SINGER
212W140

USE **SINGER*** OILS and LUBRICANTS

They insure freedom from lubricating trouble and give longer life to sewing equipment

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The following are the correct lubricants for the 212w, 241, 251, 253, 400w, 402w and 410w Machines:

TYPE A — MANUFACTURING MACHINE OIL, LIGHT GRADE

When an oil is desired which will produce a minimum of stain on fabrics, even after a long period of storage, use:

TYPE C — MANUFACTURING MACHINE OIL, LIGHT GRADE

OTHER **SINGER** LUBRICANTS

TYPE E — THREAD LUBRICANT

For lubricating the needle thread of sewing machines for stitching fabrics or leather where a thread lubricant is required.

TYPE F — MOTOR OIL

For oil lubricated motors and plain bearings in power tables and transmitters.

NOTE: All of the above oils are available in 1 quart, 1 gallon and 5 gallon cans.

BALL BEARING LUBRICANT

This pure grease is specially designed for the lubrication of ball bearings and ball thrust bearings of motors and electric transmitters, ball bearing hangers of power tables, etc. **Furnished in 1 lb. and 4 lb. tins.**

3113w

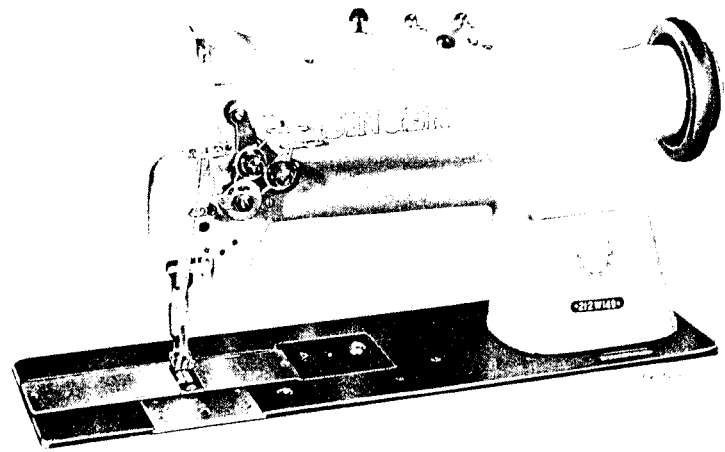
INSTRUCTIONS

FOR USING AND ADJUSTING

SINGER*

SEWING MACHINE

212w140



THE SINGER MANUFACTURING COMPANY

TO ALL WHOM IT MAY CONCERN:

The improper placing or renewal of the Trade Mark "**SINGER**" or any other of the Trade Marks of The Singer Manufacturing Company (all of which are duly Registered Trade Marks) on any machine that has been repaired, rebuilt, reconditioned, or altered in any way whatsoever outside a SINGER factory or an authorized SINGER agency is forbidden.

THE IMPORTANCE OF USING **SINGER*** PARTS AND NEEDLES IN **SINGER** MACHINES

The successful operation of **SINGER** machines can only be assured if **SINGER** parts and needles are used. Supplies are available at all **SINGER** Shops for the Manufacturing Trade, and mail orders will receive prompt attention.

SINGER Needles should be used
in **SINGER** Machines
These 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

DESCRIPTION

Machine 212W140 is a high speed, compound feed, long arm, two-needle, lock stitch machine for stitching corsets, overalls and clothing generally.

It can be furnished in gauges from 1/32 to 1-1/2 inches, as ordered.

It has two belt driven, automatically lubricated rotary sewing hooks on vertical axes.

The compound feeding mechanism consists of a needle feed and a drop feed which are simultaneously adjustable for stitches up to ~~five~~ six to the inch.

The needle bar stroke is ~~1-13/64~~ 1 5/16 inches and the maximum presser bar lift is 7/16 inch.

SPEED

The speed recommended for this machine is 4000 R.P.M., depending on the material being stitched. It is advisable to run a new machine slower than the maximum speed for the first few minutes to allow time for the oil to reach the moving parts. The driving wheel turns over towards the operator.

