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NEW CONSTRUCTION OF FIBER CONDENSER

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Abstract: The article highlights the construction of a new, inexpensive, universal fiber condenser, developed taking into account the shortcomings of existing fiber condensers. The kinematic scheme and the principle of operation of the new design are given.

Keywords: fiber condenser, fiber cleaning machine, net cylinder, detachable roller.

Introduction

The condenser serves to separate the cotton fiber from the air, as well as to thicken the loose fiber mass and feed it into the press box. Condensers are at the same time the simplest fiber cleaning machines, since through their mesh drums with exhaust air, a part of fine litter, dust and short fibers are released.

There are a large number of different condenser designs, but all have the same principle of operation and consist of a mesh drum, sealing rollers and discharge rollers. The removal of fiber from the mesh drum of the condensers is carried out with special removable rollers or under the action of centrifugal force.

Main part

The 5KV (8KV) fiber condensers operating in the cotton ginning industry, both in performance and in terms of safety, do not meet the requirements. When combined with 5DP-130 gins, due to the discrepancy between their capacities, frequent fiber cuts occur. Since the introduction of condensers in cotton factories, dozens of fatal accidents have occurred when operators tried to liquidate the faces[1].

High-speed condensers have a number of significant disadvantages, which include:

- high aerodynamic resistance;
- igniting the fiber;
- unevenness of the emerging canvas;
- frequent slaughter;
- unsatisfactory service conditions leading to accidents.

Low-speed condensers do not have the above disadvantages. They improve the quality of fiber and lint, give a uniform canvas in density[2].

We have developed an improved model of a new high-efficiency, safe fiber condenser with low-speed working elements ensuring stable operation and low power consumption. Compared with the existing 5KV (8KV), it is distinguished by simplicity of design and maintenance, small dimensions, low cost and reliability [3].

This installation (Fig. 1) consists of a housing 1, in which a mesh drum 2 is mounted, relative to which a movable sealing roller 3 and a stationary removable roller 4 are placed at a certain angle and gaps, installed in a carriage 5, under which an unloading shaft 6 is located.

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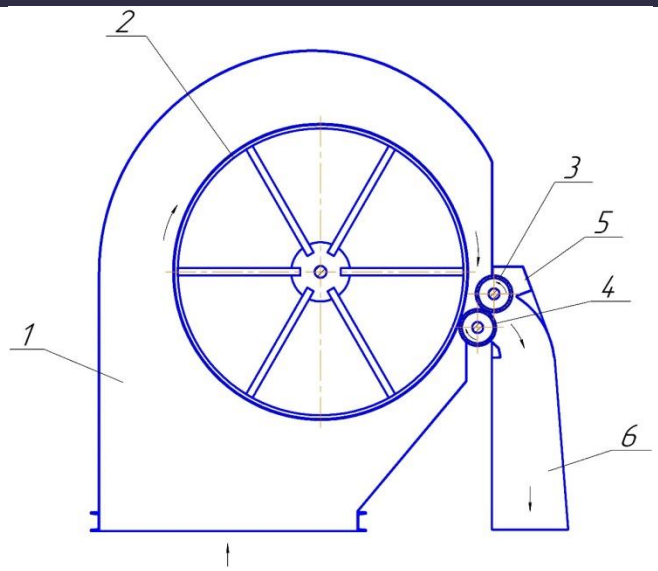

Fig. 1. Condenser flow diagram

The body is a welded metal structure that provides dynamic rigidity to the entire installation. The mesh drum consists of a rigid frame and a mesh wrapped around the outer diameter. The sealing roller and the removable roller are corrugated cylinders rotating relative to each other.

The process of separating the fiber from the air mass in this machine is carried out as follows:

The fiber mixed with air from the battery of gins through the fiber outlet enters the condenser on the mesh drum 2. The air passing through the mesh cells, separating from the fiber, is sucked out by the pneumatic transport system and fed into the cyclones. In this case, the fiber settles on the surface of the mesh of the mesh drum. During its rotation, the sieve drum feeds the settled layer of fiber under the compaction roller 3, which forms the fiber in thickness and lifts it from the surface of the sieve drum. Removable roller 4 removes this layer of fiber and, in cooperation with the sealing roller, directs it into the condenser shaft 6, after which the fiber enters the press box along an inclined tray.

Due to the possibility of replacing the mesh of the mesh drum with a corresponding change in speed and aerodynamic modes, the condenser becomes universal, which ensures its uninterrupted operation, both for fiber and for linters.

The capacity of the proposed condenser will be at least 6 t / h for fiber and at least 1 t / h for lint.

Currently, the development of technical documentation is underway and calculations have begun for the production of a prototype of a new condenser.

Conclusion

The drawbacks of the condensers operating at the cotton factories are analyzed.

A highly efficient universal condenser has been proposed, which, at its relatively low cost, provides stable, uninterrupted and safe operation for operation.

References

1. Miroshnichenko G.I. Fundamentals of designing machines for primary processing of cotton. M .: Mechanical engineering. 1972.
2. Dzhabarov G.D., Baltabaev S.D., Kotov D.A., Soloviev N.D. Primary processing of cotton. 1978.
3. Lozinsky I.B., Ponomarenko D.I., Tretyakov M.S. Modernization of 3KV fiber condenser. // Cotton industry. No. 1-1977.