

The Sewing Machine

Dr. Gavou T. Pam

Department of Science and Technology Education,
Faculty of Education, University of Jos, Nigeria

OBJECTIVES:

By the end of this chapter, you should be able to:

- i. State the different types of sewing machines.
- ii. Identify the different parts of the sewing machine and their uses.
- iii. Explain the order of threading the sewing machine
- iv. Describe the faults and remedies of the sewing machine
- v. Explain with demonstration how to oil the different parts of the sewing machine

INTRODUCTION

The sewing machine is an important and useful equipment in the sewing and clothing construction process. Useful skills could be learnt and used to sew personal clothing articles, mend clothes, sew gifts for loved ones and do other useful things. The choice, knowledge of the parts, their uses, fault, remedy and how to take care of the machine is very key. Much is achieved when this knowledge of the sewing machine is put to use.

THE SEWING MACHINE

The sewing machine plays a very important part in needle work. There is a wide choice available with all sorts of attachments. There are three types of sewing machines these are: the Hand sewing machine, the Treadle sewing machine, and the Electric sewing machine.

The Hand machine:

Advantages and Disadvantages

Advantages:

- The hand machine is useful, particularly when space is limited.
- It costs less than other machines.
-

Disadvantage:

One hand only is free to control the work.

The Treadle machine:

Advantages and Disadvantages

Advantages:

- Both hands are free to control the work so that stitching becomes easier.
- The attachments too, are much easier to use.
- It is faster
- Very little effort is needed

Disadvantage:

- It is difficult to manipulate

The Electric machine

Advantages:

- The electric motor does the work so that both hands are free to manipulate the material.
- A slight pressure is applied with the foot or the knee to the control to obtain the sewing speed required.
- It consumes very little electric current.
- The speed can be controlled better (slower for tiny work, faster for larger work).

Disadvantage: it cannot be used where or when there is no electricity.

Using the Machine

Before you start sewing you should study the instruction booklet and learn the names of the different parts in the stitching and their likely causes. Test the machine on double material. Watch the edge of the foot, not the needle when straight stitching. Sit comfortably in a good light and concentrate on your work to the left of the foot. Never let anyone else turn the handle for you if you're using a hand machine.

Parts of the Sewing Machine

Spool pin
 Feed dog
 Balanced wheel
 Stop motion screw
 Bobbin winder
 Feed reversing handle
 Bobbin winder spool pin
 Stitch regulator
 Needle
 Presser foot
 Bobbin and shuttle or case
 Feed plate
 Needle clamp
 Presser foot lifter
 Presser bar
 Take up lever
 Tension discs
 Thread guides (2)
 Throat plate