SETTING UP

Fasten the drip pan to the table with its left end even with the left end of the cut-out. Fasten the knee lifter bracket in the location shown in **Fig. 2**, assembling it so that the lifter rod **A** does not strike the drip pan. The screw slots in the bracket provide the necessary adjustment. The stop stud **B, Fig. 2** should be set to stop the action of the knee lifter as soon as the presser foot is raised enough to trip the hand lever. Then screw the drain pipe **C** into the drain hole in the drip pan and attach the oil jar **D**, as shown in **Fig. 2.**

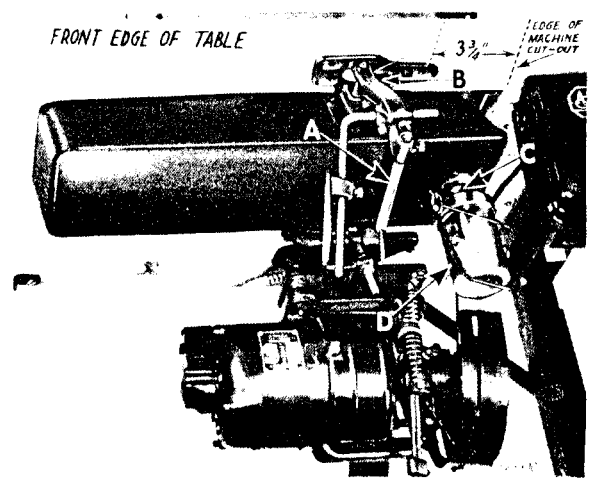


Fig. 2. Knee Lifter, Drip Pan and Oil Jar in Position

TO REMOVE THE BOBBINS

Draw out the slide plates in the bed of the machine. Turn the driving wheel over from you until the needle bar moves up to its highest point. Raise the bobbin case latches **E, Fig. 8,** and lift out the bobbins.

TO WIND THE BOBBIN

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.

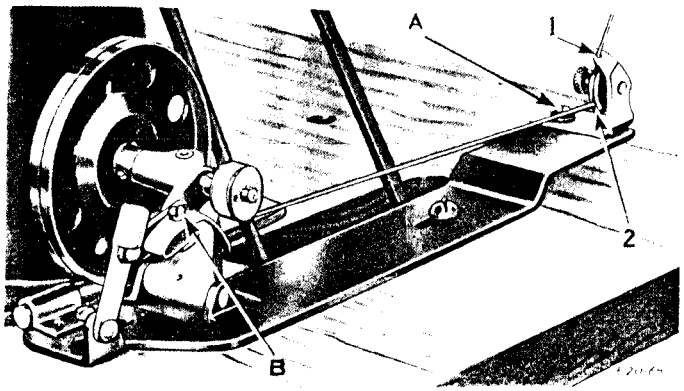


Fig. 7. Winding the Bobbin

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 of and between the tension discs (2). Then wind the end of the thread around the bobbin a few times in the direction shown in **Fig. 7,** push the bobbin winder pulley over against the machine belt and start the machine.

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

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

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

Bobbins can be wound while the machine is stitching.

When winding a bobbin with fine thread, a light tension should be used.

TO REPLACE THE BOBBIN AND THREAD THE BOBBIN CASES

The following instructions apply to both bobbin cases:

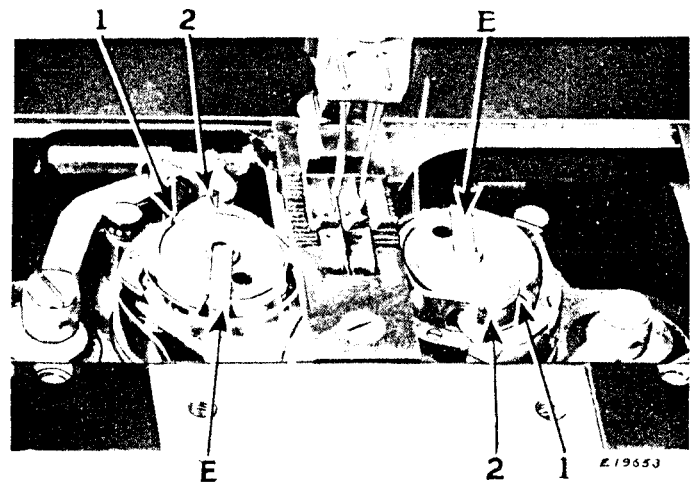


Fig. 8. Threading Bobbin Cases

Hold the bobbin between the thumb and forefinger of the right hand, the thread on the bottom from left to right, and place it on the center stud of the bobbin case, then push down the latch, as shown in **Fig. 8.** Draw the thread into the slot **1** in the edge of the bobbin case and back of the projection **2,** leaving a loose end of thread about two inches long above the slide. When closing the slides, leave just enough space for the threads to pass through.

