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ANALYSIS OF SCIENTIFIC WORK ON THE SEPARATION OF FIBROUS WASTE IN GINNERIES AND TEXTILE ENTERPRISES

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Аннотация: Мақолада пахта тозалаш ва ип йигириш корхоналарининг асосий маҳсулоти ип йигириш корхоналарининг хом ашёсини тола тозалаш ва уни тозалашда фойдаланиладиган технологик машиналар, уларнинг турлари, ишлаши, авзалликлари, ишлаш жараёнида келиб чиқадиган камчиликлари ва уларни бартараф қилиш бўйича олиб борилган илмий-тадқиқот ишлари таҳлил қилинган.

Калит сўзлар: тола, ифлослик, пахта, чиқинди, тозалаш, машиналар, тажриба.

Annotation: The article analyzes the main products of ginning and spinning enterprises, technological machines used in fiber cleaning and ginning of raw materials of spinning mills, their types, pproductivity, advantages, disadvantages and conducted research works on their elimination.

Keywords: fiber, dirt, cotton, waste, cleaning, machinery, experience.

Аннотация: В статье проанализирована основная продукция хлопкоочистительных и прядильных предприятий, технологические машины, применяемые при очистке волокна и очистке сырья прядильных фабрик, их виды, производительность, преимущества, недостатки и их устранение.

Ключевые слова: волокно, грязь, хлопок, отходы, очистка, техника, опыт.

Introduction. In the world, great attention is paid to the development of fiber cleaning techniques and technology as the main technological process of primary processing and spinning of cotton. For this reason, much attention is paid to the modernization of the fiber cleaning process, which is the main means of ginning and spinning enterprises, and improving the quality of the obtained fiber. Therefore, it is important to conduct large-scale research on the technique and technology of spinning cotton. At the same time, it is necessary to develop a scientifically

based cleaner for effective cleaning of cotton fiber, to determine the parameters of the improved auger (cleaning equipment) parts that accelerate the fiber cleaning process and to replace them.

Today, due to the great emphasis on machine picking, serious attention is paid to the effective cleaning of cotton fiber. The problem of creating fiber cleaners by effectively separating fine and coarse impurities from machine-picked cotton fiber is not enough [1].

In the last 10-15 years, the world textile industry has changed significantly. As a result of globalization in the world economy, the center of textile production has moved from Europe and the United States to "third world" countries - Northeast and Central Asia, North America. Dozens of large textile companies with an annual turnover of $ 1 billion, as well as thousands of small manufacturers, which have installed the most modern equipment, have launched the production of hundreds of assortments of fabrics, thousands of decorative options. These companies produce the bulk of the world's textile products [2].

Today, in almost all enterprises in Uzbekistan, the process of spinning, cleaning, mixing and combing of cotton fiber is carried out continuously (flow line). As a result, it led to a reduction in sales and increased labor productivity, while reducing the cost of yarn.

Research methodology

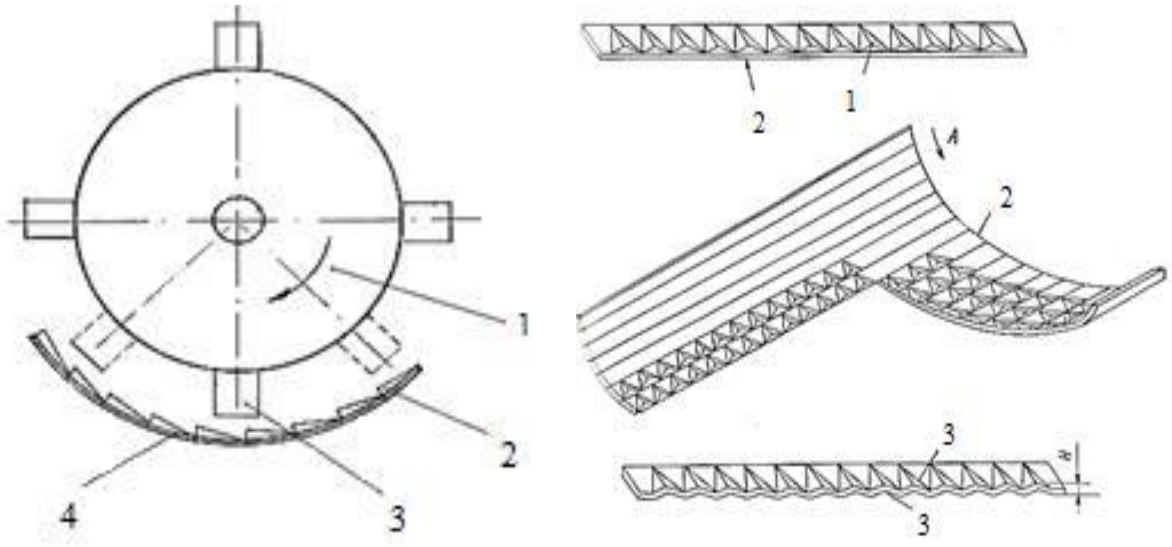
The fibrous mass coming out of the machines of the refining unit for processing fibrous products consists of small fibrous tufts that are not separated into individual fibers, and contain traces and defects. To clean them, the fibrous tufts can be separated into separate fibers and then cleaned of defects [3].

The authors [4, 5] present the structure, shape and experiments on the recommended perforated surface in the process of cleaning the working parts of cleaning machines used in spinning mills.

