ISSN 2181-8622

Manufacturing technology problems

Scientific and Technical Journal Namangan Institute of Engineering and Technology

INDEX COPERNICUS INTERNATIONAL

Google Scholar Crossref doi SLIB.UZ Scientific library of Uzbekistan

Volume 8
Issue 3
2023

components improved compared to the existing equipment. Installation of an inverter mechatronic system with special software for fan electric motors at the "ART SOFT TEX CLUSTER" LLC enterprise, based on the results of scientific research.

According to the results of the experiments, it was found that the new device has the possibility of saving electricity by reducing the active and reactive power energy at the time of engine start-up (push torque).

Reference

1. “Uzpakhtasanoat” JSC, “Primary processing of cotton” (Primich obrabotka khlopka), T., “Mexnat”, 2002.
2. Sarimsakov O. Improving the process of transporting cotton by air and air. Monograph. Navruz Publishing House, Namangan, 2019.
3. Sarimsakov O. D.Turgunov, A.Isakjanov. Practical study of the process of transfer of raw cotton to pneumatic transport // Scientific and technical journal of NamMTI, №3-4, 2018, pp. 37-41
4. Abbazov I., O. Sarimsakov, M.Khodjiev, B.Mardonov. Waste Produced at Cotton Waste Factories. // American Joural ASCIT Communications. 2018; 5 (2): pp.22-28
5. Kholmirzaev F., Azimov S. Abdurahimov K., Sarimsakov O. Investigation of the Loss of Air Pressure in the Pipeline of the Sotton Pneumatic Conveying.// Saudi Journal of Engineering and Technology // Dubai, United Arab Emirates. February 2019; 4 (2): pp.23-27
6. Sarimsakov O. The possibility of reducing cotton consumption in cotton. // American Journal of Science and Technology.// 2016; 4 (6): pp.68-72. http: www.aascit.journal / ajst.

WAYS TO INCREASE THE EFFICIENCY OF GINING MACHINE

MURADOV RUSTAM

Professor of Namangan Institute of Textile Industry
E-mail: rustam.m@list.ru, phone.: (+99894) 272 94-56

Abstract:

Objective. In the process of separating cotton fiber from seeds, special attention is paid to preserving the original quality indicators of the fiber and seeds, creating technologies and equipment to control the quality of the product. The economic position of cotton ginners depends on the quality of the fiber produced by the cotton gin. Therefore, research will need to be done to obtain quality fiber in the gin machine.

Methods. In order to improve the technique and technology of the process of separating cotton fiber from the seed, test works were carried out on a 30-saw laboratory gin machine with a trench, a net drum for the working chamber, and ribs for the mesh surface.

Results. By installing a rib with a channel, the seed separated from the fiber is easily removed from the working chamber and damage to the seed is reduced. The fiber does not remain in the working chamber for a long time and is taken out of the working chamber through the ribs installed on the surface of the trench. By installing a mesh drum in the center of the working chamber, increased density and reduced damage were achieved.

Conclusion. As a result of the scientific research, it will be possible to get into the working chamber of the gin machine in time. At the same time, in the working chamber of the gin machine, the tension of the raw shaft remains the same. In the process of separating the fiber from the seed, it is possible to avoid damage to the seed and various defects do not form in the fiber.

Keywords: cotton, fiber, short fiber, seed, fluff, saw, saw cylinder, raw material roller, seed hairiness, working chamber, seed comb, ribs, density.

