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Table 4. The quality parameters of the cotton cellulose (alkali concentration 5 g/l, hydrogen peroxide consumption – 4% of the cellulose mass, T=120°C, duration 60 minutes).

Stabilizer	The stabilizer consumption in % of the lint mass	The quality parameters	
		Viscosity, mPa·s	Whiteness, %
Sodium silicate	10	1390	91.0
EDTA	2	1330	96.0
EDDHA	2	1510	97.0

CONCLUSIONS

The research results showed that when using the EDTA and the EDDHA as the hydrogen peroxide stabilizers, the whiteness degree of the obtained cellulose samples was higher compared to the samples bleached using sodium silicate as a stabilizing agent. The research showed the EDTA and the EDDHA are effective chelating agents in the hydrogen peroxide bleaching.

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ANALYSIS OF DEVICES CONTAINING HEAVY IMPURITIES IN THE COMPOSITION OF COTTON

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Abstract

This article shows how to cause damage to the teeth of sawdust gin and Linter machines heavy impurities contained in cotton. The installation of stone clamps in the structure of the pneumatic transport device, as well as their various designs, was also studied. The need for scientific research to improve the efficiency of the stone holder device in the future is justified.

Keywords: gin, linter, stone holder, separator, suction pipe, ventilator.

INTRODUCTION

The production of high-quality fiber that meets international standards sets such an important task for specialists and scientists in the field of cotton processing as improving existing technologies and technologies. In turn, the increasing level of improvement in spinning and weaving equipment also requires a lot of attention to the quality of cotton fiber.

During the primary processing of cotton, when sending cotton raw materials to the processes of cleaning and separating fiber from seeds, along with cotton, heavy objects pass into the technological process, and machines catch fire, and there are cases of damage to the working bodies of technological machines. This in itself has a negative impact on the deterioration of fiber quality and continuous processing of cotton by the primary processing society. Organized cotton harvesting, widespread use of harvesting machines and increased wages make it possible to quickly harvest the grown cotton crop.

This poses very big challenges for workers in the cotton processing industry. They consist of timely receipt of cotton, preparation, storage and high-quality processing of cotton with high humidity and contamination, especially cotton collected in the machine, for a certain period of storage. Solving these issues

requires scientists, industry workers, and design organizations to develop new technologies for creating high-performance machines. Also, the introduction of many new varieties of cotton in the cotton industry, respectively, sets itself the task of re-equipping the cotton gin industry, since the machines used for existing varieties often do not have an effect on new varieties.

In the process of collecting cotton, drying it in the field, loading, transporting, storing and transferring it for processing, in violation of the rules for processing cotton products, heavy bodies of different sizes fall into the cotton. Such bodies fall into the working chamber of the machine and disrupt its working process, damage the working organs, which reduces the productivity of the machine. At the same time, heavy bodies are the main cause of fires that occur in cotton gins. Therefore, the question of separating cotton from heavy bodies is crucial. Even if the rules for collecting and storing cotton are fully observed, it is still possible that such foreign bodies will join the cotton. Therefore, at present, the need to create new, sufficiently effective stone-cutting devices in order to ensure the long-term operation of the labor organs of cotton processing machines has increased even more in recent years.

RESEARCH TECHNIQUE

The experience of cotton gins shows that existing stone clamps cannot adequately solve the problem of separating heavy bodies from cotton. Therefore, at cotton gins and preparatory punches, you can see a variety of devices that capture heavy objects created by workers and engineering personnel of the enterprise. The performance characteristics of these devices are quite low, which is mainly due to the fact that they hold heavy bodies of large sizes. And tiny bodies go into the process. In addition, existing stone clamps have high aerodynamic resistance. This at one time leads to a sharp decrease in air pressure in the pipes of the pneumatic transport, as well as to the fact that the stone gripping beams are filled with cotton and connected in the exhaust. In addition, the stone-grinding equipment used in enterprises is not fully automated, and it is not subjected to titration processes during the transportation of cotton.

