SINGER
107W102

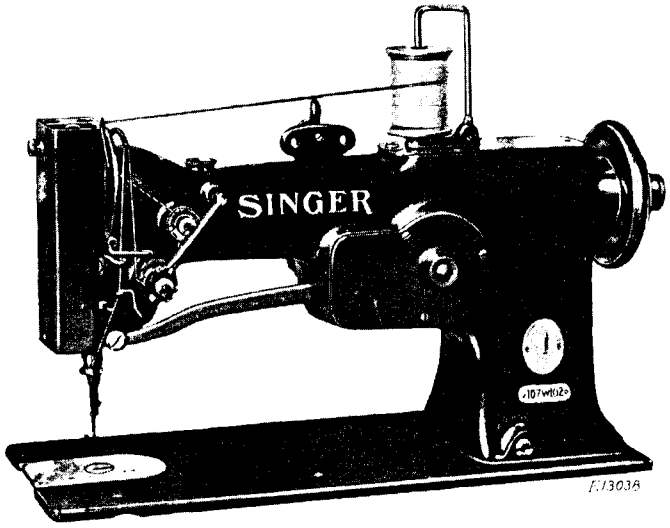
Form 2083W

INSTRUCTIONS

FOR USING AND ADJUSTING

SINGER*

SEWING MACHINE



107w102

THE SINGER MANUFACTURING COMPANY

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DESCRIPTION

Machine 107w102 has one needle and one rotary sewing hook and makes the zigzag lock stitch. It is regularly fitted for flat embroidery work, and can also be fitted for Madeira eyelet embroidery and for cording.

The machine has no feeding mechanism. The work is clamped in embroidery hoops which are passed under the needle and moved in the desired direction by the operator. The stitching can thus be controlled at will.

Flat Embroidery

Many pleasing varieties of flat embroidery work can be produced on this machine. The needle can vibrate toward the right, or toward the left, or zigzag across a central line simply by controlling the hand lever (C, Fig. 11) at the back of the machine. Stitching can be readily varied to any width up to ½ inch by means of the knee lever.

When the machine is fitted for flat embroidery work, no presser foot is used and flat needle plate 233201 (E, Fig. 11) is fastened in position in the throat plate.

Cording can also be done on machines fitted for flat embroidery by using Cording Attachment 233221, which is applied to the machine as instructed on page 16.

Madeira Embroidery

When the machine is to be used for this style of embroidery it is fitted with Madeira Attachment 233212, which includes the combinations of presser feet and spur plates supplied with the machine, as listed on page 13.

Flat embroidery work can also be produced on machines fitted with Madeira Attachment 233212, after removing the presser foot and substituting flat needle plate 233201 for the spur plate, as shown in Fig. 11.

Cording can also be done on machines fitted for Madeira embroidery, by using Cording Attachment 233217 which is attached to the regular presser bar. In this case, the presser foot is removed from the machine and flat needle plate 233201 is substituted for the spur plate, as shown in Fig. 14.

Cording

For Cording, the machine can be fitted with either of Cording Attachments 233217 or 233221, both of these corders requiring flat needle plate 233201.

Cording Attachment 233217 is attached to the regular presser bar as shown in Fig. 14, and may be used in connection with machines fitted for Madeira embroidery.

Cording Attachment 233221 is mounted on a bar which is set in the presser bar bushing hole in the machine, as shown in Fig. 15. This corder is not used in connection with machines fitted for Madeira embroidery, but may be used with machines fitted for Flat Embroidery.

Note: Each of the above corders are supplied with cord guide tubes 233215 and 233216 for handling the sizes of cords generally used.

Speed

The maximum speed recommended for Machine 107w102 is 1500 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 machine pulley should turn over toward the operator.

Needles and Thread

Needles for Machine 107w102 are of Class and Variety 135x7 and are made in sizes Nos. 7, 8, 9, 10, 11, 12, 14, 16 to 25.

The size of needle to be used should be determined by the size of thread which must pass freely through the eye of the needle. Care should be taken that the size of needle is no larger than necessary, so that the needle punctures in material will be small, to prevent disfiguration of the material by "shirring" or distortion. If rough or uneven thread is used, or if it passes with difficulty through the eye of the needle, the successful use of the machine will be interfered with. Use soft finish thread of the same size for the needle and the bobbin. Use left twist thread, that is, thread twisted over from right to left.

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

The following are details of an intelligible order:

"100 No. 14—135x7 Needles."

