SINGER
246K46

Form K6432
(1161)

SERVICE MANUAL

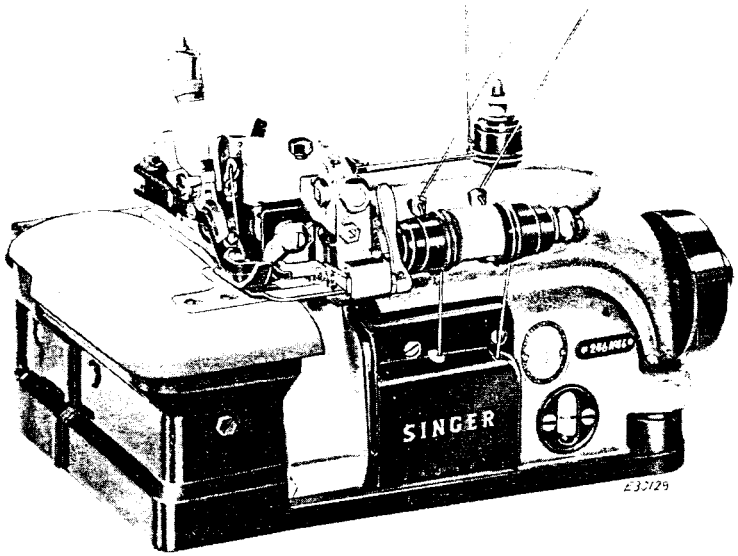
[redacted]

FOR

SINGER*

INTERMITTENT GATHERING MACHINE

246k46



CAUTION—See that machine reservoir is filled with oil, as instructed on **page 5** before using machine.

THE SINGER MANUFACTURING COMPANY

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DESCRIPTION

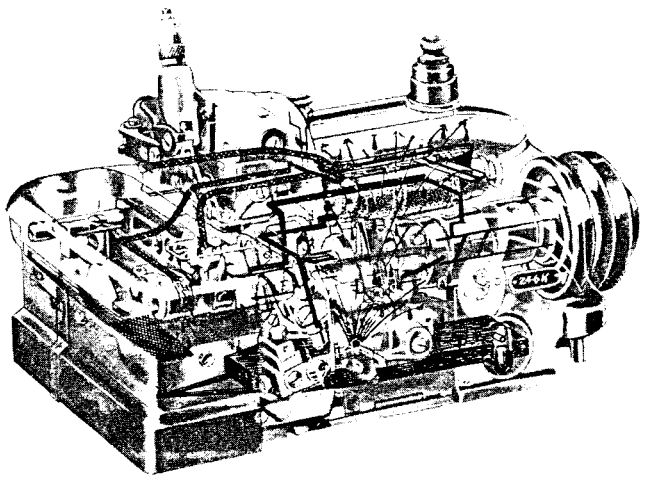

Fig. 2. X-ray View of Class 246K Machine (Lubricating System Shown in Solid Black)

Machine 246K46 produces high speed **continuous or intermittent gathering** and simultaneous trimming on rayon, tricot, silk, muslin, light denim, flannel, balbriggan knit goods, light and medium weight sweater materials.

Regularly fitted with **one needle** and **two loopers,** this machine makes the **three-thread overedge tight needle thread** stitch **(Stitch Type #504,** shown in **Fig. 3).** See **pages 9** and **10** for instructions on threading.

Machine can be fitted and threaded to produce the two-thread overedge stitch **(Stitch Type #503,** shown in **Fig. 4).** See **page 11** for instructions on threading.

Machine employs these curved needles:

Catalogue #1265 (151 x 7) regular.
Catalogue #1263 (151 x 3) tapered blade.

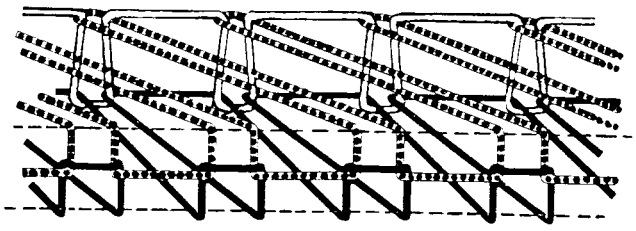

Fig. 3. Stitch Formation (Stitch Type #504)

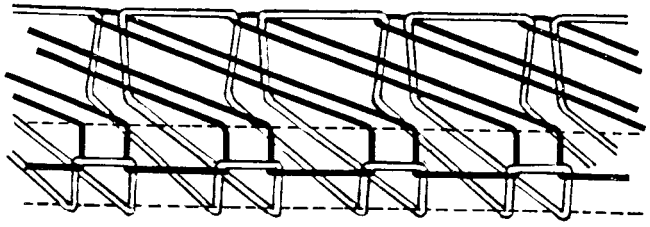

Fig. 4. Stitch Formation (Stitch Type #503)

Loopers (or looper and spreader) **independently driven,** permitting variations in their adjustment in relation to each other and to the needle, to suit the work required.

Either left or right twist of thread may be used in needle and in loopers.

Controlled gathering feed device built into machine, enables operator to gather or to feed material evenly at will (see **page 14**). Knee controller regularly supplied. Foot controller, supplied upon request, at an additional charge.

Stitch shortening device, available at additional cost upon specific order, enables operator to **shorten the stitches at any point** in the sewing operation (see **page 14**).

Two bronze feed eccentrics 164915 regularly supplied; one **6** stitches to the inch for **front** feed and one **14** stitches to the inch for **rear** feed.

Adjustable trimmer cuts cleanly; operating in advance of needles. Trimmings guided into chip chute to avoid interference with work and with mechanism. **Trimmer** is adjustable to cut **1/16** inch to **1/4** inch from needle.

Presser foot can be swung toward left to facilitate threading or replacement of needle.

Bight limit, 1/16 inch to **7/32** inch.

Tubular operation is accommodated by a small "horn" extension of the throat plate support.

Cloth plate can be swung to the left for convenience, when stitching tubular pieces or when making machine adjustments.

Splash lubricating system shown in **Fig 2,** automatically and continuously oils principal bearings during operation.

Oil cooling reservoir in rear of machine.

Oil level indicator gauge in direct view of operator.

Oils recommended, see inside front cover.

Machine pulley 164231 for **3/8** inch V-belt; also used for **5/16** inch round belt.

Machine pulley should always turn over away from operator when machine is in motion.

Maximum speed, 5500 stitches to the minute.

INSTALLATION

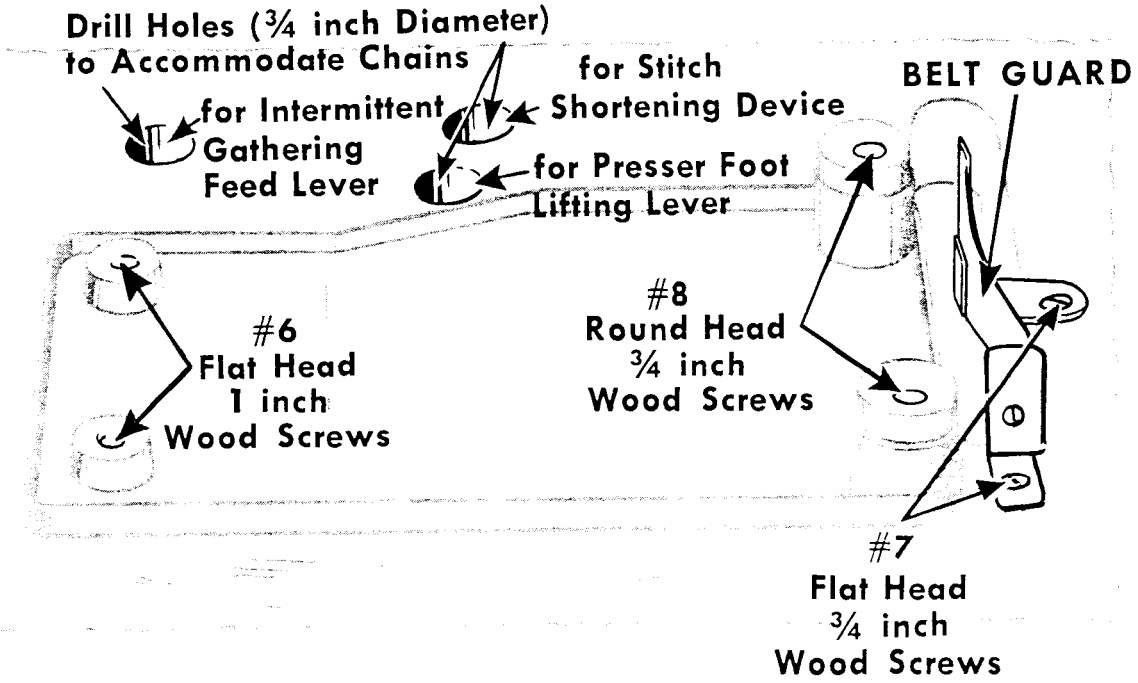

Fig. 5. Machine Base on Table, Showing Position and Drill Sizes of Holes Required for Installation

INSTALLATION OF MACHINE AND BASE ON TABLE

Place machine and base on table top with belt groove of machine pulley in line with belt groove of driving pulley.

Spot position of hole behind machine base, directly below chain slot on presser foot lifting lever.

Spot position of hole either in line with chain for intermittent gathering feed lever or in line with chain for stitch shortening device, to suit device in use, as instructed in **Fig. 5.**

Remove machine from base. Draw outline of machine base in position on top of table.

Drill all holes spotted earlier, **3/4** inch in diameter, to accommodate chains.

Using base and belt guard as template, spot and drill six holes in table for wood screws, as shown in **Fig. 5**

Fasten machine base and belt guard to table with the six wood screws, described in **Fig. 5.**

Set machine on rubber cushions at four corners of base.

FOOT LIFTER:

As the stand recommended for Class **246K** Machines with foot lifter includes a suitable foot lifter treadle, foot lifter chain **6439,** without the treadle, will be sent with the machine. If, however, the machine is fitted to a stand or other equipment which does not have a suitable treadle, orders should state that foot lifter treadle **4885** is required and it will also be supplied, without extra charge.

ACCESSORIES AND TOOLS

Foot lifter. Knee lifter supplied instead, when specified on order.

Threading wire 164196.

Tweezers 164204.

Socket wrench 164197 (for needle clamping nut).

Flat, open-end wrench 8908 (for feed eccentric nut).

Screwdriver 85318.

Wrench 164831 (for right looper carrier guide bar oil plug screw nut).

Thread unwinder 151031 for two or three-thread.

Thread unwinder 228705 (two-thread) or **228706** (three-thread) for nylon threads will be supplied instead of regular unwinder, upon specific order.

CAUTION

All of the oil is drained from the machine before it is shipped from the factory.

DO NOT START THE MACHINE UNTIL IT HAS BEEN THOROUGHLY LUBRICATED AS INSTRUCTED ON PAGE 5.

