

*Instructions for using*

**SINGER**

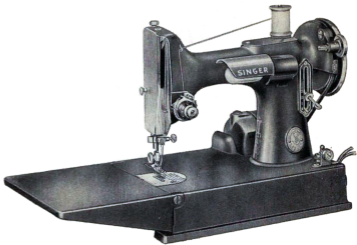
ELECTRIC SEWING MACHINE *Model 221*



THE SINGER MANUFACTURING COMPANY



*Instructions for using*



FEATHERWEIGHT\*

PORTABLE SEWING MACHINE

*Model 221*

The FEATHERWEIGHT Portable 221 is another in a long line of products resulting from the matchless skill and engineering ability of SINGER craftsmen.

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## WHEN YOU OWN A FEATHERWEIGHT<sup>®</sup> PORTABLE

You own a machine with a tradition of superior craftsmanship—a tradition you will recognize in the smooth, efficient operation of this light-weight machine. Operating either forward or backward with full rotary motion, it forms a perfect lock stitch. The machine and the foot-operated speed control are stored in a convenient carrying case with extra room for sewing accessories.



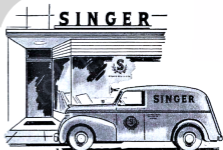
## TO GET THE MOST ENJOYMENT FROM YOUR SINGER

You are entitled to sewing lessons when you become the owner of a new SINGER. A skilled, SINGER-trained teacher personally guides you and assists you in learning the fundamentals of home sewing. Other courses embracing all phases of home sewing are available at low cost.



## SINGER\* SERVICE

Wherever you go you will find expert, dependable SINGER Service nearby. SINGER is interested in helping you keep your SINGER Sewing Machine in top condition. That's why it makes sense to call your SINGER Representative if your machine ever requires attention. He will submit a written estimate for your approval. Look for the familiar Red "S" on your SINGER SEWING CENTER and the handy SINGER Service Car.



## EVERYTHING FOR THE WOMAN WHO SEWS



The answer to your sewing needs is at your SINGER SEWING CENTER. There you will find a wide choice of patterns, buttons and thread, as well as Finishing Services such as covering buttons, hemstitching, making belts and buckles, to mention a few. Look under Singer Sewing Machine Co. in your telephone directory for the SINGER SEWING CENTER nearest you.

## MOTOR CAN BE OPERATED ON EITHER ALTERNATING CURRENT OR DIRECT CURRENT

The electric motor, which is located at the back of the machine, can be operated on either alternating current or direct current as desired. The standard windings of the motor are for operation on alternating current of 115-125 volts,

25 to 75 cycles, or on 115-125 volts direct current.

Motors for 32 volts direct current, and for 50 volts alternating current and direct current, have also been developed and are available on special request.

## TO CONNECT THE MACHINE TO ELECTRIC SERVICE LINE

Slide the foot controller **D**, Fig. 7, page 7 to the right out of its holder in the lid of the carrying case and unwind the electric cord furnished with the machine. Push the terminal plug at one end

of the electric cord as far as it will go on the three-pin terminal block at the right of the machine. Attach the plug at the other end of the cord to the nearest electric outlet.

Place the foot controller in a convenient position on the floor and the machine is ready for operation.

**CAUTION**

When you have finished your sewing, always disconnect the plug from the electric outlet.



*Fig. 2. Machine 221-1 on Table 312*



## LIGHT

To turn light "on" or "off", a switch is conveniently located at front of machine as shown at D, Fig. 9, page 9.

**To remove lamp.** Do not attempt to unscrew lamp. Press it into socket and at same time turn it over in direction shown in Fig. 5 to unlock pin A. Then withdraw lamp.

**To replace lamp.** Press new lamp into socket with pin A, Fig. 4 entering

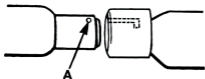


Fig. 4

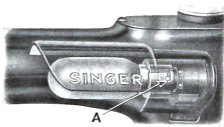


Fig. 3. Replacing the Lamp

slot of socket and turn it over in direction shown in Fig. 5 to lock pin A in position.

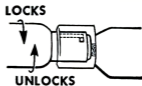
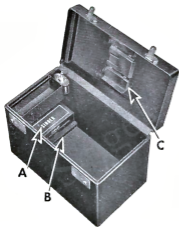


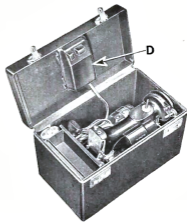
Fig. 5

## TO PACK UP THE OUTFIT

Place box of attachments **A** at the left of cleat **B** at bottom of carrying case, as shown in Fig. 6. Place machine in case with hand wheel at right and base of



*Fig. 6. Attachment Box in Carrying Case*



*Fig. 7. Machine and Foot Controller in Carrying Case*

machine at right of cleat **B**. Slide controller **D** from right to left into its holder **C** inside lid of case and place electric cord in case at rear of machine, as shown in Fig. 7.

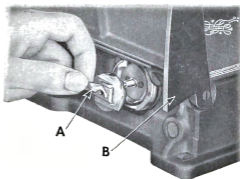
## TO REMOVE THE BOBBIN

Raise thread take-up lever 6, Fig. 15, page 13, to its highest position.

Raise bed extension B, Fig. 8.

Grasp bobbin case latch A, Fig. 8, and withdraw bobbin case.

Release latch and bobbin will drop out.



*Fig. 8. Removing the Bobbin Case*

## TO WIND THE BOBBIN

To stop motion of needle, hold hand wheel A, Fig. 9, page 9 and loosen knurled screw B, by turning it toward you.

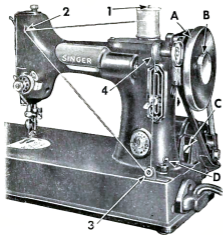
Place bobbin on bobbin winder spindle as far as it will go.

Press the bobbin winder pulley down against the belt.

Place spool of thread on spool pin 1.

Lead thread into thread guide 2, then under and between the tension discs 3

on the bed and through one of the holes in the left side of the bobbin 4 from the inside.



*Fig. 9. Winding the Bobbin*

Hold end of the thread and press the foot controller pedal as for sewing.

End of thread must be held until it breaks off.

Allow tension discs to control flow of thread so that it winds on the bobbin in uniform, level rows.