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

To Remove the Bobbin

Draw out the slide in the bed of the machine; reach under the bed of the machine with the thumb and forefinger of the left

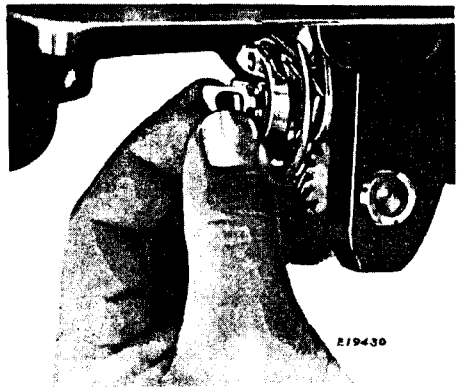

Fig. 2. Taking Out the Bobbin Case

hand, open the bobbin case latch with the forefinger and lift out the bobbin case (see Fig. 2).

While the latch remains open the bobbin is retained in the bobbin case. Release the latch, turn the open end of the bobbin case downward and the bobbin will drop out.

To Wind the Bobbin
(See Fig. 3)

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.

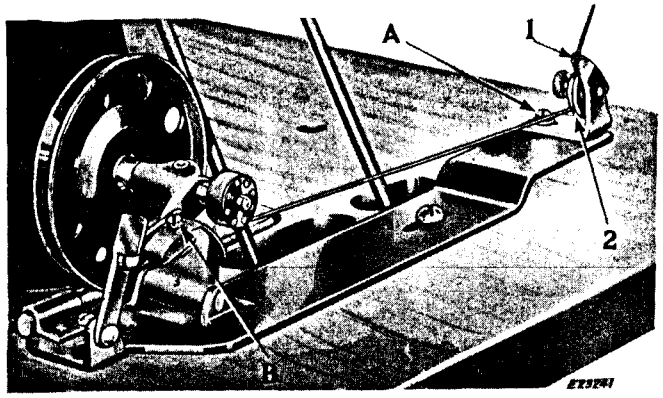

Fig. 3. Winding the Bobbin

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.

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.

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

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 the screw outwardly.

Bobbins can be wound while the machine is stitching.

To Thread the Bobbin Case

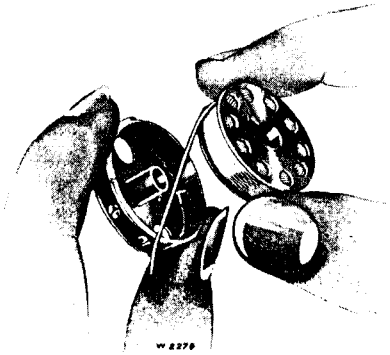

Fig. 4

Hold the bobbin between the thumb and forefinger of the right hand, the thread leading on top from the right toward the left.

With the left hand hold the bobbin case open side up, the tension spring being at the front (see Fig. 4) and place the bobbin into it.

Then pull the thread towards the left into the slot in the edge of the bobbin case (see Fig. 5), draw the thread under the tension spring and into the second slot in the edge of the bobbin case; then

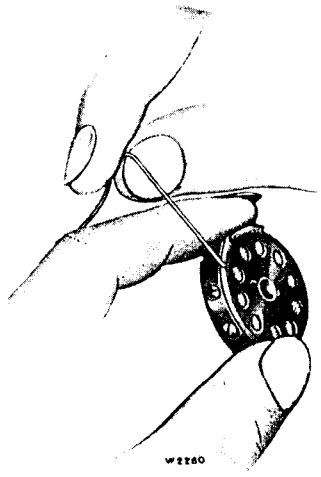

Fig. 5

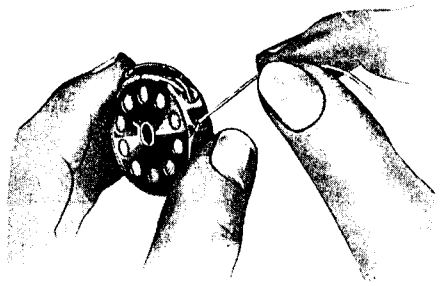

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Fig. 6

pull the thread between the bobbin and bobbin case and into the third slot in the edge of the bobbin case, then into the delivery eye, as shown in Fig. 6.