LUBRICATION

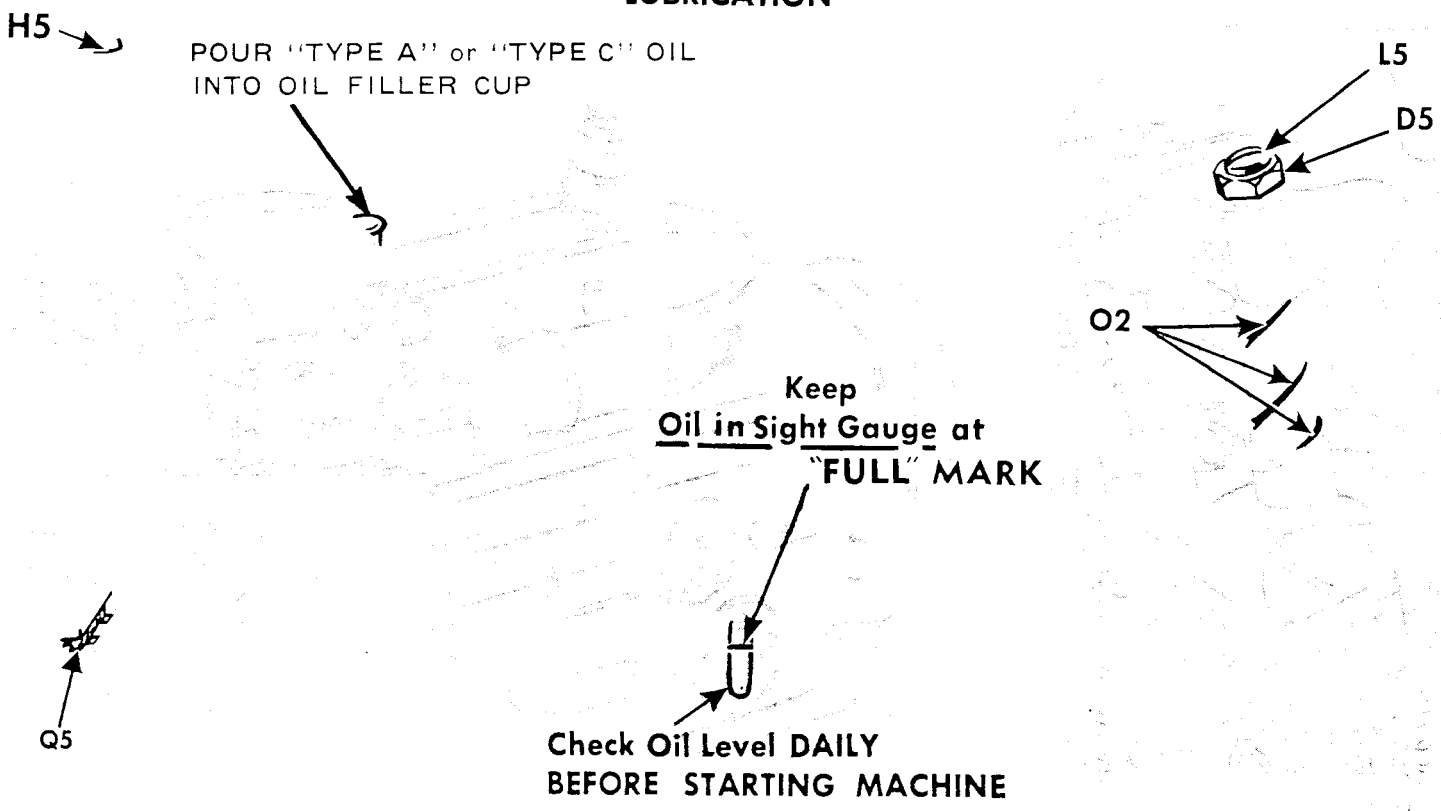

Fig. 6. Filling Oil Reservoir

Fig. 7. Oil Flow Adjustment

Use "TYPE A" or "TYPE C" OIL, sold by Singer Sewing Machine Company.

Apply this oil to oil filler cup on top of machine, pouring oil into reservoir until oil in sight gauge is at **"FULL" mark,** as indicated in **Fig. 6.**

Check oil sight gauge daily before starting machine and oil machine, when necessary, as instructed in **Fig. 6** above.

WHEN A MACHINE HAS BEEN IDLE FOR A CONSIDERABLE TIME (OR AFTER A MAJOR INSTALLATION OF PARTS): Clean the machine **thoroughly.** Then apply **a few drops of oil** to oil grooves of feed bar connections (see inset at bottom left of **Fig. 6**) and to looper carrier connection guide bar at **O2, Fig. 7,** behind upper knife carrier and chip guard. Apply a drop of oil to presser bar at **H5, Fig. 6. Check oil level in reservoir,** as instructed in **Fig. 6.**

AFTER MACHINE IS INSTALLED AND BEFORE STARTING MACHINE:

Remove the chip guard from the front of the machine.

Check the oil flow on right hand looper carrier connection guide bar, at **O2, Fig. 7.**

To adjust amount of oil flow on guide bar at **O2,** loosen lock nut **D5, Fig. 7** and turn adjusting screw **L5, Fig. 7** clockwise as far as possible. **Oil flow is now shut off, completely.** Back off screw **L5** (turning screw anti-clockwise) 1 2 turn. Check lubrication again.

To increase oil flow, turn screw **L5** anti-clockwise a small amount and recheck lubrication.

If oil flow is too great, turn screw **L5** clockwise about 1 4 turn and recheck.

Never operate machine when oil flow is SHUT OFF at L5.

When correct oil flow is obtained tighten the lock nut **D5, Fig. 7.** Replace the chip guard.

Remove belt and check freeness of machine by turning machine pulley by hand. Replace belt.

Finally, **"run-in" the machine** for approximately 15 minutes at a moderate speed.

SPEED

Maximum speed recommended for this machine is **5500 stitches to the minute. 5000 stitches to the minute** is recommended for **long runs** or while sewing **long stitches.**

Maximum **efficient** speed is dependent upon the ability of the operator, the nature of the operation and the type of material being sewn.

It is advisable to operate the machine at a more moderate speed the first few days, after which it can be run at top speed.

When the machine is in operation, top of **machine pulley must always turn over away from operator.**

NEEDLES AND THREAD

Needles are of curved blade, Catalogue # 1265 (151 × 7) regular, in sizes 9 to 12, 14, 16, 18, 19 and 21. Needles of Catalogue # 1263 (151 × 3) with tapered blade, in sizes 5, 6, 7, 9 and 11 are available.

Selection of needles can make a great difference in the ease and quality of the work. It is important that each needle be just right for machine, thread and work being done.

Choose your needle carefully. The correct size will permit thread to pass freely through needle eye; avoiding strain and breakage of thread.

Either right twist or left twist thread may be used.

If trouble occurs during sewing:

Inspect needle point. A hook or burr may cause poor stitching or some materials may be cut when short stitches are used.

Check curvature of each needle, as instructed below. Unless needle has the correct curvature, it may cause skipping of stitches.

Orders for needles must specify the quantity required, the Size number and the Catalogue number. . . . .

For example . . .

"100 Size 9, Catalogue # 1265 (151 × 7) Needles."

The best stitching results will be obtained when using needles sold by Singer Sewing Machine Company.

CURVATURE OF NEEDLE BLADE

(Gauge 164588, for needles of Sizes 7 to 16, only)

Before making any stitching adjustments, the curvature of each needle blade should be checked in the following manner:

Using Gauge **164588,** shown in **Fig. 8,** insert shank of needle, with its **flat side up,** in the groove **A.** Push the needle along the groove as far as it will go against stop **B.** Tighten clamping screw **C.**

Swing the indicator **D,** slowly to and fro, along the curve of the needle blade, observing the distance between the needle blade and the tip of the indicator.

The tip of the indicator should just make contact at the needle eye and should clear needle blade, at upper end of curve, by approximately **.005** to **.006** inch. Use feeler gauge.

Reject any needle that cannot pass this test.

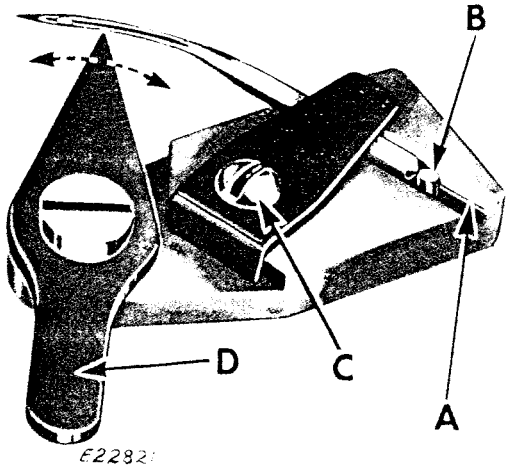

Fig. 8. Checking Needle Curvature

SETTING THE NEEDLE

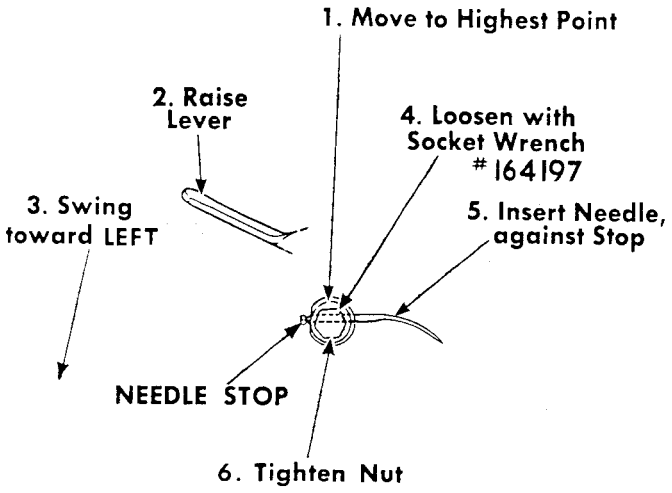

Fig. 9. Needle Correctly Set in Needle Clamp

Move needle clamp up to its **highest** position.

Insert needle, as instructed in **Steps 1** to **5** in **Fig. 9.**

When needle is correctly inserted in needle clamp, securely tighten needle clamping nut. (See **Step 6, Fig. 9.**)

PREPARATION FOR THREADING

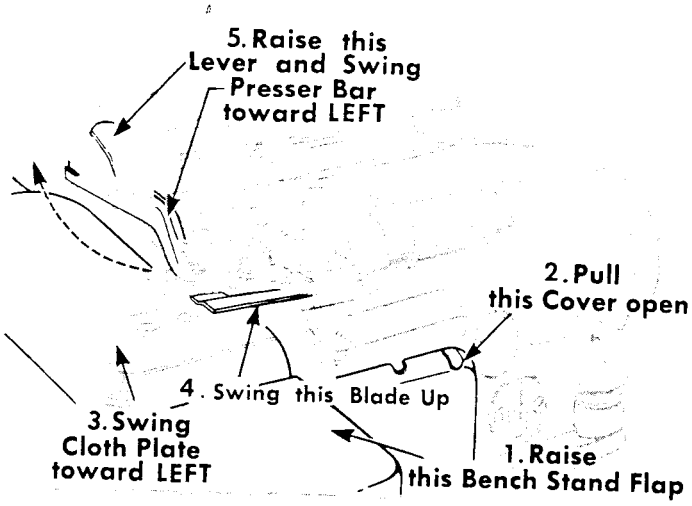

Fig. 10. Preparation for Threading

For convenience in threading . . .

