

IMPROVING THE EFFICIENCY OF THE TECHNOLOGY OF CLEANING SEED COTTON FROM SMALL IMPURITIES

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Abstract

In this article, our national wealth is faced with various problems in the processing of seed cotton from large and small impurities. In order to find a solution to these problems, it was determined as a result of the analysis that the machine for cleaning seed cotton from small impurities is more efficient than other models.

Keywords: saw drum, mesh surface, supply roller, brush drum, dirt hopper.

Introduction

Taking into account that the main cotton raw materials grown in our republic correspond to high varieties, and they contain 8-9% moisture, they are dried using cold air or are not passed through drying drums at all. When moisture is 9-10%, raw cotton is processed in drying drums to remove 1-2% moisture. Cotton drying with this method is very expensive. Currently, cotton drying in this way does not meet the requirements for production. Therefore, it is urgent to carry out the process of drying cotton raw materials with such humidity in other ways.

The increase and decrease of productivity and efficiency of the cotton ginning enterprise depends on the technological processes of drying and cleaning the seeded cotton. Today, due to the increase in the types of cotton varieties and the emergence of special varieties, which are called difficult to clean, it is necessary to improve the technology and technique of cleaning seed cotton from small impurities.

Today, cotton cleaning equipment of the 1XK and 6A-12M models are widely used in the cleaning departments of cotton gins. The advantage of 1XK equipment over other equipment is the high efficiency and cleaning efficiency. Also, the 1XK is relatively easy to service and repair.

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It was aimed to improve the 1XK cleaning equipment based on the drying process of seed cotton raw materials from small impurities in the equipment.

The working process of the 1XK small dirt cleaning equipment is as follows: Seeded cotton is lowered into the mine installed on the supply rollers. Counter-rotating feed rollers feed the seeded cotton evenly to the pile drum. The drum with a pile rotates clockwise and in turn carries the seeded cotton over various surfaces and conveys it to the second drum. In this order, seeded cotton is cleaned and separated from small impurities in all drums. Separated impurities fall down the sloped walls of the impurity hoppers through various surface openings at the bottom of the drums and are sucked up by pneumatic transport. Cleaned seeded cotton is removed from the equipment and transferred to the next technological process.

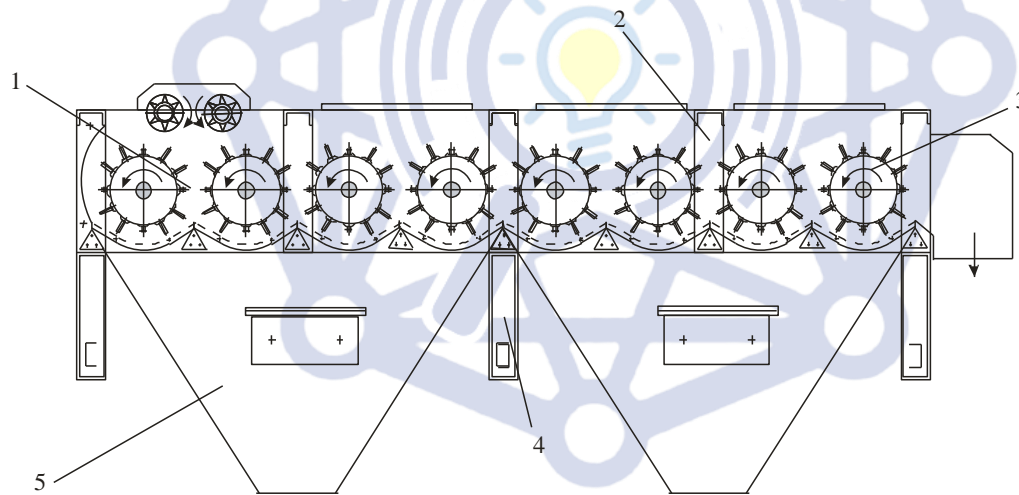


Figure 1 1XK model cleaning from small impurities scheme of the equipment

1-providing rollers; 2-pile-blade drums; 3-mesh surface (surface); 4th dirt hopper; Nov. 5.