To Thread the Needle
(See Fig. 7)

Pass the thread from the unwinder into the thread guide (1) at the top of the face plate, down and from left to right through

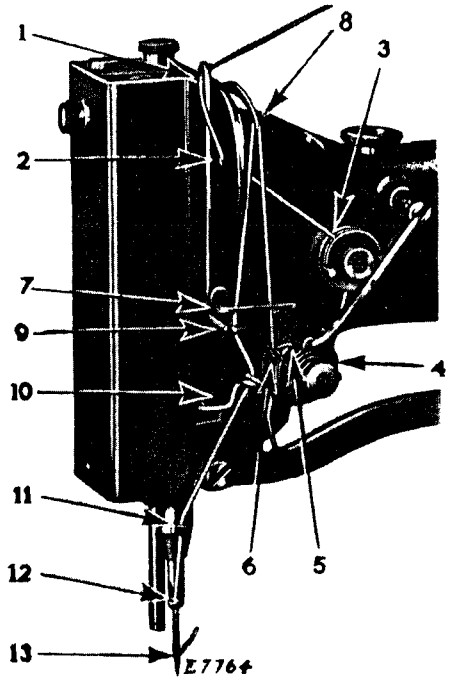

Fig. 7. Threading the Needle

the hole (2) near the top of the machine, under the thread take-up lever and over from left to right between the discs of the thread controller (3) on the front of the machine, down under from right to left between the tension discs (4), up and into the hook (5) of the tension discs, down under the thread controller spring (6), up through the wire thread guide (7) on the front of the machine and from right to left through the eyelet in the end of the take-up lever (8), then down through the wire thread guide (7) again, through the auxiliary take-up (9) and through the wire thread guide (10) below, into the thread guide (11) near the lower end of the needle bar frame and through the thread guide (12) at the lower end of the needle bar, then from front to back through the eye of the needle (13). Draw about three inches of thread through the eye of the needle with which to commence sewing.

To Adjust the Machine for Flat Embroidery

Three different forms of overseams, as shown in Figs. 8, 9 and 10, can be produced with the zigzag stitching, namely: seams

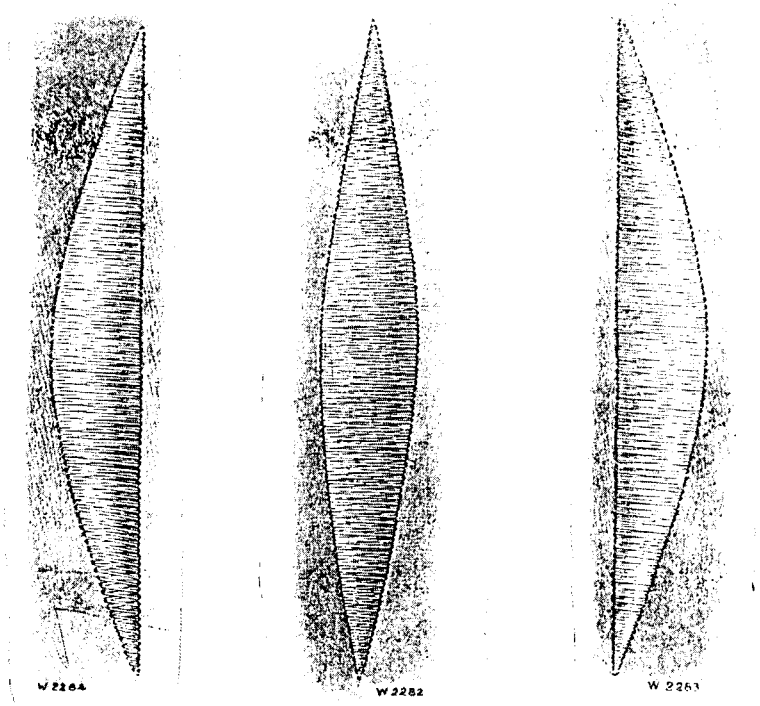

Fig. 8 Fig. 9 Fig. 10

varying in width from a straight line at the extreme right edge of the seam as shown in Fig. 8; seams varying in width equally on each side of a line central of the stitching as shown in Fig. 9, and seams varying in width from a straight line at the extreme left edge of the seam as shown in Fig. 10.

Each form of seam is governed by the lever (C, Fig.11) at the back of the machine. To move this lever, pull back the lever plunger (D, Fig. 11), press the knee lever and move the lever (C) to the left or right as desired, allowing the lever plunger (D) to enter the hole in the bracket.

When the lever (C, Fig. 11) is in the central position, the lateral vibrations of the needle can be increased or decreased equally on each side of a line central of the stitching.