. . . Raise bench stand flap.

. . . Open front cover plate, as instructed in **Step 2, Fig. 10.**

. . . Swing cloth plate and gathering attachment blade out of position.

. . . Release presser bar as instructed in **Step 5, Fig. 10** and swing presser bar toward left.

TO THREAD UNWINDER

Select the unwinder suitable for the type of stitch and work to be accomplished.

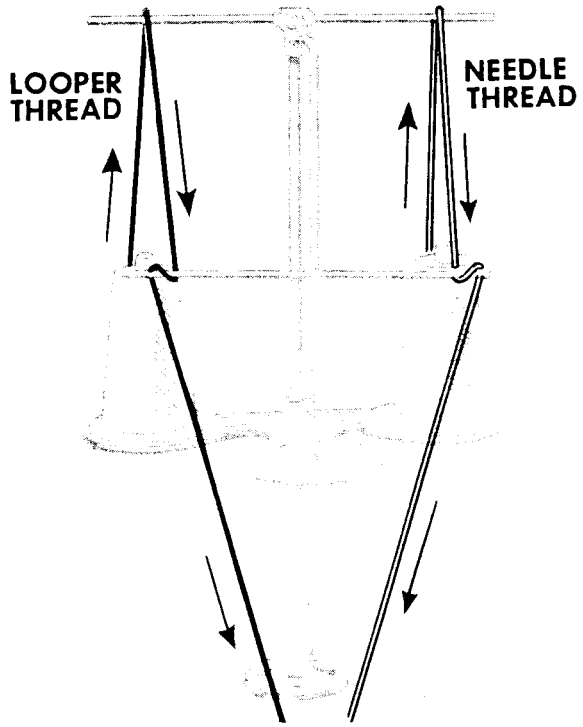

Fig. 11. Unwinder 151031 Threaded for Two-Thread Stitch

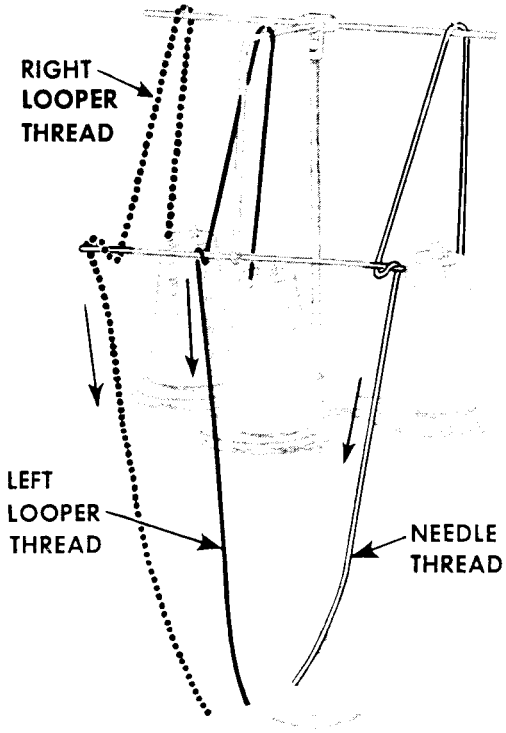

Fig. 12. Unwinder 151031 Threaded for Three-Thread Stitch

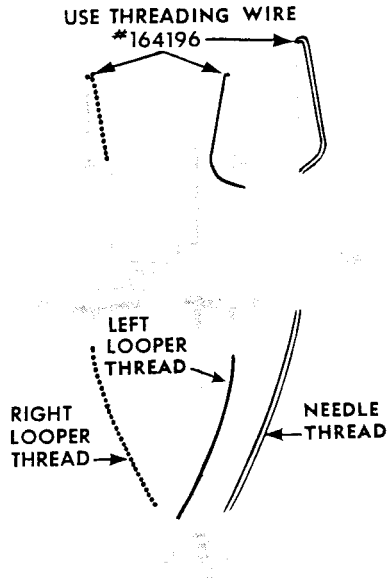

Fig. 13. Unwinder 228706 (for Nylon Thread) Threaded for Three-Thread Stitch

TO THREAD THE MACHINE
FOR THREE-THREAD TIGHT NEEDLE THREAD STITCH (TYPE #504)

(Regular for this Machine)

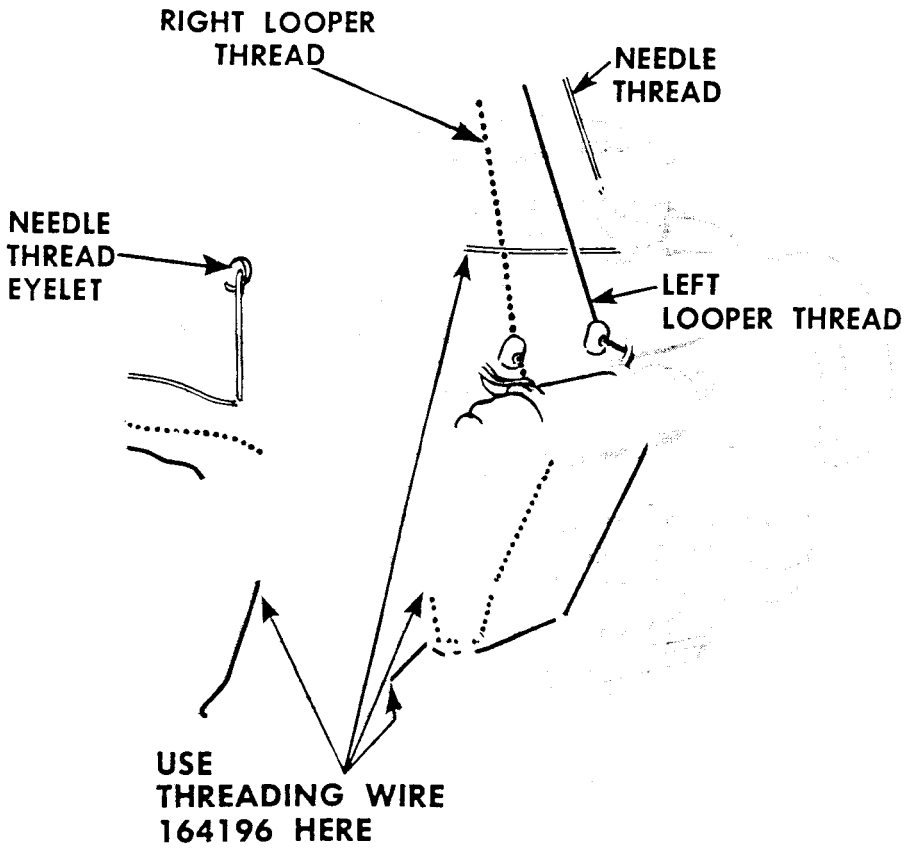

Fig. 14. Threading the Machine (Three-thread Tight Stitch)

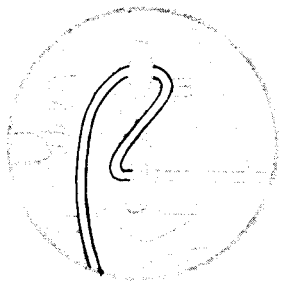

Fig. 15. Threading Needle-thread Eyelet (Tight Stitch)

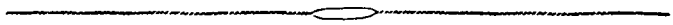

Fig. 16. Threading Wire 164196

Machine should be equipped with needle thread controller **164151, Fig. 38, page 20,** looper thread take-up **164175** and looper thread stripper-and-take-up **164091,** shown in **Fig. 18, page 10.**

Pass each thread through threading points as shown in **Figs. 14, 15** and **18.**

IMPORTANT:

Thread the **needle thread (double line)** completely **first.**

Thread **right** looper thread **(dotted line)** completely **next.**

Thread the **left** looper thread **(solid line) last.**

Use threading wire **164196,** shown in **Fig. 16,** to pass threads through threading tubes, at points indicated in **Fig. 14.** Draw four or more inches of thread through eyelet in threading wire and pass threaded wire through required threading tube.

NEEDLE THREAD: Before passing needle thread (see **double line)** through its threading tube, turn machine pulley over toward you until needle is at its **lowest position.**

Observe the correct position and method of threading needle thread eyelet as shown in **Fig. 15.**

After threading needle thread eyelet, raise needle to its highest position and pass the thread from front to rear through needle eye.

When threading needle, double back the end of the thread and twist it; making thread stiff enough to thread the needle eye easily.

LOOPER THREADS: Before threading left looper, turn machine pulley over from you until the **eye of left looper is directly in line** with the threading tube underneath throat plate.

Pass each looper thread through its threading points, as shown in **Figs. 14** and **18.**

FOR THREE-THREAD TIGHT NEEDLE THREAD STITCH (CONTINUED)

When threading right looper, be sure that there is no loose loop of thread on end of looper (see Fig. 17) to cause thread breakage.

Draw about two inches of thread through needle eye and through each looper eye, with which to start sewing.

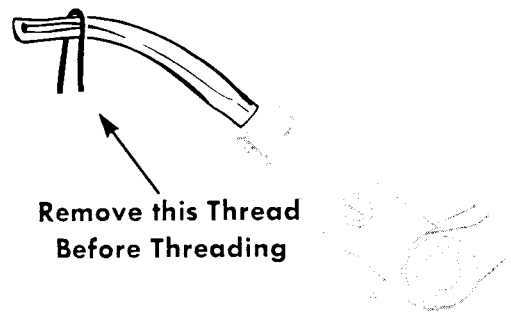

Fig. 17. Right Looper

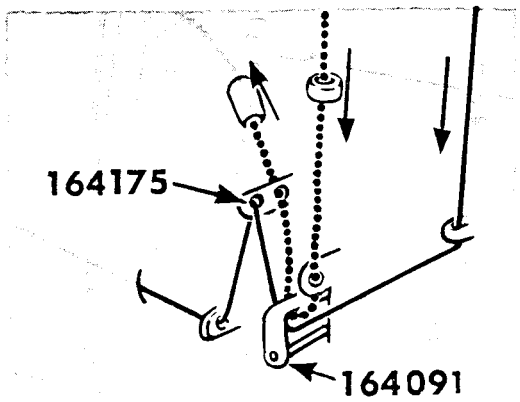

Fig. 18. Threading Looper Take-up (Three-thread Tight Stitch)

FOR THREE-THREAD PURL-ON-THE-EDGE STITCH (TYPE #505)

The machine should be equipped with **left and right loopers,** with needle thread controller **164381, Fig. 39, page 20,** and with take-up parts **164857** and **164288,** shown in **Fig. 20.**

The machine is threaded for three-thread purl-on-the-edge stitch in the same manner as for three-thread tight stitch (see **Fig. 14** and instructions on **page 9**) with the following exceptions:

The needle thread eyelet must be threaded as shown in **Fig. 19.**

The looper thread take-up must be threaded as shown in **Fig. 20.**

Needle thread eyelet, shown in **Fig. 19,** may be raised or lowered, as required. To change the position of the eyelet, loosen screw **R5, Fig. 19,** move eyelet to desired position and securely re-tighten screw **R5.**

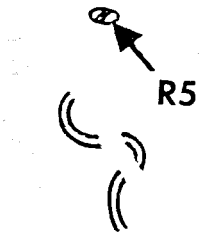

Fig. 19. Threading Needle Thread Eyelet (Purl Stitch)

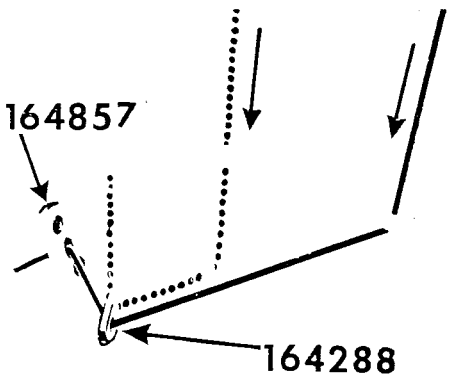

Fig. 20. Threading Looper Take-up (Purl-on-the-Edge Stitch)

TO THREAD THE MACHINE
FOR TWO-THREAD STITCH (TYPES #502 and #503)

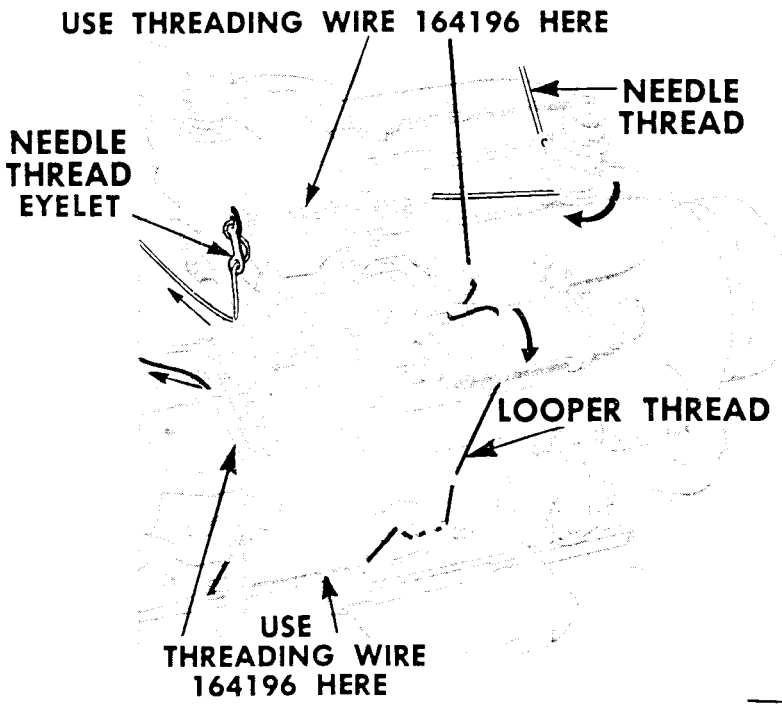

Fig. 21. Threading the Machine (Two-Thread Stitch)

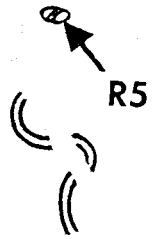

Fig. 22. Threading Needle Thread Eyelet

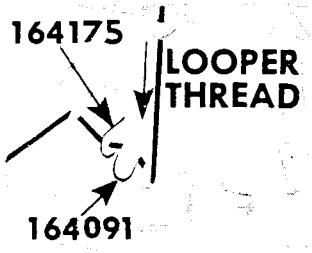

Fig. 23. Threading Looper Take-up

Fig. 24. Threading Wire 164196

Machine should be equipped with needle thread controller **164381, Fig. 39, page 20,** and with looper thread take-up **164175** and looper thread-stripper-and-take-up **164091,** shown in **Fig. 23.**

Needle thread eyelet, shown in **Fig. 22,** may be raised or lowered, as required. To change the position of the eyelet, loosen screw **R5, Fig. 22.** Move eyelet to desired position and securely retighten screw **R5.**

To thread the machine, pass each thread through threading points in the order shown in **Figs. 21, 23. Double** line indicates **needle** thread. **Solid** line indicates **looper** thread.

BOTH THREADS: Use threading wire **164196,** shown in **Fig. 24,** to pass threads through threading tubes, at points indicated in **Fig. 21.** Draw four or more inches of thread through eyelet in threading wire and pass threaded wire through required threading tube.

NEEDLE THREAD: Before passing needle thread through its threading tube, turn machine pulley over away from you until needle is at its **lowest position.**

Note method of threading needle thread eyelet as shown in **Fig. 22.**

After threading needle thread eyelet, raise needle to its highest position and pass thread from front to rear through needle eye.

LOOPER THREAD:

Before threading looper, turn machine pulley over from you until **eye of looper is directly in line with threading tube** underneath throat plate.

Pass looper thread through threading points, as shown in **Figs. 22** and **23.**

Draw about two inches of thread through needle eye and through looper eye, with which to start sewing.

REGULATION

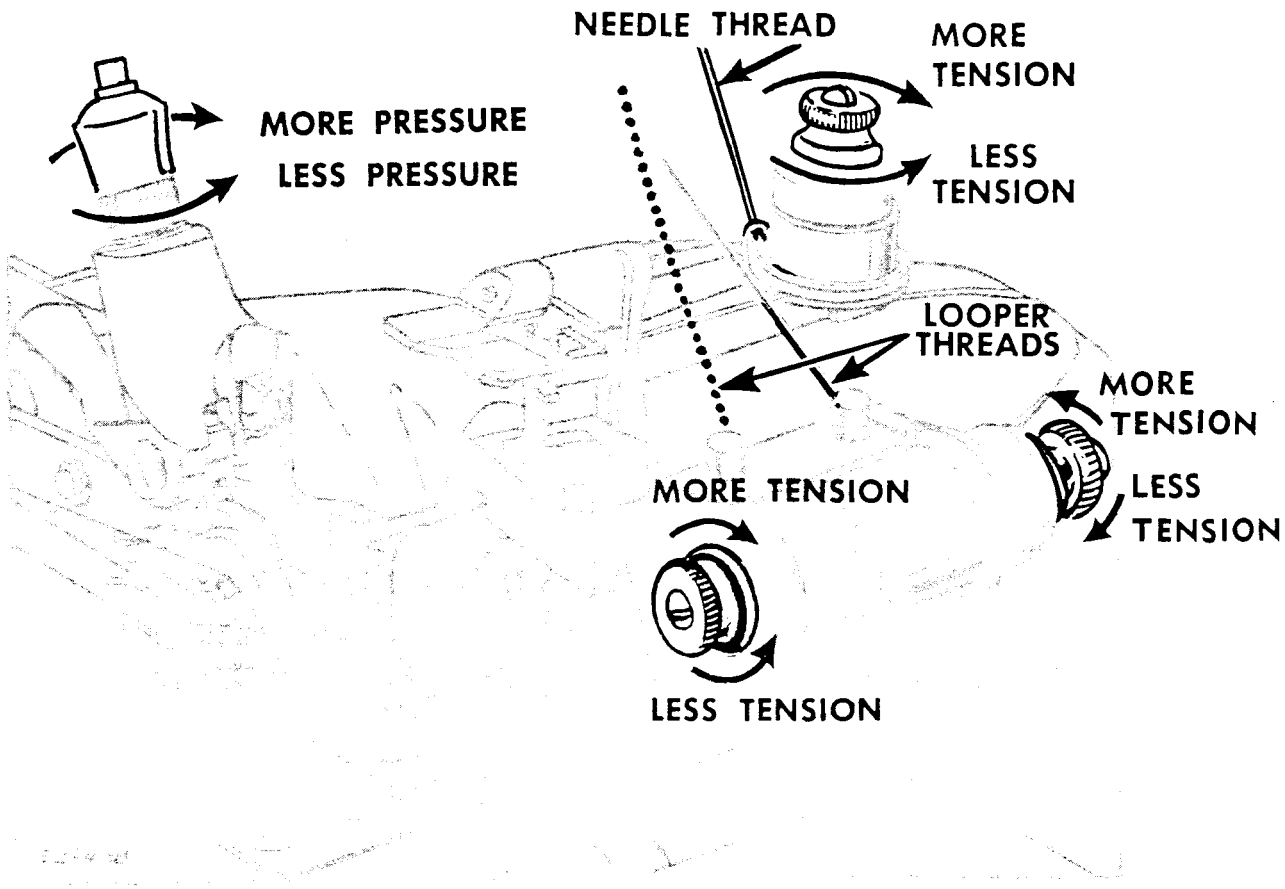

Fig. 25. Regulating Tension of Threads and Pressure of Presser Foot on Material

THREAD TENSIONS

Tension on needle thread should be just sufficient to set stitch correctly. (See **Figs. 3** and **4** on **page 3** for correct stitch formation.)

For average sewing, **tension on looper thread** should be **very light.**

Regulate thread tensions as instructed in **Fig. 25.**

PRESSURE OF PRESSER FOOT ON MATERIAL

Correct pressure of presser foot helps feed the work properly.

Always use **lightest pressure possible.**

Regulate the pressure of the presser foot on the material as instructed in **Fig. 25.**

SUGGESTIONS FOR EFFICIENT OPERATION

Always turn machine pulley over away from you.

Never allow oil level in oil reservoir to drop below the **"FULL"** mark on the oil sight gauge.

Clean out any lint around the loopers and between the feed rows of the feed dog.

Frequently inspect area beneath presser bar housing and behind upper knife lever cover and remove accumulation of lint.

Always use lightest tensions and lightest pressure possible on material.

Don't forget to remove loop of thread from right looper **before threading.**

NOTE: The instructions on the following pages are for Service Representatives.

To insure proper timing and avoid unnecessary repetition, these instructions should be followed in the order given.