Introduction. In recent years, due to the growing demand for cotton fiber, special attention has been paid to the production of high-quality fiber that is competitive in the world market. Important tasks of the industry remain increasing the efficiency of cotton fiber production, maintaining the quality of products and reducing their costs, eliminating factors that negatively affect product quality at all stages of production, and creating resource-efficient technologies that reduce product costs. Large-scale research work is underway to improve the technology of primary processing of cotton, including the process of separating cotton fiber from seeds. In this direction, special attention is paid to the development of the scientific basis for increasing the efficiency of the technological process of fiber separation, improving product quality and reducing costs through the widespread introduction of scientific volumes and modern methods and technologies. At the same time, in the process of separating cotton fiber from seeds, special attention is paid to preserving the initial quality indicators of the fiber and seeds, creating technologies and equipment that allow monitoring the quality of products. After drying and cleaning the cotton at the cotton gins, the cotton is fed to the cotton gin. The gin machine separates the fiber from the seeds. The seeds are sent to the linting machine, the fiber pressing workshop. The economic position of cotton ginners depends on the quality of the fiber produced by the cotton gin. Therefore, research will need to be done to obtain quality fiber from the gin machine.

Methods. According to research results, cotton fed into a cotton gin is separated into fiber and seeds.

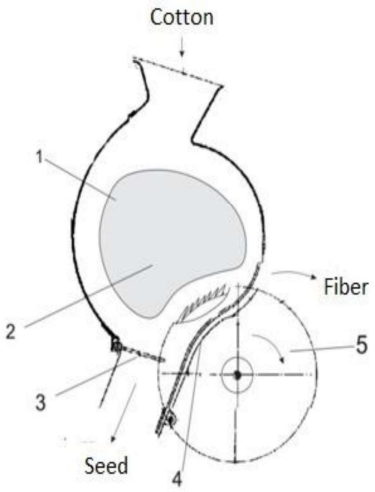

Figure 1. Gin machine
1-working chamber, 2-raw roller, 3-seed comb, 4-saw, 5-saw cylinder

When the gin machine operates, the working chamber (1) is affected by the rotation of the cotton saw cylinder 5, which forms a raw roller (2). The fiber passes between the grate bars 4 adjacent to the teeth of the saw cylinder. Since the size of the seed is larger than the distance between the grates, it cannot pass through it. This is how fiber is extracted from the seeds. To ensure smooth operation of the machine, the following requirements must be observed [1-3].

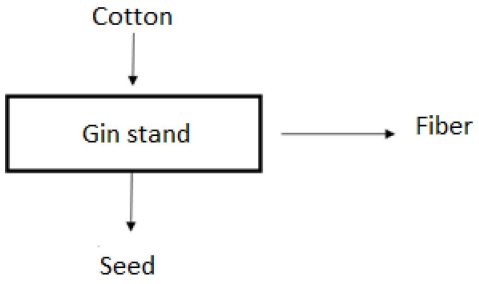

Figure 2. Products released in the gin machine

Assuming that the amount of cotton entering the gin is 100 percent, the amount of seed coming out of the gin should be 65 percent and the fiber 35 percent. The equality Cotton=Seed+Fiber (1) must be satisfied.

This equality is not observed in the gin machines installed in cotton gins. Some of the seeds separated from the fiber do not leave the working chamber under the influence of raw materials. These seeds begin to accumulate on the surface of the raw material. Increasing the number of seeds collected in the middle of the raw roller negatively affects the efficient operation of the gin machine. As a result, the density of the raw material slowly increases and stops. An increase in the density of raw materials deteriorates the quality of the fiber, the seeds are damaged, and this leads to the formation of various defects in the fiber composition [4].

This also causes an increase in the number of short fibers. Therefore, in order to ensure efficient operation of the gin machine, it is necessary to promptly expel the seeds separated from the fiber from the working chamber.

Results. As a result of research carried out in this regard, it was proposed to make grates with ribs and prepare the roof surface in the form of a spike. When preparing the surface of a grate with a groove, the seeds separated from the fiber fall into this groove without being exposed to the raw roller, move down under their own weight and leave the working chamber.This grooved grate gave a positive result when tested under production conditions on a 30 saw machine (Fig. 3) [5].

