AMERICAN JOURNALS
Open Access, Peer Reviewed Journals

American Journal of Technology and Applied Sciences
ISSN (E): 2832-1766| Volume 20, January, 2024

REMEDIES FOR SEWING MACHINE MALFUNCTIONS TASHKENT INSTITUTE OF TEXTILE AND LIGHT INDUSTRY

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ABSTRACT

This paper provides an overview of modern embroidery machines, focusing on their digital design, automation, and stitch variety. It also explores the various applications of embroidery devices, such as fashion, interiors, gifts, and hobbies.

KEYWORDS

Introduction

The following basic terms were automatically generated: incorrect setting, incorrect foot setting, incorrect threading, lower threading, incorrect adjustment, incorrect selection, lower thread breakage, incorrect needle setting, needle mechanism, needle breakage, upper threading, needle thread number, incorrect rail setting, incorrect foot selection, double-stranded shuttle stitch, incorrect needle selection, incorrect needle operation, and thread tension.

Sewing machines can malfunction for various reasons, such as the failure of mechanisms, working bodies, wear and tear of parts, and changes in the cleanliness of parts. Common malfunctions include poor stitch quality, skipped stitches, thread breaks, difficult material movement, and needle breakage. The quality of stitching can be deemed poor if it is weak, tight, dirty, or if it 'loops at the top' or 'loops at the bottom'. Weak stitching occurs when the materials being sewn move away from each other in the seam section, despite being interlaced with threads. To rectify this issue, increase the tension of both the lower and upper threads. Tight stitching, on the other hand, is caused by high thread tension. The stitch can be easily torn when the materials are stretched along the stitch line. This defect is noticeable by observing the gatherings across the stitching. To eliminate this issue, loosen the tension of the lower and upper threads. If the upper thread overtightens the lower thread and their weave occurs on top of the material, it means that the stitch 'loops from above'. To correct this, adjust the thread tension starting from the upper thread. To avoid stitching that 'loops at the bottom' due to the lower thread pulling the upper thread too tightly and causing a weave under the fabric, adjust the thread tension of the lower thread. Dirty stitching is often caused by inadequate machine maintenance and is particularly noticeable when sewing light-colored fabrics.

Missing stitches may occur when the needle and hook are not working together properly, resulting in skipped stitches. Possible causes of needle malfunction include: needle defects (blunt or bent),

incorrect needle selection based on numerical designation or number, incorrect needle height installation (too high or too low), incorrect foot or needle plate installation leading to needle point deviation to the left, incorrect threading, incorrect orientation of needle grooves in relation to shuttle spout, and wear and tear on needle mechanism connections. Improper operation of the shuttle can be caused by several factors, including incorrect adjustment of the timing of the shuttle's nose approach to the needle, improper gap adjustment between the needle and the shuttle spouts, and wear or loosening of connections in the shuttle mechanism. To identify the causes of skipped stitches, it is recommended to start with the needle mechanism.

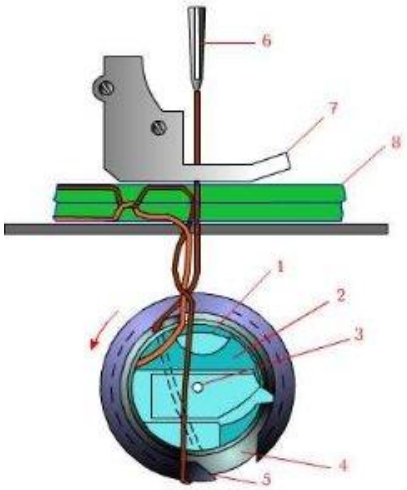

Figure 1 shows the process of creating a two-strand shuttle stitch.

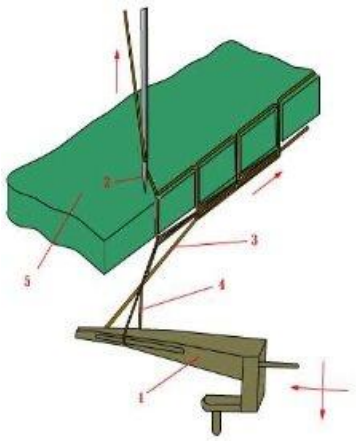

Figure 2. The process of forming a two-strand chain stitch

Upper thread breakage can be caused by a variety of factors, including poor thread quality, excessive tension, improper threading, mismatched needle and thread numbers, untimely thread feed or stitch tightening, excessive heating of the hook, poor condition of thread guides or lack of some of them, scratches or burrs in the needle plate hole, parts of the hook set, or foot sole. Additionally, incorrect thread twist selection can also cause upper thread breakage.

Lower thread breakage is less common than upper thread breakage due to the lower thread being in contact with fewer parts. Causes of lower thread breakage include broken or wrinkled bobbin walls, weak or uneven winding of thread on the bobbin, incorrect threading, and the presence of scratches or

burrs where the lower thread comes into contact with the parts of the hook set. Difficulty moving materials may be caused by improper operation of the thread guide or foot.