Stop winding the thread just before it reaches the rim of the bobbin. Pull the bobbin winder away from the belt. Remove the bobbin from the spindle.

Tighten knurled screw **B**.

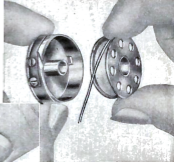
If bobbin does not wind evenly, loosen screw which holds bobbin winder tension bracket **3**, **Fig. 9** in position. Move bracket to the left if bobbin winds high on the right; move bracket to the right if bobbin winds high on the left. When bracket is properly centered, thread will wind evenly across bobbin. Tighten tension bracket screw.

## TO THREAD THE BOBBIN CASE

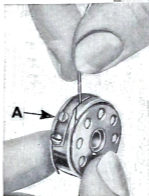
Hold bobbin between thumb and forefinger of right hand, with thread on top drawing from right to left, as shown in Fig. 10.

With left hand hold bobbin case as shown in Fig. 10, slot in edge at the top. Place bobbin into bobbin case.

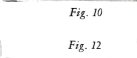
Then pull thread into slot as shown in Fig. 11, and under tension spring into slot at end of tension spring as shown in Fig. 12.



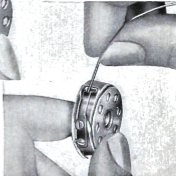
*Fig. 10*



*Fig. 11*



*Fig. 12*



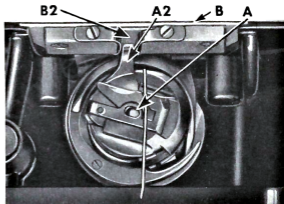
## TO REPLACE THE BOBBIN CASE

Hold bobbin case by latch with thread extending from top of bobbin case over hand.

Place the bobbin case on the center stud **A**, Fig. 13.

Release the latch and press the bobbin case back until the latch catches the groove near the end of the stud. Allow about three inches of thread to hang free from the bobbin case and turn down the bed extension.

**CAUTION**—If throat plate **B**, Fig. 13 is removed for cleaning the stitch-forming mechanism, etc., **make certain** when replacing the throat plate, that the position finger **A2**, Fig. 13 of the



*Fig. 13. Bobbin Case Threaded and Replaced*

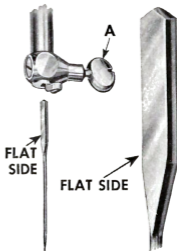
bobbin case base enters the notch **B2**, Fig. 13 of the position plate attached to the underside of the throat plate.

## TO SET THE NEEDLE

For perfect stitching, thread should be selected according to fabric to be stitched. Needle must be correct in size for thread which must pass freely through eye of needle. Select correct needle according to chart on page 29.

Be sure that needle is not blunt or bent. Raise needle bar to its highest position and loosen thumb screw **A**, in needle clamp.

Insert needle with its flat side to left into needle clamp as far as it will go. Then tighten thumb screw **A**.



*Fig. 14. Positioning of Needle in Needle Clamp*

## UPPER THREADING

Raise take-up lever 6 to its highest position.

Place spool of thread on spool pin

Lead thread into thread guide 1

Down, under and from right to left between tension discs 2

Hold spool tightly and pull thread up against take-up spring 4 until it enters retaining fork 3

Pass thread up and back of thread guide 5

From right to left through hole in take-up lever 6

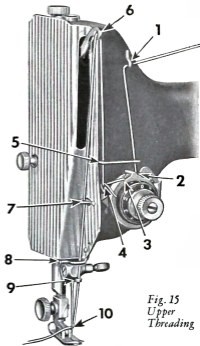
Down through eyelet 7

Into wire thread guide 8

Into guide 9 in needle clamp

From **right to left** through eye of needle.

Draw about two inches of thread through eye of needle.



*Fig. 15  
Upper  
Threading*



## TO PREPARE FOR SEWING

Hold end of needle thread with left hand and turn hand wheel over toward you until needle moves down and up again to its highest point.

Pull up needle thread and bobbin thread will come up with it, as shown in Fig. 16. Lay both threads back under presser foot, diagonally across feed, as shown in Fig. 17, to right or left, depending upon which side of needle material is to be located, so that when presser foot is lowered, threads will be held firmly between feed and presser foot.



NOTE: Distinct markings on throat plate are to guide edges of seams and hems. These markings, at  $\frac{1}{8}$ " intervals from  $\frac{1}{4}$ " to  $\frac{3}{4}$ " in distance from right of needle, assist in guiding fabric uniformly. Crosslines on throat plate indicate when the needle has reached the pivot point when turning square corners.

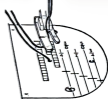


Fig. 17

## TO START SEWING

Be sure to have thread take-up lever 6, Fig. 15, page 13 at its highest point.

Place material beneath presser foot B, Fig. 18, page 15. Turn hand wheel to bring point of needle into fabric and then lower the presser foot. Press con-

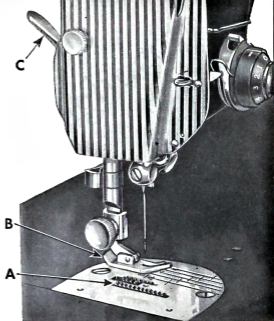
Fig. 16. Drawing up Bobbin Thread

troller pedal to start machine. The speed depends upon amount of pressure on controller pedal.

Most materials require only guiding for best results. However, the miracle fabrics such as nylons, dacrons, orlons, blends with various rayons, puffed weaves, sheers, jerseys and tricots, which, by their nature, require light pressure, also require support in the form of holding the material taut at the back and front of the needle as the needle enters the fabric. This support assures a smooth even seam.

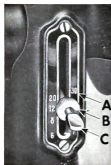
Never pull the material when sewing.

When sewing thick material, or if machine stops when sewing across a thick seam, turn the hand wheel over toward you to start the machine.



*Fig. 18. Front View of the Machine*

## TO REGULATE THE LENGTH OF STITCH



*Fig. 19*

The machine makes from 6 to 30 stitches to the inch, as indicated by the numerals on the stitch indicator plate **A**, **Fig. 19**. The approximate number of stitches to the inch that the machine is set to make is indicated by the number which is in line with the stitch regulator lever **C**, **Fig. 19**.

To change the length of stitch, screw the thumb nut **B**, **Fig. 19** away from the stitch indicator plate **A** as far as it will go. Then move the stitch regulator lever **C** until it is in line with the number designating the desired

length of stitch and screw the thumb nut **B** inward until it touches the stitch indicator plate.