TO CONTROL THE LENGTH OF STITCH

Fig. 26. Feed Eccentric Extractor 164203 and Eccentric 164915, bronze

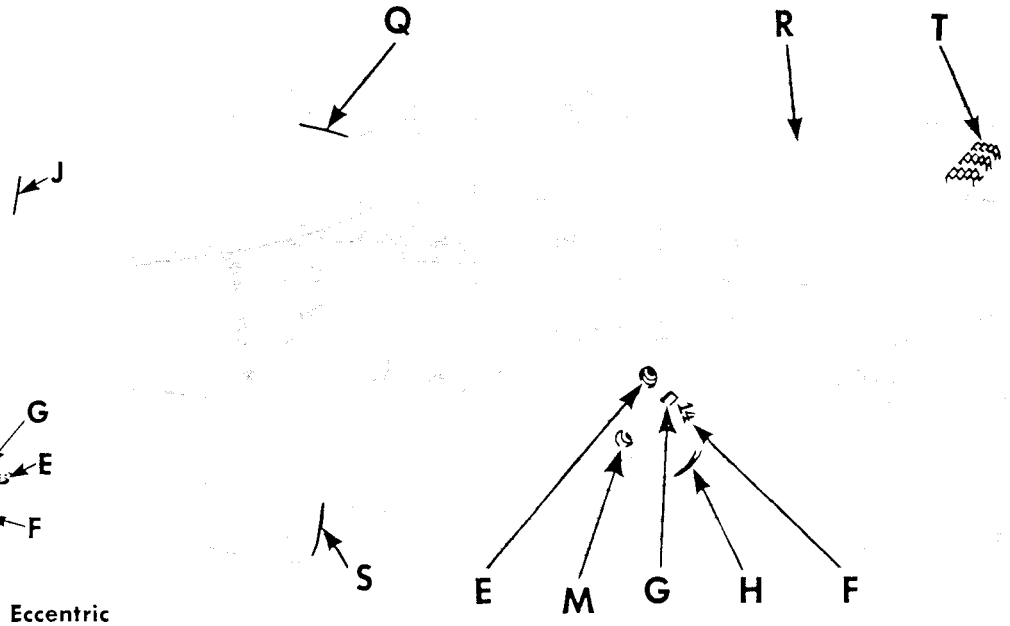

Fig. 27. Changing Length of Stitch

The length of stitch is determined by the feed eccentrics in use.

Each feed eccentric is marked with the number of stitches it makes, as shown at **F, Figs. 26** and **27.**

Feed Eccentric **164915, bronze,** can be supplied to make 4 to 16, 18, 20, 22, 24, 28, 32, 36, 40, 45, 50, 60, 70, 80 and 100 stitches to the inch.

Unless otherwise ordered, only two feed eccentrics, #**6** for the front feed and #**14** for the rear feed, will be supplied.

REMOVING FEED ECCENTRICS:

Swing cloth plate **Q,** presser bar and feed eccentric cover **S, Fig. 27** out to the left.

Using Wrench **10875,** remove the hexagon head nut and washer from the shaft **M, Fig. 27.**

Screw feed eccentric extractor **J, Fig. 26** into threaded hole **E** of outer eccentric. Pull gently with extractor **J** to remove outer eccentric. Inner eccentric can then be removed, in the same manner.

INSTALLING FEED ECCENTRICS:

When replacing each feed eccentric, be sure that the stamped number is on the **outside** face of eccentric, as shown at **F,** in **Fig. 27.**

The **inner** feed eccentric (which is placed on the shaft **first**) controls the movement of the **front** feed dog **T.** The **outer** feed eccentric (which is placed on the shaft **last**) controls the movement of the rear feed dog **R.**

The keyway on the eccentric should fit over key at **G** on shaft **M, Fig. 27.** Line up front and rear feed bars and install eccentrics. When both feed eccentrics are in position, replace the washer and hexagon head nut and screw the hexagon head nut securely on the shaft **M.**

INTERMITTENT GATHERING FEED

The intermittent gathering feed control mounted behind the cloth plate, as shown in **Fig. 28,** enables the operator to gather the material at will.

The limits of gathering are determined from the "full gathering" at the mark **"F"** on the indicator plate **CC, Fig. 28,** to "feeding the material evenly" (straight stitching) at the mark **"O",** by setting the stop limits **DD** and **EE** where desired on plate **CC, Fig. 28.**

The degree of gathering at any point in the line of stitching is controlled by the knee controller or treadle which is connected to the chain **BB, Fig. 28.**

When machine is installed fully submerged in a table the range of gathering may be determined by inserting extension stop screw **RR, Fig. 28,** in one of the three holes **GG** in the presser foot lifter **HH, Fig. 28.** The fractions 1/4, 1/2 and 3/4, stamped upon the presser foot lifter **HH,** correspond to similar markings on the indicator plate **CC.**

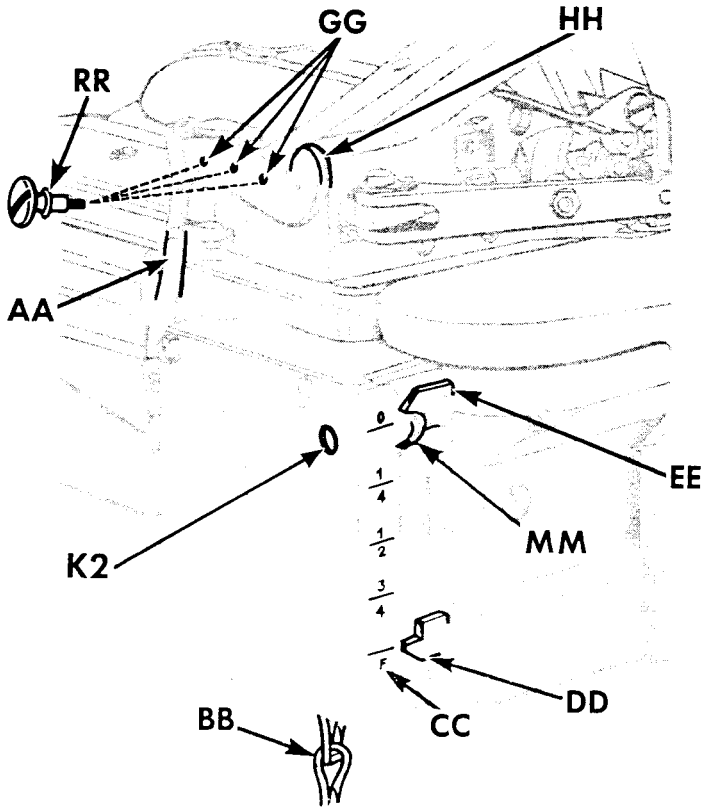

Fig. 28. Intermittent Gathering Feed Mechanism

STITCH SHORTENING DEVICE

The automatic control for shortening the stitch length, at any point desired, is illustrated in **Fig. 29.**

This device may be obtained on specific request, at additional cost.

When it is desired to shorten the stitches at any point in line of stitching, press the knee controller or treadle, which is connected to lever **MM** through chain **SS, Fig. 29.**

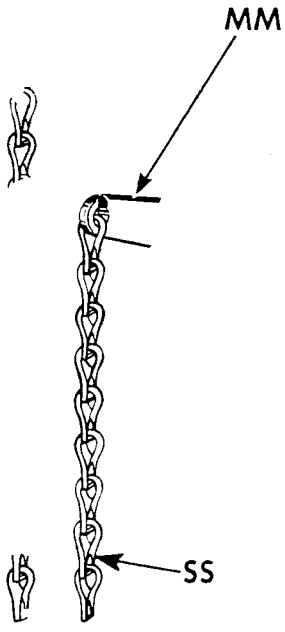

Fig. 29. Automatic Stitch Shortening Device

TO SET THE FEED DOGS AT THE CORRECT HEIGHT

Using Gauge 164592

(See Fig. 30)

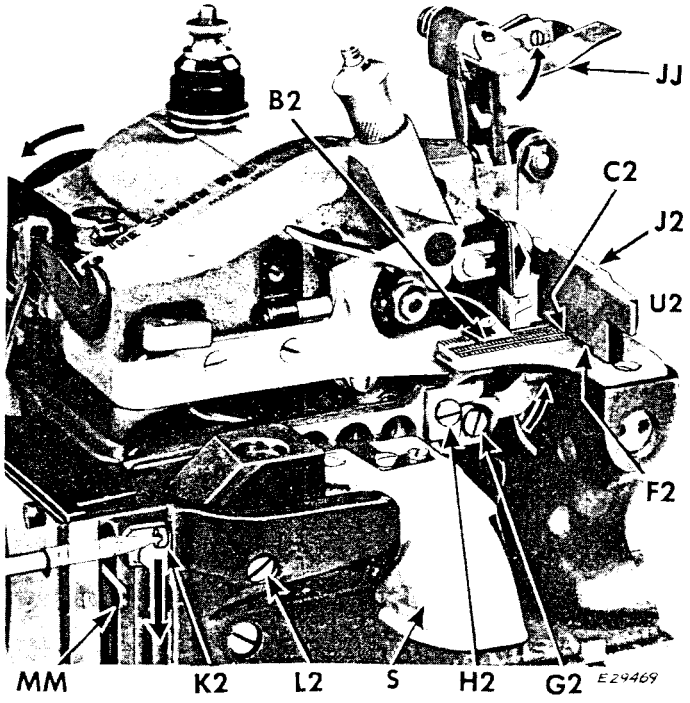

Fig. 30. Setting the Feed Dog
(Cloth plate and presser foot have been removed for purpose of illustration, only.)

CHECKING HEIGHT OF FEED DOGS:

Swing the presser foot out to the left, flip attachment **JJ** upward, as shown in **Fig. 30** and turn the machine pulley over from you until the feed dogs are at their highest position.

Place the gauge **J2, Fig. 30,** over the front feed dog **C2,** as shown in **Fig. 30.** Gauge **J2** must rest firmly upon the throat plate **U2.** At this setting, front feed dog should just touch the bottom face **F2** of the gauge.

Set rear feed dog at same height as front feed dog.

ADJUSTMENT:

Swing the cloth plate and the feed eccentric cover **S** out to the left.

Loosen the adjusting screw **G2** and raise or lower the front feed dog **C2,** as required. Then tighten screw **G2.**

Loosen the adjusting screw **H2** and raise or lower the rear feed dog **B2,** as required. Then tighten screw **H2.**

TO TILT THE FEED

(See Fig. 30)

When it is desired to tilt the feed, first set the feed dogs **B2** and **C2** at the correct height as described above. Then lower the lever **MM,** to permit screwdriver to reach screw at **K2,** as shown in **Fig. 30.** Loosen the hinge pin set screw at **K2 just 1/2 turn.**

To tilt the feed **up in the rear** and **down in the front** of the needle, slowly turn the hinge pin **L2, Fig. 30 over toward the rear** of the machine, until the desired amount of tilt is obtained.

To tilt the feed **down in the rear** and **up in the front** of the needle, slowly turn the hinge pin **L2 over toward the front** of the machine, until the desired amount of tilt is obtained. Then tighten the set screw at **K2.**

TO SET THE NEEDLE CLAMP AT THE CORRECT HEIGHT

Using Gauge 164592

(See Figs. 31 and 32)

CHECKING HEIGHT OF NEEDLE CLAMP:

Turn the machine pulley over from you until the needle clamp **R2** reaches its highest position.

Flip attachment **JJ, Fig. 30,** upward.

Swing the presser foot and cloth plate out to the left.

Remove the needle and the throat plate.

Turn the machine pulley over from you until the needle clamp **R2** reaches its lowest position.

