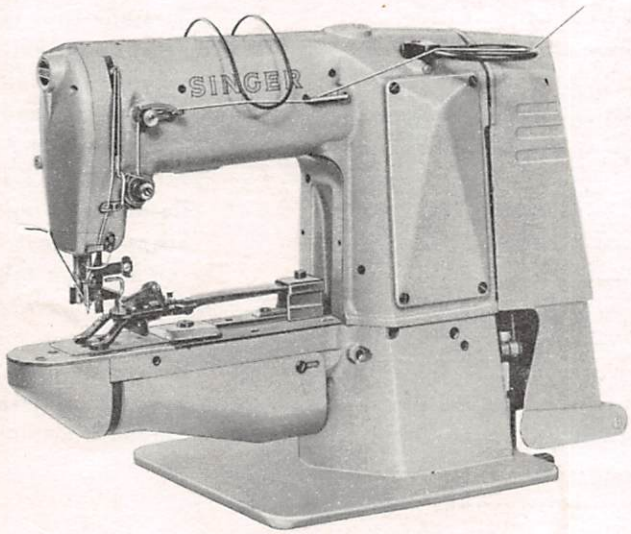
Form 21290
Rev. (1166)

SINGER*

Service Manual

CLASS 270



THE SINGER COMPANY

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DESCRIPTION

Machines of Class 270 are single needle, single thread, lockstitch machines designed for tacking and sewing two and four hole buttons on clothing. These machines sew a single row of stitches parallel to the cylinder when sewing two hole buttons and two rows of stitches parallel to the cylinder with right angle cross-over stitches when sewing four hole buttons.

Automatic in operation, the machine is equipped with a sewing reel which is located inside the hook body. Thread is wound on reel from upper thread supply during the initial needle penetration. Then, without a break in thread or interruption in machine cycle, stitch formation begins. Reel thread is passed through upper thread loop on each successive stitch to form a regular lockstitch. Thus only one thread is required to form a complete stitch pattern and no stitch starting ends of thread are present. At the end of the stitching pattern, thread is trimmed and excess thread is removed from reel and drawn away by a suction type air pump.

GENERAL CHARACTERISTICS

270-31 Machine makes one parallel row of 7 stitches up and down cylinder, and a tack, 1/4 inch maximum length. This machine is fitted with a tacking clamp and a pneumatic starting and clamp lifting device.

270-33 Machine makes 14 Stitches . . . 4 parallel, 2 cross-over, 4 parallel, 4 tying.

270-37 Machine makes 18 Stitches . . . 6 parallel, 2 cross-over, 6 parallel, 4 tying.

Button Sewing Machines are fitted with a **Button Clamp . . .** accommodates 14 to 50 ligne buttons.

Rotating Hook with Thread Reel . . . makes two revolutions to each revolution of arm shaft.

Rotary Hook Shaft . . . driven by spiral bevel gear from vertical arm shaft.

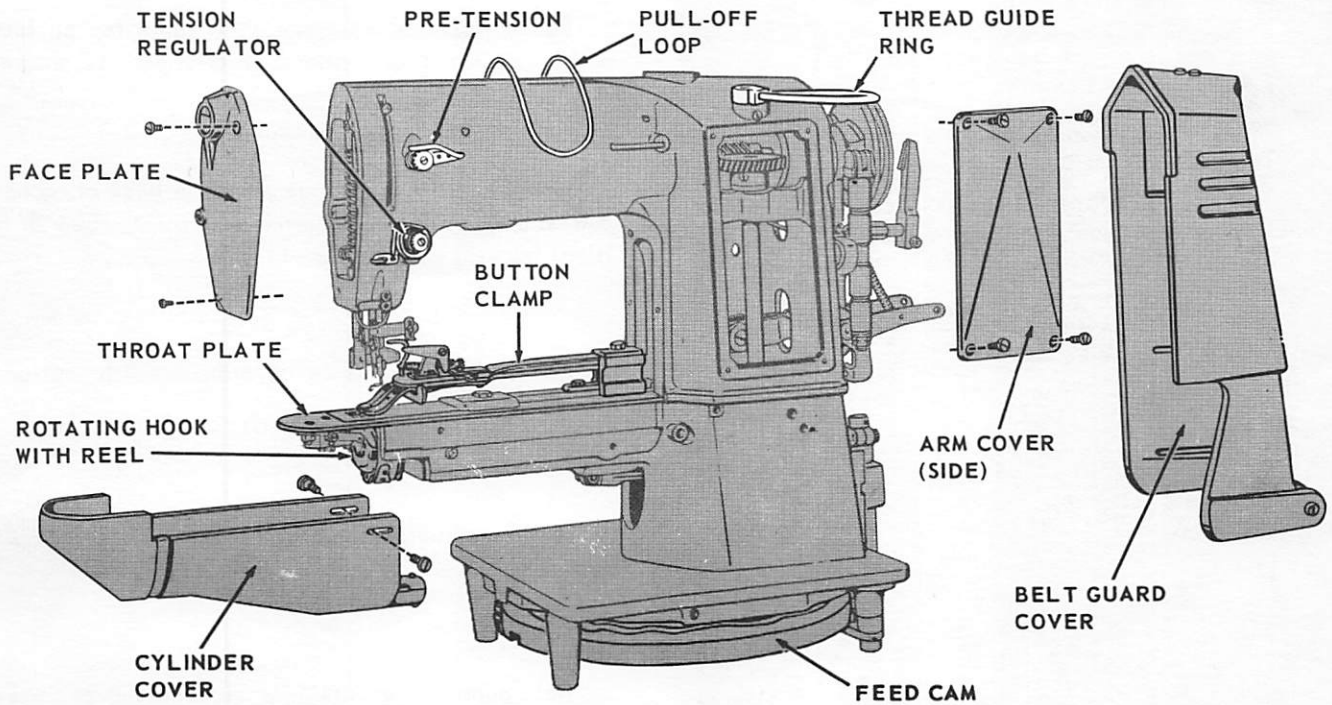
Throat Plate . . . equipped with scissor type trimming mechanism for cutting thread at completion of stitch pattern.

Work Plate . . . if specified, at additional cost.

Feed Cam . . . controls operation of button clamp.

Safety Interlock . . . prevents clamp from being lifted when machine is in operation.

Belt Guard . . . fully encloses driving belt and stop motion device.



INSTALLATION

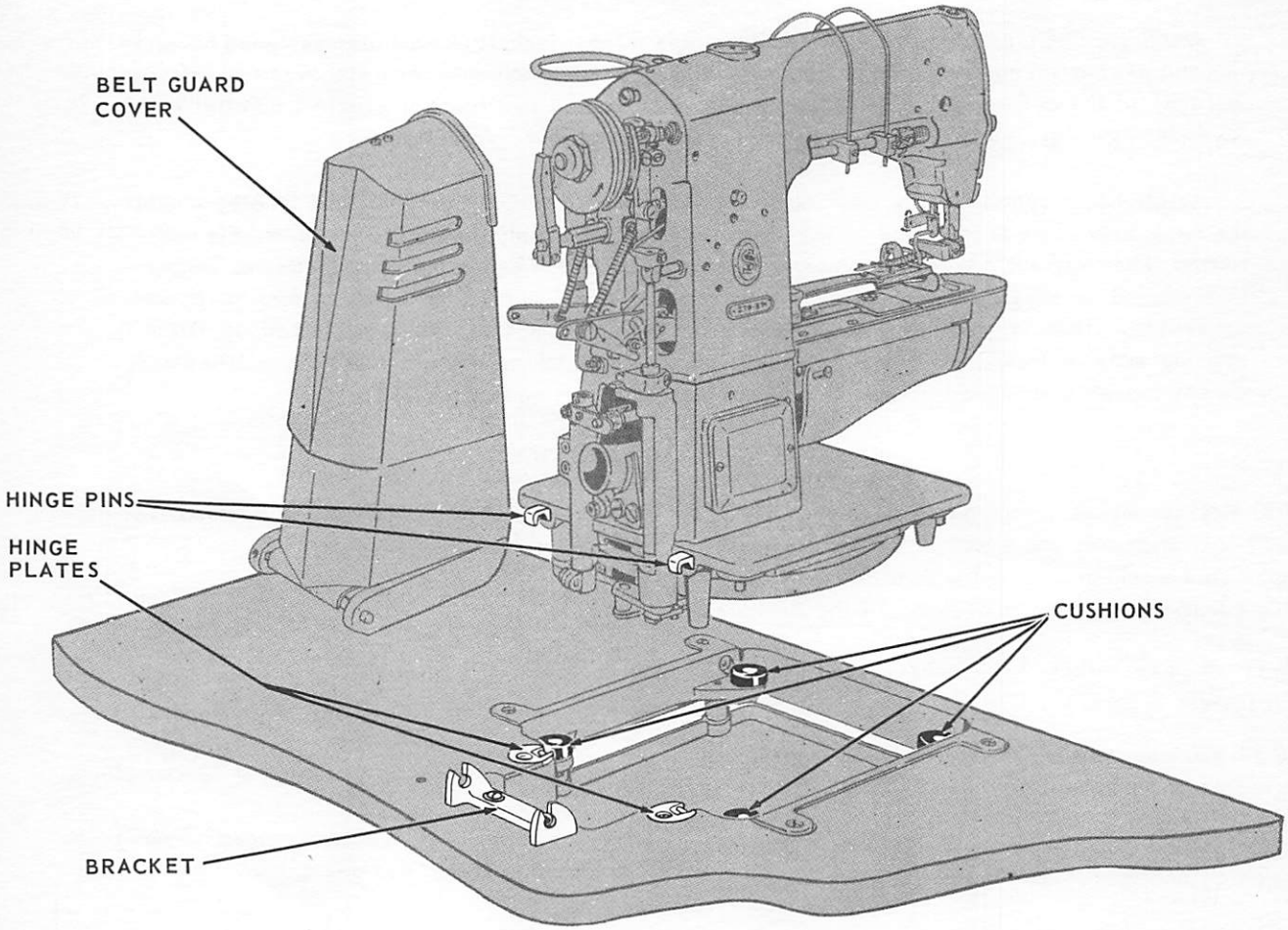


Fig. 3. Installation of Machine

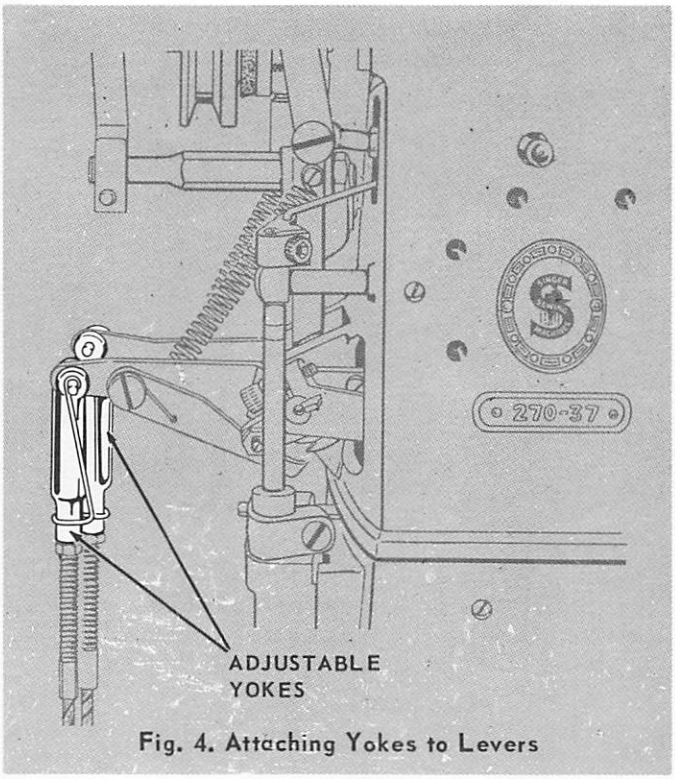


Fig. 4. Attaching Yokes to Levers

Place machine into recess on table top on four rubber cushions at corners of drip pan as shown.

Hinge pins fit into hinge plates at back of recess and should not support machine except when it is tilted back.

Install blower unit in accordance with instructions on page 29.

Attach adjustable yokes to machine levers as shown in Fig. 4.

Belt guard cover fits into bracket and encloses drive and stop motion mechanism (see Fig. 3).

LUBRICATION

For best results, use **SINGER*** Oil **"Type B"** or **"Type D". "Type D"** Oil is used when an oil is desired which will produce a minimum of stain on fabric.

Daily Care

Before starting machine, apply a few drops of oil to each of the holes indicated in Figs. 5 and 6 and run machine for a short time.

On new machines and machines installed after several weeks of idleness, needle bar and take-up linkage should be oiled by hand before using. The residual lubricant may have congealed or disappeared entirely.

NOTE: Once each year, machine pulley (loose) should be removed and repacked with ball bearing lubricant.

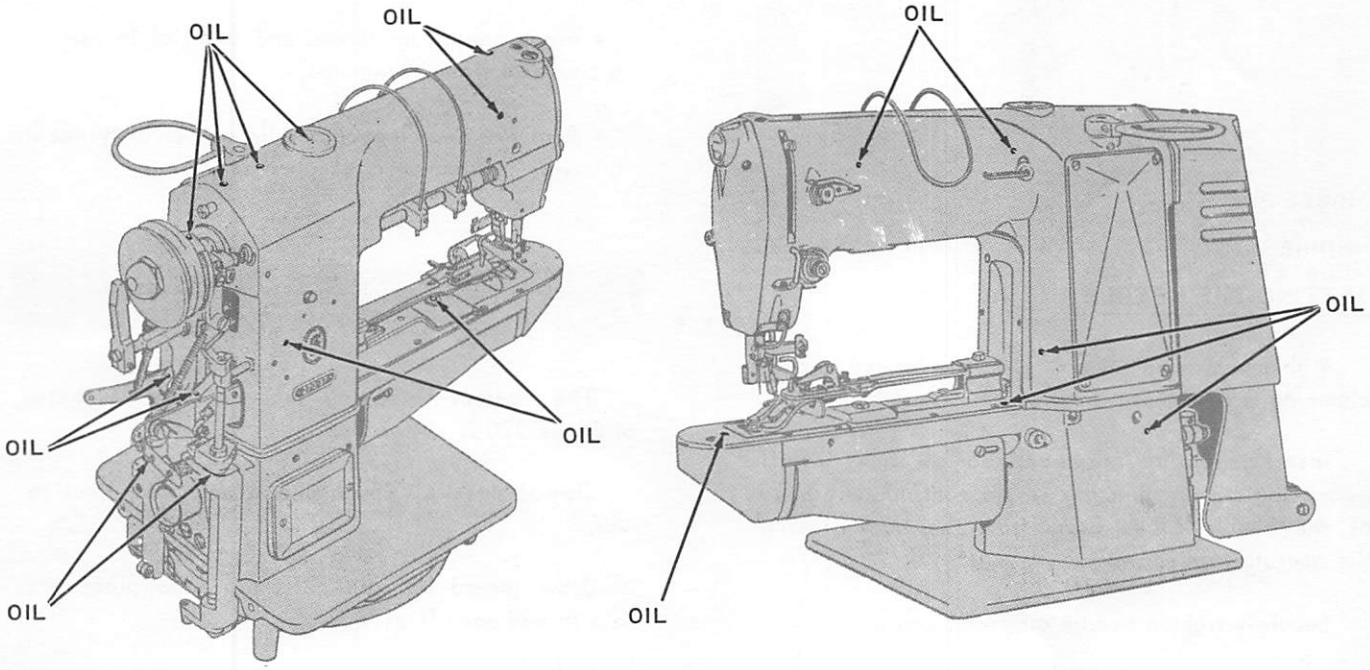


Fig. 5. Lubricating the Machine

Cleaning

Remove all lint and abrasive matter from around hook body and throat plate mechanism (see Fig. 6).

Wipe off all excess oil which may come in contact with material to be sewn.

Machines not in use should be kept well oiled, clean, dry and covered.

Check waste collector daily and empty when full.

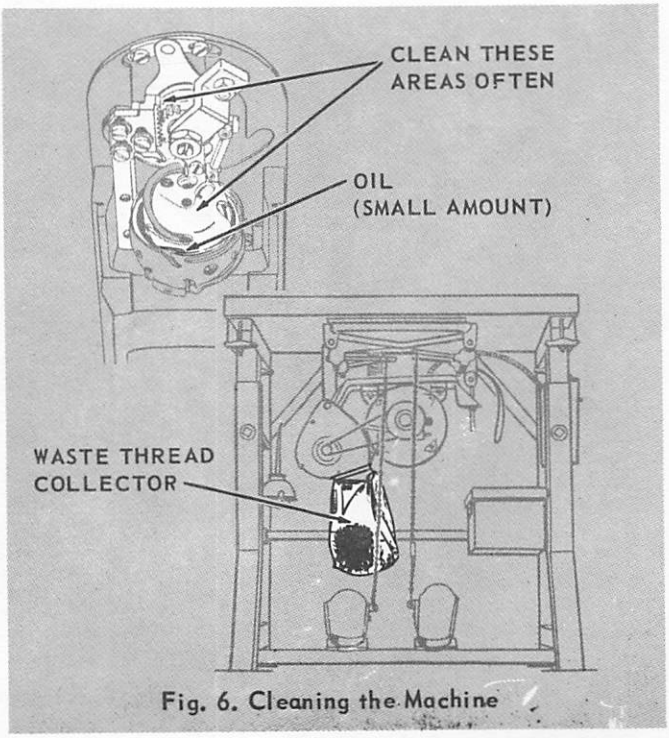


Fig. 6. Cleaning the Machine

SPEED

The maximum speed recommended for Machines of Class 270 is 1850 R. P. M.

NEEDLES

Use **SINGER*** needle – Catalog 2173.

Other needles, determined by size of thread and type of material to be sewn, are available.

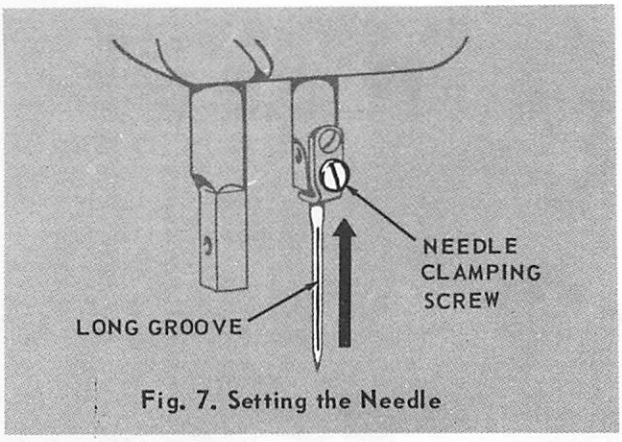


Fig. 7. Setting the Needle

SETTING THE NEEDLE

With machine in "stop" position loosen needle clamping screw shown in Fig. 7.

Insert needle up into needle bar as far as it will go making certain that the single continuous groove of the needle faces away from the hook (facing the operator) as shown.

Securely tighten needle clamping screw.

Stitching Troubles

Check needle often to make sure these defects are not present.

- Wrong needle for thread and material in use - - - a cause of thread breakage.
- Bent needle, clogged needle eye or dirty needle groove - - - a cause of skipped stitches.

THREADING THE MACHINE

The correct threading procedure for Machines of Class 270 is shown in Fig. 8.

Thread passes through needle eye from front to rear.

Draw thread up into cutter in face plate and snip thread end off as shown.

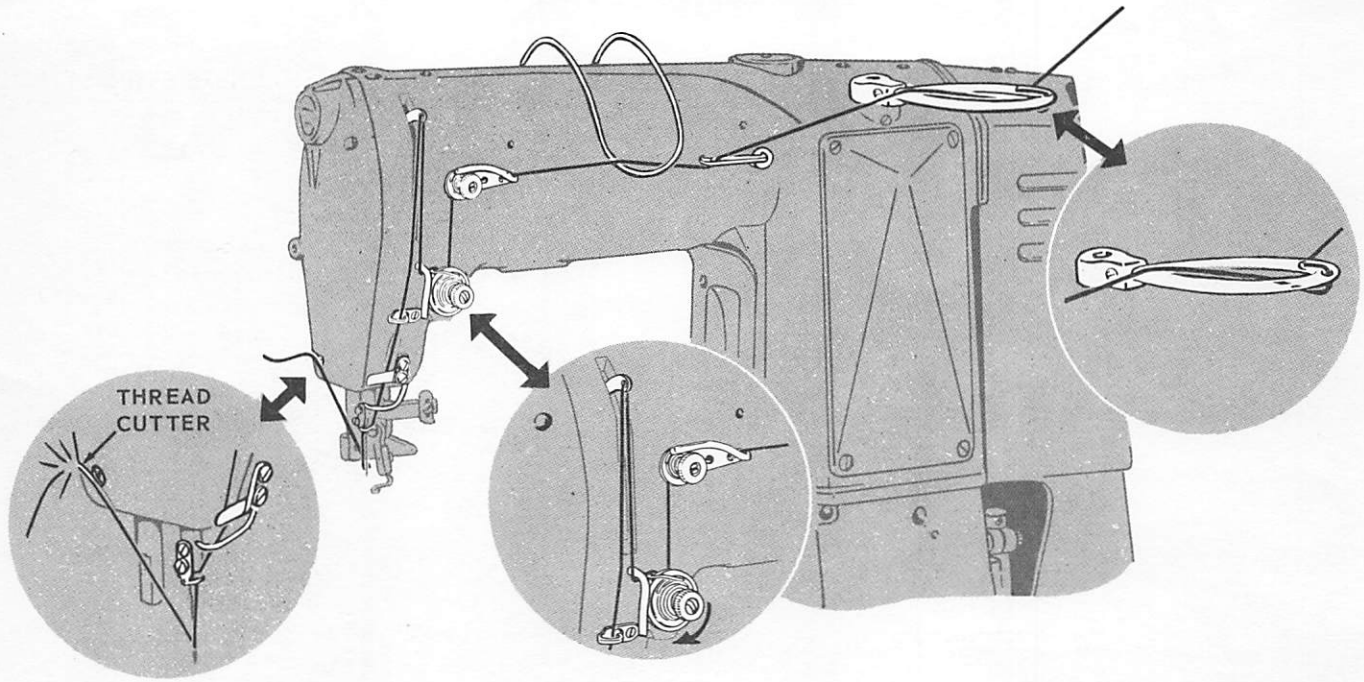


Fig. 8. Threading the Machine

THREAD TENSION

Needle Thread Tension

Tension should be as light as possible while still sufficient to set the stitch correctly in material, (see Fig. 9).

