

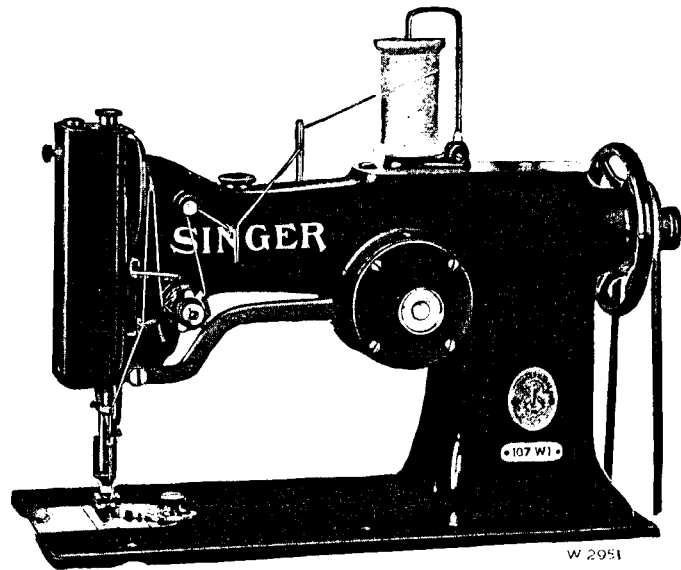
SINGER
107W1,W3,W5

1848w

INSTRUCTIONS

FOR USING AND ADJUSTING

SINGER SEWING MACHINES



107w1, 107w3 AND 107w5

FOR

HIGH SPEED ZIGZAG LOCK STITCHING

THE SINGER MANUFACTURING CO.

Purchasing of Parts and Needles

Supplies of parts and needles for Singer machines can be purchased at any Singer Shop for the Manufacturing Trade 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 107w1 is especially intended for overseaming and zigzag stitching at high speed. It is adapted for use on fabrics and light weight leather and is successfully used in the manufacture of a great variety of articles including trousers, coats, hats, gloves, cloaks, suspenders, hosiery, knit underwear, etc.

For general tailoring work, joining laces and tapes, finishing the edges of tape measures, binding awnings, and other work requiring a zigzag stitch, this machine is the best procurable.

Many operations in the manufacture of shoes, such as attaching side and top facings to the linings, butting either canvas or felt toe pieces to the end of the vamp, etc., are also well done on this machine.

In the manufacture of table covers, doilies, draperies, bureau scarfs, etc., an ornamental effect can be produced on the machine by overstitching a cord with thread of contrasting color.

Overseaming or overcasting the raw edges of fabrics can be very satisfactorily done on the machine by taking one stitch in the fabric and the other over its edge.

Machine 107w3 makes the zigzag lock stitch and is designed for basting and tacking coat pads. The work is accomplished more rapidly and satisfactorily on this machine than is possible by any other sewing machine or method.

Machine 107w5, for hemming shades, has a rotary hook with large bobbin and makes the zigzag lock stitch at high speed. It is constructed with a positive reciprocating feed slide under the presser foot and above the work, the slide being attached to and actuated by the feed driving mechanism and working in unison with the feed. The action of the reciprocating slide prevents the puckering or drawing of the material, carrying the hem and body of the shade with exact uniformity.

Speed

The maximum speed recommended for Machine 107w1 is 2500 stitches per minute and for Machines 107w3 and 107w5, 2000 stitches per minute. The machines 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 machines are in operation, the balance wheel should always turn over toward the operator.

Needles

Needles for Machine 107w1 are of Class and Variety 135x5 and are made in sizes 9, 10, 12, 14, 16, 18, 20, 22 and 23.

Needles for Machines 107w3 and 107w5 are of Class and Variety 135x9 and are made in sizes 9, 10, 12, 14, 16, 18, 20 and 22.

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. 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.

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—135x5 Needles."

"100 No. 16—135x9 Needles."

RELATIVE SIZES OF NEEDLES AND THREAD

SIZE NUMBERS OF NEEDLES	FOR CLOTH WORK	
	COTTON	SILK
12	70 to 100	OO to A
14	50 to 70	A, B
16	40 to 50	B, C
18	30 to 40	C, D
20	24 to 30	D, E

To make a smooth, even stitch with your sewing machine, use good, firmly twisted and smoothly finished thread, that passes freely through the eye of the needle. No other needles will give as good results and satisfaction as those recommended above.