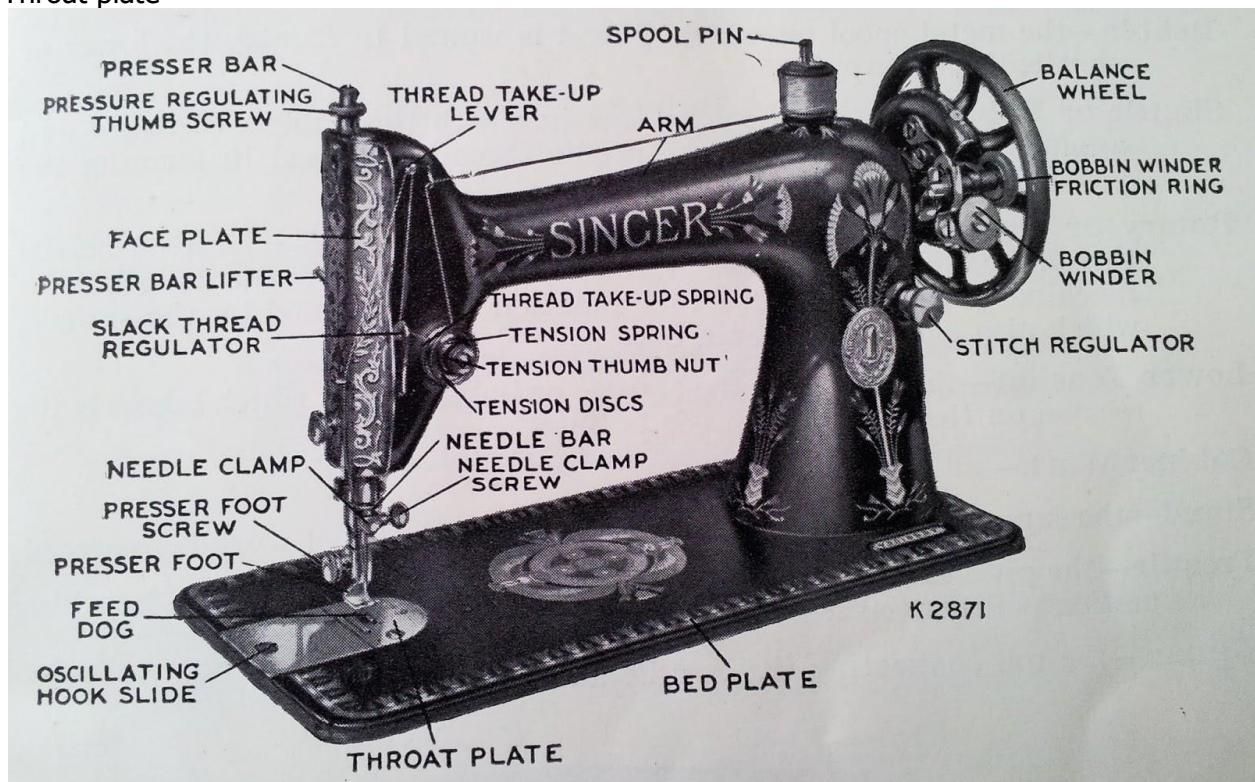


Fig. 1.1 Parts of the Sewing Machine

Parts of the sewing machine and their uses

Part	Use
Balanced wheel	- helps the movement of the needle and balances the wheel
Stop motion screw	- puts the needle out of action when winding the bobbin
Bobbin	- place where the winder thread is kept.
Bobbin winder	- for winding the bobbin
Take up lever	- controls the movement of the thread.
Stitch regulator	- regulates the size of the stitches
Tension discs	- controls the tightness and looseness of the stitches.
Presser lifter	- lifts and lowers the presser foot.
Presser foot	- keeps the material in position when sewing.
Needle clamp	- for fixing and changing needles
Thread guides	- guide the needle when threading on the machine.
Spool pin	- for fixing the thread in position before threading the machine
Bobbin case	- houses the bobbin

Threading the Sewing Machine

Different types of machines vary slightly, but the principle of threading is always the same. Be sure you do the following:

Order of threading the bobbin

- i. Wind the bobbin evenly and not too full. Disconnect the movement of the needle while winding.
- ii. Fix the spool in the bobbin case correctly (The thread should pull counter clockwise) and draw the thread through the case
- iii. Place the case in its holder under the machine. It will lock in place.

Order of threading the machine

- i. Turn the wheel so that the needle is at the highest point.
- ii. Place the reel (spool) of thread in position on the holder and pass it through the thread guide and down between the tension discs.
- iii. Draw the thread through under the slack thread regulator.
- iv. Pass the thread up through the hole in the lever from the left, down into the eyelet, into the guide and from left to right through the eye of the needle, leaving an end a few inches long.
- v. To complete the threading process, hold the thread from the needle in the left hand, keeping it slack from the hand to the needle.
- vi. Turn the balance wheel once slowly towards you so that the needle goes down to receive the thread from the bobbin below and up again to its highest point.
- vii. Gently pull the thread you are holding and the under thread will be brought up with it.
- viii. Lastly, place the two ends of the thread under and to the back of the machine foot.
Now you are ready to sew.

(Order of treading the machine)



Fig 1.2 Order of Threading the Sewing Machine

Sewing

1. Pull sufficient thread through the needle to start sewing (a few inches). Hold thread firmly but gently as you take the first stitch into the material. This prevents the thread from getting caught in the foot feed and jamming the machine.
2. Have the bulk of the work to the left of the machine.
3. Keep seams an even width by watching the machine foot.
4. Remove work when needle is at its highest point.
5. Draw out backwards to prevent breaking the needle.
6. Leave a few inches of thread out from needle and bobbin before cutting the thread free.
7. Cut fasten and thread

Tension of the machine stitch

The tension on the upper and under threads should be equal so that the thread lock in the center of the material. If the tension is uneven, poor stitching will result. If the tension is too tight, the thread may break, or if it is too loose, it may run too quickly and cause the stitch to become knotted or looped.

Fine fabrics require smaller stitches while heavy materials need larger stitches and sometimes slacker tension. The tension on the lower thread can be adjusted. This is done by adjusting the upper tension only.