Slip the "LOW" end of the gauge **J2** between the needle clamp and the throat plate seat **V2,** as shown in **Fig. 31.**

At this setting, the needle clamp **R2** should just touch the top surface **Q2** on the "LOW" end of the gauge **J2, Fig. 31.**

ALTERNATE CHECK: In the absence of a gauge, the distance between bottom of needle clamp **R2** and **top surface** of throat plate seat should be set at **.406** inch.

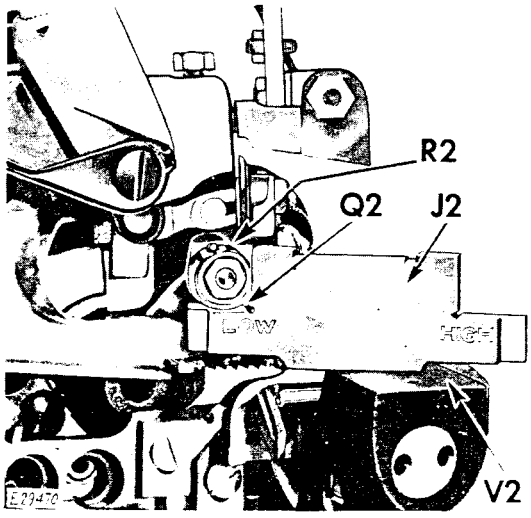

Fig. 31 Checking the Height of the Needle Clamp

ADJUSTMENT:

Remove the top frame cover and loosen the clamping screw **T2** and the two screws **P2** and **Y, Fig. 32.**

Raise or lower the needle clamp **R2,** as required.

To secure the needle clamp in the correct position, first securely tighten the screw **T2,** then tighten the two screws **P2** and **Y.**

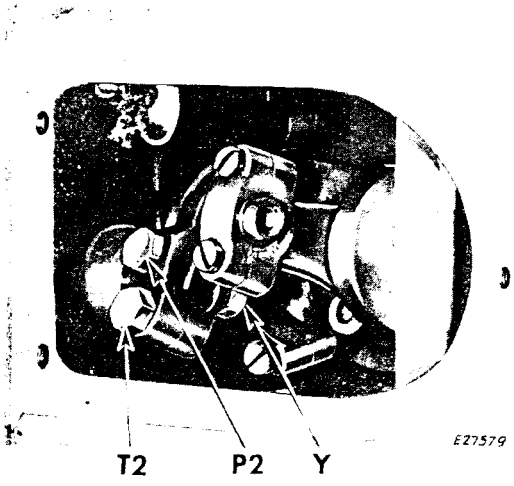

Fig. 32. Adjusting the Height of the Needle Clamp

TO SET THE LEFT LOOPER IN RELATION TO THE NEEDLE

Using **Gauge 164592**

(See **Figs. 33 and 34**)

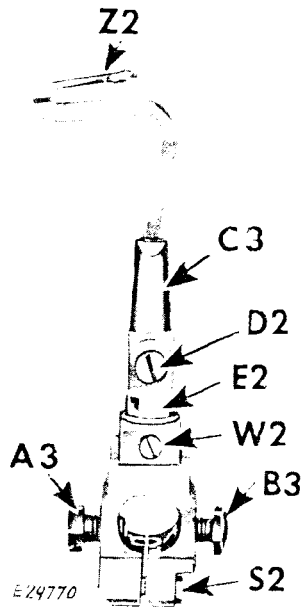

Fig. 33. Left Looper Assembly

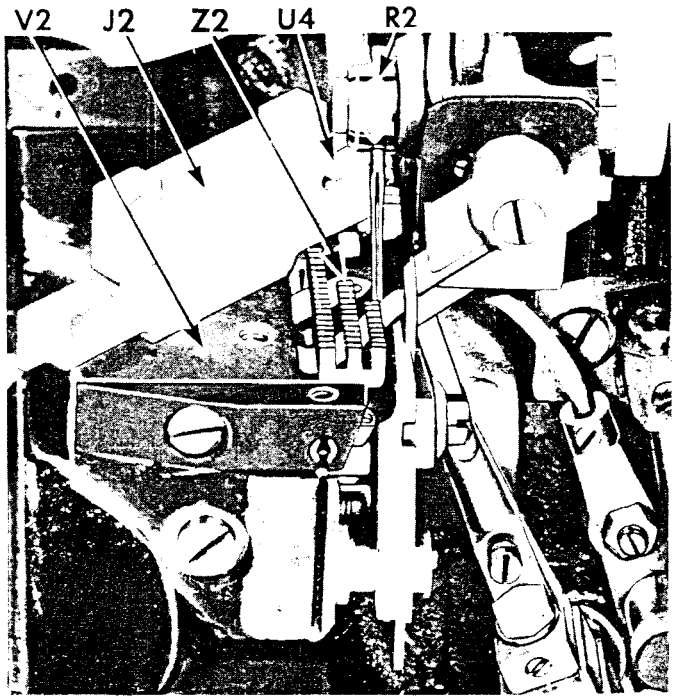

Fig. 34. Setting

PREPARATION:

Check needle with needle gauge **164588** as instructed on **page 6.**

Set the needle correctly as instructed on **page 7.**

Remove throat plate and chip guard.

Loosen set screw **D2, Fig. 33** in left looper holder **C3.**

Set left looper **Z2, Fig 34** all the way down into its holder.

Securely tighten set screw **D2.**

CHECKING LEFT TO RIGHT POSITION:

Place gauge **J2** on throat plate seat **V2** as shown in **Fig. 34.**

Turn machine pulley over away from you until needle clamp **R2** reaches its lowest position and then rises sufficiently to permit "HIGH" end of gauge **J2** to pass between needle clamp **R2** and throat plate seat, as shown in **Fig. 34.**

When needle clamp **R2** just contacts top surface **U4** of gauge, the **tip of left looper Z2 should be between centre and left side of needle.**

SETTING LEFT TO RIGHT POSITION:

Loosen screw **S2, Fig. 33.** (This screw may not be present on some machines.)

To move left looper **Z2** toward **left, loosen screw A3** and carefully tighten screw **B3, Fig. 33** an equal amount as required.

To move left looper **Z2** toward **right, loosen screw B3** and carefully tighten screw **A3** an equal amount as required.

Recheck. When correct setting is obtained, securely tighten clamping screw **S2.**

CHECKING FRONT TO REAR POSITION:

Turn machine pulley so that loopers move through one complete sewing cycle. Observe looper movement.

The left looper **must rub lightly on the needle** as it passes toward the right.

SETTING FRONT TO REAR POSITION:

Turn machine pulley over from you until point of looper **Z2** just reaches needle.

Loosen screw **E2, Fig. 33 just enough** to allow movement of looper holder **C3.**

Loosen set screw **W2, Fig. 33.**

Move looper holder **C3** toward rear of machine. Turn set screw **W2 inward** until proper relation between left looper and needle is obtained. Securely tighten screw **E2.**

Replace throat plate and chip guard.

TO SET THE RIGHT LOOPER OR THE SPREADER IN RELATION TO THE NEEDLE

Using Gauge 164592
(See Figs. 35 to 37)

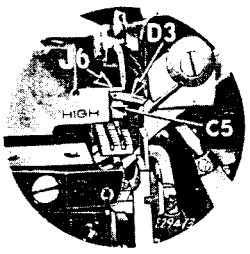

Fig. 35
Right Looper, Three-Thread Machines

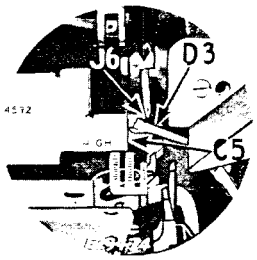

Fig. 36
Spreader, Two-Thread Machines

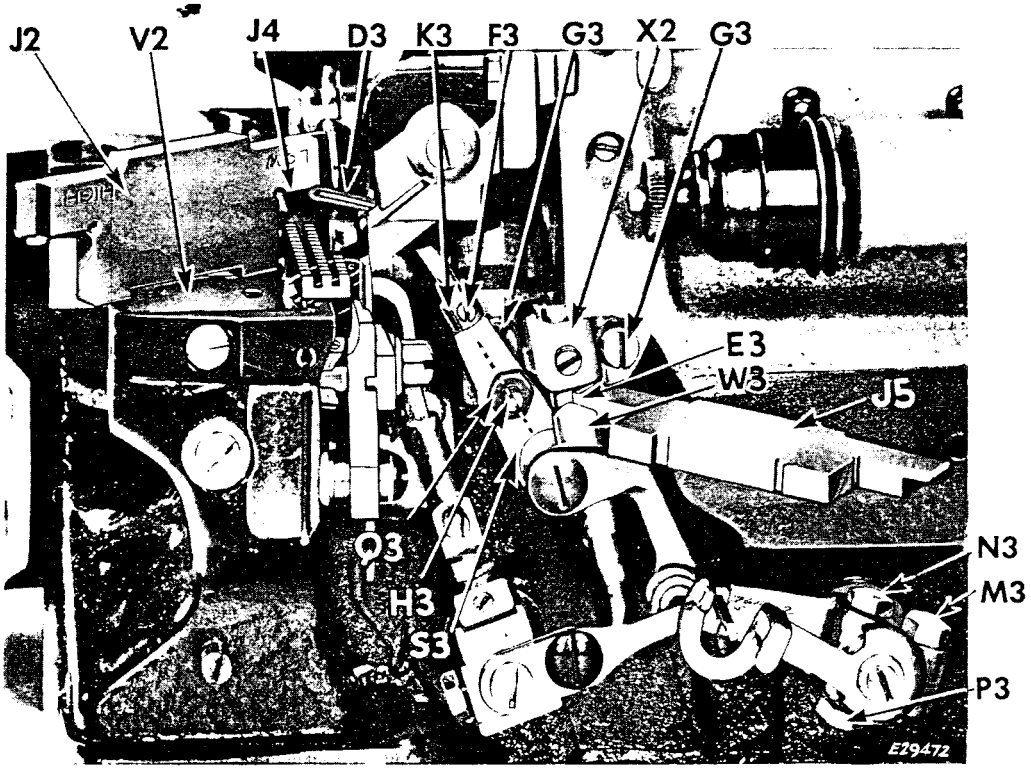

Fig. 37. Adjustments

PREPARATION:

Right looper **164055 (Fig. 35)** is used for three-thread stitch.

Spreader **164252 (Fig. 36)** is used for two-thread stitch.

Flip up the gathering attachment.

Swing presser foot and cloth plate to the left.

Remove chip guard and looper thread plate, complete.

Check the needle with needle gauge **164588,** as instructed on **page 6.** Set the needle correctly, as instructed on **page 7.**

CHECKING CLEARANCE BETWEEN LOOPER CARRIER CONNECTION AND GUIDE BAR BRACKET:

Turn machine pulley until right looper (or spreader) **D3** is at its extreme left position.

Check distance **E3** between looper carrier connection **W3** and guide bar bracket **X2, Fig. 37** with gauge, as shown at **J5, Fig. 37.** Check this distance with "HIGH" and "LOW" ends of gauge.