Cotton falls on piled drums (2) and is pressed with piles and hit on mesh surface (3).



As a result, seeded cotton is shaken and cleaned of small impurities. The impurities released through the mesh surface fall into the hoppers (4) and are taken out with the help of a collecting auger.

In order to improve the technological processes of the 1-XK small dirt cleaning machine, scientific research work was conducted and analyzed. The results showed that small impurities (soil and cotton leaf particles) mixed with air in the air flow from the first pile drum were found to move to the next sections and fall back into the cotton. In order to study these problems, a device for absorbing the air formed during the rotation of the first drum with piles was prepared and experimental tests were conducted.

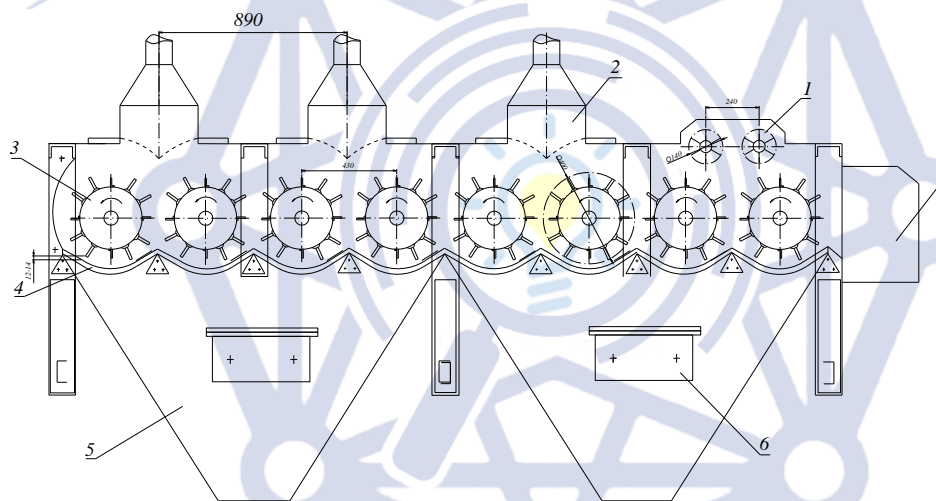


Figure 2 Cross-section diagram of 1XK equipment with proposed dry-cleaning processes

1. Supply rollers, 2. Hot air supply pipe, 3. Pile drum, 4. Mesh surface, 5. Impurity hopper, 6. Hole, 7. Outlet throat.

It was proposed to dry cotton with low moisture content (8-9%) by blowing hot air over the piled drums of the equipment for cleaning seed cotton from small impurities.



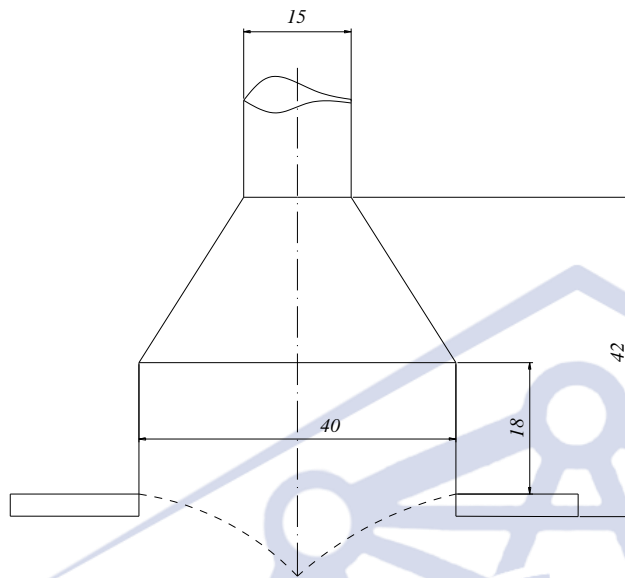


Figure 3 Scheme of the heat supply pipe to the 1XK cleaning equipment.

Conclusion

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