The machine will now make the indicated number of stitches to the inch in either a forward or reverse direction, depending upon whether the lever **C** is at its lowest or highest position.

## BASTING

The longest stitch made by the machine, No. 6 on the stitch indicator, is found satisfactory for basting. These basting stitches can be easily removed by clipping every sixth stitch and withdrawing the long continuous thread.

Machine basting is firmer, more even, and much quicker than hand basting.

### TO SEW BIAS SEAMS

Use a shorter stitch when sewing bias or curved seams to increase the elasticity of the seam and to prevent seam failure under strain. No change in tensions is required.

### TO REGULATE THE DIRECTION OF FEED

To move the material from you, push down the stitch regulator **C**, **Fig. 19**, **page 16** to the numeral of stitch desired.

To feed the material toward you, raise the stitch regulator to the point where it will make the desired length of stitch.

The direction of feed can be reversed at any point of a seam without removing work from machine.

The reverse feed makes it easy to "back stitch" and to fasten ends of seams.

### TO REGULATE THE PRESSURE ON THE MATERIAL

Medium light weight fabrics require an intermediate pressure. If sewing fine silk or filmy fabrics, lighten pressure by turning thumb screw **C**, **Fig. 29**, **page 25** on top of the machine over to the left so that it screws upward. If sewing heavy napped fabrics, increase the pressure by turning this thumb screw over to the right so that it screws downward. The pressure should be only heavy enough to prevent side creeping of the material and still obtain a uniform stitch.

Pile fabrics require a lighter pressure than their appearance of thickness would indicate, and stitching should be in the direction of the nap on napped fabrics and in the direction of the pile on pile fabrics.

## TENSIONS

For ordinary stitching, the needle and bobbin threads should be locked in the center of the thickness of the material, thus:



*Fig. 20. Perfect Stitch*

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 straight along the upper surface of the material, thus:



*Fig. 21. Tight Needle Thread Tension*

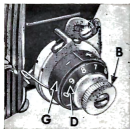
If the tension on the bobbin thread is too tight, or if that on the needle thread is too loose, the bobbin thread will lie straight along the under side of the material, thus:



*Fig. 22. Loose Needle Thread Tension*

## TO REGULATE THE NEEDLE THREAD TENSION

The tension on the needle thread can be tested only when the presser foot is down.



*Fig. 23  
Needle Thread  
Tension*

The numbered dial **D**, **Fig. 23** is marked with arbitrary numbers ranging from 0 to 9 which indicate different degrees of tension that can be produced. The numbers do not denote a particular size of thread. By noting the number which is

opposite the center line between the plus and minus signs on the indicator **G** when set for a satisfactory tension on the work being stitched, the number can be readily reverted to when a change is made in the tension or size of thread.

**To increase the tension**, turn the thumb nut **B** over to the right until the desired number on the numbered dial

is opposite the center line, the highest numbers denoting increased tension.

**To decrease the tension**, turn the thumb nut **B** over to the left, the lower numbers indicating less tension.

The tension indicator **G** is marked with the signs + and —, which also indicate the direction in which to turn the thumb nut **B** for more or less tension.

#### **TO REGULATE THE BOBBIN THREAD TENSION**

The tension on the bobbin thread is regulated by the screw **A**, **Fig. 11**, **page 10** which is nearest the center of the tension spring on the outside of the bobbin case. To increase the tension, turn the screw **A** over to the right. To decrease the tension, turn this screw over to the left.

When the tension on the bobbin thread has been once properly adjusted, it is seldom necessary to change it, as a correct stitch can usually be obtained by varying the tension on the needle thread.

#### TO DISASSEMBLE THE NEEDLE THREAD TENSION

Turn the thumb nut **B**, **Fig. 24** to the left until it stops at "0" on the numbered dial, then press in the dial to disengage the pin **C** in the thumb nut from the dial, and remove the thumb nut and dial, stop washer **E**, tension spring **F**, indicator **G** and tension disc assembly **H** which includes the thread take-up spring, thread guard plate and two discs.

NOTE—It is not necessary to remove the stud **O**, **Fig. 24** from the machine arm in order to disassemble the thread



*Fig. 24*

tension. It is shown removed, in **Fig. 24**, only to illustrate correct order of assembly.

#### TO REASSEMBLE THE NEEDLE THREAD TENSION

First make sure that the tension releasing pin **J**, only the end of which is shown in **Fig. 24**, is in place in the stud **O**.

Place the two tension discs **L**, **Fig. 25**, page 21 with the flat thread-bearing sides of the discs together in position on the thread guard **M**. Then pass the eye-

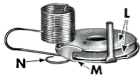


Fig. 25

let  $N$  of the thread take-up spring under the thread guard, having the coils of the spring above the tension discs as shown in Fig. 27.

Guide the tension disc assembly onto stud so that the extension  $K$ , Fig. 24, page 20 of the thread guard enters the hole in the machine arm, and the tail (inside the coil) of the thread take-up spring enters one of the grooves in the stud. Next replace the indicator with the large open side facing the end of the stud so that the plus and minus marks will be at the top (with the minus sign at the left) and hold the parts, thus assembled, against the shoulder of the stud. Then insert the tension spring  $F$ , Fig. 24, page 20 in the indicator with the first (half) coil of the spring strad-

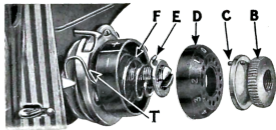


Fig. 26

dling the lower half of the stud. Guide the stop washer  $E$  onto the stud so that the extension will be above the tension stud. If the spring and stop washer are in correct position, the extension  $S$  will clear the first (half) coil of the tension spring as shown in Fig. 27. Next place the num-



Fig. 27



bered dial on the stud so that the numeral **2** is opposite the stop washer extension, then push the dial to compress the spring so that the thumb nut can be turned onto the stud, carefully guiding the pin in the thumb nut into one of the holes of the numbered dial. Then lower the presser bar and turn the thumb nut **B** to the left until it stops at "0". Thread the tension and pull the thread through the tension discs to test the amount of tension on the thread at the "0" position. At this point there should be a slight pull on the thread to indicate that there is a minimum tension, which gradually increases with the turn of the thumb nut to the right, providing a full range of tensions from light to heavy within one revolution of the thumb nut.

