

Student's Manual

BY

SINGER

Straight Stitch Machine Sewing

CONTENTS

- History of the Machine
- Principal Parts of the Machine
- To Operate the Machine
- To Prepare the Machine for Sewing:
 - Threading - Upper and Lower
 - Winding the Bobbin
- To Regulate the Stitch Length
- To Begin and End a Seam
- To Select Correct Needle and Thread

PUBLISHED BY

THE SINGER COMPANY

EDUCATIONAL DEPARTMENT • 30 ROCKEFELLER PLAZA • NEW YORK 20, NEW YORK



The First Practical Sewing Machine—1851

THE INVENTION OF THE SEWING MACHINE

FEW inventions have proved as valuable to the world as that of the sewing machine. It ranks high on every list of great inventions and has freed women from drudgery as perhaps no other mechanical device in history. "Next to the plough" wrote Louis Antoine Godey in 1856, "this sewing machine is perhaps humanity's most blessed instrument."

Before the sewing machine appeared, making clothes was the chief occupation of half the human race. Since this work had to be done by hand, it was time-consuming and eyestraining.

The 19th Century was an age of invention, and it is not surprising that during this period many men turned their attention to the development of devices for making stitches mechanically. History books have long credited Elias Howe, Jr. with the invention of the sewing machine utilizing an eye-pointed needle and shuttle. The machine for which he won fame was hardly practical and many of the principles which it embodied had been in the inventions of others years earlier. It sewed only straight seams and only a few inches at a time.

The first truly practical sewing machine was invented by Isaac Merritt Singer in 1850. Although cumbersome in appearance and heavy to operate, it embodied the basic principles found in all sewing machines of today. Most important of all, it could sew continuously any kind of seam—straight, circular or angular, and unlike previous machines, was so simple that the user did not have to be an expert machinist to operate it.

To no single individual can the full credit for the invention of the sewing machine be rightfully given. Probably the first device that could be described as a sewing machine was designed by Thomas Saint, a cabinetmaker of Greenhill Rents parish of St. Sepulchre, England, and was patented in 1790. It was intended for stitching shoes and boots. The materials to be stitched were attached to a traveling carriage while a forked needle worked in a perpendicular manner from an overhanging arm in conjunction with a looping instrument below to form a chain stitch. Unfortunately, Saint's patent drawings were filed with those covering adhesives used in uniting pieces of leather and hence escaped notice for many years. They included certain features which are essential to sewing machines used today but there is considerable doubt that Saint ever made more than a single experimental model and his idea was never put to any practical use.

Sometime later, between 1790 and 1800, Baltasar Krembs in Mayen, Germany, invented a machine which made an elastic chain stitch by means of an eye-pointed needle, but he failed to patent his machine. Nevertheless it is still in existence, being on exhibition at the Deutsches Museum in Munich.

In 1804, John Duncan of Glasgow, Scotland, devised a machine utilizing a barbed-eye needle which produced a chain stitch for the use in embroidery, but he did not claim nor did he intend that it be used for making seams.

In 1814, Josef Madersperger, a master tailor of Kufstein in the Austrian Tyrol, made the first sewing machine capable of stitching a seam. His fellow tailors looked askance at his handiwork and he lacked the resources to develop his invention elsewhere. The Madersperger machine used a double-pointed needle to produce a simple running stitch. Later he developed an improved machine which utilized a single eye-pointed needle and a shuttle, but the arrangement for feeding the material under the needle was faulty. Had he combined the elements of the two machines in one, he would have fully encompassed the principles on which later sewing machines were based.

In 1818, the Rev. John Adams Dodge of Monkton, Vermont, with the help of John Knowles, local blacksmith, designed and built a sewing machine. The finished product was cumbersome, using a double-pointed needle with the eye in the middle. It could produce a satisfactory backstitch for only short distances.

By 1829, Barthelemy Thimmonier, a poor French tailor, entirely ignorant of the principles of mechanics, produced a workable machine made of wood and capable of making a chain stitch by means of a crochet or barbed needle in which the loops lay on the upper surface of the material being stitched. In 1830, Thimmonier was issued a patent by the French government, and by 1841 eighty of his machines were making uniforms for the French Army. Unfortunately an angry mob of tailors fell upon his machines and smashed them to pieces.

In 1848, his second invention of the sewing machine, capable of making 200 stitches a minute, was destroyed by a mob. However, he took one of the machines which had escaped destruction to England where he obtained a patent the following year. In 1850, he obtained a U. S. patent, but by this time other inventors had entered the field with more practical machines. Thimmonier perfected the first sewing machines made in commercial quantities and put them to practical use, but reaped no reward for his genius.

Henry Lye of Philadelphia, Pa. in 1826 obtained the first U. S. patent on a sewing device. However, his model was destroyed in a fire that swept the Patent Office leaving the description too meager for the determination of exactly how it worked. It was apparently never manufactured.

About the same time Thimmonier was perfecting his machine in France, a 39 year old Quaker genius

named Walter Hunt created a machine which used an eye-pointed needle moved by a vibrating arm, working in combination with a shuttle carrying a second thread. It made an interlocked stitch fully as well as it is done by our present improved machines. Only in the manner of feeding cloth under the needle was Hunt's machine imperfect. Hunt started to manufacture his machine but abandoned his project after the urging of his fifteen-year-old daughter who convinced him that it would throw seamstresses out of work. Hunt failed to apply for a patent until 1854 when he belatedly realized his oversight; it was refused him on grounds of abandonment. Nevertheless, there can be little doubt that Hunt perfected the first sewing machine which contained all the elements of practicability.

In 1841 two gentlemen in England named Newton and Archbold designed a chain stitch machine employing an eye-pointed needle, but aside from this bare fact little else is known of their invention. A year later an American, John James Greenough, patented a sewing machine which combined a stitch forming mechanism with a device for presenting work to a double-pointed needle with an eye in the middle, but it was not practical in any broad sense and thus was never developed. In the next year, 1843, Dr. Frank R. Goulding of Macon, Georgia also created a sewing device but he failed to develop it.

In Boston, Massachusetts in 1839, Elias Howe, Jr., a youth of 20, gravely listened to an argument between his employer and a well dressed visitor. The visitor had contended a sewing machine would be much more practical than the knitting machine. Howe remembered the words of the visitor and devoted all of his spare time to the invention of such a device. He wasted many months endeavoring to copy the motions of his wife's arm when sewing. Then the idea came to him of using two threads and forming a stitch with the aid of a shuttle. There is no reason to believe that Howe was aware of Walter Hunt's previous work along the same lines. On September 10th, 1846 a patent was issued on Howe's machine embodying a curved eye-pointed needle carrying an upper thread and operating in a horizontal plane in conjunction with a shuttle for the lower thread to form a lock stitch. However, Howe found no market for his machine in the United States at that time so he went to England to set up manufacture, only to return to the States three years later to find the sewing machine had become celebrated, though his part in its invention was seemingly forgotten.

John A. Bradshaw of Boston, invented and patented in 1848 a lock stitch machine with a reciprocating shuttle. The following year Charles Morey and J. B. Johnson patented a chain stitch machine of limited practicality. Its only real contribution was that it handled the material on a horizontal bed instead of suspending it in a perpendicular plane as did most of its predecessors.

On May 8th, 1849, John Bachelder secured a patent on a two-thread chain stitch machine which, because of its continuous feed and vertically moving needle above a horizontal work plate, was destined to be

one of the most important sewing machine patents issued. Later in the same year, S. C. Blodgett, with the assistance of John A. Lerow, perfected and patented an ingenious lock stitch machine which featured the first continuously-moving shuttle which traveled horizontally in an annular race and fed continuously by means of an endless rotating baster plate.

In Boston in 1850, Isaac Merritt Singer, a journeyman mechanic, borrowed forty dollars and made the first sewing machine capable of sewing continuously. Singer was granted patents in 1851 and began to make machines, first in Boston and then in New York. He incorporated principles used before, combined them into the most practical arrangement, added important features of his own design and gave the world the first truly practical sewing machine. Instead of the shuttle moving in a circle, it moved to and fro in a straight line and instead of the needle bar moving a curved needle horizontally, Singer made a straight needle that moved up and down.

In addition to a straight eye-pointed needle and transverse shuttle, Singer's invention called for an overhanging arm, a table to support the cloth, a presser foot to hold the material down against the upward stroke of the needle and a roughened feed wheel extending through a slot in the table. Motion was transmitted to the needle arm and shuttle by means of gears. None of the other sewing machines in existence at that time had any means of applying power except by a hand crank. Singer used the machine's packing case as a table and conceived the idea of using a treadle similar to that on a spinning wheel. However, he failed to realize the value of this arrangement and did not take the trouble to apply for a patent.

A copy of the first Singer machine is in the Smithsonian Institute today. Dr. Frederick J. Lewton, formerly Curator of the Division of Textiles at the Smithsonian, described it as "The first successfully operating and practical sewing machine".

In the past century upwards of 46,000 sewing machine patents of various kinds have been issued. And today there are more than 4,000 different types of sewing machines made.

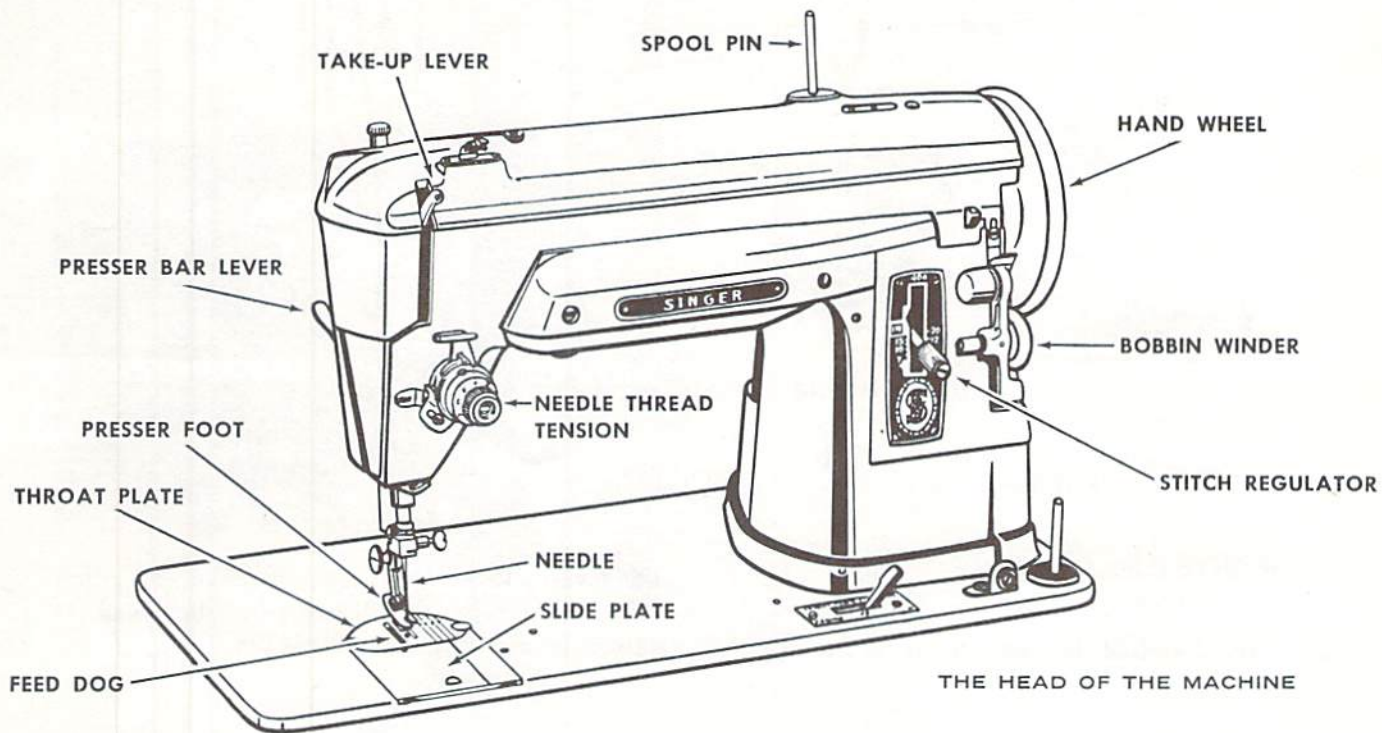
Smallest of SINGER'S is a child's machine weighing three pounds. This is tiny enough to hold in the hand but sews a seam. The largest SINGER is a 2,526 pound device for stitching heavy belts an inch and a half thick, used in mining and heavy industry.

