

5DP-130 TO INCREASE WORK PRODUCTIVITY BY IMPROVING THE WORK CHAMBER OF THE CHAIN SAW.

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Abstract: In production, we mainly use a sawmill to extract cotton from seeds. By improving the 5DP-130 sawing machine, by installing a cylindrical shaft in the central part of the raw material shaft, in order to ensure that the density of the raw material shaft does not increase in the working chamber of the sawing machine, to achieve an increase in work efficiency.

Key words: Seed cotton, 5DP-130, colosnik, working chamber, raw material roller, shaft, saw cylinder, fiber, dirt.

The main stage in the initial processing of seed cotton is ginning, that is, the process of separating the fiber from the seed. Ginning of medium fiber seed cotton is done in sawing gins.

One of the greatest inventions in this field is the invention of gin by Ellie Whitney. Today's demons are the product of this invention. [Page 1.141]

Currently, 3XDDM, DP-130, 4DP-130, 5DP-130 and DPZ-180 types of sawing gins with UMPD cameras are used in cotton ginning enterprises in our country. These devices are not structurally different from each other. Cotton is dried in the drying and cleaning departments to the condition of humidity, and after being cleaned of impurities, it is sent to the main building of the enterprise for ginning.

The process of ginning consists of separating the cotton fiber from the seed under the influence of mechanical force.

The main working part of the chain saw: it consists of a metal saw (with sharp teeth) and a ribbed grid. With the help of these two working parts, the fiber is separated from the seed, that is, the saw with its teeth hangs the fiber and forcibly separates it from the seed with the help of a rib cage, in this way the fiber is separated from the seed [page 1.142].

The technological process of sawing is carried out as follows:

With the help of a separator and a distribution conveyor, the seed cotton brought to the main production building of the cotton gin is transported to the supply shaft installed on each gin, and then the gin to the work falls evenly into the chamber. Cotton falls into the working chamber, is caught by the teeth of the saw rotating near the seed comb, and is carried to the working part of the colosnik along the arc of the saw AB. As the pieces of cotton caught by the teeth of the saw are connected to other pieces of cotton, they move according to the rotation of the saw. As a result, the mass of raw material in the working chamber begins to rotate in the direction of the linear speed of the saw (in one direction). Thus, a rotating raw material mass - a raw material shaft is formed. The raw material roller constantly supplies the saw teeth with new cotton as a result of the rotation of the working chamber, which ensures the uninterrupted continuation of the ginning process.

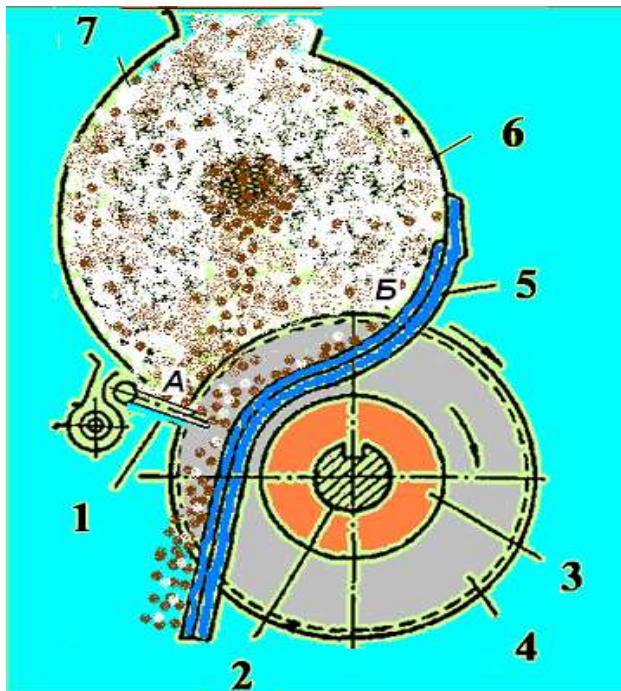


Figure 1. Structure of the working chamber:

1. Seed comb 2. Saw cylinder axis (shaft) 3. Gasket 4. Saw disk 5. Colosnik
6. Raw material shaft 7. Working chamber.

The fiber bundles attached to the saw tooth are separated from the seed as a result of being carried behind the colosnik. Since the slit in the working part of the colander is $2.8 \div 3.2$ mm (less than the cross-sectional size of the seed), the seed is forced to separate from the fiber without being able to pass through and slides along the surface of the colosnik to the top. will rise. If the fiber is not completely removed from the surface of the seed, the fiber seed comes back to the saw tooth and the above process is repeated, until the whole fiber is removed, the seed is rotated several times in the raw material roller. The seeds, whose fiber is completely removed from the surface, lose contact with the raw material and slip out of the working chamber. Its hairiness is adjusted through the seed comb [page 1.145].

