

**SERVICE MANUAL
FOR
SINGER SEWING MACHINES**

Classes 66, 99, and 185

Disassembling Numbered Thread Tension Assembly

Turn the thumb nut (B, Fig. 1a) to the left until the numeral "0" on the numbered dial stops opposite the center line between the plus and minus signs. Press in the dial to disengage the pin (C) in the thumb nut from the dial, and remove the thumb nut and dial, stop washer (E), tension spring (F), indicator (G), the two tension discs (L), and the thread take-up spring (N).



Fig 1a.

Reassembling Numbered Needle Thread Tension Assembly

First, make sure that the tension spring (J, Fig. 1b) is in place in the stud (O), then place the thread take-up spring on the stud, having the tail (inside the coil) of this spring in one of the grooves (T) of the stud, and with the large loop (N) of the spring resting against the upper end of the recess at (M, Fig 1a). Fig. 1a shows the spring in the correct position on the stud. The tail of the spring is not visible in these illustrations, but its location inside the spring coil is indicated in Fig. 1a by (K).

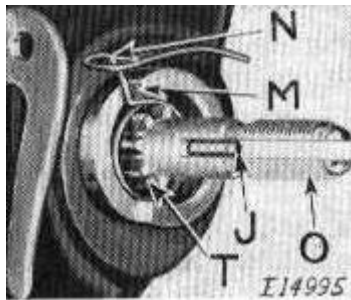


Fig. 1b

Place the two tension discs (L, Fig.1c) with their flat thread-bearing sides together in position on the stud (O) and with the loop (N) of the thread take-up spring straddling the discs (L) as shown in Fig.1c.

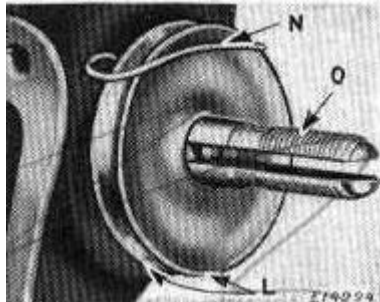


Fig. 1c

Next, replace the indicator (G) with the large open side facing the end of the stud and so that the plus and minus marks will be at the top with the minus sign to the left. Then insert the tension spring (F) in the indicator with the first (half) coil of the spring straddling the lower half of the stud as shown in Fig. 1d. Place the stop washer (E) on the stud so that the extension will be above the tension stud.

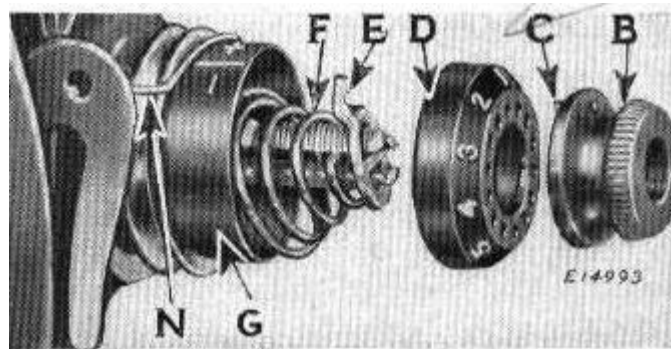


Fig. 1d

To Adjust the Thread Take-Up Spring

The thread take-up spring (T, Fig. 9) should be set so that when the eye of the needle reaches the goods on the downward stroke of the needle bar, the spring will be through acting and will rest against the stop on the thread take-up spring regulator (U, Fig. 9). If the thread take-up spring is not correctly set, loosen the set screw (R, Fig. 9) in the arm of the machine and turn the tension stud (S, Fig. 9) to the right for more movement of the spring or to the left for less movement. When the spring is correctly set, securely tighten the set screw (R).

The tension on the thread take-up spring should be just sufficient to take up the slack of the needle thread until the eye of the needle reaches the goods on its decent.

To increase the tension on the thread take-up spring (T), loosen the tension screw stud (S) and force the take-up spring from the recess in the regulator (U) to the right between the regulator and the tension discs until the required tension is obtained, then securely tighten the tension screw stud and force the spring back into its position in the regulator recess. To decrease the tension, force the spring to the left between the regulator and the tension discs.