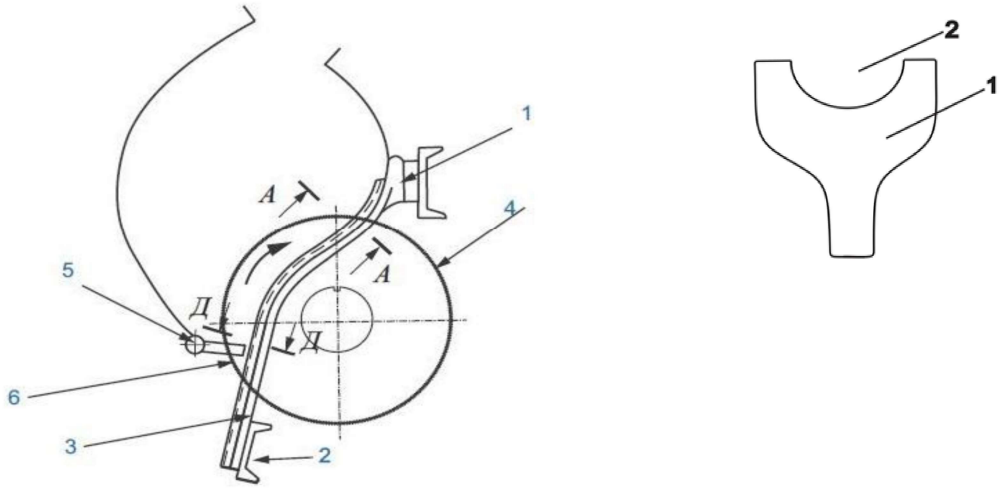

Figure 3. Ribs with riffles Patent No. FAP 00808
1-ribs, 2- riffles, 3 -rib, 4- saw disc, 5- seed comb

When preparing and processing a bar in the form of grates, part of the seeds separated from the fiber, under the influence of raw materials, begin to move along the surface of the bar, pass through the grate and are thrown out (Fig. 4) [6].

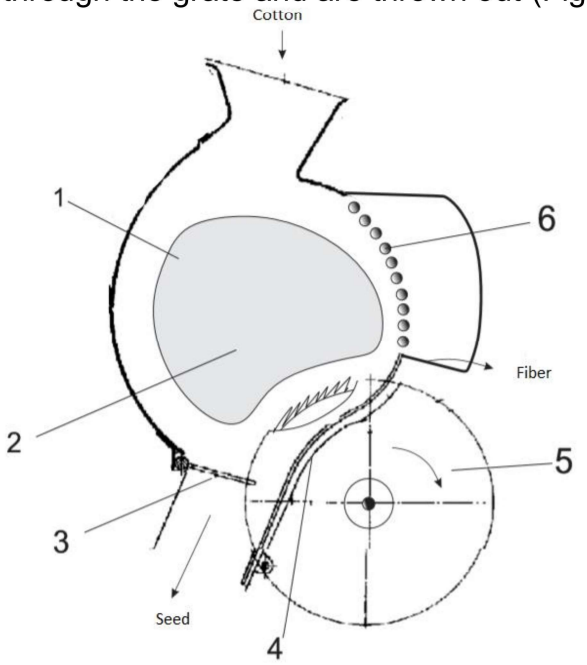

Figure 4. Improved Gin Machine Patent No. IAP 06900
1-working chamber, 2-raw roller, 3-seed comb, 4-rib, 5-saw cylinder, 6-rib mounted on the surface of the timber

Ribs with riffles and installation of ribs on the roof surface did not completely solve the problem. Therefore, today it is proposed to install a mesh drum in the middle of the working chamber.