In using slack twist or uneven silk, should it be frayed or roughened, the needle is too fine or too sharp, or has a hooked point, made by striking the throat plate. A hook may be easily honed off a needle.

For ordinary work use the same size of thread on the bobbin as in the needle. Always use soft finished thread on the bobbin.

Thread

Left twist thread should be used in the needle. Either right or left twist thread can be used for the bobbin.

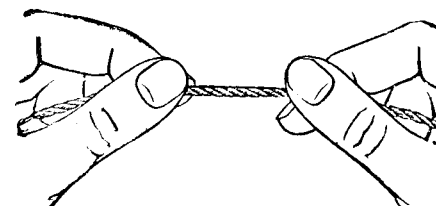


Fig. 2. How to Determine the Twist

Hold the thread as shown above. Turn the thread over toward you between the thumb and the forefinger of the right hand; if left twist, the strands will wind tighter; if right twist, the strands will unwind. Use soft finish thread of the same size for the needle and the bobbin.

To Oil the Machine

To ensure easy running and prevent unnecessary wear of the machine, the parts

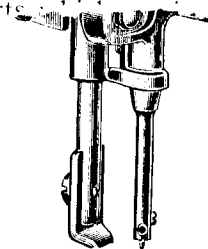


Fig. 4

OIL CONDUITS

Fig. 4 shows that the shaft and studs are hollow and filled with oil wicking, as are also the conduits for conducting the oil from the shaft through the needle bar crank to the needle bar driving and the take-up driving studs. Centrifugal force works the oil from the shaft to the bearing and through the conduits and studs. There is a conduit from the top of the arm to the stationary take-up stud.

Oil the needle bar frame hinge stud at the top of the arm head, oil the take-up lever hinge stud through the hole back of the screw driver hole, oil the arm shaft bushing (front) and conduits through the oil packing (wick) thumb screw, and oil the arm shaft bushing (back) through the hole near the balance wheel. Move the arm cap aside and oil the feed driving and lifting connections, also oil the needle bar frame pitman eccentric by passing the spout of the oil can down between the small gear (spiral) on the arm shaft and the arm.

Oil the front bearing of the needle vibrator gear shaft through the hole near the needle vibrator regulating spindle head, and oil the back bearing through the hole at the back of the arm.

Oil the hook driving bevel pinion shaft bearing (back) through the hole near the inside front corner at the base of the arm. Oil the needle bar frame pitman eccentric stud connecting with the needle bar frame at the underside of the arm head.

Oil the bobbin case bearing in the hook race each time a size number of needles

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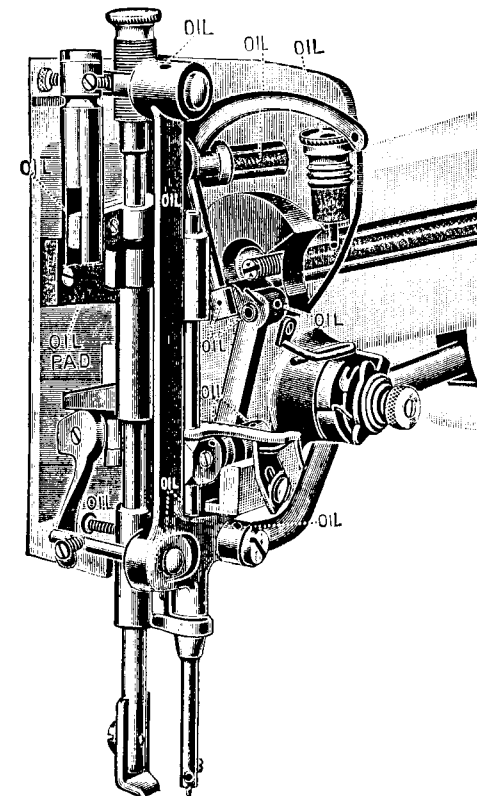


