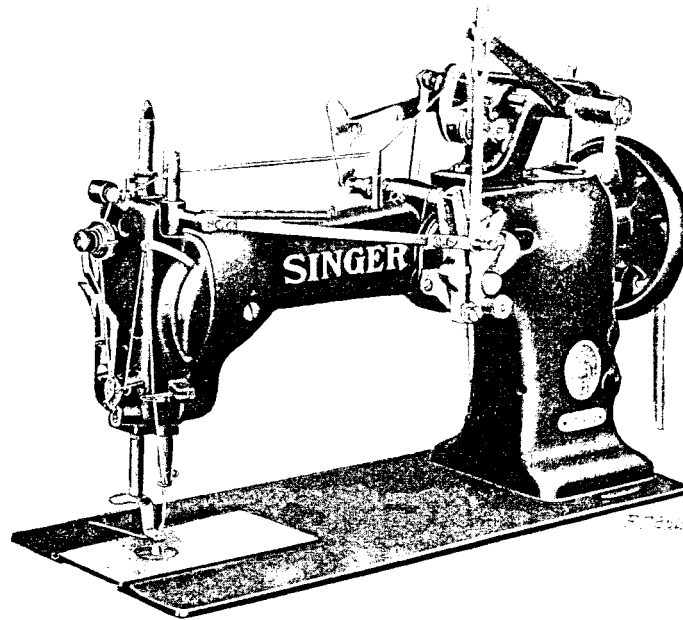


1449w

INSTRUCTIONS  
FOR USING AND ADJUSTING  
Singer Sewing Machine



17w13

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The Singer Manufacturing Company

### Purchasing of Parts and Needles

Supplies of parts and needles for Singer machines can be purchased at any Singer shop or ordered by mail. If orders are sent by mail, money or a post office order covering their value, including postage, should be enclosed and the order will then be promptly filled and forwarded by mail or express.

### DESCRIPTION

Machine 17w13 is designed for making eyelet embroidery known as Madeira work, and will produce a close imitation of the well known Madeira hand embroidery. It is also suitable for flat stitch embroidery and for the making of French knots.

The machine has a vibrating needle and a rotary hook, producing a lock stitch which is found durable for this class of work.

### Speed

The maximum speed recommended for Machine 17w13 is 1000 stitches per minute. The machine should be run slower than the maximum speed at first until the parts which are in movable contact have become glazed by their action upon each other. When the machine is in operation, the balance wheel should turn over toward the operator.

### Needles and Thread

Needles for Machine 17w13 are of Class and Variety 130x25 and are furnished in sizes, Nos. 7, 8, 9 and 10.

The size of the needle to be used should be determined by the size of the thread which must pass freely through the eye of the needle. To produce a smooth stitch, soft finish thread of the same size should be used for both the bobbin and the needle. For the needle use left twist thread, that is, thread twisted over from right to left.

Orders for needles must specify the quantity required, the size number, also the class and variety numbers separated by an x.

The following is an example of an intelligible order:

"100 No. 9, 130 x 25 Needles."

The best results will be obtained in using the needles furnished by the Singer Sewing Machine Company.

**Genuine Singer Needles and their Containers are marked with the Company's Trade Mark "SIMANCO." 1**

**Needles in Containers marked "For Singer Machines" are not Singer made needles. 2**

### To Remove the Bobbin

Have the thread take-up lever at its highest point; reach under the bed of the machine with the right hand, press the latch

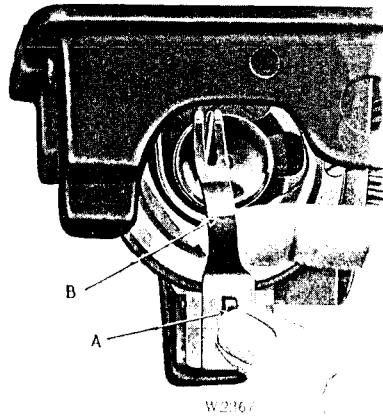


Fig. 2. Removing the Bobbin

(A, Fig. 2) with the thumb and lay back the fork (B, Fig. 2), then remove the bobbin case with the forefinger of the left hand as shown in Fig. 3. Turn the open side of the bobbin case downwardly and the bobbin will drop out.

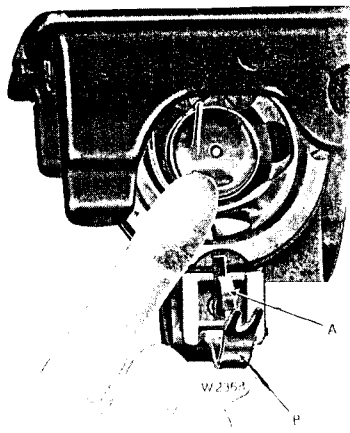


Fig. 3. Removing the Bobbin

### To Wind the Bobbin

(See Fig. 4)

Fasten the bobbin winder to the table with its driving pulley in front of the machine belt, so that the pulley will drop away from the belt when sufficient thread has been wound upon the bobbin.

