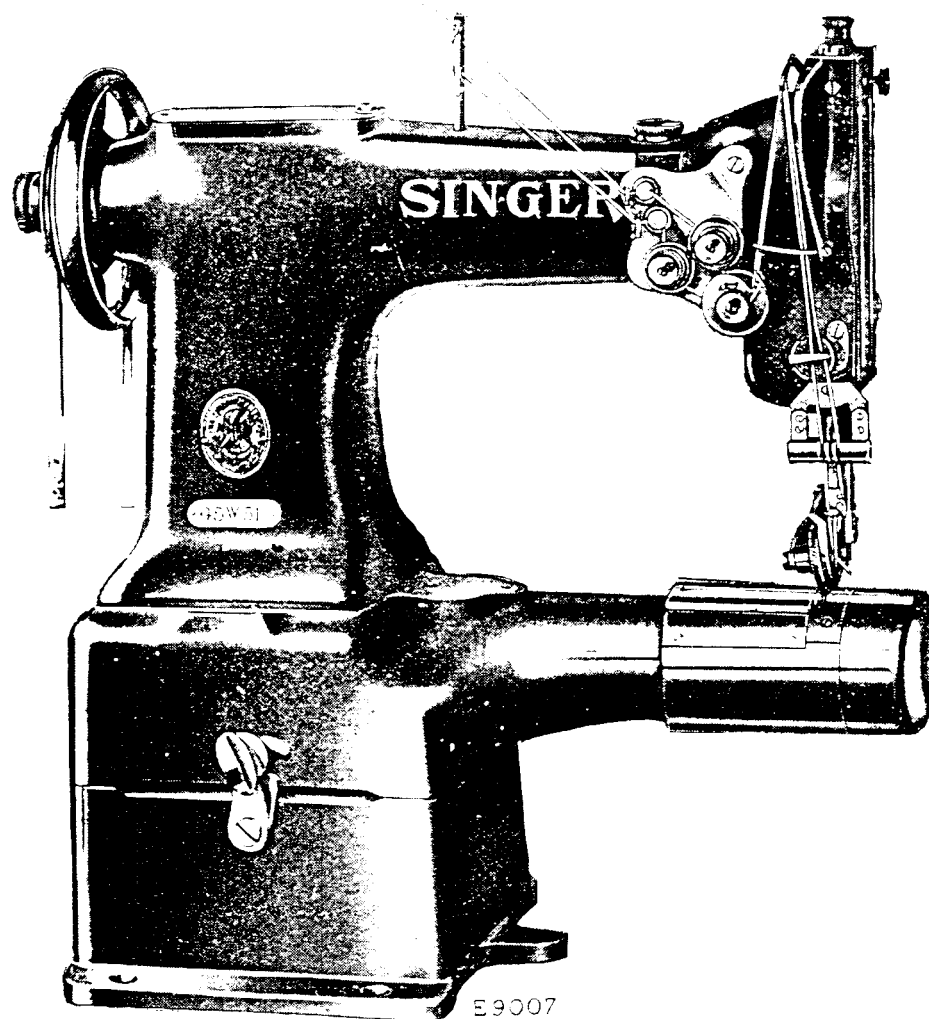


SINGER

45W & 49W

INSTRUCTIONS
FOR USING AND ADJUSTING
SINGER SEWING MACHINES



OF
CLASSES 45w AND 49w
HIGH SPEED
BALANCE WHEEL AT THE LEFT

THE SINGER MANUFACTURING CO.

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.

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 Oil the Machine

When the machine is received from the factory, it should be thoroughly cleaned and oiled.