TO SET THE NEEDLES

Turn the driving wheel over toward you until the needle bar moves up to its highest point. Loosen the set screws in the needle holder and put the needles up into the holder as far as they will go, the inside needle or the one nearest the upright part of the arm having its long groove toward the left, and the outside needle or the one farthest from the upright part of the arm having its long groove toward the right, the eyes of both needles being directly in line with the arm of the machine, then tighten the set screws.

UPPER THREADING

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

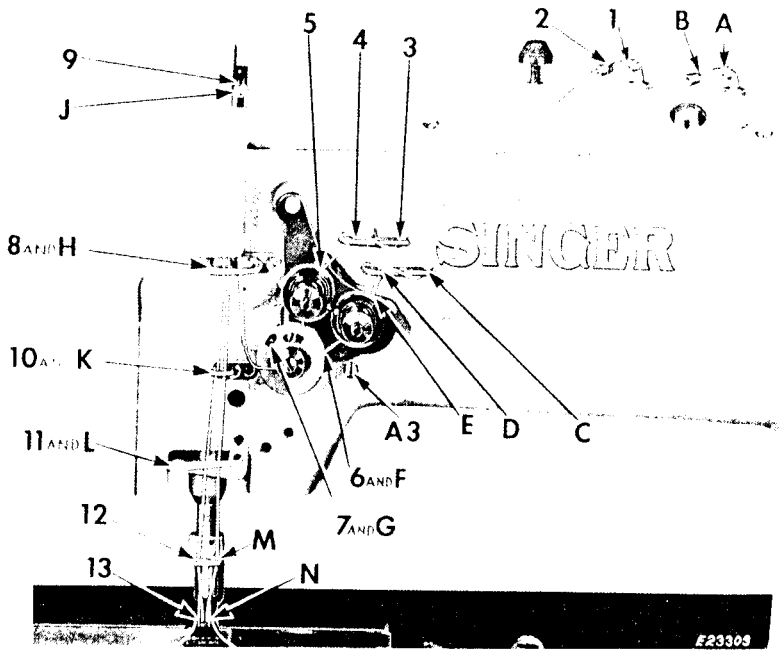


Fig. 9. Upper Threading

through left guide at top of spool stand, down through hole (**1**) then through hole (**2**) in thread guide on top of arm, downward through holes (**3** and **4**) in thread guide at front of machine, over from right to left between tension discs (**5**) down under from right to left around thread controller (**6**), up into fork (**7**) of thread controller against the pressure of wire controller spring, up through thread guide (**8**), up and from right to left through upper hole (**9**) in end of thread take-up lever, down through thread guide (**8**) again and through two thread guides (**10** and **11**), down through left hole (**12**) in needle holder and from right to left through eye of left or outside needle (**13**).

To thread the inside needle or the one nearest the upright part of the arm, pass thread from right spool on spool stand, through right guide at top of spool stand, down through hole (**A**) then through hole (**B**) in thread guide on top of arm, downward through holes (**C** and **D**) in thread guide at front of machine, under from right to left between right tension discs (**E**), down under from right to left around thread controller (**F**), up into fork (**G**) of thread controller against the pressure of wire controller spring, up through thread guide (**H**), up and from right to left through lower hole (**J**) in end of thread take-up lever, down through thread guide (**H**) again and through two thread guides (**K** and **L**), down through right hole (**M**) in needle holder and from left to right through eye of right or inside needle (**N**).

Draw about three inches of thread through the eye of each needle with which to commence sewing.

TO PREPARE FOR SEWING

With the left hand hold the ends of the needle threads, leaving them slack from the hand to the needles. Turn the driving wheel

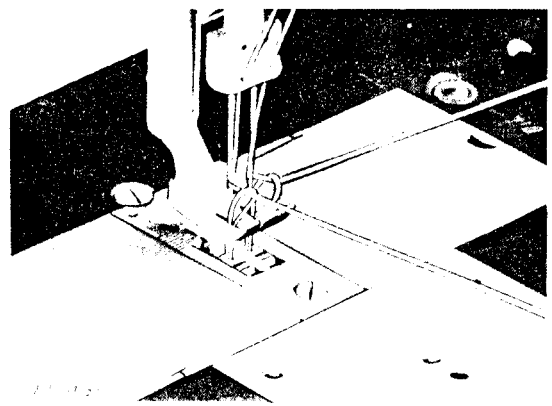


Fig. 10. Drawing Up the Bobbin Threads

over toward you until the needles move down and up again to their highest point, thus catching the bobbin threads; draw up the needle threads and the bobbin threads will come up with them through the holes in the feed dog (see **Fig. 10**). Lay the threads back under the presser foot and close the slides.