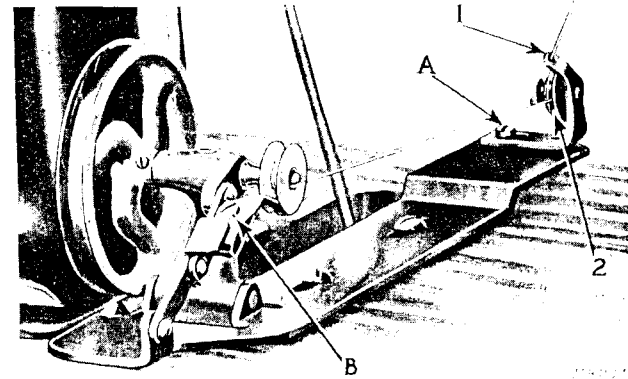


Fig. 4. Winding the Bobbin

Place the bobbin on the bobbin winder spindle and push it on as far as it will go.

Pass the thread down through the thread guide (1) in the tension bracket, around the back and between the tension discs (2). Then wind the end of the thread around the bobbin a few times, push the bobbin winder pulley over against the machine belt and start the machine.

When sufficient thread has been wound upon the bobbin, the bobbin winder will stop automatically.

If the thread does not wind evenly on the bobbin, loosen the screw (A) in the tension bracket and move the bracket to the right or left as may be required, then tighten the screw.

The amount of thread wound on the bobbin is regulated by the screw (B). To wind more thread on the bobbin, turn the screw (B) inwardly. To wind less thread on the bobbin, turn this screw outwardly.

Bobbins can be wound while the machine is stitching.

### To Thread the Bobbin Case

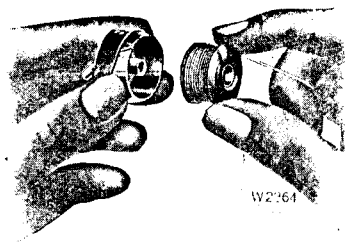


Fig. 5

Take the bobbin in the right hand, the thread drawing on top from the left toward the right.

With the left hand hold the bobbin case as illustrated (see Fig. 5); the slot in the edge being at the top, and place the bobbin into it.

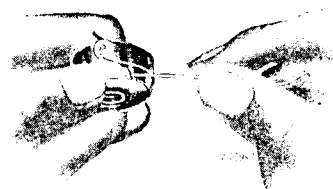


Fig. 6

Then pull the thread into the slot in the edge of the bobbin case (see Fig. 6), draw the thread to the left under the tension spring and into the delivery eye at the end of the tension spring (see Fig. 7).

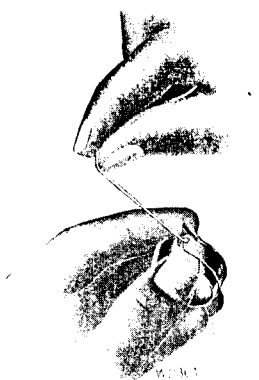


Fig. 7

### To Replace the Bobbin Case

After threading, take the bobbin case between the thumb and forefinger of the left hand and place it on the centre stud of the rotating hook, with the position finger on the bobbin case pointing upwards, then close the bobbin case stop or fork. See that the bobbin case stop is held firmly by the spring latch.

### To Set the Needle

Turn the balance wheel over towards you until the needle bar moves up to its highest point; loosen the set screw in the lower end of the needle bar and put the needle up into the bar as far as it will go, with the long groove of the needle toward the front of the machine and the eye of the needle directly in line across the bed of the machine, then tighten the set screw.

### Relative Sizes of Spur Plates, Presser Feet and Punches

The following sizes of spur plates, presser feet and punches are recommended according to the size of the eyelet:

DIAMETER OF EYELET HOLE	SPUR PLATE	PRESSER FOOT	PUNCH
$\frac{3}{16}$ inch	234445	234501	234460 or 234463
$\frac{1}{4}$ "	234446	234502	234463 or 234462
$\frac{5}{16}$ "	234511	234503	234467 or 234464
$\frac{3}{8}$ "	234512	234504	234464 or 234466
$\frac{1}{2}$ "	234513	234505	234465

**Note:** Where two punches are recommended for the same size spur plate, better results can be obtained by using the first or smaller punch for light weight fabrics, and the second or larger punch for heavier fabrics.