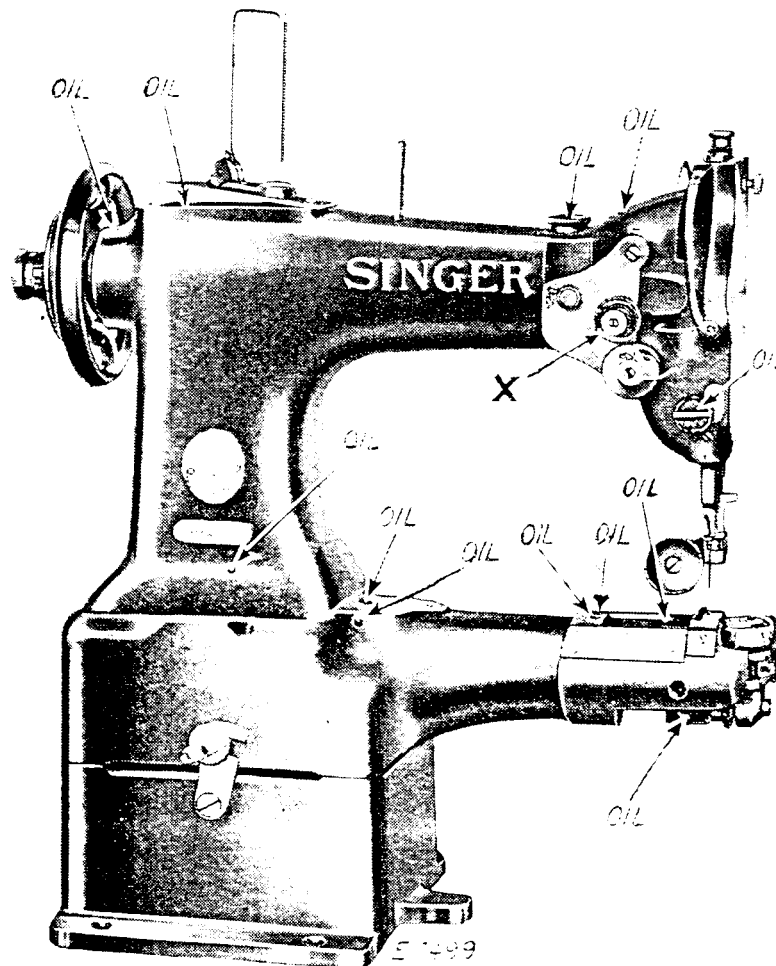


Fig. 2. Oiling Points and Adjustments
at the Front of the Machine

Oil should be applied at each of the places designated by arrows in Figs. 2, 3, 7 and 17. When the machine is in continuous use, it should be oiled at least twice each day.

Swing back the cover which is on the top of the machine at the left and oil the bearings which are thus uncovered, then replace the cover.

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

The following is an example of an intelligible order:

“100 No. 16, 128 x 2 Needles.”

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

Relative Sizes of Needles and Thread

The following sizes of needles and thread are recommended:

Sizes of Needles	Cotton Thread	Silk Thread
9, 10	70	OO and O
11	60	A
12	50	B
13	40	C
14	36	D
15	30	D
16	30	E
18	24	EE
20	20	
22	16	
23	12	
24, 25	8	

Thread

Use left twist thread for the needle. Either right or left twist thread may be used for the bobbin.

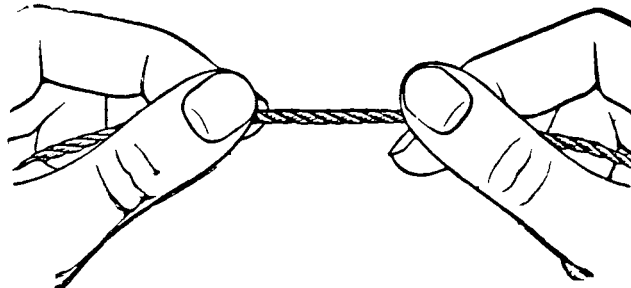


Fig. 4. How to Determine the Twist

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.

To Set the Needle

Turn the balance wheel over toward you until the needle bar moves up to its highest point; loosen the set screw in the needle holder and put the needle up into the holder as far as it will go.

For Machines of Class 45w, set the left or inside needle with its long groove toward the right and the right or outside needle with its long groove toward the left, the eyes of both needles

being directly in line with the machine bed, then tighten the set screws.

For Machines of Class 49w, set the needle with its long groove toward the left.

Note: If the machine skips stitches, it may be necessary to turn the needle slightly to the right or left for some threads, to overcome this difficulty. Operators are liable to use needles which are too fine. Better results usually follow the use of a larger needle.

To Remove the Bobbin

Draw out the slide plate in the bed of the machine. Insert the finger nail of the forefinger under the latch (cf. Fig. 7), raise the latch and lift out the bobbin.

To Wind the Bobbin

Fasten the bobbin winder to the table at the left of the machine with its 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.