TO COMMENCE SEWING

Place the material beneath the presser foot, lower the presser foot and commence to sew, turning the driving wheel over toward you.

TO REMOVE THE WORK

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

TENSIONS

The needle and bobbin threads should be locked in the center of the thickness of the material, thus:

Fig. 11. Perfect Stitch

If the tension on the needle thread is too tight, or if that on the bobbin thread is too loose, the needle thread will lie straight along the upper surface of the material, thus:

Fig. 12. Tight Needle Thread Tension

If the tension on the bobbin thread is too tight, or if that on the needle thread is too loose, the bobbin thread will lie straight along the under side of the material, thus:

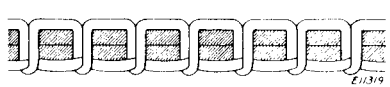


Fig. 13. Loose Needle Thread Tension

TO REGULATE THE TENSIONS

The tensions on the needle threads are regulated by the two thumb nuts **B2, Fig. 14** at the front of the tension discs on the front of the machine. To increase the tension, turn these thumb nuts over to the right. To decrease the tension, turn the thumb nuts over to the left.

The tensions on the bobbin threads are regulated by means of the screw nearest the center of the tension spring on the outside of each bobbin case. To increase the tension, turn this screw over to the right. To decrease the tension, turn the screw over to the left.

TO REGULATE THE LENGTH OF STITCH

The number of stitches per inch is stamped on the driving wheel **Fig. 4** located on the armshaft.

To change the length of stitch, press down the plunger **J, Fig. 4** in the bed of the machine and at the same time turn the driving wheel slowly until the plunger enters a notch in the adjustable feed eccentric cam. Still holding the plunger, turn the driving wheel over a part of a revolution until the desired number of the stitches per inch on the driving wheel is opposite the reference mark **H, Fig. 4** on arm, then release the plunger.