If the pull is too strong for a minimum tension, press in the numbered dial to

disengage the pin in the thumb nut from the dial, and reset the pin in one of the holes to the **left** of the previous setting. This resetting of pin will produce less tension at zero. Repeat this process until minimum desired tension is obtained.

On the other hand, should there be no tension at zero, press in dial and reset pin in one of the holes to the **right** of previous setting, repeating this process until a slight minimum tension is obtained.

The tension on thread take-up spring **T**, **Fig. 26, page 21** should be just sufficient to take up the slack of needle thread until eye of needle reaches the goods in its descent.

If the tension on thread take-up spring requires adjustment, remove tension disc assembly, disengage end of spring from groove in tension stud, revolve

spring and place its end in groove which produces correct tension.

#### **IF CORRECT STITCHING IS NOT OBTAINED**

If bobbin thread tension has been disturbed, or a correct stitch cannot be obtained without a very heavy or very light needle thread tension, then the following procedure is recommended:

Using No. 50 thread in the needle and on the bobbin, adjust needle thread tension as instructed above and on **page 22**. Then turn the tension thumb nut to "4" and sew two thicknesses of thin material in machine to check if the stitch is correctly locked in the material as shown in **Fig. 20, page 18**. Adjust bobbin thread tension as instructed on **pages 19 and 20** until correct stitch is obtained.

A wide range of materials and threads can now be accommodated without further adjustment of bobbin thread tension.

#### **TO TURN A CORNER**

Pivot on the eye of the needle. Stop machine when needle is in this position. Raise presser foot and turn work as desired, then lower presser foot and resume sewing.

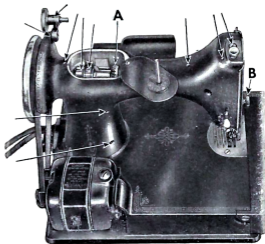
#### **TO REMOVE THE WORK**

Stop the machine with the thread take-up lever **6, Fig. 15, page 13** at its highest position, raise the presser foot and draw the fabric back and to the left, pass the threads over the thread cutter **A, Fig. 16, page 14** and pull down lightly to sever them. Place ends of threads under presser foot, as shown in **Fig. 17, page 14**.

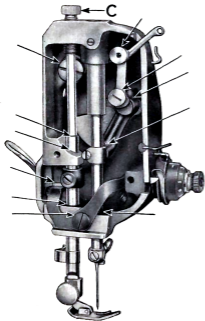
## TO OIL THE MACHINE

To insure easy running, the machine requires oiling and if used continuously, it should be oiled each day. With moderate use, an occasional oiling is sufficient. Oil should be applied at each of the places indicated in Figs. 28, 29, 30 and 31. One drop of oil at each point is sufficient. Oil holes are provided in the machine for bearings which cannot be directly reached.

Turn back the cover at the top of the machine and oil the moving parts inside the arm as indicated in Fig. 28, and occasionally apply a small quantity of SINGER\* Motor Lubricant to the teeth of the gear A, Fig. 28, then replace the cover.



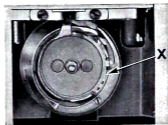
*Fig. 28. Rear View, Showing Oiling Points*



*Fig. 29. End View, Showing Oiling Points*

Remove face plate thumb screw **B**, Fig. 28 and the face plate. Put one drop of oil into each of the oil holes and hinge joints, as indicated in Fig. 29, then replace the face plate and thumb screw.

**TO OIL THE HOOK MECHANISM**

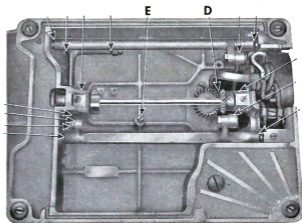


*Fig. 30*

Occasionally apply a drop of oil at the hook bearing indicated by **X**, in Fig. 30.

To reach the parts underneath the bed of the machine, turn the machine over on its rear side. Remove the thumb nut and felt washer from the screw **E**, Fig. 31 at the center of the large cover plate underneath the bed of the machine and remove the cover plate. Apply oil to the oil holes and bearings indicated in Fig. 31, and occasionally apply a small quantity of SINGER Motor Lubricant to the teeth of the gears **D**, Fig. 31

then replace the bed cover plate and fasten it as before with the thumb nut



*Fig. 31. Oiling Points at Base of Machine*

and felt washer, being careful not to turn the thumb nut too tightly.

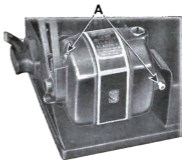
## TO LUBRICATE THE MOTOR

USE ONLY SINGER MOTOR LUBRICANT FOR LUBRICATING THE MOTOR. A tube of this lubricant is furnished with the machine.

The SINGER Motor Lubricant is a specially prepared non-flowing compound which is not affected by varying temperatures. It is the only lubricant which will positively lubricate the motor. Other lubricants, including oil or ordinary grease must not be used for lubricating the motor, as they are harmful for this purpose.

When the machine is shipped from the factory, the two motor grease tubes **A**, Fig. 32 are filled with sufficient SINGER Motor Lubricant for approximately six months' use, under ordinary circumstances.

At least once every six months thereafter, these grease tubes should be re-filled with the SINGER Motor Lubricant. To do this, insert the tip of the motor lubricant tube into the hole of each of the grease tubes and force the lubricant through each hole until both grease tubes are filled.



*Fig. 32. Motor Grease Tubes*

**Belt.** See that the belt has the correct tension. The tension should be only enough to keep the belt from slipping. If the belt tension is incorrect, loosen the screw C, Fig. 9, page 9 about one turn and allow the motor to drop downward until the belt has the correct tension, then tighten the screw C.

**Machine Working Heavily.** If the machine runs hard after standing idle for some time, use a little kerosene in the oiling places, run the machine rapidly then wipe clean and oil.

**To Avoid Breaking the Needles.** See that the presser foot or attachments are securely fastened by the thumb screw. Do not sew heavy seams or very thick fabric with too fine a needle. A large needle and thread to correspond should be used on heavy work (see page 29).

See that the needle is not bent, and avoid pulling the material when stitching.

**Breaking of Needle Thread.** If the needle thread breaks it may be caused by:

A knot in thread.

Improper threading.

Tension too tight.

Thread too coarse for size of needle.