To regulate, turn thumb nut at front of tension discs as shown in Fig. 10.

Reel Thread Tension

When tension on reel thread has been correctly adjusted, the required stitch may usually be obtained to suit the work in process thereafter by varying needle thread tension only.

To regulate, turn adjusting screw shown in Fig. 10 as required.

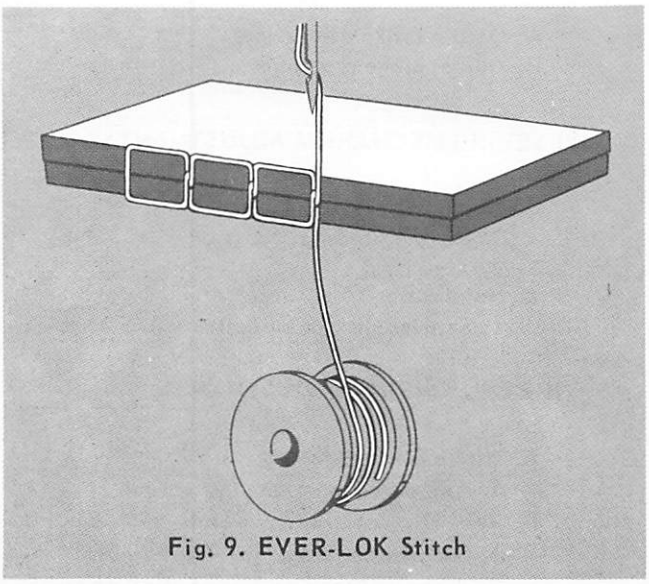


Fig. 9. EVER-LOK Stitch

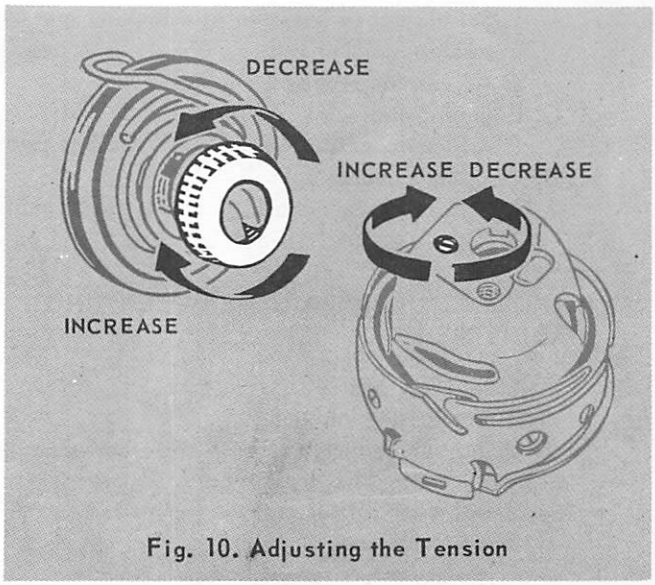


Fig. 10. Adjusting the Tension

SEWING DIFFICULTIES

WHEN THREAD BREAKS

CHECK:

Is machine threaded properly?
Is needle correctly seated in needle bar?
Is needle bent or burred?
Is thread suitable for needle in use?
Is needle thread tension too tight?

WHEN THREAD SNAGS OR MACHINE SKIPS STITCHES

CHECK:

Is needle eye or groove dirty?
Is needle bent or burred?
Is needle size correct for operation?
Is thread suitable for material in use?
Is reel case free of thread end?

HINTS FOR OPERATORS

WHEN OPERATING MACHINE

Be sure to depress starting pedal firmly.
Make sure that button is inserted correctly in clamp.
Make sure that needle thread is not under clamp at start of sewing cycle.
Do not depress clamp lifting pedal until machine goes in "stop".
Inspect reel thread tension for thread or lint accumulation.

ADJUSTMENTS

The sequence of adjustments outlined on this page should be checked and made in the order given to avoid confusion and unnecessary repetition.

I STOP MOTION ADJUSTMENTS

A. Arm Shaft
   1. Adjust for end play
B. Starting Lever
   1. Set clearance between interlocking arm and machine pulley
   2. Adjust arm stop
C. Engaging arm
   1. Adjust to obtain correct "V" belt tension
D. Tripping Linkage
   1. Adjust rock shaft support for binding
   2. Set clearance between bell crank and pawl

II KNIFE ACTUATING AND CLAMP LIFTING ADJUSTMENTS

A. Safety Devices
   1. Set Lifting Arm Lug
   2. Adjust lifting lever pawl to clear engaging surface on lifting lever
   3. Set Clamp lifter stop
B. Tension Releaser
   1. Position tension regulator
   2. Set lifting link connection
   3. Set lifting arm to release tension
C. Work Clamp Foot Lifter
   1. Position lifter beneath arm hook
D. Thread Wiper
   1. Set wiper support
   2. Position wiper wire
E. Thread Pull-off Loop
   1. Adjust tension on spring

III FEED MECHANISM ADJUSTMENTS

A. Feed Driving Gears
   1. Check alignment of timing marks
   2. Eliminate play in gears
B. Feed Linkage Adjustment
   1. Center and position lateral feed linkage
   2. Increase or decrease lateral movement of feed bar
   3. Center and position longitudinal feed linkage
   4. Increase or decrease longitudinal movement of feed bar
C. Feed Timing Adjustment
   1. Time longitudinal feed movement
   2. Time lateral feed movement

IV TRIPPING POINTS ADJUSTMENT

A. Set timing to actuate interlocking arm

V STOP MOTION BRAKE ADJUSTMENTS

A. Obtain brake clearance
B. Adjust brake pressure

VI SEWING MECHANISM ADJUSTMENTS

A. Sewing Hook
   1. Set longitudinal position
   2. Time hook
B. Needle Bar
   1. Set Needle Bar Height

VII REEL WINDING ADJUSTMENTS

A. Winding Linkage
   1. Adjust thread clamping action
B. Reel Driver Tripping Points
   1. Set tripping point for "full pinch"
   2. Adjust Extension for duration of pinch
C. Pre-Tension
   1. Adjust to aid in reel winding

VIII THREAD STRIPPING AND RETRACTING ADJUSTMENTS

A. Finger Plate Follower
   1. Set to actuate stripper finger
B. Stripper Finger
   1. Adjust to remove unused reel thread
C. Retracting Finger
   1. Adjust to pick up reel thread
D. Tension Releaser
   1. Re-check

IX ADJUSTMENTS UNDER THROAT PLATE

A. Reel Holder Position Stop
B. Trimming Knives
   1. Set movable and adjustable knives
   2. Time knives
   3. Adjust knife pressure
C. Loop Pick-up Finger
   1. Position operating lever
   2. Set loop pick-up finger

STOP MOTION ADJUSTMENTS

ARM SHAFT

CHECK:

There should be a minimum of end play in the arm shaft shown in Fig. 11.

SETTING:

Loosen set screw in bushing shown in Fig. 11 and lock nut on support screw shown in Fig. 12.

Pull rear bushing out (toward machine pulley) by turning support screw in clockwise direction. Then tighten set screw and lock nut securely.

Check adjustment to make sure end play has been eliminated without binding.

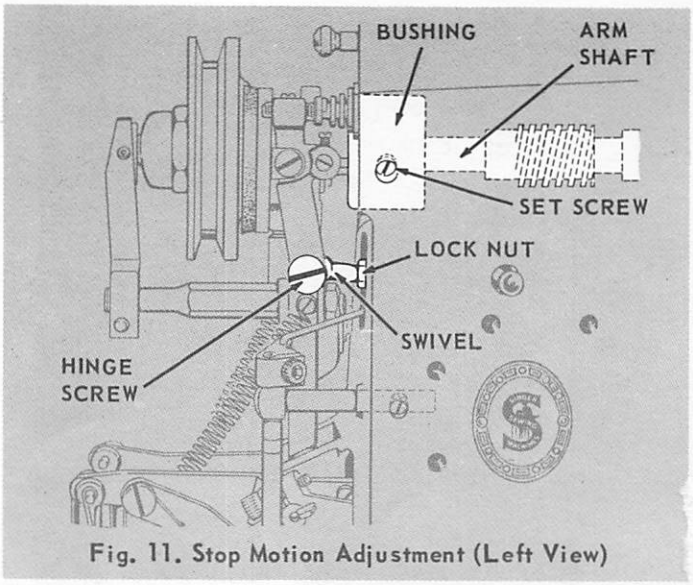


Fig. 11. Stop Motion Adjustment (Left View)

STARTING LEVER

CHECK:

Depress starting lever to engage machine in "run" position.

Turn machine pulley over toward right (looking from face plate back) until bell crank pawl moves into the "coast" position in bell crank as shown in Fig. 13.

At this position, there should be approximately 1/32 inch clearance between high point of camming surface on machine pulley and interlocking arm as shown in Fig. 12.

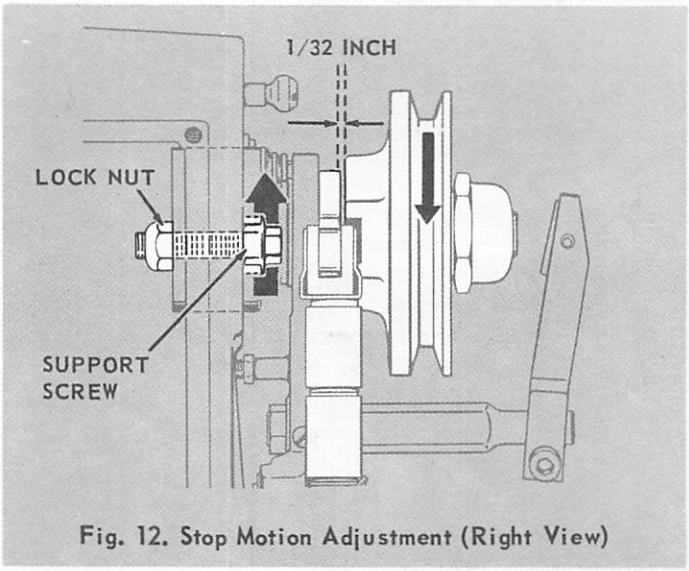


Fig. 12. Stop Motion Adjustment (Right View)

SETTING:

Loosen lock nut on starting rod and remove hinge screw shown in Fig. 11.

Turn swivel on starting rod, (Fig. 11) in or out one full turn for each 1/32 inch of adjustment required to obtain clearance between camming surface and interlocking arm as shown in Fig. 12.

Replace hinge screw and tighten lock nut on swivel securely.

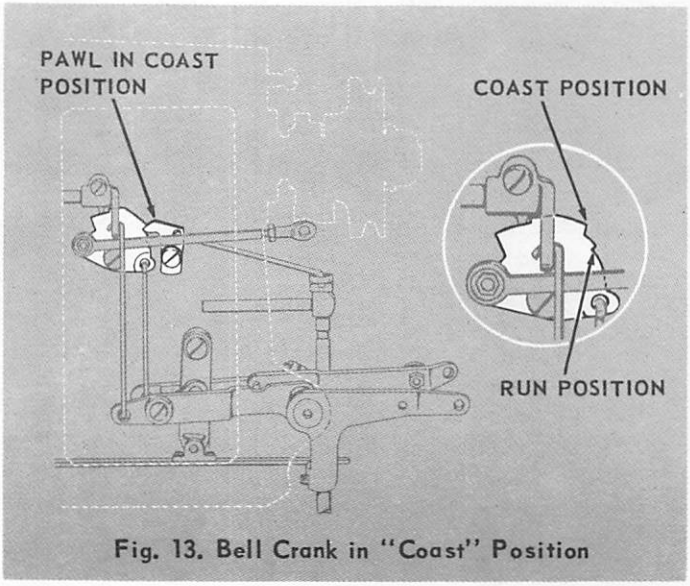


Fig. 13. Bell Crank in "Coast" Position

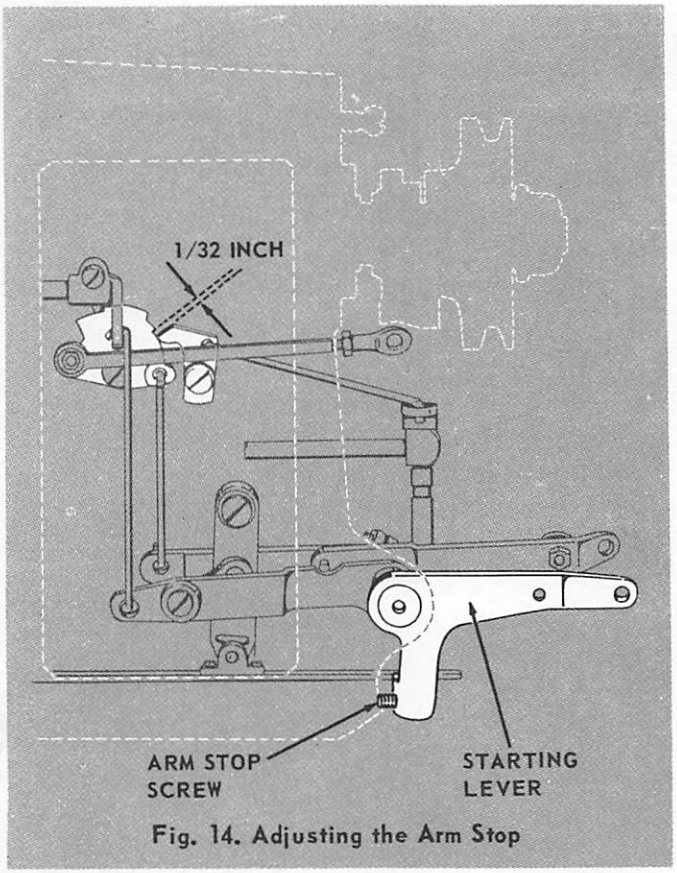


Fig. 14. Adjusting the Arm Stop

STARTING LEVER ARM STOP

CHECK:

Starting lever arm stop, Fig. 14, should limit downward movement of starting lever so that bell crank has 1/32 inch clearance past "run" notch when starting lever is depressed.

SETTING:

Remove "V" belt and turn stop screw to limit downward movement of starting lever arm as required.

Replace "V" belt and check adjustment.

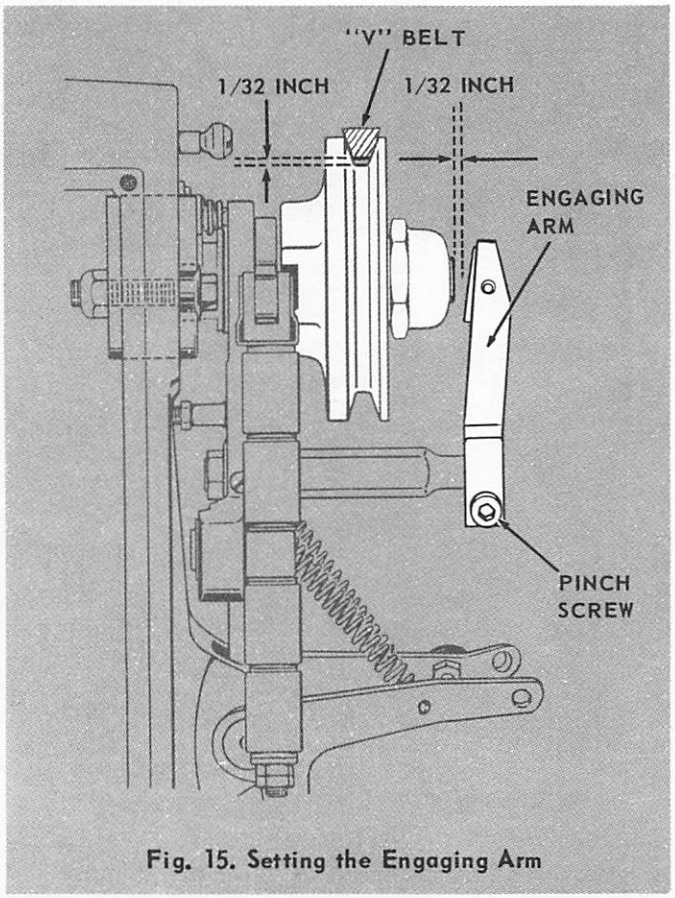


Fig. 15. Setting the Engaging Arm

ENGAGING ARM

CHECK:

Engaging arm should be adjusted so the "V" belt drops approximately 1/32 inch when machine moves from "run" position to "stop" position (See Fig. 15).

SETTING:

Loosen pinch screw, Fig. 15, and position engaging arm closer to or farther from starting cap as shown.

Tighten pinch screw securely and check adjustment.

NOTE: Check **TENSION** on **"V" BELT.** Excessive tightness will not improve performance of machine but **MAY CAUSE DAMAGE** or excessive wear to machine parts.

Tension on "V" belt may be varied by raising or lowering motor, but adjustment should be made in connection with engaging arm adjustment described above.

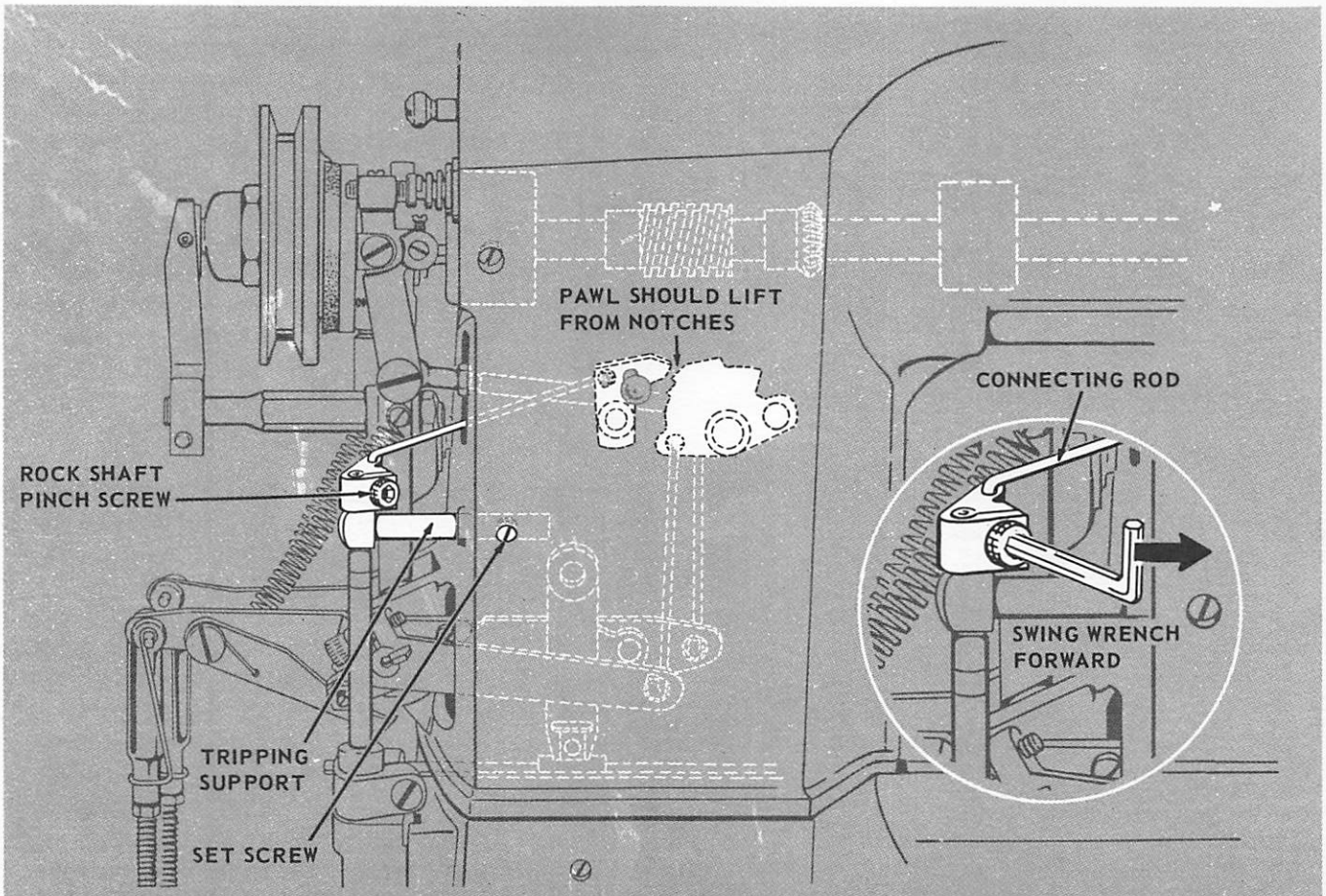


Fig. 16. Adjusting the Tripping Linkage

TRIPPING LINKAGE

CHECK:

Tripping rock shaft support, Fig. 16, should be positioned to hold rock shaft without binding.

SETTING:

Loosen set screw shown in Fig. 16 and position support as required.

Tighten set screw and check for binding.

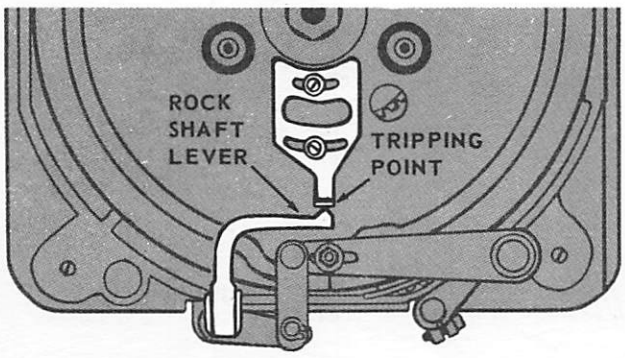


Fig. 17. Lever resting on Tripping Point

CHECK:

Turn machine pulley over toward operator until rock shaft lever rests on tripping point as shown in Fig. 17.

At this position, bell crank pawl should lift out of notches in bell crank far enough for machine to move into "stop" when actuated by tripping point on feed cam as shown in Fig. 17.

SETTING:

With rock shaft lever resting on tripping point, loosen rock shaft pinch screw with socket wrench as shown in Fig. 16.

Using socket wrench as a lever, in pinch screw, swing wrench forward (toward face plate) to remove play in connecting rod and **ALSO** to raise point of bell crank pawl approximately .020 inch above top of "coast" notch in bell crank as shown in Fig. 16.

Securely tighten pinch screw and check adjustment.