### Upper Threading of the Machine for Eyelet Work

For Eyelet Work, pass the thread from the spool on the spool stand through the hole in the pin on the top of the arm, into the

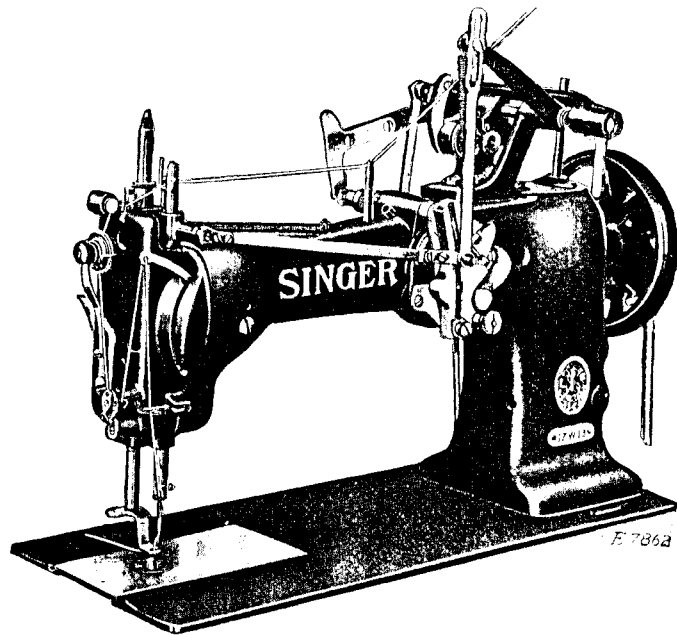


Fig. 8. Upper Threading of Machine for Eyelet Work

thread guide on the top of the head of the machine, into the thread guide at the upper end of the face plate, over from right to left into the thread retainer at the top of the face plate, down around the back between the tension discs near the upper end of the face plate, under from back to front around the thread controller at the lower end of the face plate; under the thread controller spring, up and from back to front through the hole in the end of the thread take-up lever, down through the thread guide at the front of the face plate, through the thread guide at the lower end of the needle bar and from front to back through the eye of the needle (see Fig. 8). Draw about three inches of thread through the eye of the needle with which to commence sewing.

### To Adjust the Machine for Making Eyelets

Select the size spur plate and corresponding presser foot according to the size of eyelet required, as shown in the table on page 7, and place them in the machine as instructed on page 11.

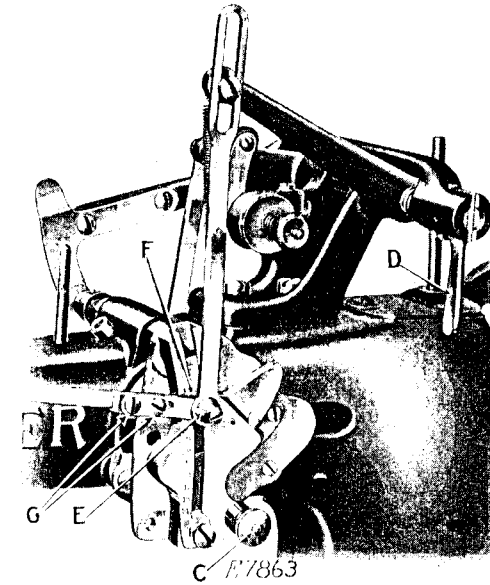


Fig. 9. Machine Adjusted for Making Eyelets

Draw the spring plunger (C, Fig. 9) toward you and move it toward the right as far as it will go, then release it.

See that the lever (D, Fig. 9), is pointing downwardly. Loosen the wing nut (E, Fig. 9) and move it up or down to the desired width of bight, then tighten the wing nut. The machine is now ready for operation.

### Learning to Operate the Machine for Making Eyelets

For practice, place spur plate 234512 and presser foot 234501 in the machine. Loosen the wing nut (E, Fig. 9) and move it downwardly until the indicator (F, Fig. 9) is opposite the line under number 4 on the index, then tighten the wing nut. Make several holes in the piece of goods with punch 234464, using the mallet which is furnished with the machine for the purpose.

Then place the goods between the embroidery hoops furnished with the machine. The goods should be stretched smoothly and held firmly between the hoops.

With the left hand grasp the presser foot and raise it as high as it will go, then place the goods under the presser foot so that

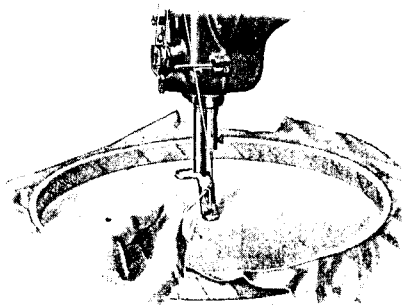


Fig. 10. Drawing Up the Under Thread for Eyelet Work

the spur in the spur plate will enter one of the holes in the goods, then lower the presser foot upon the goods.

With the left hand hold the end of the needle thread, leaving it slack from the hand to the needle, turn the balance wheel over toward you until the needle moves down and up again to its highest point, thus catching the under thread; draw up the needle thread and the under thread will come up with it through the goods as shown in Fig. 10.