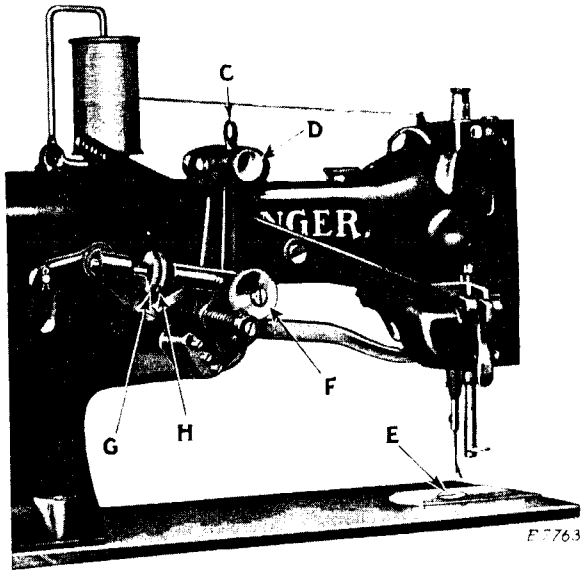

Fig. 11. Machine Adjusted for Flat Embroidery

When the lever (C) is in the left position (operator standing at the front of the machine), the needle will vibrate to the left and the width of the zigzag stitching can be increased or decreased from a straight line at the extreme right edge of the seam.

When the lever (C) is in the right hand position (operator standing at the front of the machine), the needle will vibrate to the right and the width of the zigzag stitching can be increased or decreased from a straight line at the extreme left edge of the seam.

To Regulate the Width of Zigzag Stitch

The width of zigzag stitch or extent of the lateral vibrations of the needle is regulated by the knee lever which can be operated to make each form of seam any width varying from a straight line up to ½ inch.

To Adjust the Needle Bar Throw Spindle

As the widest needle bar throw is required for flat embroidery, the adjusting spindle (G, Fig. 11) should be placed in the inoperative position shown in Fig. 11.

To Operate the Machine for Flat Embroidery

Place the material between the embroidery hoops, taking care that it is stretched smoothly and held firmly between the hoops.

Place the material under the needle. With the left hand hold the end of the needle thread, leaving it slack from the hand to the needle, turn the machine pulley over toward you until the needle moves down and up again to its highest point, thus catching the bobbin thread; draw up the needle thread and the bobbin thread will come up with it through the material.

Hold both threads flat on the material with the finger, then start the machine. Continue to run the machine, at the same time feeding the work with the hands. As the knee is pressed against the knee lever, the needle will start to vibrate until the desired width of stitch is made.

To Make Seams of Continuous Widths

Set the lever plunger (D, Fig. 11) in the center hole in the bracket at the back of the machine and press the knee lever until the needle vibrates to the desired width of seam. Then tighten the large thumb nut (F, Fig. 11).

For making seams of continuous widths as in "striping", the index on the bracket at the back of the machine is provided so that the striping position may be readily returned to after sewing other various ornamental designs.

To Remove the Work

Let the thread take-up lever rest at its highest point, draw the work back and cut the threads close to the goods.

To Adjust the Throat Plate for Flat Embroidery

The throat plate is retained in position in the bed of the machine by means of springs, so that it may be readily removed when desired. The small, round needle plate 233201 (E, Fig. 11) is held in position in the throat plate by a locking slide located on the underside of the throat plate. To remove the needle plate, draw the locking slide to the left and lift the needle plate out of the recess in the throat plate. When replacing the needle plate, care must be taken to see that the end of the slot in the needle plate is over the pin in the recess in the throat plate and that the locking slide is moved back into position.

When changing from one form of seam to another, it may be necessary to adjust the throat plate endwise in the bed of the machine, to prevent the needle from coming into contact with the needle plate. To do this, press the throat plate in the required direction so that the needle will clear the needle plate when it enters the needle slot.

To Adjust the Machine for Madeira Embroidery

Place the lever plunger (D), Fig. 12) in the end hole as shown in Fig. 12, leaving the large thumb nut (F, Fig. 12) loose. Adjust

