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**A Manual of
Family Sewing Machines
AND
THEIR ATTACHMENTS**



**SPECIALLY PREPARED
FOR STUDENTS
IN SCHOOLS AND COLLEGES**

**PUBLISHED BY
SINGER SEWING MACHINE Co., INC.
SINGER BUILDING, NEW YORK**

PREFACE

The great aim in education is to equip the scholar for his or her future career. To the girl interested in Household Economics the sewing machine offers wonderful possibilities. The mission of this booklet is to instruct her regarding the care and operation of the Family Sewing Machine to obtain best results.

A large part of the family income is usually spent by the woman and her knowledge of how to plan and make proper clothing for the family has a great influence on the purchasing power of the income. By making garments at home it is possible to provide wearing apparel for herself and for those for whom she must provide, at a cost that will not only be in keeping with her purse but will give satisfaction and pleasure to the wearer.

Success in home sewing depends greatly on the ability to use to the fullest extent the modern sewing machine and its various attachments. The cost of material for making a garment is usually one-half to one-third the amount asked for a similar one ready made. The simple styles of today can easily be followed and, with the help of charts that are furnished with many of the patterns, the cutting is very simple. The modern electric sewing machine takes away all the labor of stitching. By using the attachments furnished with it, fascinating trimmings may very quickly be made without basting.

When one considers that the stitching for a garment may be done very quickly and entirely without effort on the electric machine, is it any wonder the woman of today is becoming more and more interested in home sewing?

It is our hope that the instruction contained in this booklet will enable you to learn the proper care and operation of your sewing machine, so that you can obtain the greatest benefit from its use.

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GENERAL INSTRUCTIONS FOR THE CARE AND OPERATION OF FAMILY SEWING MACHINES

The Principal Parts of Lock-Stitch Sewing Machines and Their Uses

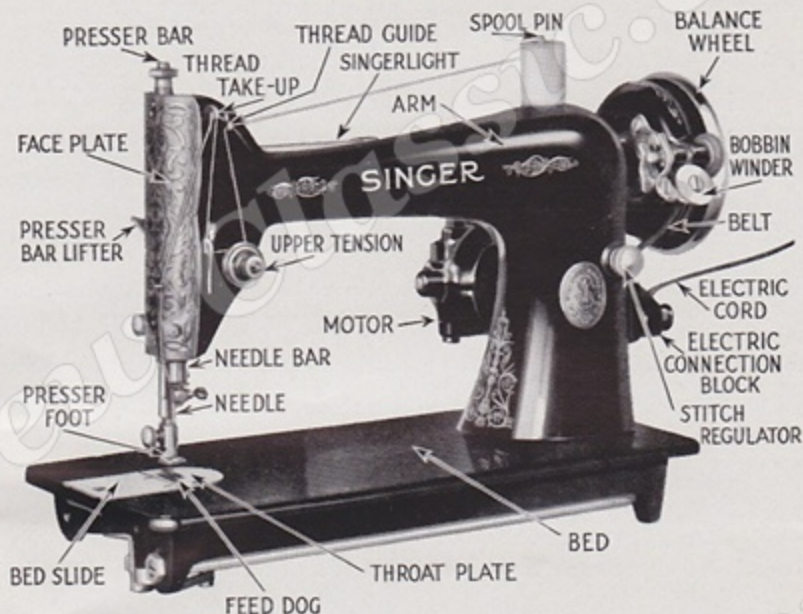


FIG. 1. PRINCIPAL PARTS OF THE HEAD

Head—the part above the table (Fig. 1) containing the stitching mechanism.

Arm—the curved part of the head containing the mechanism for driving the needle and handling the upper thread.

Spool Pin—Spindle on which spool rests.

Bed—the flat portion of the head, under which is mounted the mechanism for driving the shuttle and handling the lower thread.

Balance Wheel—the wheel at the right of the head driven by the belt.

Bobbin Winder—the mechanism for automatically winding bobbins.

Stitch Regulator—the parts which control the sweep of the feed dog, thereby regulating the length of the stitch.

Upper Tension—the means for controlling the delivery of the upper thread from the spool.

Thread Take-up—the mechanism which pulls up the slack in the thread and locks the stitch.

Thread Guide—Supports the thread on its passage from the spool to tension disc.

