

Analysis of Increasing the Efficiency of Fiber Extraction in Saw Guns

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Abstract:

The results obtained through a series of scientific researches to increase the fiber quality indicators in sawn gins and the proposals given on the obtained results were analyzed.

Keywords: fiber, seed, working chamber, saw, colosnik.

Researchers who have studied the process of sawing are mainly sawing. They paid more attention to the profile of the teeth and saw fibers based on this scientific on the profile of the teeth and working chamber research work has been carried out.

In the works of B.I. Bekmirzaev [1], the following conclusions were reached:

Accelerator gin machine with increasing density of raw material the fiber content of the raw material and, in turn, the work productivity also increases; Density of raw materials in ordinary gins without an accelerator the increase also leads to an increase in fiber and productivity as above comes, decreases only in absolute and relative values.

In order to increase the productivity of sawmills in Uzbekistan and several works are being carried out abroad [2].

But the achievements of scientific staff of TTESI, Cotton industry science and NamMTI scientists and other research and manufacturing industries Scientific staff have made great progress in solving this problem, namely the product they partially solved the quality and the ways to increase it.

G.I. Boldinsky's problem in his scientific works found certain ways to solve it and achieved it. From a theoretical point of view The way to solve the problem is without raw materials or with raw materials faster extraction of the hairless seed that collects in the middle proved that it can be achieved by In addition, the author is fiber reducing the amount of impurities in its productivity not by way, but to increase the productivity of gin and raw materials proving that it can be increased by reducing the density gave.

At present, the technique and technology of primary processing of cotton priority areas of development of the manufactured product aimed at improving quality indicators.

In the processing of medium fiber cottons in cotton gins in the main process of extracting the fibers from the seed, it is natural is charged with preserving its characteristics.

B.I. Roganov [3] is a demon according to the conclusion of his research the working chamber profile of the machine is as circular as possible emphasizing that it will be and that the movement of raw materials in it will be light and smooth passed. In this work, the working camera profile is studied through 4 options tested and obtained results can be seen in table 1.1.

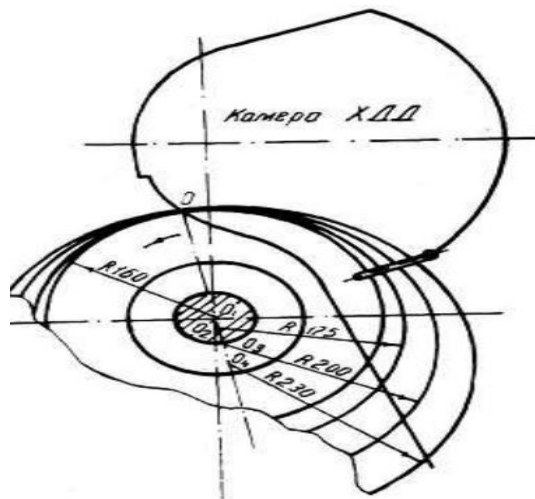
According to his research, the volume of the working chamber is up to 0.35 m³ increased and achieved positive results. At that time in the cotton ginning industry XDD working chamber volume 0.25 m³ was used. In his dissertation work, he increased the volume of the working chamber to 0.38 m³. Currently and in the industry, the volume of the working chamber of DP 130 gin machines is 0.31 m³ demons are being used.

Because both works focus on the rational form of the working chamber we consider its shape to be approximated to the shape of a circle. The gin machine has not changed in terms of the principle of operation, as well Machine improvement in Uzbekistan and abroad and made at the expense of changing the profile and geometric dimensions is increasing.

