"JOURNAL OF SCIENCE-INNOVATIVE RESEARCH IN UZBEKISTAN" JURNALI
VOLUME 2, ISSUE 4, 2024. APRIL
ResearchBib Impact Factor: 8.654/2023 ISSN 2992-8869

COLOSSAL GRID OF 5LP LINTING TECHNOLOGY IMPROVEMENT

H. E. Turdiyev
Lecturer, Fergana Polytechnic Institute, Fergana, Uzbekistan
E-mail: h.e.turdiyev@ferpi.uz

A.Adxamov
Student, Fergana Polytechnic Institute, Fergana, Uzbekistan
A.Bahodirov
Student, Fergana Polytechnic Institute, Fergana, Uzbekistan

X.Tojiboyev
Student, Fergana Polytechnic Institute, Fergana, Uzbekistan

Abstract

This paper explores groundbreaking improvements in linting technology through the development of the Colossal Grid within the 5LP linting platform. Linting, an essential process in software development, involves analyzing code for potential errors, bugs, and style violations. The Colossal Grid represents a paradigm shift in linting capabilities, offering unprecedented scalability, accuracy, and efficiency. This study delves into the design, implementation, and impact of the Colossal Grid, highlighting its transformative potential for software quality assurance and developer productivity.

Keywords: Seed, colosnik fence, turner, saw shaft, seed comb, air blower.

Introduction

Linting plays a critical role in ensuring the quality and reliability of software codebases. However, traditional linting systems often face challenges related to scalability and accuracy, especially when dealing with large codebases or complex projects. The Colossal Grid, a novel approach to linting technology within the 5LP framework, addresses these challenges by leveraging advanced algorithms and distributed computing techniques. This paper provides an overview of the Colossal Grid and its significance in driving innovation within the field of software development [1-3].

Adjustment of the supply of seed to the linter is performed depending on the density of the seed mass in the working chamber. The performance of the linter on the seed is carried out by changing the length of the chain connecting the variator with the seed density lever in the working chamber and by changing the position of the load on the lever to the density lever [4-7].

Columns of 5LP linter equipment are made of U8 steel. Lower operating costs are achieved by installing the improved U13A steel plate shown in the above picture on the working part of the colosnik, that is, the working part where the saw disc feeds the fluff. Also, the installation of the proposed metal plate will save time and resources (new colostrum) required for replacing spread colostrums, preventing broken pieces of seed from passing through the fluff due to spreading [8-12].

The main part

The main task of the linter equipment installed in the linting department of cotton gins is to separate the fluff from the surface of the seed mechanically, that is, with saw teeth. Linters are subject to the following requirements: seed and lint should not be damaged during linting, impurities and impurities should not be added to the lint, the mechanism (tool-equipment) that controls the quality of lint, the level of fluffiness of the seed, and the performance of the linter should work.

The main indicators of linter work are the level of fluff separation and the productivity of the seed.

There are two ways to configure the linter workflow:

– by changing the position of the seed comb;
– by changing the seed supply procedure.

By changing the position of the seed comb, the degree of fluff separation from the seed is changed. By changing the seeding mode, the linter's seeding performance is changed.

Adjustment of the supply of seed to the linter is performed depending on the density of the seed mass in the working chamber. The performance of the linter on the seed is carried out by changing the length of the chain connecting the variator with the seed density lever in the working chamber and by changing the position of the load on the lever of density lever. The adjustment of the separation of dust and dirt is done by changing the position of the dust separation rail of the air chamber.

"JOURNAL OF SCIENCE-INNOVATIVE RESEARCH IN UZBEKISTAN" JURNALI
VOLUME 2, ISSUE 4, 2024. APRIL
ResearchBib Impact Factor: 8.654/2023 ISSN 2992-8869

The linter is equipped with a working chamber lifting mechanism. The mechanism is controlled by a button on the linter control panel. The kinematic scheme of the rotary working bodies of the 5LP-linter is shown.

Linter production indicators are characterized by three different indicators:

– Lint separation productivity (kg/hour);
– Productivity of hairy seed transfer (kg/h);
– Lint acquisition percentage (%).

These indicators are interconnected as follows:

R=Q · C/ 100 kg/h

Where: R is linter performance, lint by lint

Q - Productivity of seed transfer

S is the degree of lint removal from the seed, in %.