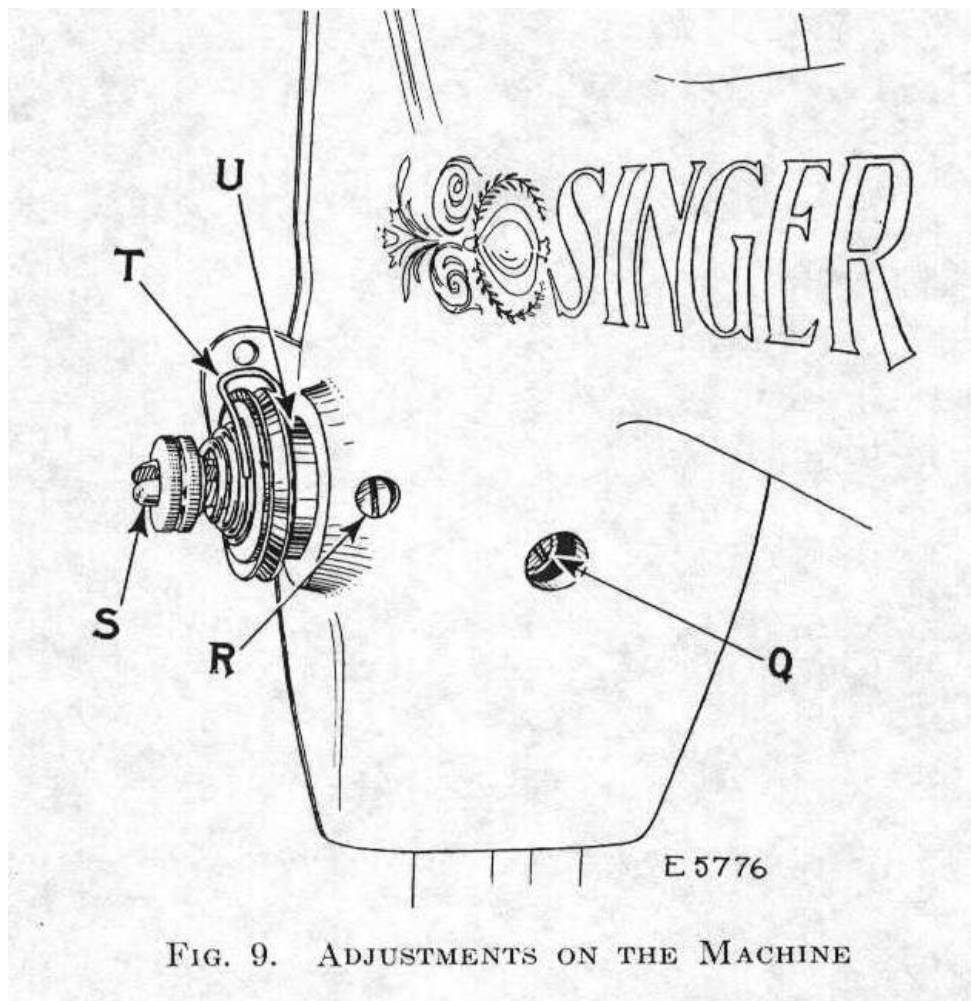
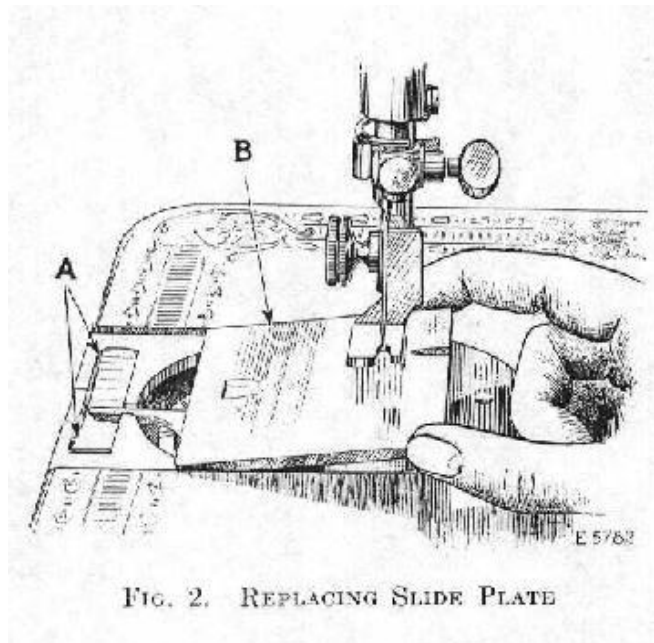


FIG. 9. ADJUSTMENTS ON THE MACHINE

Remove and Replace the Oscillating Hook Slide

To remove the oscillating hook slide (B, Fig.2) from the machine, raise the needle to its highest point and draw the slide plate slightly to the left, then lift the right hand end and draw it toward the needle until it is disengaged from the spring (A, Fig. 2) in the bed of the machine.