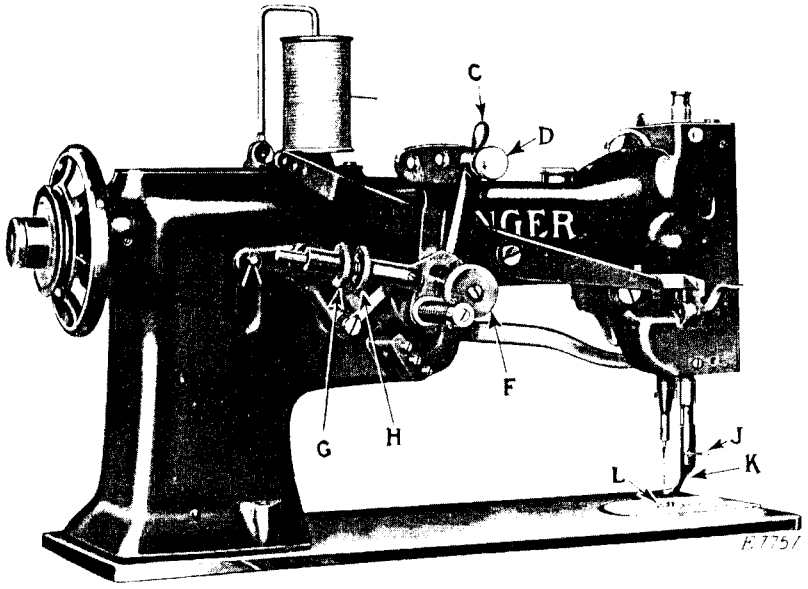

Fig. 12. Machine Adjusted for Madeira Embroidery

the needle bar throw spindle (G, Fig. 12) to obtain the required throw of the needle bar, then securely tighten the lock nut (H, Fig. 12) to retain the adjustment.

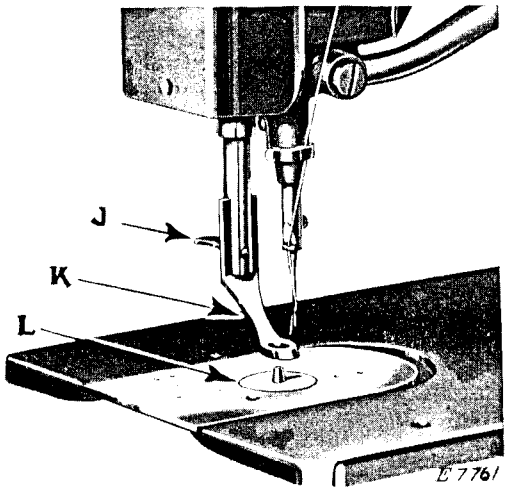

Fig. 13. Machine Adjusted for Madeira Embroidery

Relative Sizes of Spur Plates, Presser Feet and Punches for Madeira Embroidery

Select the size spur plate (L, Fig. 13) and corresponding presser foot (K, Fig. 13) according to the size of eyelet required, as shown in the following table:

Diameter of Eyelet Hole	Spur Plate	Presser Foot	Punch
$\frac{7}{64}$"	234446	233210	234463 or 234462
$\frac{5}{32}$"	234511	233210	234467 or 234464
$\frac{3}{16}$"	234512	233211	234464 or 234466
$\frac{1}{4}$"	234513	233211	234465

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

The punches, listed above, are not included in the regular equipment of the machine, but are furnished, on order, at an additional charge.

Eyelet Punch Mallet 234485 and Eyelet Punch Cutting Block 234484 can also be supplied for use in connection with the above punches. This mallet and cutting block will be found very useful and are furnished, on order, at an additional charge.

To Remove and Replace the Presser Foot

Remove the wing screw (J, Fig. 13) at the lower end of the presser bar and remove the presser foot. To replace the presser foot, insert the shank of the foot in the slot in the presser bar, replace the wing screw (J) and securely tighten it.

To Adjust the Presser Bar

The presser bar should be adjusted so that when the presser foot is lowered by the presser bar lifter, the foot will rest lightly enough on the work to allow it to turn freely.

To Remove and Replace the Spur Plate

Reach under the bed of the machine with the left hand and draw to the left the locking slide which is on the underside of the throat plate, then push upward on the spur plate to remove it. When replacing the spur plate, have the pin in the throat plate enter the slot in the edge of the spur plate, then push the locking slide to the right to fasten the spur plate in position.

The spur in the spur plate should be central in the presser foot. To accomplish this, move the throat plate to the right or left, as may be required.

To Operate the Machine for Madeira Embroidery

For practice, place spur plate 234446 and presser foot 233210 in the machine. Make several holes in a piece of goods with punch 234463. Then place the goods between embroidery hoops, taking care that it is 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. Place the goods under the presser foot so that the spur in the spur plate will enter one of the holes in the goods, then lower the presser foot upon the goods.

Draw up the bobbin thread in the same manner as instructed on page 11, for flat embroidery, and start the machine, pressing the knee lever to the right as far as it will go. Continue the pressure against the knee lever while running the machine and at the same time turn the goods slowly in **a counter-clockwise direction.** Several revolutions of the work may be made to produce the desired effect, after which, without stopping the machine, release the pressure on the knee lever which will cause the needle to stop vibrating and produce tying stitches on the outer edge of the eyelet. After making the desired number of tying stitches, stop the machine.