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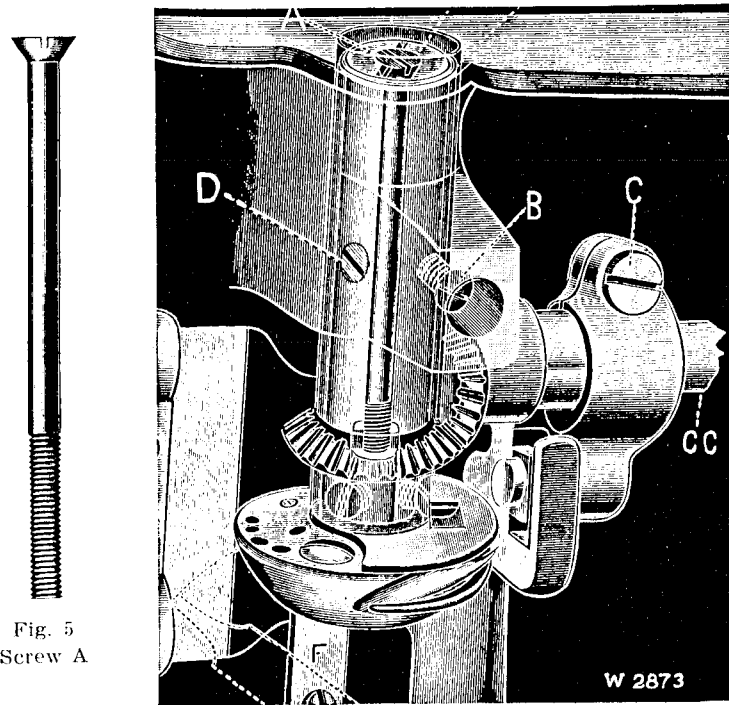


Fig. 5
Screw A

Fig. 6

Transparent view showing how the hook and its shaft (which runs in a bushing) are held together by screw (A); also showing the feed bar slide block and its crank with the hook driving bevel pinion shaft extending out to the right at (C C).

TO SET THE NEEDLE

Push the needle up in the needle bar as far as it will go, with the long groove to the front, and secure it firmly with the set screw.

It may be necessary to turn the needle slightly to the right or left for some threads, if stitches are missed.

Operators are liable to use needles which are too fine. Better results usually follow the use of a needle of a larger size.

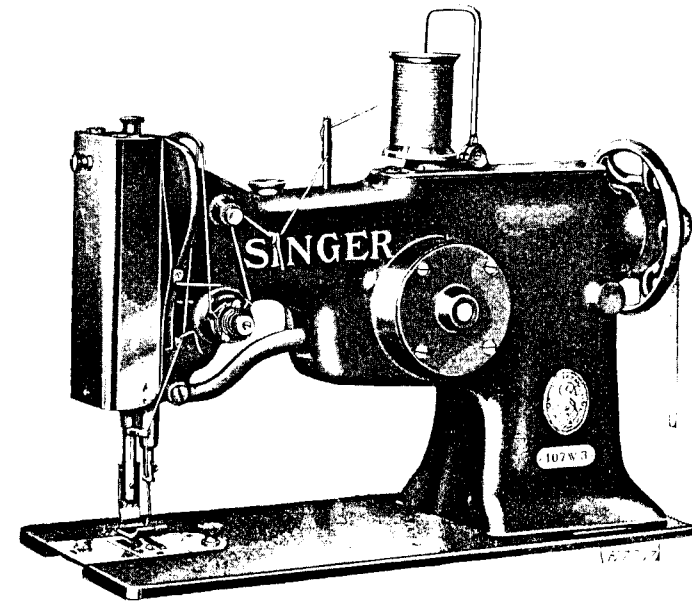


Fig. 7

TO THREAD THE NEEDLE

Lead the thread from the spool through the various guides, the tension, take-up lever and down through the eye of the needle straight from you toward the presser bar.

As the thread is passed around between the tension discs draw it up and to the right until it passes into the fork above the thread controller.

FEED REGULATOR

The figures on the feed regulating spindle head at the right of the balance wheel, showing through the notch in the balance wheel, indicate the number of stitches to the inch which the machine should make. Turn the spindle head until the figures representing the desired number of stitches to the inch appear in the notch.

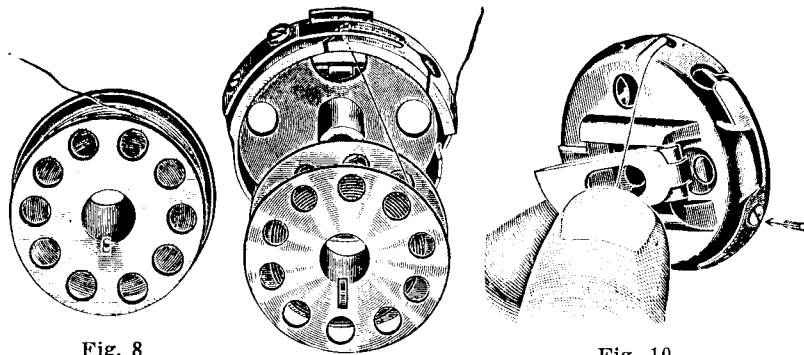


Fig. 8
Bobbin

Fig. 9 Thread the Bobbin Case Cap as shown above
Fig. 10 Shows how to hold the Bobbin Case Cap after threading it, until placed in the hook

TO REMOVE THE BOBBIN CASE

Lift the bobbin case latch, as shown in Fig. 11, and draw the bobbin case out from you, turn its open end down and release the latch and the bobbin will drop out.