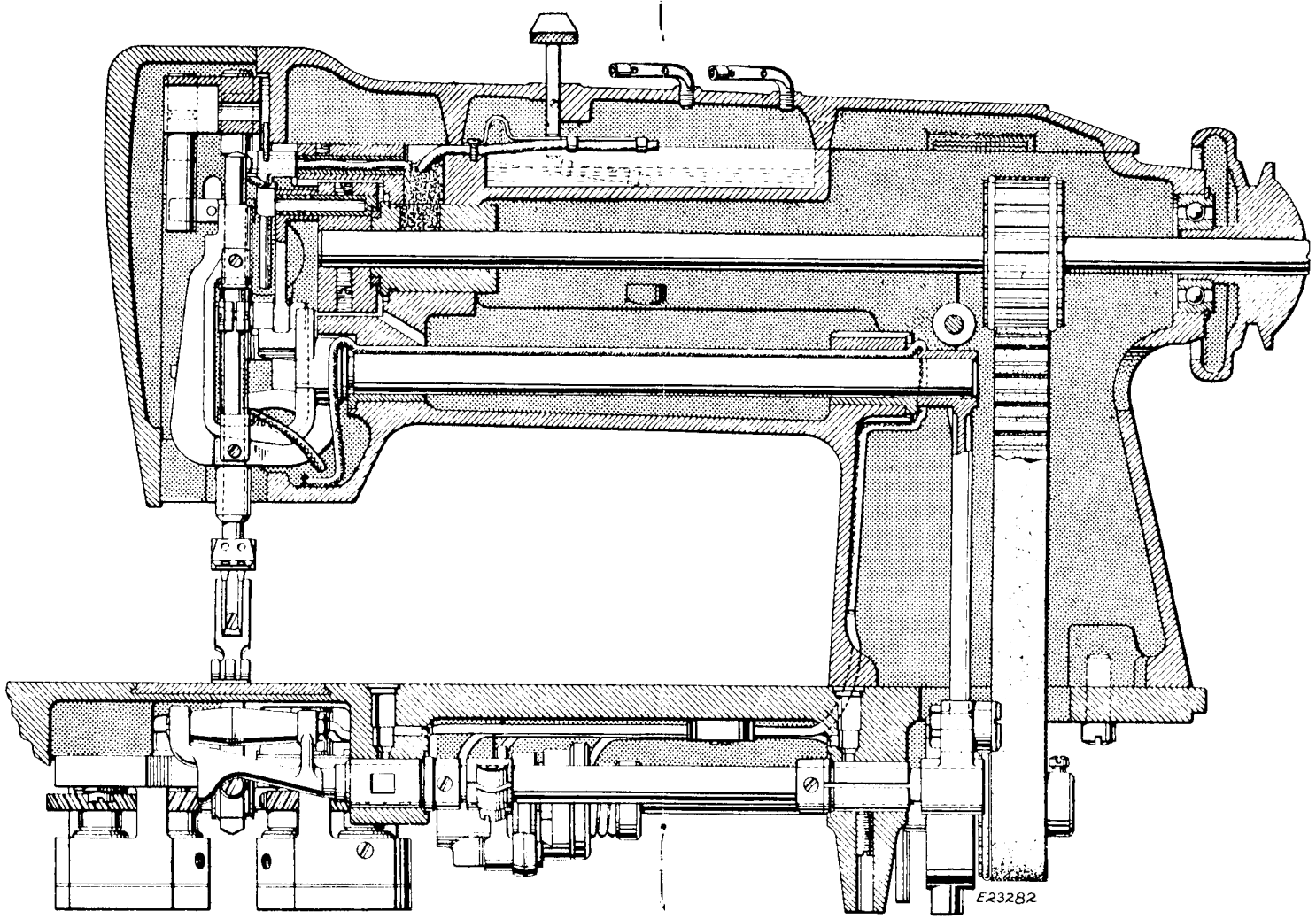
TO REGULATE THE PRESSURE ON MATERIAL

The pressure on the material is regulated by the screw **X2, Fig. 23**, at the back of the machine, the screw acting on a flat spring. To increase the pressure, turn this screw downward. To decrease the pressure, turn this screw upward. The pressure should be only heavy enough to enable the feed to move the work along evenly.

TO RE-ENGAGE THE SAFETY CLUTCH

(If Machine Is So Fitted)

When safety clutch has dis-engaged, first check to see that the bed shaft turns freely. Remove any thread that may have become jammed in the hook. To re-engage the clutch, press down the plunger **J, Fig. 4** in the bed of the machine and at the same time turn the driving wheel slowly until the plunger enters a notch in the feed driving eccentric cam. Turn the driving wheel away from you until the safety clutch is re-engaged. Then re-set the length of stitch as described above.



Cross Section View of Machine 212W140

TO SET THE SEWING HOOKS TO OR FROM THE NEEDLES

To prevent the points of the hooks from dividing the strands of the threads, they should run as close to the needles (within the scarf) as possible.

Turn the driving wheel over toward you until the points of the sewing hooks are at the centers of the needles. Loosen the four screws **N, N** and **T, T, Fig. 16** underneath the bed of the machine and

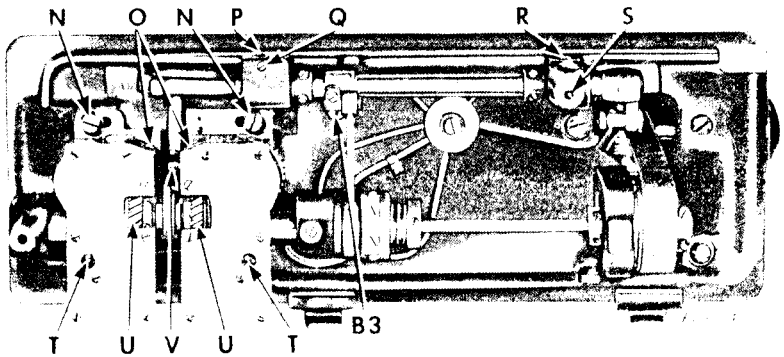


Fig. 16. Adjustments Underneath the Machine

move the hook saddles to the right or left, as may be required, until the points of the hooks are as close to the needles as possible without striking them, then securely tighten the four screws **N, N** and **T, T.**

CAUTION: Make sure hook driving gears **U, Fig. 16,** are set correctly with relation to face of hook saddle. Use .008 shim.

The function of the hook washer (needle guard) **G2, Fig. 18,** 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 toward the hook.

The needle guard can be bent with a small pair of pliers until it prevents the hook point from striking the needle, but it should not be bent outward enough to deflect the needle from its normal path.