Correct Tension

Needle tension to tight

Needle tension too loose

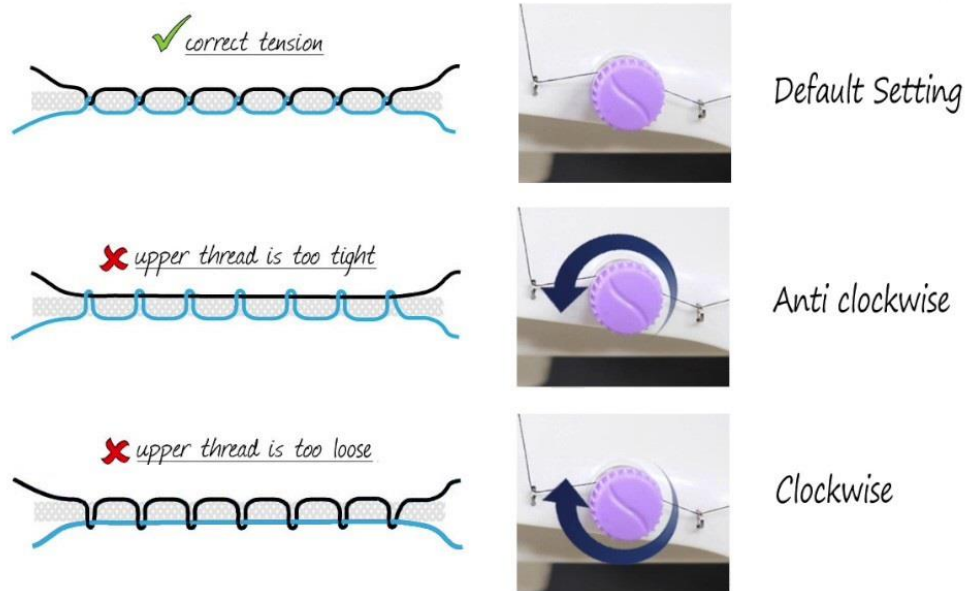


Fig 1.3 Tension of the machine stitch

Adjusting the Tension:

When adjusting the tension, the presser foot must be down. Turn that screw which loosens or tightens discs. These are the two small plates through which the thread passes in the threading up of the machine. The plates are made to press together more loosely or more tightly by turning the screw. Turn to the right to increase the tension or to the left to lessen it.



Fig 1.4 Tension Disc

Regulating the length of the stitch

Move the regulator switch, which is usually on the arm of the machine near the spool winder. To lengthen the stitch, turn the screw to the right: to shorten the stitch, turn it to the left, (or on some machines, move it up to lengthen the stitch or down to shorten it).

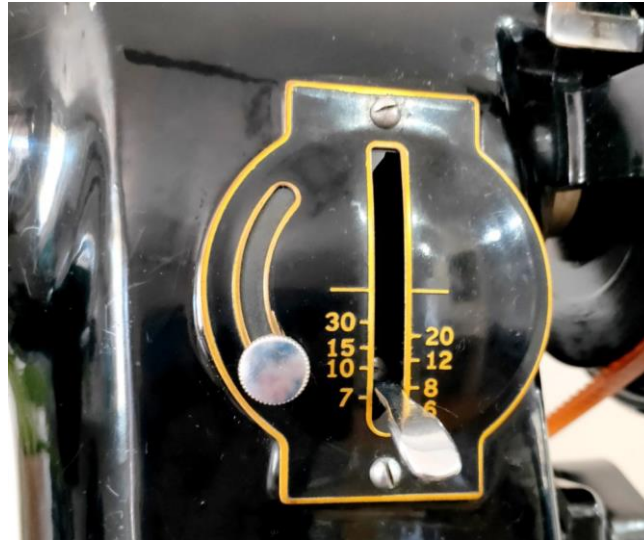


Fig 1.5 Regulator Switch

Machine Stitching

Place the material underneath the presser foot with the bulk of the work lying to the left, so that the part being sewn is easy to see and manipulate. Lower the foot and start to sew by turning the balance wheel towards you. Do not pull the material. Use the edge of the presser foot as a guide. Keep the width of stitching even.

To pivot or turn a corner

Stop the machine when the needle is about to rise while it is still in the material. You may need to manipulate the balance wheel by hand to place the needle back in the material. Raise the presser foot, turn the work, then lower the presser foot and continue.

To remove the work from the machine.