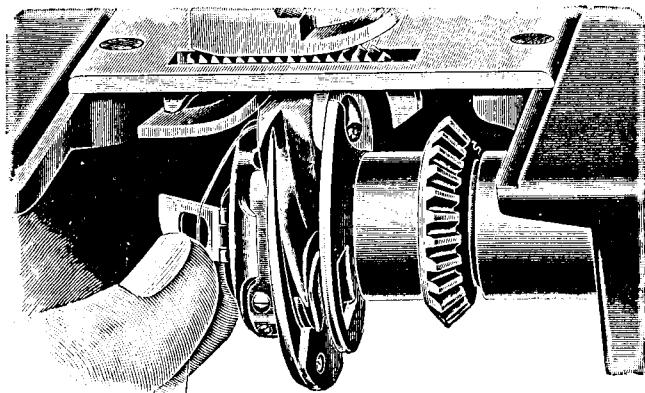


Fig. 11

TO THREAD THE BOBBIN CASE AND REPLACE IT IN THE HOOK

Turn the open end upward, drop the bobbin into it with the thread unwinding, as shown in Fig. 9, raise the bobbin case latch, draw the thread into the slot under the spring, down into the next slot and up through the delivery eye; then draw it down between the thumb and latch (see Fig. 10) and so hold it until pushed into the hook, as shown in Fig. 11.

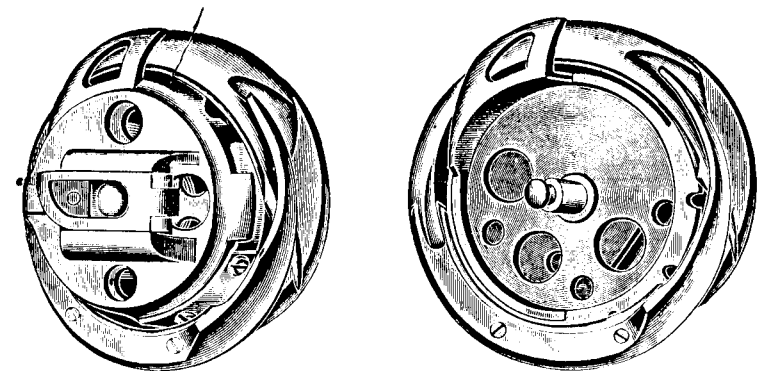


Fig. 12
Hook and Bobbin Case complete

Fig. 13
Hook and Bobbin Case Base

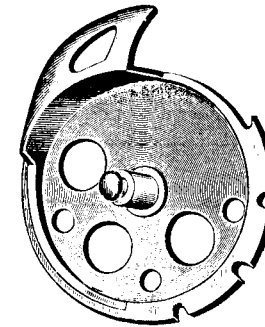


Fig. 14
Bobbin Case Base

Keep the inside of the bobbin case clean and the stud in the center of the bobbin case slightly oiled.

TO REGULATE THE TENSIONS

Regulate the upper tension by turning the tension thumb nut on the arm inwardly to tighten, and outwardly to loosen the tension (see Fig. 7).

BOBBIN CASE TENSION

Regulate the tension on the lower thread by turning the bobbin case tension regulating screw in the center of the tension spring slightly (see Fig. 9).

TO WIND THE BOBBIN

(See Fig. 15)

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.

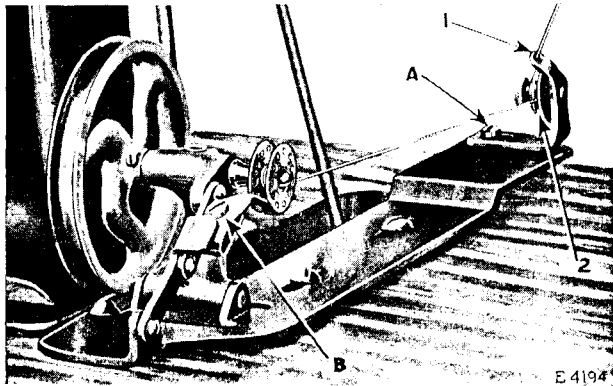


Fig. 15. Winding the Bobbin

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 the screw outwardly.