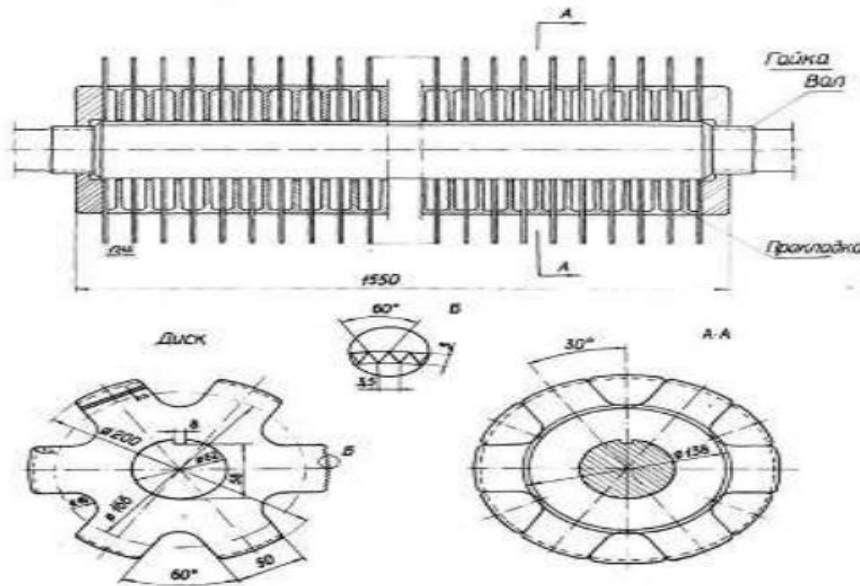
As a result, the genie machines currently in use have been improved turned into high performance equipment in construction. The last hand shakes on fiber separating machines in construction has been and continues to be transitioned to automated systems. To this the car start and stop, seed hairiness control, worker from the camera feed control panel we can see that it is increasing.

R.M. Kattakho'jev [4] saw disc to indicators of demonization process conducted research on the relationship with the increase in diameter and the following came to conclusions: when the diameter of the saw blade is increased to 400 mm, raw material the density of the fiber is reduced, the work productivity of the gin is increased, and the fiber accumulated defects and fiber contamination are reduced.

V.S. The rotation of the saw cylinder is also a part of the demonizing process studied the effect of frequency and speed. As a result of his research when the rotation frequency is reduced from 730 rpm to 650 rpm quality indicators of the fiber have improved.



1- Picture with the working camera of the XDD chainsaw machine layout diagram of a saw cylinder of different diameters.



2- Picture. New accelerator design

M.T. In Tillaev's research, the accelerator is mainly new creating a structure (picture 2) and ginning the accelerator of the raw material. After studying the effect on the process, the following conclusions were reached: between the speed of rotation of the raw material and the productivity the correlation is very close, and as speed increases, so does performance increases; of a chainsaw machine with an increase in speed to 200 rpm performance increased dramatically, but then increased speed further decreased; 200 is the optimal speed of the accelerator, taking into account the performance taken as rpm;

Accelerator application in depilated seed raw material reduced dwell time and, in turn, in the composition of the raw material reduced the amount of depilated seeds; reduction of depilated seeds in the raw material small and large bunches and the amount of seeds that are not fully germinated increased; small and large bunches in the raw material and complete. The increase in the amount of non-ginned seeds in turn, the work of the gin increases productivity.

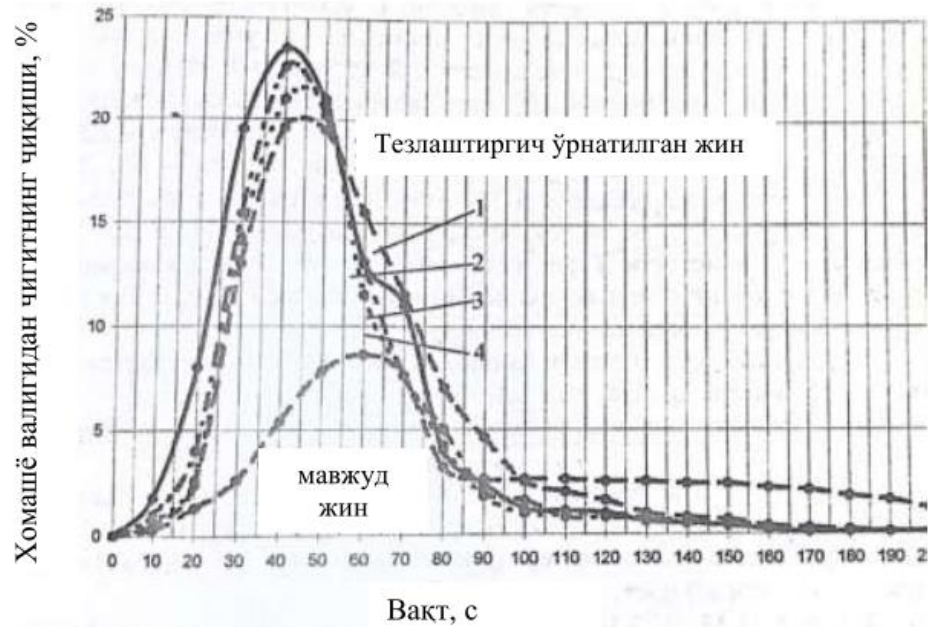
S. In the scientific work of Fazildinov [5] saw fiber separator special in order to speed up the raw material in the construction the use of accelerators is recommended. From his previous accelerators The difference is that the accelerator semi-roller has a better grip made of the material, which affects the density of the raw material and its impact on it semi-accelerator of compressed air in order to equalize forces sent through shovels.