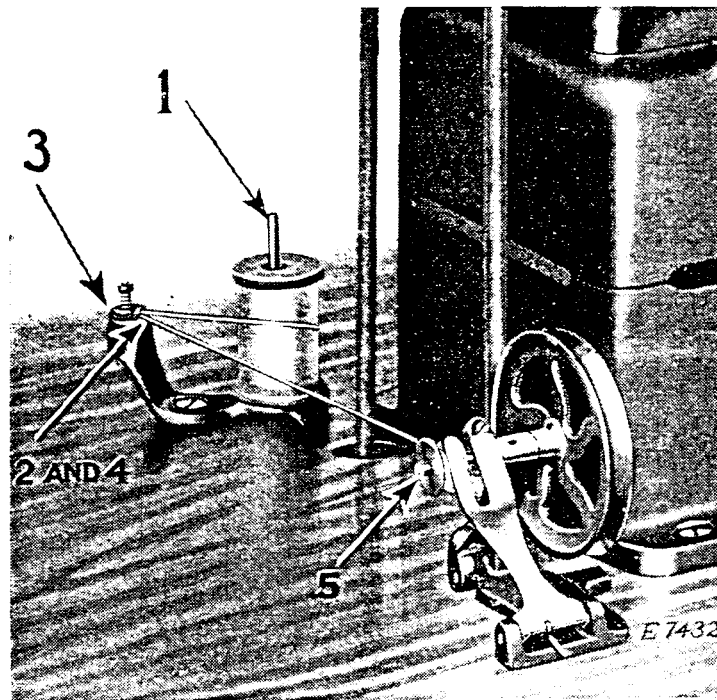


Fig. 5. Winding the Bobbin

Fasten the spool holder for the bobbin winder near the back edge of the table with its tension stud directly in line with the bobbin on the bobbin winder spindle as shown in Fig. 5.

Having placed the bobbin on the bobbin winder spindle (5) and pushed it on as far as it will go, put the spool of thread on the spool pin (1), pass the thread under the wire thread guide

(2), around the back and between the tension discs (3), and through the wire thread guide (4). Wind the end of the thread around the bobbin a few times and push the bobbin winder pulley over against the machine belt, then start the machine. If the thread does not wind evenly on the bobbin, swing the spool holder to the right or left, as desired. When sufficient thread has been wound upon the bobbin, the bobbin winder will stop automatically. Bobbins can be wound while the machine is stitching.

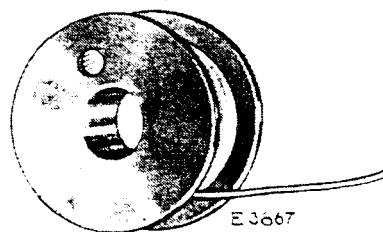


Fig. 6. Direction of Thread on Bobbin

To Replace the Bobbin and Thread the Bobbin Case

The following instructions apply to both bobbins in Machines of Class 45w.

Hold the bobbin between the thumb and forefinger of the right hand, the thread drawing on the bottom from the left toward the right (see Fig. 6), and place it on the centre stud of the bobbin case, then push down the latch as shown in Fig. 7. Draw the thread into the slot (1, Fig. 7) and back of the projection (2, Fig. 7), leaving a loose end of thread about two inches long above the slide. When closing the slide, leave just enough space for the thread to pass through.

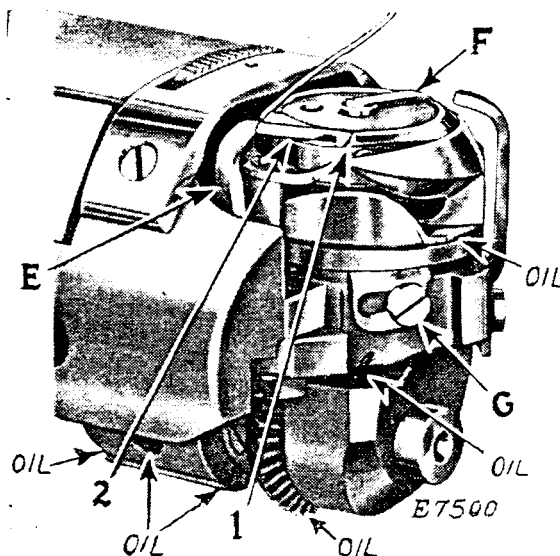


Fig. 7. Bobbin Case of Class 49w Machine Threaded Also Showing Adjustment of Mechanical Opener

To Thread the Needles in Machines of Class 45w

(See Fig. 8)

To thread the outside needle or the one farthest from the upright part of the arm, pass the thread from the right spool on