In order to distinguish the heavy impurities contained in cotton, at cotton gin plants, in cotton pneumatic transport, that is, when transporting it with air, a grinding device is installed on the lower parts of the air ducts to capture various heavy impurities. The process is as follows: during the movement of cotton in the air pipe heavy contaminants and other fine particles in its composition moves along the bottom of the pipe and pass through a grinding device that is located at certain distances from the pipe moving with the air flow, so that the weight of the cotton is not more than the hard compounds, weight more volume, so the air flow can not tighten it with great force, and as a result the heavy impurities fall to the stone trapping beams.

There are many types of stone-collecting devices that constantly separate cotton wool from various impurities, serve not only to improve its quality, but also prevent breakage of the saw teeth as a result of exposure to stone or metal fragments on the saw blade, as well as abrasion between the saw and scrap metals, including during its processing it is well known that cotton wool is a rapidly flammable element. The appearance of lightning once in the label causes a large fire. This leads to the destruction of an entire enterprise due to a fire.

To solve the above tasks, the device that holds the stone must always work during operation and meet all the requirements.

Despite the fact that the problem of improving the process of separating heavy mixtures from cotton is very relevant, there is still no equipment that has sufficient efficiency. Therefore, several low-efficiency devices are embedded in the technological chain of cotton processing, which retain heavy impurities, reduce production productivity and the range of the transportation process, which leads to a decrease in the quality of cotton.

The composition of cotton has a significant impact on the technological process of cotton gins, which increases the efficiency of installed equipment and their smooth operation. Heavy impurities contained in cotton lead to damage to the teeth of working parts of cleaning machines, as well as gin saws and liners during its processing. This change causes damage to the skin and fibers when the fibers are extracted from the skin in the gin machine.

And in cotton gins, this leads to a decrease in cleaning efficiency, as well as to an increase in the amount of cotton particles in the waste. In addition, the heavy impurities lead to the appearance of fire in the result of the impact of machine tools for metal working bodies. For this reason, the ingress of heavy impurities into the working chambers of cotton processing machines has always been the focus of scientists and specialists in this field, and they have been looking for ways to completely retain heavy impurities in the vehicle using air.

D. L. Kelbert [1] identified the causes of fires in the process of separating fiber from seeds in the saw teeth of cotton gin, gin and Linter machines. Based on this, it was determined that the cause was heavy metal particles (nails, nuts, bolt).

T. D. Makhametov [2] in his research work investigated the causes of breakage of saw teeth on Linter and gin machines. Experiments conducted by the authors [3,4,5] showed that the damage to the saw teeth is caused by metal fragments that accidentally fell on the working chamber of the Gin (Fig. 1).

Linear stone holders are widely used in the technological process for separating heavy mixtures in cotton gins. Linear stone holders have a number of advantages over other stone holders, they are characterized by simple design, easy operation, low cost and reliability.



Figure 1. When exposed to heavy impurities and metal bodies damage to the saw blade Gin is shown

But despite the fact that today there are various designs of linear stone holder, research by scientists and specialists in this field has shown that currently there is no equipment that would give sufficient efficiency, and there is not meet the requirements.

Based on this, it is now very important to develop new, highly efficient stone holders and introduce them into the technological process of cotton gins.

Improving the structure of devices that distinguish heavy mixtures from cotton, and improving their efficiency largely depend on the results of research conducted by a wide range of scientists.

They conducted a number of studies to find the patterns needed to improve the efficiency of devices by titrating heavy mixtures that are mixed with cotton. They were looking for the most effective types of working bodies stone holder devices, taking into account the physical, mechanical and aerodynamic properties of cotton and heavy mixtures and their geometric parameters [6,7,8,9].

