

STUDY OF TECHNOLOGICAL PROCESSES OF DWARF LOOM LOOMS

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Abstract: Information is given about the technological processes and the role of the looms in production.

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Measures for the development of the textile industry are continuously being implemented in our Republic. Currently, the number of fully automated, computerized, modern textile state, joint, small and private enterprises is increasing day by day, and all fabrics are produced from them.

The first dwarf shuttle loom was created in 1927 by the German textile engineer Rudolph Rossmann, and the first dwarf shuttle loom was created in 1953 by Sulzer brothers (Switzerland). 1955 "International Exhibition of Textile Machinery" (HTMK) held in Brussels (Belgium) under the name of Sulzer, a loom with a width of 216 cm and a warp speed of 280 arc/min (600 m/min) showed his machine to the general public. Later, the loom was developed, and the first weaving loom with a width of 540 cm, a 6-color mechanism, a warp speed of 800 m/min, which was considered the main scientific and technical achievement of 1969, was created. done. Later, small shuttle machines with a length of 185-540 cm and a maximum speed of 470 rpm began to be widely produced. In addition to simple, complex, jacquard weaves, looped fabrics were also produced in the workshops. The machine tools were able to process blown and filament yarns of 6.4-200 tex, 10.8-5000 denier [1].

Throwing a dwarf shuttlecock is divided into two:

- 1) A single dwarf satellite.
- 2) Many dwarf satellites.

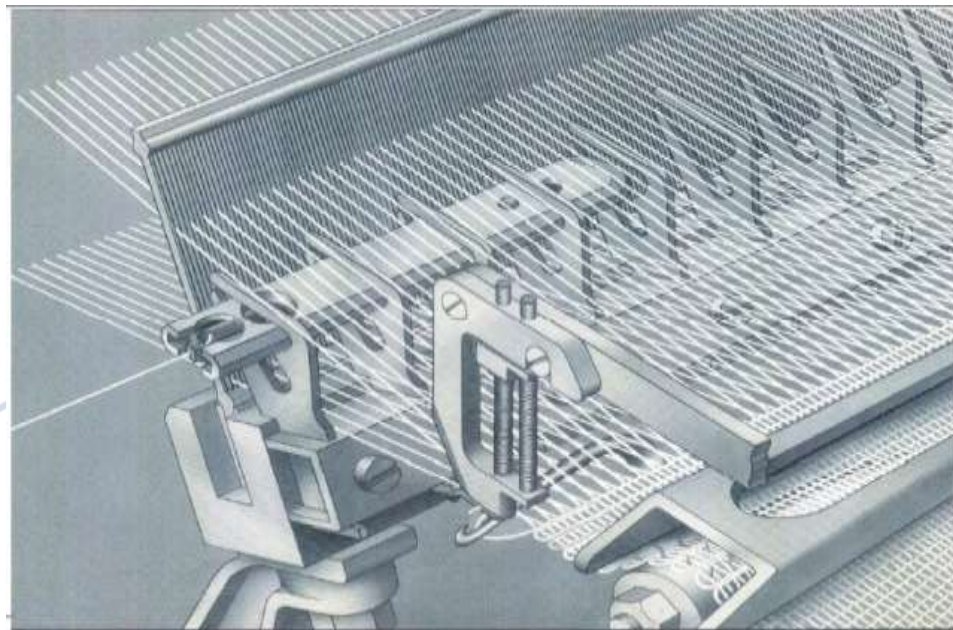


Figure 1. The Dwarf shuttle enters the Khomuz

Today, it is possible to work at a speed of up to 1540 m/min in the required working width without any additional modifications.

The high warping speed was achieved by the following factors:

- the friction force is reduced due to the use of new guide teeth;
- redesign of the accelerator system;
- reduction of thread tension even at high speeds due to the use of a new humza structure;
- making a dwarf shuttle made of reinforced carbon fiber synthetic material (for thin threads) [2].

However, the initial high speed imparted to the dwarf shuttle causes the rope tension to increase.

At present, it is possible to process any cotton, wool, silk, mono or filament threads, polypropylene, polyester and even linen threads on small-sized looms. This is due to the fact that all types of threads, whether thin or thick, are firmly held with the help of a clamp and reliably thrown to the hummus through a small shuttle (Fig. 2).



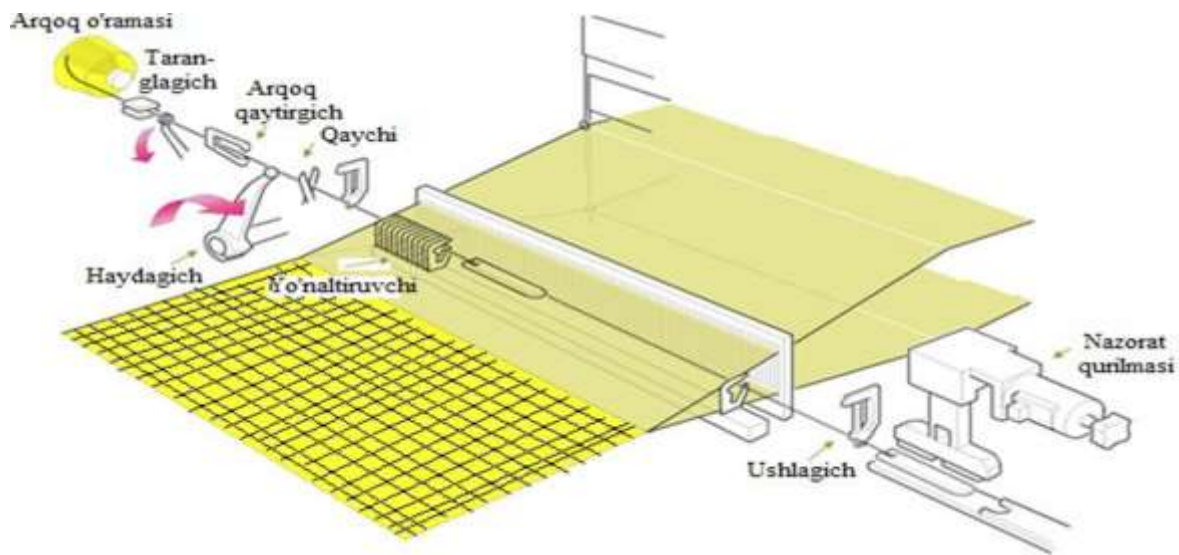


Figure 2 Technological drawing of a dwarf shuttle

As shown in Fig. 2, the twine yarn is thrown from only one side of the loom in the dwarf shuttle throwing method. Therefore, the main parts of the thread throwing mechanism are located on the left side of the machine.

The rope thread is unmoved or twisted from the coil rotating around its axis and passes through the hole in the screen wall, through the brake. Then it comes to the compensator through the diverter hole [3].

The function of the compensator is to serve the machine to change the tension of the rope thread in different cycles of the rotation angle of the main shaft. The rope thread passes through the compensator and comes to the clamp of the rope returner through the second guide. At this time, the empty thrower on the conveyor goes to the path of the chaser in the punching mechanism of the machine with the help of a lifter, and the end of the rope thread goes from the returner to the thrower. To do this, the rope thrower clamp is opened, that is, the end of the rope thread passes from the returner to the rope thrower.

Conclusion

Today, looking at the world's textile industry, more than 80 million looms are used (2023 according to the information of "Textile Center"). However, since the machine is the only machine capable of producing several canvases at the same time, it can be noted that the prices of its production and service are relatively high.



Therefore, the formation of a shuttle mechanism in a small shuttle loom leads to the production of quality fabric and an increase in service life.

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