Electricity and improved bearings have greatly speeded up sewing. A household machine can now make 1,500 stitches a minute while many manufacturing models work as fast as 6,000 stitches a minute. The miracle is that they can be stopped safely in a split second.

But none of these machines would have been possible without the prior inventions of men like Singer, Howe, Hunt and others who established the basic principles on which all subsequent developments have depended. These are the true pioneers—the men who deserve major credit for the invention of the sewing machine.

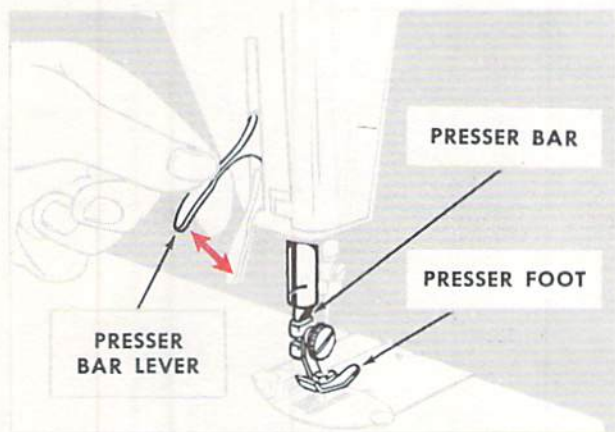
TO OPERATE THE MACHINE

THE PRINCIPAL SEWING MACHINE PARTS AND THEIR USE



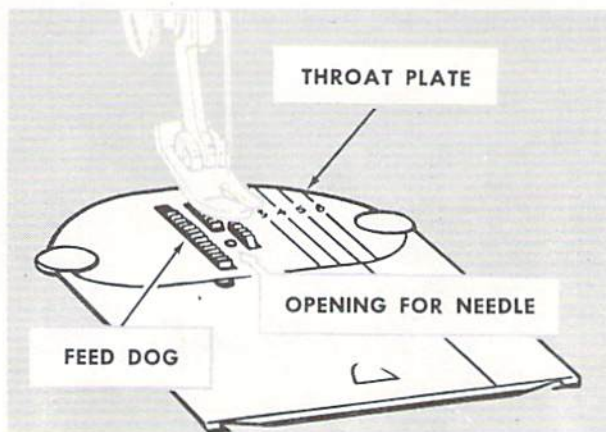
The beginner should learn the various parts of the sewing machine and the purpose of each part in

order to give the machine proper care and to obtain the best results in sewing.



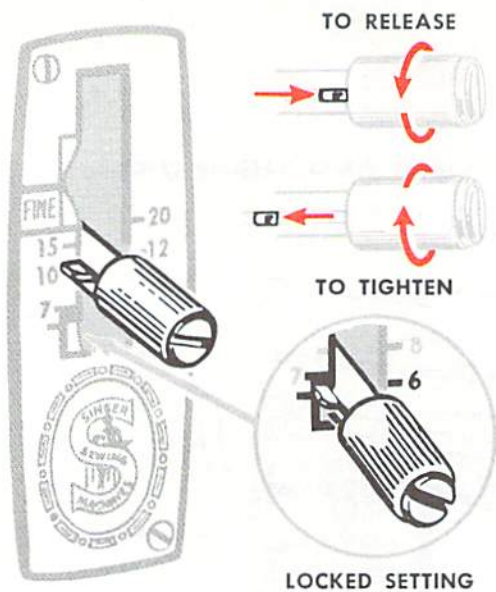
The **presser foot** holds the fabric against the feed dog and is raised or lowered into position by operating the presser bar lever.

The **presser bar lever** is located at the back of the machine and its purpose is to lower and raise the presser foot or any attachment that is attached to the presser bar.



The **throat plate** is the part directly under the needle through which the needle passes and through which the feed dog operates.

The **feed dog** is the mechanism which moves the fabric. When sewing, the feed dog rises a precise amount above the throat plate, grips the material against the presser foot and moves the fabric after each stitch is formed.



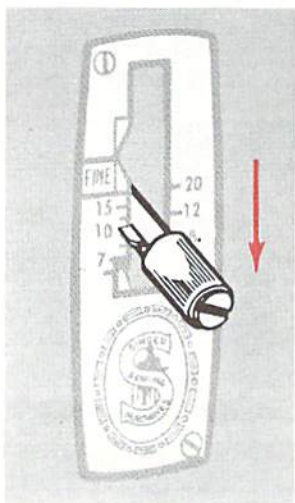
The **stitch regulator** is the lever which regulates the stitch length, i.e., distance the feed dog moves the material.

Numerals on the indicator represent approximate number of stitches per inch.

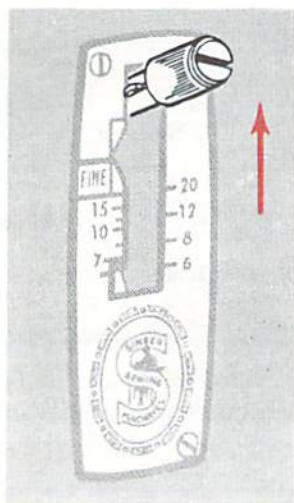
The "fine" area of the indicator represents stitch lengths above 20.

To set stitch length—

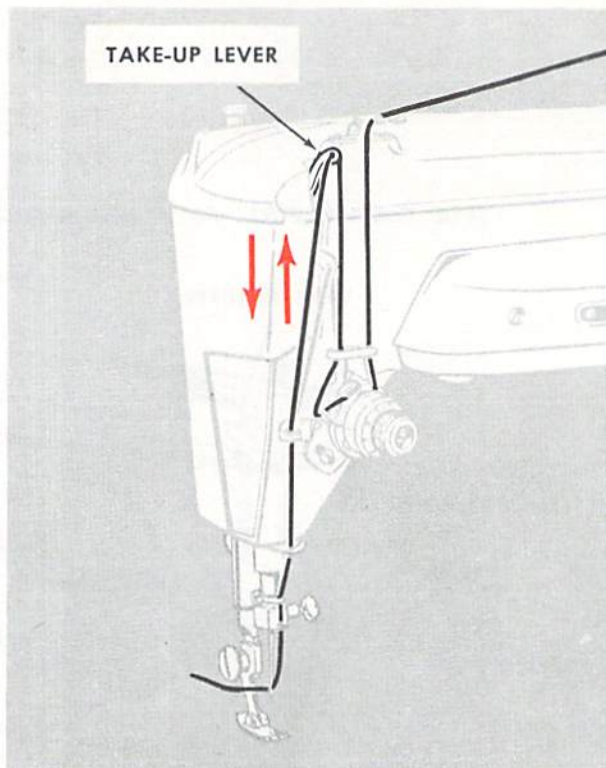
- Release pointer by turning thumb nut to left.
- Position lever for desired stitch length.
- Tighten pointer against plate by turning thumb nut to right.



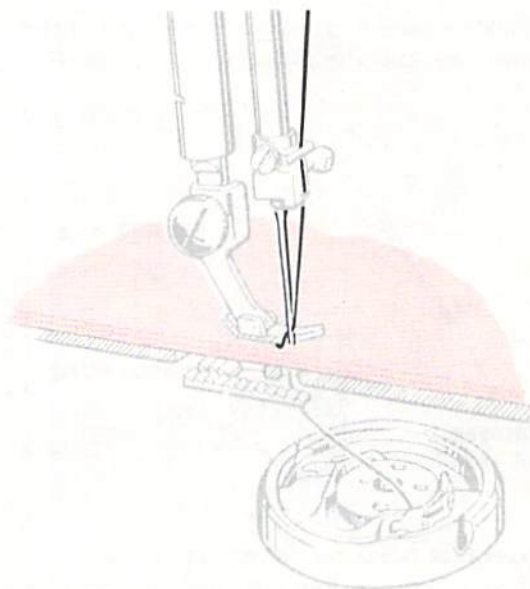
• To **forward** stitch, *push down* on the stitch regulator.



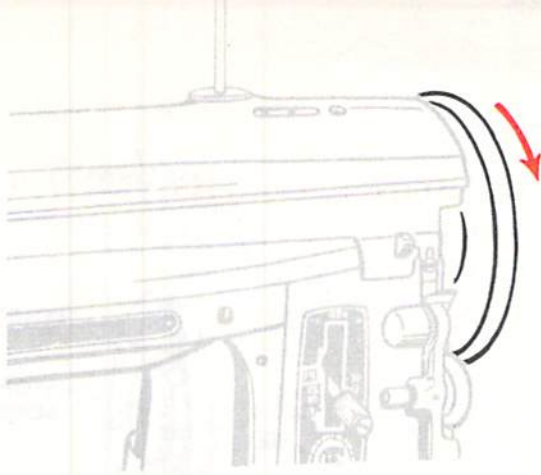
• To **back** stitch, *raise* the stitch regulator to its highest point.



The **take-up lever** moves up and down as a stitch is formed, pulling the thread from the spool. It should always be at the highest point when starting and ending a seam.