To replace the slide plate, slip it into the slideway from the throat plate end, as shown in Fig. 2, being careful to see that both ends of the spring (A) enter the grooves on the underside of the slide plate.

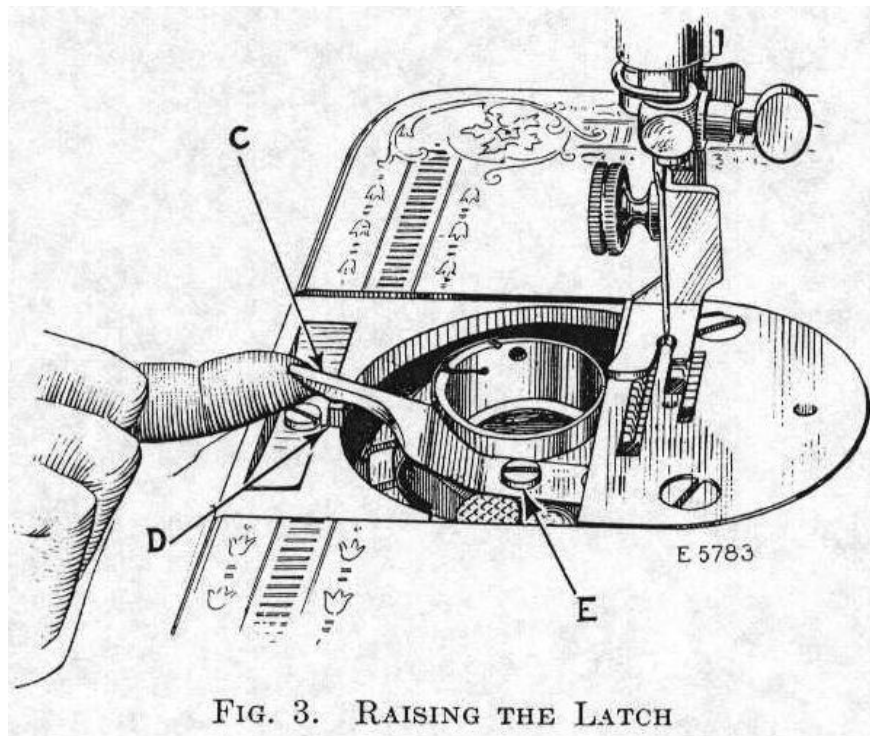


To Remove the Bobbin Case

(Operator being at the front of the machine)

Raise the needle to its highest point and remove the oscillating hook slide as instructed above. Insert the nail of the forefinger of the left hand under the latch (C, Fig. 3) and raise the latch just high enough to clear the edge at D, Fig. 3, then move it toward you.

Under no circumstances must the screw (E, Fig 3) be loosened for the purpose of removing the bobbin case, as loosening the screw will bring the bobbin case out of location and cause difficulty in the stitching operation. (For instructions for adjusting bobbin case position bracket, see page 8.



Hold the bobbin case between the forefinger and thumb of the left hand, as shown in Fig. 4. Tilt the bobbin case to the left and at the same time slightly turn the right or forked end toward you so that it is moved out of engagement with the sewing hook. Then tilt the bobbin case toward the right and remove it. (See Fig. 4).