CLEARANCE ADJUSTMENT:

Loosen clamping screw **M3** and screws **N3** and **P3.**

Raise or lower right hand looper carrier connection **W3,** as required. Securely tighten screw **M3.** Tighten screws **P3** and **N3.**

TO SET THE RIGHT LOOPER OR THE SPREADER (CONTINUED)

CHECKING RIGHT TO LEFT POSITION:

Hold gauge so that end marked **"HIGH"** on gauge just touches left side of needle, as shown at **J6** in **Figs. 35** and **36.**

When right looper (or spreader) **D3** is at its extreme left position, it should just touch surface **C5** on gauge, as shown in **Figs. 35** and **36.**

At this setting bracket **X2, Fig. 37** should be approximately at midpoint of its extreme left to right positions on casting.

ADJUSTMENT OF RIGHT TO LEFT POSITION:

Loosen the two screws **G3** and move bracket **X2,** as required, to bring right looper (or spreader) **D3** in correct contact with gauge surface **C5.**

Securely tighten two screws **G3.**

CHECKING HEIGHT:

Place gauge **J2** firmly upon throat plate seat **V2** with end marked **"LOW"** toward needle, as shown in **Fig. 37.**

When right looper (or spreader) **D3** is at its extreme left position its highest point should **just touch** undersurface **J4** on gauge, as shown.

ADJUSTMENT FOR HEIGHT:

When installing a right looper (or spreader), loosen nut **Q3, Fig. 37** and turn screw **H3** anti-clockwise to align the screwdriver slot in head of screw **H3** with centre-line of looper carrier **S3,** as shown in **Fig. 37.** Then loosen screw **F3.** Place collar **K3** on looper shank and insert right looper in looper holder **G3,** as shown in **Fig. 37.**

Adjust the height of the right looper (or spreader), in the following manner—

Loosen screw **F3** and nut **Q3, Fig. 37.**

Raise or lower right looper (or spreader) **D3** in carrier as required.

Press collar **K3** firmly against top of carrier **S3.**

Securely tighten screw **F3** and nut **Q3.**

CHECKING FRONT TO REAR POSITION:

Turn machine pulley over away from operator through one full revolution. Observe position of right looper (or spreader) in relation to needle during this full movement.

Right looper (or spreader) **D3** should pass behind left looper head and in front of needle; brushing lightly on needle.

ADJUSTMENT OF FRONT TO REAR POSITION:

Loosen nut **Q3, Fig. 37.**

Turn right looper (or spreader) **D3** in carrier **S3** as required.

Securely tighten nut **Q3.**

Recheck each setting and securely fasten all parts loosened earlier.

TO SET NEEDLE THREAD CONTROLLER

(See Figs. 38 and 39)

Needle Thread Controller **164151 (J3, Fig. 38)** is used for **three-thread tight stitch.**

Needle Thread Controller **164381 (J3, Fig. 39)** is used for **two-thread** stitch and for **purl-on-the-edge** stitch.

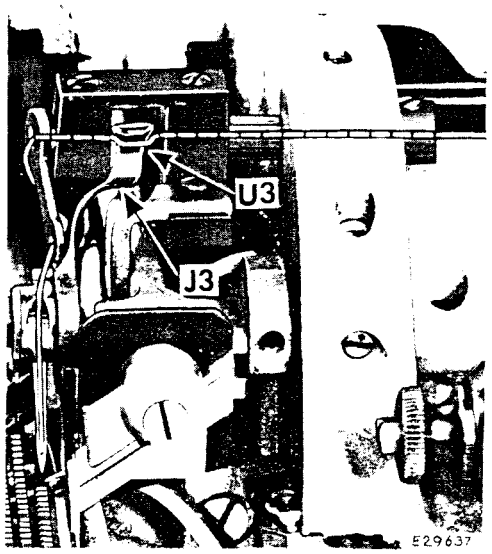

Fig. 38 Needle Thread Controller 164151 in Correct Relation to Needle Thread

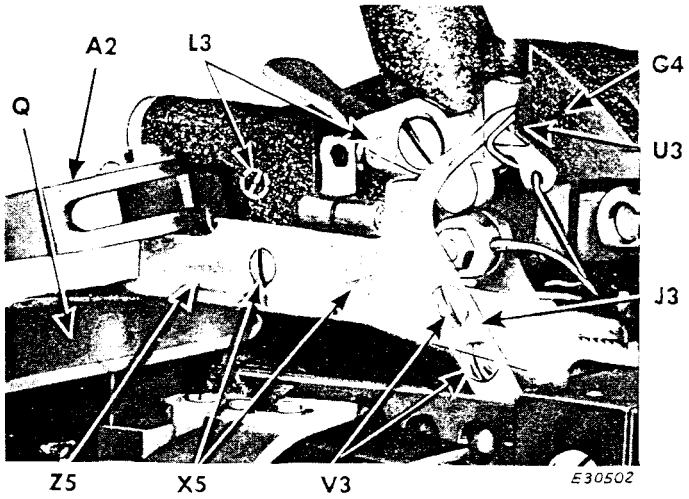

Fig. 39. Needle Thread Controller 164381 in Correct Relation to Needle Thread

FUNCTION:

The needle thread controller **J3** should aid in the setting of the stitch by taking up the slack of needle thread as the needle finishes its downward stroke; thus setting the stitch as the needle thread loop is shed from the loopers.

When needle is at its highest position, needle thread should run under clearance **U3** of needle thread controller **J3,** as shown in **Fig. 38** or in fork **U3** of controller **J3,** as shown in **Fig. 39.**

VARIATIONS: The desired setting for needle thread controller may vary with changes in thread, special fittings or materials in use.

ADJUSTMENT:

Swing presser bar **A2** and cloth plate **Q** out to the left.

Remove screws **X5** and oil splash guard **Z5.**

Turn machine pulley over away from operator until needle is at its highest position.

Loosen the two screws **V3** and move needle thread controller **J3 toward the front to tighten the stitch or toward the rear to loosen the stitch, as required.** Then tighten the two screws **V3** and recheck the stitch setting.

Figs. 38 and **39** show the correct position of the needle thread as it passes the needle thread controller **J3.** To check this condition, remove two screws **L3** and presser bar housing **G4.**

After making certain that needle thread is in the correct position, replace presser bar housing **G4** with two screws **L3.**

Replace splash guard **Z5** with two screws **X5.**

TO ADJUST THE LOOPER THREAD TAKE-UP

(See Figs. 40 and 41)

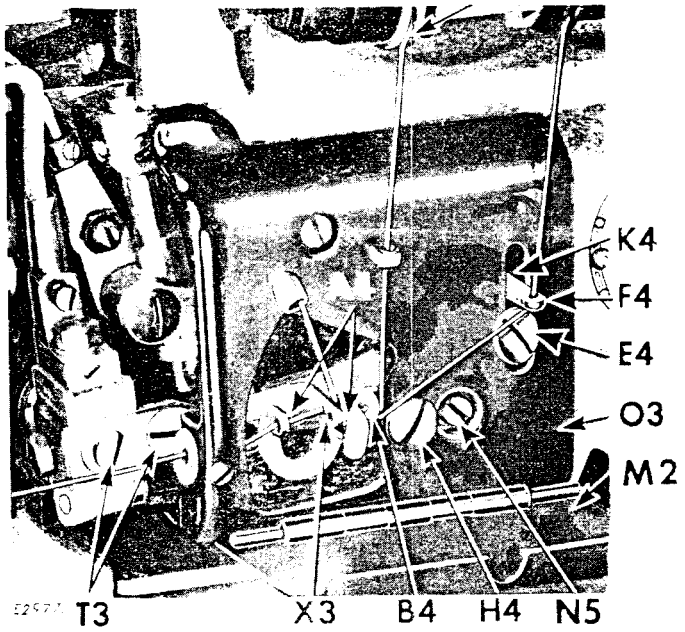

Fig. 40. Adjustments on Take-up for Two Thread Stitch and Three Thread Tight Needle Thread Stitch

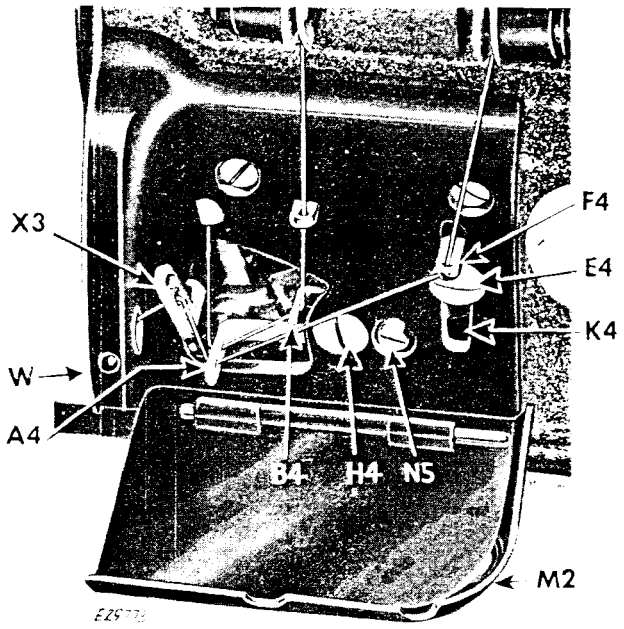

Fig. 41. Adjustments on Take-up for Purl-on-the-edge Stitch

ADJUSTING LOOPER THREAD TAKE-UP (LEFT) X3 FOR MORE OR LESS THREAD:

Remove the chip guard **W, Fig. 41** and open the front cover plate **M2**. Loosen the two screws **T3, Fig. 40** and raise or lower the right end of the left take-up **X3**, as required.

Securely tighten the screws **T3** and replace the chip guard **W.**

SETTING LOOPER THREAD EYELET (LEFT):

The looper thread eyelet **F4** should be normally at the **midpoint** of the slot **K4, Fig. 40.**

To adjust the looper thread eyelet, loosen the screw **E4** and raise or lower the eyelet **F4** to the proper location. Then securely tighten the screw **E4.**

SETTING LOOPER THREAD TAKE-UP (RIGHT):

To set the right take-up **A4,** open the front cover plate and loosen the screw **N5, Figs. 40** and **41.** Raise or lower the right take-up **A4,** as required. **Do not permit** take-up **A4** to interfere with other moving parts nor to hit the cover **M2.** Then securely tighten the screw **N5** and close the cover plate **M2.**

SETTING LOOPER THREAD STRIPPER

The looper thread stripper **B4** normally should be at the **midpoint** of the top and bottom extremes of its adjustment, as shown in **Figs. 40** and **41.**

To set the looper thread stripper, open the front cover plate **M2** and loosen the screw **H4.** Raise or lower the stripper **B4,** as required. Then securely tighten the screw **H4** and close the cover plate **M2.**

Make certain that none of these adjustments cause take-up components to strike one another or the cover M2.

TO REMOVE AND REPLACE THE KNIVES

(See Figs. 42 and 43)

REMOVING STATIONARY KNIFE L4:

Loosen the screw **V4, Fig. 44, page 23,** and draw the knife **L4, Fig. 42** upward and out.