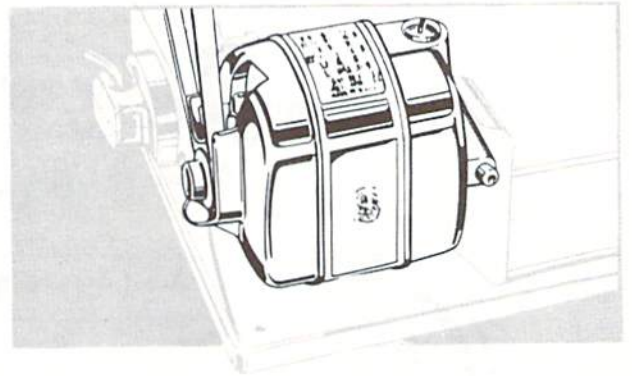
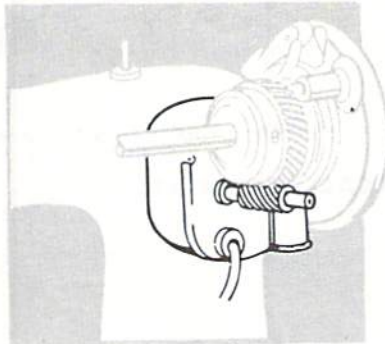
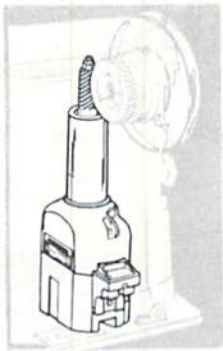
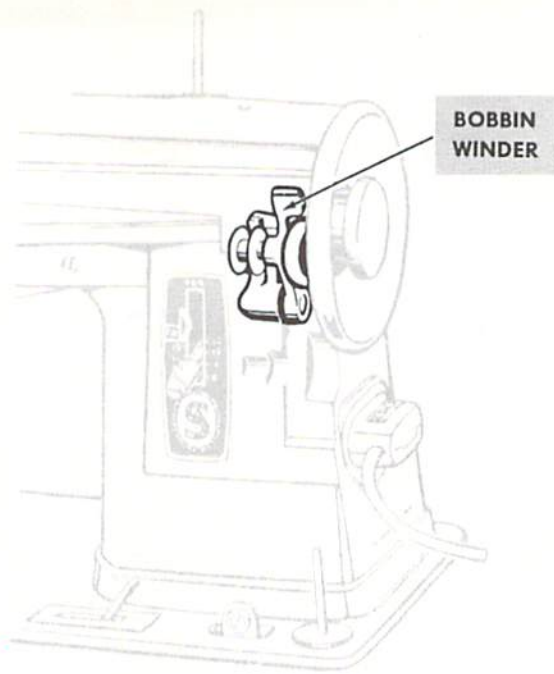


The **needle** carries the thread. As the hand wheel turns, the needle moves downward, carrying the thread to a predetermined point where the hook picks up the thread. The needle point is positioned in the fabric at the beginning of a seam.



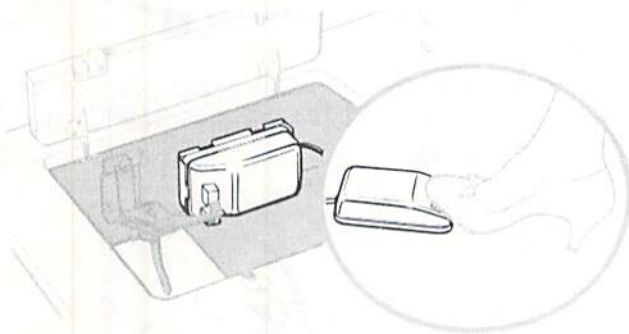
The **hand wheel** is located at the right of machine head and always turns *over toward* operator. It is used to bring the needle into correct position for beginning and ending a seam. A stitch is formed with each complete revolution of the hand wheel.

The **bobbin winder** is located on the right side of the machine head and is used to wind the bobbin. ▶



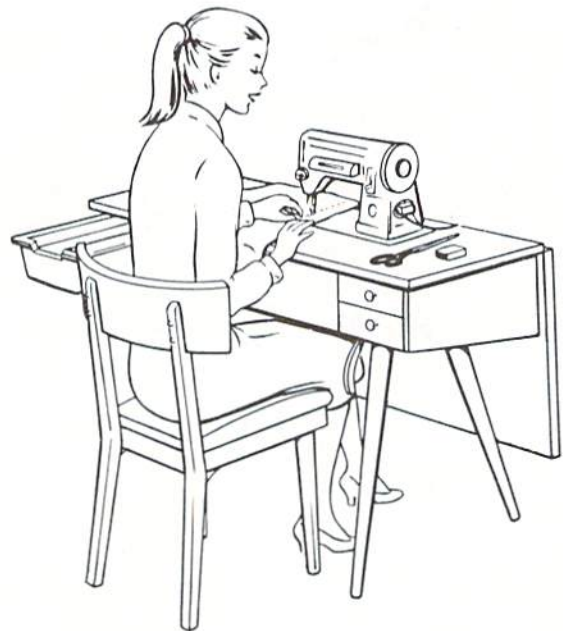
The **electric motor** drives the machine. In some SINGER machines, the motor drives the machine

by means of enclosed gears, while in other SINGER machines the motor has a belt drive.



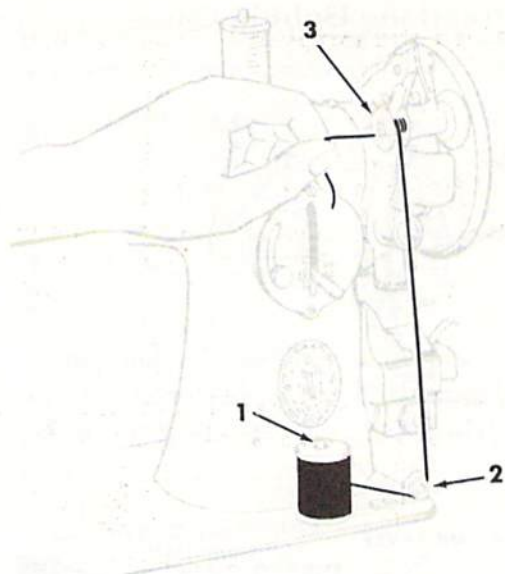
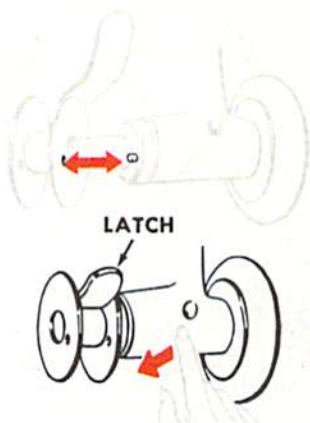
The **controller** regulates the speed of the machine and is activated by either the knee or foot.

Your posture at the machine has a direct influence ▶ on your comfort as well as your sewing results. Sit squarely in front of the machine, place feet flat on the floor with the left foot forward, and press the right knee against the knee lever.

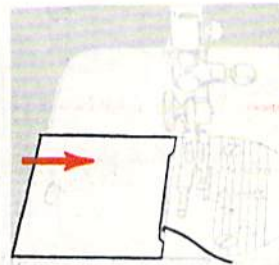
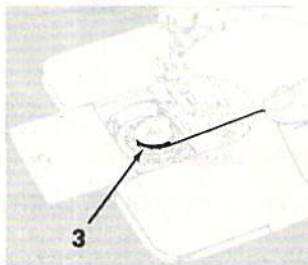
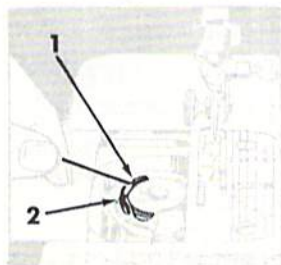
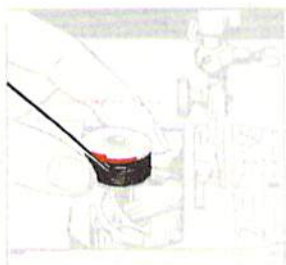


TO THREAD MACHINE 201

To Wind the Bobbin



To Thread the Bobbin Case



- Hold bobbin so that thread leads in direction shown.

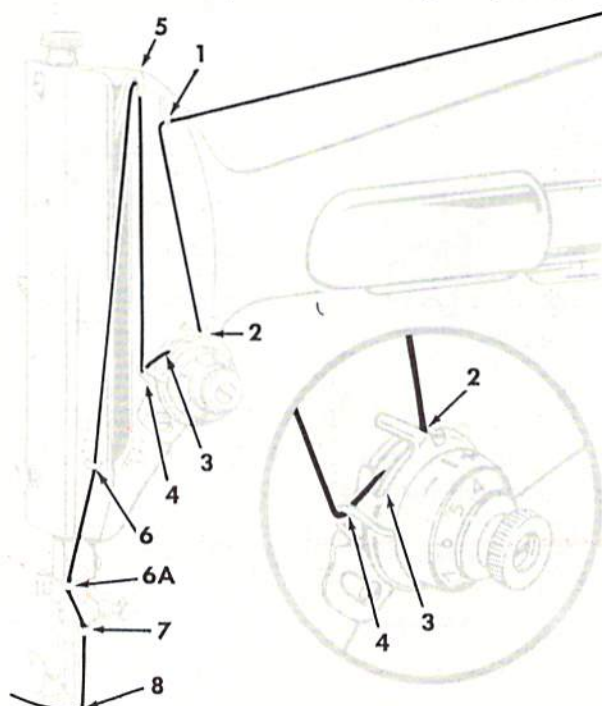
- Place bobbin in case.
- Lead thread into slot 1 and under spring 2.

- Draw thread into notch in bobbin case 3. Pull about 3 inches of thread across bobbin.

- Close slide plate allowing thread to enter long notch.

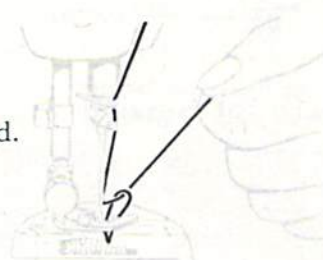
Upper Threading—MACHINE 201

- Raise take-up lever to its highest point.

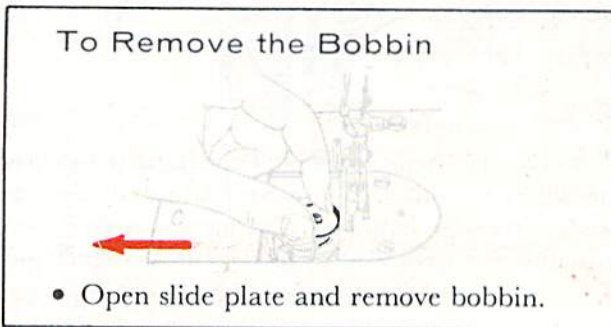


- Needle threads **right to left**.

- Draw up bobbin thread.



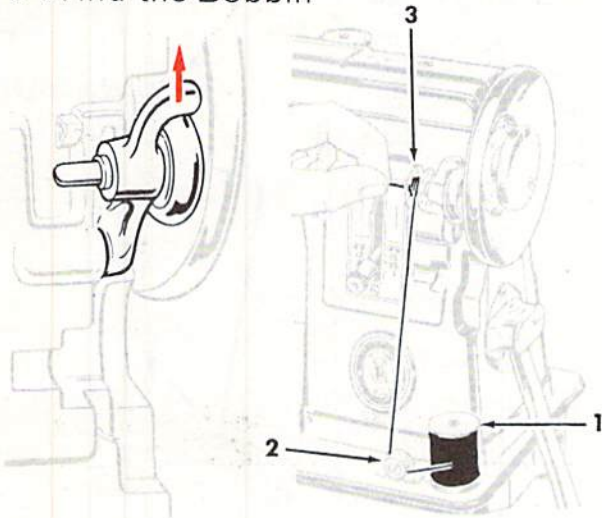
To Remove the Bobbin



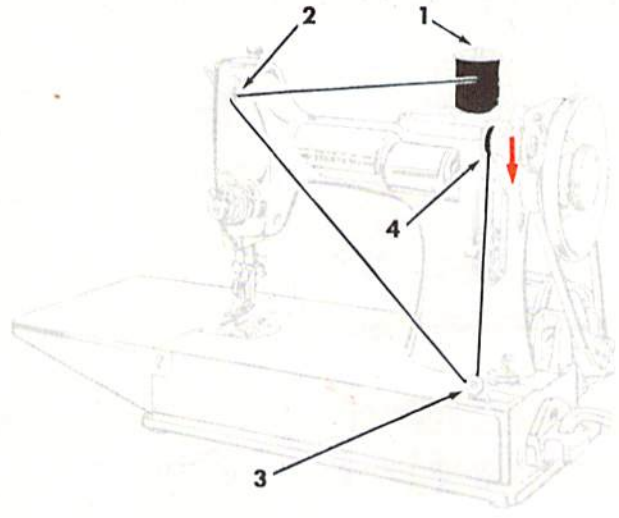
- Open slide plate and remove bobbin.