TO TIME THE SEWING HOOKS

Adjust the feed eccentric so that there is no feeding motion.

Remove the throat plate and turn the driving wheel over toward you until the lower mark across the needle bar is just visible at the end of the needle bar frame on the upward stroke of the needle bar. If the needle bar and sewing hooks are correctly timed, the point of each hook will be at the center of its needle and about 1/16 inch above the eye.

In case the sewing hooks are not correctly timed, turn the driving wheel over toward you until the needle bar has descended to its lowest point and has risen until the lower timing mark across the needle bar is just visible at the end of the needle bar frame. Loosen the two screws in the hub of each hook shaft gear **L2, Fig. 19** and turn the hooks until the point of each hook is at the center of its needle. Then securely tighten the two set screws in each hook shaft gear **L2.**

TO REMOVE THE BOBBIN CASES FROM THE SEWING HOOKS

Remove the four hook gib screws **W, Fig. 17** from the sewing hooks, lift off the hook gibs **F2, Fig. 18** and remove the bobbin cases **X, Fig. 17.**

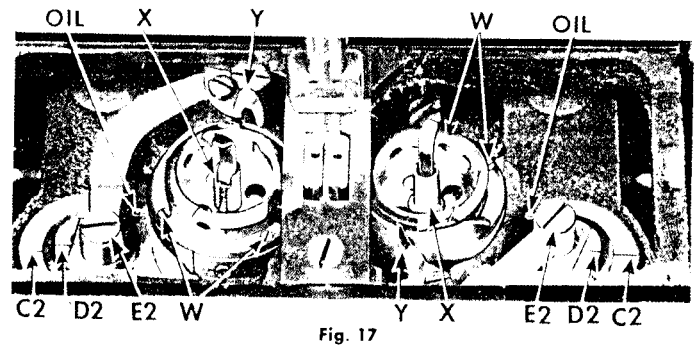


Fig. 17

TO REMOVE THE SEWING HOOKS FROM THE MACHINE

Remove the presser foot, throat plate and feed dog, then loosen two Allen set screws in hub of hook **H2, Fig. 18** and lift hook off end of shaft. In order to remove hook shaft, first remove screws in ball bearing retaining cap directly under the hook. Next, tip machine back and loosen set screws **L2, Fig. 19** in hook shaft gears and lift hook shaft by top end. If shaft does not lift out easily, loosen screws in cover plate of hook saddle sufficiently to permit oil to drain out, then remove cover, being careful not to damage the gasket **M2, Fig. 19,** then tap end of hook shaft.

CAUTION: Each hook is equipped with a screw in the hub for adjusting the vertical position of the hook relative to the throat plate seat. This position is set to a gauge at the factory. When replacing or installing new hooks, care must be taken to see that the bobbin case stop finger fits correctly in the throat plate. If it is too high, it

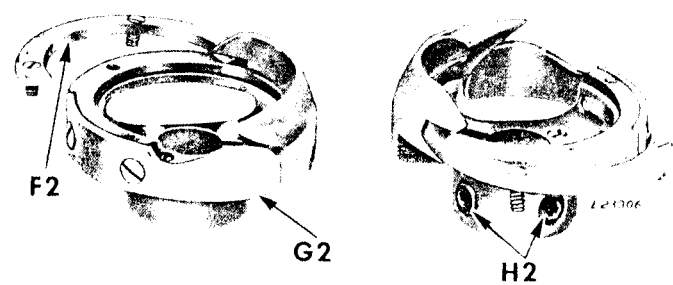


Fig. 18. Sewing Hook Removed from Machine Showing Hook Washer

will interfere with the free passage of thread. If it is too low, it is apt to slip out and cause damage to the hook and bobbin case when the machine is in operation. To make the adjustment, remove the cloth washer in the bottom of the bobbin case, loosen the Allen set screws in the hook hub, then turn the hook until the adjusting screw appears beneath one of the holes in the bottom of the bobbin

case. Hold the hook down against its seat with one hand, and with the other hand, turn the adjusting screw with screwdriver until the proper up and down position is attained. Tighten Allen set screws in hub of hook.

To remove the ball bearing from the hook shaft, rest the bearing on two pieces of sheet metal across the open jaws of a vise with the shaft end up, tap shaft until bearing is removed.

TO ADJUST THE BOBBIN CASE OPENER

The bobbin case opener **Y, Fig. 17** should be set so that it touches the bobbin case as lightly as possible, yet turns the bobbin case enough to make a sufficient opening for the free passage of the thread between the throat plate and the bobbin case.