Bobbins can be wound while the machine is stitching.

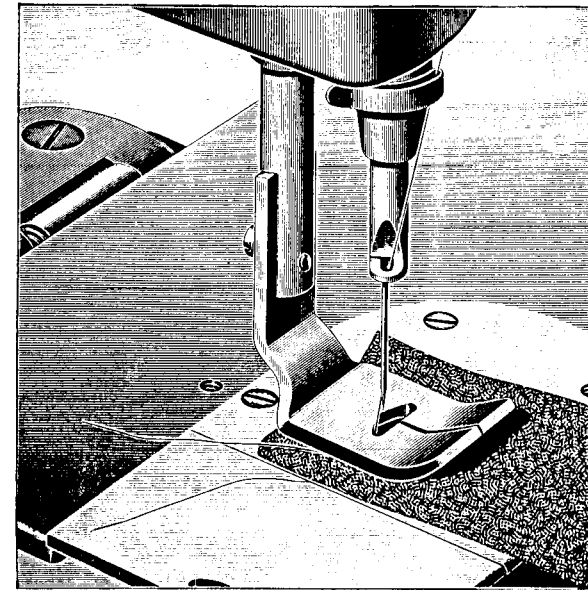


Fig. 16

TO COMMENCE SEWING

With the left hand take hold of the needle thread, leaving it slack between the hand and the needle, turn the balance wheel toward you until the needle moves down and the take-up lever rises 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 needle hole in the throat plate and lay both threads back across the feed dog; then place the material beneath the needle, lower the presser foot, turn the balance wheel toward you and commence to sew.

Note. See that the presser foot and fabric hold the threads as shown in Fig. 16 before commencing to sew.

Do not Pull or Push the Work. The machine moves it. If it does not, the stitch is too short, or the feed is too low or too high, or the pressure on the presser foot is either too heavy or too light.

The pressure on the presser foot is increased by turning down or decreased by turning up the presser bar thumb screw, which is above the presser bar.

TO TURN A CORNER

Stop the machine while the needle is rising, but before it is out of the material, raise the presser foot and turn the work, using the needle as a pivot.

TO REMOVE THE WORK

Raise the presser lifter, turn the balance wheel until the take-up lever is at its highest point and draw the work from you. If the threads do not draw out easily, the take-up lever is not in the right position, as directed. If the machine is stopped as directed, the needle will not be unthreaded in starting to sew, even if only a short end is left through the needle.

For convenience in taking out the work, the tension of the upper thread is released by raising the presser foot with the lifter; but is not released by thick goods or seams passing under the presser foot. Do not try to adjust the upper tension when the presser lifter is up as the tension is then loose.

Causes of the machine not working properly will usually be found in the tension not being correctly adjusted, or its discs may be clogged with lint or knots of thread, or the thread may be too coarse or too fine for the needle, or the needle and thread too coarse or too fine for the throat plate, or the needle bent or blunt. See that a straight needle is pushed up in the needle bar as far as it should go; any particle of lint or dirt which prevents it from going up can be removed through the cross hole in the needle bar.

To Regulate the Width of Bight

On Machines 107 w 1 and 107 w 5, the width of bight or zigzag stitch is regulated by means of the needle vibrator regulating spindle head at the front of the machine. To increase the width of zigzag stitch, turn the regulating spindle head over to the left. To decrease the width of zigzag stitch, turn the regulating spindle head over to the right. The extreme width of zigzag stitch on Machine 107 w 1 is $\frac{7}{8}$ inch and on Machine 107 w 5, $\frac{1}{4}$ inch.

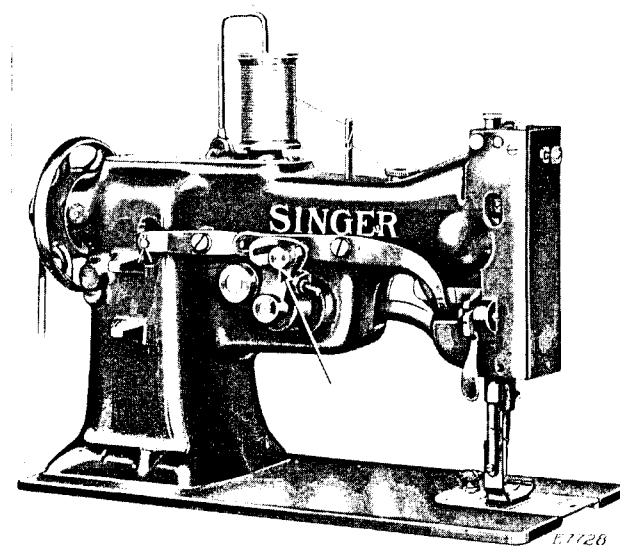


Fig. 17. Back View of Machine 107 w 3, showing Adjustment for Changing Width of Zigzag Stitches