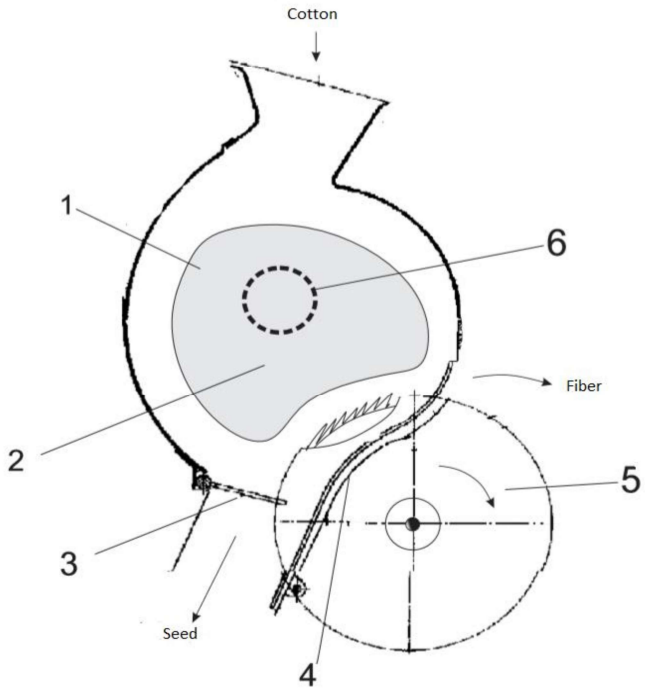

Figure 5. Gin machine application No. IAP 20230632
1-working chamber, 2-raw roller, 3-seed comb, 4-rib, 5-saw cylinder, 6-mesh drum

The seeds, separated from the fibers collected in the middle of the working chamber, are removed through the holes of the mesh drum.

Conclusion. As a result of the scientific research, it will be possible to get into the working chamber of the gin machine in time. At the same time, in the working chamber of the gin machine, the tension of the raw shaft remains the same. In the process of separating the fiber from the seed, it is possible to avoid damage to the seed and various defects do not form in the fiber.

References

1. Dzhabborov G.J., Otametov T.U., Khamidov A.Kh. “Technology for processing raw cotton” - Tashkent: Teacher, 1987. Pages 98-100.
2. A. Sarimsakov, K. Artikova, R. Muradov. The influence of the speed of the raw material on the efficiency of the gin machine // News of Tashkent State Technical University. Technical sciences 4 issues, 3 volumes - Tashkent, -2020. - B 36-43. (05.00.00 №16).
3. A. Sarimsakov, K. Artikova, R. Muradov. The influence of the density of the raw material on the quality indicators of the fiber // Scientific and technical journal of the Namangan Institute of Engineering and Technology, volume 5. Special issue - Namangan, 2020. - №1. -B 7-11. (05.00.00 №33).
4. N. Mamadaliev, K. Ortikova, R. Muradov, Kh. T. Akhmedkhodjaev. Adjusting the density of the raw material in the process of ginning // Scientific and technical journal of the Fergana Polytechnic Institute. - Fergana, 2021. Volume 25. №2. 18-20. - B 162-166. (05.00.00 №22).
5. Patent FAP 00808 Patent ribs with riffles.
6. Patent IAP 06900 Saw Gin Working chamber

UTC 621.892.012

RESULTS OF THE STUDY ON CHANGES IN THE PERFORMANCE INDICATORS OF ENGINES WHEN OPERATING IN DIESEL AND GAS DIESEL MODES

UTAEV SOBIR

Associate Professor of Karshi State University
E-mail.: utaev.s@list.ru, phone.: (+99890) 517 05-36

Abstract:

Objective. It is a study of the influence of the use of various fuels on engine performance and the performance properties of oils.

Methods. During the research, the laws of lubrication theory, methods of planning experiments and mathematical statistics, as well as methods based on existing regulatory documents were used. When processing the experimental data, processing methods were used on the Microsoft Office Excel application packages.

Results. The operation of engines running on gaseous fuels compared to gasoline and diesel engines is characterized by a significant increase in oil service life.

The most promising source of fuel for internal combustion engines can be gaseous fuels, however, their extremely poor motor properties should be taken into account if they are used in diesel engines. The methods used for using gaseous fuels do not require additional design changes or costs for obtaining fuel. The most optimal method in this situation may be to use it in gas-diesel mode in conjunction with the use of a pilot dose of diesel fuel.

CONTENTS