P.N. Acceleration of raw materials and The theoretical foundations of stabilization have been developed and are in the process of being used the parameters of the accelerator ensuring durability are determined. Also, a worker who affects the process of accelerating the flow of raw materials additionally extracting depilated seeds from the center of its chamber sent issues were considered.

R.Yunusov in his dissertation raw materials in the working chamber The effect of the density of the sawdust on the technological indicators studied, the profiles of the working chamber, that is, the apron is in the correct position and 200mm and 225mm radii modified raw material shaft density is reduced, as a result of which the quality of fiber and seed indicators have been improved.

A. Sarimsakov's research on the acceleration of raw materials unlike the previous methods to the two sides of the working chamber proving that the quality of ginning improves with the help of built-in accelerators gave Its forward working camera is an advantage over the accelerators in the center In the studies of Professor B.A. Levkovich / theory of demonization elements. /Tashkent gosizdat 1938g 163 str/ the emergence of seeds Acceleration is based on increasing the productivity

of ginning and the quality of fiber given One seed at a time until the seed is completely out of the working chamber saw teeth 20 times on average.



The complexity of the demonization process depends on the different situations that occur in it is evaluated by the nebula. As a result of scientific research of scientists Several elements of the ginning process were discovered, including raw materials kinematic motion research, raw materials and his composition and density of fractions, study of seed release mechanism, saw discharge of fibers from the teeth, quality and quantity of the product The relationship between the two is processed during the demonization process the effect of the properties of raw materials and the effect of its operating mode, etc.

In our opinion, it is the seed that accelerates the exit of the seed from the chamber It depends more on the distance between the comb and the colosnik. For this purpose in order to change the distance between this seed comb and the colosnik We found it appropriate to improve the construction of the seed comb.

Reference

1. Akramjon, S., I. Sardorbek, and K. Shukhratjon. "Improving Fiber Quality Output by Improving the Roll Box of the Gin Saw. Engineering, 15, 261-268." (2023).
2. Komilov, Sh, et al. "ANALYSIS OF THE QUALITY INDICATORS OF THE SEED SEPARATE FROM THE FIBER AFTER SPINNING." Research Focus, Uzbekistan 2.4 (2023).
3. Nodirbek, Mamadaliev, Komilov Shukhratjon, and Akhmedkhodjaev Khamit. "Influence of the Ginning Process on the Quality of Raw Cotton." Engineering 13.12 (2021): 739-748.
4. Juraeva, G. R., and Sh. R. Komilov. "OSNOVNYE TREBOVANIYa, PRED'YaVLYaEMYX K RABOTE PILNYX DJIN." Mechatronics and Robotics: Issues and Prospects for Development 1.1 (2023): 158-160.
5. Rakhimjon's son, Komilov Shukhratjon, Isahanov Hamidulla, and Muradov Rustam Muradovich. "KEY DIFFERENCES BETWEEN SEED SEED AND FERTILIZED SEED." Novosti obrazovaniya: issledovanie v XXI veke 2.14 (2023): 426-430.