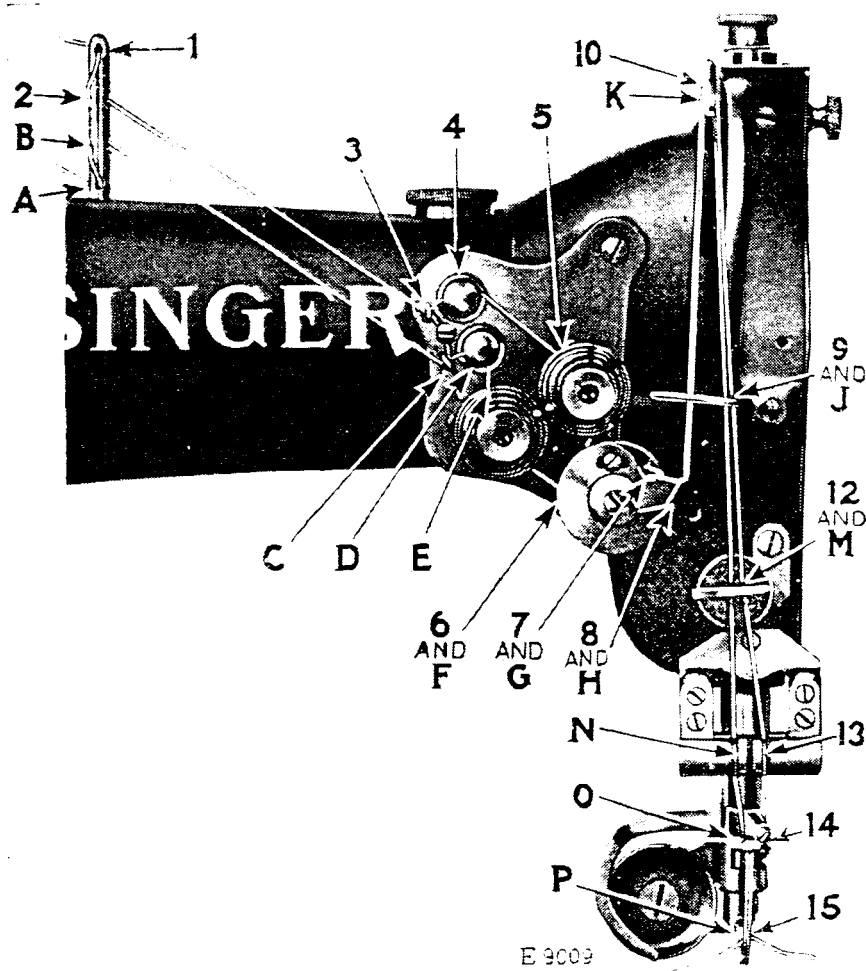


Fig. 8. Threading the Needles in Machine of Class 45w

the spool stand, through the right guide at the top of the spool stand, down and from back to front through the hole (1) in the pin on top of the machine, from left to right through the hole (2) in the pin, into the wire thread guide (3) at the left of the upper thread retainer, through the upper thread retainer (4), over from left to right between the right tension discs (5), down, under from left to right into the thread controller (6), into the hook (7) of the thread controller, into the thread controller spring (8) and up through the thread guide (9), up and from left to right through the upper hole (10) in the end of the thread take-up lever, down through the thread guide (9) again, back of the thread oiler guide (12), through the lower thread retainer (right) (13), down through the right hole (14) in the needle holder and from left to right through the eye of the right or outside needle (15).

To thread the inside needle or the one nearest the upright part of the arm, pass the thread from the left spool on the spool stand, through the left guide at the top of the spool stand, down and from back to front through the hole (A) in the pin on top of the machine, from left to right through the hole (B) in the pin, into the wire thread guide (C) at the left of the lower thread retainer, through the lower thread retainer (D), under from left to right between the left tension discs (E), down, under from left to right into the thread controller (F), into the hook (G) of the thread controller, into the thread controller spring (H), and up through the thread guide (J), up and from left to right through the lower hole (K) in the end of the thread take-up lever, down through the thread guide (J) again, back of the thread oiler guide (M), through the lower thread retainer (left) (N), down through the left hole (O) in the needle holder and from right to left through the eye of the left or inside needle (P).

To Thread the Needle in Machines of Class 49w

Follow the instructions given on page 9 for threading the right hand needle or outside needle in Machines of Class 45w.

Roller Presser

For convenience in threading the needle, press down on the roller presser and swing it aside.