TO THREAD MACHINES 301 AND 221

To Wind the Bobbin

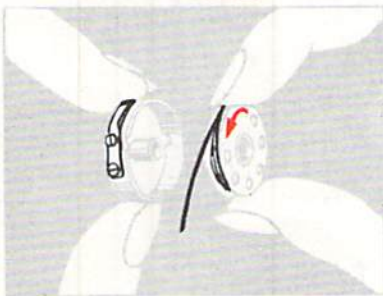


MACHINE 301

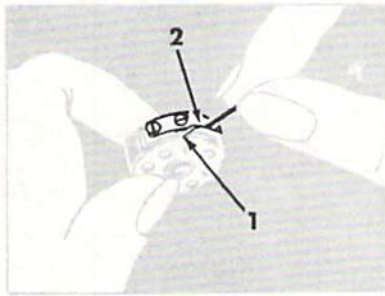


MACHINE 221

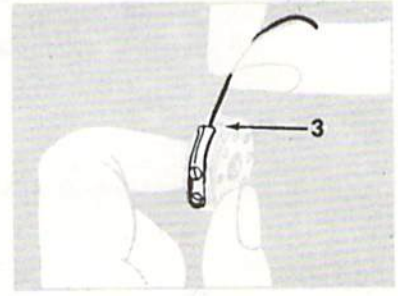
To Thread the Bobbin Case



- Hold bobbin so that thread leads in direction shown.
- Place bobbin in case.



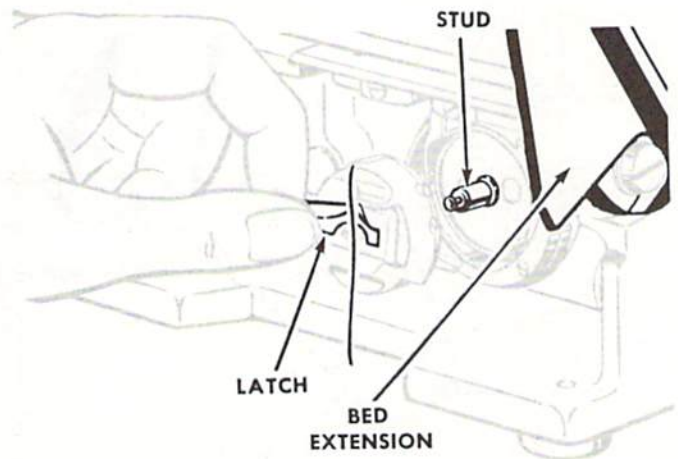
- Lead thread into slot 1 and under spring 2.



- Draw thread into notch in end of spring 3. Allow about three inches of thread to hang free from bobbin case.

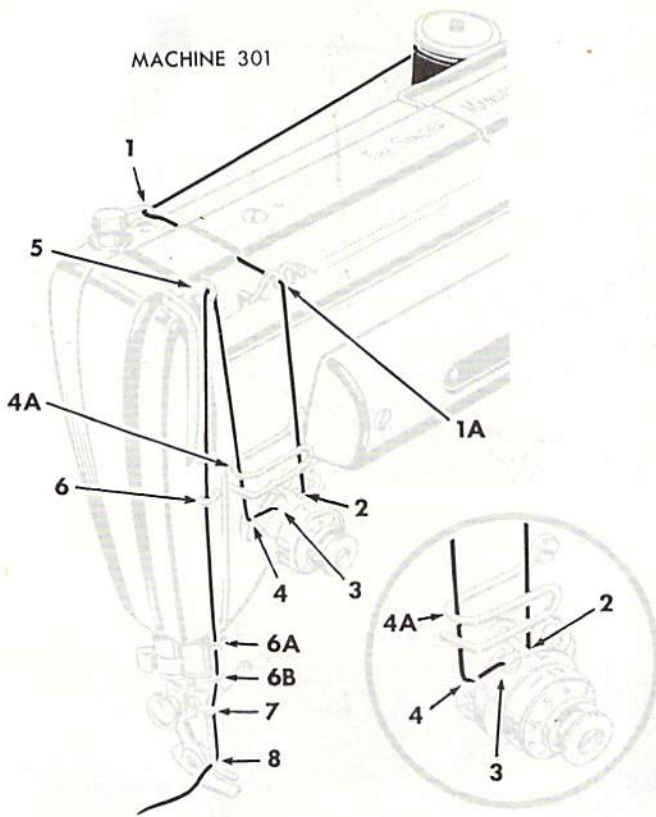
To Replace the Bobbin Case

- Raise take-up lever to its highest point.
- Raise bed extension.
- Hold latch and place bobbin case on stud.
- Release latch and push in bobbin case until it clicks.
- Turn bed extension down.

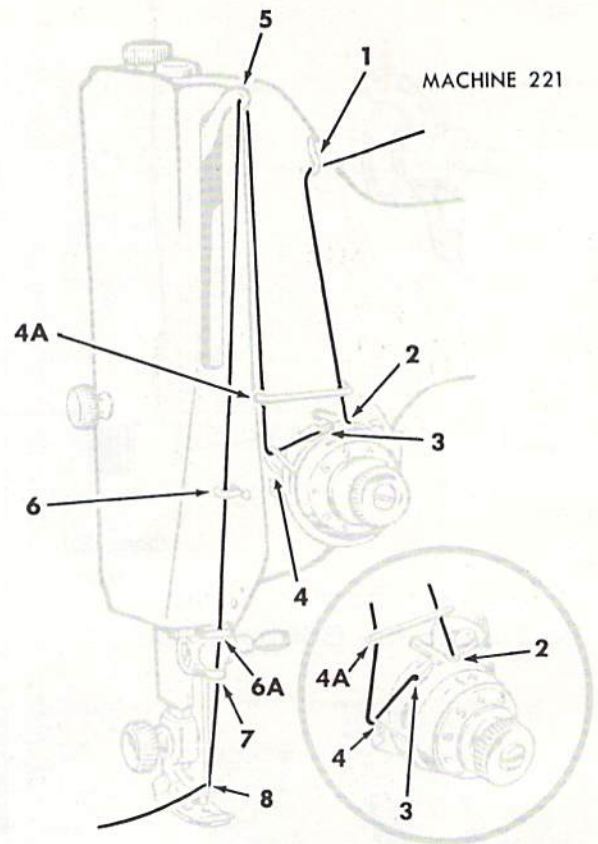


Upper Threading—MACHINES 301 AND 221

- Raise the take-up lever to its highest point.

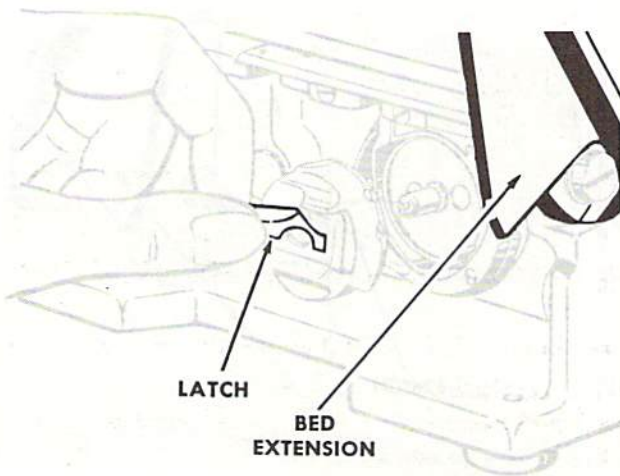
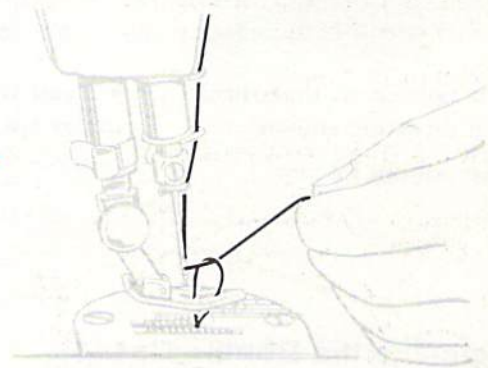


- Needle threads **right to left**.



- Needle threads **right to left**.

- Draw up bobbin thread. ▶

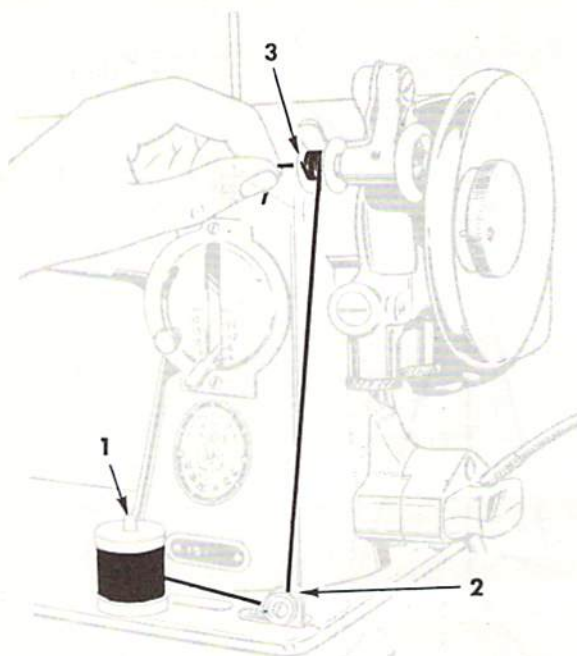
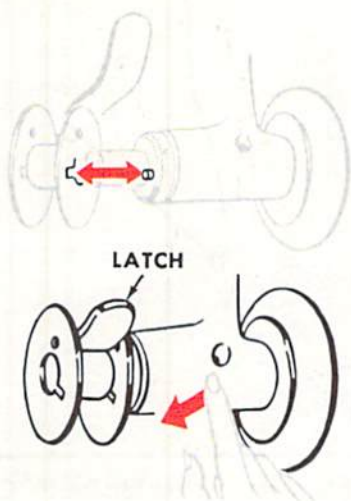


◀ To Remove the Bobbin Case

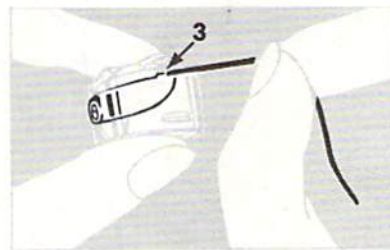
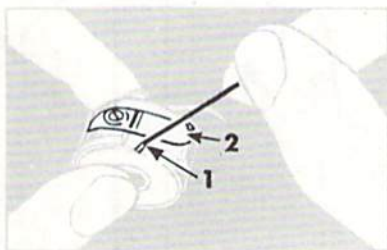
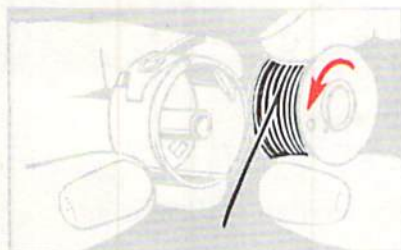
- Raise the take-up lever to its highest point.
- Raise bed extension.
- Grasp bobbin case latch and lift out bobbin case.
- Release latch and remove bobbin.