On Machine 107 w 3, the width of bight or zigzag stitch is regulated by moving the upper end of the needle vibrating lever, indicated by the arrow in Fig. 17, to or from figure "0" on the graduated scale, each graduation representing a change of $\frac{1}{32}$ inch. When the pointer is set at "0" the machine makes straight-away stitches only. The extreme width of zigzag stitch is $\frac{5}{16}$ inch.

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 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, and 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.

FEED

To Take up Lost Motion of the Feed Driving and Lifting Connections, adjust their hinge and pinch screws.

To Prevent the Feed Dog from Striking at Either End of the Slots in the Throat Plate. Loosen screw (D, see Fig. 3) and move the feed dog forward or backward until the longest stitch can be taken without the feed dog striking the throat plate and retighten the screw.

TO RAISE OR LOWER THE FEED DOG

Usually when at its highest position, the feed dog should show a full tooth above the throat plate.

Remove the throat plate; clean the lint and dirt from between the feed points and replace the throat plate; tip the machine back and turn the balance wheel toward you until the feed dog is at its highest position; loosen screw (C, see Fig. 6) and raise or lower the feed dog as desired and retighten the screw.

When raising or lowering the feed dog be careful that its underside does not drop low enough to strike the hook.

Needle and Needle Bar

Time adjustments can be tested or made only when the needle bar frame is held stationary for straightaway stitching.

On Machines 107 w 1 and 107 w 5, turn the needle vibrator regulating spindle head, at the front of the arm, for straightaway stitching and see that a straight needle runs in the centre of the needle hole in the throat plate, if it does not, adjust the needle bar frame pitman eccentric stud at the lower end of the needle bar frame, which connects it with the pitman, making the essential primary adjustment.

On Machine 107 w 3, move the thumb nut, indicated by the arrow in Fig. 17, to "0" on the graduated scale.

To See if the Needle Bar is Correctly Timed on Machines 107 w 1 and 107 w 5

Turn the needle vibrator regulating spindle head at the front of the arm for the widest throw; turn the balance wheel toward you and as the needle starts upward from its lowest position, the needle bar frame should start on its lateral (side) throw.

To Time the Movement of the Needle Bar Frame on Machines 107 w 1 and 107 w 5, change the position of the needle vibrator driving gear pinion on the arm shaft, to the left or right.

To See if the Needle Bar Frame is Correctly Timed on Machine 107 w 3

For straightaway stitching, the needle should run as close to the left edge of the slot in the throat plate as it would if the needle hole were round instead of slotted.

The needle bar on its upward movement should start to vibrate when the point of the needle is about $\frac{3}{8}$ inch above the throat plate, and the vibration should terminate when the needle has reached approximately the same position on its downward movement.

To Time the Movement of the Needle Bar Frame on Machine 107 w 3

If a straight needle does not run at the left edge of the slot in the throat plate, adjust the eccentric at the lower end of the needle bar frame, which connects it with the pitman. If the eccentric has been removed, when replacing it be careful to have the bulge downward.

If the vibration is not correctly timed, move the needle vibrator driving gear pinion on the arm shaft to the left or right.

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 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 position the point of the hook will be at the centre of the needle and about $\frac{1}{16}$ inch above the eye.