Hold both threads flat on the goods with the finger as shown in Fig. 11; then start the machine. After making a few stitches,

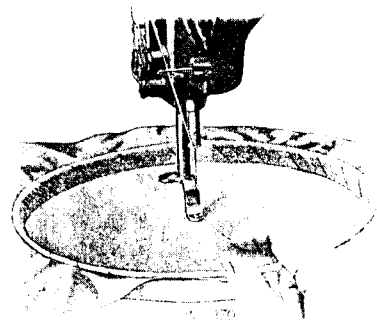


Fig. 11. Holding Threads for First Stitch of Eyelet

the threads can be cut close to the eyelet. Continue to run the machine, at the same time turning the goods slowly in the **direction opposite to that followed by the hands of a clock**. Several revolutions of the work may be made to produce the desired effect after which, without stopping the machine, a slight pressure of the knee against the knee lifter will cause the needle to stop vibrating and produce a fastening or tying stitch. The knee should be held against the knee lifter until the machine is stopped.

#### To Regulate the Width of Bight for Eyelet Work

The width of bight or extent of the lateral vibrations of the needle for eyelet work is regulated by the sliding block in the slide on the front of the arm of the machine, which can be regulated to make any width of bight up to  $\frac{3}{16}$  inch. To increase the width of bight, loosen the wing nut (E, Fig. 9) and move the sliding block downwardly. To decrease the width of bight, move the sliding block upwardly. When the desired width of bight is obtained, tighten the wing nut (E). When the slide block (F, Fig. 9) is moved downward from zero to 1, the needle will vibrate  $\frac{1}{4}$  inch to the right, and the width of bight will be increased  $\frac{1}{4}$  inch for each additional number.

#### To Remove and Replace the Presser Foot

Loosen the wing nut (G, Fig. 18) at the top of the presser bar, and remove the presser foot by drawing it toward the left. In replacing the presser foot, press it toward the right as far as it will go, then tighten the wing nut.

#### To Remove and Replace the Needle Plate or Spur Plate

The following instructions for removing the needle plate also apply to the spur plate:

Reach under the bed of the machine with the left hand and draw the slide (H, Fig. 19) which is under the left end of the throat plate, toward the left, then push upward on the needle plate to remove it.

In replacing the needle plate, have the pin in the throat plate enter the slot in the edge of the needle plate, then push the slide (H, Fig. 19) toward the right to fasten the needle plate.

### To Remove the Throat Plate

Reach under the bed of the machine with the left hand and push backward on the latch (K, Fig. 19) which is near the centre of the throat plate, then press upwardly on the throat plate to remove it.

In replacing the throat plate, have the pin which is in the bed of the machine enter the small hole in the throat plate, then draw the latch (K, Fig. 19) toward you to lock the throat plate in position.

### To Regulate the Tensions for Eyelet Work

The tension on the upper thread is regulated by the thumb nut at the front of the tension discs near the upper end of the face plate. To increase the tension, turn this thumb nut over toward you. To decrease the tension, turn this thumb nut over from you.

The tension on the under thread is regulated by the screw near the centre of the tension spring on the outside of the bobbin case. To increase the tension, turn this screw over to the right. To decrease the tension, turn this screw over to the left.

The tension on the under thread should be slightly heavier than the tension on the upper thread.

### To Regulate the Pressure on Material

The pressure on the material is regulated by the thumb screw (L, Fig. 18) on the presser bar at the top of the head of the machine. To increase the pressure, turn this thumb screw over to the right. To decrease the pressure, turn this thumb screw over to the left.

### Upper Threading of the Machine for Flat Stitch Embroidery

For flat stitch embroidery, pass the thread from the spool on spool pin on the top of the machine, through the eyelet at the

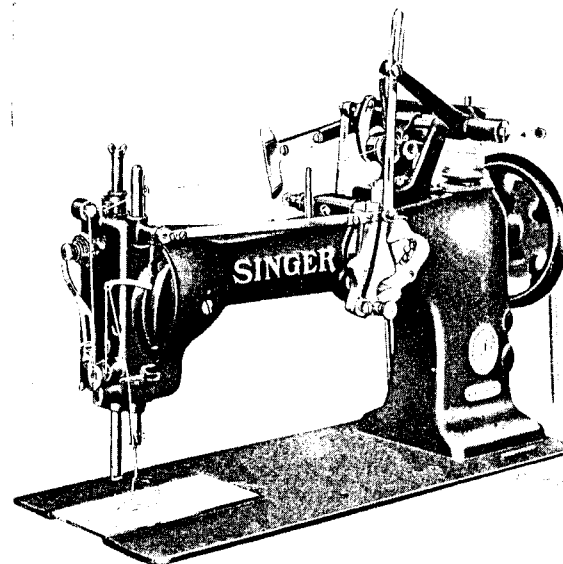


Fig. 12. Upper Threading of Machine for Flat Stitch Work

right of the tension discs, over from right to left between the tension discs on the top of the machine, through the hole in the pin on the top of the arm, into the thread guide on the top of the head of the machine, into the thread guide at the upper end of the face plate, over from right to left into the thread retainer at the top of the face plate, omitting the tension discs on the face plate, down under from back to front around the thread controller at the lower end of the face plate, under the thread controller spring, up and from back to front through the hole in the end of the thread take-up lever, down through the thread guide at the front of the face plate, through the thread guide at the lower end of the needle bar and from front to back through the eye of the needle. (See Fig. 12.)