TO ADJUST TIMING OF BOBBIN CASE OPENER

Turn driving wheel over towards you until lowest timing mark on needle bar is even with end of needle bar frame. In this position, the mark **D2, Fig. 17** on the flange of the opener driving shaft, should line up with the reference mark **C2, Fig. 17** on hook saddle. If opener shaft is out of time, tip machine back and loosen set screws **K2, Fig. 19** in opener driving gears then return machine to upright position and turn shaft with screwdriver in screw **E2, Fig. 17** at top end of shaft, then tighten set screws **K2, Fig. 19** in gears.

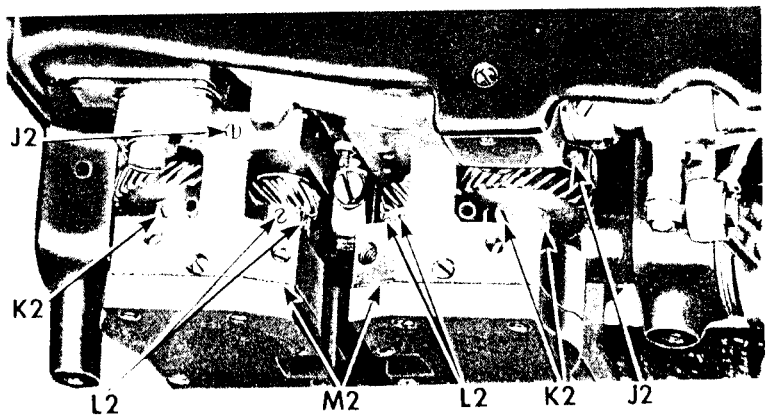


Fig. 19

TO ADJUST THE FEED ROCK SHAFT BEARINGS

The feed rock shaft is carried in split bushings which can be adjusted to take up any wear which may occur. Loosen the two lock screws **Q** and **R, Fig. 16** and turn in the two adjusting screws **P** and **S, Fig. 16** until all lost motion of the rock shaft has been eliminated, then securely tighten the lock screws **Q** and **R.**

TO RAISE OR LOWER THE FEED DOG

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

Remove the throat plate; clean the lint and dust from between the feed points and replace the throat plate; tip the machine back and turn the driving wheel towards you until the feed dog is at its highest position; loosen screw **V, Fig. 16** in the feed lifting cam fork and raise or lower the feed dog, as may be required, then re-tighten the screw **V.**

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

The feed dog should be set so that when the needles are down they will be slightly in front of the center of the needle holes (toward the operator). In case the needles do not enter the holes in the feed dog correctly, loosen the pinch screw **B3, Fig. 16** and adjust the feed dog as required, then securely tighten the pinch screw **B3,** and check the relative position of the needle and presser bars as instructed on **page 15.**

TO REMOVE THE NEEDLE BAR ROCK FRAME

Open face plate, remove take-up hinge stud and take-up; see **page 20.** Remove cover plate on the front upright portion of the arm, then loosen needle bar rock frame rock shaft connection pinch screw **N2, Fig. 20.** Pull needle bar rock frame with its shaft from machine.

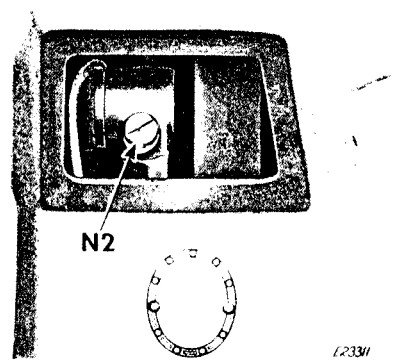


Fig. 20

THE FEED ECCENTRIC

The feed eccentric is provided with a gib **P2, Fig. 21** which can be adjusted to take up any wear or loose motion between the feed eccentric and the eccentric body. To adjust the gib, loosen the two locking screws **Q2, Fig. 21** nearest the gib, then turn in the two adjusting screws **O2** against the gib until all play is eliminated and the eccentric fits snugly in the slot in the eccentric body. Securely tighten the two locking screws **Q2.**

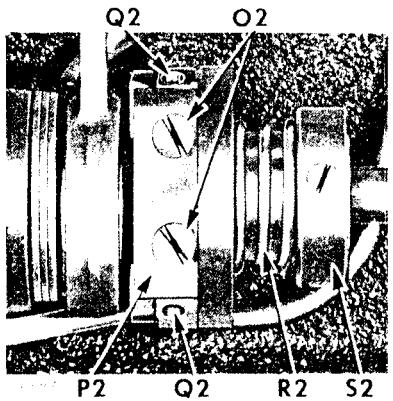


Fig. 21. Feed Eccentric

The spring **R2** presses against the feed eccentric cam to prevent it from moving out of position while the machine is operating. The collar **S2** may be moved to the right or left to change the spring pressure. It should ordinarily be set flush, with the end of the hub of the eccentric body.