To Attach Corders 233217 and 233221 to the Machine

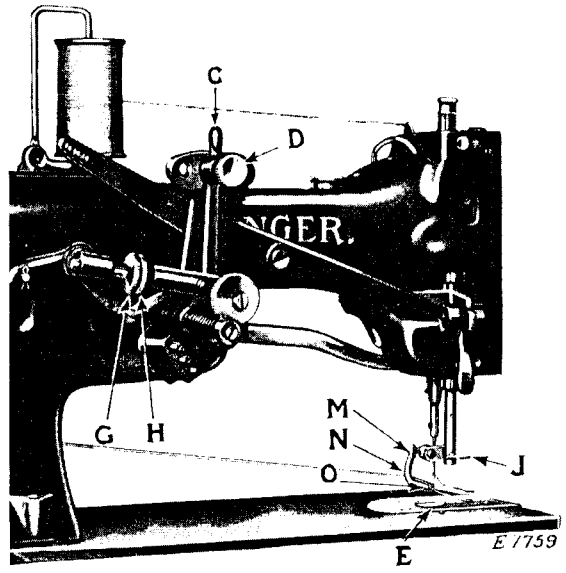

Fig. 14. Corder 233217 Attached to Machine Fitted with Madeira Attachment Also Showing Machine Adjusted for Cording

To attach Corder 233217 to the machine, place it on the lower end of the presser bar, as shown in Fig. 14. Lower the presser bar lifter. After having loosened the two clamping thumb screws (J and M, Fig. 14) and the set screw in the end of the cord guide arm (N, Fig. 14), set the cord guide tube (O, Fig. 14) so that it will just clear the needle plate. At the same time adjust the delivery eye of the tube so that it will be in the correct position in relation to the needle plate. Then tighten the two clamping thumb screws (J and M) and the set screw in the end of the cord guide arm.

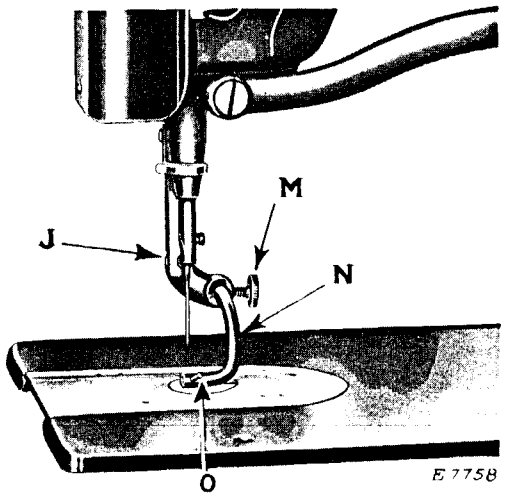

Fig. 15. Corder 233221 Attached to Machine
Not Fitted with Madeira Attachment

To attach Corder 233221. This corder is mounted on a short bar which is inserted in the presser bar bushing hole and fastened in position by a set screw. Otherwise the adjustment of this corder is the same as instructed on page 15 (see Fig. 15).

To Adjust the Machine for Cording

The following applies to Corders 233217 and 233221:

Place the lever plunger (D, Fig. 14) in the center hole in the bracket at the back of the machine, as shown in Fig. 14.

Throat plate 233204 should be fitted with flat needle plate 233201(E, Fig. 14) and adjusted as instructed on page 12.

Press the knee lever and adjust the needle bar throw spindle (G, Fig. 14) to make the desired width of stitch, then securely tighten the lock nut (H, Fig.14) to retain the adjustment.

To Thread the Cord Guide Tube

Pass the cord from the thread unwinder or other spool holder, through the opening (1, Fig. 16) in the center of the cord guide tube and through the hole (2, Fig. 16) in the end of the tube. Draw enough cord through the tube to leave an end sufficiently long under the needle with which to start sewing.

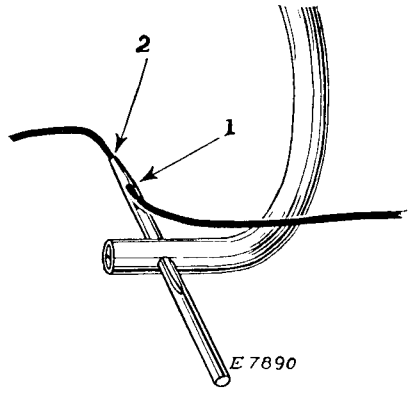

Fig. 16. Cord Guide Tube Threaded

To Operate the Machine for Cording

Place the goods between embroidery hoops and draw up the bobbin thread as instructed on page 11. Then start the machine, pressing the knee lever to the right as far as it will go. Continue the pressure against the knee lever while running the machine and at the same time guide the work so that the cord will lie centrally under the zigzag stitching.

