

DESCRIPTION OF THE DEVICE FOR COTTON STALK PULLING AND BINDING SIMULTANEOUSLY

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Abstract: *the article describes a device for simultaneous uprooting and binding of cotton stalks. This device, in contrast to the currently used devices, significantly speeds up and facilitates removing works. As a result, this in turn, makes it possible to sow winter wheat at an early date on cleared fields from cotton bushes in an open way.*
Key words: *cotton stalks, cotton stalk puller, binder.*

INTRODUCTION.

According to statistics, Uzbekistan ranks eighth in the world both in terms of cotton production and export [1]. Achieving such a result, in turn, indicates that a lot of work has been done and put into practice in the field of cotton production in our country. The proof of our opinion is that today most of the cotton cultivation works are carried out with the help of agricultural mechanization. In particular, works such as planting seeds, mowing, fertilizing are performed with the help of full mechanization. However, these works are mainly done before the cultivation of cotton, and the mechanization of collecting cotton stalks after picking cotton is still lagging behind. Therefore, these works are still hard manual labor.

RELEVANCE OF THE PROBLEM

Today, cotton stalks are a cheap raw material for making plywood and cardboard paper in the industry. In addition, it is also used as solid fuel (firewood) in households of rural areas. Therefore, it is desirable to collect cotton stalks in good quality and on time in the unsteady weather of autumn[2]. To achieve this, it is required to develop and implement a new machinery for tractors that can pull and bind the cotton stalks simultaneously.

The main goal of our ongoing research is to reduce manual labor in harvesting cotton stalks, to design a device for harvesting cotton stalks, which are raw materials for industry and solid fuel for households in rural areas, without compromising their quality.

ANALYSIS

The analysis shows that until today, a number of researches and practical projects have been conducted in this regard in our country and abroad and some results have been achieved. Including: a device for crushing and scattering cotton stalks (in this method, it was found that next year's crops are susceptible to diseases); a device for pressing stalks (in this method, since the stalks contain moisture, there is a risk of rotting after pressing, they cannot be stored for a long time and become unsuitable for use as dry fuel); uprooting the roots of the cotton stem using a puller device (in this method, you have to collect the transplanted stems by hand)[3,4];

DESCRIPTION OF THE NEW DEVICE

In the new proposed project, a change is made to the currently existing cotton stalk pulling device, replacing its root moving teeth with two wheels touching each other and rotating oppositely (Fig. 1, 1) are installed. These wheels perform the task of moving the stems from the ground. On their backside, two rows of sturgeons collecting stems moved to each row are installed in a conical narrowed position. These sturgeons ensure that the stems are collected in an upright position after being moved. The transplanted stalks are pushed by two counter-rotating star-shaped thrusters (2) and collected on the back side. When the stalks are collected in the required amount, the connecting pin (4) moves and squeezes the stalk and passes the thread. At the same time, the tying mechanism (3) also moves and cuts the end of the thread wrapped around the thread. After the thread is cut, the stem is left as a separate bundle. Torque is given to these wheels, mechanisms and blades from the tractor through the propeller shaft (5) and their operation is adjusted depending on the amount of collected stalks.

The general scheme of the device is given in the figure below:

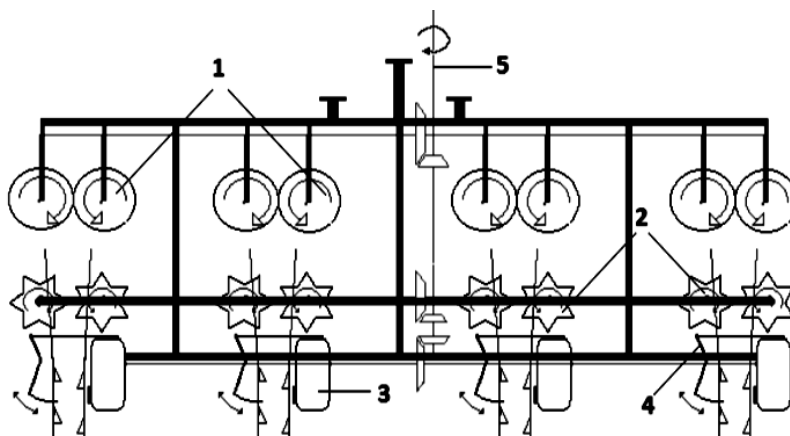


Fig. 1. Schematic view of the device.
 1-pulling wheels, 2-accumulator, 3-binding mechanism, 4-binding needle, 5-cardan shaft.

CONCLUSION

As a result of the introduction of the device, the time taken to collect cotton stalks is significantly saved. At the same time, it will be possible to sow winter wheat in the open field in a short period of time. This is a guarantee of obtaining a much higher yield than wheat planted between rows of cotton. In conclusion, it can be said that through the proposed project, the amount of manual work in agriculture will be reduced and the time spent on clearing and clearing the fields will be drastically reduced. This allows the next year's crops to be planted earlier and in open areas.

References

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