### To Adjust the Machine for Flat Stitch Embroidery

Remove the spur plate and place needle plate 234428 in the machine as instructed on page 11. Remove the presser foot and

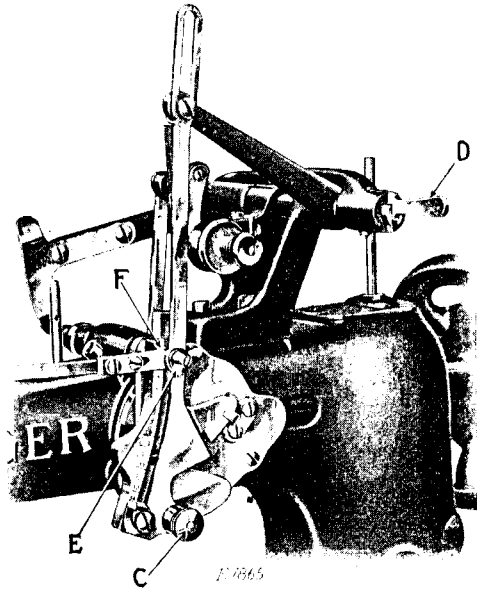


Fig. 13. Machine Adjusted for Flat Stitch Embroidery

lower the presser bar; draw the spring plunger (C, Fig. 13) toward you and move it to the left as far as it will go, then release it.

See that the lever (D, Fig. 13) is raised and pointing toward you. Loosen the wing nut (E, Fig. 13), turning it over to the left as far as it will go. The machine is now ready for operation.

### Learning to Operate the Machine for Flat Stitch Embroidery

Place a piece of goods between the embroidery hoops furnished with the machine. The goods should be stretched smoothly and held firmly between the hoops.

Place the goods under the needle as shown in Fig. 14. With the left hand hold the end of the needle thread, leaving it slack

from the hand to the needle, turn the balance wheel over toward you until the needle moves down and up again to highest point, thus catching the under thread; draw up the needle thread and the under thread will come up with it through the goods as shown in Fig. 14.

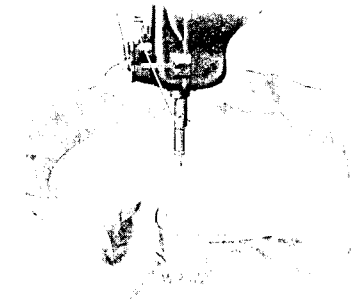


Fig. 14. Drawing Up the Under Thread for Flat Stitch Embroidery

Hold both threads flat on the goods with the finger as shown in Fig. 15; then start the machine. After making a few stitches, the threads can be cut close to the goods. Continue to run the machine, at the same time feeding the work with the hands. As the knee is pressed to the right against the knee lifter, the needle will commence to vibrate until the desired width of stitch is obtained.

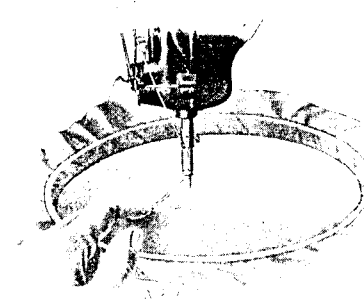


Fig. 15. Holding Threads for First Stitch for Flat Stitch Embroidery



### To Regulate the Width of Bight for Flat Stitch Embroidery

The width of bight or extent of the lateral vibrations of the needle for flat stitch embroidery is regulated by the knee lifter which can be operated to make any width of bight up to  $\frac{3}{8}$  inch. When the slide block (F, Fig. 13) is moved downward by operating the knee lifter, from zero to one, the needle will vibrate  $\frac{1}{2}$  inch, and the width of bight will be increased  $\frac{1}{32}$  inch for each additional number.

### To Regulate the Tensions for Flat Stitch Embroidery

The tension on the upper thread is regulated by the thumb nut at the front of the tension discs on the top of the arm at the right. To increase the tension, turn this thumb nut over to the right. To decrease the tension, turn this thumb nut over to the left.

The tension on the under thread is regulated by the screw near the centre of the tension spring on the outside of the bobbin case. To increase the tension, turn this screw over to the right. To decrease the tension, turn this screw over to the left.