TO THREAD MACHINE 15-91

To Wind the Bobbin



To Thread the Bobbin Case

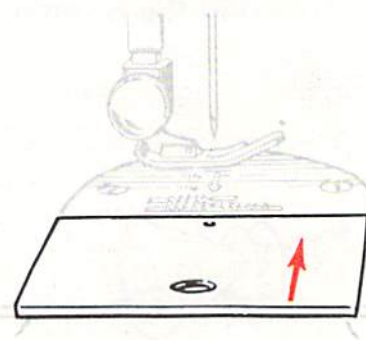
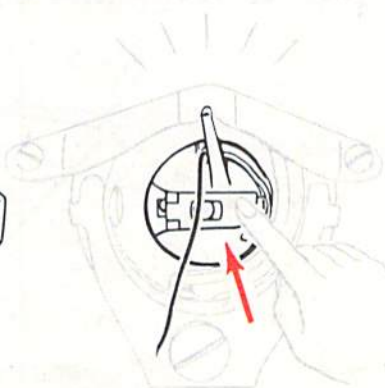
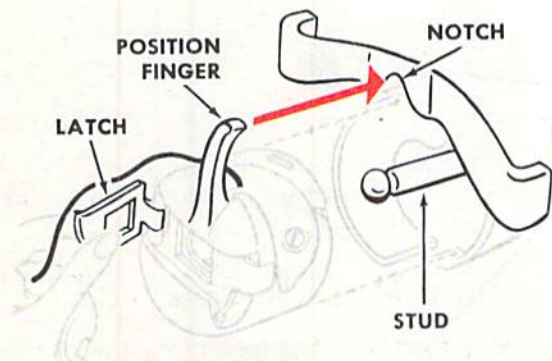


- Hold bobbin so that thread leads in direction shown.
- Place bobbin in case.

- Lead thread into slot 1 and under spring 2.

- Draw thread into notch in end of spring 3. Allow about three inches of thread to hang free from bobbin case.

To Replace the Bobbin Case



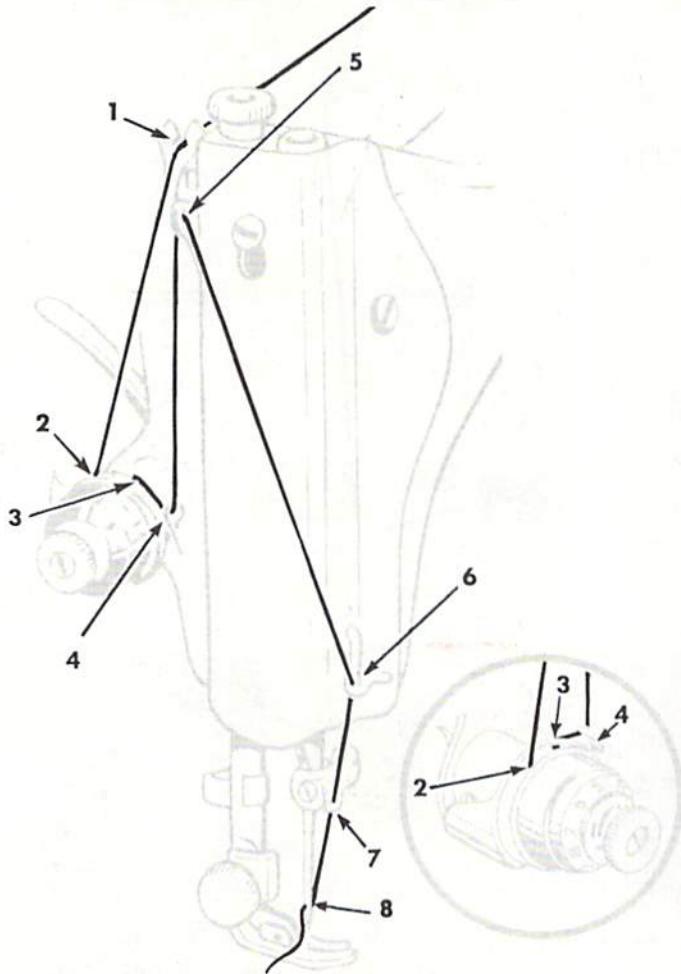
- Raise take-up lever to highest point.
- Hold latch and place bobbin case on stud with position finger entering notch at top of race.

- Release latch.
- Push in on bobbin case until it clicks.

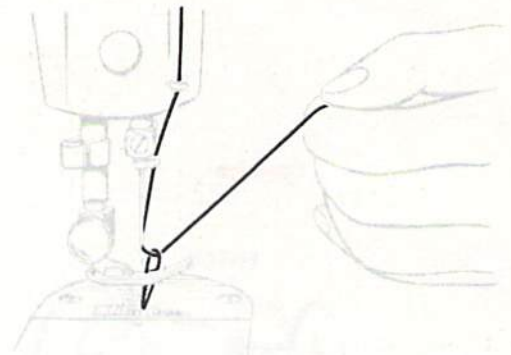
- Close slide.

Upper Threading—MACHINE 15-91

- Raise take-up lever to its highest point.

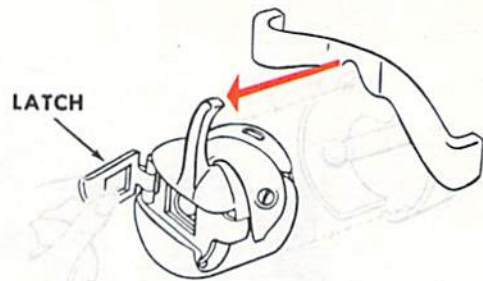


- Needle threads **right to left**.



- Draw up bobbin thread.

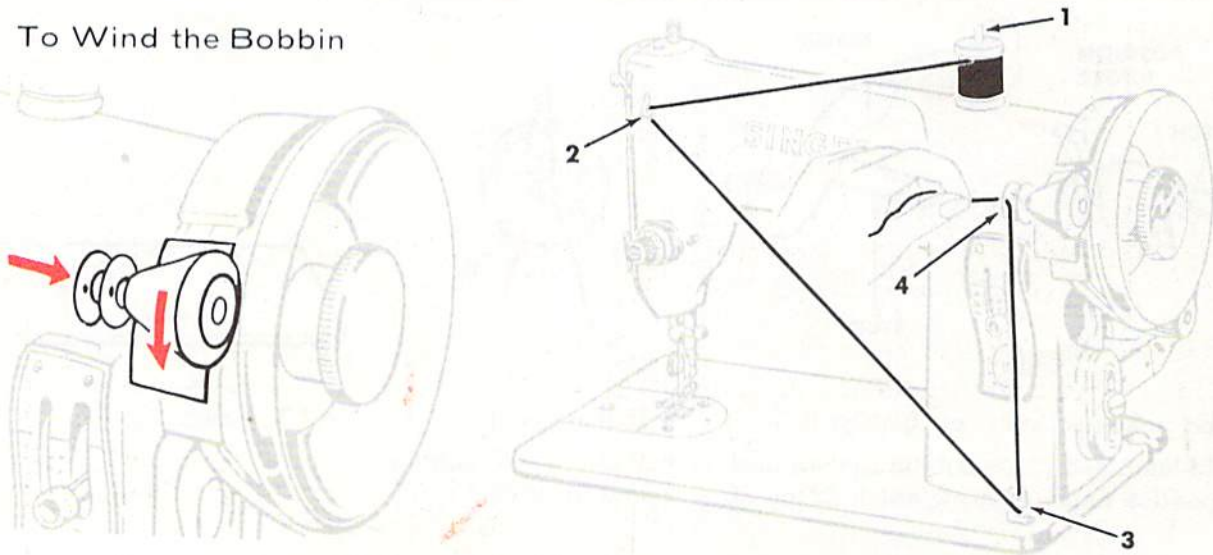
To Remove the Bobbin Case



- Raise take-up lever to highest point.
- Grasp bobbin case latch and lift out bobbin case.
- Release latch and remove bobbin.

TO THREAD MACHINES 66, 99 AND 185

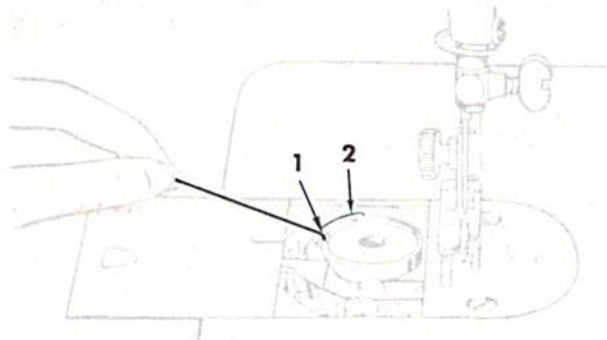
To Wind the Bobbin



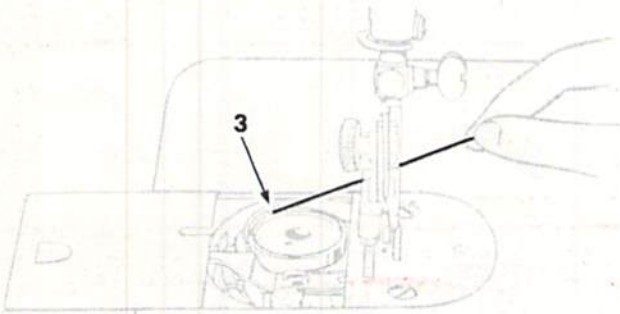
To Thread the Bobbin Case



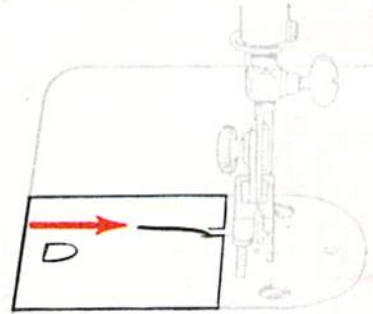
- Hold bobbin so that thread leads in direction shown.



- Place bobbin in bobbin case. Lead thread into slot 1 and under spring 2.



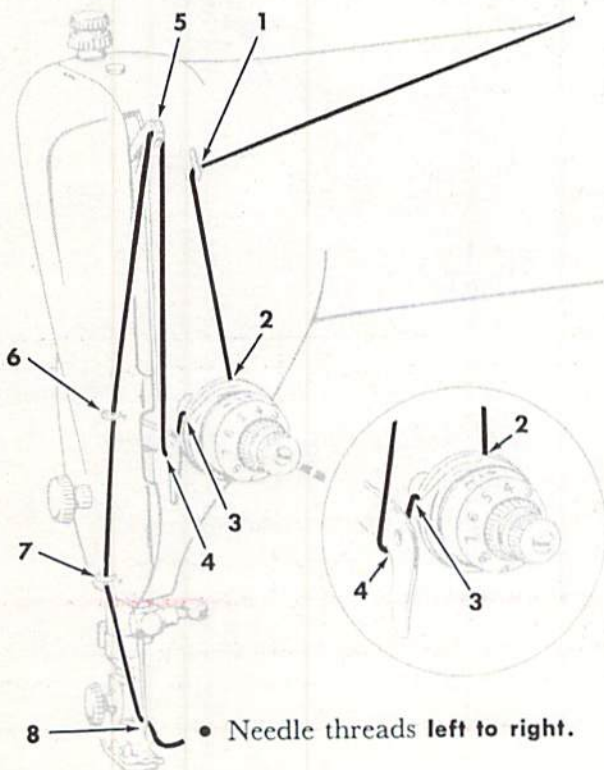
- Draw thread into notch in bobbin case 3. Pull about three inches of thread across the bobbin.



