated control has been developed, the structural diagram of which is shown in Fig. 2. It provides for the process of disassembling cotton in manual and automatic modes using a semiconductor voltage regulator (TRN) supplied to the terminals of an asynchronous motor (AM).



Figure 2 Block diagram of the closed-loop system AM-TRN

When the contact of the time relay is closed, the working body is buried in the mass of the cotton being disassembled, which is achieved by moving the undercarriage of the disassembler. As the predetermined value of penetration is reached, the peel drum receives a translational movement relative to the vertical layer of the cotton being taken apart, depending on the required value of the raw cotton supply. ACADEMICIA

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