

DEVELOPMENT OF EFFECTIVE FLUTTER CLEANING EQUIPMENT

P.P.Nazirov

Research Institute of Fiber Crops, Ph.D., Associate Professor,
raxmatjonnazirov@bk.ru

J.E. Rakhmankulov

Termez State University of Engineering and Agrotechnology,
Doctor of Technical Sciences, Associate Professor,
jasurer87@gmail.com

O.A. Gulboev

Termez State University of Engineering and
Agrotechnology independent researcher,
gulboyevotabek45@gmail.com

R.E. Rakhmankulov

Termez State University of Engineering and
Agrotechnology independent researcher,
raxmonkulov.r.e@gmail.com

According to the research plan of the Termez State University of Engineering and Agrotechnology, work is underway to develop effective equipment for cleaning lint obtained during the linting process of harvested cotton seeds.

The main reason why lint cleaning machines are not widely used in production is their insufficient efficiency [1]. First, most of them have a low efficiency of cleaning lint from impurities (15-20%), and those that are more efficient, in most cases, are inconvenient to use in production due to their complex design, which creates difficulties in their maintenance, and leads to a large loss of product.

At the Cotton Industry Scientific Center, a working unit with a saw-tooth cylinder and a grate for cleaning cotton from seeds and large impurities was developed for the OVM-A-1 cleaner, the design of the cleaning part of the improved cotton cleaner called MT-01 from large impurities, and the MT-02 cotton cleaner for combined cleaning of cotton by effectively separating large impurities from the cotton composition along with small impurities [2, 3].

It can be seen that one of the main shortcomings of the proposed equipment for cleaning lint from small and large impurities is that the issue of removing the cleaned lint from the saw drum has not been fully resolved. Because it is known that brushes or slatted drums are used to remove fibrous products stuck in any saw drum. In these devices, when the saw drum is used without a lint-removing drum, it is possible that blockages will occur as a result of the lint repeatedly rotating in itself and passing between the rollers.

The design of the fluff cleaners mentioned above is chosen in such a way that for their use, it is necessary to have a separate supplier's equipment, it should be noted that it is more difficult to use them directly in the pneumatic transport of fluff.

A technical solution was developed to improve the cleaning technology of lint (fiber products) and the design of the cleaning machine in order to increase its efficiency.

A schematic diagram of the proposed aeromechanical lint cleaner is shown in Figure 1.

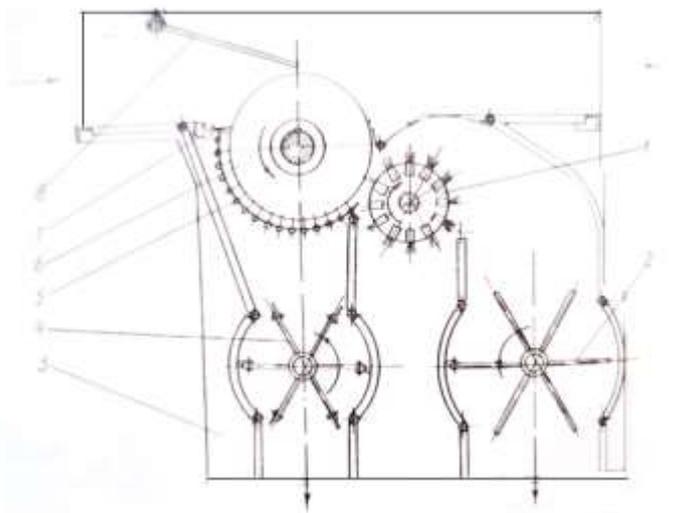


Figure 1. Structural diagram of an aeromechanical lint cleaner recommended for cleaning lint obtained during the linting process of collected cotton seeds

1-detachment drum; 2, 4-vacuum valves; 3-housing; 5-barrel grate; 6-saw (or saw) cylinder; 7-adjusting brush; 8-inlet bar grate.

Aeromechanical lint cleaner can be installed on pneumatic pipes carrying lint of ginned cotton seed linters of cotton ginning enterprises.

The technological work process of the aeromechanical lint cleaner, which is planned to be developed, is as follows (Fig. 1):

With the help of a suction fan (not shown in the diagram), the air becomes rarefied in the inlet pipe to the cleaner, as a result of which the fluff enters the cleaner body and hits the inlet grate 8. As a result of the impact, small impurities in the fluff are sucked into the fan, passing through the gap of the colossal grid.

The fluff, losing its speed, falls on the saw cylinder 6 and is stuck to the saw cylinder with the help of a gluing brush 7. Centrifugal force is generated due to the rotation of the saw cylinder, and the seeds and heavy waste contained in the fluff hit the colosniks 5, are separated from the fluff and leave the cleaner through the vacuum valve 4. The cleaned fluff is separated from the cylinder 6 with the help of the removing drum 1 and removed from the cleaner through the vacuum valve 2.

The advantage of the recommended lint cleaner is that it can clean lint from both fine impurities and grains and large impurities, and its work efficiency is expected to increase by 2 times compared to the current OVM-A-I type fibrous material cleaner.

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