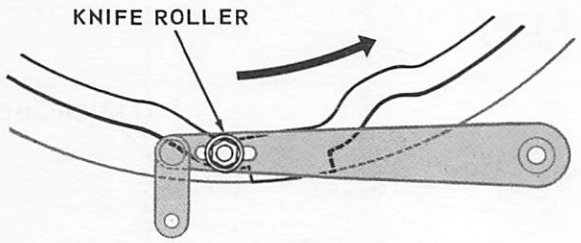


Fig. 18. Knife Roller positioned in Cam Path

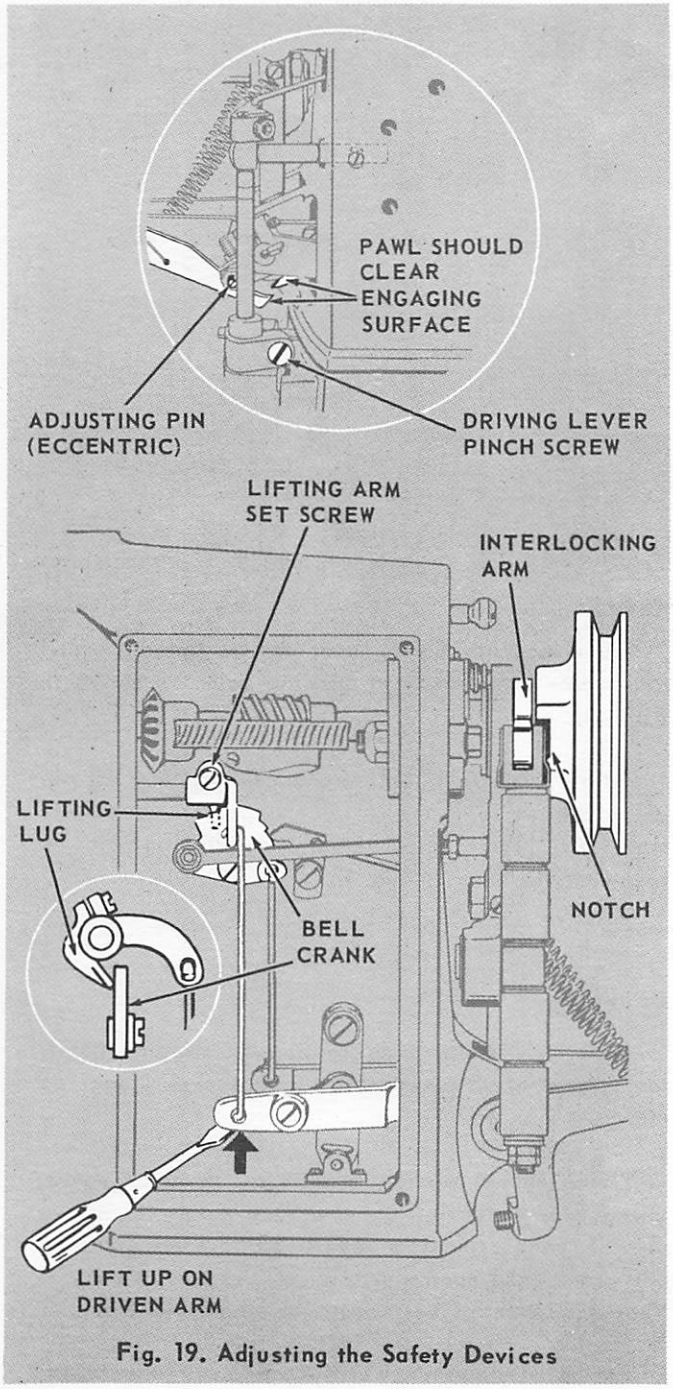


Fig. 19. Adjusting the Safety Devices

SAFETY DEVICES

CHECK:

The safety interlock should prevent the work clamp from being lifted when machine is in operation and should prevent machine from starting when work clamp is raised.

SETTING:

Engage machine in "run" position and turn machine pulley over toward right until knife roller is at extreme outward position on feed cam as shown in Fig. 18.

Loosen driving lever pinch screw, Fig. 19 and lift up on driven arm with screwdriver to bring lifting lug against back of bell crank as shown.

Maintain this position while tightening pinch screw securely.

Then rotate machine pulley again until the point is reached just before interlocking arm drops into notch on pulley ("stop" position).

Set adjusting pin (eccentric), while depressing clamp lifting lever arm, so that pawl on lifting arm does not engage driven arm and slides by as shown in inset, Fig. 19.

Then rotate machine pulley to bring machine into "stop" position and adjust the clamp lifter stop shown in Fig. 20 by means of adjusting nuts. The stop should be set to limit extreme downward movement of lever arm and thereby avoid binding of starting lever rock shaft when clamp lifter is activated before machines goes into "stop" position.

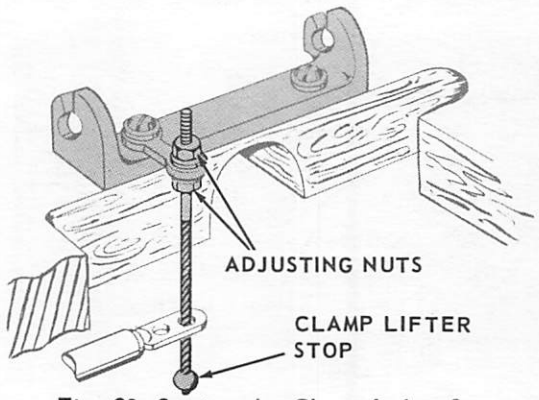


Fig. 20. Setting the Clamp Lifter Stop

TENSION RELEASER

CHECK:

When work clamp is raised, the first upward movement of the lifting bar, Fig. 21, should separate the tension discs and release tension on needle thread.

SETTING:

To adjust the tension release, first loosen the set screw in casting below tension regulator, Fig. 21, and move entire regulator all the way in. Tighten set screw.

Then loosen the screw in lifting link connection and set lifting link so that it projects approximately 1/32 inch as shown. Tighten screw.

Next, loosen the pinch screw in lifting arm (see inset) and push up on lifting bar until tension discs just begin to release. Maintain this position while tightening pinch screw. **MAKE CERTAIN** that lifting arm is against shoulder on rock shaft.

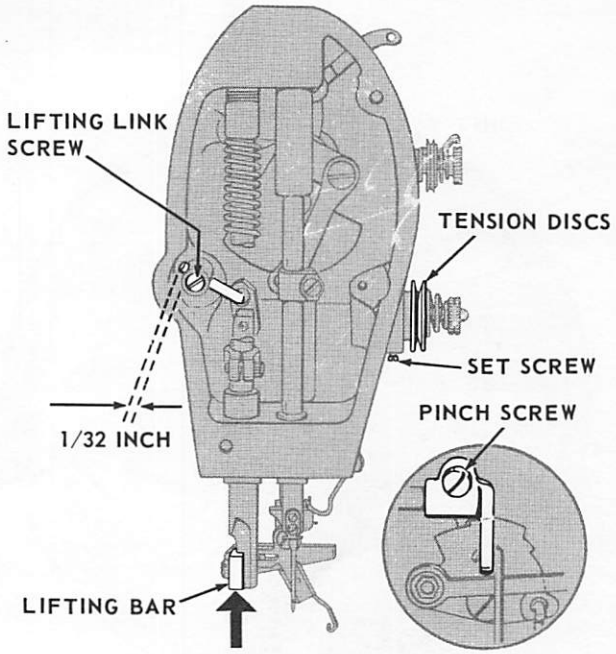


Fig. 21. Adjusting the Tension Releaser

WORK CLAMP FOOT LIFTER

SETTING:

Loosen lifting bar clamp screw, Fig. 21, and position foot lifter approximately 1/8 inch below arm hook as shown in Fig. 22. Then tighten clamp screw.

THREAD WIPER

SETTING:

Loosen wiper support screw, Fig. 22 and position wiper support so that slot in body finger is horizontal. Tighten wiper support screw.

Position wiper wire to clear needle by approxmately 1/16 inch.

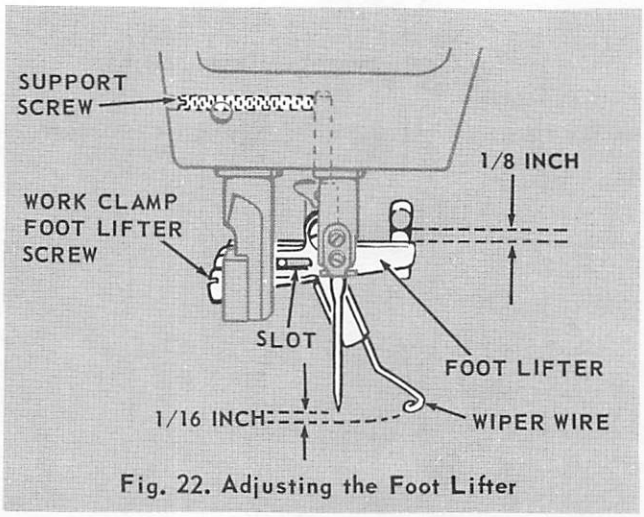


Fig. 22. Adjusting the Foot Lifter

THREAD PULL-OFF LOOP

CHECK:

The pull-off loop should draw sufficient thread from the unwinder to complete the stitch pattern. Also, pull-off loop should not "whip" and may be controlled by increasing or decreasing tension on spring.

SETTING:

Loosen the four bracket set screws shown in Fig. 23 and position the pull-off loop as close as possible to machine arm without touching. Tighten bracket set screws. Then loosen collar set screw and move collar to increase or decrease tension as required. Tighten collar set screw.

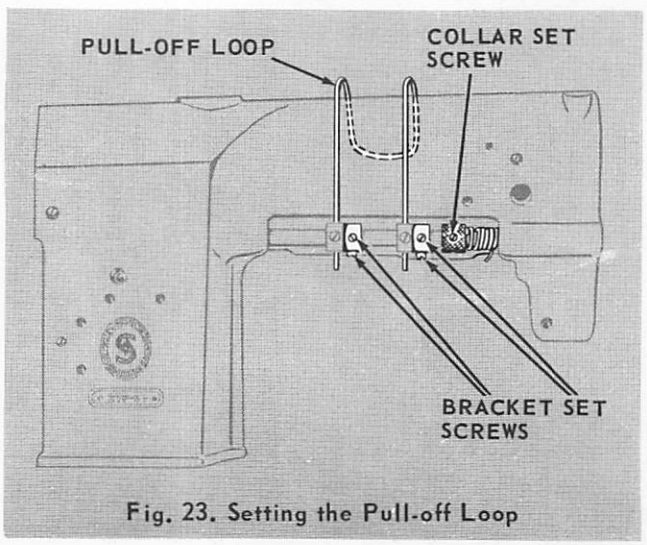


Fig. 23. Setting the Pull-off Loop

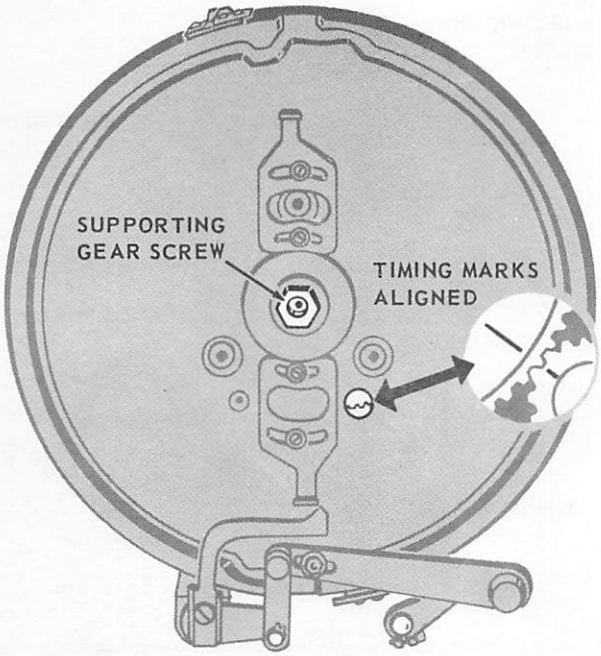


Fig. 24. Alignment of Timing Marks

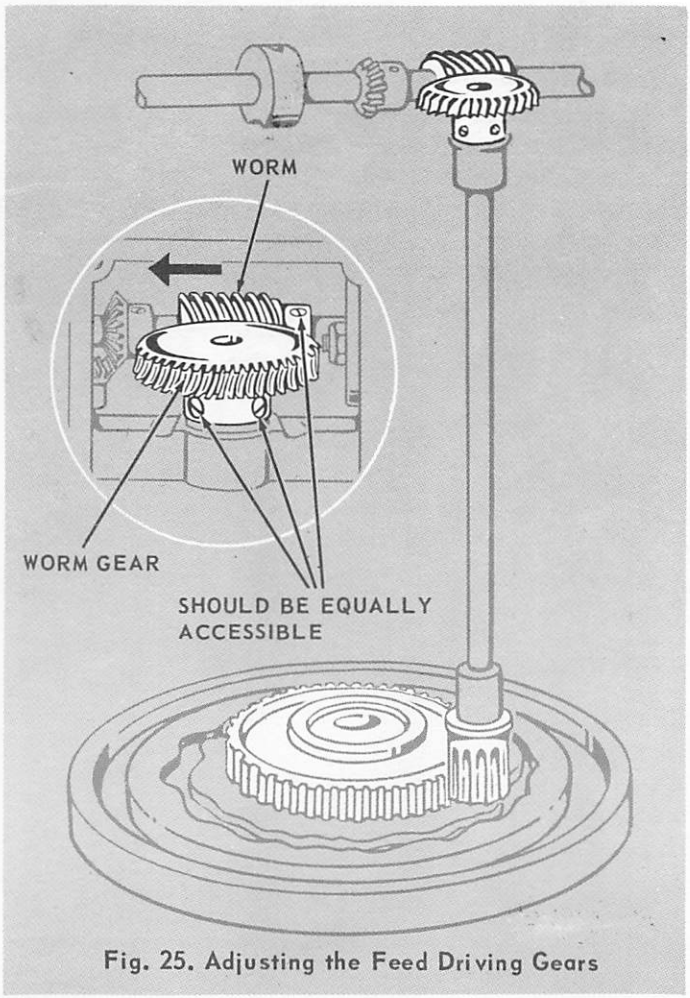


Fig. 25. Adjusting the Feed Driving Gears

FEED DRIVING GEARS

CHECK:

Cam supporting gear and vertical shaft pinion gear are positioned at factory so that timing marks shown in Fig. 24 will be aligned when machine is in "stop" position.

SETTING:

Remove excessive play between worm gear and worm by loosening two screws in worm (see inset Fig. 25) and moving worm forward on shaft.

When the worm gear is properly assembled on vertical shaft, the spot and set screws shown should be equally accessible through side opening in arm casting.

Insure minimum play between vertical shaft pinion gear and cam supporting gear by loosening socket head screw inside supporting gear screw as shown in Fig. 24.

By means of "hex" head on supporting gear screw, turn the bracket (which is eccentric) until only minimum amount of play exists between gears. Then tighten socket head screw inside supporting gear screw.

FEED LINKAGES ON BUTTON SEWING MACHINES

NOTE: Adjust lateral and longitudinal feed linkages when changing from two or from four hole buttons or when changing the hole spacing in the button.

LATERAL FEED LINKAGE

CHECK:

Lateral feed linkage should be adjusted so that feed plate moves the same distance on one side of needle hole in throat plate as it moves on the other side. Then, lateral feed linkage should be adjusted to increase or decrease the distance feed plate moves on both sides of needle hole.

NOTE: Hole in feed plate does not necessarily have to be centralized to obtain the above setting.

SETTING 1: (To obtain equal distance)

Remove cylinder arm cover and vertical arm cover (See Fig. 27).

Insert button to be sewn into clamp, engage machine into "run" position and rotate machine pulley until needle is just above button (See Fig. 26).

Loosen clamp screws A and B, Fig. 27, and move feed plate so that button is centered laterally (across cylinder) as shown in inset Fig. 27.

At this position, lateral rock shaft driving arm and driven arm should be parallel as shown in inset, Fig. 27. If necessary, move linkage as required to obtain this position. Then securely tighten screw A.

Next, obtain correct position of needle in relation to holes in button by turning machine pulley and moving feed plate to bring needle into right rear hole of button. Then tighten screw B.

SETTING 2: (To Increase or Decrease Distance) **(Machines without Quick Change Mechanism)**

Loosen lateral driving arm stud nut as shown in inset, Fig. 27.

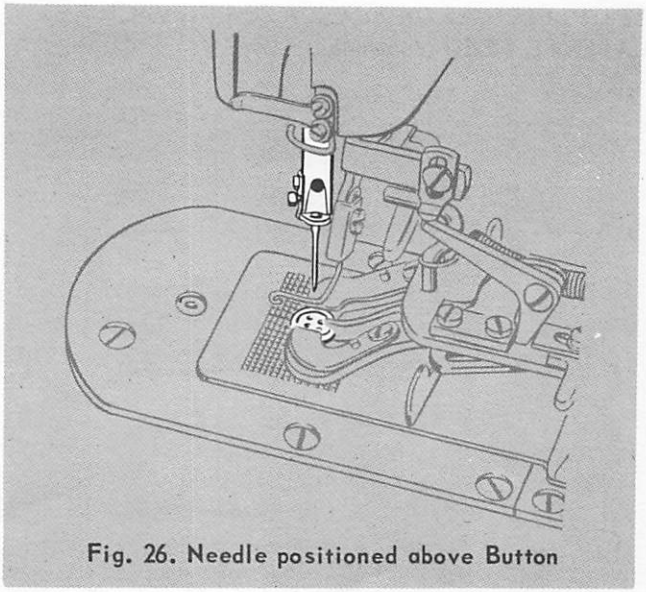


Fig. 26. Needle positioned above Button

When sewing two hole buttons, move stud toward rear of machine allowing feed bar positioner to register over lateral rock shaft.

When sewing four hole buttons or changing the hole spacing, move stud toward front of machine as required to obtain the desired distance between holes.

When adjustment is obtained, securely tighten stud nut, replace arm cover and adjust longitudinal setting.

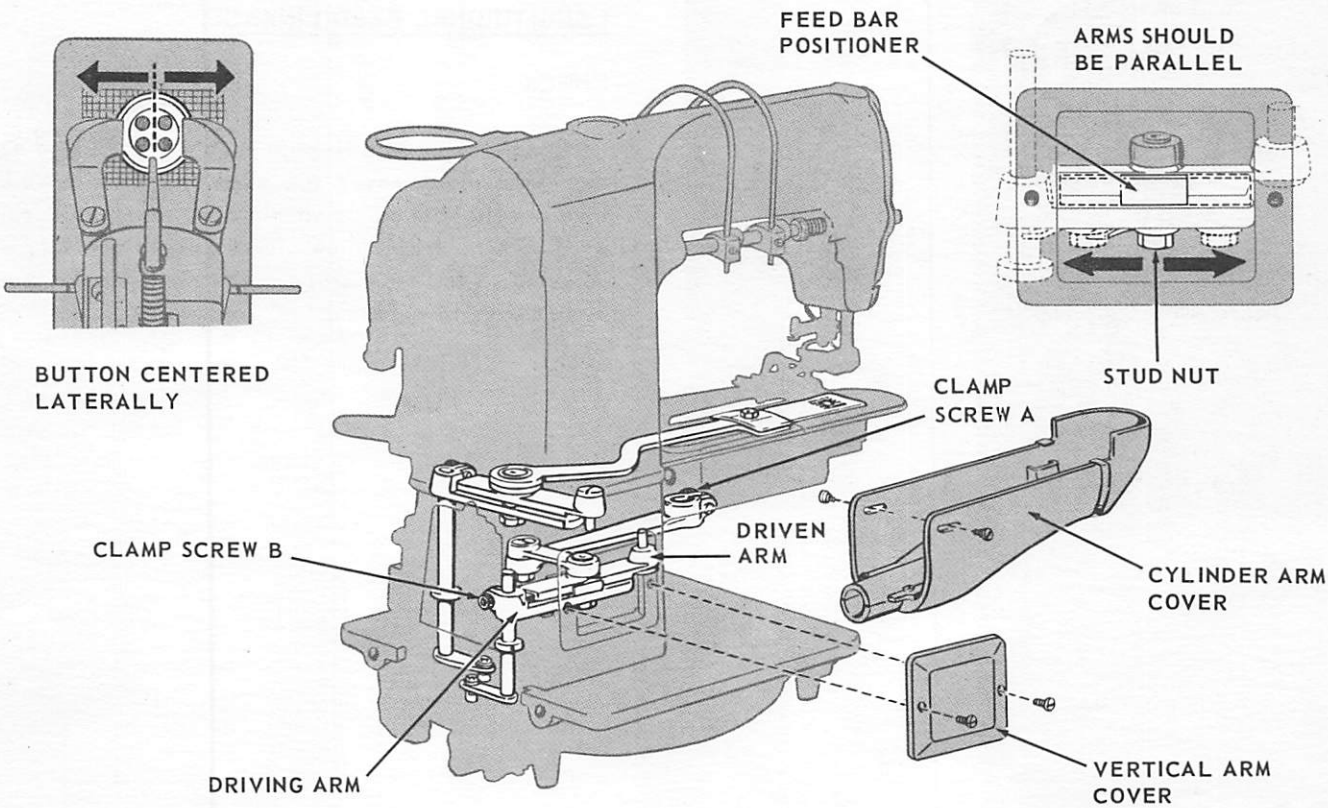


Fig. 27. Adjusting Lateral Feed Linkage

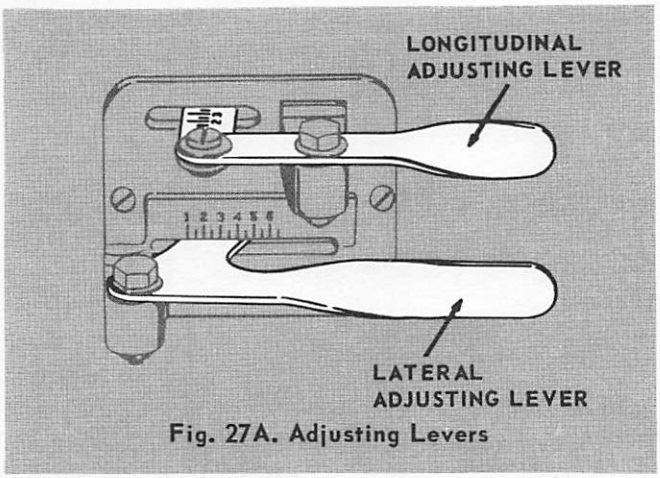


Fig. 27A. Adjusting Levers

SETTING 2: (To Increase or Decrease Distance) **(Machines with Quick Change Mechanism)**

When sewing two-hole buttons, move the lateral adjusting lever (lower lever), Fig. 27A, in toward the machine as far as it will go.