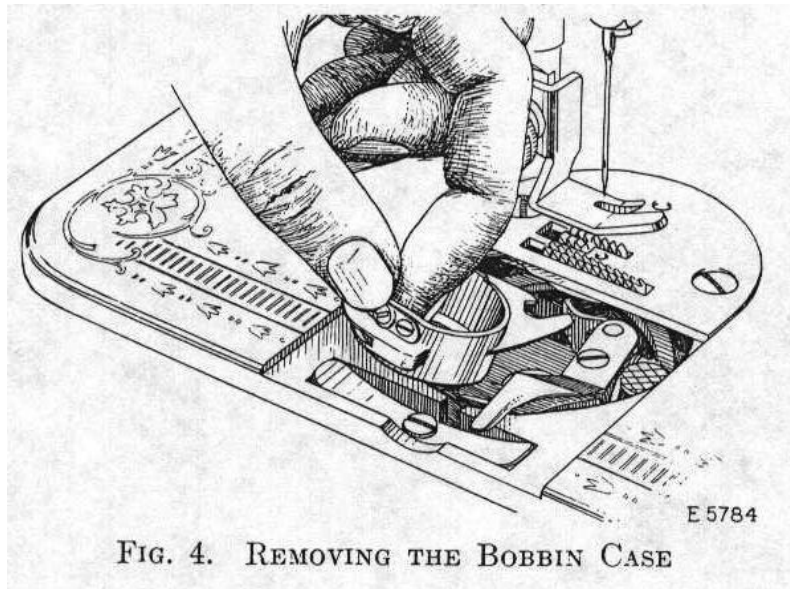
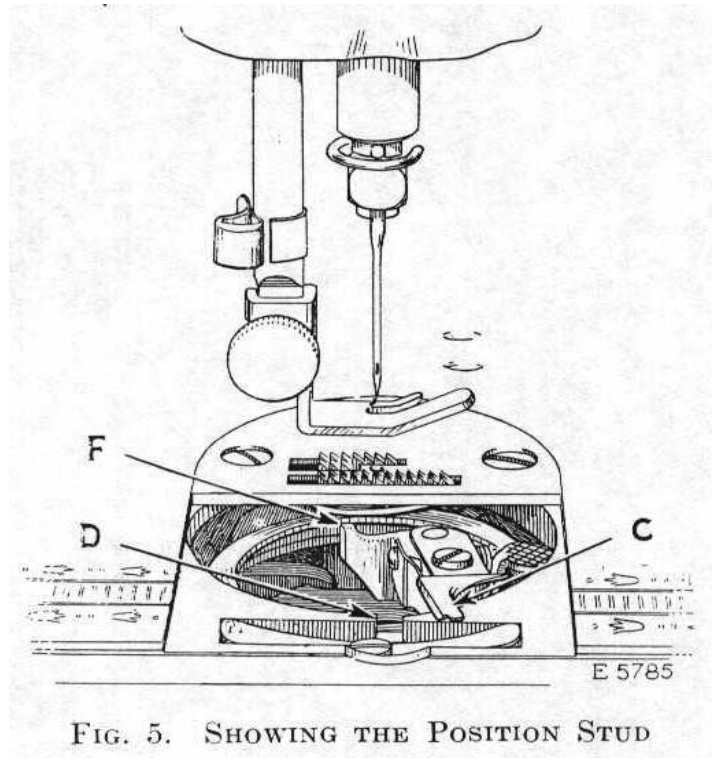


FIG. 4. REMOVING THE BOBBIN CASE

To Replace the Bobbin Case
(Operator being at the front of the machine)

Hold the bobbin case between the forefinger and thumb of the left hand, as shown in Fig. 4. Insert the forked end of the bobbin case under the throat plate so that the fork straddles the position stud (F, Fig. 5). Then with a slight twisting motion of the fork to the left and to the back, lightly press the bobbin case downward until the edge of the sewing hook engages in the groove under the rim of the bobbin case.

Having set the bobbin case into the correct position, lock the latch (C, Fig. 5) in the notch (D, Fig.5) to hold the bobbin case in place. Then replace the slide from the right as shown in Fig. 2.



To Adjust the Bobbin Case Position Bracket

If for any reason it becomes necessary to adjust the bobbin case position bracket to obtain the proper thread space between the bobbin case and the bobbin case bracket, loosen the screw (E, Fig. 3) and move the bracket until there is between .010 to .015 of an inch space at the heel of the bobbin case and the cushion spring, then securely tighten the screw (E, Fig. 3).

To Set the Needle Bar at the Correct Height

See that the needle is pushed up into the needle bar as far as it will go.

Also see that the timing gauge (H, Fig. 6) is set at the correct height by having the top of the finger of the timing gauge centered on the upper timing mark on the needle bar connecting stud (G, Fig. 6) when the stud is at its lowest point as instructed on page 6.

Then turn the balance wheel over toward you until the lower timing mark on the needle bar connecting stud (G, Fig. 7) is centered on the top of the finger of the timing gauge (H, Fig. 7) on the upward stroke of the needle bar. When the needle bar connecting stud is in this position, the needle bar should be set so that the top of the eye of the needle will be about 1.16 inch below the point of the sewing hook.