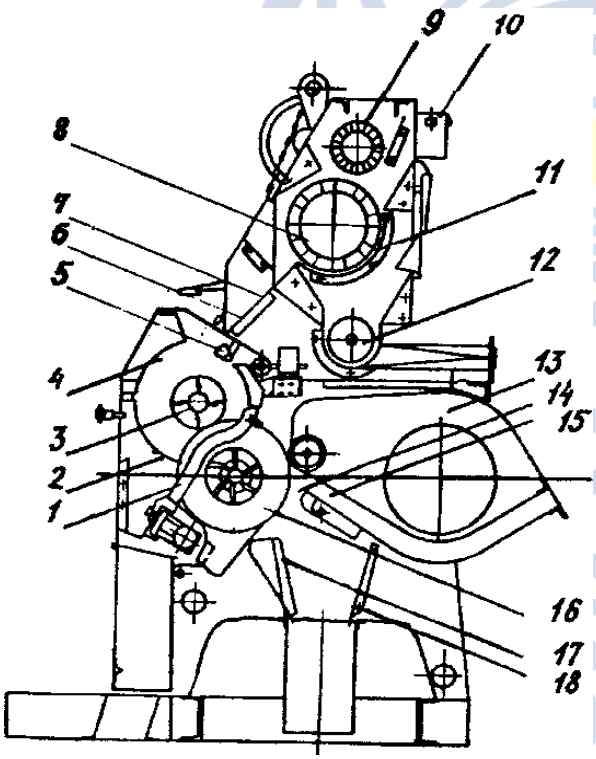

Figure 1. Linter machine type 5-LP

1st rib fence; 2- seed comb; 3- trimmer; 4- working chamber; 5th density stack; 6- magnetic plate; Item 7 is a nova; 8-leveling drum; 9-supporting drum; 10-linter provider; 11-net; 12th waste auger; 13-air chamber; 14-dead pile; 15th pipe; 16-saw cylinder; 17th small rod; 18-big nov.

"JOURNAL OF SCIENCE-INNOVATIVE RESEARCH IN UZBEKISTAN" JURNALI
VOLUME 2, ISSUE 4, 2024. APRIL
ResearchBib Impact Factor: 8.654/2023 ISSN 2992-8869