The tension on the under thread should be slightly heavier than the tension on the upper thread.

### To Adjust the Machine for Making Eyelets of Various Shapes

For making eyelets of various shapes, the threading of the machine should be the same as for eyelet work as shown in Fig. 8.

Remove the presser foot, lower the presser bar and place needle plate 234428 in the machine as instructed on page 11. Draw the spring plunger (C, Fig. 13) toward you and move it to the left as far as it will go, then release it.

See that the lever (D, Fig. 13) is raised and pointing toward you. Loosen the wing nut (E, Fig. 13), turning it over to the left as far as it will go. The machine is now ready for operation.

### Learning to Operate the Machine for Making Eyelets of Various Shapes

Place the embroidery design between the embroidery hoops. The goods should be stretched smoothly and held firmly between the hoops.

Place the goods under the needle and turn the balance wheel over toward you with the right hand until the needle enters the goods on the outline of the eyelet which has been traced upon the material, then draw up the under thread as instructed on page 15.

Hold both threads flat on the goods as instructed on page 15 and start the machine. After making a few stitches, the ends of the threads can be cut close to the goods.

Continue to sew along the outline of the eyelet with a straight stitch, at the same time turning the work in the direction opposite to that followed by the hands of a clock.

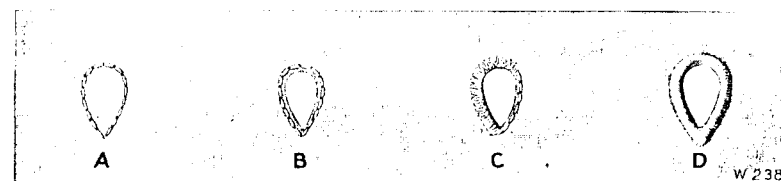


Fig. 16. Stages in Making Various Shapes of Eyelets

After outlining the eyelet with the straight stitch as shown by A, Fig. 16, the fabric inside the stitching should be cut out with scissors as shown by B, Fig. 16.

Place the work under the needle and turn the balance wheel over toward you until the needle enters the goods on the line of straight stitching for the eyelet, then draw up the under thread as instructed on page 15.

Hold both threads flat on the goods as instructed on page 15, and start the machine. After making a few stitches, the ends of the threads can be cut close to the goods. By moving the work alternately right and left, zigzag stitches are made across the line of straight stitching as shown by C, Fig. 16; and the work is also moved in a circular direction opposite to that followed by the hands of a clock until the straight stitching is completely covered. The eyelet can be worked around a second time with the zigzag stitch, if desired, as shown by D, Fig. 16.

### To Adjust the Machine for Making Knots

For making knots, the threading of the machine should be the same as for eyelet work as shown in Fig. 8.

Remove the spur plate and place needle plate 234428 in the machine as instructed on page 11. Remove the presser foot and lower the presser bar. Draw the spring plunger (C, Fig. 13) towards you and move it toward the left as far as it will go, then release it. See that the lever (D, Fig. 13) is raised and pointing toward you. Loosen the wing nut (E, Fig. 13) and move it down to the desired width of bight, then tighten the wing nut (E).

Place the fabric between the embroidery hoops furnished with the machine. The goods should be stretched smoothly and held firmly between the hoops.

Place the work under the needle as shown in Fig. 14. With the left hand hold the end of the needle thread, leaving it slack from the hand to the needle, turn the balance wheel over toward you until the needle moves down and up again to its highest point, thus catching the under thread; draw up the needle thread and the under thread will come up with it through the goods as shown in Fig. 14.

Hold both threads flat on the goods with the finger as shown in Fig. 15; then start the machine. After making a few stitches, the threads can be cut close to the goods. Continue to run the machine, at the same time moving the work backward and forward with the hands until the knot is the desired thickness.

### To Oil the Machine

To ensure easy running and prevent unnecessary wear of the parts which are in movable contact, the machine requires oiling, and when in continuous use it should be oiled at least once each day.

Oil should be applied at the places designated by arrows as shown in Figs. 17, 18 and 19. Swing back the cover which is on the top of the machine, at the right, and oil the bearings which are thus uncovered, then replace the cover.