In case the needle bar is not set at the correct height, loosen the screw (Q, Fig. 9) in the lower end of the needle bar connecting link (K, Fig. 7). This screw can be reached when the needle bar is at its lowest point by inserting a screwdriver through the hole provided for this purpose in the arm. After loosening this screw, move the needle bar up or down in the needle bar connecting stud until it is at the correct height as instructed above, then securely tighten the screw (Q) in the needle bar connecting link.

To Time the Sewing Hook

Remove the oscillating hook slide, presser foot, throat plate, bobbin case, and feed dog. This will give a clear view of the point of the hook and the needle for the purpose of timing.

Turn the balance wheel over toward you until the needle bar connecting stud (G, Fig.6) which has upon it two timing marks, moves down to its lowest point. When the stud is in this position, the upper mark should be centered on the top of the finger of the timing gauge (H, Fig 6) which is fitted around the needle bar bushing. In some cases it may be necessary to raise or lower the timing gauge to bring the top of its finger in line with the upper mark on the stud when the stud is at its lowest point.

Then turn the balance wheel over toward you until the lower timing mark on the needle bar connecting stud is centered on the top of the finger of the timing gauge (H, Fig. 7) when the needle bar is on its upward stroke. When the needle bar is in this position, the point of the sewing hook should be directly behind the center of the needle as shown at L, Fig. 7, if the hook is correctly timed.

In case the sewing hook is not correctly timed, turn the machine back on its hinges and loosen the oscillating hook clamping screw (O, Fig.8) and turn the hook until its point is directly behind the center of the needle, then securely tighten the clamping screw, leaving just enough end play to permit the hook to turn freely.