Be sure that the take-up lever is at the highest point. Raise the presser foot and remove the material by drawing it back, and at the same time to the left. Hold the threads in both hands and cut with a quick downward movement over the thread cutter which is just behind the presser foot, or cut with scissors and remembering to leave about 3 inches of thread attached to the material.

To fasten off the material ends

As you approach the end of the seam slow down, then continue to the end. Sew off by back stitching a few stitches. If you have very fine material sew to the end of the seam, then gently pull your work free a few inches from the foot. Cut the thread. Pull up one thread which will bring through a looped stitch from the underside. Pull the loop through the both ends will then be on the same side, the wrong side. Tie the ends.

To clean and oil the machine

The care of a sewing machine is very important in order to keep it in perfect running order. Use only the best sewing-machine oil. Oil all moving parts. Use one drop of oil at each point. Remove all dust and fluff before oiling.

Put a drop of oil on the piece of felt under the slide which covers the spool case, as this lubricates the oscillating hook, and also on the rollers at the right of the hook shaft. Turn the machine back on its hinges to reach the oiling points on the underside under the bed plate. Run the machine rapidly after oiling so that the oil may reach the bearings. Try the machine on a piece of scrap material like cotton after oiling, to run off any surplus oil.

(where to oil the machine)

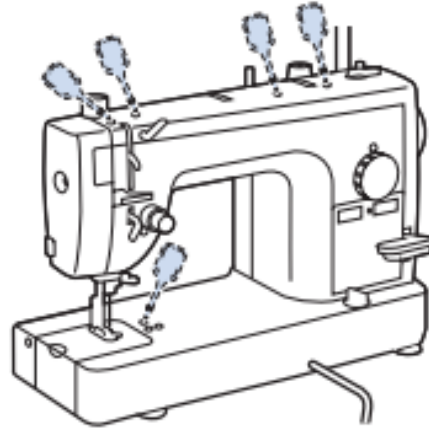


Fig 1.6 Where to Oil the Machine

Faults and Remedies

	Fault	Cause	Remedy
1	Thread breaking	<ol style="list-style-type: none"> 1. Tension too tight 2. Spool case not properly threaded 3. Needle not correctly set 4. Needle too fine for material bent or blunt 5. Spool too full or unevenly wound 	<ol style="list-style-type: none"> 1. Adjust tension 2. Thread correctly 3. Adjust the needle or change it 4. Re-wind the spool
2	Looped stitches on underside of fabric	<ol style="list-style-type: none"> 1. Not correct threading 2. Upper tension too light the presser foot is not being let down correctly 	<ol style="list-style-type: none"> 1. Thread correctly 2. Adjust tension 3. Let down presser foot correctly
3	Skipped stitches	<ol style="list-style-type: none"> 1. Needle bent 2. Needle incorrectly set 3. Needle the wrong size for the work 4. Top and bottom threads are of different thickness 	<ol style="list-style-type: none"> 1. Change the needle 2. Set the needle correctly 3. Change the needle 4. Use the right size needle for the work 5. Use the same thickness of thread
4	Seams pucker	<ol style="list-style-type: none"> 1. Tension too tight 2. Stitches too long for fine material 	<ol style="list-style-type: none"> 1. Ease both tensions 2. Watch that the pressure on the foot is not too great
5	Uneven stitching	<ol style="list-style-type: none"> 1. Material pushed or pulled through the machine 2. Dirt or piece of cotton in the machine 3. Stitch regulator not tightened 4. Using a needle that is too fine with a thread that is too thick 5. The presser foot not resting fully on the fabric 	<ol style="list-style-type: none"> 1. Avoid pushing or pulling the material when sewing 2. Dust the machine before commencing work 3. Tighten the stitch regulator