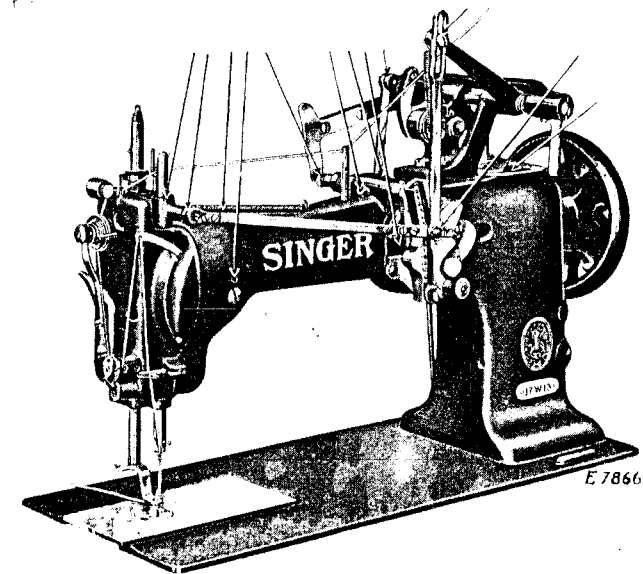


Fig. 17. Front View of Machine, Showing Oiling Points

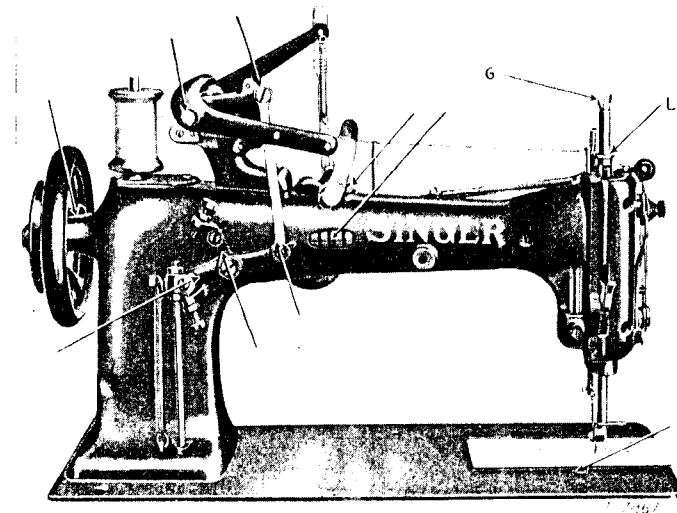


Fig. 18. Back View of Machine, Showing Oiling Points

Turn the machine back on its hinges and apply oil at the places designated by arrows, as shown in Fig. 19, and all other places where there are parts in movable contact, then bring the machine forward into place.

Occasionally oil the bobbin case bearing in the bobbin case race.

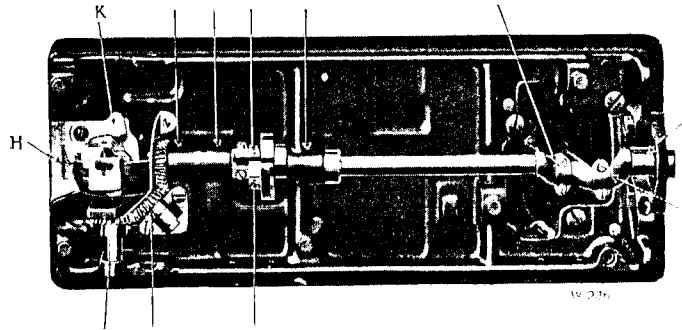


Fig. 19. Base of Machine, Showing Oiling Points

## INSTRUCTIONS FOR ADJUSTERS AND MACHINISTS

### Thread Controller

The function of the thread controller spring is to hold back the slack of the upper thread until the eye of the needle reaches the goods in its descent.

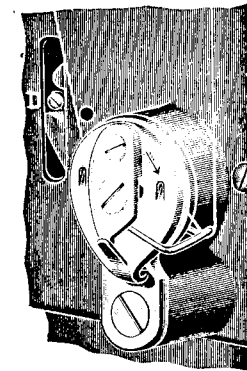


Fig. 20

The thread controller stop is in the form of a crescent; push on the upper end of the stop for less controller action and on the lower end for more controller action on the thread.

It may be found advisable to increase the tension of the spring for coarse thread, or to lessen it for fine thread.

To vary the tension of the thread controller spring, remove the face plate and loosen the small set screw (see Fig. 20) at the right of the controller, which sets the thread controller stud, then from the inside turn the stud forward or backward as required, and retighten the set screw. In any case, when an unusually light tension is used, the tension on the spring should be correspondingly light. The coils of the spring should be oiled occasionally.

**To Place a New Thread Controller in Position.** Remove the entire thread controller by taking out the largest screw (see Fig. 20) and release the spring by removing the middle screw. (Be careful not to lose the small roller.) Place the new spring, roller and screw in their positions. Next put the entire thread controller on the face plate, taking care to slide the little tail, on the coil of the spring, into the notch in the stud over which the coil slides.

Oil the small roller occasionally.

### To Position the Needle Bar

Loosen the wing nut (E, Fig. 9) and raise it to the top of the slot. When the wing nut (E) is in this position, the needle bar should not vibrate and the point of the needle should enter directly in the centre of the slot in the needle plate. If the needle is at the right or left of the centre, loosen the two screws (G, Fig. 9) and move the needle bar to the right or left, until the needle is central in the slot, then securely tighten the two screws (G).