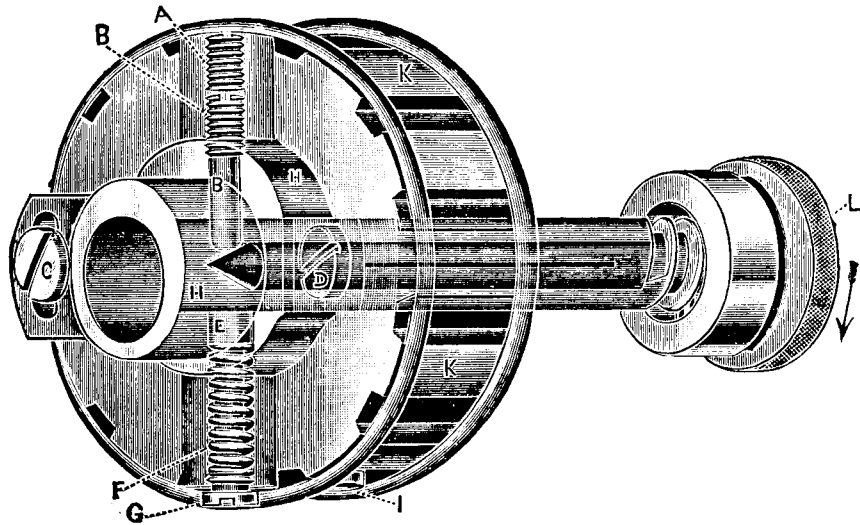


Fig. 18

Transparent view through the arm shaft connection belt pulley and shaft showing the feed regulating spindle and feed driving eccentric regulating screw (B), which comes in contact with the cone of the spindle to gauge the length of stitch.

The figures on the feed regulating spindle head, showing through the notch in the balance wheel, indicate the number of stitches to the inch which should be made. If more or less stitches are made, adjust as follows: Remove screw (A, see Fig. 18), set the indicator at 8 and the feed dog at its highest point, a full tooth showing above the throat plate, then adjust screw

(B), until eight stitches to the inch is the result and replace check screw (A) firmly, making the master adjustment, which controls the other numbers of stitches as indicated.

To Set the Feed Regulator so that a Stitch Longer than the One Desired Cannot be Made. Turn spindle head (L, see Fig. 18) in the direction indicated by the arrow and make the longest stitch possible; remove check screw (A) and turn screw (B) down until the machine makes the desired number of stitches to the inch, then turn screw (A) down tightly on screw (B) as a check. The stitch may then be changed by turning spindle head (L) for a shorter stitch, but operators cannot make longer stitches than the limit that screw (B) is set to produce.

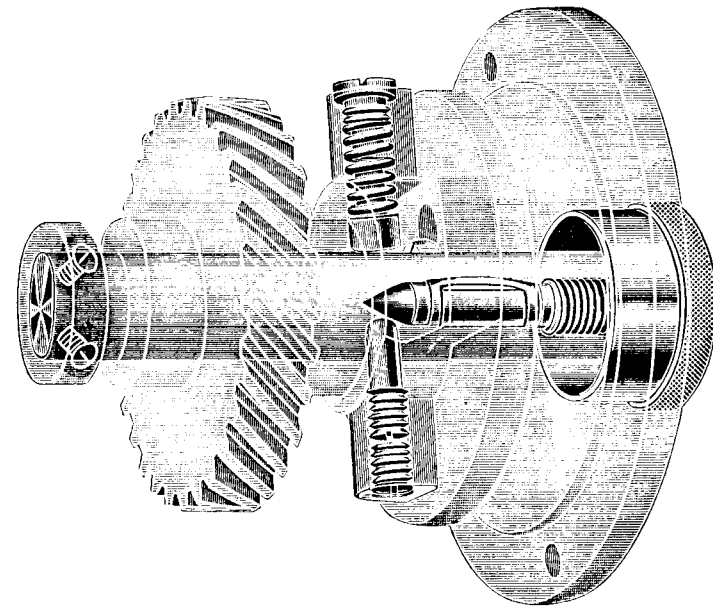


Fig. 19

Transparent view showing the needle vibrator regulating spindle head in front of Machines 107w1 and 107w5. The screws (A) and (B) are shown under the shaft (not lettered, but referred to as in Fig. 18).

To Set the Needle Vibrator Regulating Spindle Head on Machines 107 w 1 and 107 w 5 so that a Wider Throw than the One Desired Cannot be Made. Turn the spindle head and make the widest bight possible; remove check screw (A) and turn in screw (B) until the stitch is of the width desired; then turn screw (A) down tightly on screw (B), as a check. The stitch may then be changed by turning the regulating spindle head for a shorter throw; but operators cannot make stitches wider than the limit screw (B) is set to produce.

TO REMOVE THE NEEDLE VIBRATOR GEAR SHAFT ON MACHINES 107 w 1 AND 107 w 5

Remove the needle vibrator eccentric bracket cover in front of the arm, loosen the position and set screws in the parts attached to the shaft in the arm, remove the needle vibrator gear shaft collar at the back of the arm and draw the shaft out.