Needle bent, or blunt, or set incorrectly.

**Breaking of Bobbin Thread.** If the bobbin thread breaks, it may be caused by:

Improper threading of bobbin case.

Tension too tight.

**Skipping of Stitches.** The needle may not be accurately set into the needle clamp or the needle may be blunt or bent. The needle may be too small for the thread in use.

**Free Instruction** for using the machine is gladly given at any SINGER SEWING CENTER.

## CHART SHOWING THE RELATIONSHIP OF TYPES OF FABRICS, THREAD AND NEEDLE SIZES AND MACHINE STITCHES TO THE INCH

TYPES OF FABRICS	THREAD SIZES	NEEDLE SIZES	MACHINE STITCHES PER INCH	
			Inside Seams	Top Stitching
Filmy materials comparable to net, marquisette, chiffon, silk, organdy, ninon, silk velvet, nylon sheers.	100 Cotton 00 and 000 Silk	9	15-20	20-30
Sheer materials comparable to lawn, dimity, voile, batiste, rayon sheer, rayon crepe, silk crepe.	80 to 100 Cotton 0 Silk	11	12-15	15-20
Lightweight materials comparable to gingham, chambray, sheer wool crepe, taffeta.	50 Mercerized 60 to 80 Cotton A Silk	14	12	15-18
Medium lightweight materials comparable to poplin, pique, percale, chintz, faille, bengaline, wool flannel, wool crepe, wool jersey.	50 Mercerized 50 to 70 Cotton A or B Silk	14	12	15-16
Medium heavy materials comparable to crash, gabardine, rep, corduroy, velveteen, coatings, suitings.	50 Mercerized 40 to 50 Cotton C Silk	16	10	12
Heavy materials comparable to sailcloth, sturdy denim, ticking, drill cloth, heavy coating.	Heavy Duty Merc. 30 to 40 Cotton D Silk	18	8	10
Plastic materials.	Mercerized Cotton	11	10	12

*When ordering needles, always specify "Class and Variety 15 x 1" and state the size and quantity required. You will obtain the best stitching results from your Sewing Machine if it is fitted with a SINGER\* Needle.*



## USE SINGER SEWING MACHINE OIL ON MACHINE

Knowing from many years' experience the great importance of using good oil, SINGER sells an extra quality sewing

machine oil, in cans, especially prepared for sewing machines.

*"The Best is the Cheapest"*

**SINGER** Needles should be used  
in **SINGER** Machines.  
These Needles and their Containers  
are marked with the  
Company's Trade Mark "**SIMANCO**"

Needles in  
Containers marked  
"**FOR SINGER MACHINES**"  
are **NOT**  
**SINGER** made needles.

*Instructions for using*

**THE ATTACHMENTS**

## THE FOOT HEMMER

*Fig. 33*  
*The Foot*  
*Hemmer*

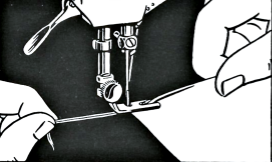


The foot hemmer (see Fig. 33) is attached to machine in place of presser foot, and may be used for hemming edge of material, making hemmed and felled seams and for hemming and sewing on lace in one operation. To attach foot hemmer, raise needle to its highest point, remove presser foot and attach foot hemmer to presser bar in place of

presser foot. Pull up bobbin thread as instructed on page 14.

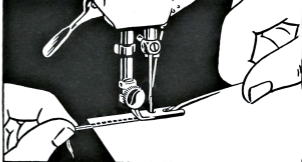
### How to Start Hem at Very Edge

1. Fold edge of material twice, about  $\frac{1}{8}$  inch each time, for a distance of about two inches. Crease folds.
2. Lay about three inches of needle and bobbin threads back under hemmer. Place creased edge of material under hemmer with end of hem directly under needle. Lower hemmer and tack end of hem with two machine stitches.
3. Raise hemmer. Pull threads and hem slightly from you with left hand; then while holding threads, draw material toward you with right hand into scroll of hemmer until tacked end is caught in hemmer, as shown in Fig. 34.



*Fig. 34. Starting Hem at Very End of Material*

4. Lower hemmer and start to sew, slightly pulling threads back while sewing. Keep mouth of hemmer full

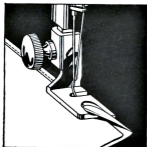


*Fig. 35. Hemming Edge of Material and Pulling Back Threads While Sewing*

to produce a smooth, even hem, as shown in Fig. 35.

### **How to Make a Hemmed Seam with Foot Hemmer**

1. When making this seam, the garment must first be fitted and the edge of material trimmed, allowing for about  $\frac{1}{8}$  inch seam.



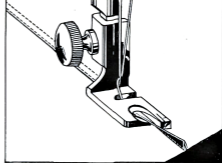
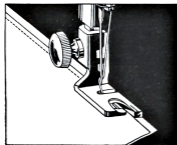
*Fig. 36. Making a Hemmed Seam (First Operation)*

Insert the two edges of material, right sides together, in the hemmer in same manner as a single hem as shown in Fig. 36.

If the material is bulky, place edge of upper piece of material about  $\frac{1}{8}$  inch to left of edge of under piece.

2. The free edge of hemmed seam may be stitched flat to garment, if desired.

To do this, open the work out flat, wrong side up, then insert the hem in scroll of hemmer, holding edge of hem in position while it is being stitched. If seam is stitched flat to



*Fig. 37. Making a Hemmed Seam  
(Second Operation)*

garment, one row of stitching is visible on the right side.

#### **How to Make a Felled Seam with Foot Hemmer**

1. Place right sides of material together, having edge of upper piece about  $\frac{1}{8}$  inch to left of edge of under piece. Stitch the two pieces together, using hemmer as a presser foot. Guide both

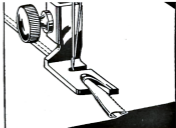
*Fig. 38. Making a Felled Seam  
(First Operation)*

pieces by the projecting toe of hemmer, as shown in Fig. 38.

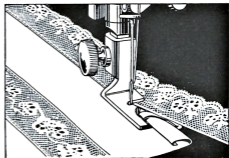
2. Open the work out flat, wrong side up, and hem free edge of seam, stitching it flat to garment as shown in Fig. 39.