		<ol style="list-style-type: none"> 6. Insufficient pressure on the presser foot 7. The machine is threaded wrongly 8. Bobbin thread not wound rightly 	<ol style="list-style-type: none"> 4. Use correct needle for thread 5. Rest presser foot fully on material 6. Increase pressure on the presser foot 7. Thread the machine correctly 8. Wind bobbin thread correctly
6	Broken needle	<ol style="list-style-type: none"> 1. Too fine a needle 2. Work pulled roughly from machine 3. Pins in the work 4. Needle strikes on presser foot 	<ol style="list-style-type: none"> 1. use correct size of needle 2. do not pull material when sewing 3. check to see that all pins are removed 4. set the needle well to prevent it from striking on the presser foot
7	Top under thread not catching	- needle wrongly inserted	- insert needle properly
8	Bobbin thread breaks	<ol style="list-style-type: none"> 1. the lower tension is too tight 2. the bobbin has been unevenly wound 3. the bobbin has been over wound and is too full 	<ol style="list-style-type: none"> 1. adjust lower tension 2. wind bobbin evenly 3. wind bobbin evenly
9	Machine not feeding properly	<ol style="list-style-type: none"> 1. the feed dog may be lowered 2. not enough pressure on the presser foot 	<ol style="list-style-type: none"> 1. raise the feed dog 2. increase pressure on the presser foot
10	Machine sews badly	<ol style="list-style-type: none"> 1. Needle bent, blunt or incorrectly inserted 2. Bobbin wound unevenly 3. The thread is too heavy for the needle or the needle is the wrong size 4. Tension wrongly adjusted 	<ol style="list-style-type: none"> 1. Change the needle 2. Wind bobbin correctly 3. Use correct size thread for needle 4. Adjust tension
11	Machine working heavily	<ol style="list-style-type: none"> 1. Machine being oiled too much 2. Machine requires oiling or needs cleaning 	<ol style="list-style-type: none"> 1. Avoid oiling the machine too much 2. Clean and oil the machine

REVIEW QUESTIONS

- a. What are the advantages and disadvantages of the electric, threaded and hand machine?
- b. How regular should the sewing machine be oiled?
- c. Why is it important for the machine to be threaded in the order recommended by the manufacturer?

- d. Explain why the needle has to be at the highest point and the presser foot lifted up before the fabric is removed from the machine?

REFERENCES

- Anyakoha E and Eluwa M (1999) Home Management for Schools and Colleges. Lagos. African Feb. Publishers Ltd.
- Anyakoha, E. U. (2011). Home Economics for Junior Secondary Schools. Onitsha: Africana First Publisher.
- Anyakoha, E. U. (2015). Home Management for Schools and Colleges. Onitsha: Africana First Publisher.
- Blacke J & Fisher J. (1973) The Complete Book of Handicraft. London. Evans Brothers Ltd.
- Cliffe V. (1958) Making Your own Cothes. London. Edward Arnold Ltd.
- Cock, V. I. (1982). Dressmaking Simplified, Great Britain. Hart-Davis Educational Ltd.
- Denne L. (1977) Teach Yourself Embroidery. Great Britain. Hodder and Stoughton Ltd.
- Gawne E. J. & Oerka B. V. (1975). Dress. Illinois Chas: A Benneth Co... Inc.
- Goldsworthy M. (1973) Knowing your Dressmaking. London Butler and Tanner Ltd.
- Goldsworthy M. (1975) Knowing your Sewing.
<http://baconvener.com>
<http://www.seams.org>
<http://en.wikipedia.org/wiki/seams>
<http://fitnesspros.com>
<http://www.dietitian.com/cakbody.php>
<http://www.enwikipedia.org/wiki/sewing-machine>
<http://www.fashionmagazine.com>
<http://www.google.com.ng>
<http://www.seams.la>
<http://www.stuhirshorchestag.com>
<http://www.stye.com>
<http://www.whatsuitsyou.co.uk>
- Igbo, C. A. and Iloeje C. I. (2003). The Basics of Dress Pattern Drafting. Enugu. Inselbers Nig. Ltd.
- Igbo, C. A. and Iloeje C. I. (2012). The Basics of Dress Pattern Drafting. Enugu, Our Saiour Press Ltd.
- Lockwood (1973) Making Cloths for Young Children. London Shidio Vista.
- Miles, C. (1965) Certificate Needle Work. London. Sir Isaac Pitman and Sons Ltd.
- Olaitan S. O & Mbah C. O (2006) WABP Junior Secondary Home Economics 3. Lagos West African Book Publishers Ltd.

Pounds O. E (1974) Creative Sewing. London: Thomas Nelson and Sons Ltd.

Richmond E, M (1977) A Course in Domestic Subjects and Needle Work. Ibadan. Evans Brothers Ltd.

Seton D. (1962) The Complete Book of Home Needlecraft. London. Evans Brothers Ltd.
The Staff of the Edinburgh College of Domestic Science (1971) The Edinburgh Book of Sewing. London, A.C. Black Ltd.

www.acin.nl

www.en.wikipedia.org/wiki/hem

www.hems.com

www.hems.org

www.lighnsociety.com

www.maltronint.com

www.sewing.org

www.tokunbo.com.ng