Tensions

Ordinarily, for zigzag stitching the upper and under threads require very little tension; there should be only enough to prevent the loops from showing along the upper surface of the work.

For straight stitching the upper and under threads should be locked in the center of the thickness of the material, thus:

Fig. 17. Perfect Stitch

If the tension on the upper thread is too tight or if that on the under thread is too loose, the loops of the under thread will be visible along the upper surface of the material, thus:

Fig. 18. Tight Upper Tension

If the tension on the under thread is too tight, or if that on the upper thread is too loose, the loops of the upper thread will be visible along the under side of the material, thus:

Fig. 19. Loose Upper Tension

To Regulate the Tensions

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

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

To Oil the Machine

The machine should be oiled at the places designated by arrows, as shown in Figs. 20, 21 and 22, and when in continuous use it should be oiled frequently.

Use **"TYPE B"** or **"TYPE D" OIL,** sold by Singer Sewing Machine Company. For description of oils, see inside front cover of this book.

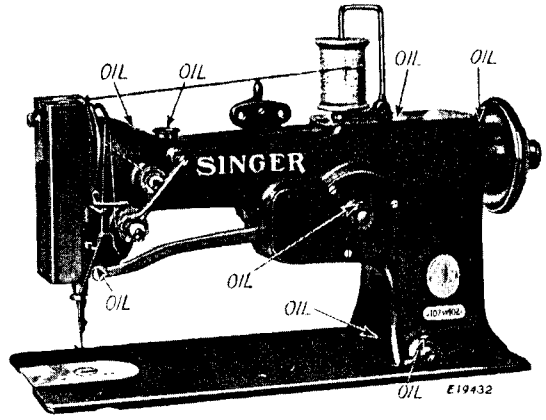

Fig. 20. Front View of Machine, Showing Oiling Points

Remove the face plate and oil all of the bearings which are thus uncovered, then replace the face plate. Turn back the cap which is at the top of the machine and oil the bearings which are thus uncovered, then replace the cap.

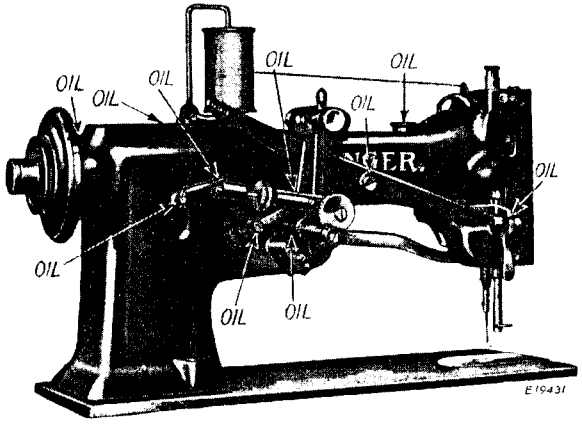

Fig. 21. Back View of Machine, Showing Oiling Points

Remove the belt and turn the machine back on its hinges and apply oil at the places designated by arrows, as shown in

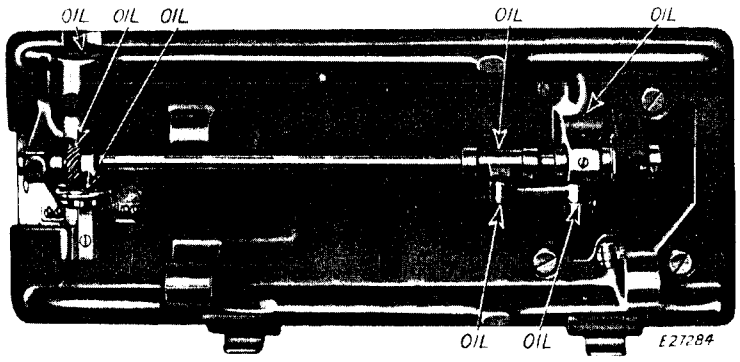

Fig. 22. Base of Machine, Showing Oiling Points

Fig. 22; and all other places where there are parts in movable contact, then bring the machine forward into place.

Oil the bobbin case bearing in the hook race each time a bobbin is replaced.