When sewing four-hole buttons, move the lateral adjusting lever (lower lever), Fig. 27A, away from the machine until position is attained where needle will enter the left hand hole in button when machine pulley is turned.

When correct adjustment is attained, the lever can be locked into position by tightening the hex head screw.

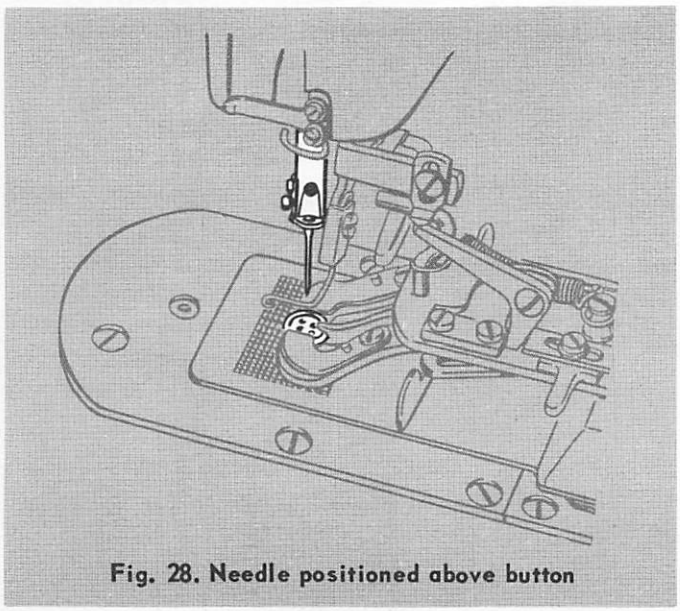


Fig. 28. Needle positioned above button

LONGITUDINAL FEED LINKAGE

CHECK

Longitudinal feed linkage should be adjusted so that feed plate moves the same distance forward from needle hole in throat plate as it moves backward. Then, longitudinal feed linkage should be adjusted to increase or decrease the distance feed plate moves forward and backward.

LONGITUDINAL FEED LINKAGE (Continued)

SETTING 1: (To obtain equal distance)

Insert button to be sewn into clamp, engage machine into "run" position and rotate machine pulley until needle is just above button (see Fig. 28).

Loosen screws C and D shown in Fig. 29 and move feed plate so that button is centered longitudinally (along the bed) under the needle as shown.

At this position, longitudinal rock shaft driving arm and driven arm should be parallel as shown in Fig. 30. If necessary, move linkage as required to obtain this position. Then securely tighten screw C.

Next, obtain correct position of needle in relation to holes in button by turning machine pulley and moving feed plate to bring needle into right rear hole of button. Then tighten screw D.

SETTING 2: (To Increase or Decrease Distance) **(Machines without Quick Change Mechanism)**

Loosen longitudinal driving arm stud nut shown in Fig. 30.

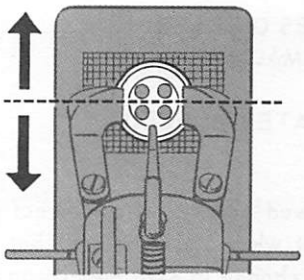
Move stud toward left or right as required to obtain the desired distance between holes in button.

When adjustment is obtained, securely tighten stud nut.

SETTING 2: (To Increase or Decrease Distance) **(Machines with Quick Change Mechanism)**

With needle positioned over rear hole in button, move the longitudinal adjusting lever (upper lever), Fig. 27A, in toward the machine until position is attained where needle will enter the forward needle hole when machine pulley is turned. Movement of the lever in toward the machine, will increase the feed distance; movement from the machine, will decrease the distance.

When correct adjustment is obtained, the lever can be locked into position by tightening the hex head screw.



BUTTON CENTERED LONGITUDINALLY

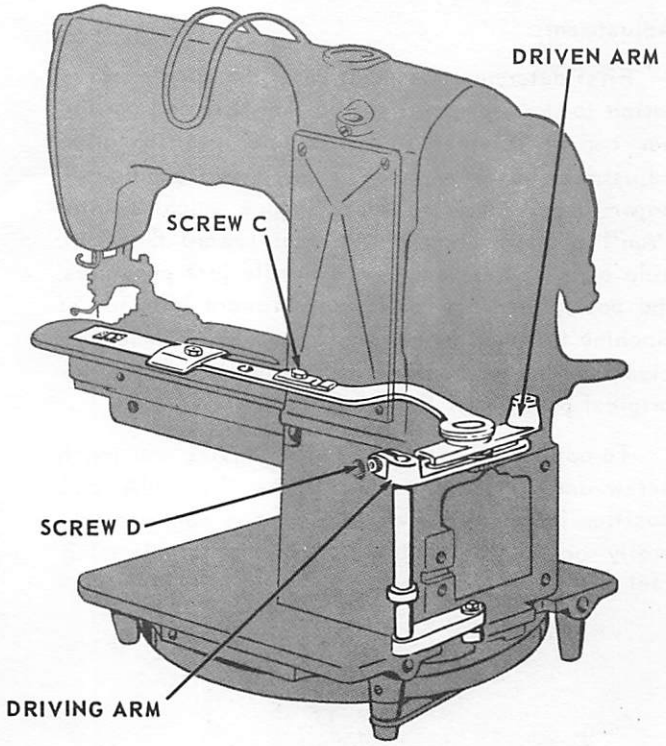


Fig. 29. Adjusting Longitudinal Feed Linkage

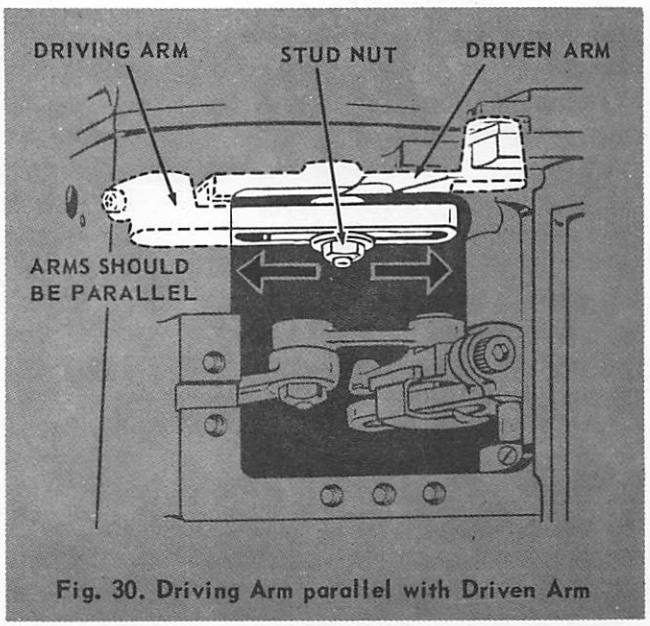


Fig. 30. Driving Arm parallel with Driven Arm

FEED LINKAGES ON BARRING AND TACKING MACHINES:

CENTERING LATERAL FEED

Check:

The lateral feed linkage, when correctly adjusted, will ensure that when the length of bar or tack is changed, it will change in size equally on both sides of the throat plate needle hole.

Adjustment:

First determine the position of the needle in relation to the clamping foot so that the feed carrier bar can be returned to its original position after adjustment has been made, e. g., insert a piece of paper under clamping foot, engage machine into "run" position, turn pulley over toward the right side of machine slowly until needle just punctures the paper, then turn pulley over toward left side of machine to raise the needle. Leave paper under the clamp during adjustment as this will indicate the original position of the needle.

To adjust, loosen lateral pivot driving arm pinch screw and driving arm pinch screw, Fig. 30A, and position feed plate carrier bar so it is centered laterally across the cylinder (or center of clamping feet is aligned with the needle).

At this position, the lateral feed rock shaft driven and the driving arm should be parallel, as shown in Fig. 30A. If necessary, move linkage to obtain this position. Then tighten the lateral pivot driving arm pinch screw.

Next, return feed carrier bar to its original position. (A check can be made by lowering the needle into puncture hole previously made in paper.) Then tighten the driving arm pinch screw.

TO ADJUST LENGTH OF TACK

Adjustment:

Loosen the lateral driving arm stud nut, Fig. 30A, and slide stud toward front of machine to increase the length of tack (across the bed). To decrease the length of tack, slide stud toward rear of machine. Then tighten stud nut.

NOTE: After this adjustment is made, it may be necessary to adjust the feed carrier bar in relation to the needle as instructed under **CENTERING LATERAL FEED.**

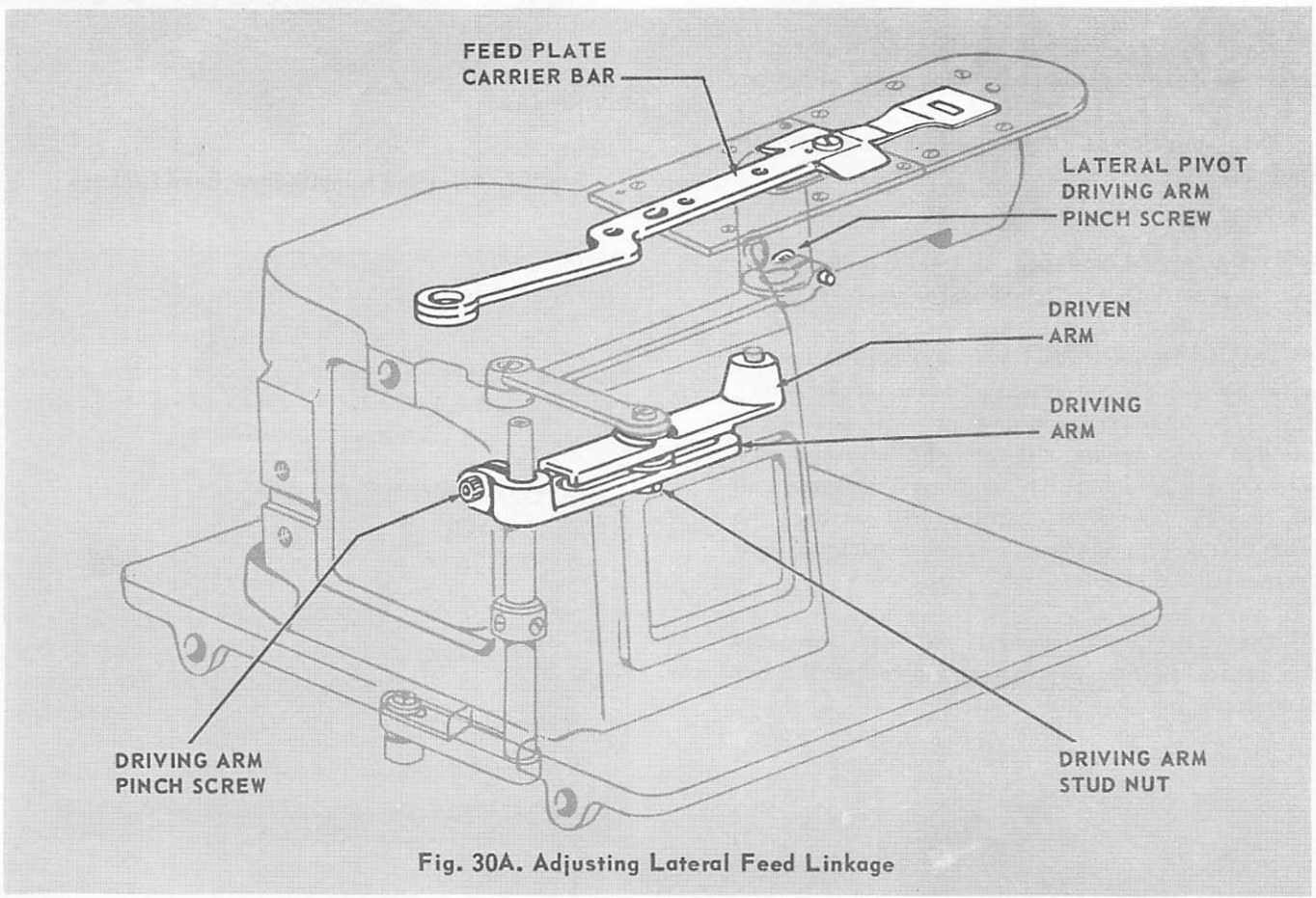


Fig. 30A. Adjusting Lateral Feed Linkage

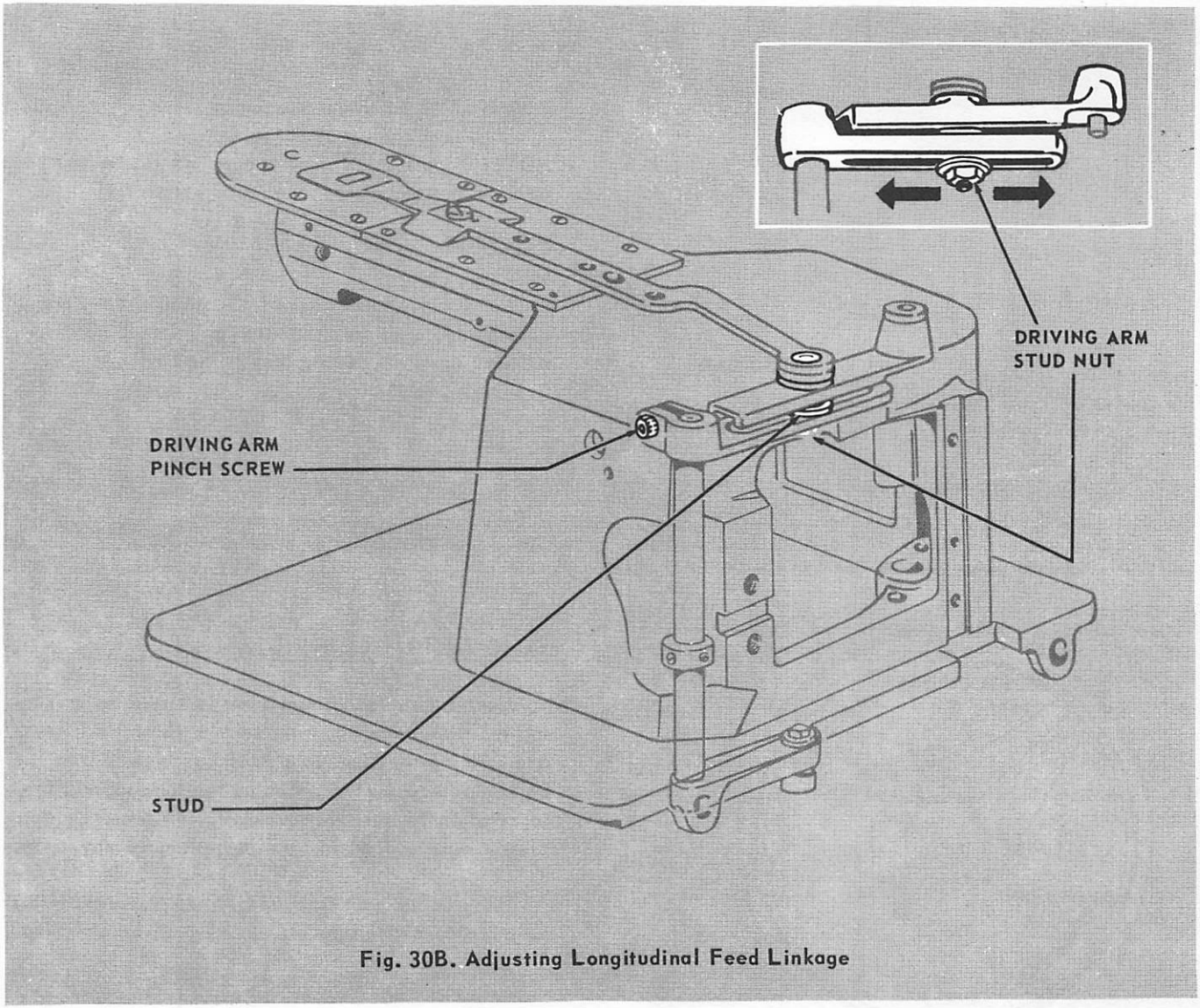


Fig. 30B. Adjusting Longitudinal Feed Linkage

CENTERING LONGITUDINAL FEED

Check:

The longitudinal feed, when correctly adjusted, will insure that when the width (bight) of tack is changed, the feed plate moves the same distance forward from the throat plate needle hole as it moves backward preventing the needle from striking the clamping foot.

Adjustment:

Through access hole in right side of upright arm, loosen the longitudinal rock shaft driving arm pinch screw, Fig. 30B, and move clamping foot forward or backward in correct relation to the needle. Then re-tighten the pinch screw.

With machine in "run" position, turn machine pulley slowly while checking to see that the needle does not strike the clamping foot during its longitudinal movement.

TO ADJUST WIDTH OF TACK

Adjustment:

Loosen the longitudinal driving arm stud nut, Fig. 30B, and slide stud to the right (facing rear of machine) to increase the width of tack. To decrease the width, slide stud to the left. Then tighten the stud nut.

NOTE: After this adjustment is made, it may be necessary to adjust the feed plate in relation to the needle as instructed under **CENTERING LONGITUDINAL FEED.**

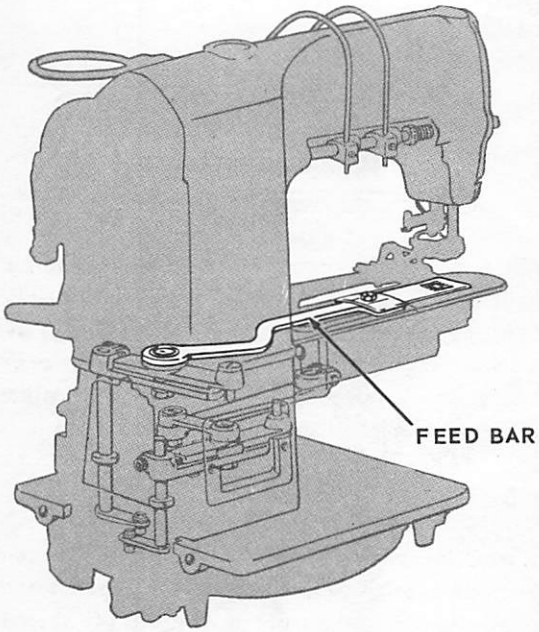


Fig. 31. Lateral and Longitudinal Feed Linkage

TIMING THE FEED

NOTE: Longitudinal feed timing should be set before making any lateral timing adjustment.

Check:

Feed bar shown in Fig. 31 should be stopped before needle enters the button and should not begin to move until the needle leaves the button.

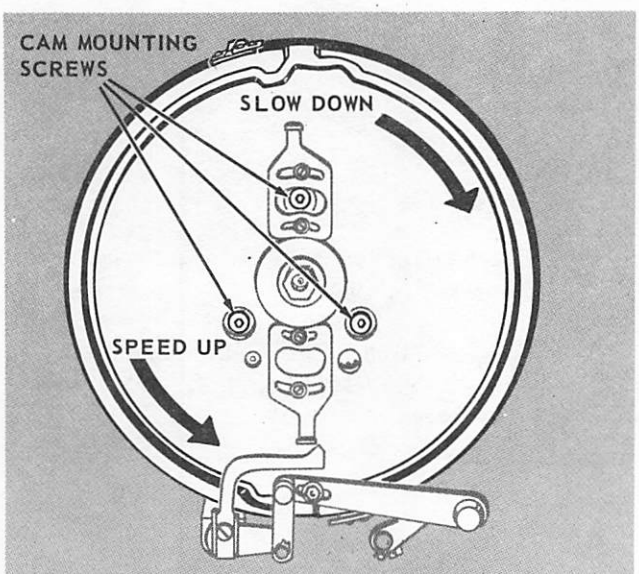


Fig. 32. Timing Longitudinal Feed

LONGITUDINAL SETTING

Longitudinal feed movement is timed by loosening the three cam mounting screws shown in Fig. 32 and rotating the cam toward left (as viewed from the bottom of machine) to speed up the longitudinal feed in relation to needle movement, or toward right to slow down the feed in relation to needle movement.

When adjustment is correctly set, securely tighten three cam mounting screws.

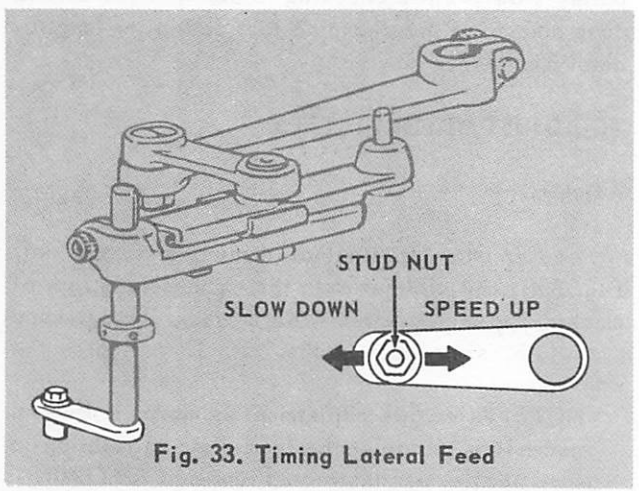


Fig. 33. Timing Lateral Feed

LATERAL SETTING

Lateral feed movement is timed by loosening the stud nut on lateral rock shaft roller shown in Fig. 33 and moving roller to the left (as viewed from top) to slow down the lateral feed in relation to needle movement or toward right to speed up the feed in relation to needle movement.

When adjustment is correctly set, securely tighten stud nut.

STOP MOTION TRIPPING POINTS

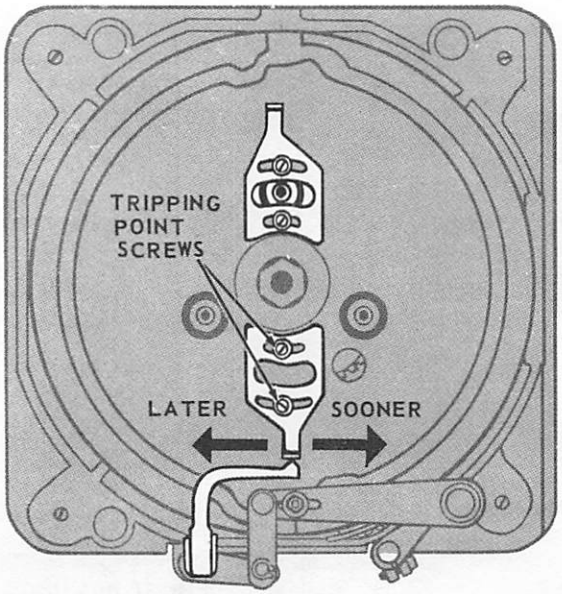


Fig. 34. Adjusting the Tripping Points

TIMING

CHECK:

Tripping points on underside of cam should be set so that interlocking arm drops back immediately on to camming surface of machine pulley (tight) as soon as notch, on machine pulley, passes interlocking-arm, (one interlocking-arm width). This will allow the most possible amount of machine coast.