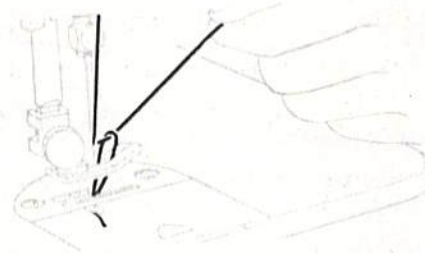
- Close slide plate allowing thread to enter notch.

Upper Threading—MACHINES 66, 99 AND 185

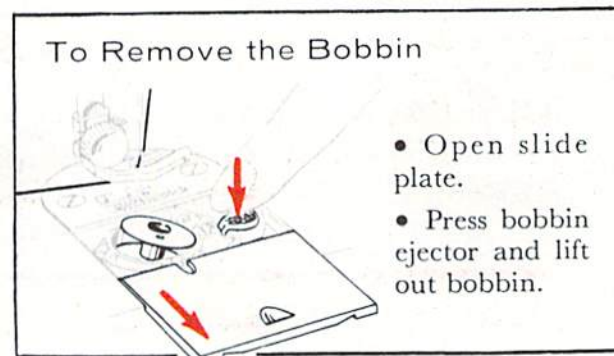
- Raise take-up lever to its highest point.



- Needle threads left to right.



- Draw up bobbin thread.

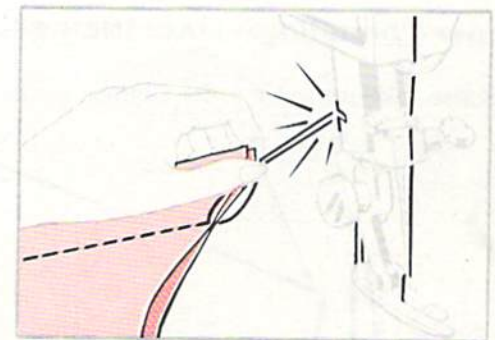
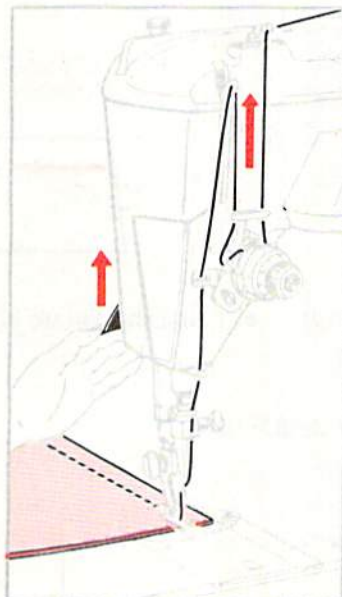
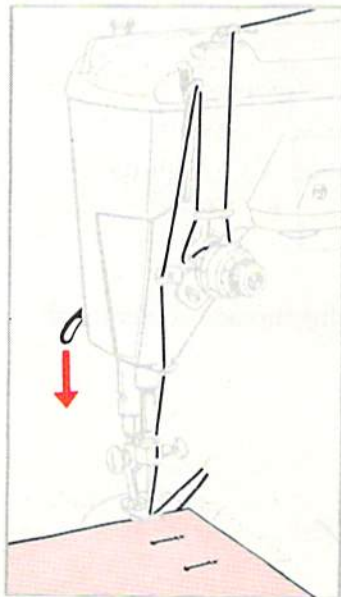
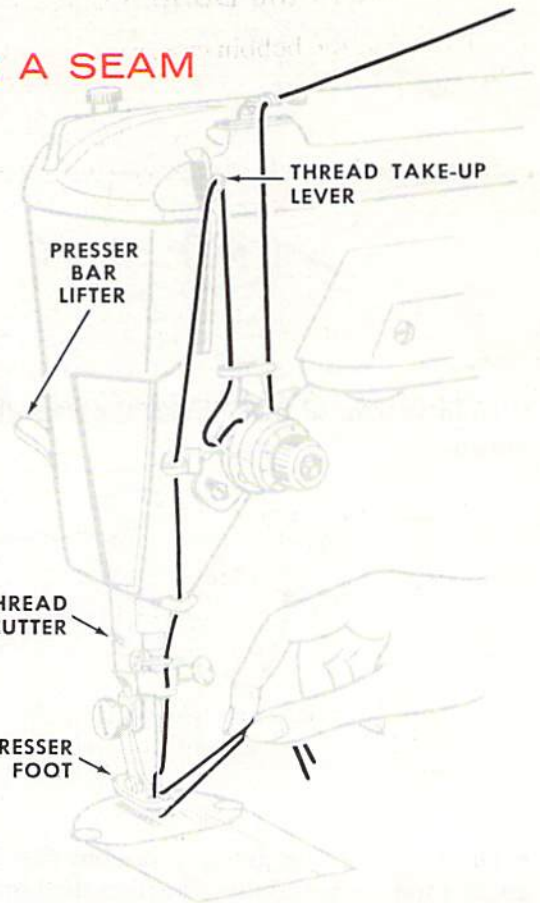


TO START AND END A SEAM

Successful stitching is closely related to the simple principles employed when starting and ending a seam. The steps should be observed in this sequence:

- Raise take-up lever to its highest point.
- Place both needle and bobbin threads diagonally under the presser foot.
- Place the fabric under the presser foot with the fabric to the left and the seam edge extending to the right.

Never operate the machine without fabric under the presser foot.

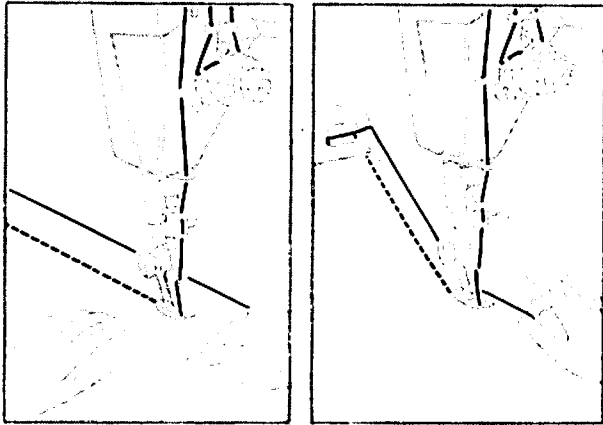


- Lower the needle into the fabric by turning the hand wheel over toward you.
- Lower the presser foot.
- Start stitching by pressing the knee or foot against the controller.
- Stitch to end of seam.
- Raise the take-up lever to its highest point by turning the hand wheel over toward you.
- Raise the presser foot.

- Remove the fabric by drawing to the back and left.
- Cut threads on the thread cutter.

This procedure should become so "automatic" that it is done without a thought. Although the establishment of such good practice requires deliberate attention in the beginning, it results in a more evenly controlled acceleration of the machine and in a perfectly formed and positioned first stitch. The evidence of such good handling of the sewing machine is revealed in the more exact assembling of seams, collars, facings, pockets and all intricate details of sewing.

TO GUIDE AND SUPPORT THE FABRIC



Most fabrics need only to be guided in front of the presser foot.

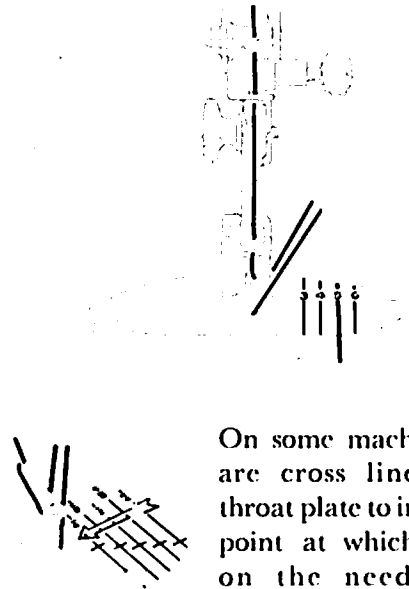
Fabrics of unusual texture and weave, filmy sheers, crepes, knits, tricots, etc., require support while being stitched.

For such fabrics, use a gentle tension on the seam by holding both in front and back of the presser foot as illustrated.

Never pull the fabric when sewing.

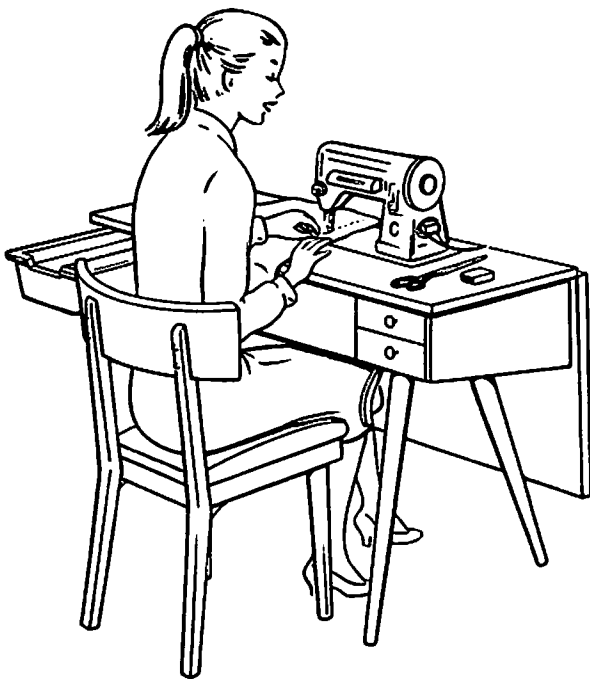
Seam Guide Lines

There are distinct markings on the throat plate to guide the edge of seams and hems. These markings are at $\frac{1}{8}$ inch intervals, and assist in guiding the fabric uniformly.



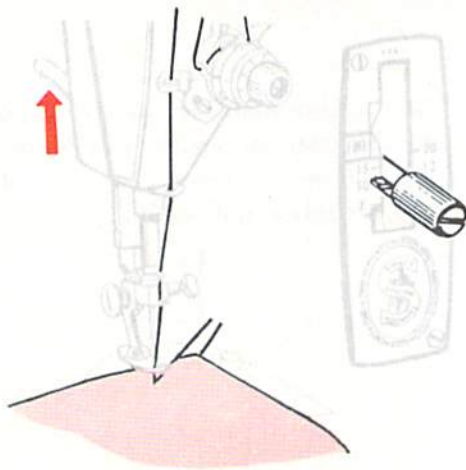
On some machines there are cross lines on the throat plate to indicate the point at which to pivot on the needle when turning square corners.

