

Analysis Of The Scientific Work Carried Out On The Research Paper On The Cleaning Of Small Impurities From Cotton

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Annotatsiya: Maqolada paxta tozalash korxonalarining asosiy xomashyosi bo'lgan chigitli paxta va uni tozalashda qo'llaniladigan texnologik mashinalar, ularning turlari, ishlash prinsipi, afzalliklari hamda foydalanish jarayonida yuzaga keladigan kamchiliklar tahlil qilingan. Shuningdek, ushbu kamchiliklarni bartaraf etishga qaratilgan ilmiy-tadqiqot ishlari ko'rib chiqilgan.

Kalit so'zlar: tola, ifloslik, paxta, chiqindi, tozalash, mashinalar, tajriba.

Annotation: In the article, the main product of cotton spinning enterprises is cleaning the raw material of spinning enterprises and the technological machines used in its cleaning, their types, operation, advantages, disadvantages arising during operation and scientific research work on their elimination. analyzed.

Key words: Fiber, dirt, cotton, waste, cleaning, machinery, experience.

Аннотация: В статье анализируется хлопок-сырец как основное сырьё хлопкоочистительных предприятий, а также технологические машины, используемые для его очистки. Рассматриваются виды очистительных машин, принципы их работы, преимущества и недостатки, возникающие в процессе эксплуатации. Кроме того, рассмотрены научно-исследовательские работы, направленные на устранение выявленных недостатков.

Ключевые слова: волокно, засорённость, хлопок, отходы, очистка, машины, опыт.

Enter. According to world statistics and information of the International Cotton Consultative Committee (ICAC), "the top five exporters of cotton fiber in the 2018/2019 season are the USA, India, Australia, Brazil, and Uzbekistan, and the importers are Bangladesh, Vietnam, China, Turkey, and Indonesia" [1]. In our country, a large-scale new economic system is being implemented, including the development of the textile industry, and the cotton gin, which produces cotton fiber, which is the main raw material for the textile industry, is putting huge demands on the cotton ginning industry. The main demand is to increase the quality and quantity of cotton fiber, which can only be achieved through the development of modern technologies and techniques, taking into account the achievements and achievements of the cotton-growing state. In our country, efforts are being made to develop the cotton industry, to modernize and re-equip the cotton ginning plant, to improve the efficiency of cotton raw material processing, and to increase the competitiveness of the manufactured products. In the Strategy for further development of the Republic of Uzbekistan in 2017-2022, Among them, the task of "... increasing the competitiveness of the national economy, ... reducing the level of energy and waste in the economy, widening the production of energy-saving technologies" [2] was defined. In order to fulfill this task, it is important to improve the technique and technology used for cleaning cotton from small impurities, to increase the efficiency of cleaning technological equipment, and to reduce the level of electric energy. Today, due to the great importance attached to the picking of cotton by machines, serious attention is paid to the effective cleaning of cotton fibers. The problem of creating fiber cleaners that effectively separate small and large impurities from the content of cotton seed cotton picked by machine is not enough [3].

The world textile industry has changed significantly in the last 10-15 years. As a result of globalization in the world economy, the center of textile production moved from Europe and the United States of America to the countries of the "third world" - Northeast and Central Asia, North America. In the next decade 500 million in China, Pakistan, India, Turkey and other countries. Dozens of large textile companies with an annual turnover of US\$ 1,000,000, and thousands of small manufacturers, these manufacturing companies equipped with state-of-the-art equipment, have launched the production of hundreds of assortments of fabrics in

thousands of finishing options. These companies produce the main volume of the world's textile products [4,5,6].

Today, in almost all enterprises in Uzbekistan, the processes of picking, cleaning, mixing and combing cotton fibers are carried out in a continuous (assembly line) manner. As a result, it led to shorter transitions and increased labor productivity, while reducing the cost of yarn.

Research methodology

The existing technique and technology for cleaning the small impurities in the cotton fabric, the application of the cotton quality multiplier, and the fiber mass coming out of the fiber products processing machines consists of small fiber tufts that have not been separated into individual fibers, and it contains waste and defects. To clean them, fiber bundles can be separated into individual fibers and then cleaned of defects [7,8].

In their work, the authors present the structure, shape and perforation surface of the working parts of the cleaning machines used in the yarn spinning enterprises and the experiments conducted in the process of their cleaning.