INSTRUCTIONS

FOR

ADJUSTERS AND MACHINISTS

The Automatic Thread-Check or Controller

The action of the thread controller or automatic thread-check through which the thread passes just before it enters between the regular tension discs is such, when in proper adjustment, that the thread is released as the take-up lever is nearing the end of its upward stroke, about 5/8 to 3/4 of an inch from its highest position, and is so set when the machine leaves the factory. In case this does not release the thread early enough, loosen the jam nut at rear side of discs and screw the knurled bushing in or toward the right; or to make it release later, screw the bushing out or toward the left. Be sure to retighten the jam nut to secure the bushing in its desired adjustment. When in proper adjustment as above indicated, the sewing may be done with a far lighter tension on the regular tension discs than is otherwise possible, thereby permitting the use of various kinds and qualities of thread and speeds that would otherwise be impracticable.

Thread Controller Spring

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

For more controller action on the thread, loosen the stop screw at the right of the tension and set the stop lower. For less action set the stop higher.

To strengthen the action of the controller spring on the thread, loosen the tension stud screw at the right of the stop screw and turn the tension stud slightly to the left with a screw driver, or to lighten its action turn to the right and retighten the tension stud screw.

Needle, Needle Bar and Hook Timing

The timing or position marks on the needle bar register with the lower edge of the needle bar frame when the needle is in central position midway between its extreme lateral movements. This condition may be obtained by placing the lever at the back of the machine in central position, as shown in Fig. 21.

With the parts in this setting and the needle bar at the downward limit of its movement, the upper mark on the needle bar should be just barely visible at the under edge of the needle bar frame; then, as the needle bar rises, the sewing hook point should pass the needle at its center just as the lower mark on needle bar registers with under edge of needle bar frame.

Having ascertained the correctness of the needle bar setting (by these position marks) the sewing hook may also be timed by first moving the needle to its extreme left-hand position and then timing the hook point so that it will pass the needle at a point just barely above the needle eye, or as "slow" in passing the needle at this point as will ensure it seizing the thread loop. In any case, the hook should never be so fast in time as to drag the needle point on any part of the hook when rising. This method of hook timing may be found beneficial in handling some varieties of thread.

Should the needle require slight adjustment to the right or left, this may be done by turning the needle bar frame pitman eccentric stud at the lower end of the needle bar frame. Should this eccentric stud be removed, be careful in replacing to have the bulge downward.

Lateral Motion of Needle Bar

The side or lateral motion of needle bar should terminate as late as possible, just before the needle point enters the fabric. The time of this motion is important for it also affects the motion of the sewing hook. Delaying such motion enables the thread to be withdrawn from the hook by the take-up at a favorable period.

CAUTION—Care should be taken not to over-delay the lateral motion lest it cause injury to the fabric.

To Time Movement of Needle Bar Frame

Change the time of the needle vibrator driving gear pinion on arm shaft.

To See if the Needle Bar is Set Correctly

See that the needle is up in the bar as far as it should go.

The needle bar which is in the machine when shipped from the factory has upon it (about two inches from the bottom) two lines $\frac{3}{32}$ inch apart. When the needle bar is at its lowest and central position, the upper mark should be just visible at the end of the needle bar frame.

To Set the Needle Bar in Correct Time. Loosen the needle bar connecting stud pinch screw and place the needle bar in the proper position as directed above, then retighten the screw.

To Set a Needle Bar Which Has no Mark. Set the needle bar so that when it rises $\frac{3}{32}$ inch from its lowest and central position the point of the hook will be at the center of the needle and about $\frac{1}{16}$ inch above the eye.

To Remove the Belt from Within the Arm

Slide the arm shaft connection belt off the hook driving bevel pinion shaft belt pulley, remove the feed regulating spindle and machine pulley; loosen the arm shaft bushing (back) position screw at the back of the arm and remove the bushing; lift the belt up through the arm cap hole as far as possible and draw it out through the space left by the bushing.

In replacing the belt see that the hook (sewing) and needle are in correct time before running the belt on the lower pulley and verify the correctness of the timing before commencing to sew.

To Remove the Arm Shaft

Loosen the set screws and remove the position screws from the belt pulley and needle bar crank; loosen the set screws in the pinion on the arm shaft and draw the shaft out from the machine pulley end of the machine.

To Replace the Arm Shaft

Return the shaft to its place through the belt pulley, pinion, friction washer and needle bar crank; return the position screws to the belt pulley and needle bar crank, and into their position holes in the shaft; tighten the set screws and replace the machine pulley, leaving the least possible end play to the shaft.

To Remove the Arm Shaft Bushing (front)

After removing the needle bar crank remove the bushing position screw from the back of the arm, insert a brass rod through the arm cap hole and drive the bushing out.