A review of important things to remember when sewing

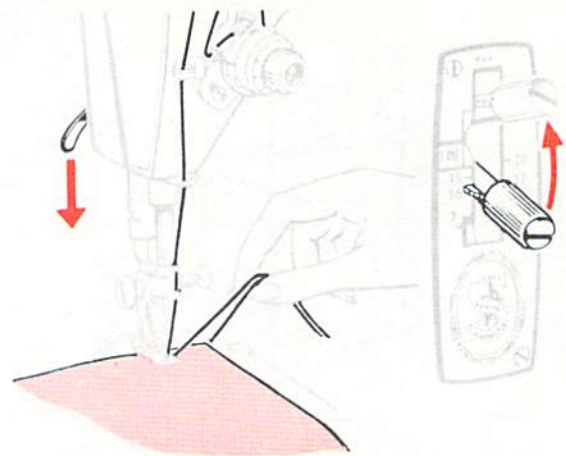


1. Correct posture when seated at the machine makes sewing a greater pleasure. Sit back on the chair, squarely in front of the needle. Do not slump your shoulders.
2. Place the feet flat on the floor, with one foot forward. To use the knee control, the left foot is forward. To use the foot control, the right foot is forward.
3. The bulk of the fabric should be to the left of the needle. The seam edge should be to the right of the needle.
4. Place your hands so that the fingers are guiding the fabric and the weight of the left arm is not resting on the fabric, causing an uneven feeding.
5. Gradually press on the knee or foot control until a slow, even speed is obtained. Skillful machine operation is reflected in your ability to sew at a slow rhythmic speed.
6. Never try to sew too fast. High speed is used only when stitching long straight seams.

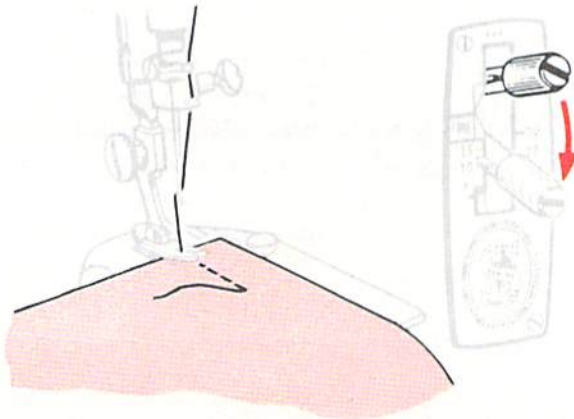
TO REINFORCE SEAMS WITH BACK STITCHING



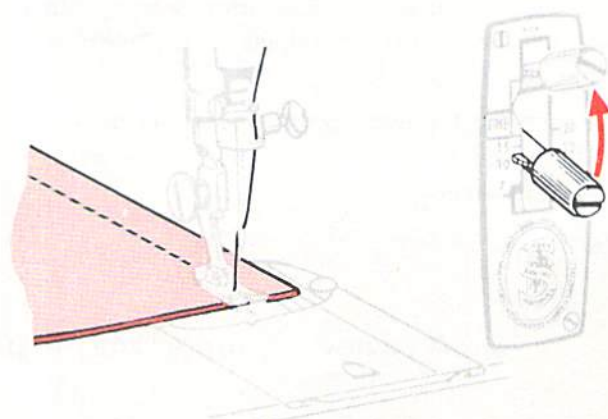
- Set stitch regulator for desired stitch length.
- Position needle into fabric about ½ inch from edge and seam width from right.



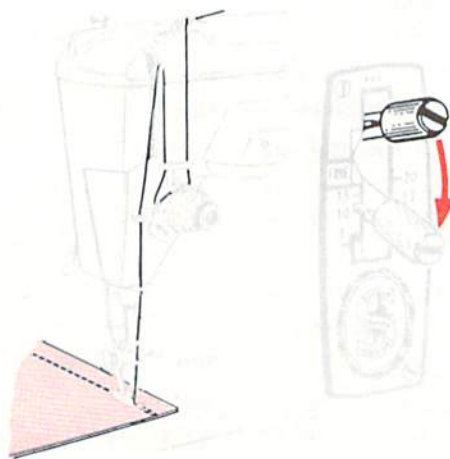
- Lower presser foot.
- Raise stitch regulator to reverse.



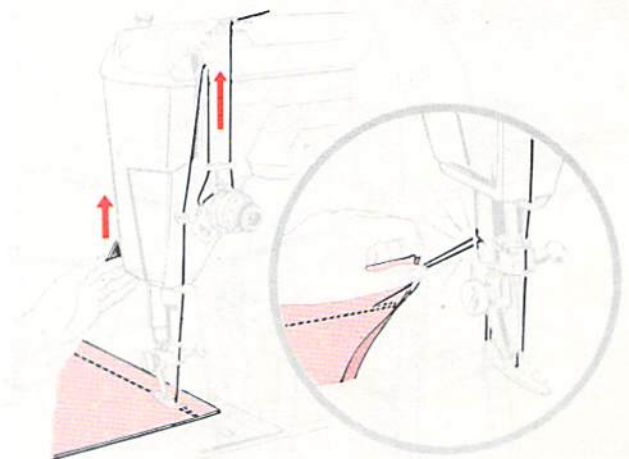
- Back stitch to edge of fabric for reinforcement.
- Lower stitch regulator.



- Stitch to end of seam.
- Raise stitch regulator.

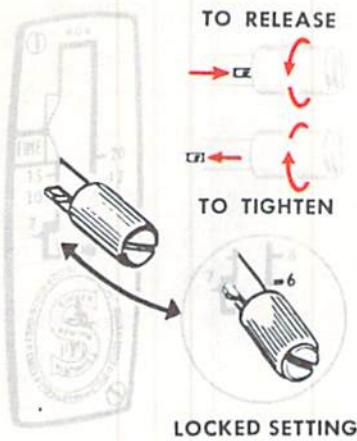


- Back stitch to reinforce end of seam.
- Lower stitch regulator to forward stitching position.



- With take-up lever at its highest point, raise presser foot, draw fabric back and cut threads on thread cutter.

TO REGULATE THE STITCH LENGTH ON MACHINES OF THE 400 SERIES



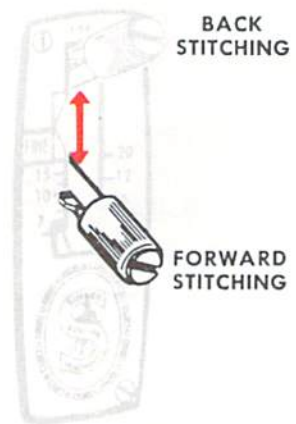
Numerals on stitch indicator plate represent approximate number of stitches per inch.

The fine area of the indicator plate represents stitch lengths above 20.

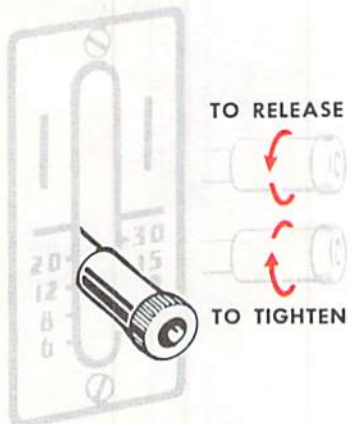
The lower indented area of the indicator allows the #6 stitch length setting to be "locked" in place when stitching folds, pleats, multiple layers of heavy fabric or when machine basting.

To set stitch length —

- Release pointer by turning thumb nut on stitch regulator lever to the left.
- Position lever for desired stitch length.
- Tighten pointer against plate by turning thumb nut to the right.



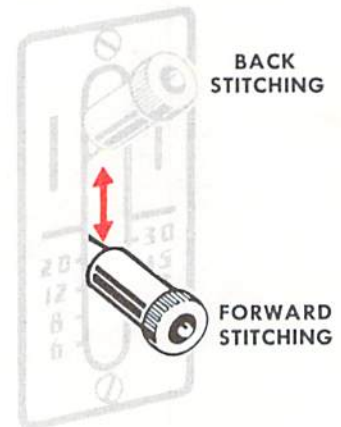
TO REGULATE THE STITCH LENGTH ON MACHINE 301



The machine can be regulated to make from approximately 6 to 30 stitches per inch as indicated by numerals on stitch indicator plate.

To set stitch length —

- Turn thumb nut on stitch regulator lever to the left.
- Position lever for desired stitch length.
- Turn thumb nut to the right **only** until it touches stitch indicator plate.



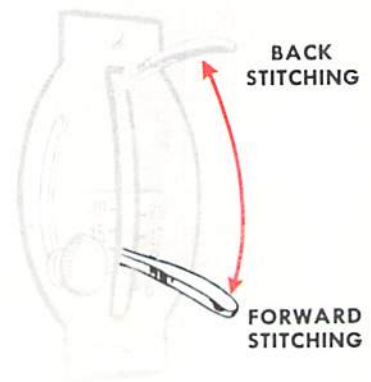
TO REGULATE THE STITCH LENGTH ON MACHINES 201 AND 15-91



The machine can be regulated to make from approximately 6 to 30 stitches per inch as indicated by numerals on stitch indicator plate.

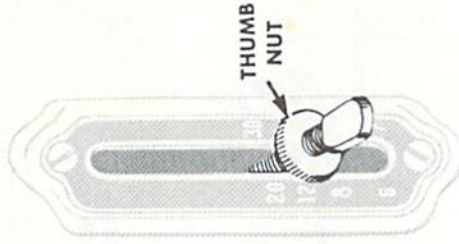
To set stitch length —

- Loosen thumb screw and move to bottom of slot.
- Move stitch regulator lever until its upper side is at desired stitch length.
- Move screw up until regulating plate (inside) touches lever.
- Tighten thumb screw.



TO REGULATE THE STITCH LENGTH ON MACHINE 221

The machine can be regulated to make from approximately 6 to 30 stitches per inch as indicated by numerals on stitch indicator plate.



BACK
STITCHING

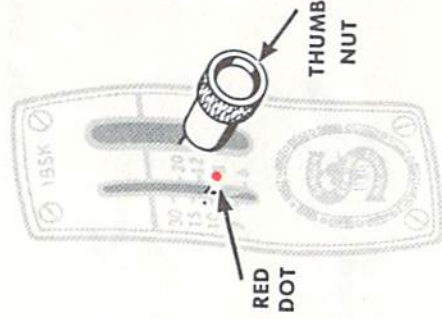
FORWARD
STITCHING

To set stitch length —

- Turn thumb nut on stitch regulator lever to the left.
- Position lever for desired stitch length.
- Turn thumb nut to the right until it rests against indicator plate.

TO REGULATE THE STITCH LENGTH ON MACHINE 185

The machine can be regulated to make from approximately 6 to 30 stitches per inch as indicated by numerals on stitch indicator plate.



BACK
STITCHING

FORWARD
STITCHING

To set stitch length —

- Turn thumb nut on stitch regulator lever to the left.
- Move lever until “red dot” is at desired stitch setting.
- Turn thumb nut to the right until it rests against indicator plate.

TO REGULATE STITCH LENGTH ON MACHINES 66 AND 99

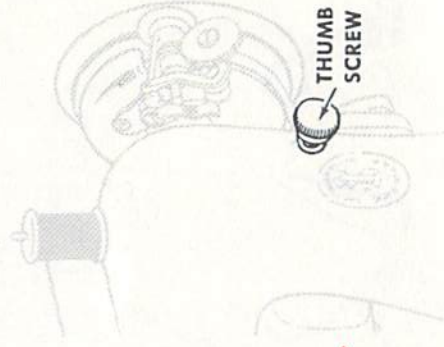


◀ The machines can be regulated to make from approximately 6 to 25 or more stitches per inch, as indicated by the numerals on stitch indicator plate.