Analysis and results

In some studies, a device for extracting spinnable fibers from waste has been developed. a cotton swab has been developed that improves the efficiency of cleaning small dirt from cotton; the scope of the working zone of the ball surface can be increased compared to the existing horizontal technology; a cleaning technology has been developed that preserves the product quality multiplier when cleaning small dirt from cotton; It has been proposed to reduce the amount of washing and cleaning equipment for the cleaning of small dirt from cotton [9, 10, 11].

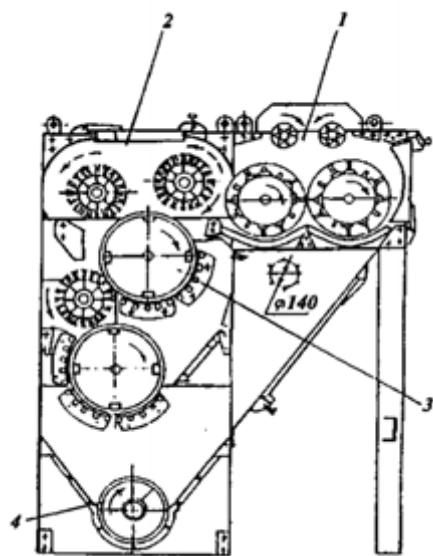


Figure 1. A test copy of the development of the equipment for cleaning small impurities from cotton

A device for extracting spinnable fibers from waste was created in the course of scientific research. The amounts of the distances between the saw toothed drum and the blades are 4.0; 3.0; 2.0; 1.5; 1.0; It has been mentioned that the best effect is achieved at 0.5 mm. Saw-toothed drum and cleaning knives (6 pieces) were installed and work was carried out to separate long fibers from fibrous waste. The efficiency of separation of spinable fiber from fibrous waste is 2-2.5% [7,12,13].

It is known in the research work [8,14,15] that the amount of fiber waste increases significantly due to the fact that the amount of fiber fragments in cotton increases due to the fact that there is a small amount of mechanical damage to the cotton fiber in the cleaning workshop. At the beginning of the technological process of cotton ginning, i.e. in the ginning workshop, if the amount of fiber waste is 400 gPamm in 30 minutes, In the case of cleaning, this multiplier reaches 650 gPamm. In the ginning workshop, 800÷1000 gPamm fiber waste is coming out. Due to the large amount of short fibers and seed husks in the lintel plant, this multiplier is pumped up to 1000÷1150 gPamm, which leads to loss of fiber volume in the hopper. "Mitan cotton ginning" and "Pskent cotton ginning" joint-stock company, and the loss of fiber waste in multiple cleaning is equal to 1.3 kg/coat.

In scientific work, by changing the shape of the colossal grid, it was achieved that the fibers fall less through the grid [9,10,16,17]. The surface of the kolosnik grid is prepared in the form of a prism (Fig. 1).

In this scientific research work, as a result of increasing the porosity of cotton from 0.112 to 0.24 and decreasing the density of cotton from 54 kg/m³ to 29 kg/m³, the passivation of the dirty lint in the cotton fiber was observed, and the surface of the dirty lint adjacent to the cotton fiber was increased, and as a result, the friction of the surface with the ball it is possible to speed up the cleaning process. Due to the recommendation to use a squeegee with a ball-shaped pile in the mine collector, and the width of the mine-collector to be 240

mm, the cleaning efficiency of the equipment is increased by 6.0-6.5 percent. It was determined that the optimal value of the distance between the roller and the pile-plate roller is 50 mm, and it was found that the cleaning efficiency of the machine can be increased by 4.5-5.0 percent at this distance [10,11,19].

Conclusions and suggestions. In this article, the authors study the construction of fiber cleaners, their advantages and disadvantages in fiber cleaning. The following technological requirements are imposed on fiber cleaning machines:

- The formation of fiber defects as a result of the effect of the working organs of the fiber cleaning machine on the fiber;
- Not to cause deterioration of natural physical and mechanical properties;
- Cleaners remove the maximum amount of dirt and dead matter from the fiber;
- Ensuring that waste is released according to its standard norms;
- It is to ensure that the amount of fibers suitable for spinning in the composition of the waste is minimal.

Despite the fact that the aforementioned scientific research works have been applied to production, even in modern cleaners, it is still observed that fibers suitable for spinning are added to the waste.

The results of the above-mentioned scientific research can be used as an example in future scientific research.

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