- Needle Bar**—the vertical bar to which the **needle** is attached and which carries the upper thread down through the fabric at each stitch.
- Presser Bar**—the vertical bar to which the **presser foot** is attached. This bar is surrounded by a spring which holds the fabric down against the feed dog when sewing but may be released by raising the **presser bar lifter**.
- Face Plate**—the vertical plate on the left of the arm which may be removed to give access to the needle bar, presser bar and take-up.
- Throat Plate**—the plate in the bed directly under the needle through which the needle passes and through which the feed dog projects upward.
- Feed Dog**—the toothed part which projects upward through slots in the throat plate, carrying the fabric from the operator at each stitch. The movement of the feed dog is controlled by the stitch regulator to give the desired length of stitch.
- Bed Slide**—the flat plate or plates at the left of the bed which may be opened to give access to the shuttle or bobbin case and other parts of the lower stitch forming mechanism.
- Bobbin**—the metal spool on which thread is wound to furnish the lower or shuttle thread supply.
- Shuttle or Bobbin Case**—the container in which the bobbin is placed and around which the loop of the needle thread is passed in forming the lock stitch.
- Rotary or Oscillating Hook**—the part which enters a loop of needle thread and carries it around the bobbin case. In the long bobbin machine (Singer No. 127) this function is performed by the shuttle, which also acts as a bobbin case.
- Lower Tension**—the spring on the shuttle or bobbin case which controls the delivery of thread from the bobbin.
- Motor**—the electric motor drives the machine by means of a fabric belt. It is attached by a single screw to the back of the head.
- Singerlight**—the electric lamp and reflector which throws its rays on the bed of the machine.
- Electric Connecting Block**—the plug and socket connection which connects the motor and Singerlight with the electric current.

Formation of the Lock Stitch

The lock stitch made by sewing machines consists of an upper or needle thread and an under or bobbin thread locked together in the material which is being stitched, the lock being formed by passing the upper around the lower thread and tightening them together in the middle of the fabric.



FIG. 2. FORMATION OF THE LOCK STITCH

When a stitch has been completed and before each succeeding stitch is commenced, the fabric being stitched is carried from the needle by the feeding mechanism and upon the length of its movement depends the length of the stitch.

The presser foot holds down the fabric, prevents it from rising with the needle and holds it in contact with the feed dog while the feeding takes place.

Wind the Bobbins Evenly

A bobbin must be wound evenly to work properly in the machine. Great care should be taken in winding bobbins to have the thread placed on the bobbin smoothly and evenly, and the bobbin should never be wound so full that it is tight in the bobbin case or shuttle. See Fig. 3. A correctly wound bobbin will insure a smooth-running thread from the shuttle and will prevent an uneven stitch, which may occur if the thread is placed on the bobbin unevenly.



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FIG. 3. UPPER BOBBIN CORRECTLY WOUND. LOWER BOBBIN INCORRECTLY WOUND

If the thread winds to one side of the bobbin, the guide which carries the thread from the bobbin winder to the bobbin may be bent a trifle, away from the side at which the thread piles up, with a pair of pliers. See Fig. 4. Care should be taken when making an adjustment of the winder not to bend it too far.



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FIG. 4. ADJUSTING THREAD GUIDE

Always make it a point to have a sufficient quantity of bobbins on hand so that it is unnecessary to wind one color of thread on a partly wound bobbin of another color. Bobbins wound in this manner are often uneven, and the ends of the threads become tangled, causing no end of trouble in the bobbin case.

Increasing the Pressure on the Bobbin Winder

If the pressure of the rubber ring against the hub of the balance wheel is not sufficient to wind the bobbin, loosen the adjusting screw (see Fig. 5) and press the bobbin winder lightly until the rubber ring is in contact with the hub of the balance wheel, then tighten the screw. This type of winder is found on Singer 66, 99, 115 and 15-30 machines.

(NOTE: The number of the machine you are using will be found in the instruction book furnished with the machine).

If the rubber ring becomes worn or if oil has been allowed to come in contact with the rubber, the ring will not have the proper contact with the wheel and will slip when attempting to wind a bobbin. A worn or oily ring should be replaced.

The bobbin winder on the Singer 66, 99, 101, 115 and 15-30 machines has an automatic stop which releases the winder from the balance wheel when the bobbin has been wound sufficiently full.



FIG. 5. ADJUSTING PRESSURE ON BOBBIN WINDER

Proper Needle and Thread Important

A perfect stitch can be obtained only when the thread is selected to suit the fabric which is to be stitched and the needle is the correct size for the thread. If the needle is too fine for the thread and the material to be sewn it is quite likely to break when crossing a seam. If a large needle is used on fine material the perforations made by the needle will show on the finished work. A table of correct needles for the various sizes of silk and cotton is given in the instruction book for each machine. This table should be carefully followed when ordering needles and when changing them for various classes of work.

NOTE: Care should be taken to see that only genuine Singer needles are used in Singer machines.

Testing a Needle

An important essential for good work is that the needle be perfectly straight.

A straight needle can be determined by placing the flat side of the needle on the slide plate of the machine or any other perfectly flat solid surface. Hold the needle flat to the plate and the plate up to the light as shown in Fig. 6. A straight needle will show an even amount of light under it and the point will be in line with the shank, while a crooked or bent needle will show closer to the plate or further from it at the point.

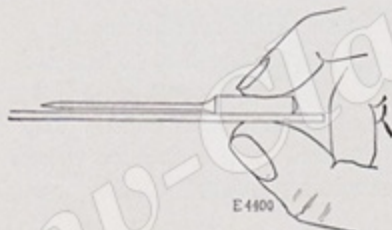


FIG. 6. TESTING A NEEDLE FOR STRAIGHTNESS

Setting the Needle Properly

Turn the balance wheel over towards you until the needle bar rises to the highest point. Loosen the thumb screw of the needle clamp, release and remove the old needle. Place the new needle in the needle clamp, making sure that the flat side of the needle is against the needle bar. In other words, have the flat side of the needle to the right. Push the needle up as far as it will go and tighten the clamp. See Fig. 7.