SETTING:

With machine tilted back on its hinges, loosen the two tripping point screws shown in Fig. 34 and move tripping point to the right to set trip off sooner or left to set trip off later. Securely tighten tripping point screws.

STOP MOTION BRAKE

CLEARANCE

CHECK:

There should be approximately 1/32 inch clearance between brake shoe and machine pulley (tight) when machine is in run position (See Fig. 35).

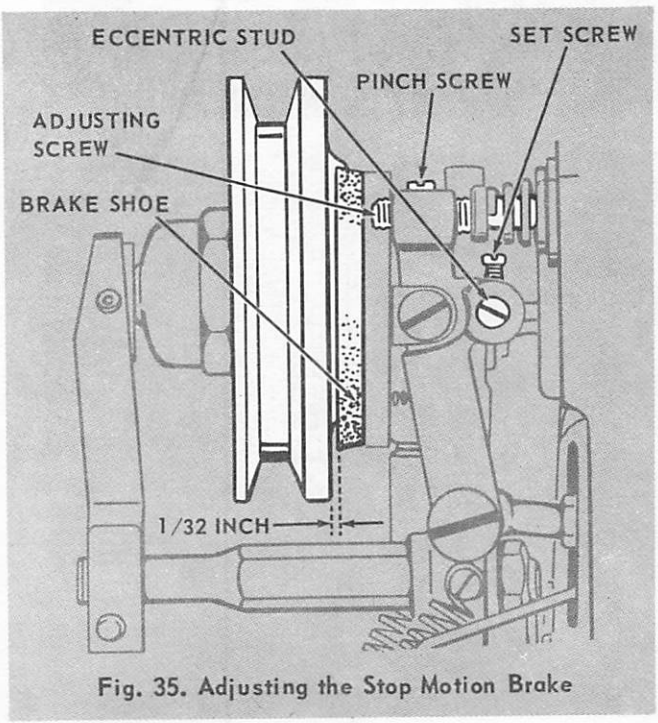


Fig. 35. Adjusting the Stop Motion Brake

SETTING:

Engage machine in run position and loosen the set screw shown in Fig. 35.

Turn eccentric stud until brake shoe clears machine pulley by approximately 1/32 inch. Then tighten set screw.

PRESSURE

CHECK:

Brake pressure should be regulated to prevent machine from going into "stop" too hard to avoid damage to machine parts.

When checking brake pressure, machine speed and thickness of material to be sewn have a definite relation to the amount of pressure required.

SETTING:

Loosen pinch screw shown in Fig. 35 and turn adjusting screw inward for more pressure or outward for less pressure. Then tighten pinch screw securely.

NOTE: Check stop motion brake adjustment about once a month. Loss of braking power due to wear or glazing of braking surfaces may be compensated for by re-adjusting for correct clearance and pressure.

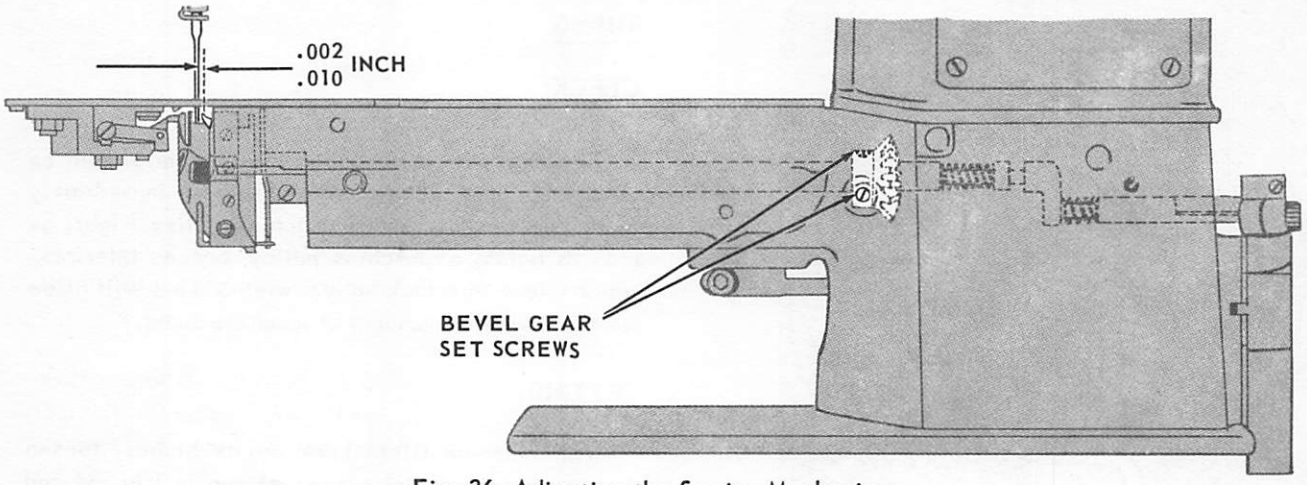


Fig. 36. Adjusting the Sewing Mechanism

LONGITUDINAL POSITION OF HOOK

CHECK:

With hook body firmly seated against front bushing, and hook point at center of needle, the distance between hook point and needle should be from .002 to .010 inch (See Fig. 36).

SETTING:

Loosen two bevel gear set screws and front bushing set screw as shown in Figs. 36 and 37.

With hook body seated against front bushing, turn adjusting pin as required to obtain .002 to .010 inch clearance. Securely tighten front bushing set screw.

Maintain relationship of hook point with center of needle and tighten two bevel gear set screws.

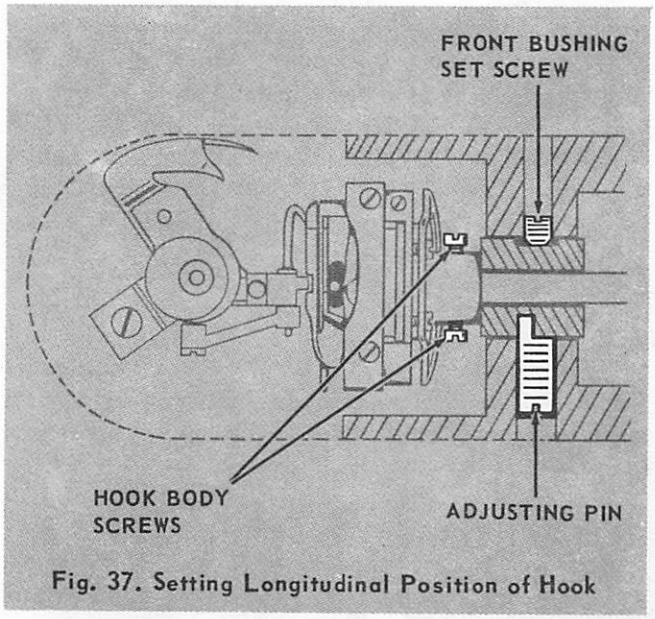


Fig. 37. Setting Longitudinal Position of Hook

HOOK TIMING (Radial Position)

CHECK:

Loop taking occurs when needle bar has risen .100 inch from bottom dead center position. At this position, hook point should be at centerline of needle as shown in Fig. 38.

NOTE: A gauge for positioning needle .100 inch from bottom dead center position is available upon specific request at additional charge.

SETTING:

Loosen two hook body screws shown in Fig. 37. With needle set for .100 inch above bottom dead center, move hook body as required to position point of hook at centerline of needle. Securely tighten two hook body screws.

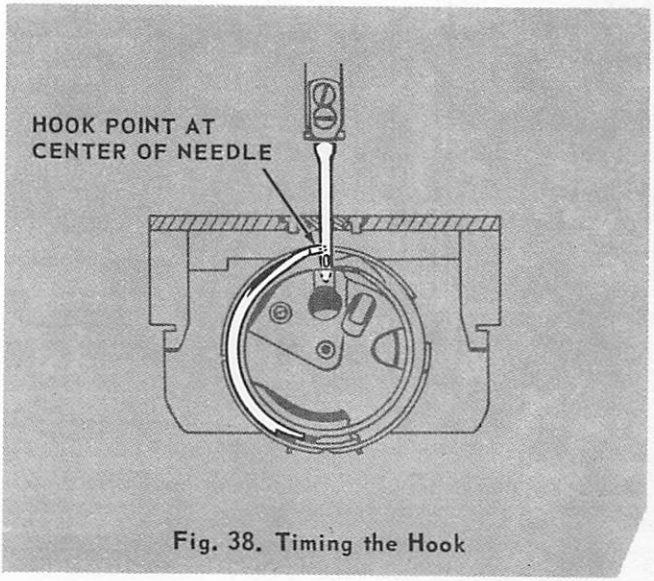


Fig. 38. Timing the Hook

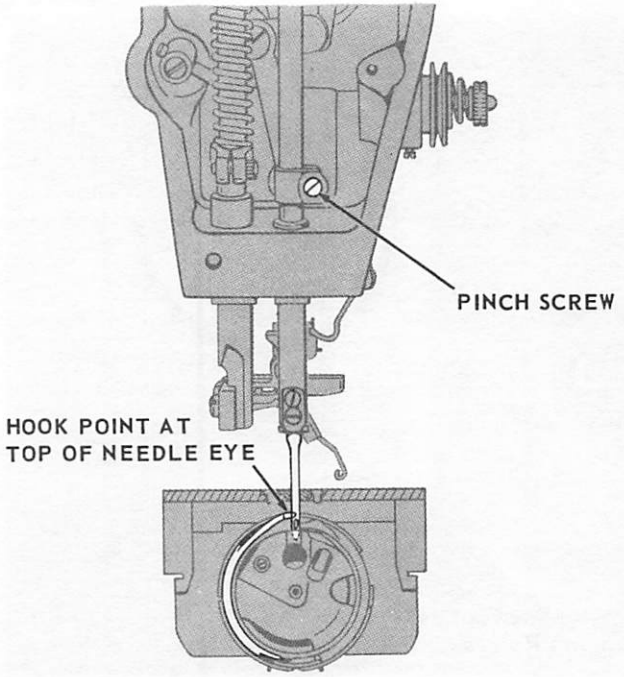


Fig. 39. Setting the Needle Bar Height

NEEDLE BAR HEIGHT

CHECK:

Needle bar height should be set so that hook point is at top of needle eye at loop taking (see Fig. 39).

SETTING:

With point of hook at centerline of needle, remove face plate and loosen needle bar pinch screw shown in Fig. 39.

Raise or lower needle bar as required to position hook point at top of needle eye. Securely tighten needle bar pinch screw and replace face plate.

NOTE: A gauge for setting needle bar height is available upon specific request at additional charge.

REEL WINDING ADJUSTMENTS

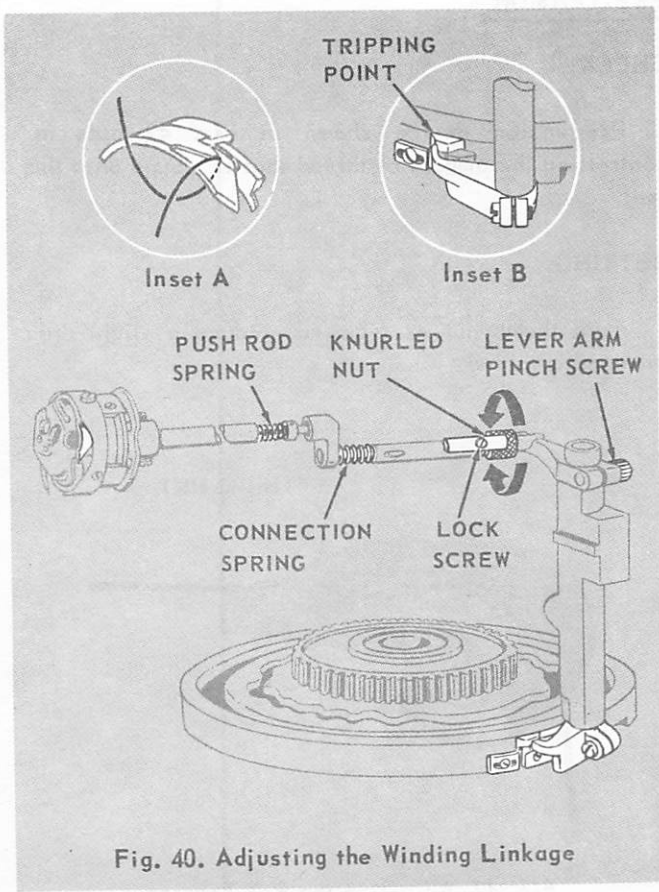


Fig. 40. Adjusting the Winding Linkage

WINDING LINKAGE

CHECK:

Reel winding linkage should be set to clamp the needle thread in throat of hook body as shown in inset A, Fig. 40.

SETTING:

Remove cylinder arm cover and turn machine pulley until tripping lever rests on tripping point as shown in inset B, Fig. 40. Then loosen lever arm pinch screw and lock screw on knurled nut as shown. Make certain that tripping lever remains **IN CONTACT** with tripping point on feed cam.

Back off on knurled nut one full turn from fully engaged position and compress push rod spring by pushing in on lever arm until heavier bias of connection spring is felt. Hold this position while tightening lever arm pinch screw.

Adjust for **POSITIVE CLAMPING ACTION** of restricting spring by turning knurled nut as required. Then tighten lock screw on knurled nut and replace cylinder arm cover.

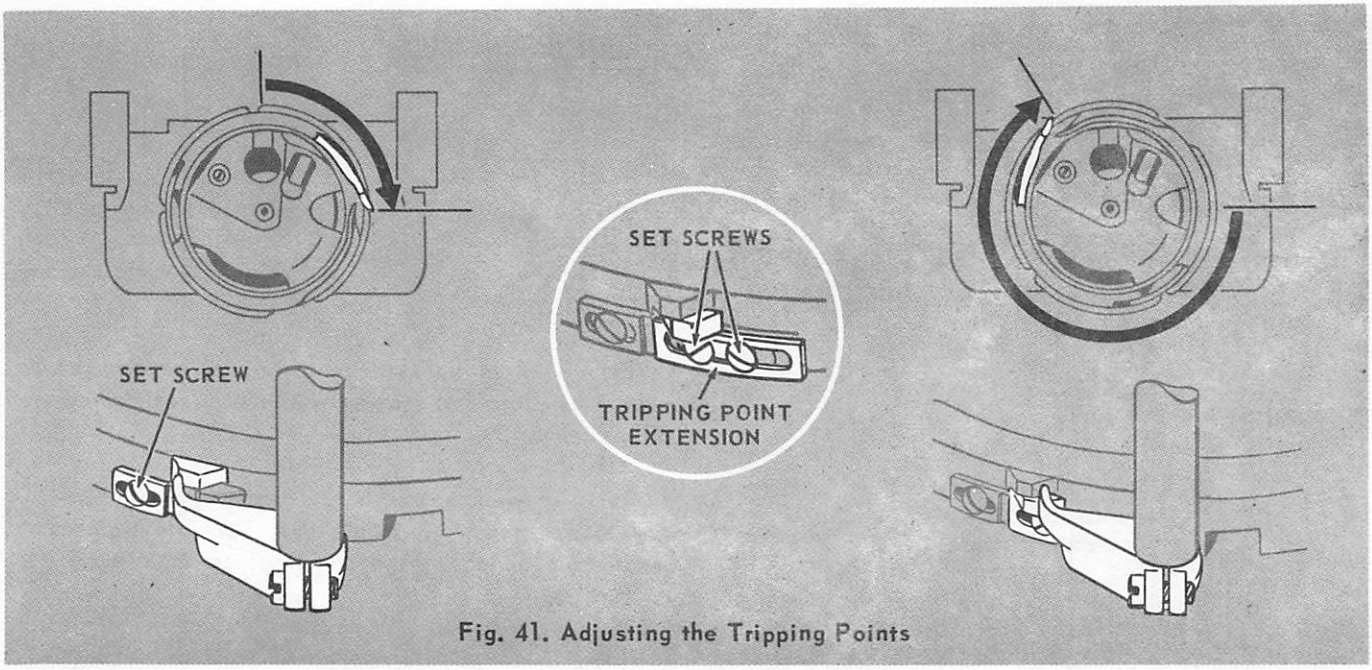


Fig. 41. Adjusting the Tripping Points

REEL DRIVER TRIPPING POINTS

CHECK:

Tripping point on outside edge of feed cam, Fig. 41, should be set to engage the reel winding linkage when the hook point has rotated approximately 1/4 revolution past loop taking (3 to 4 o'clock).

Tripping point extension also shown in Fig. 41 controls the duration of time in which the reel is wound and consequently the amount of thread that is wound on the reel.

The adjustment of the tripping point extension varies with the type of operation performed but may be generally set to release the winding mechanism when the hook has rotated slightly less than one full revolution from loop taking (11 to 12 o'clock).

SETTING 1: (Tripping Point)

Loosen set screw shown in Fig. 41 and position tripping point to engage the winding mechanism when the hook point has rotated approximately 1/4 revolution past loop taking. Securely tighten set screw.

SETTING 2: (Tripping Point Extension)

Loosen two set screws in tripping point extension and move extension to obtain the desired amount of wind. Securely tighten two set screws and adjust pre-tension.

NOTE: For cams having two sets of tripping points, repeat proceedure for other set.

PRE-TENSION

CHECK:

Pre-tension device shown in Fig. 42 aids in controlling the amount of thread that is wound onto the reel.

SETTING:

Turn thumb nut as required produce a slight drag on needle thread.

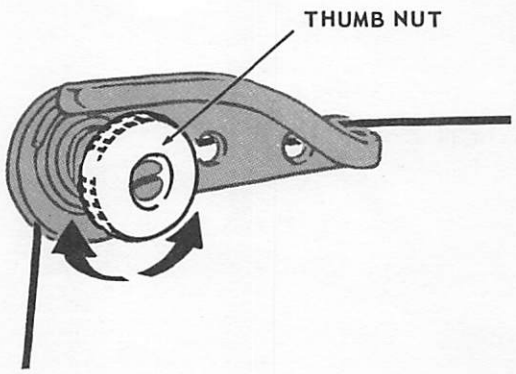


Fig. 42. Adjusting the Pre-Tension

THREAD STRIPPING AND RETRACTING ADJUSTMENTS

FINGER PLATE FOLLOWER

CHECK:

The finger plate follower shown in Fig. 43 should actuate the stripper finger spring when the knife roller has rotated in the cam path to position shown (see Fig. 44).

SETTING:

Loosen the two set screws shown in Fig. 43 and position the finger plate so that the follower **CONTACTS BUT DOES NOT DEFLECT** the stripper finger. Then securely tighten two set screws.

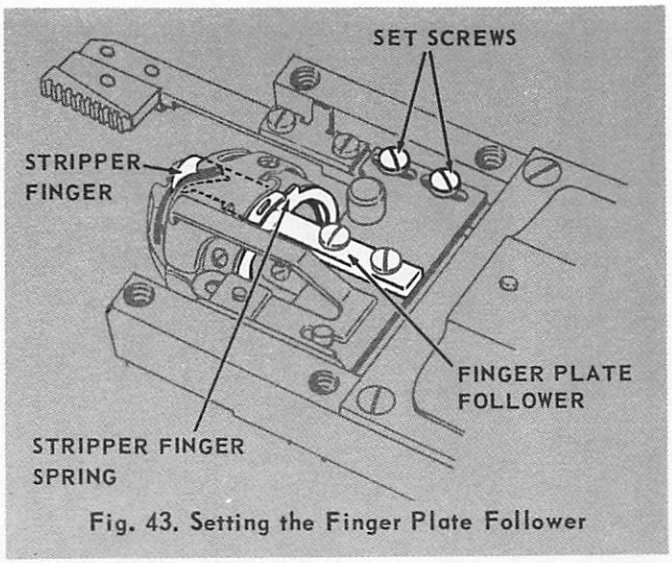


Fig. 43. Setting the Finger Plate Follower

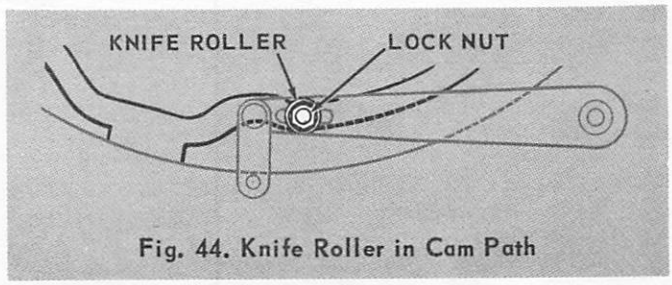


Fig. 44. Knife Roller in Cam Path

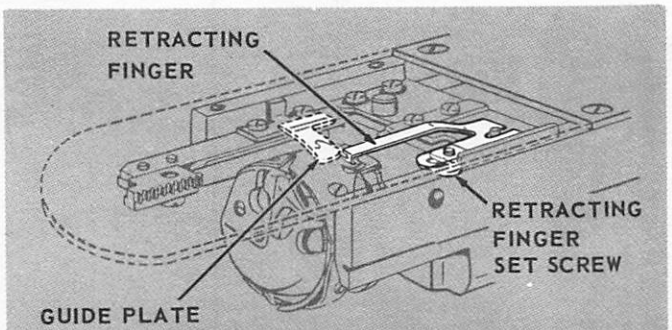


Fig. 45. Setting the Retracting Finger

STRIPPER FINGER

CHECK:

The stripper finger should strip unused thread from reel and is controlled by the knife roller (see Figs. 43 and 44).

The stripper finger should start its return immediately after it picks up reel thread and the complete retraction of stripper finger should be accomplished within 1/8 revolution of hook.

SETTING:

Loosen lock nut on knife roller as shown in Fig. 44. Adjust position of stud so that stripper finger starts its return as soon as thread is picked up. Then tighten lock nut securely.

NOTE: Check movement to make sure that stripper finger does not interfere with needle thread on previous stitch. Stripper finger should extend far enough to pick up reel thread but not so far as to pick up needle thread.