When replacing these parts be careful that the large washer is in place between the gear and arm, that the position screws are set firmly against the flat spots on the shaft and that the set screws are at the right of the position screws when the shaft has been returned to its place.

HOOK DRIVING BEVEL PINION SHAFT

The hook driving bevel pinion shaft, driven by arm shaft connection belt (K, see Fig. 3), runs through the feed lifting rock shaft, which is provided with bearings for the shaft.

TO SEE IF THE HOOK IS CORRECTLY TIMED

Remove the throat plate and turn the balance wheel toward you until the lower mark across the needle bar as it is going up, is just visible at the end of the needle bar frame; now, if the needle bar and hook are in correct time the point of the hook will be at the center of the needle and about $\frac{1}{8}$ inch above its eye.

TO TIME THE HOOK

Loosen the hook driving bevel pinion shaft belt pulley set screws and turn the balance wheel toward you until the needle bar goes to its lowest position and upward until the lower mark across the needle bar is just visible at the end of the needle bar frame, then stop turning and hold the wheel firmly. With the left hand, turn the hook until the point is at the center of the needle— $\frac{1}{8}$ inch above its eye—see that the end play to the shaft is nearly eliminated, then retighten the pulley screws.

TO REMOVE THE HOOK

Switch bobbin case stop (F) to the position shown by the dotted lines; remove screw (A) and then remove the hook (see Fig. 6).

TO SET THE HOOK TO OR FROM THE NEEDLE

Loosen the two screws (B and D, see Fig. 6) and move the hook to the desired position and retighten the screws.

TO REMOVE THE BELT FROM WITHIN THE ARM

Slide arm shaft connection belt (K, see Fig. 3) off the hook driving bevel pinion shaft belt pulley, remove the feed regulating spindle and balance wheel; 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 formerly occupied 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

Remove screws (B and I, see Fig. 18) and compression screw (G); loosen the set screw in the belt pulley, also loosen the screw and remove the position screw from the feed lifting eccentric and from the needle bar crank; loosen the set screws in the needle bar frame driving gear pinion (on the arm shaft) and draw the shaft out from the balance wheel end of the machine.

TO REPLACE THE ARM SHAFT AND CONNECTIONS

Return the shaft to its place through the belt pulley, the feed lifting eccentric, the shaft gear, friction washer and needle bar crank; return the position screws to the belt pulley, feed lifting eccentric and needle bar crank, and into their position holes in the shaft; tighten the set screw of each and replace the balance wheel, 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.

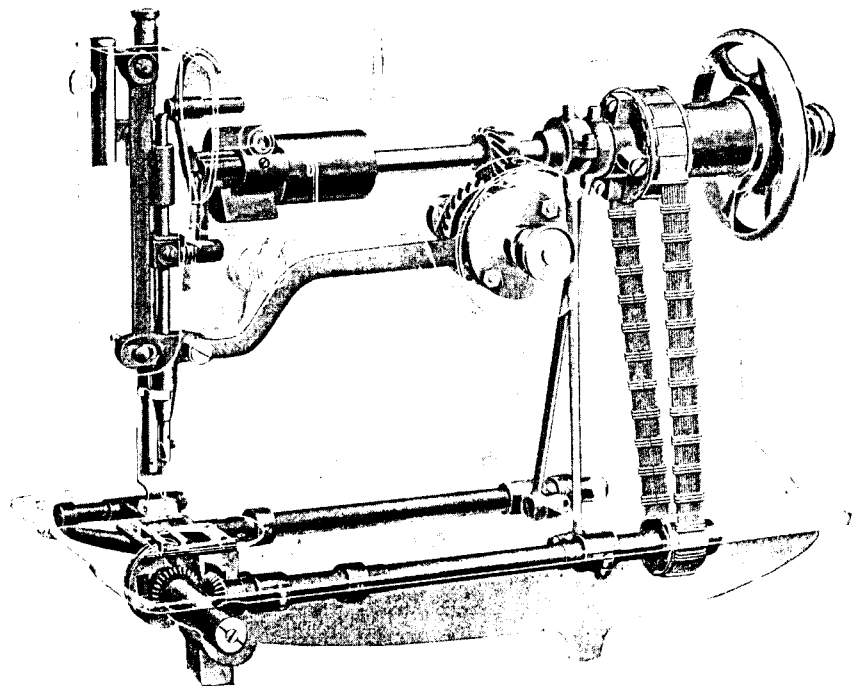


Fig. 20. "X-ray" view of Machine 107w1 showing the Interior Placement of the Working Parts