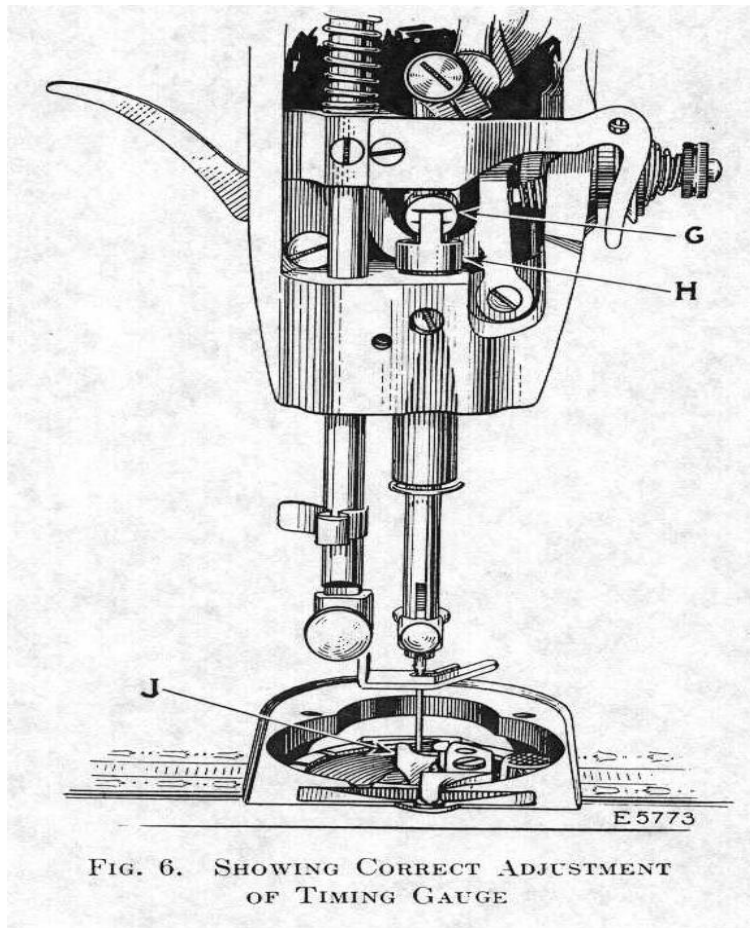
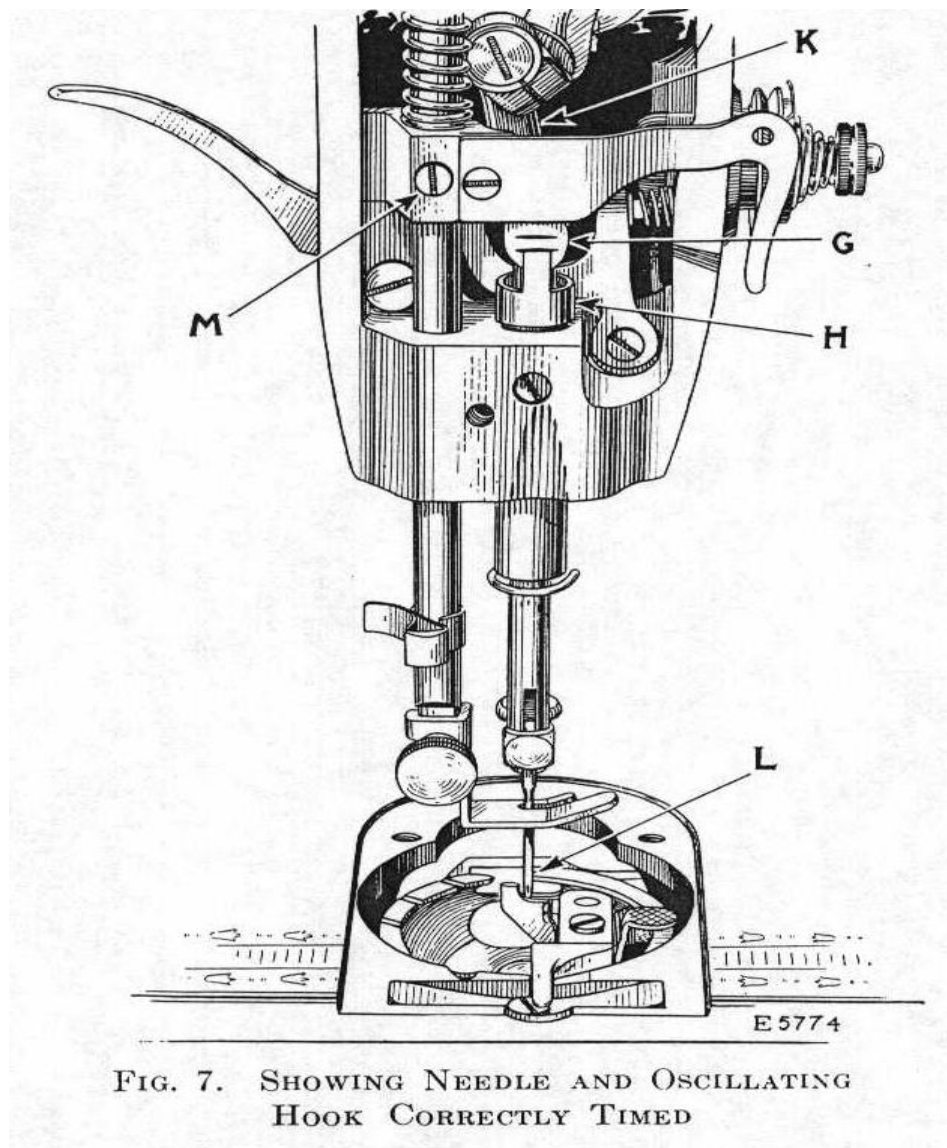


FIG. 6. SHOWING CORRECT ADJUSTMENT
OF TIMING GAUGE

To Remove the Sewing Hook

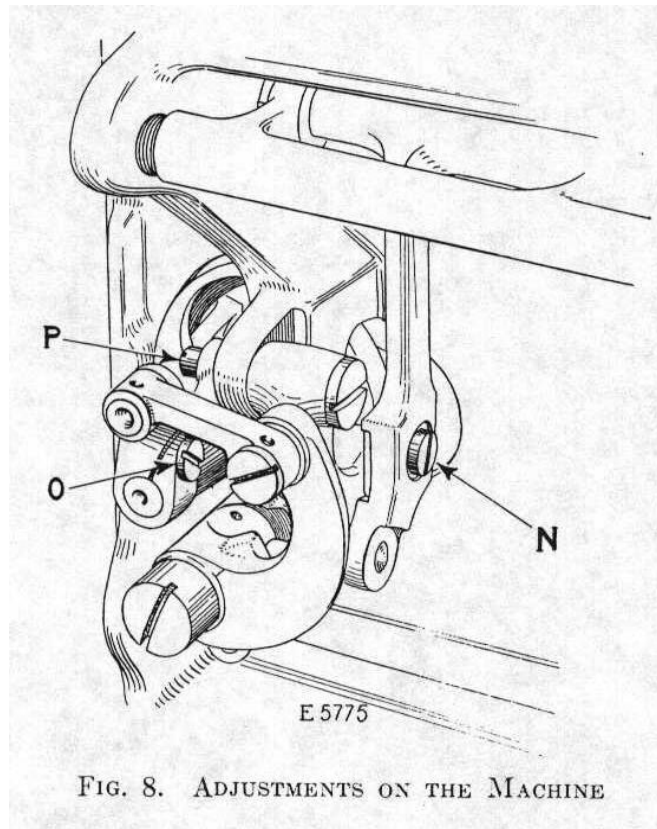
Remove the oscillating hook slide, presser foot, throat plate, and bobbin case. Turn the machine over on its hinges, take out the screw (N, Fig. 8) and remove the feed dog. Also loosen the set screw (P, Fig. 8) and lift out the bobbin case position bracket (F, Fig. 5). Loosen the oscillating hook crank clamping screw (O, Fig. 8) and loosen the presser bar bracket screw (M, Fig. 7) and raise the presser bar high enough to permit the sewing hook to be lifted from the machine.