RETRACTING FINGER

CHECK:

The retracting finger shown in Fig. 45 should be in line with edge of guide plate (on underside of throat plate) and should pick up reel thread as stripper finger carries it by.

SETTING:

Loosen retracting finger set screw shown in Fig. 45 and move the retracting finger as required to pick up reel thread. Securely tighten set screw.

TENSION RELEASE

CHECK:

The needle thread tension release (adjusted earlier) may have altered during subsequent adjustments in its relation to other movements of machine. Check tension release to make sure that proper adjustment has been retained.

Tension release should occur as thread clamping action begins.

ADJUSTMENTS UNDER THROAT PLATE

REEL HOLDER POSITION STOP

CHECK

Reel holder position stop, Fig. 46, should be set to maintain position of reel holder while allowing sufficient clearance (approximately .020 inch) for thread to pass between stop and slot of reel holder.

SETTING:

Loosen bracket screw shown in Fig. 47 and position stop as required. Then tighten bracket screw securely.

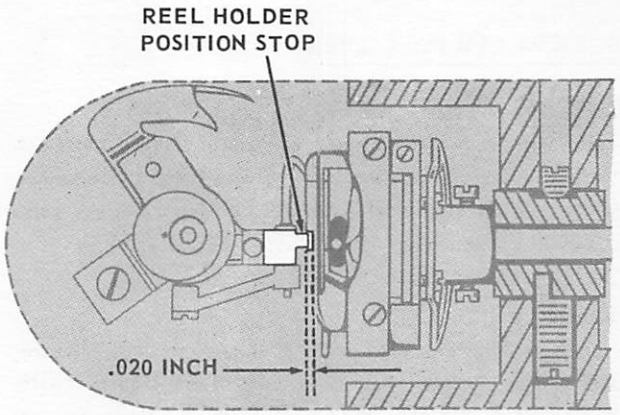


Fig. 46. Setting the Position Stop

TRIMMING KNIVES

CHECK:

The trimming knives are of scissor type design and are fully adjustable to allow for resharpening.

NOTE: Sequence of adjustment should be followed in the order given.

SETTING 1: (Adjusting Knives)

Remove throat plate from machine.

Loosen knife holder screw and set movable knife so that thread separating point, Fig. 47, easily passes through triangle formed by thread on last stitch, as thread is cast over loop pick up finger. Securely tighten knife holder screw.

Loosen two screws in adjusting plate and set adjustable knife so that cutting edge does not pass center of needle hole bushing in throat plate when knife holder is rotated. Tighten two screws.

Assemble throat plate to machine meshing knife holder pinion gear with knife rack as shown in Fig. 48. The first tooth on knife rack must mesh with first space between teeth on pinion gear.

Eliminate play between rack teeth and pinion teeth by loosening adjusting block screw shown in Fig. 48 and moving block toward front of machine. When play has been removed, tighten adjusting block screw.

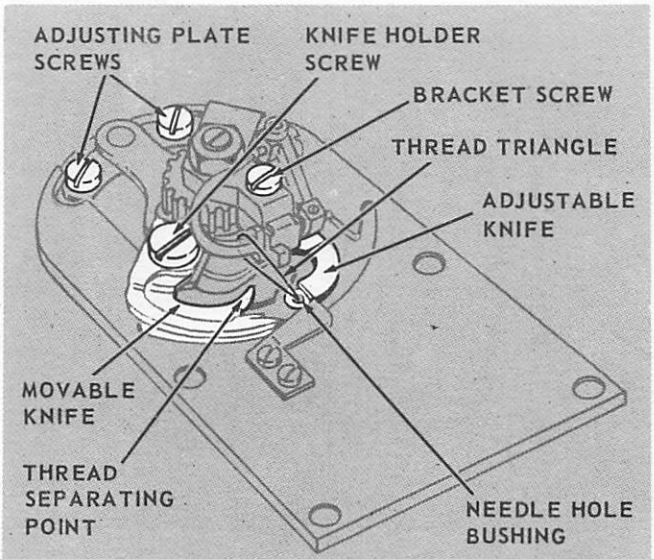


Fig. 47. Adjusting the Knives

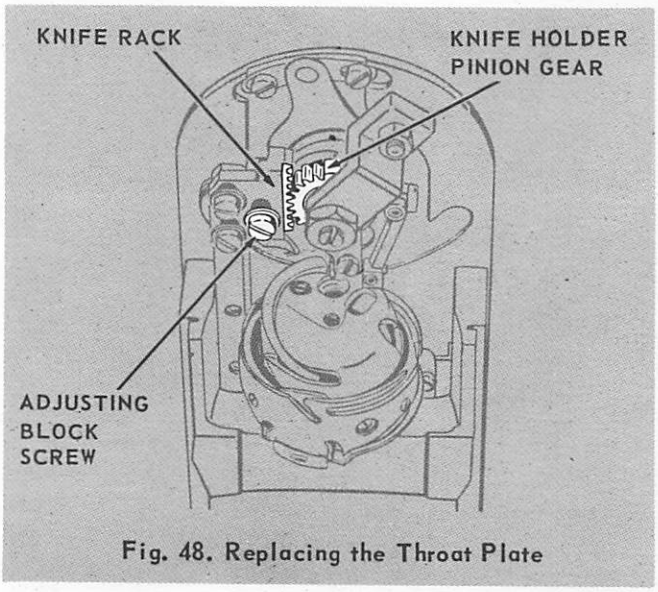


Fig. 48. Replacing the Throat Plate

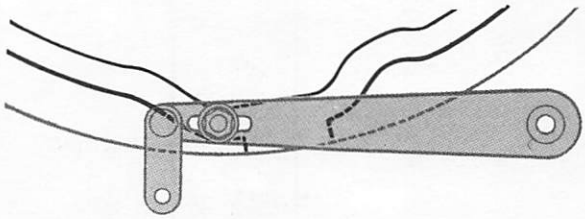


Fig. 49. Feed Cam at Winding Position

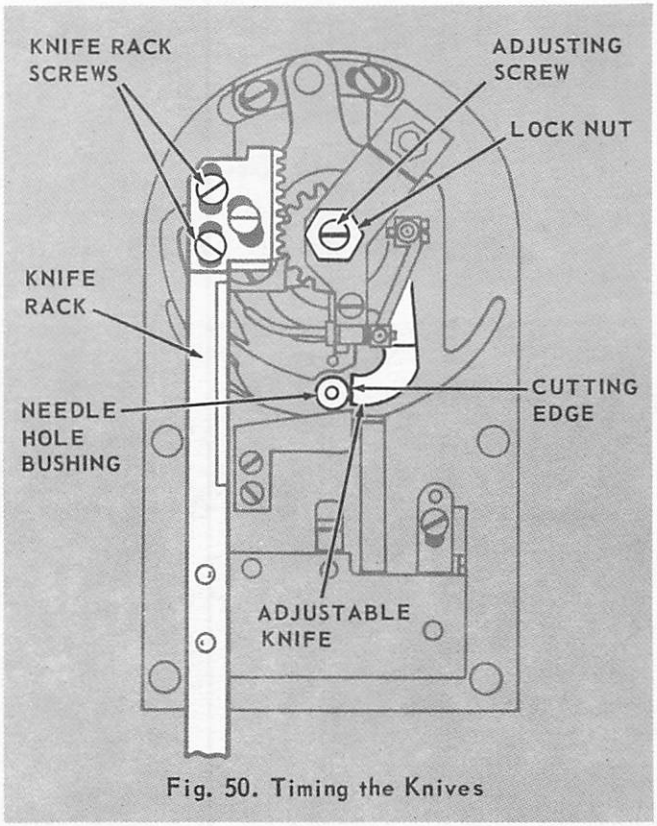


Fig. 50. Timing the Knives

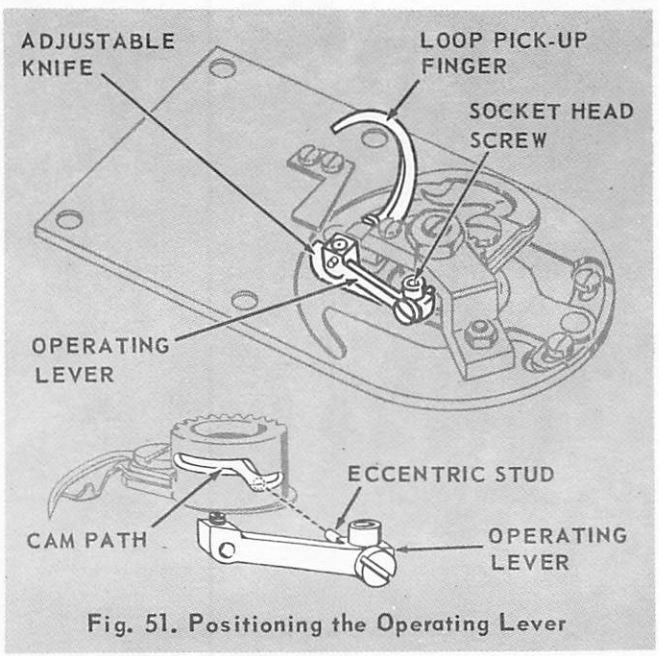


Fig. 51. Positioning the Operating Lever

SETTING 2: (Timing the Knives)

Engage machine in "run" position and turn ma- pulley over toward right until feed cam reaches reel winding position as shown in Fig. 49.

Loosen two knife rack screws, Fig. 50, and move knife rack until cutting edge of adjustable knife is even with edge of needle hole bushing in throat plate. Maintain this position while tightening two knife rack screws.

CAUTION: Make certain that knife does not make contact or damage thread during reel winding portion of machine cycle.

SETTING 3: (Knife Pressure)

To adjust pressure of movable knife on adjustable knife, loosen lock nut shown in Fig. 50 and turn adjusting screw clockwise or counter-clockwise as required. When satisfactory cutting pressure has been obtained, tighten lock nut securely.

LOOP PICK-UP FINGER

CHECK:

Motion of loop pick-up finger, Fig. 51, is con- trolled by the movement of the eccentric stud in cam path of knife holder pinion (See inset, Fig. 51).

When the eccentric stud is at the start of transi- tion in cam path, there should be a maximum clear- ance between the pick up finger operating lever and adjustable knife.

SETTING 1: (Positioning the Operating Lever)

Remove throat plate and rotate knife holder until eccentric stud is at start of transition in cam path as shown in inset, Fig. 51.

At this position, operating lever will be at its closest point in relation to adjustable knife and bottom surface of throat plate.

Loosen socket head screw shown in Fig. 51 and rotate eccentric stud to obtain maximum clearance between stud end of lever and adjustable knife. Then securely tighten socket head screw and replace throat plate.

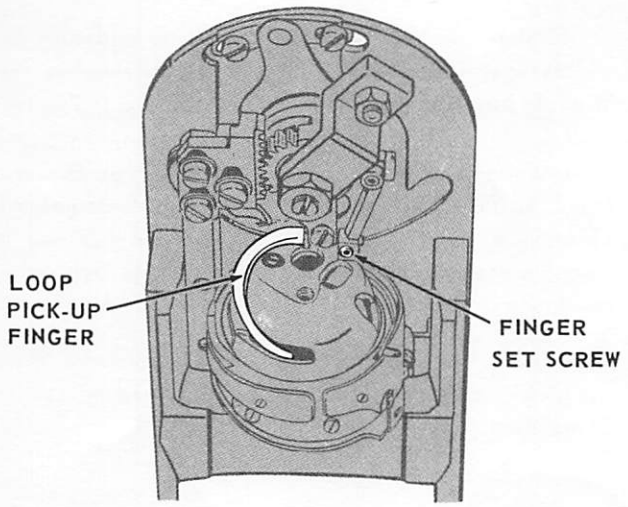


Fig. 52. Positioning the Loop Pick-up Finger

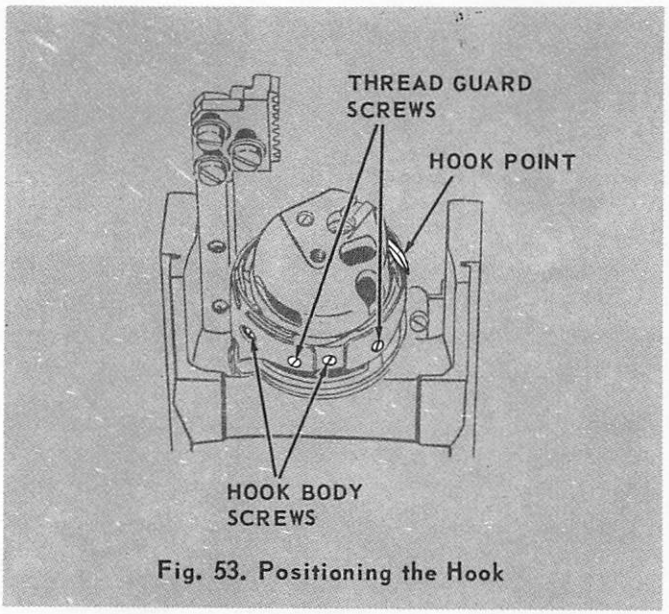


Fig. 53. Positioning the Hook

SETTING 2: (Positioning Loop-up Finger)

With machine in "stop" position, loosen finger set screw shown in Fig. 52 and move loop pick-up finger into reel holder as far as possible without causing a bind. Securely tighten finger set screw.

SEWING REEL

REMOVAL:

Remove arm cylinder cover and button clamp.
Remove throat plate and engage machine in run position.
Turn machine pulley over toward right until hook point moves approximately to position shown in Fig. 53.
Remove two thread guard screws and two hook body screws, Fig. 53.
Slip hook section out from beneath the hook thread guard, making certain that stripper finger does not change its position as shown in Fig. 54.
Lift reel holder upward and out of machine.
Remove large head screw from reel and remove reel from holder as shown in Fig. 55.

CAUTION: Do not lose small circular spring located behind reel.

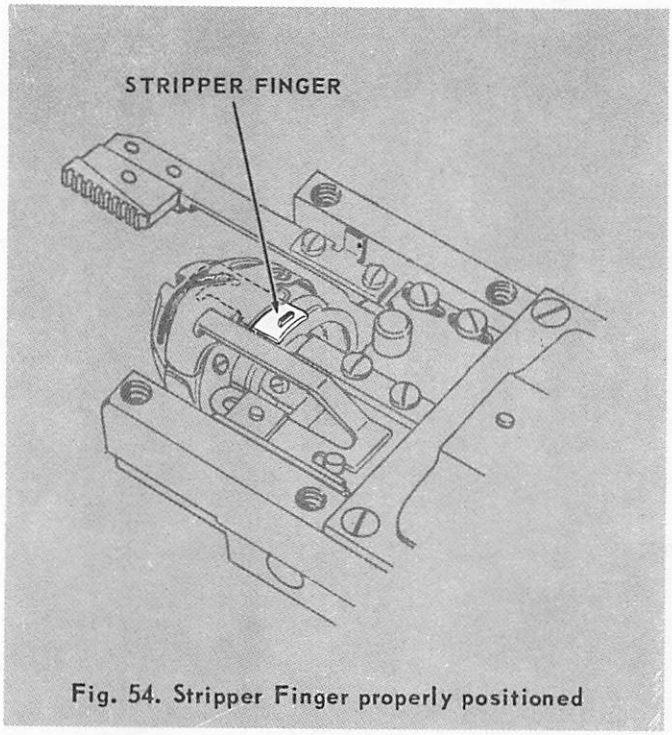


Fig. 54. Stripper Finger properly positioned

REPLACEMENT:

Insert reel in holder and fasten securely with large head screw.
Replace reel holder and hook section in reverse order instructed for removal.
Replace throat plate as instructed on page 26.
Replace button clamp and arm cylinder cover.

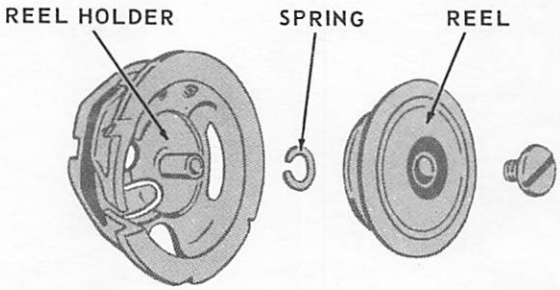


Fig. 55. Reel and Reel Holder

INSTRUCTIONS FOR INSTALLING BLOWER UNIT 167257

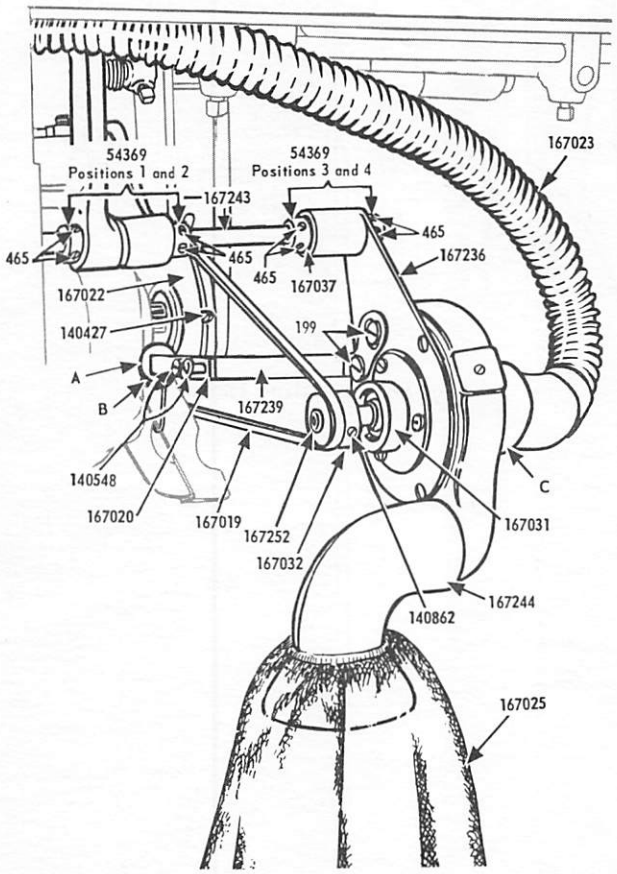


Fig. 56. Installing Blower Unit

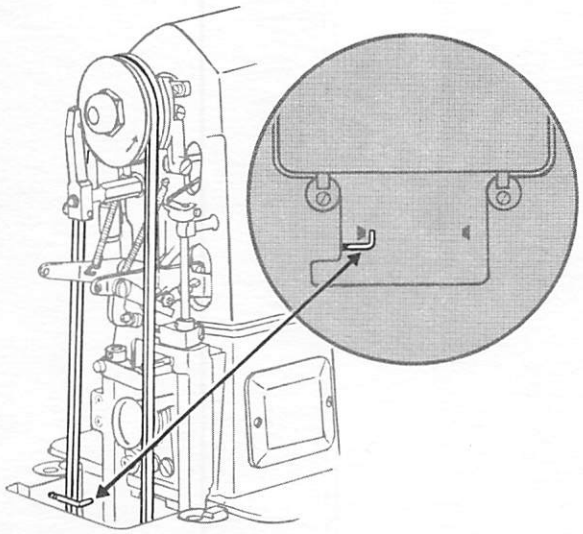


Fig. 57. Installing Hose Belt Guard

NOTE: Before installing blower unit, assemble belt tightener to bottom of table using hinge pin 167243 and two collars 54369 in Positions 1 and 2, as shown in Fig. 56. Install blower connection hose belt guard as shown in Fig. 57.

Electric Transmitter and Class 270- Machine should then be installed in usual manner.

Install Blower 167257 beneath the table in the following sequence - - -

1. Remove machine driving pulley from transmitter shaft.

2. Slip blower driving pulley 167022 on hub of of machine driving pulley and securely tighten pulley set screw 140427.

3. Return machine driving pulley to its former position on transmitter shaft, replacing lock washer and locking nut in usual manner.

4. Blower bracket 167236 is furnished with grommet 167037. Grommet is pressed fitted in bracket support hole and expands immediately outside both ends of hole. Install blower bracket on hinge pin with two collars 54369 in Positions 3 and 4 as shown in Fig. 56.

5. Locate two collars 54369 firmly against grommet 167037 having outside collar flush with end of hinge pin. Securely tighten two set screws 465 in each of these two collars.

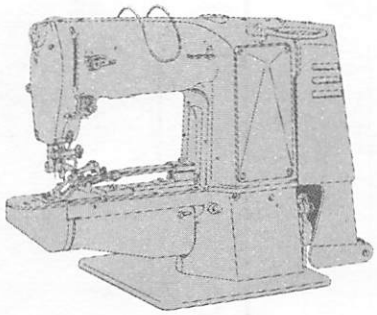
6. Locate small pulley 167032 on blower shaft 167252. Securely tighten pulley set screw 140862.