### How to Hem and Sew on Lace in One Operation

1. Start hem in regular way.
2. Hold hem in position with needle.
3. Raise presser bar and insert edge of lace in slot of hemmer and back under hemmer.
4. Lower presser bar and start sewing, catching edge of lace with needle.
5. Guide hem with right hand and lace with left hand, being careful not to stretch lace as it enters hemmer.



*Fig. 39. Making a Felled Seam  
(Second Operation)*

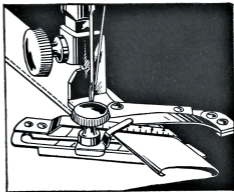


*Fig. 40. Hemming and Sewing on Lace*

## ADJUSTABLE HEMMER

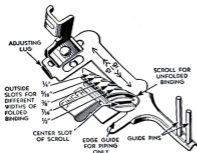
### How to Make Hems from 3/16" to 15/16" Wide

1. Attach adjustable hemmer to presser bar in place of presser foot.
2. Pull up bobbin thread, as instructed on page 14.
3. Loosen thumb screw on hemmer and move scale until pointer registers with number of desired width of hem; No. 1 indicating the narrowest hem and No. 8, the widest; then tighten thumb screw.
4. Place cloth in hemmer and draw it back and forth until hem is formed, as shown in **Fig. 41**.
5. Draw end of hem back under needle, lower presser bar and start to sew.
6. Guide sufficient cloth into hemmer to turn hem properly.



*Fig. 41. Showing How Adjustable Hemmer is Used for Making Hems Up to 15/16 Inch Wide*

## MULTI-SLOTTED BINDER



*Fig. 42. Multi-Slotted Binder 160359*

This multi-slotted binder will apply **unfolded bias binding**  $\frac{15}{16}$  inch in width and **commercial folded binding** in sizes 1, 2, 3, 4 and 5 to seams or to edges of garments. These sizes of folded

binding are  $\frac{1}{4}$ ,  $\frac{5}{16}$ ,  $\frac{3}{8}$ ,  $\frac{1}{2}$  and  $\frac{1}{2}$  inch in width, respectively, and are fed through slots of corresponding sizes in the binder scroll. (See Fig. 42.) Binding may be purchased in a variety of materials and colors.

For convenience in determining the correct width of **unfolded binding** ( $\frac{15}{16}$  inch), this measurement is marked on binder, as shown in Fig. 42.

The two upright guide pins, shown in Fig. 42, eliminate manual guiding of the binding.

The wide range of bindings that can be applied with the binder makes it useful for a large variety of work. It will be found particularly advantageous for making children's wear, lingerie, summer dresses, and other dainty articles which call for narrower bindings.



As two different widths of binding of contrasting colors can be fed through binder at same time, attractive bindings and piping effects can be produced in one operation.

### To Attach the Binder

Raise needle to its highest position, then attach binder to presser bar in place of presser foot.

See that needle enters center of needle hole.



**To Insert Binding in Binder**  
Cut all binding to a long point to the left, as shown in Fig. 43.

**Folded Bias Binding** must be inserted in the slot or slots of corresponding sizes. (See Fig. 46.)

Fig. 43

**Unfolded or Raw Edge Bias Binding** must be inserted in the open end of scroll. (See Fig. 44.)

After inserting pointed end of binding in binder, push it through until full width of binding is under needle.

Guide binding by means of two upright pins, as shown in Figs. 44 and 46.

### To Insert Garment in Binder

Place edge to be bound as far to right as it will go in center slot of scroll, as shown in Fig. 44, and draw it back under binder foot.

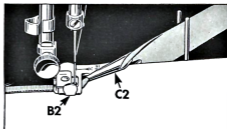


Fig. 44

Lower the binder by means of presser foot lifter, and start to sew. Keep material well within center slot of scroll so that the edge will be caught in binding.

### To Adjust the Binder

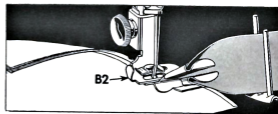
To bring inner edge of binding closer to the stitching, move scroll C2, Fig. 44 to the right by means of lug B2, Fig. 44. This is the usual adjustment when binding straight edges.

When binding curves, move scroll to left to bring inner edge of binding farther from stitching and allow for sweep of curve.

### Piped Edge

To produce a piped edge on garments, move lug B2, Fig. 45 to left to bring

stitching about midway of folded binding.



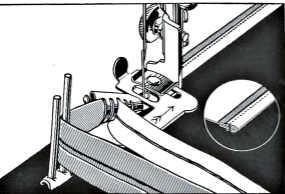
*Fig. 45. Position of Garment and Binding when Piping Edges*

Crease raw edges of garment toward wrong side about  $\frac{1}{8}$  inch, and insert folded edge, raw edges uppermost, into edge guide on binder and beneath binding.

When stitched, both sides of garment will be finished, and right side will show piped edge.

### Piping and Binding in One Operation

A garment can be piped and bound in one operation, as shown in Fig. 46.



*Fig. 46. Piping and Binding in One Operation*

**IMPORTANT**—When piping and binding at same time, as shown in

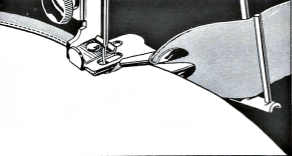
Fig. 46, insert **narrow width** of binding **first** in its slot, then insert **wider width** in its slot. **Two consecutive widths** should not be used at same time. That is, if No. 1 is used, the wider binding should not be smaller than No. 3. If No. 2 is used, the wider binding should be not less than No. 4. **Never use Nos. 1 and 2, or 2 and 3, etc., together.**

Use the upright guide pins to guide the wider of the two widths of binding, as shown in Fig. 46.

### To Bind Outside Curves

Allow edge to be bound to pass freely through scroll without crowding against scroll wall. The material must be guided from back of binder and to left, permitting unfinished edges to swing naturally into scroll of binder.

Never pull binding while it is being fed through binder, as this may stretch



*Fig. 47. Binding an Outside Curve*

binding, making it too narrow to stitch or to turn in the edges.

When binding curves, turn material only as fast as machine sews.

Do not push material in too fast as this will pucker edge.

Do not stretch material as this will distort edge so that curve will not have proper shape when finished.

If stitching does not catch edge of binding, adjust scroll slightly to the left.