Analysis and results: In Aliyev's case, a device for separating spinning fibers from waste was created. The distances between the saw gear drum and the blades are 4.0; 3.0; 2.0; 1.5; 1.0; It is said that the best effect is achieved when it is 0.5 mm. Saw gear drums and cleaning blades (6 pcs.) Were installed to remove long fibers from the fiber waste. The efficiency of spinning fiber from fibrous waste was achieved by 2-2.5% [6].

In his research, A.Safaev found that the same mechanical exposure to cotton during the cleaning process leads to a decrease in cleaning efficiency. In order to overcome this problem, the cleaning suggested the preparation of drum piles in various forms. As a result, it has been proven that cotton moves in different trajectories, as well as increases cleaning efficiency [7].

In M. Avezov's work, by changing the shape of the grate, the fibers were less likely to fall between the bars [8]. The surface of the grate is made in the form of a prism (Fig. 1).



b) prism-shaped grate

1-blade drum

2-convex guide

3-knife

4-column

1-prism-shaped guides

2-grating bars

3-prism-shaped perforated grid for separation of foreign matter

Figure: ***A) prism-shaped grate***

Researcher D. Umarkhodjaev proposed a two-drum direct-flow fiber cleaner. The purpose of the research is to determine the main optimal technological and design parameters of the modernized fiber cleaner and its hard-to-clean and machine-picked cotton raw material, which will ensure the effective implementation of the fiber cleaning process in the initial processing. The modernized fiber cleaner (Figure 2) found that the efficiency of the cleaning process in a two-drum direct-flow fiber cleaner was on average 39.2%, or 9.1%, higher than that of a two-drum single-drum cleaner.

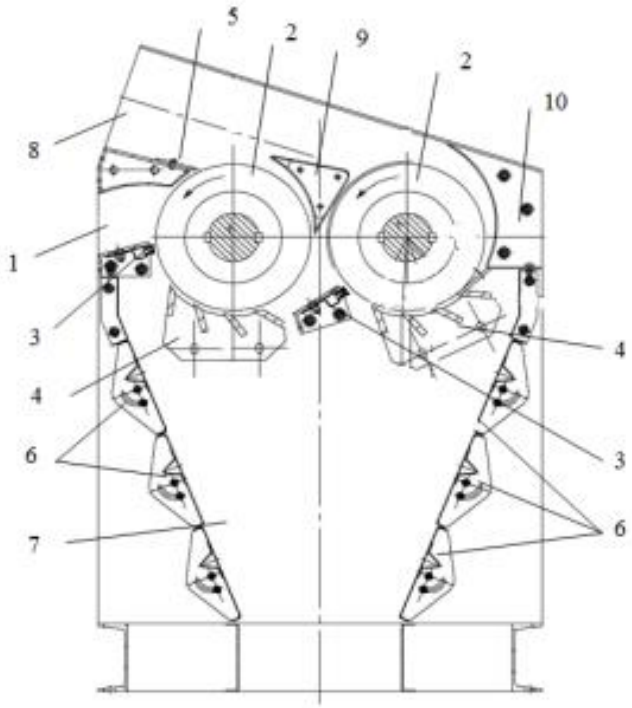


Figure. ***Schematic diagram of a modern double-drum fiber cleaning stand modernized by D. Umarkhodjaev***

Researcher U.Muminov proposed a two-section fiber cleaning device [9]. The aim of the study is to improve the quality of fiber cleaning by improving the fiber cleaning process.

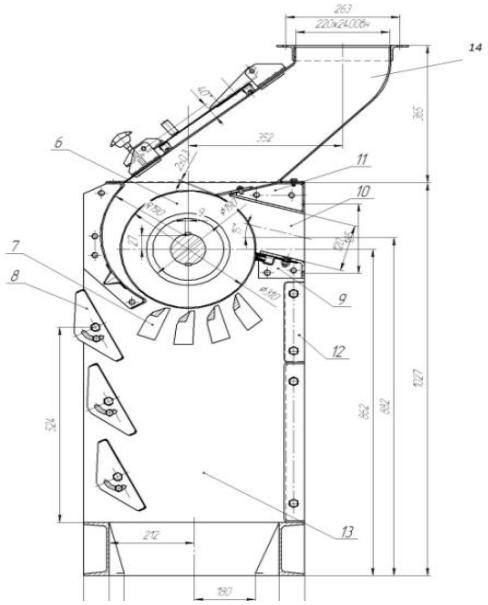


Figure. ***Construction scheme of the fiber cleaner, improved by U.Muminov***

The researcher U. Egamberdiev proposed to install a guide in the receiving zone of the saw cylinder to increase the viscosity of the cylinder and reduce the separation of spinning fiber into

waste [10]. He also conducted research and obtained positive results by shifting the second saw from 2mm to 4mm relative to the saws in the cylinder.

Conclusions and suggestions

In this article, the authors have studied the designs of fiber cleaners, the advantages and disadvantages of fiber cleaning. The following technological requirements are set for fiber cleaning machines:

- Formation of fiber defects as a result of exposure of the working bodies of the fiber cleaning machine to the fiber;

- Does not lead to deterioration of natural physical and mechanical properties;

-Cleaners separate the maximum amount of dirt and dead matter from the fiber;

- Ensuring that waste is disposed of in accordance with standard standards;

- Ensuring that the amount of fiber that can be spun in the waste is kept to a minimum.

Despite the fact that the above-mentioned scientific research has been applied to production, it is still observed that in modern cleaners, spinning fibers 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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