# TJAS

## Thematic Journal of Applied Sciences

informing scientific practices around the world
through research and development

# Thematic Journal of Applied Sciences

## Volume 1, No. 3, August 2021

**Internet address:** http://ejournals.id/index.php/TJAS/issue/archive
**E-mail:** info@ejournals.id
Published by ejournals PVT LTD
Issued Bimonthly



*Requirements for the authors.*

*The manuscript authors must provide reliable results of the work done, as well as anobjective judgment on the significance of the study. The data underlying the work shouldbe presented accurately, without errors. The work should contain enough details andbibliographic references for possible reproduction. False or knowingly erroneous statementsare perceived as unethical behavior and unacceptable.*

*Authors should make sure that the original work is submitted and, if other authors'works or claims are used, provide appropriate bibliographic references or citations. Plagiarismcan exist in many forms - from representing someone else's work as copyright to copying orparaphrasing significant parts of another's work without attribution, as well as claimingone's rights to the results of another's research. Plagiarism in all forms constitutes unethicalacts and is unacceptable. Responsibility for plagiarism is entirely on the shoulders of theauthors.*

*Significant errors in published works. If the author detects significant errors or inaccuraciesin the publication, the author must inform the editor of the journal or the publisher aboutthis and interact with them in order to remove the publication as soon as possible or correcterrors. If the editor or publisher has received information from a third party that thepublication contains significant errors, the author must withdraw the work or correct theerrors as soon as possible.*

# CHIEF EDITOR



# EDITORIAL BOARD

# SHUTTLES FOR SEWING MACHINES: CHARACTERISTICS, TYPES

**Tursunova Gulbahor Sharofovna**
Doctoral student, Department of Light Industry Technology,
Bukhara Engineering-Technological Institute, Uzbekistan
tursunova1505@mail.ru

*Abstract. This article deals with the types of sewing machine shuttles and their characteristics. It also analyze the disadvantages and advantages of the shuttle while sewing in the sewing machine.*

*Keys word. Sewing machine, shuttle, horizontal, vertical, oscillating, mechanism, needle, stitch tension, thread, sliding.*

Sewing machine hook - an important element, which depends on the accuracy of interaction with the needle depends on the quality of sewing. If the hook works properly, then the sewing will not skip stitches, breakage of upper and lower threads, and looping threads underneath.

In order to work perfectly, the surface of the hook must be free of scratches, mechanical damage, corrosion, dust and oil residue, which will prevent the thread from sliding and cause the upper yarn to pull out, resulting in low stitch tension.

The operation of the hook depends directly on the design of the sewing machine.

The principle of the classical vertical device is to place the bobbin with the consumable in a special bobbin slot, in the process the device begins to move in the horizontal and vertical positions, entraining a thread. This mechanism has a high level of reliability due to the rigid connection between the lever and the machine body.

The mechanism of the vertical rotary mechanism is the movement of the bobbin case with the bobbin around its axis. Depending on the speed used, the device may rotate at a speed of around 900 rpm. The reliability of this device is due to the fast setting of the hook and its optimal position in relation to the needle shaft.

The principle of the most common horizontal mechanism is that the stitch is formed only after the hook has completed two full rotations. Easy threading of the consumables is due to the built-in bobbin case, in which simply insert the glass spool of thread. The operation of this unit is as quiet as possible, and all mechanisms are lubricated automatically.

Variety of shuttle mechanisms:

- horizontal;
- vertical;
- oscillating;
- rotary.

Swinging (pendulum) shuttle is the most common type, which is installed on inexpensive and older models. If the seamstress plans a permanent use of a sewing machine, then the purchase of a device with a swinging shuttle is better to give up.

The advantages - reliability, unpretentiousness, durability, low price range, resistance to overload. Disadvantages - slow speed, the presence of noise and vibration while sewing, a small number of stitches.

Horizontal hook - a modern device in which the bobbin is placed on top (fig.1). This mechanism is the most convenient in operation, and its upper part can be seen through

the window of the needle bar. The horizontal position of the bobbin allows you to control the workflow of the piece and the amount of consumables on it. Distinctive features include ease of operation and the absence of a bobbin case, which is replaced by an integrated black plastic part. This is where the craftsman inserts the bobbin. To prevent cracks and grooves, experts recommend using only thin, flexible and strong thread.