To set stitch length —

- Move stitch regulator lever until its upper side is at desired stitch length.

The stitch length on some of the early types of SINGER machines is regulated by turning the thumb screw to the right to lengthen the stitch and to the left to shorten it.



IMPORTANCE OF THE CORRECT NEEDLE AND THREAD

The needle is selected with consideration for both the thread and the fabric. The eye of the needle must be large enough for the thread to pass through it freely. The needle must be fine enough not to mar the fabric with a large

puncture, yet heavy enough to pierce the fabric without being bent or deflected. The Fabric, Thread and Needle Chart is a practical guide to needle selection.

Be sure to use like threads for both needle and bobbin.

FABRIC, THREAD, NEEDLE AND STITCH LENGTH CHART

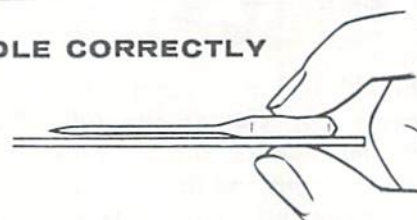
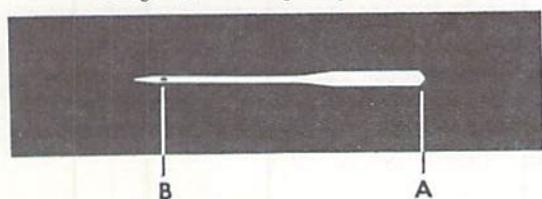
TYPES OF FABRICS	THREAD SIZES	NEEDLE SIZES	MACHINE STITCH SETTINGS FOR STRAIGHT SEWING	
			INSIDE SEAMS	TOP STITCHING
Filmy materials comparable to Net, Marquisette, Chiffon, Silk and Chiffon Velvets, Voiles, Ninon	50 Embroidery 100 Cotton Synthetic Thread	9	15 to 20	15 to 20
Sheer materials comparable to Lawn, Dimity, Synthetic Sheers, Paper Taffetas, Pure Silks, Gossamer Silks, Silk or Synthetic Tricots, Synthetic Velvets, Satins	50 Embroidery 80 to 100 Cotton A Silk Synthetic Thread	11	12 to 15	15 to 20
Lightweight materials comparable to Gingham, Chambray, Pique, Poplin, Percalé, Cretonne, Chintz, Faille, Bengaline, Wool Flannel, Wool Jersey, Wool Crepe, Cotton Velvets and Velveteens, Lightweight Suitings	50 Mercerized 60 to 80 Cotton A Silk	14 or 16	12	15 to 18
Medium heavy materials comparable to Corduroy, Crash, Gabardine, Rep, Heavy Suitings and Coatings	Heavy Duty Mer. 40 to 60 Cotton Synthetic Thread	16	10	12
Heavy materials comparable to Sailcloth, Denim, Ticking, Overcoatings	30 to 40 Cotton Thread	18	8	10
Plastic Materials	50 Embroidery Synthetic Thread 50 Mercerized	11 or 14	10	12

SELECTION OF NEEDLE AND SETTING NEEDLE CORRECTLY

Selecting the Needle

It is essential that the **distance from the top of the needle to the top of the eye** be correct, but the distance from the eye to the point may vary slightly. To test the length of the needle lay it over the illustration below with the top of the needle just touching line **A**. The top of the eye should be directly above line **B**.

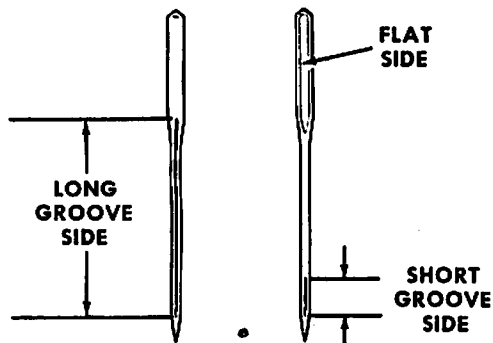
Gauge for Checking Length of Needle



Testing a Needle for Straightness

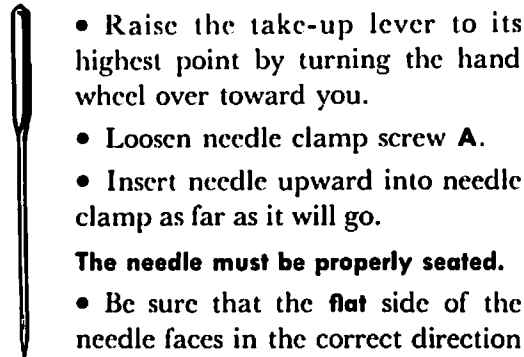
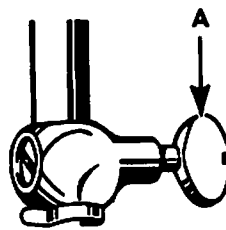
A straight needle can be determined by placing the flat side of the needle on the slide plate of the machine or any other perfectly flat solid surface. Hold the needle flat against the plate and hold the plate up to the light as shown. A straight needle will show an even amount of light under it and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

To Set the Needle Correctly



Flat and Grooved Sides of Needle (Enlarged)

The flat side of the needle has a short groove at the eye while the other side has a long groove. The long groove of the needle must always face the side from which the machine is to be threaded. On all machines, the thread must lie in this long groove when sewing. If the needle is not placed correctly in the machine, it will not sew.

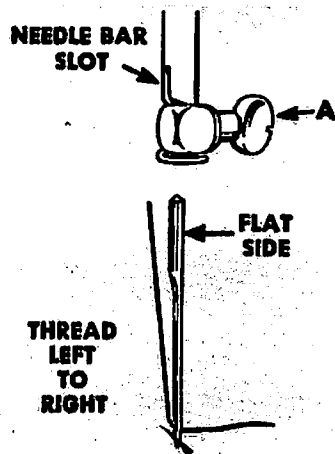


- Raise the take-up lever to its highest point by turning the hand wheel over toward you.
- Loosen needle clamp screw **A**.
- Insert needle upward into needle clamp as far as it will go.

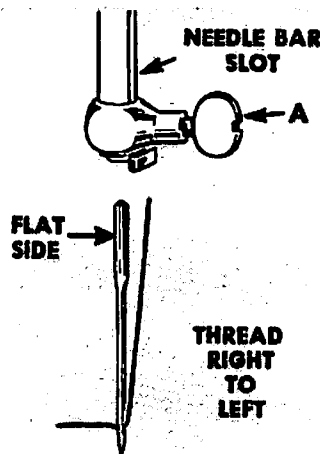
The needle must be properly seated.

- Be sure that the **flat** side of the needle faces in the correct direction which can be determined as follows:

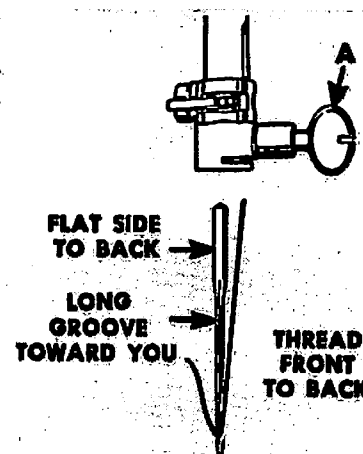
ALL MACHINES THREAD FROM THE LONG GROOVE SIDE OF THE NEEDLE



On all machines having the **needle bar slot at the left**, the **flat side** of needle must face the **right** and needle must be threaded from **left to right** (from long groove side). This applies to Machines 15-30, 15-86, 15-87, 15-96, 15-98, 66, 99, 101, 127, 128 and 185.



On all machines having the **needle bar slot at the right**, the **flat side** of needle must face the **left** and needle must be threaded from **right to left** (from long groove side). This applies to Machines 15-88, 15-89, 15-90, 15-91, 15-125, 191, 201, 221 and 301.



On machines of the 400 Series, the **flat side** of the needle must face the **back** with long groove side toward you. The needle must be threaded from **front to back** (from long groove side).

- After needle has been inserted correctly, tighten needle clamp screw **A**.

For perfect stitching, select correct needle and thread to correspond with the fabric according to the table on Page 21. Be sure to use like threads for both needle and bobbin.

Most SINGER family machines use a 15 x 1 needle (catalog No. 2020) with the exception of Machines 206, 306 and 319 which use a 206 x 13 needle (catalog No. 2029).

SEWING SUGGESTIONS

BREAKING OF NEEDLE MIGHT

BE CAUSED BY:

1. Improper size of needle for thread and material.
2. Needle bent.
3. Pulling of material when stitching.
4. Needle striking improperly fastened presser foot or attachments.
5. Crossing too thick a seam with too small a needle.

BREAKING OF NEEDLE THREAD

MIGHT BE CAUSED BY:

1. A knot in needle thread.
2. Improper threading.
3. Upper tension too tight.
4. Needle not inserted in needle clamp as far as it will go.
5. Needle blunt or bent.
6. Needle in backwards.
7. Thread too coarse for needle.
8. Roughened hole in throat plate.
9. Improper arrangement of thread when starting to sew.

BREAKING OF BOBBIN THREAD

MIGHT BE CAUSED BY:

1. Improper threading of bobbin case.

2. Bobbin thread tension too tight.
3. A knot in bobbin thread.

SKIPPING OF STITCHES MIGHT

BE CAUSED BY:

1. Needle not inserted in needle clamp as far as it will go.
2. Needle in backwards.
3. Needle threaded incorrectly. Thread from long groove side to short groove side.
4. Needle blunt or bent.
5. Needle too small for thread.
6. Needle too short.

PUCKERED SEAMS MIGHT

BE CAUSED BY:

1. Tension too tight.
2. Stitch too long for material being sewn.
3. Wrong presser foot. Use only the presser foot provided for each particular machine, as they are, in some cases, not interchangeable.

If machine runs heavily, clean and oil it.

True or False Quiz

1. Your posture at the machine is important when sewing.
True_____ False_____
2. The take-up lever should be at its highest point when preparing to sew.
True_____ False_____
3. All needles are threaded in the same direction.
True_____ False_____
4. The needle should be positioned in the fabric before lowering the presser bar.
True_____ False_____
5. It is necessary to draw up the bobbin thread before sewing.
True_____ False_____
6. It is important to select the correct size needle for the thread used.
True_____ False_____
7. All bobbin cases are interchangeable.
True_____ False_____
8. Not all machines are alike.
True_____ False_____
9. Not all motors are alike.
True_____ False_____
10. Back stitching should be done at the beginning and end of a seam.
True_____ False_____
11. All bobbin cases are threaded the same.
True_____ False_____
12. All needles should be inserted with the flat side to the right.
True_____ False_____
13. A short stitch should be used on sheer fabrics.
True_____ False_____
14. Threading for winding a bobbin is the same for all machines.
True_____ False_____
15. It is necessary to guide or support the fabric while sewing.
True_____ False_____

In your education, one aim is to prepare yourself for a future career. Whether it is in the business world or making a home, the field of home sewing is a useful art.

Success in sewing depends greatly on the ability to use the machine to the fullest extent. The knowledge gained through the study of this Manual will be useful to you throughout the years.