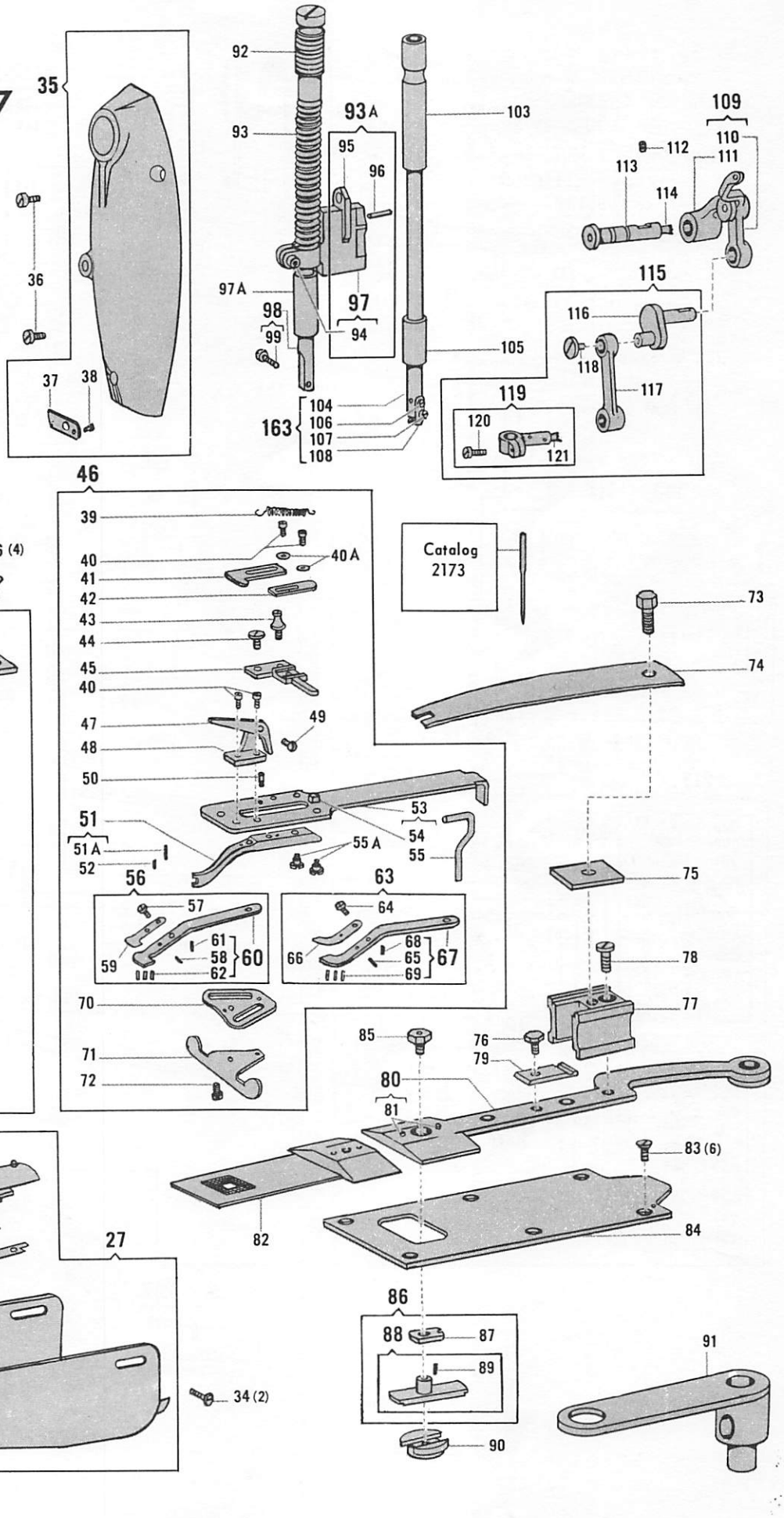
7. Place blower driving belt 167019 on blower driving pulley 167022.

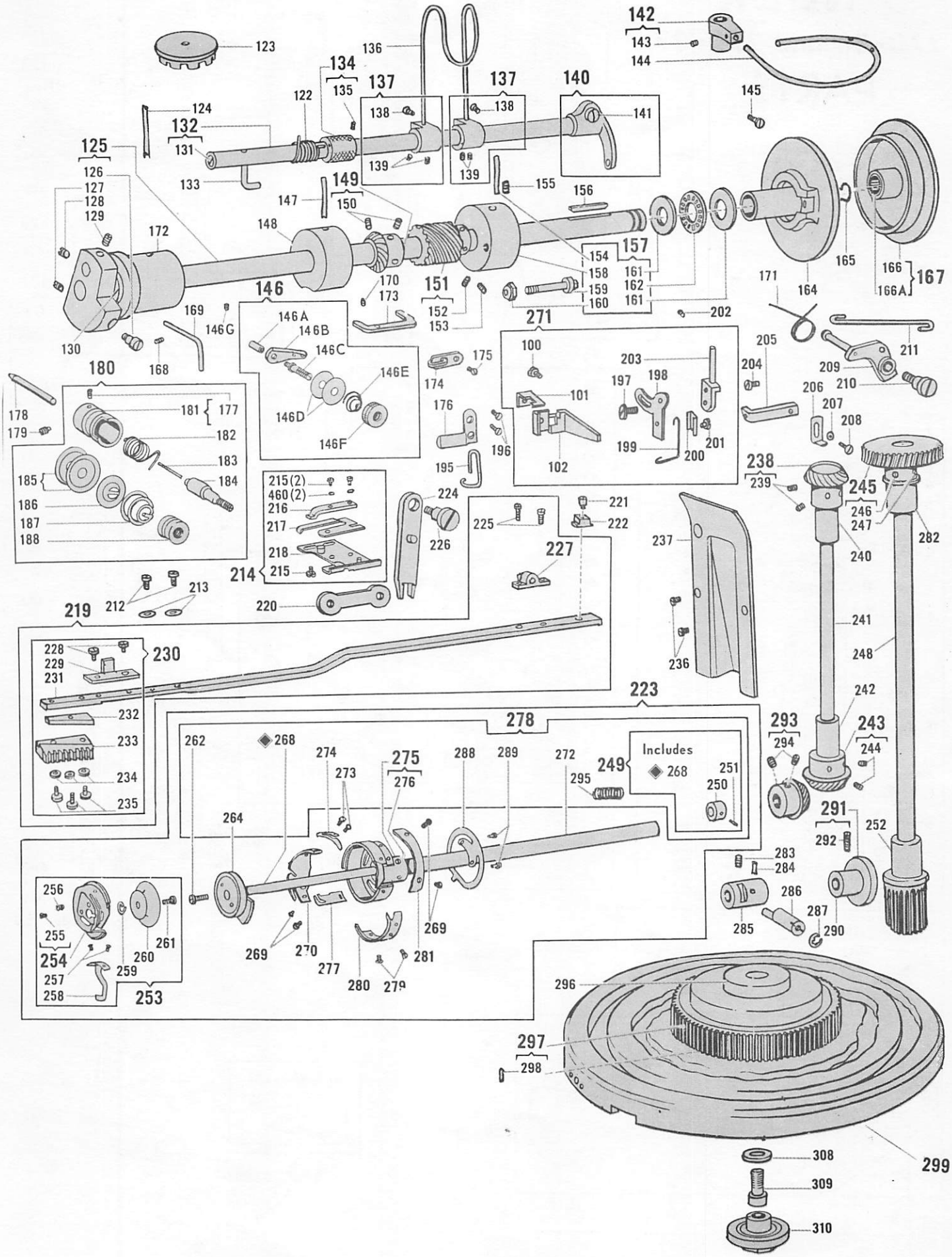
8. Install machine driving belt on machine driving pulley and machine pulley.

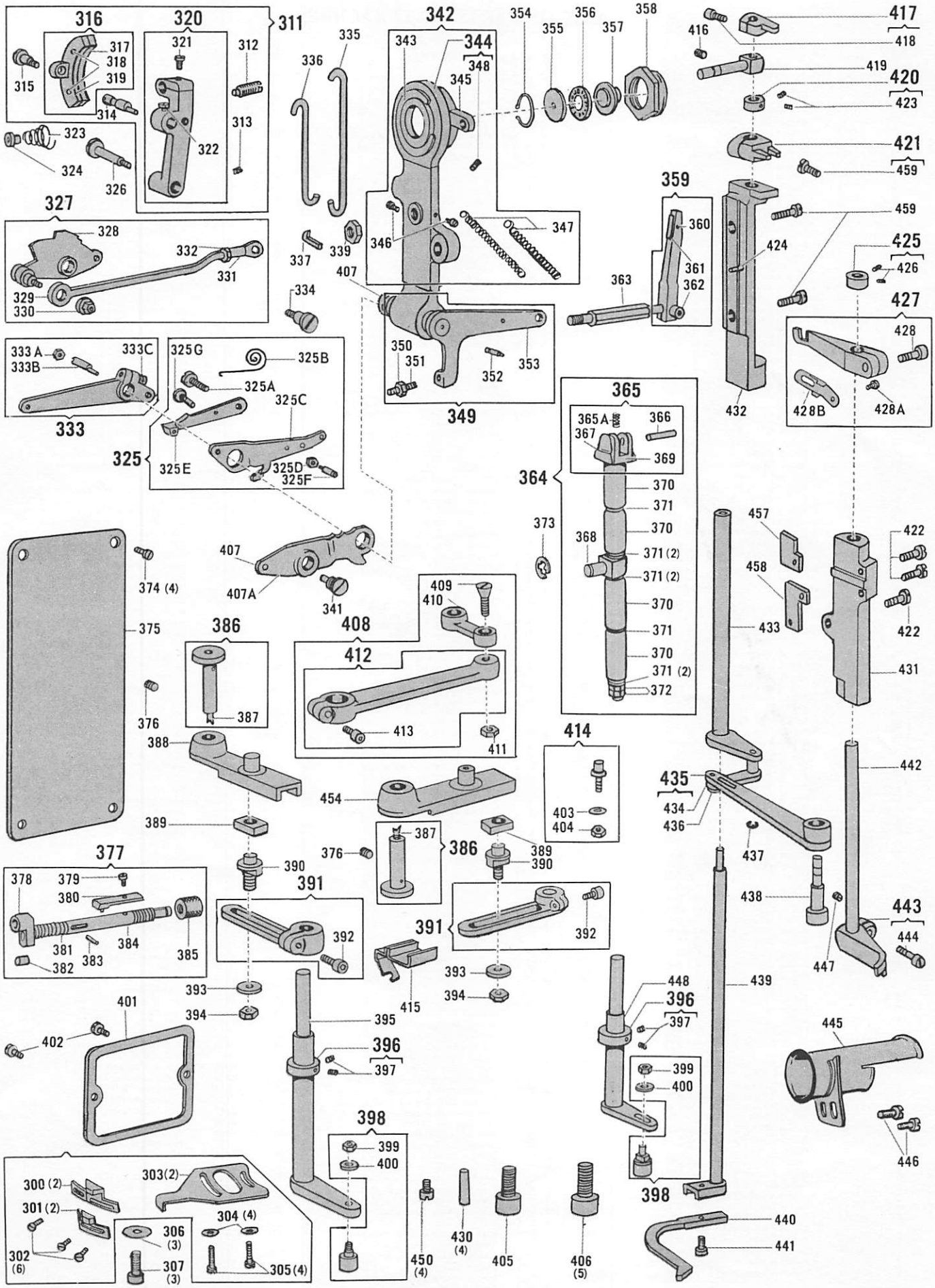
9. Loosen two set screws 465 in each of two collars 54369 at Positions 1 and 2 as shown in Fig. 56.

SINGER
270-33 and 270-37
PARTS









LIST OF PARTS 270-37 MACHINE

CODE NO.	PART NO.	DESCRIPTION
1	167268-001	Throat Plate with 185, 141145, 167060, 167067, 167071, 167081, 167082, 167121, 167123, 167269 and two each Z28 and 141152
2	141152	Throat Plate Needle Hole Screw(2)
3	50018	Knife (movable) Bracket Screw
4	167269	Throat Plate Needle Hole Bushing
5	167177	Throat Plate
6	167059	Knife (adjustable) Plate
7	167057	Knife (adjustable)
8	1096	Knife (adjustable) Plate Screw(2)
9	167068-001	Knife (movable) Holder, complete Nos. 141145, 167060, 167071 and 167207-001 (Agents only)
10	167207-001	Knife (movable) Holder
11	167060	Knife (movable)
12	167071	Knife (movable) Thread Guide
13	167123	Hook Reel Thread Deflector Finger Guide
14	228	Hook Reel Thread Guide Screw(2)
15	141145	Knife (movable) Holder Screw
15A	167311	Knife (movable) Holder Friction Washer
16	167069	Knife (movable) Holder Pinion Stud
17	167121	Hook Reel Holder Position Bracket
18	167081	Loop Pick-up Finger
19	167082	Loop Pick-up Finger Lever with two 141087
20	141247	Loop Pick-up Finger Set Screw(2)
21	167067	Knife (movable) Holder Pinion Follower
22	167070	Knife (movable) Holder Pinion Stud Bracket
23	201711	Knife (movable) Holder Pinion Bracket Screw Nut
24	185	Hook Reel Holder Bracket Screw
25	1597	Knife (movable) Holder Stud Nut
26	691	Throat Plate Screw (4)
27	167251	Cylinder Cover (bottom) complete, Nos. 167246, 167247, 167248, 167249, 167250 and eight 50128
28	50128	Cylinder Cover (bottom) Cap Screw (8)
29	167247	Cylinder Cover (bottom) Cap
30	167248	Cylinder Cover (bottom) Gasket (left)
31	167249	Cylinder Cover (bottom) Gasket (right)
32	167246	Cylinder Cover (bottom)
33	167250	Cylinder Cover (bottom) Holder
34	141140	Cylinder Cover (bottom) Screw (2)
35	167009	Arm Cover (front) with 1053 and 167262
36	51369	Arm Cover (front) Screw (2)
37	167262	Arm Cover (front) Thread Cutter Knife
38	1053	Arm Cover (front) Knife Screw
39	167324	Button Clamp Spreader Spring
40	1182	Button Clamp Opening Lever and Spreader Screw (4)
40A	17718	Button Clamp Spreader Lever Stop Screw Washer(2)
41	124739	Button Clamp Spreader Lever Stop
42	124738	Button Clamp Spreader Lever Adjusting Plate
43	1181	Button Clamp Spreader Spring Stud
44	1183	Button Clamp Stop Screw
45	124737	Button Clamp Spreader Lever
46	167325	Button Clamp complete, Nos. 99, 1180, 1181, 1183, 1199, 39242, 50237, 63741, 124733, 124737, 124738, 124739, 136608, 167316, 167318, 167321, 167323, 167324 and two each 1175, 1182 and 17718
47	124733	Button Clamp Opening Lever
48	167323	Button Clamp Opening Lever Bracket
49	99	Button Clamp Hinge Screw
50	50237	Button Clamp Spreader Lever Stop Screw
51	136608	Button Clamp Stop 17720 with 63742
51A	63742	Button Clamp Spreader Steady Pin (long)
52	17720	Button Clamp Spreader Steady Pin (short)
53	167320	Button Clamp Arm with 17714
54	17714	Button Clamp Pressure Spring Guide Block
55	167322	Button Clamp Arm Hook with 63825
55A	1175	Button Clamp Hinge Screw(2)
56	167316	Button Clamp (left) 136598 with 230, 136600 and 167317
57	230	Button Clamp (left) Spring Screw
58	45329	Button Clamp (left) Spring Position Pin
59	136600	Button Clamp (left) Spring
60	136598	Button Clamp (left) 17723, 45329 and three 36696
61	17723	Button Clamp (left) Screw Stud
62	36696	Button Clamp (left) Pad Pin (3)
63	167318	Button Clamp (right) 136601 with 230, 136603 and 167319
64	230	Button Clamp (right) Spring Screw
65	45329	Button Clamp (right) Spring Position Pin
66	136603	Button Clamp (right) Spring
67	136601	Button Clamp (right) 17723, 45329 and three 36696
68	17723	Button Clamp (right) Screw Stud
69	36696	Button Clamp (right) Pad Pin (3)
70	39242	Button Clamp Spreader
71	63741	Button Clamp Spreader Thumb Plate
72	1199	Button Clamp Spreader Plate Screw
73	1178	Button Clamp Pressure Spring Screw
74	39241	Button Clamp Pressure Spring
75	39335	Button Clamp Pressure Spring Screw Plate
76	1176	Button Clamp Plate Screw
77	239572	Button Clamp Pressure Spring Bracket
78	1177	Button Clamp Pressure Spring Bracket Screw
79	17710	Button Clamp Arm Hinge Plate
80	167029	Feed Plate Carrier Bar with two 239448
81	239448	Feed Plate Carrier Bar Driving Block Spacer Position Pin (2)
82	167028	Feed Plate
83	691	Cylinder Cover Plate Screw (6)
84	167041	Cylinder Cover Plate (top)
85	141071	Feed Plate Carrier Bar Block Screw
86	167055	Feed Plate Carrier Bar Driving Block complete, Nos. 167054 and 167056
87	167056	Feed Plate Carrier Bar Driving Block Spacer
88	167054	Feed Plate Carrier Bar Driving Block with 239501
89	239501	Feed Plate Carrier Bar Driving Block Pin
90	239250	Feed Plate Carrier Bar Driving Block Oscillating Slide Stud
91	167072	Lateral Pivot and Feed Plate Carrier Bar Arm
92	141057	Button Clamp Pressure Regulating Screw
93	239214	Button Clamp Lifting Bar Spring
93A	167053	Button Clamp Lifting Bar Guide 167003 with 167007 and 239515
94	141144	Button Clamp Lifting Bar Clamping Screw
95	167007	Button Clamp Lifting Rock Shaft Lifting Link
96	239515	Button Clamp Lifting Rock Shaft Lifting Link Hinge Pin
97	167003	Button Clamp Lifting Bar Position Guide with 141144
97A	239212	Button Clamp Lifting Bar Bushing (lower)
98	239211	Button Clamp Lifting Bar with 176
99	176	Button Clamp Foot Lifter Screw
100	330	Thread Wiper Body Finger Screw
101	39453	Thread Wiper Body Finger
102	63837	Button Clamp Foot Lifter
103	239274	Needle Bar Bushing (upper)
104	167086	Needle Bar
105	239273	Needle Bar Bushing (lower)
106	1161	Needle Bar Thread Guide Screw
107	209	Needle Set Screw
108	239376	Needle Bar Thread Guide
109	239332	Thread Take-up Lever complete, Nos. 239330 and 239331
110	239330	Thread Take-up Lever
111	239331	Thread Take-up Lever Link
112	141083	Thread Take-up Lever Link Set Screw
113	262138	Thread Take-up Lever Link Hinge Pin
114	167263	Thread Take-up Lever Link Oil Packing (felt)
115	167088	Needle Bar Connecting Link 271597 with 50650, 167089-001 and 239385
116	239385	Thread Take-up Crank
117	271597	Needle Bar Connecting Link
118	50650	Needle Bar Connecting Link Cap Screw
119	167089-001	Needle Bar Connecting Stud with 175 and 239277
120	175	Needle Bar Clamping Screw
121	239277	Needle Bar Connecting Stud Oil Packing (wick)
122	167278	Button Clamp Lifting Rock Shaft Collar Spring
123	167017	Arm Shaft (upright) Hole Cover
124	223847	Arm Shaft (horizontal) Bushing (front) Oil Packing (wick)
125	167010	Arm Shaft (horizontal) Nos. 858, 1065 and two 141275
126	1065	Needle Bar Screw
127	858	Needle Bar Crank Set Screw
128	141275	Thread Take-up Crank Set Screw
129	141275	Thread Take-up Position Screw
130	203172	Needle Bar Crank Friction Washer
131	141059	Button Clamp Lifting Rock Shaft Connection Screw
132	167004	Button Clamp Lifting Rock Shaft with 141059
133	239218	Button Clamp Lifting Rock Shaft Lifting Link Connection
134	167277	Button Clamp Lifting Rock Shaft Collar with 465
135	465	Button Clamp Collar Set Screw
136	167176	Thread Pull-off Loop
137	167166	Thread Pull-off Loop Bracket with 208 and two 140321 (2)
138	208	Thread Pull-off Loop Set Screw (2)
139	140321	Thread Pull-off Loop Bracket Set Screw (4)
140	167006	Button Clamp Lifting Rock Shaft Lifting Arm with 1177
141	1177	Rock Shaft Lifting Arm Clamping Screw
142	167292	Light Bracket with 462
143	462	Thread Guide (ring) Set Screw
144	167165	Thread Guide (ring)
145	641	Light Bracket Set Screw
146	167284	Pre-tension Thread Retainer (adj.) complete, Nos. 418, 1562, 29943, 167283, 167303 and two 2455
146A	167283	Pre-tension Thread Retainer (adjustable) Tension Screw Stud Adaptor
146B	167303	Pre-tension Thread Retainer (adjustable) Tension Thread Guide
146C	418	Pre-tension (adjustable) Screw Stud
146D	2455	Pre-tension Thread Retainer Tension Disc (2)
146E	29943	Pre-tension Thread Retainer Tension Spring
146F	1562	Pre-tension Thumb Nut
146G	853	Pre-tension Thread Retainer Set Screw
147	223847	Arm Shaft (horizontal) Bushing (center) Oil Packing Wick
148	167049	Arm Shaft (horizontal) Bushing (center) (Agents only)
149	167011	Arm Shaft (horizontal) Bevel Gear with two 1259
150	1259	Arm Shaft (horizontal) Set Screw (2)
151	167142	Vertical Drive Shaft Worm with 797 and 141102
152	797	Vertical Drive Shaft Worm Set Screw
153	141102	Vertical Drive Shaft Worm Screw
154	202299	Arm Shaft (horizontal) Bushing (back) Oil Packing (wick)
155	141061	Arm Shaft (horizontal) Bushing (back) Set Screw
156	239314	Machine Pulley (tight) Key
157	167013	Arm Shaft (horizontal) Bushing (back) 167012 with 53618, 141128, 202299, 239374 and two 239383 (Agents only)
158	167012	Arm Shaft (horizontal) Bushing (back) (Agents only)
159	141128	Arm Shaft (horizontal) Bushing (back) Screw
160	53618	Arm Shaft (horizontal) Bushing (back) Lock Nut
161	239383	Machine Pulley (tight) Needle Thrust Bearing Washer (2)
162	239374	Machine Pulley (tight) Needle Thrust Bearing
163	167087	Needle Bar 167086 with 209, 1161 and 239376
164	239486-001	Machine Pulley (tight)
165	239315	Machine Pulley (tight) Retaining Ring
166	239317	Machine Pulley (loose)
166A	239322	Machine Pulley (loose) Needle Bearing
167	239318	Machine Pulley (loose) 239317 with 239322
168	51220	Tension Thread Guard Set Screw
169	239328	Tension Thread Guard
170	853	Thread Retainer (back) Set Screw
171	239295	Starting Bell Crank Pawl Hinge Screw Return Spring
172	239228	Arm Shaft (horizontal) Bushing (front) (Agents only)
173	167168	Thread Retainer (back)
174	210954	Thread Guide
175	140082	Thread Guide Screw
176	167171	Thread Retainer (lower) Thread Guide
177	141245	Tension Stud Set Screw (2)
178	167162	Tension Release Rod
179	998	Thread Take-up Spring Set Screw
180	167163	Tension complete, Nos. 1560, 2103, 32572, 52082, 141576, 167173, 270278 and two 2102
181	167173	Thread Take-up Spring Regulator with two 141245
182	52082	Thread Take-up Spring
183	270278	Tension Releasing Pin
184	141576	Tension Stud
185	2102	Tension Disc (2)
186	32572	Tension Releasing Disc
187	2103	Tension Spring
188	1560	Tension Thumb Nut
195	167291	Thread Retainer (lower) (Wire)
196	197	Thread Retainer (lower) Thread Guide Screw (2)
197	141084	Thread Wiper Body Hinge Screw
198	239387	Thread Wiper Body
199	167039	Thread Wiper Body Wire
200	239336	Thread Wiper Body Wire Clamping Plate
201	141574	Thread Wiper Body Wire Clamping Screw
202	440	Thread Wiper Set Screw
203	167174	Thread Wiper Body Support
204	50117	Button Clamp Opening Lever Arm Screw