FIG. 7. SETTING THE NEEDLE

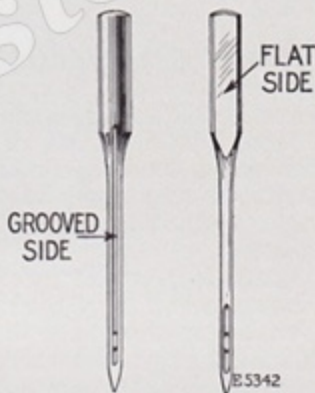


FIG. 8. FLAT AND GROOVED SIDES OF NEEDLE (ENLARGED)

You will note from Fig. 8 that the side of the needle with the flat on the shank has a short groove at the eye while the other side has a long groove. The thread must lie in this long groove when sewing. If the needle is not placed correctly in the machine it will not sew.

The Necessity for Proper Tensions

The tensions on the sewing machine must be adjusted to suit various fabrics. There are two tensions, the upper and the lower. The upper tension controls the thread from the needle, while the lower tension controls the thread from the shuttle or bobbin case.

The definition of the word tension as given in the dictionary is: "stress by pulling." It is the pulling of the threads together that completes a stitch on the sewing machine. After the needle thread passes around the shuttle, the upper thread must be pulled to take up the slack and complete the stitch by locking both threads together. If both are under proper tension, the lock occurs in the center of the material being sewn and a perfect stitch is formed as in Fig. 9.

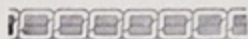


FIG. 9. BOTH TENSIONS CORRECT

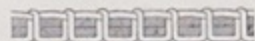


FIG. 10. TIGHT UPPER TENSION

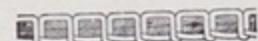


FIG. 11. TIGHT LOWER TENSION

If too tight a tension is used on fine material the threads may break when the material is pressed flat. A bias seam will pucker if the tension is tight. If the tension on a flat seam is too loose there is danger of the thread being pulled out. A long stitch and a loose tension are often used when basting, so that the stitches may easily be pulled from the material.

How to Adjust the Tensions

The tension on the upper thread is regulated by turning the nut E, shown in Fig. 12, to the right to tighten and to the left to loosen.

Tension on the under thread is regulated by the screw which holds the spring under which the thread passes, on the long shuttle or the round bobbin case. Turn this screw to the right to tighten and to the left to loosen. Use the small screw driver for this purpose.

If there is difficulty in tightening the under tension there may be a knot of thread caught under the spring on the shuttle or bobbin case. Loosen the tension screw sufficiently, release the knot and remove it.

The tension on the needle thread should be regulated only when the presser bar is down. If you are using the correct thread for the needle the tension may be regulated by adjusting until the thread just barely bends the needle when the thread is pulled through as shown in Fig. 13. The under thread should be adjusted to pull as near like the upper thread as possible. When pulling the under thread care should be taken to see that it is pulling free from the presser foot. (See Fig. 13).

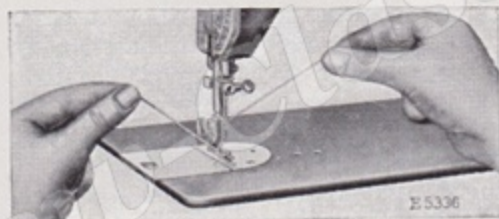


FIG. 13. TESTING UPPER AND LOWER TENSIONS TOGETHER

If the tension on the needle thread is too tight, or if that on the bobbin thread is too loose, the needle thread will lie along the upper surface of the material as illustrated in Fig. 10.

If the tension on the bobbin thread is too tight, or if that on the needle thread is too loose, the bobbin thread will lie straight along the under side of the material as shown in Fig. 11.



FIG. 12. ADJUSTING THE UPPER TENSION

Fine materials require a light tension, while heavy materials require more tension to produce a perfect stitch.

Preparing to Sew

Pull sufficient thread through the needle to start sewing, hold the end of the thread in the left hand and with the right turn the balance wheel over until the needle goes down and the under thread is pulled up through the needle hole in the throat plate. (See Fig. 14). Lay both ends back under the presser foot before starting to sew. This will prevent the under thread from becoming caught in the bobbin case when starting to sew.



FIG. 14. PULLING UP UNDER THREAD



FIG. 15. BEGINNING A SEAM

sew, bringing the tension into operation and preventing the thread from being caught in the bobbin case. See Fig. 15 for the proper starting of material under the presser foot.

Always start Singer machines by turning the balance wheel toward you, never backward. Running the machine in the wrong direction may tangle the thread in the shuttle race, causing it to run hard or stop.

Finishing a Seam

When finishing a seam, never sew beyond the end of the material. Stop the machine by placing the hand on the balance wheel shortly before the end of the seam is reached. This will prevent the thread from becoming caught in the bobbin case. See Fig. 16.

Do not attempt to release the material from the machine until the take-up lever is at the highest point. See T, Fig. 20. When the take-up is in this position and the presser foot is raised, the tension is released.