To Prepare for Sewing

With the right 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 bobbin thread: draw up the needle thread and the bobbin thread will come up with it through the hole in the throat plate. Lay the threads back under the presser foot or roller presser and close the slides.

To Commence Sewing

Place the material beneath the presser foot or roller presser, lower the presser bar and commence to sew, turning the balance wheel over toward you.

To Remove the Work

Have the thread take-up lever at the highest point, raise the presser foot or roller presser, draw the work back and cut the threads close to the goods. Lay the ends of the threads back under the presser foot or roller presser.

To Regulate the Length of Stitch

The length of stitch is regulated by the feed regulating spindle head (K, Fig. 12) at the left of the balance wheel.

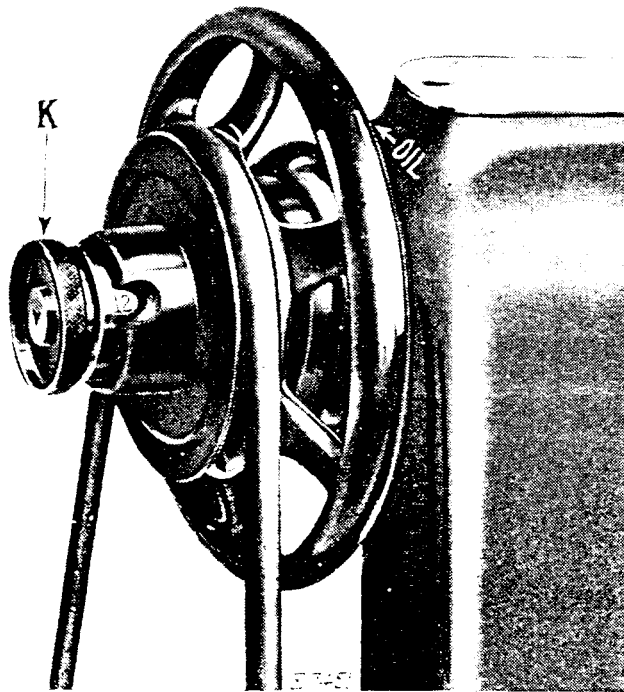


Fig. 12. Stitch Regulator

There is a notch in the hub of the balance wheel as shown in Fig. 12, and the number appearing in the notch shows the number of stitches to the inch that the machine is ready to make.

To lengthen the stitch, turn the stitch regulator (K) over from you. To shorten the stitch, turn the stitch regulator over toward you.

To Regulate the Pressure on Material

The pressure on the material is regulated by the thumb screw (C, Fig. 3) at the top of the machine. To increase the pressure, loosen the lock screw (D, Fig. 3) at the back of the machine and turn the thumb screw (C) downwardly. To decrease the pressure, turn the thumb screw (C) upwardly. When the desired pressure is obtained, securely tighten the lock screw (D). The pressure should be only heavy enough to enable the feed to move the work along freely.

INSTRUCTIONS

FOR

ADJUSTERS AND MACHINISTS

Thread Controller

The function of the thread controller spring is to hold back the slack of the needle threads until the eye of each needle reaches the goods in its descent, as without this controlling action of the spring, the slack thread or silk (more especially silk) will sometimes be penetrated by the point of the needle as the needle is descending.

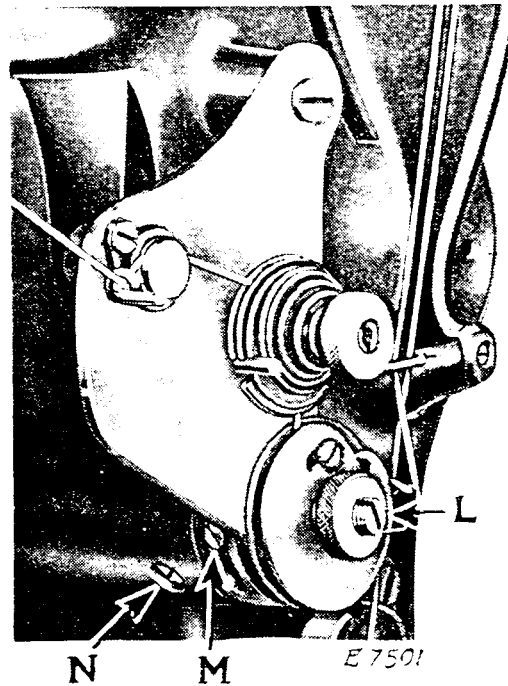


Fig. 13. Adjustment of Thread Controller

To change the thread controller spring stop for more controller action on the threads, loosen the pinch screw (M, Fig. 13) and turn the thread controller spring stop to the right; for less action, turn the thread controller spring stop to the left, after which securely tighten the pinch screw (M).