### **To Bind Inside Curves**

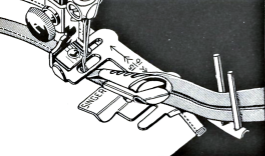
When binding an inside curve, straighten out edge of material while feeding it into binder, being careful not to stretch material.

Soft materials like batiste or crepe de chine require a row of stitching added close to edge of curve before binding.

### **To Apply French Folds to Curves**

Place material under binder and stitch binding onto face of material, as shown in **Fig. 48**.

For guidance in applying rows of French folds, mark material with a line of basting stitches or with chalk or pencil.

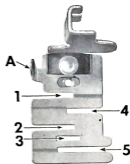


*Fig. 48. Applying a French Fold*

### THE EDGE-STITCHER

This useful attachment is fastened to machine in place of presser foot, and will be found an indispensable aid whenever stitching must be kept accurately on extreme edge of a piece of material. The slots, numbered from 1 to 5 in Fig. 49, serve as guides for sewing together laces, insertions and embroid-

eries, sewing in position hemmed or folded edges, piping or sewing flat braid to a garment.



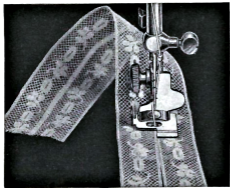
*Fig. 49. Edge-Stitcher*

### Adjusting Edge-Stitcher

After attaching edge-stitcher to machine, turn hand wheel slowly by hand to see that needle goes through center of needle hole. The distance of the line of stitching from edge of material in slots can be regulated by pushing lug **A**, Fig. 49 to right or left. If it moves hard, put a drop of oil under blue spring, then wipe it dry.

### Sewing Lace Together With Edge-Stitcher

It is difficult to sew two lace edges together even after basting, but the



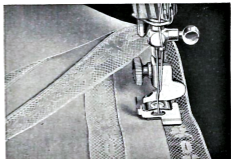
*Fig. 50. Sewing Lace Together*

edge-stitcher makes it possible to stitch on the very edge. Place one edge in slot

1 and the other in slot 4, and adjust lug A, Fig. 49 until both edges are caught by the stitching. Hold the two pieces slightly overlapped to keep them against the ends of slots. Thread tensions and pressure on the presser foot should be light to avoid puckering of fine lace.

Lace and ribbon or other insertions can be set in by using same slots 1 and 4, Fig. 49. The material may be folded over before placing it in slot so that a double thickness is stitched and will not

*Fig. 51. Setting in Lace Insertion*



pull out. The surplus material is trimmed away close to the stitching, as shown in **Fig. 51**.

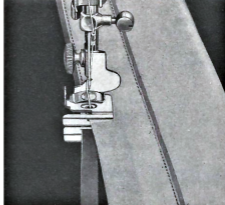
### **Piping with Edge-Stitcher**

Piping is very attractive if contrasting colors are chosen. Place piping with its finished edge to the left, in slot **3**, **Fig. 49**. Place edge to be piped in slot **4**, as shown in **Fig. 52**.

Piping should be cut bias, and should be cut to twice width of slot **3**, **Fig. 49** in edge-stitcher so that it can be folded once.

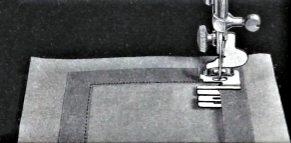
### **Applying Bias Folds With Edge-Stitcher**

Folded bias tape or military braid, used for neat and colorful trimming, may be sewn on by placing garment under edge-stitcher same as under a presser foot, and placing tape in slot **1** or **4**, **Fig. 49**.



*Fig. 52. Piping with Edge-Stitcher*

To make a square corner, sew until turning point is reached, then remove tape from attachment and form corner by hand, replace it in slot and continue stitching, as shown in **Fig. 53**. To space two or more parallel rows, a guide line such as a crease, chalk mark or basting thread should be used.



*Fig. 53. Applying Bias Folds with Edge-Stitcher*



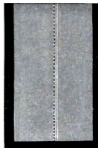
*Fig. 54. Making a Wide Hem*

### **Stitching a Wide Hem With Edge-Stitcher**

A wide hem on sheets, pillow slips, etc., may be stitched evenly with edge-stitcher after hem has been measured and edge turned. Insert edge in slot 5 as shown in Fig. 54 and adjust to stitch as close to edge as desired.

### **Making a French Seam**

An even French Seam may be made by inserting the two edges to be joined, wrong sides together, in slot 1 or 2 and stitching close to edge; then folding both right sides together and inserting back of seam into slot 1 again and stitching with just enough margin to conceal raw edges. (See Fig. 55.)

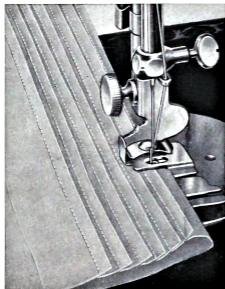


*Fig. 55  
A French  
Seam*



### Tucking with Edge-Stitcher

Dainty narrow tucking may be produced on edge-stitcher by inserting creased folds in slot 1 as shown in Fig.

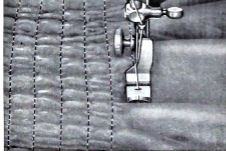


56, and adjusting edge-stitcher to right or left for desired width of tuck, up to  $\frac{1}{8}$  inch. Successive tucks are made by folding material at desired distance from previous tuck, and then running length of fold over a straight edge such as edge of sewing machine cabinet. The secret of good tucking lies in a light tension, short stitch, and fine thread and needle.

### SHIRRING WITH THE GATHERER

The gatherer attaches to the machine in same manner as presser foot. Material placed under gatherer and stitched in usual way will be slightly gathered. Any fabric that drapes well is especially suited for shirring with the gatherer. Most shirring with gatherer is done with a long stitch and tight tensions. To

*Fig. 56. Tucking with Edge-Stitcher*



*Fig. 57. The Gatherer in Operation*

increase fullness of gathers, lengthen stitch. To decrease fullness, shorten stitch.

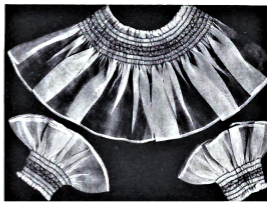
With gatherer, it is possible to shirr in narrow rows as shown in **Fig. 57**. The material may be guided as easily as when sewing with presser foot. Fine materials, such as batiste, silk or net, may be very attractively shirred.

