IMPROVEMENT OF COTTON SEED SORTING DEVICE

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Annotation: In given article to practical studied particularities of the branch seeds remaining ferocity and free filaments by means of sorting after ginning seeds.

Keywords: conveyor, cotton, seed, weight, force, density, reaction, coefficient of friction, speed, acceleration.

INTRODUCTION.

Cotton ginning enterprises carry out the processes of transportation, drying, cleaning, ginning and spinning of cotton in order to obtain the finished product. In these processes, cotton fiber is mixed with waste. A comprehensive analysis of the research work done to reduce fiber loss has been studied. Based on these analyzes, it was found that there were cases of fiber loss in several processes of the ginnery.

First of all, the loss of fiber occurs in the device that separates the cotton from the air - the separator, in which the fiber is mixed with the exhaust air. The second is when the cotton is mixed with the impurities separated from the cotton in the process of cleaning it from various contaminants, and another process is the loss of fiber as a result of the addition of spinning fibers in the residual fibers of non-ginned seeds in the machine. It was determined that the causes of fiber loss in the technological processes of the enterprise should be studied in the production environment.

In our country, a lot of theoretical and practical research has been conducted on the cleaning and sorting of seeds from the process of jinning, but today the equipment and technology that can fully meet modern requirements remain relevant. This is because no universal technology has been developed to prevent damage to the seeds during sorting, to completely remove the impurities, to increase the fiber yield by sorting and re-ginning seeds with fiber that is suitable for spinning [1,4,5,14,17].

THE MAIN FINDINGS AND RESULTS.

Improving the structure of seed separation devices and increasing their efficiency often depends on the results of research conducted by a wide range of scientists.

Scientific basis for the separation of fibrous seeds from cotton seeds and the rate of discharge of waste through the mesh surface and the determination of the design dimensions of the discharge surface, as well as changes in the movement of cotton seeds on auger conveyors. explained. The scientific basis for the separation of fibrous seeds from cotton seeds and the rate of discharge of waste through the mesh surface and the determination of the design dimensions of the discharge surface and the laws of change of blockages and methods of their elimination, the movement of seed mass on the auger conveyor explained [7,8,9].

The seed sorting device is installed in ginneries after the ginning process before lintering. The seed sorter uses seed sorting devices that allow the seeds to be separated into fractions. These devices are mainly installed after the seed germination process. In the working chamber of this device, the cotton seed moves in its own direction. In the process of moving the seed mesh surface and auger in the working chamber, the seeds are divided into four different fractions [2,3].

The advantage of this proposed method is as follows.

-increase fiber yield by retaining fiber-containing seeds

-selection of seeds that can only pass through the first and second lintering machines.

Seeds that do not need lintering will be able to be delivered directly to the seed storage area. Such innovation, in turn, leads to an improvement in lint quality by reducing seed damage [6,10-13,15,16,18].

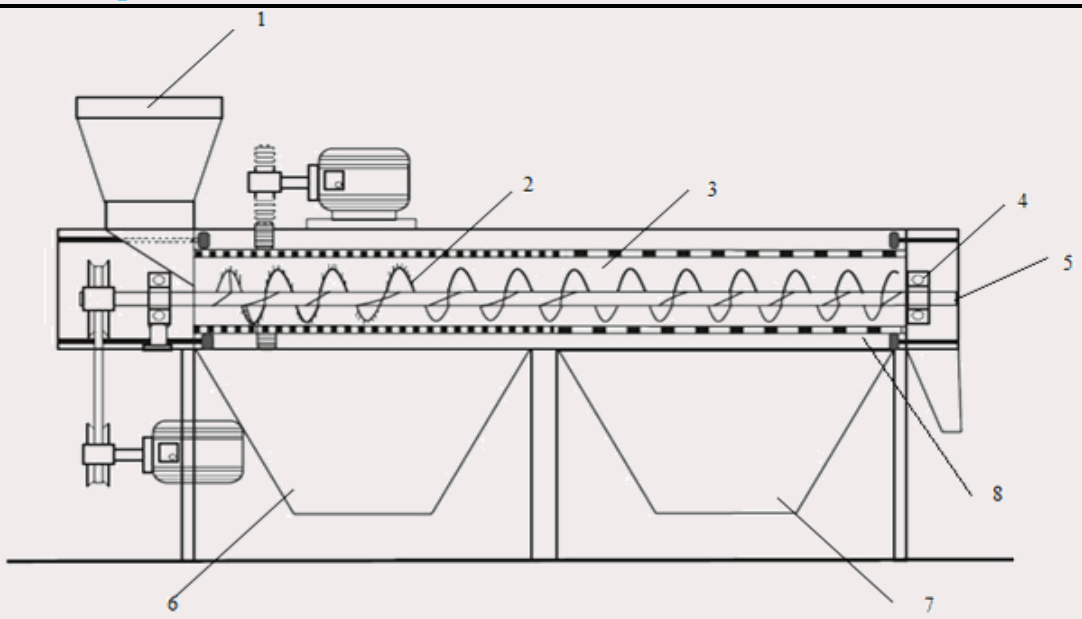

Figure 1. Seed sorting device of new design.

1 inlet pipe, 2 screw conveyors, 3 working chambers, 4 bearings, 5 shafts,
6 pockets for small contaminants, 7 pockets for fully separated seeds, a pipe for secondary lintering, 8 pockets pull pipe

In order to increase the efficiency of the new seed sorter, to clean the seeds from fine dirt, to keep the seeds with fiber, an auger conveyor is installed inside the mesh drum, the two working bodies move in opposite directions and the diameter of the mesh surface holes varies along the length of the sieve. d_1 = 4 mm, d_2 = 8 mm, d_3 = 10 mm, d_4 = 12 mm, and pockets are placed along the length of each hole.

The seed sorting device consists of inlet and outlet pipes, screw conveyor, mesh surfaces. In order to simplify the design of the sorter in the proposed device, screw conveyors are made to fit the dimensions of the seeds with fiber.

The seeds separated from the fiber are completely cleaned of impurities and sent for lintering as needed. As a result, the lintering process is efficient and the lint quality is improved. It is also possible to increase the fiber yield by trapping the seeds with fiber in the seed sorter and feeding them back to the gin machine. No excess electricity is consumed when using a seed sorter.

The seed sorting device ensures the improvement of the quality of cotton seeds as a result of the improvement of working elements and their introduction into production. This will meet the demand of the textile industry. New parts of the seed sorting equipment and a working chamber will be created to ensure the uninterrupted operation of the technological process of ginneries. Experiments are carried out on the newly created constructions and results are obtained

CONCLUSION.

Today, the device of seed sorters is widely used in ginning enterprises of textile clusters. The ginner is widely used in ginneries. There is a great need for an advanced seed sorting device, because as a result of offering an improved seed sorting device, the fibrous seeds are completely separated, fiber loss is reduced and production efficiency is increased.

It follows that the efficiency of separating cotton seeds from contaminants and sending the seeds with fiber to the next process is increased by 0.01% in the seed sorting device. The fiber gain increases by 0.1% due to the impurities separated in the seed sorting device and the seeds containing fiber.

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