REPLACING STATIONARY KNIFE L4:

Push the knife **L4** downward in the knife holder **S4,** until the cutting edge of the knife **L4** is at the same level with the top surface of throat plate **U2.** Then securely tighten the screw **V4, Fig. 44.**

REMOVING MOVABLE KNIFE D4:

Remove the clamp screw **Q4, Fig. 42** with the chip ejector **O4,** the knife guard **C4** and the knife clamp **Z3. Lift the knife D4 from the knife holder P4.**

REPLACING MOVABLE KNIFE D4:

Slip the knife in knife holder **P4,** replace the knife clamp **Z3,** the knife guard **C4,** the chip ejector **O4,** and the clamp screw **Q4.** Press the movable knife **D4** downward against the stationary knife **L4, Fig. 42** and securely tighten the clamp screw **Q4.**

Turn the machine pulley over away from you, until the lowest point **X4, Fig. 43,** of the cutting edge of the movable knife **D4,** just reaches the cutting edge of the stationary knife **L4,** as shown in **Fig. 43.** Loosen the screw **T4** sufficiently to release the spring behind the stationary knife **L4** permitting the stationary knife to make a tight spring contact with the movable knife **D4.** Then securely tighten the screw **T4.**

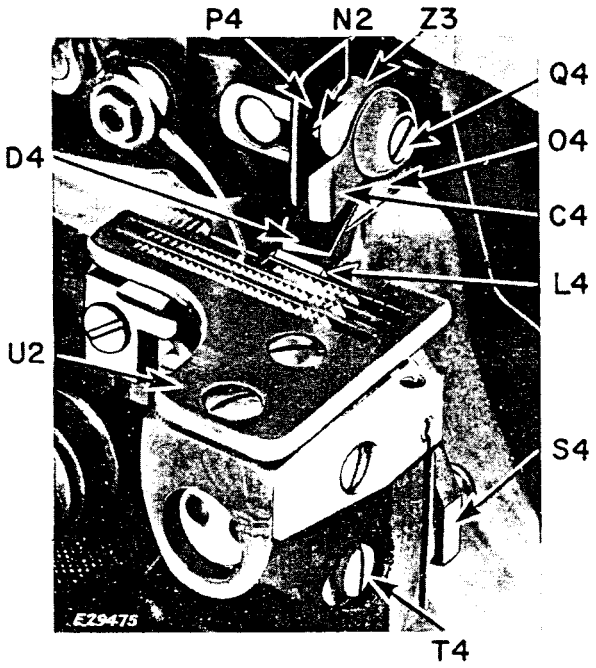

Fig. 42. Removal and Replacement of Knives

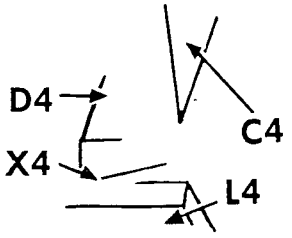

Fig. 43. Contact Point of Knives

TO ADJUST THE TRIMMER

SETTING HEIGHT OF THE STATIONARY KNIFE:

Loosen screw **V4, Fig. 44, page 23.**

Raise or lower the knife **L4, Fig. 42** in the knife holder **S4,** until the cutting edge of the knife is at the same level as top surface of the throat plate **U2.**

Then securely tighten screw **V4, Fig. 44.**

TO ADJUST THE TRIMMER (CONTINUED)

(See Fig. 44)

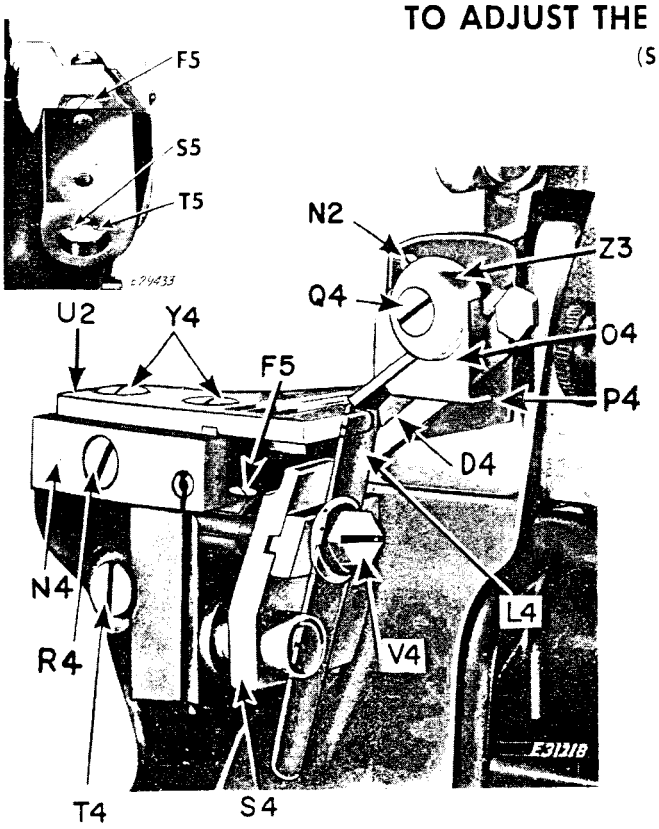

Fig. 44. Adjusting Width of Bight

WIDTH OF BIGHT:

The position of the stationary knife blade **L4** in relation to the needle determines the width of bight.

For some types of work, the width of bight must conform to the width of the chaining-off finger.

Before setting stationary knife for width of bight, loosen screw Q4, Fig. 44 and slide movable knife D4 up in its holder out of possible contact with stationary knife. Tighten screw Q4.

SETTING STATIONARY KNIFE FOR WIDTH OF BIGHT:

To change the width of bight, loosen the screw **T4** and move the stationary knife holder **S4** toward the left or right, as required. Securely tighten the screw **T4.**

Return movable knife **D4** to its correct position; setting it in relation to the stationary knife as described next.

SETTING MOVABLE KNIFE IN RELATION TO THE STATIONARY KNIFE POSITION:

Remove the clamp screw **Q4,** the chip ejector **O4,** the knife guard **C4** and the knife clamp **Z3.** Loosen the screw **N2** and move the knife holder assembly **P4** toward the right or left as required to bring the cutting edge of the movable knife **D4,** at its lowest position, slightly below the cutting edge of the stationary knife **L4,** as shown in **Fig. 44.** Securely tighten the screw **N2.** Then replace the knife clamp **Z3,** the knife guard **C4,** the chip ejector **O4** and the clamp screw **Q4.** Then lightly press the movable knife **D4** downward against the stationary knife **L4** and tighten the screw **Q4.**

Loosen the screw **T4** sufficiently to release the spring behind the stationary knife **L4,** permitting the stationary knife to make a tight spring contact with the movable knife **D4.** Then securely tighten the screw **T4.**

When knives require sharpening they may be removed as instructed on **page 22** and sharpened as instructed on **page 24.**

ANGULAR ADJUSTMENT:

To trim efficiently, the knives must contact each other at all points along the cutting edges.

To adjust, remove two screws **Y4, Fig. 44** and remove the throat plate. Remove screw **R4** and guide **N4.**

> **NOTE:** On machines fitted with a needle guard, this guard must also be removed. When replacing needle guard, set it so that needle will just brush guard as needle descends.

Remove feed dog. Loosen screws **S5, T5** and **F5, Fig. 44.**

Align lower knife **L4** with upper knife **D4** and securely tighten screw **F5.**

Tighten screws **S5** and **T5.**

TO SHARPEN THE TRIMMER KNIVES

(See Figs. 45 and 46)

Knife Grinding Machine 701-9 is necessary for sharpening the knives used on **Machines of Class 246K.** The use of this grinder insures the correct bevel of the cutting edge of each knife.

Do not attempt to sharpen these knives by hand.

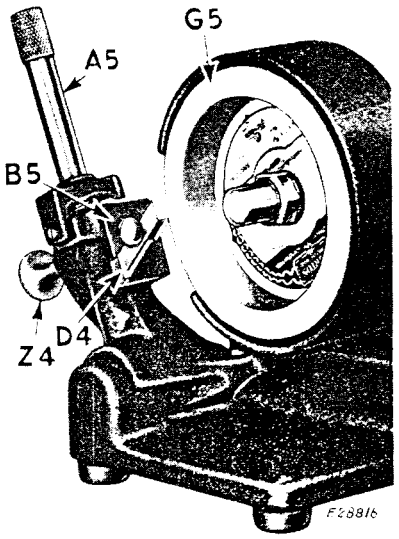

Fig. 45. Sharpening the Movable Knife

SHARPENING MOVABLE KNIFE D4:

Insert knife **D4, Fig. 45** in knife holder **B5, Fig. 45** on front of lever arm **A5.** Allow approximately **1/16** inch of the knife to extend beyond holder, for grinding. Then tighten thumb screw **Z4, Fig. 45.**

Turn thumb nut **E5, Fig. 46** over from you until knife **D4 clears** the grinding face **G5, Fig. 45.** While moving lever arm **A5** alternately back and forth, turn thumb nut **E5** as required, to bring the cutting edge of the knife **lightly** against the grinding face of the wheel.

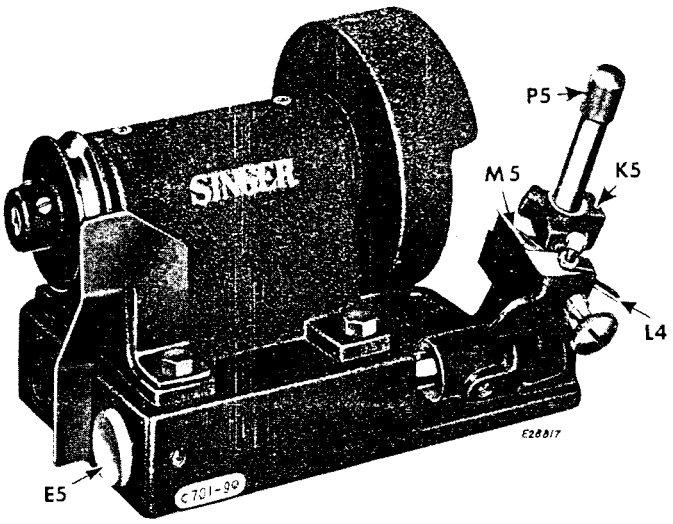

Fig. 46. Sharpening the Stationary Knife

Continue the back and forth motion of the lever arm, grinding off **only** enough to sharpen the cutting edge.

The movable knife is thus ground to a shearing edge, requiring no special setting in the machine to shear.

SHARPENING STATIONARY KNIFE L4:

Insert knife **L4, Fig. 46** in knife holder **K5,** on rear of lever arm, so that its bevel **M5** is parallel with grinding face **G5, Fig. 45** of grinding wheel. Allow approximately **1/16** inch of the knife to extend beyond holder, for grinding. Then by turning knurled end **P5, Fig. 46** of lever arm, screw lever arm into knife holder **K5,** securing the knife. Sharpen the stationary knife as instructed above.