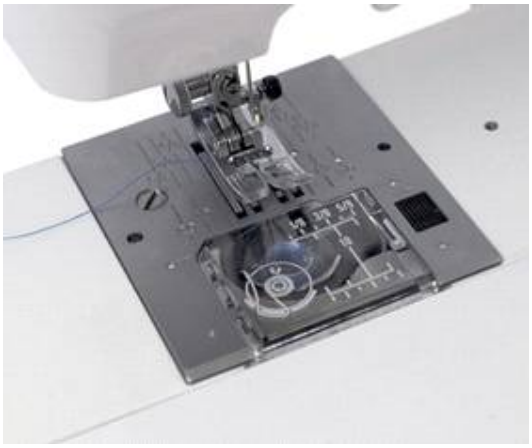

**Figure 1. Horizontal hook. ( Bernette Chicago 5 sewing machine)**

Advantages:
- low noise and vibration level;
- obtaining elastic and high-quality stitching;
- no distortion when adjusting the stitch width;
- easy threading and operation;
- ability to produce different types of stitches.

The vertical rotary hook is a special mechanism that is only used on industrial machines and also in expensive multi-functional sewing machines (fig.2.). The advantages are high speed, high resistance to wear and tear, and high seam quality. If all the requirements and standards were met during installation of the mechanism, the product can serve uninterruptedly for a long period of time. Using a rotary hook mechanism allows you to work with almost all types of fabric, and also eliminates the possibility of tangling the bobbin thread.

An important advantage is that the machine has a large number of stitch types that can be used in both domestic and industrial applications.

Figure 2. Vertical rotary hook. ( Bernina 770 sewing machine)

The type of shuttle installed depends directly on the sewing machine class:

- budget - vertical rocker;
- medium - horizontal;
- expensive and industrial - rotary.

The choice of type of machine is directly influenced by the seamstress' professional experience:

complete lack of professional skills - simple equipment with apendulum mechanism, which has limited functionality;

basic knowledge - advanced equipment with ahorizontal hook, which will allow you to work with different types of density of fabric in a moderate mode;

high professional level - multifunctional equipment, which has a wide range of stitches and is used in specialized sewing workshops.

**References.**

1.Mukhamedjanova S.Dj., Djuraev A., Mansurova M.A., Ganchini Sh. "Design development and mathematical model of vibrations of plates of the tension regulator of the tension needle sewing sewing machine" International Journal of Advanced Research in Scince, Enjineering and Technology. Vol. 6, Issue 7, July 2019. P. 10208-10210. ISSN: 2350-0328.

2.Mukhamedjanova S.Dj., Bozorova F.M. "Simulation of forced vibrations of the elements of a sewing machine's compound foot" Acta of Turin Polytechnic University in Tashkent, Vol. 10 [2020], Iss. 3, Art. 5. P. 22-25.

3.Mukhamedjanova S.Dj., Djuraev A., Mansurova M.A. "To the calculation of thread tensioning discs in sewing machines" International Journal of Advanced Research in Scince, Enjineering and Technology. Vol. 6, Issue 7, July 2019. P. 17435-17438. ISSN: 2350-0328.

4.Djuraev A., Mukhamedjanova S.Dj. "Design features of threading machines" Scientific ideas of young scientists International scientific and practical conferences June, 2020 Warsaw, Poland, pp.218-221.

5.Mukhamedjanova S.Dj., Tursunova G.Sh. "Method of obtaining stitches with different lengths in sewing machines" International scientific and practical Conference Modern views and research September 2020, P.49-50

6.Anvar Djuraev, Bozorova Farida, Zuhritdinov Alisher, Mukhamedjanova Sabrina, Mavlonova Iroda, Tursunova Gulbahor "Dynamics Of Machine Aggregates With Mechanisms Of Working Bodies For Cleaning Cotton From Fine Impurities"Solid State Technology. Volume: 63 Issue: 6, Volume: 63 Issue: 6