T.D.Makhametov [2], K. M. Kobuljonov [10], M. T. Khasanov [11] and others conducted research on these problems. In addition, a number of scientists and specialists conduct scientific work at the Tashkent Institute of textile and light industry, the “Pakhtasanoatilm” research Institute, and design bureaus. Stone holders of various designs have been created at cotton gins. They are used in the technological process for the transportation of cotton in cotton processing enterprises, mainly with the use of air suction (Fig. 2).

The principle of operation of the air duct is that under the flow formed due to the pressure difference, the atmospheric air itself pushes the material into the pipe, which is transported with it. In the pipe, the cotton moves in the coupling position and reaches the separator. A Separator separates the material from the air-carrying device and transfers it to the process equipment.

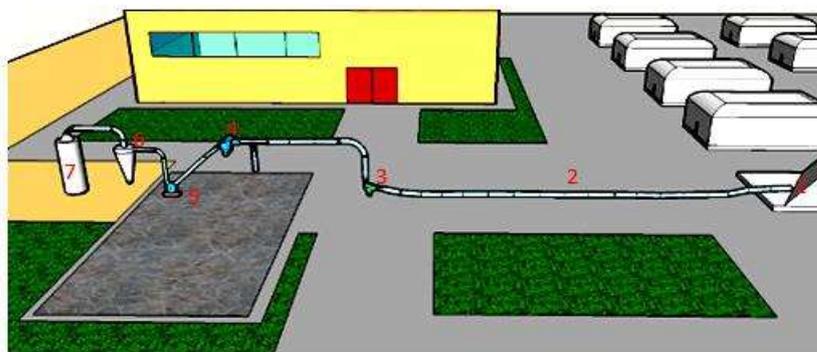


Figure 2: carrying Device with suction air

The advantage of a portable device using intake air is that the working pipe system is without problems, without difficulty, if it is possible to change the length of the pneumatic route by connecting additional pipes to the primary pipes, depending on the location of the storage areas of harems of cotton enterprises. The production capacity of the air purifier depends on the production capacity of the cotton gin plant. For an advanced cotton plant with a battery, it is 1 ton per hour.

The growing rate of cotton production sets the cotton processing industry the task of increasing production capacity, increasing equipment productivity, and improving product quality. The performance of these tasks depends to a greater extent on the operation of the carrier device using the air installed on the territory. Because it directly joins the continuous technological process of the cotton gin plant, being an important part of its initial and rapid character.

Depending on the installation location, they are divided into two types. The first are called linear stone holders. They are located on the line of the carrier device with the help of air and are installed up to the separator. The latter are non-linear stone holders that are installed after the separator.

CONCLUSION

in order to preserve the heavy impurities contained in cotton, we study the devices installed in the technological process and draw the following conclusions:

In the process of separating heavy mixtures contained in cotton, the efficiency of the installed devices is low and does not meet the requirements of today. This reason indicates the need for scientific research to improve the design of stone holders.

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CHANGING THE TECHNOLOGICAL PARAMETERS OF THE UPPER KNITTED FABRIC DUE TO THE PLASTIC INTERWEAVING OF VARIOUS OPTIONS

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Abstract

Together with the Department "Technology and design of textile" and company "Alem BT" on flat-blade machine brand were developed upper knitted weave eraser 1 + 1, 2 + 1 eraser, eraser 2 + 2 and on the basis of incomplete eraser. Physical and mechanical properties of the samples were determined on the modern devices in a test laboratory «Centex» at the South Kazakhstan state university af. M. Auesov and light industry and on the basis of the research for the production of high-quality knitted fabric offered the best option. Density knitted fabric, the length of the loop and its surface density are important indicators of knitwear. Knitting creates [stitches](#): loops of yarn in a row, either flat or in the round (tubular). There are usually many active stitches on the [knitting needle](#) at one time. Knitted fabric consists of a number of consecutive rows of connected loops that intermesh with the next and previous rows. As each row is formed, each newly created loop is pulled through one or more loops from the prior row and placed on the gaining needle so that the loops from the prior row can be pulled off the other needle without unraveling.

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