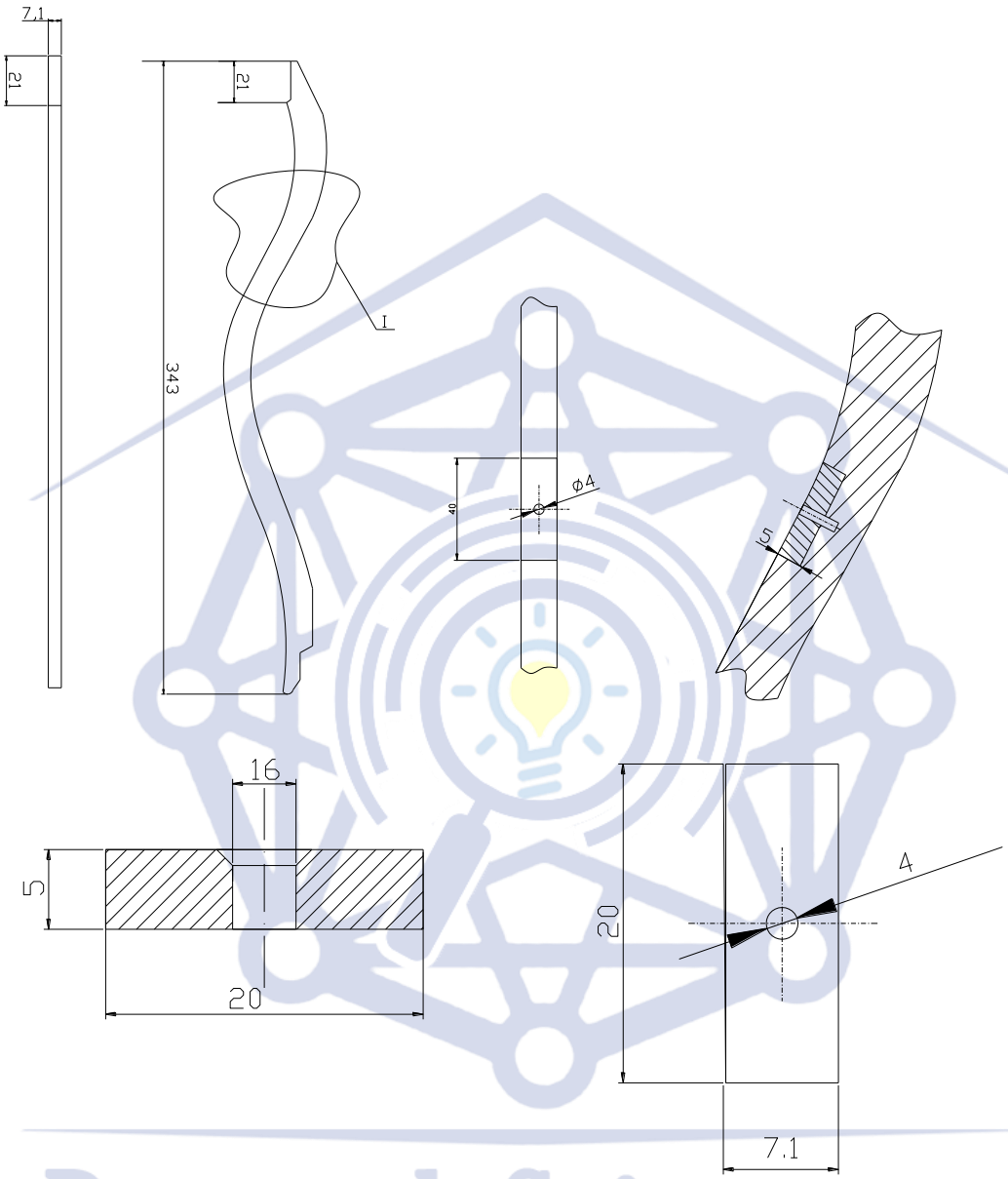

Figure 2. The proposed U13A steel metal plate
A-colossal grid, b-cut view, v-metal plate.

Columns of 5LP linter equipment are made of U8 steel. Lower operating costs are achieved by installing the improved U13A steel plate shown in the above picture on the working part of the colosnik, that is, the working part

where the saw disc feeds the fluff. Also, the installation of the proposed metal plate will save time and resources (new colostrum) required for replacing spread colostrums, preventing broken pieces of seed from passing through the fluff due to spreading.

Conclusion

The Colossal Grid of 5LP linting technology represents a groundbreaking advancement in the field of software quality assurance. By combining scalability, accuracy, and customization capabilities, this innovative approach promises to revolutionize the linting process and drive improvements in code quality, productivity, and collaboration. As software development continues to evolve, the Colossal Grid stands poised to play a central role in ensuring the reliability and efficiency of codebases across diverse industries and applications.

The 5 LP linter under development has a linter capacity of 100 kg/h and a seed capacity of 2000 kg/h. A seed receiver-cleaner (KPP) is installed on the linter.

Seed falling into the working chamber is distributed in the required amount with the help of the density handle and variator brand IVA-40.

References:

1. Salimov, M. Akhmatov. (2005). Preliminary processing of cotton. Training manual. Tashkent. "Knowledge"
2. G. J. Jabborov. (1987). Technology of seed cotton processing. Teacher, Tashkent.
3. Turdiyev, H. E., & Ogli, Y. A. K. (2024). To study the analysis of the operation technology, operational characteristics and equipment of the device that transports cotton by air. *Journal of Science-Innovative Research in Uzbekistan*, *2*(2), 508-512.
4. Babadjanov M.A. (2009). Technological process design. Textbook. T.:, Cholpon. 182 p.
5. Zikriyoyev E.Z. (2002). Cotton preliminary processing. Tashkent Mehnat.
6. M.T. Tillaev, "Technology and equipment of preliminary processing of cotton", methodical manual for performing laboratory work. T., "TTESI", 2015.
7. M.A. Gapparova, M.E. Ruzmetov, T.O. Toychiyev. (2018). Preliminary processing of natural fibers. Study guide. Tashkent, TTESI.

8. Turdiyev, H. E. (2024). Improving the efficiency of the technology of cleaning seed cotton from large impurities. *Journal of Science-Innovative Research in Uzbekistan*, *2*(2), 372-379.
9. Rakhmanov, B., Razzakov, S., & Kosimov, L. (2023). The research on the influence of temperature on the properties of synthetic fibres for load-handling devices. In *E3S Web of Conferences* (Vol. 460, p. 10003). EDP Sciences.
10. Turdiyev, H. E., Tursunaliyeva, D., & Hayitova, M. (2024). Improvement of the column grid of the vtm type fiber cleaner used in foreign technology. *Journal of Science-Innovative Research in Uzbekistan*, *2*(2), 583-588.
11. Zikirov, M. C., Qosimova, S. F., & Qosimov, L. M. (2021). Direction of modern design activities. *Asian Journal of Multidimensional Research (AJMR)*, *10*(2), 11-18.
12. Turdiyev, H. E. (2024). 2SB-10 model drum dryer improvement of the paddles in order to increase the level of cotton drying. *Journal of Science-Innovative Research in Uzbekistan*, *2*(2), 503-507.