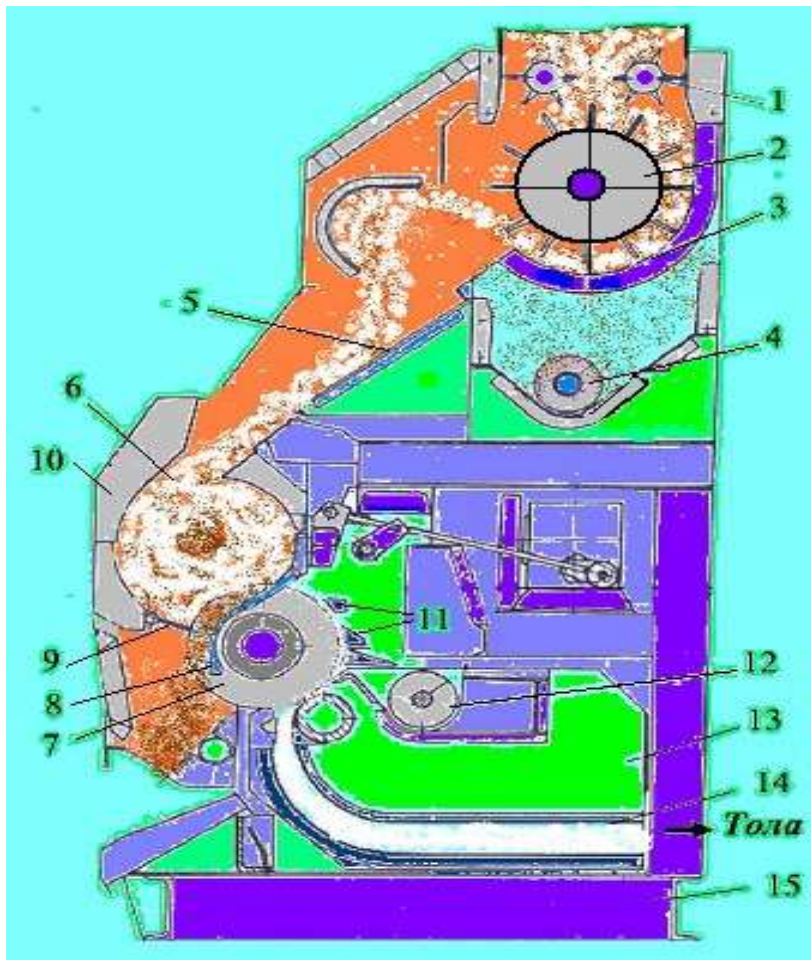


Figure 2. Cross section of 5DP-130 model section.

1. Providers; 2. Pile drum; 3. Mesh surface; 4. Dirt auger; 5. Well; 6. Working camera; 7. Saw cylinder; 8. Kolosnik; 9. Seed comb; 10. Front apron; 11. Grill with colostrum; 12. Waste transfer auger; 13. Air chamber; 14. Fiber transmission auger; 15. Rama.

We can see that the seeds have accumulated in the center of our raw material. This affects our efficiency and our continuous supply of seed. In order to prevent this, we put a cylindrical shaft in the middle of the raw material shaft. As a result, the seeds do not accumulate in the middle of the raw material shaft, the work efficiency is also better, and the exit of the seeds collected in the centers from the working chamber becomes faster. We also achieve that the density of the raw material in the working chamber of the sawmill does not increase.

The structure of the working chamber of the sawing machine has a great impact on its productivity, consumed electricity, and the quality of the output products. and the structure of the raw material shaft has a great influence on the rotation of the saw blade, the front and lower aprons. depending on the amount of force that escapes from the model and the position of the lever, it separates them from the fiber and takes them out of the equipment through a screw conveyor.

The operation of the 5DP-130 type sawing gin is as follows: The supplier cleans the cotton drum from small impurities and gives the required amount of gin. In it, the cotton falls into the working chamber, forms a roll of raw material, and the saw teeth of the saw cylinder catch the fiber. Since the gap between the colosniks is smaller than the size of the seed, only the fiber passes through. The fiber in the saw tooth is separated from the tooth with the help of the air coming out of the slit of the air chamber behind the colostrum and delivered to the next process through the transfer pipe. When the fiber passes behind the colostrum, it is cleaned of impurities by a knife installed behind the saw, and they fall into the screw conveyor that takes the pulp away from the equipment will be issued [Page 1.148].

Conclusion: We installed a cylinder instead of the seeds collected in the working chamber of the 5DP-130 chainsaw, and as a result, the seeds collected in the centers get out of the working chamber faster. Also, by ensuring that the density of the raw material does not increase in the working chamber of the sawing machine, we achieve an increase in work efficiency.

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