To Raise and Lower the Feed Dog

The feed dog should be set so that when it is raised to its highest point by the feed raising bar, the top of the feed points will be about $\frac{3}{64}$ inch above the top surface of the throat plate.

When it is necessary to raise or lower the feed dog, loosen the feed dog screw (N, Fig. 8) and set the feed dog in the required position, then securely tighten the feed dog screw (N).



To Adjust the Presser Bar

The presser bar should be set so that when the presser bar lifter is raised, there will be a clearance of about $5/16$ inch between the presser foot and the throat plate. When the presser bar is lowered, the presser bar will be parallel with the feed dog.

In case the presser bar is not correctly set, raise the presser bar lifter, the loosen the presser bar bracket screw (M, Fig. 7) and raise or lower or turn the presser bar until it is set in the correct position as instructed above then securely tighten the screw (M).

Adjusting End Play in the Horizontal Shaft

When turning the balance wheel by hand, it should rotate without the slightest drag and, at the same time, without unnecessary end play. If the clamp stop motion bushing (O10, fig. 10) is set too tightly against the clamp stop motion bushing bearing (Z10, Fig. 10), it will cause binding of the shaft instead of permitting it to rotate freely.

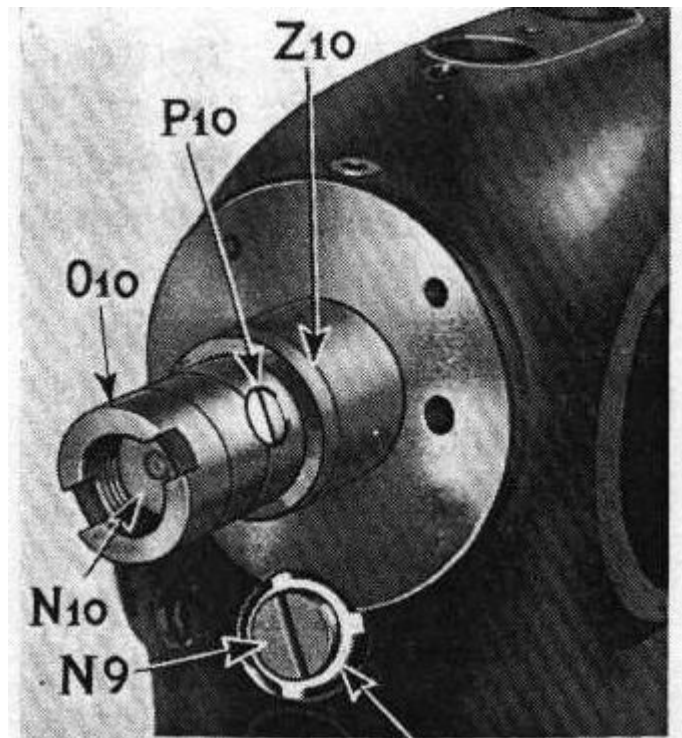


Fig. 10

To adjust end play, remove the clamp motion nut, balance wheel, and clamp motion washer. Slightly loosen the set screw (P10, Fig. 10). If the shaft is binding, place a wooden dowel on the end of the shaft (N10) and tap lightly with a hammer or wood block. If too much end play exists in the shaft, tap the bushing (O10) with a wood block to move the bushing closer to the bearing (Z10). Tighten the set screw (P10) and reinstall the balance wheel, clamp motion washer, and balance wheel.