CODE NO.	PART NO.	DESCRIPTION
205	124736	Button Clamp Opening Lever Contact Piece Arm
206	124735	Button Clamp Opening Lever Contact Piece
207	17718	Button Clamp Opening Lever Contact Piece Washer
208	1484	Button Clamp Opening Lever Contact Piece Screw
209	239294	Starting Bell Crank Pawl
210	141072	Starting Bell Crank Pawl Hinge Screw
211	239342	Tripping Rock Shaft Connection Rod
212	217	Hook Reel Finger Plate Screw (2)
213	202603	Thread Retainer (lower) Thread Guide Washer (2)
214	167126	Hook Reel Thread Deflector Finger Plate 167124 with 167122, 167127 and three 237
215	237	Hook Reel Thread Follower Screw (3)
216	167127	Hook Reel Thread Deflector Finger Plate Follower
217	167122	Hook Reel Thread Deflector Finger
218	167124	Finger Plate
219	167198	Knife (movable) Bar 167197 with 239257 and two 193
220	239252-001	Knife (movable) Actuating Lever Link
221	141238	Knife (movable) Bar Slide Block Screw
222	213484	Knife (movable) Bar Driving Lever Slide Block
223	167294	Hook Shaft 167293 with 167128, 167132, 167270, 167273, 167274, two 1053 and four 51306
224	239251	Knife (movable) Actuating Lever
225	193	Knife (movable) Bar Screw (2)
226	141072	Knife (movable) Lever Screw
227	239257	Knife (movable) Bar Connection
228	217	Knife (movable) Bar Adjusting Guard Screw (2)
229	167279	Knife (movable) Bar Adjusting Guard
230	167197	Knife (movable) Bar 167061 with 167063, 167064, 167279, two 217 and three each 808 and 202603
231	167061	Knife (movable) Bar
232	167064	Knife (movable) Bar Rack Adjusting Block
233	167063	Knife (movable) Bar Rack
234	202603	Knife (movable) Adjusting Screw Washer
235	141242	Knife (movable) Adjusting Screw (3)
236	140082	Arm Cover (center) Screw (2)
237	239221	Arm Cover (center)
238	143015	Arm Shaft (upright) Bevel Gear (upper) with two 1259
239	1259	Arm Shaft (upright) Bevel Gear (upper) Set Screw (2)
240	167016	Arm Shaft (upright) Bushing (upper)
241	167014	Arm Shaft (upright)
242	167015	Arm Shaft (upright) Bushing (lower)
243	143014	Arm Shaft (upright) Bevel Gear (lower) with two 1259
244	1259	Arm Shaft (upright) Bevel Gear (lower) Set Screw (2)
245	167149	Vertical Drive Shaft Worm Gear with 858 and 141094
246	858	Vertical Drive Shaft Set Screw
247	141094	Vertical Drive Shaft Position Screw
248	239345	Vertical Drive Shaft
249	167191	Hook Reel Driver Push Rod 167098 with 167099 and 167288
250	167099	Hook Reel Driver Push Rod Collar
251	167288	Hook Reel Driver Push Rod Collar Pin
252	239346	Vertical Drive Shaft Bushing (lower)
253	167270	Hook Reel Holder 167120 with 990, 167130, 167259, 167302 and two 1053
254	167120	Hook Reel Holder with 141087 and 141148
255	141087	Hook Reel Locking Screw
256	141148	Hook Reel Thread Tension Spring Screw with Nylon Insert
257	1053	Hook Reel Tension Spring Screw (2)
258	167130	Hook Reel Thread Tension Spring
259	167259	Hook Reel Spring
260	167302	Hook Reel Size 1 (black)
261	990	Hook Reel Screw
262	141165	Hook Reel Driver Screw
264	167095	Hook Reel Driver
268	167098	Hook Reel Driver Push Rod
269	51306	Hook Body Thread Guard Screw (4)
270	167274	Hook Stripper Finger Thread Guard
271	167043	Thread Wiper Nos. 330, 39453, 63837, 141084, 141574, 167039, 167174, 239336 and 239387 (Agents only)
272	167135	Hook Shaft
273	50169	Hook Body Starting Thread Spring Screw (2)
274	167133	Hook Body Starting Thread Restricting Spring
275	167131	Hook Body with two 200
276	200	Hook Body Set Screw (2)

CODE NO.	PART NO.	DESCRIPTION
277	167128	Hook Reel Thread Stripper Finger
278	167293	Hook Shaft 167135 with 141165, 167095, 167112, 167129, 167131, 167133, 167191 and two each 50164 and 50169
279	1053	Hook Body Section Screw (2)
280	167132	Hook Body Section
281	167273	Hook Body Thread Guard
282	239346	Vertical Drive Shaft Bushing (upper)
283	141076	Hook Shaft Bushing (front and rear) Set Screw (2)
284	167139	Hook Shaft Bushing (front) Oil Pad (felt)
285	167136	Hook Shaft Bushing (front)for Agents
286	167137	Hook Shaft Bushing (front) Pin
287	167138	Hook Shaft Bushing (front) Pin Retaining Ring
288	167129	Hook Reel Thread Stripper Finger Spring
289	50164	Hook Reel Thread Stripper Finger Spring Screw (2)
290	167140	Hook Shaft Bushing (rear) (for Agents)
291	167254	Hook Shaft Bushing (rear) Thrust Collar with 141137
292	141137	Hook Shaft Bushing (rear) Thrust Collar Screw
293	167141	Hook Shaft Bevel Gear with two 1259
294	1259	Hook Shaft Bevel Gear Set Screw(2)
295	167112	Hook Reel Driver Push Rod Spring
296	167050	Feed and Knife Driving Cam Gear Bracket
297	239522	Feed and Knife Driving Cam Supporting Gear with 239245
298	239245	Feed and Knife Driving Cam Supporting Gear Cam Pin
299	167275	Feed and Knife Driving Cam with two each 167030, 167036, 167234 and four each 140352, 167235 and six 141085
300	167030	Hook Reel Driver Tripping Point
301	167036	Hook Reel Driver Tripping Point Extension (2)
302	141085	Hook Reel Driver Tripping Point Screw (2)
302	141085	Hook Reel Driver Tripping Point Extension Screw (4)
303	167234	Feed and Knife Driving Cam Tripping Point (2)
304	167235	Feed and Knife Driving Cam Tripping Point Washer (4)
305	140352	Feed and Knife Driving Cam Tripping Point Screw (4)
306	210805	Feed and Knife Driving Cam Mounting Screw Washer (3)
307	350600	Feed and Knife Driving Cam Mounting Screw (3)
308	202005	Feed and Knife Driving Cam Supporting Gear Bracket Washer
309	141069	Feed and Knife Driving Cam Bracket Screw
310	141070	Feed and Knife Driving Cam Gear Screw
311	167161	Stop Motion Brake Shoe Support Bracket 167159 with 50446, 141101, 223812, 239513 and 239557
312	141101	Stop Motion Brake Shoe Support Bracket Screw
313	223812	Stop Motion Brake Shoe Support Spring
314	239513	Stop Motion Brake Shoe Support Bracket Stud (eccentric)
315	50446	Stop Motion Brake Shoe Hinge Screw
316	239557	Stop Motion Brake Shoe Support Nos. 239554, 239556 and two 239555
317	239554	Stop Motion Brake Shoe
318	239555	Stop Motion Brake Shoe Rivet (2)
319	239556	Stop Motion Brake Shoe Support
320	167159	Stop Motion Brake Shoe Support Bracket with 171 and 201
321	171	Stop Motion Brake Shoe Clamping Screw
322	201	Stop Motion Brake Shoe Stud Screw
323	167229	Stop Motion Brake Shoe Support Bracket Pressure Spring
324	239512	Stop Motion Brake Shoe Support Bracket Pressure Spring Sleeve
325	167299	Starting Lever Lifting Rod Lever Arm Extension 167298 with 1611, 141209, 167300 and 167301
325A	141209	Starting Lever Lifting Rod Extension Dog Screw
325B	167301	Starting Lever Lifting Rod Lever Arm Return Spring
325C	167298	Starting Lever Lifting Rod Lever Arm Extension with 170 and 846
325D	1611	Starting Lever Extension Dog Nut
325E	167300	Starting Lever Lifting Rod Lever Arm Dog
325F	170	Starting Lever Screw Stud (lower)

CODE NO.	PART NO.	DESCRIPTION
325G	846	Starting Lever Lifting Rod Stop Screw
326	141100	Starting Lever Rod Hinge Screw
327	167144	Starting Bell Crank 167143 with 51657, 53617, 167154 and 167155
328	167143	Starting Bell Crank
329	167154	Starting Lever Starting Rod
330	53617	Starting Lever Starting Rod Lock Nut
331	167155	Starting Lever Starting Rod Adjuster
332	51657	Starting Lever Rod Nut
333	167295	Starting Lever Arm (operated) with 1655, 167296 and 350600
333A	1655	Starting Lever Arm Nut
333B	167296	Starting Lever Arm (operated) Tripper (screw)
333C	350600	Starting Lever Arm (operated) Key Clamping Screw
334	141095	Starting Bell Crank Hinge Screw
335	239299	Starting Lever Arm Lifting Rod
336	239487	Starting Lever Lifting Rod
337	167148	Starting Lever Arm Key
339	1513	Machine Pulley (loose) Lock Nut
341	141098	Starting Lever Lifting Rod Stud Screw
342	167146	Starting Lever 167145 with 239159, 239307 and two each 141099 and 214053
343	239307	Starting Lever Stop Cam Interlocking Arm Retaining Ring
344	167145	Starting Lever with 141077
345	239159	Starting Lever Stop Cam Interlocking Arm
346	141099	Starting Lever Screw Stud (upper) (2)
347	214053	Starting Lever Return Spring (2)
348	141077	Starting Lever Arm Bushing Set Screw
349	167150	Starting Lever Arm and Rock Shaft 167151 with 170, 1664, and 140427
350	1664	Starting Lever Arm and Rock Shaft Nut
351	140427	Starting Lever Arm and Rock Shaft Stud
352	170	Return Spring Screw Stud (lower)
353	167151	Starting Lever Arm and Rock Shaft
354	239315	Machine Pulley (loose) Retaining Ring
355	239382	Machine Pulley (loose) Starting Cap Needle Plate
356	239526	Machine Pulley (loose) Starting Cap Needle Thrust Bearing
357	239525	Machine Pulley (loose) Starting Cap Needle Button
358	239524	Machine Pulley (loose) Starting Cap
359	239379	Machine Pulley (loose) Engaging Arm with 239320, 239321 and 350600
360	239321	Machine Pulley (loose) Engaging Arm Wear Block Pin
361	239320	Machine Pulley (loose) Engaging Arm Wear Block
362	350600	Machine Pulley (loose) Engaging Arm Clamping Screw
363	167084	Machine Pulley (loose) Arm Stud
364	167156	Starting Lever Stop Cam Interlocking Arm Stop Rod 239520 with 167157 two 1518, and four each 2807 and 131022 (Agents only)
365	239520	Starting Lever Stop Cam Interlocking Arm Stop Rod complete, Nos. 202342, 239517, 239518 and 239519 (Agents only)
365A	202342	Starting Lever Stop Cam Arm Stop Rod Hinge Pin Tension Spring
366	239518	Starting Lever Stop Cam Interlocking Arm Stop Rod Hinge Pin
367	239519	Starting Lever Stop Cam Interlocking Arm Stop Rod Hinge Pin Retainer
368	167157	Starting Lever Stop Cam Interlocking Arm Stop Rod Swivel
369	239517	Starting Lever Stop Cam Interlocking Arm Stop Rod
370	131022	Starting Lever Stop Cam Bumper (rubber) (4)
371	2807	Starting Lever Stop Cam Interlocking Arm Stop Rod Bumper Separating Washer (4)
372	1518	Starting Lever Stop Cam Rod Nut(2)
373	167160	Starting Lever Stop Cam Interlocking Arm Stop Row Swivel Ring
374	141060	Arm Cover (side) Screw (4)
375	239223	Arm Cover (side)
376	141076	Lateral Rock Shaft Driven Arm Set Screw
376	141076	Longitudinal Rock Shaft Driven Arm Set Screw
377	167111	Hook Reel Driver Push Rod Connection complete, Nos. 197, 53615, 167102, 167103, 167105 167109, 167110 and 167288

CODE NO.	PART NO.	DESCRIPTION
378	167103	Hook Reel Driver Push Rod Lever Block
379	197	Hook Reel Driver Lock Screw
380	167105	Hook Reel Driver Push Rod Connection Lock
381	167110	Hook Reel Driver Push Rod Connection Spring
382	167102	Hook Reel Driver Push Rod Lever Bearing (Nylon)
383	167288	Hook Reel Driver Push Rod Lever Connection Pin
384	167109	Hook Reel Driver Push Rod Connection Rod (outer)
385	53615	Rotating Hook Reel Driver Connection Nut
386	239267	Lateral Rock Shaft Driven Arm Hinge Stud with 202423
386	239267	Longitudinal Rock Shaft Driven Arm Hinge Stud with 202423
387	202423	Longitudinal Rock Shaft Driven Arm Hinge Stud Oil Packing Wick
387	202423	Lateral Rock Shaft Driven Arm Stud Oil Packing Wick
388	239583	Lateral Rock Shaft Driven Arm
389	239574	Lateral Rock Shaft Driving Arm Guide Block
389	239574	Longitudinal Rock Shaft Driving Arm Guide Block
390	167048	Lateral Rock Shaft Driving Arm Stud
390	167048	Longitudinal Rock Shaft Driving Arm Stud
391	239268	Lateral Rock Shaft Driving Arm with 350604
391	239268	Longitudinal Rock Shaft Driving Arm with 350604
392	350604	Lateral Rock Shaft Driving Arm Clamping Screw
392	350604	Longitudinal Rock Shaft Driving Arm Clamping Screw
393	210805	Longitudinal Rock Shaft Driving Arm Screw Stud Washer
393	210805	Lateral Rock Shaft Driving Arm Washer
394	53612	Lateral Driving Arm Stud Nut
394	53612	Longitudinal Driving Arm Stud Nut
395	239384	Longitudinal Rock Shaft
396	167078	Lateral Rock Shaft Collar with two 624
396	167078	Longitudinal Rock Shaft Collar with two 624
397	624	Lateral Rock Shaft Collar Set Screw (2)
397	624	Longitudinal Rock Shaft Collar Set Screw (2)
398	51951	Lateral Rock Shaft Roller and Stud Nos. 1655 and 37310
398	51951	Longitudinal Rock Shaft Roller and Stud Nos. 1655 and 37310
399	1655	Lateral Stud Nut
399	1655	Longitudinal Stud Nut
400	37310	Longitudinal Rock Shaft Cam Follower Washer
400	37310	Lateral Rock Shaft Cam Follower Washer
401	239234	Cylinder Cover (side)
402	1454	Cylinder Cover (side) Screw (2)
403	225837	Feed and Knife Driving Cam Follower Arm Roller Washer
404	1521	Feed and Knife Driving Cam Stud Nut
405	141067	Cylinder Base Locking Screw
406	141069	Cylinder Screw (2)
406	141069	Arm Screw (3)
407	239301	Starting Lever Arm Bushing
407A	167297	Starting Lever Lifting Rod Lever Arm
408	167076	Lateral Pivot Driving Arm 167075 with 1519, 141075 and 239266
409	141075	Lateral Rock Shaft Driving Link Screw
410	239266	Lateral Rock Shaft Driven Arm Driving Link
411	1519	Lateral Rock Shaft Driven Arm Screw Nut
412	167075	Lateral Pivot Driving Arm with 350600
413	350600	Lateral Pivot Driving Arm Clamping Screw
414	51948	Feed and Knife Driving Cam Arm Roller with 1521 and 225837
415	239132-001	Lateral Feed Plate Carrier Bar Positioner
416	141093	Tripping Rock Shaft Support Set Screw
417	239341	Tripping Rock Shaft Connection with 350606
418	350606	Tripping Rock Shaft Connection Clamping Screw
419	239344	Tripping Rock Shaft Support
420	167182	Tripping Rock Shaft Collar with two 460
421	167062	Knife (movable) Bar Driving Lever with 1177
422	141211	Hook Reel Driver Tripping Lever Screw (3)
423	460	Tripping Rock Shaft Collar Set Screw (2)
424	239363	Knife (movable) Bar Actuating Rock Shaft Bracket Locating Pin
425	54369	Hook Reel Driver Tripping Lever Shaft Collar with two 465
426	465	Hook Reel Driver Collar Set Screw (2)
427	167101	Hook Reel Driver Push Rod Lever with 197, 167285 and 350604
428	350604	Hook Reel Driver Push Rod Lever Clamping Screw
428A	197	Hook Reel Driver Lock Spring Screw
428B	167285	Hook Reel Driver Push Rod Lever Lock Spring
430	16532	Arm Position Pin (2)
430	16532	Cylinder Position Pin (2)
431	167117	Hook Reel Driver Tripping Lever Shaft Bracket
432	239256	Knife (movable) Bar Actuating Rock Shaft Bracket
433	239255	Knife (movable) Bar Actuating Rock Shaft
434	167047	Feed and Knife Driving Cam Follower Arm Link
435	167046	Feed and Knife Driving Cam Follower Arm with 167047 and 239240
436	239240	Feed and Knife Driving Cam Follower Arm Link Hinge Stud
437	13288	Feed and Knife Driving Cam Follower Arm Link Retaining Ring
438	239361	Feed and Knife Driving Cam Follower Arm Hinge Stud
439	167181	Tripping Rock Shaft
440	239343	Tripping Rock Shaft Lever Arm
441	704	Tripping Rock Shaft Lever Arm Screw
442	167116	Hook Reel Driver Tripping Lever Shaft
443	167115	Hook Reel Driver Tripping Point Lever with 141083
444	140183	Hook Reel Driver Tripping Lever Screw
445	167040	Cylinder Cover Blower Connection Tube Bracket
446	1460	Cylinder Cover Blower Bracket Screw (2)
447	141077	Feed and Knife Driving Cam Follower Set Screw
448	239264	Lateral Rock Shaft
450	141066	Cylinder Base Locating Screw (4)
454	239583	Longitudinal Rock Shaft Driven Arm
457	167290	Hook Reel Driver Tripping Lever Shaft Bracket Shim (upper)
458	167289	Hook Reel Driver Trip Lever Shaft Bracket Shim (lower)
459	1177	Knife (movable) Driving Lever Clamping Screw
459	1177	Knife (movable) Shaft Bracket Screw (2)
460	202603	Thread Deflector Finger Plate Screw Washer (2)

LIST OF PARTS 270-33 MACHINE

The same as Machine 270-37 except for the following:

151	167077	Vertical Drive Shaft Worm with 797 and 141102 in place of 167142
245	167079	Vertical Drive Shaft Worm Gear with 858 and 141094 in place of 167149
299	167327	Feed and Knife Driving Cam with two each 167030, 167036, 167234, four each 140352, 167235 and six 141085 in place of 167275

SUPPLEMENTARY PARTS LIST FOR
SINGER
MACHINE NO. 270-31

Same as 270-37 Machine, except for the following:

PARTS ADDED	DESCRIPTION	PARTS REMOVED
167333	Feed and Knife Driving Cam with four each 167030, 167036, 167234, eight each 140352(830), 167235 and twelve 141085	167275 (Code No. 299)
167077	Vertical Drive Shaft Worm with 141407(869) and 141408(869)	167142 (Code No. 151)
167079	Vertical Drive Shaft Worm Gear with 141407(869) and 141408(869)	167149 (Code No. 245)
124649	Feed Plate	167028 (Code No. 82)
1654(809)	Feed Plate Nut	--
239573	Feed Plate Carrier Bar with two 239448	167029 (Code No. 80)
124647	Clamp complete, Nos. 1656(809), 17927 and 124646	167325 (Code No. 46)
1656(809)	Clamp Thumb Nut	--
17927	Clamp Arm with 17714 and 68799	--
17714	Clamp Pressure Spring Guide Block	--
68799	Clamp Arm Hook	--
124646	Clamp with 1220(805) and 17928	--
1220(805)	Clamp Screw Stud	--
17928	Clamp Position Stud	--

NUMERICAL LIST OF PARTS FOR QUICK CHANGE MECHANISM NO. 167330

PART NO.	DESCRIPTION
1266(830)	Lateral Rock Driving Arm Screw Stud Locking Screw
1266(830)	Longitudinal Rock Shaft Driving Arm Screw Stud Locking Screw
1620(805)	Lateral Adjusting Lever Hinge Screw Nut
1620(805)	Longitudinal Adjusting Lever Handle Hinge Screw Nut
1654(803)	Longitudinal Adjusting Lever Hinge Screw Nut
2018	Lateral Adjusting Lever Spacing Washer
53626(803)	Lateral Rock Shaft Driving Arm Screw Stud Nut
53626(803)	Longitudinal Rock Shaft Driving Screw Stud Nut
58715	Lateral Rock Shaft Driving Arm Screw Stud Nut Washer
58715	Longitudinal Rock Shaft Driving Arm Screw Stud Nut Washer
141545(803)	Lateral Adjusting Lever Hinge Screw
141545(803)	Longitudinal Adjusting Lever Handle Hinge Screw
141550(803)	Longitudinal Adjusting Lever Hinge Screw
167329	Longitudinal Adjusting Lever (with numbers and graduations)
167335	Lateral Rock Shaft Driving Arm Screw Stud
167335	Longitudinal Rock Shaft Driving Arm Screw Stud
202248	Lateral Adjusting Lever Hinge Screw Friction Washer
202248	Longitudinal Adjusting Lever Handle Hinge Screw Friction Washer
202622	Lateral Adjusting Lever Hinge Screw Nut Washer
202622	Longitudinal Adjusting Lever Handle Hinge Screw Nut Washer
202622	Longitudinal Adjusting Lever Handle Spacing Washer
239533	Cylinder Cover (side)
239534	Lateral Adjusting Lever
239536	Longitudinal Adjusting Lever Handle
154308	Set of Gauges (Complete) with 154305, 154306, 154307, 154354 and 154355 (furnished upon request at additional charge)
154305	Gauge Pin
154306	Gauge Pin Extension
154307	Gauge Pin Setting Cam
154354	Gauge Pin 154305 with 154355
154355	Gauge Pin Spring Plunger for 154354

PARTS CHART FOR
QUICK CHANGE MECHANISM NO. 167330