It may be found advisable to increase the tension of the thread controller spring for coarse thread, or to lessen it for fine thread. To increase the tension on this spring, loosen the tension stud set screw (N, Fig. 13), located nearly under the tension stud, and turn the tension stud (L, Fig. 13) slightly to the right with a screwdriver, or to decrease the tension, turn the tension stud (L) to the left and retighten the set screw (N).

To See if the Needle Bar is Set Correctly

See that the needle is up in the bar as far as it will go. The needle bar which is in the machine when shipped from the factory has upon it (about $1\frac{1}{2}$ inches from the bottom) two lines $\frac{3}{8}$ inch apart.

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

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 $\frac{3}{8}$ inch from its lowest position the point of the hook will be at the center of the needle and about $\frac{1}{16}$ inch above the eye.

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 bushing; 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 $\frac{1}{16}$ inch above its eye.

To Time the Hook

Loosen the screws in the hook driving gear 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 bushing, then stop turning and hold the wheel firmly; with the right hand, turn the hook until the point is at the center of the needle— $\frac{1}{16}$ inch above its eye—then retighten the gear set screws.

To Remove the Bobbin Case and Hook from the Machine

Take out the hook gib screw and remove the gib (H, Fig. 14) to allow the bobbin case to be taken out, after which remove the

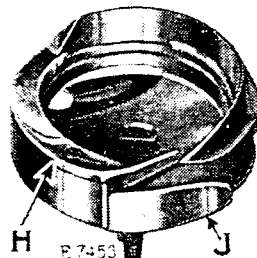


Fig. 14. Sewing Hook Removed from Machine, Showing Needle Guard Washer

screw from the centre of the hook. Tap the hook lightly on the bottom of its rim to force it from its socket. Do not try to pry it out, as prying may bend the shank of the hook. When replacing the hook, be sure that the prongs of the shank properly enter the slot at the top of the socket, otherwise the hook will be out of time. Then replace the screw in the centre of the hook, replace the bobbin case and securely fasten the hook gib in position by means of the screw.

To Set the Hook To or From the Needle

To prevent the point of the sewing hook from dividing the strands of the thread, it should run as close as possible to the needle (within the scarf).

If the sewing hook runs too far from or too close to the needle, loosen the hook saddle screws (O, Fig. 15) just enough to permit the saddle to be driven by light blows to the desired position, then retighten the hook saddle screws (O).

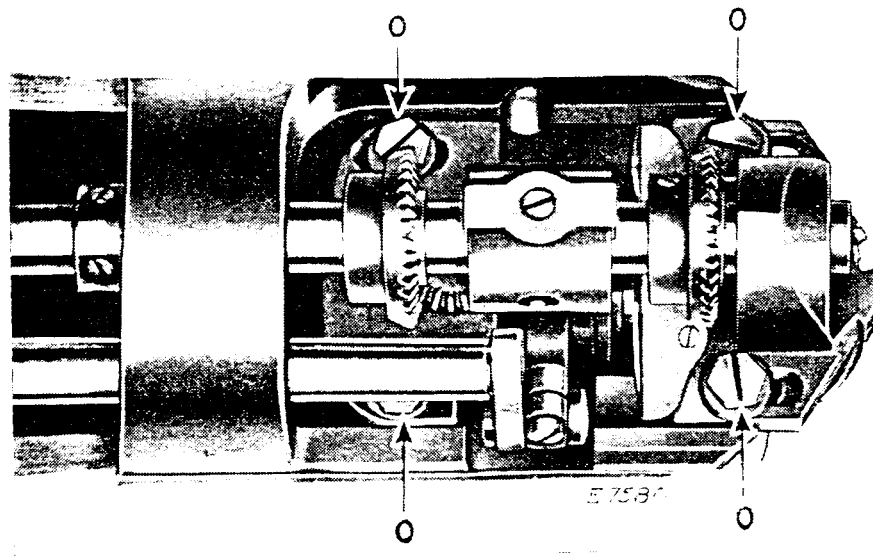


Fig. 15. Adjustment of Hook Saddles

Needle Guard

The function of the hook washer (J, Fig. 14) (which is attached to the bottom of the sewing hook) is to prevent the point of the hook from striking the needle, if, when passing through the material, the needle is deflected towards the hook.