### To Set the Needle Bar

The needle bar which is in the machine when shipped from the factory has upon it (about two inches from the bottom) two lines  $\frac{1}{8}$  inch apart.

When the needle bar is at its lowest position, the upper mark should be just visible at the bottom of the needle bar frame.

**To Set a New Needle Bar Which Has no Mark.** Set the needle bar so that when it rises  $\frac{1}{8}$  inch from its lowest position, the point of the hook will be at the center of the needle and about  $\frac{3}{32}$  inch above the eye.

### To Time the Hook

First—Move needle bar frame pitman connection slide wing nut (E, Fig. 9) up until there is no vibration of the needle bar.

Second—Tip the machine back and loosen the two screws in hook driving shaft crank (N, Fig. 21) at the right of the hook so that the hook can be moved by turning hook driving bevel gear (M, Fig. 21) with the fingers.

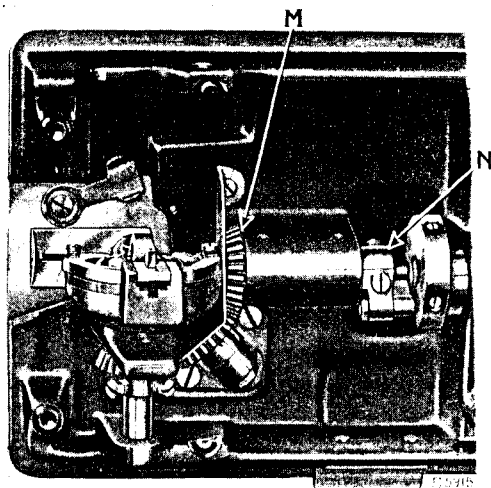


Fig. 21

Third—Turn the balance wheel toward you until the needle bar has passed its lowest point and risen so that the lower mark on it is even with the needle bar frame.

Fourth—With your fingers turn hook driving bevel gear (M, Fig. 21) in its regular direction until the point of the hook passes the needle about  $\frac{1}{4}$  inch, then carefully and slowly push the hook backwards until the point of the hook is at the centre of the needle and  $\frac{3}{32}$  inch above its eye and securely fasten the two screws in the crank (N), provided neither the needle bar or hook has moved since stationed as directed, as there must be no lost motion between the heel of the hook and the hook driver when the machine is correctly timed.

### To Remove the Hook from the Machine

Remove the hook race cap spring screw and spring from each side of the hook bracket and remove the hook.

The point of the hook should run as close to the needle on its widest throw, without touching it, as careful adjustment will permit.

### To Set the Hook so that the Point will Run Closer to the Needle on Zigzag Machines

Tip the machine back and remove the bobbin case. Turn the balance wheel and look through the hook for three hook bracket adjusting screws near the top of the hook bracket and two near the bottom; slightly loosen the large lower and upper screws, then carefully tighten the two small upper screws, drawing the hook as close to the needle as desired and tighten both large screws firmly. Be careful that the hook bracket is moved out squarely so that the hook will be as close to the needle when entering the inside loop as it is when entering the outside loop; if it is not, loosen one of the small upper screws and tighten the other to bring the hook bracket out squarely.

### To Set the Point of the Hook Farther from the Needle

Loosen the small upper screws and the large lower one, then turn the large upper screw slightly inward until the point of the hook is the desired distance from the needle and tighten the screws which were loosened.

### Hook Openings

To increase the openings between the hook driver and the hook to allow the thread to pass easily between them, slightly loosen the large upper and lower screws, turn inwardly the small lower screw and tighten both the large upper and lower screws. To reduce the openings, turn outwardly the small lower screw and tighten the large lower and upper screws. Verify the correctness of the timing before commencing to sew.

### To Remove the Arm Shaft

Through the oil hole near the needle bar, loosen the set screw and remove the check and position screws from the take-up cam, remove the arm shaft bushing (front) position screw from the back of the arm, remove the set screws from the needle bar frame driving cam and detach the arm shaft connections, remove the balance wheel, the needle and presser bars, insert a light flexible rod through the large hole over the arm shaft connections, drive out the front bushing and draw out the arm shaft. When replacing the bushing, see that the oil hole for oiling the shaft is in line with the oil hole on the arm and return the bushing position screw to its place. When a new bushing is used, drill the oil hole through into the shaft hole after the bushing is set in the arm. When setting the take-up cam, be sure to replace the position screw in the hole nearest to the presser bar when the screw holes are uppermost and tighten the position screw firmly down into the shaft, and replace the check screw over it. The end play of the arm shaft is taken up by means of the screw in the end of the shaft at the balance wheel.

**Balance Wheel.** In attaching the balance wheel to the shaft, the screw farthest from the operator should enter the groove in the shaft, when both screws are uppermost; otherwise the wheel will be out of balance and cause the machine to shake.