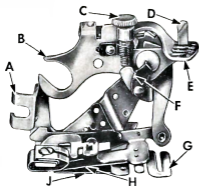
*Fig. 59. Smocking*

A very pleasing effect may be gained by using thread or embroidery silk of contrasting color on the bobbin. **Fig. 59** shows a white organdy collar and cuff set with red and green smocking made with gatherer, using fine crochet cotton or tating thread on top and white cotton on bobbin.



*Fig. 58. Shirring*





*Fig. 60. Principal Parts of the Ruffler*

#### PRINCIPAL PARTS OF THE RUFFLER

- A—Foot**—attaches ruffler to presser bar.
- B—Fork Arm**—straddles needle clamp.
- C—Adjusting Screw**—regulates fullness of gathers.
- D—Projection**—engages slots in adjusting lever.
- E—Adjusting Lever**—sets ruffler for gathering or for making a pleat once at every six stitches or once every twelve stitches as desired; also for disengaging ruffler, when either pleating or gathering is not desired.
- F—Adjusting Finger**—regulates width or size of pleats.
- G—Separator Guide**—contains slots into which edge of material is placed to keep heading of ruffle even; also for separating material to be ruffled from material to which ruffle is to be attached.
- H—Ruffling Blade**—pushes material in pleats up to needle.
- J—Separator Blade**—prevents teeth of ruffling blade from coming into contact with feed of machine or material to which ruffle or pleating is to be applied.

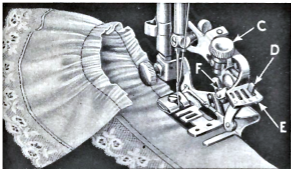
### To Attach Ruffler

1. Raise needle to its highest point.
2. Loosen presser foot thumb screw and attach ruffler to presser bar, at same time placing fork arm **B** astride needle clamp.
3. See that needle enters center of needle hole in ruffler.

### To Adjust Ruffler for Gathering

1. Swing adjusting finger **F** away from needle.

*Fig. 61. Gathering with Ruffler*



2. Raise adjusting lever **E** and move it until projection **D** can be entered in slot marked "1".



*Fig. 62. Correct Position for Material to be Ruffled*

3. Insert material to be ruffled between two blue blades **Line 2, Fig. 62**.
4. Draw material slightly back of needle, lower presser bar and start to sew.
5. For fine gathering, turn adjusting screw **C** upward and shorten stitch.
6. For full gathering, turn adjusting screw **C** downward and lengthen stitch.

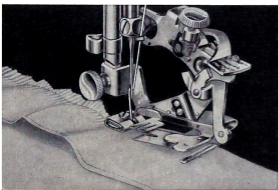
### To Make a Ruffle and Sew it to a Garment in One Operation

1. Insert material to be ruffled between two blue blades Line 2, Fig. 63.



Fig. 63. Correct Positions for Materials

Fig. 64. Making a Ruffle and Attaching it in One Operation



2. Place material to which ruffle is to be attached under separator blade Line 1, Fig. 63.
3. Proceed same as for plain gathering.

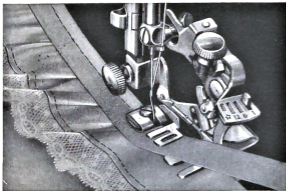
### To Make a Ruffle and Attach it with a Facing in One Operation

1. Insert material to be ruffled between two blue blades Line 2, Fig. 65.
2. Place material to which ruffle is to be



Fig. 65. Correct Positions for Materials

- attached under separator blade Line 1, Fig. 65.
3. Place facing material over upper blue blade Line 4, Fig. 65.



*Fig. 66. Making a Ruffle and Attaching It with a Facing in One Operation*

4. If facing is to be on **right** side of garment, place wrong sides of garment and ruffle together.
5. If facing is to be on **wrong** side, place right sides of garment and ruffle together.

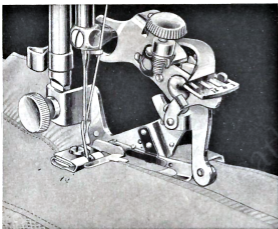
### To Pipe a Ruffle

1. Insert material to be ruffled between two blue blades **Line 3, Fig. 67**. This material must not exceed  $1\frac{1}{4}$  inches in width.



*Fig. 67. Correct Positions for Materials*

2. Piping material is usually cut on the bias and it should be about  $\frac{1}{4}$  inch wide when folded in center. Place piping material in ruffler, following **Line 5, Fig. 67** with folded edge of piping to the right.

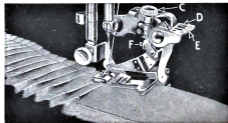


*Fig. 68. Piping a Ruffle*

3. Fold edge of material to which piping and ruffling are to be attached and insert it in ruffler, following Line 6, Fig. 67.

### To Adjust Ruffler for Pleating

1. Raise adjusting lever E and move it until projection D can be entered in slot marked "6". The ruffler will then pleat once every six stitches. To pleat once every 12 stitches, have projection D enter slot "12" in adjusting lever E.



*Fig. 69. Pleating with Ruffler*

2. Insert material to be pleated between two blue blades Line 2, Fig. 70.



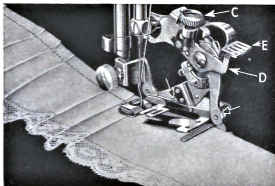
*Fig. 70. Correct Position for Material*

3. To increase width of pleat, move adjusting finger **F** back toward needle and turn adjusting screw **C** downward. To make a smaller pleat, turn adjusting screw **C** upward. The distance between pleats is regulated by length of stitch.

### **To Adjust Ruffler For Group Pleating**

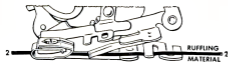
1. To make the space between groups of pleats, raise adjusting lever **E** and move it until projection **D** can be entered in small slot indicated by star on adjusting lever **E**. The ruffler
2. When the desired space is made, set projection **D** in either of slots **6** or **12**.
3. Insert material to be pleated between two blue blades **Line 2**, **Fig. 72**.

will then stop pleating and plain stitching will be made.



*Fig. 71. Group Pleating with Ruffler*





*Fig. 72. Correct Position for Material*

### **To Oil the Ruffler**

Occasionally apply a drop of oil to the working parts of ruffler at each place indicated by unlettered arrows in **Fig. 71**.

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