The upright portion of the hook washer should be sprung with a screw driver or other instrument until it prevents the hook point from striking the needle, it should not however be sprung outwardly enough to deflect the needle from its normal path.

Adjustment of Feed Regulating Spindle Head

The figures on the feed regulating spindle head, showing through the notch in the balance wheel, indicate the number

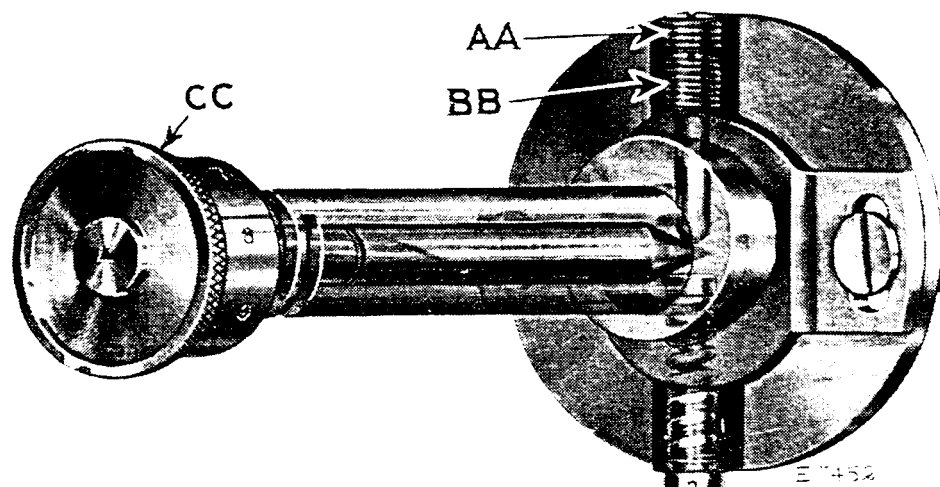


Fig. 16. "X-Ray" View of Feed Driving Eccentric Regulating Bracket and Shaft, showing the Feed Regulating Spindle and Adjusting Screw (BB) which comes in contact with the Cone of the Spindle to gauge the length of stitch.

of stitches to the inch which should be made. If more or less stitches are made, adjust as follows: Remove screw (AA, Fig. 16), set the indicator at 8 and the feed dog at its highest point, a full tooth showing above the throat plate. then adjust screw (BB) until eight stitches to the inch is the result and replace check screw (AA) 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 (CC, Fig. 16) from you and make the longest stitch possible; remove check screw (AA) and turn screw (BB) down until the machine places the desired number of stitches to the inch, then turn screw (AA) down tightly on screw (BB) as a check. The stitch may then be changed by turning spindle head (CC) for a shorter stitch, but operators cannot make longer stitches than the limit that screw (BB) is set to produce.

To Adjust the Feed Dog

Usually when the feed dog is at its highest position, it should show a full tooth above the throat plate. To raise or lower the feed dog, remove the cylinder end cover and the outside saddle, loosen the feed dog screw and adjust the feed dog to the required height, then securely tighten the feed dog screw. See "How to Time the Hook."

If the feed dog strikes the throat plate, tip the machine back and loosen the pinch screw (R, Fig. 17) of the feed driving rock shaft crank at the end of the rock shaft, then set the feed dog so that it will not strike when the longest stitch is made, and retighten the pinch screw (R).

To Adjust the Mechanical Opener

Machines of Class 45w. The following instructions apply to both bobbin cases with the exception that the bobbin case lever for the left hand bobbin case is located at the right of the left hand sewing hook.

Machines of Class 49w. The bobbin case lever (E, Fig. 7) at the left of sewing hook, actuated by the eccentric on the hook washer, strikes the projection on the bobbin case stop and turns the bobbin case slightly, making an opening between the bobbin case stop and the stop on the throat plate when the thread is across the bobbin case and passing between the stops. This permits the free passage of the thread around the bobbin case at each stitch.

The bobbin case lever (E, Fig. 7) can be adjusted by loosening the bobbin case lever fulcrum screw (G, Fig. 7) and moving fulcrum forward or backward, as may be required.

This adjustment should be made so that the opening between the lever and the edge of the bobbin case is just perceptible when the bobbin case lever has opened the bobbin case all the way.