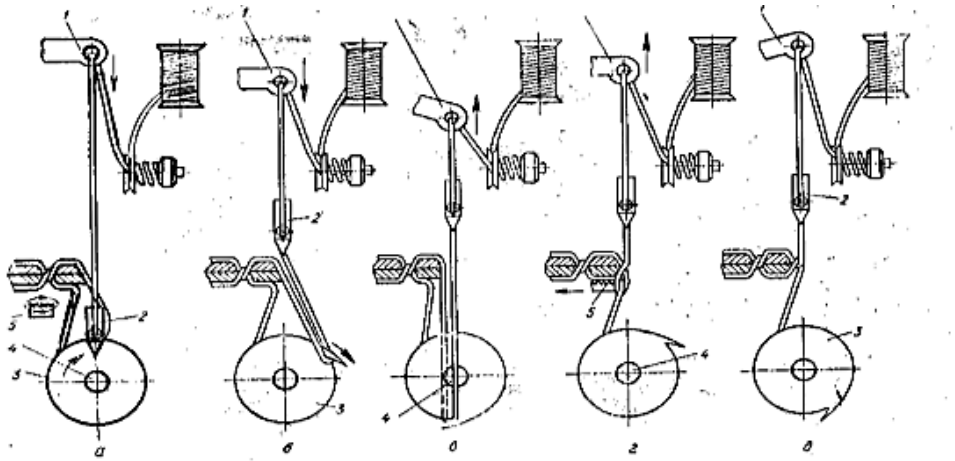

Figure 3 shows the position of the upper thread puller while forming a two-strand shuttle stitch.

The presser foot can have several defects, such as chipped, oily, or blunted teeth, or an incorrect selection or height setting. Additionally, the presser foot may be incorrectly positioned in relation to the slots in the needle plate, or the material transfer connections may be weakened or worn. Defects in foot operation can be caused by improper foot height installation, incorrect foot pressure adjustment on materials, foot defects such as roughness on the foot sole, improper foot selection relative to the rail (the foot should be wider than the rail), and weakened or worn connections in the foot assembly. Defects in the material handling mechanism may include oblique stitching caused by incorrect foot position relative to the rail, needle backlash, weakened or worn parts of the material handling mechanism and foot.

Needle breakage can occur due to various reasons. It may happen when the needle gets caught on a wrongly placed part during its movement, or when it is set too low. Backlash or incorrect installation of the foot, needle plate, and shuttle can also cause needle breakage. Additionally, needle breakage may occur when the material moves while the needle is at the bottom or when materials are carelessly removed from under the foot after finishing sewing. The presence of a needle shelf can lead to various issues with the machine, such as breakage of parts that come into contact with the needle or the formation of scratches and burrs on them. Therefore, it is advisable to turn the flywheel before starting work to check if the needle comes into contact with any part. Only then should you proceed with the operation.

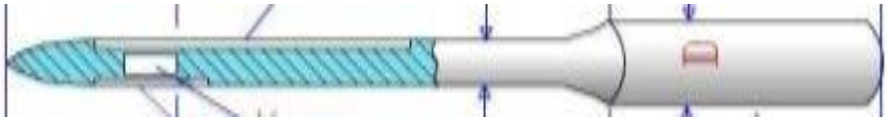

Figure 4 shows a sewing machine needle.

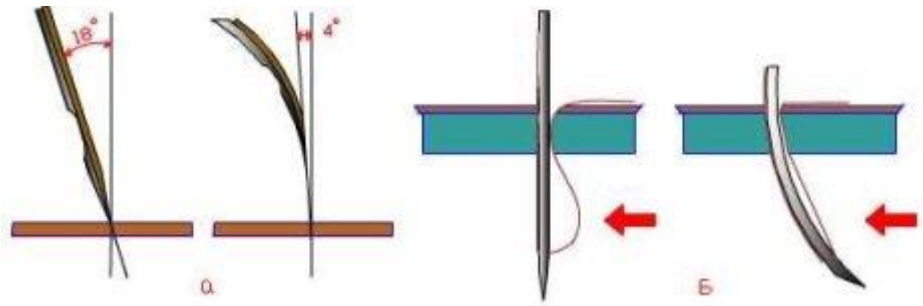

Figure 5 shows the positioning of straight and arc needles during the stitch formation process. Panel a depicts the needle piercing the material, while panel b shows the formation of the needle thread loop.

References

1. Isaev, V. V. Equipment of sewing enterprises. M: Legprombytizdat, 1989.
2. Olimov, K.T., Uzakova, L.P. Sewing machines. T.: Shark, 2006. Isaev, V.V. Sewing machines:
3. Legprombytizdat 1990. Franz, V.Y., Isaev V. V. Sewing machines. Moscow, Legprombytizdat, 1986.