TO REMOVE TAKE-UP LEVER

Remove arm cover, top of machine, loosen set screw **U2, Fig. 22,** and remove take-up lever hinge stud **L, Fig. 15.** Lift take-up lever out through slot in top of arm **V2, Fig. 22.**

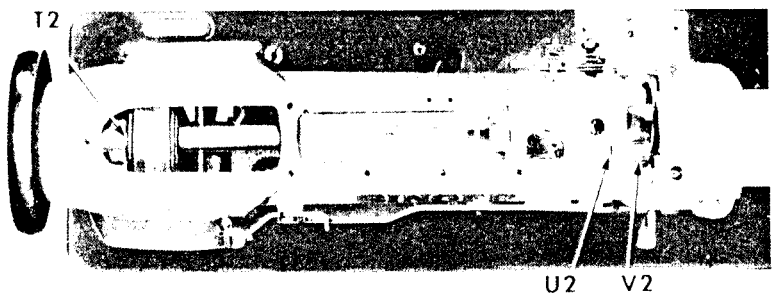


Fig. 22

TO ADJUST SPLIT BUSHING FOR NEEDLE BAR ROCK FRAME ROCK SHAFT

To adjust the front bushing, remove needle bar rock frame rock shaft bushing set screw check screw **A3, Fig. 9,** then turn set screw underneath until bushing is adjusted to a running fit. Replace check screw. To adjust the rear bushing remove the set screw check screw **W2, Fig. 23** then turn set screw underneath until bushing is adjusted to running fit. Replace check screw.

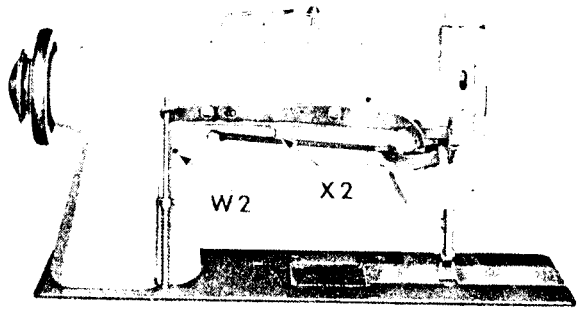


Fig. 23

TO REPLACE THE ARM SHAFT CONNECTION BELT

Remove the needles to avoid damaging while machine is out of time. Slide the belt off lower pulley **Z2, Fig. 24.** Loosen the two screws in the driving wheel and remove driving wheel and ball bearing which comes out with the wheel. Lift the belt up and draw it around the arm shaft through the space normally occupied by the ball bearing.

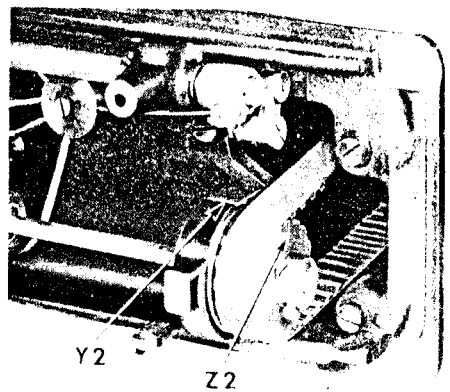


Fig. 24

Replace the belt through the ball bearing hole. After placing the belt over the upper pulley **T2, Fig. 22** replace the driving wheel. To remove all the end play from the shaft, lightly tighten the set screws in the driving wheel and holding the needle bar crank in place, tap the driving wheel into position with the palm of the hand, then tighten screws firmly. Turn the driving wheel over towards you until the thread take-up lever is at its highest point.

Then turn the hook driving shaft until the arrow **Z2, Fig. 24** on the belt pulley is in line with the mark **Y2, Fig. 24** on the bed. Now, without disturbing either the arm shaft or hook driving shaft, slip the belt over the lower pulley. The feed will then be correctly timed with the needle.