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Title: **LAYER DRYER FOR RAW COTTON**

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LAYER DRYER FOR RAW COTTON

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Abstract: The article presents research work on a new dryer being invented to improve raw cotton dryers while reducing energy consumption. In the proposed drying unit, moisture selection from raw cotton occurs in stages, which leads to an increase in the efficiency of the machine and a decrease in energy consumption.

Keywords: raw cotton, cotton dryer, humidity, roller system, torturing roller, picker roller

Introduction

The raw cotton harvested from the fields with high humidity cannot be stored for more than 4-5 days, since during the storage and storage of such cotton, its self-heating begins, which leads to a deterioration in the quality of cotton fiber and seeds. In addition, when processing wet raw cotton, the cleaning effect and productivity of the equipment decrease, the number of defects increases, and the appearance of the fiber deteriorates [1].

In this regard, in the case of high humidity, raw cotton is necessarily dried and brought to the conditioned and technological humidity. The norms of the conditioned moisture content are compiled from the conditions of its long-term preservation in storages and riots, and the norms of the technological moisture are taken from the conditions of the most efficient flow of the technological process, in which the maximum purification of raw cotton from weeds is achieved, and ginning is carried out with high productivity and the release of fiber with the least content of vices [2].

Relevance. At present, drum-type drying installations used in cotton ginning plants do not fully meet the requirements of the time. Typically, cotton-growing areas in different

regions have different climatic conditions. For regions with a dry climate, a drying plant with a moisture extraction of 2-3% will be sufficient, while regions with a humid climate need a moisture extraction of at least 7-8%. The main disadvantages of existing drum dryers are considered to be huge, which is very metal-intensive and labor-intensive for production and is reflected in the cost of manufacturing and further maintenance of the installation. It is not economically efficient to use an expensive installation in dry climates. In this regard, we carried out an analysis of research work on the study and improvement of the efficiency of the design of dryers intended for drying raw cotton. In research work, special attention was paid to the possibility of increasing the moisture extraction of the dryer with a simultaneous improvement of the quality indicators of raw cotton, and a decrease in the specific consumption of the heat carrier, as well as reducing the production cost of the installation [3,4].

Main part

The problem is solved by designing a new type of drying plant for raw cotton that completely eliminates the shortcomings of its predecessors and meets the requirements of the time (Fig. 1). The new design of the dryer for

raw cotton proposed by us contains a feeder for uniform feeding and adjusting the height of the layer of raw cotton, into which, through shaft 5, wet cotton enters the feed rollers 6 and is fed to the splitter drum 7, which loosens and cleans it. fine litter through the mesh 8, falls into the weed auger 9 for output to the outside. The peeled raw cotton is thrown into the chamber with roller tables 1 by a peeled drum 7, rollers 2 and 3 are arranged in rows vertically under each other, along which the raw cotton moves from top to bottom in a zigzag manner, which makes it possible for the raw cotton to turn over and dry from all sides. The coolant is fed from both paired ends 4 into the chamber through a pipeline 10 with gates 17. The coolant moves from bottom to top, heating the roller tables and passing through the gaps between the rollers of the roller tables, it dries up the raw cotton. In the last row, the speed of the roller table rollers is higher than that of the previous ones, in order to reduce the thickness of the raw cotton layer, as well as to more intensively separate out weeds that enter the hopper 11 and are removed by the weed auger 15. Dried raw cotton passing between the peeling drum 12 and mesh 13, is cleaned and thrown into the tray 14 for further technological process. The moisture evaporated from the raw cotton, together with the spent drying agent, is removed through the exhaust

pipe 16.

Figure 1. Perfect Dryer for Raw Cotton

1. Camera; 2. Rollers of a roller table; 3. Rollers of a roller table; 4. Paired ends; 5. Mine;
6. Feeding rollers; 7. Pedestal drum; 8. Mesh; 9. Weed auger; 10. Pipeline; 11. Bunker; 12. Pedestaldrum;
13. Mesh; 14. Tray; 15. Auger; 16. Exhaust pipe; 17. Shiber.

Conclusion

It should be noted that the speed of the rollers depends on the moisture content and the type of raw cotton, and the feeder pegs and the last rollers of the roller table with the pegs clean the raw cotton from weeds. This dryer has increased moisture removal and reduced fuel consumption. In addition, the dryer can operate as a raw cotton clarifier without heating medium.

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