If the bobbin case lever is set to open the bobbin case too far, it will cause a bind between the bobbin case bearing and the hook bearing when the bobbin case is opened all the way, and care must be taken to see that this does not occur. When the correct adjustment of the bobbin case lever (E) is made, securely tighten the fulcrum screw (G).

To Remove the Arm Shaft Connection Belt from Within the Arm

Slide the arm shaft connection belt off the lower pulley (U, Fig. 17). Remove the feed regulating spindle head and balance

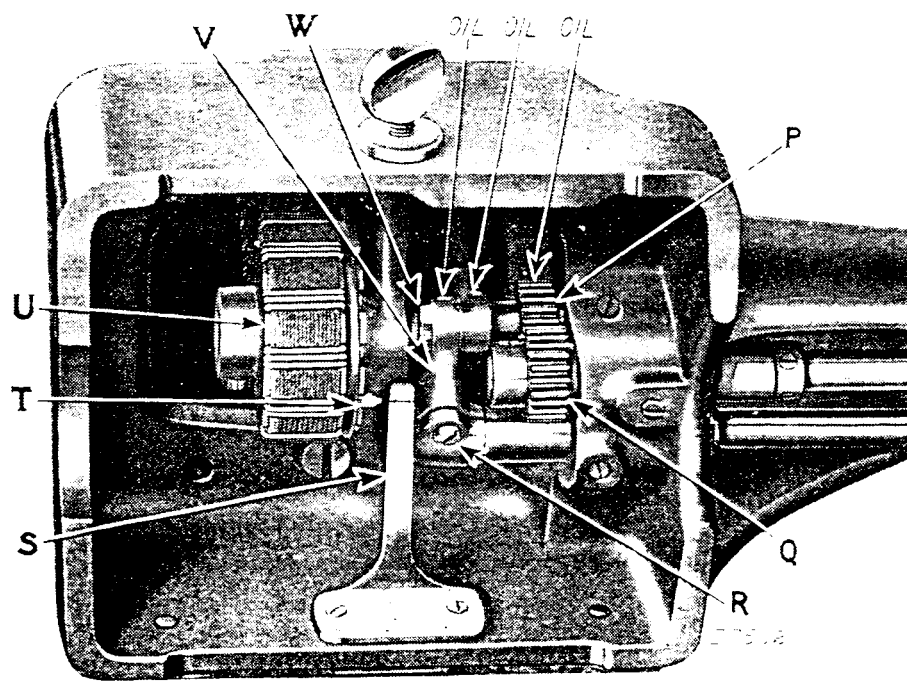


Fig. 17. Underside of Machine, Showing Arrows on Plate and Lower Pulley for Determining Correct Position of Hook Driving Shaft when Replacing Belt

wheel. Loosen the arm shaft bushing (back) screw near the balance wheel 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 normally occupied by the bushing.

Owing to the fact that the sewing hook makes two revolutions to one revolution of the arm shaft, and that the feed lifting eccentric is on the hook shaft, it is possible to have the sewing hook correctly timed without having the feed eccentric correctly timed. To overcome this, the plate (S, Fig. 17) is attached to the underside of the bed of the machine. This plate is marked with an arrow. When replacing the belt, replace the arm shaft bushing and securely fasten it in position by the screw at the back of the machine, replace the feed regulating spindle head and the balance wheel and place the belt on the upper pulley, then turn the

balance wheel over toward you until the thread take-up lever is at its highest point. Then turn the hook driving shaft with the fingers until the pointer (T, Fig. 17) on the lower pulley (U) is directly in line with the arrow on the plate (S). Now, without disturbing either the arm shaft or the hook driving shaft, slip the belt over the lower pulley (U). The feed will then be correctly timed with the needle bar.

To Remove and Replace the Hook Driving Gears

To remove the countershaft gear (P, Fig. 17), loosen its two set screws, also loosen the two screws in the belt pulley (U, Fig. 17), then push the countershaft to the left to remove the gear (P) from the shaft.

To remove the hook driving gear (Q, Fig. 17), remove the timing plate (S, Fig. 17), remove the feed driving connection nut and stud (W, Fig. 17), loosen the pinch screw (R, Fig. 17) and remove the feed driving connection (V, Fig. 17). Then loosen the two set screws in the hook driving gear (Q) and remove the gear.

When replacing the gears (P and Q), be sure to see that the timing marks at the side of the gears are together to ensure the correct timing of the feed lifting eccentric.